UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-K

(Mark One)

[X] **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2018

or

[ ] **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission file number: 001-34951

Xtant Medical Holdings, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	20-5313323
(State or other jurisdiction of incorporation or organization)	(IRS Employer Identification No.)
664 Cruiser Lane Belgrade, Montana	59714
(Address of Principal Executive Offices)	(Zip Code)

(406) 388-0480

(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common stock, par value $.000001 per share	NYSE American LLC

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes [ ] No [X]

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes [ ] No [X]

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes [X] No [ ]

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes [X] No [ ]

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [ ]

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" or "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	[ ]	Accelerated filer	[ ]
Non-accelerated filer	[ ]	Smaller reporting company	[X]
		Emerging growth company	[ ]

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. [ ]

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes [ ] No [X]

The aggregate market value of the common stock held by non-affiliates as of June 30, 2018 was $21.9 million (based on the closing price of the Company's common stock on the last business day of the Company's most recently completed second fiscal quarter, as reported on the NYSE American).

The number of shares of the Company's common stock, $0.000001 par value, outstanding as of March 29, 2019 was 13,161,762.

DOCUMENTS INCORPORATED BY REFERENCE

Part III of this Annual Report on Form 10-K incorporates by reference information (to the extent specific sections are referred to herein) from the registrant's definitive proxy statement for its 2019 Annual Meeting of Stockholders or an amendment to this Annual Report on Form 10-K, in any case, to be filed within 120 days of the end of the period covered by this report.

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CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

The statements contained in this Form 10-K that are not purely historical are forward-looking statements within the meaning of applicable securities laws. Our forward-looking statements include, but are not limited to, statements regarding our "expectations," "hopes," "beliefs," "intentions," or "strategies" regarding the future. In addition, any statements that refer to projections, forecasts, or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. The words "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "might," "plan," "possible," "potential," "predict," "project," "should" and "would," as well as similar expressions, may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward looking. Forward-looking statements in this Form 10-K may include, for example, statements about:

- our ability to comply with the covenants in our amended and restated credit agreement;
- our ability to maintain sufficient liquidity to fund our operations;
- our ability to obtain financing on reasonable terms;
- our ability to increase or maintain revenue;
- the ability of our sales force to achieve expected results;
- our ability to remain competitive;
- government regulations;
- our ability to innovate and develop new products;
- our ability to obtain donor cadavers for our products;
- our ability to engage and retain qualified technical personnel and members of our management team;
- the availability of our facilities;
- government and third-party coverage and reimbursement for our products;
- our ability to obtain and maintain regulatory approvals;
- our ability to successfully integrate future business combinations or acquisitions;
- our ability to use our net operating loss carry-forwards to offset future taxable income;
- our ability to deduct all or a portion of the interest payments on the notes for U.S. Federal income tax purposes;
- our ability to service our debt;
- product liability claims and other litigation to which we may be subjected;
- product recalls and defects;
- timing and results of clinical studies;
- our ability to obtain and protect our intellectual property and proprietary rights;
- infringement and ownership of intellectual property;
- our ability to remain accredited with the American Association of Tissue Banks; and
- our ability to maintain our stock listing on the NYSE American Exchange.

The forward-looking statements contained in this Form 10-K are based on our current expectations and beliefs concerning future developments and their potential effects on us. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements involve a number of risks, uncertainties, or assumptions, many of which are beyond our control, which may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, those factors described in the "Risk Factors" section of this Form 10-K. Should one or more of these risks or uncertainties materialize, or should any of our assumptions prove incorrect, actual results may vary in material respects from those projected in these forward-looking statements. We undertake no obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise, except as may be required under applicable securities laws.

PART I

Item 1. Business

Overview of Our Business

Xtant Medical Holdings, Inc. is a global medical technology company focused on the design, development, and commercialization of a comprehensive portfolio of orthobiologics and spinal implants. Our products are used by orthopedic spine surgeons and neurosurgeons to treat a variety of spinal disorders in the cervical, thoracolumbar, and interbody spine.

Our Offices

Our headquarters and manufacturing facility are located at 664 Cruiser Lane, Belgrade, Montana 59714. Our telephone number is (406) 388-0480. We also have two other facilities on the Montana campus, located at 600 Cruiser Lane, Belgrade, Montana 59714, and at 732 Cruiser Lane, Belgrade, Montana 59714. All our properties are leased.

Our Corporate History

We began operations in 1998 as a spin out of the Center for Biofilm Engineering at Montana State University, or the CBE, and incorporated as "Bacterin, Inc." in the state of Montana in January 2000. Through a series of transactions and corporate events, we eventually became Bacterin International Holdings, Inc. ("Bacterin"), which on March 7, 2011, began trading our common stock on the NYSE Amex, now known as the NYSE American under the ticker symbol "BONE."

On July 31, 2015, we acquired all of the outstanding capital stock of X-spine Systems, Inc. ("X-spine") for approximately $60 million in cash, repayment of approximately $13 million of X-spine debt, and approximately 4.24 million shares (0.4 million shares post reverse split) of Xtant common stock. X-spine is engaged in the development, manufacturing and sale of implants and medical devices for use in orthopedic spinal surgeries. As a result of this transaction, X-spine became a wholly owned subsidiary of Bacterin International Holdings, Inc.

At the close of business on July 31, 2015, we changed our corporate name to "Xtant Medical Holdings, Inc." On August 6, 2015, Xtant formed a new wholly owned subsidiary, Xtant Medical, Inc., a Delaware corporation to facilitate the integration of Bacterin and X-spine. On October 15, 2015, our common stock began trading on the NYSE MKT under the ticker symbol "XTNT." X-spine is engaged in the development, manufacturing and sale of implants and medical devices for use in orthopedic spinal surgeries. Xtant, Bacterin and X-spine are jointly referred to herein as the "Company".

On May 8, 2017, the Company entered into an agreement with Aurora Management Partners Inc. ("Aurora") to assist us in restructuring efforts. Pursuant to this agreement, David Baker served as Chief Restructuring Officer of the Company and certain additional Aurora personnel, referred to as Deputy Restructuring Officers, assisted in the restructuring efforts. As part of our restructuring, we completed a significant debt restructuring in the beginning of 2018 pursuant to which then outstanding indebtedness amounting to an aggregate of $76.6 million in principal, together with accrued and unpaid interest, was converted into shares of our common stock and we issued an additional 946 thousand shares of common stock to certain of our lenders in a private placement. As a result of this debt restructuring, ROS Acquisition Offshore LP ("ROS") and OrbiMed Royalty Opportunities II, LP ("Royalty Opportunities" and together with ROS, our "lenders"), which are funds affiliated with OrbiMed Advisors LLC ("OrbiMed"), collectively own approximately 70% of our outstanding common stock. Although our agreement with Aurora terminated on November 8, 2018 and David Baker no longer serves as Chief Restructuring Officer, certain Aurora personnel continue to provide financial and accounting assistance to us under a separate agreement.

Industry and Market Overview

The orthopedic biomaterials market consists of materials that are organic, inorganic or synthetic in nature. These materials are implanted or applied in or near the indicated bone to facilitate healing, encourage bone tissue augmentation, compensate in areas where bone tissue is depleted and restore structure to allow for repair. Orthopedic biomaterials are capable of producing specific biological action or regenerative responses that are beyond what is observed in normal healing. These materials are often used as substitutes to autograft materials, which are taken from a harvest site in the patient to patch or repair the wounded or unhealthy site.

Fixation is often instrumental in allowing the body to heal and regenerate tissue. It provides the constructive support necessary for reestablishing stability, by immobilizing the regenerative site, and relieving stress. Fixation can also help hold the biomaterial in place in order to achieve a better outcome. Examples of fixation products can include, but is not limited to, plates, screws, pins, rods, spacers, and staples, and may be made from various metals and polymer materials.

How We Compete

We believe the following allow us to compete in the marketplace:

- *Broad Portfolio of Products*: We have a comprehensive portfolio of products that address a broad array of spinal pathologies, anatomies and surgical approaches in the complex spine and minimally invasive surgery ("MIS") markets. To protect company innovative technologies and techniques, we maintain and plan to continue to grow our intellectual property portfolio.

- *Customer Service*: Responding quickly and efficiently to the needs of patients, surgeons and hospitals is central to our corporate culture and critical to our success. Our supply chain and customer service teams work together to make sure that the right product and instrumentation is in the right place at the right time. Through such vertically integrated processes, we strive to meet the changing needs of our customers.

- *National Distribution Network*: Xtant has built a distribution channel function calling on orthopedic surgeons, neuro surgeons, their staff and the hospital administrators that support them. Over 300 commissioned independent agents and stocking agents in the United States represent some or all of Xtant's products. We also maintain a national accounts program to enable our agents to gain access to independent health delivery network hospitals and through group purchasing organizations.

Our Orthobiologics Products

Our biomaterial products include OsteoSponge®, OsteoSponge® SC, OsteoSelect® DBM putty, OsteoSelect Plus DBM putty, OsteoWrap®, OsteoSTX®, and our new line of 3Demin® products, as described below, as well as other allografts:

- OsteoSponge is a form of demineralized bone matrix made from 100% human bone. Derived from trabecular (cancellous) bone, OsteoSponge provides a natural scaffold for cellular in-growth and exposes bone-forming proteins to the healing environment. The malleable properties of OsteoSponge enable it to conform to, and fill, most defects. Upon compressing the allograft, OsteoSponge springs back to completely fill the void. Its unique mechanical and biological properties make OsteoSponge an ideal bone graft for use in various orthopedic practices including spine, neurology, cranial/maxillofacial, trauma, plastic/reconstruction and general procedures where new bone growth is needed.

- OsteoSponge SC is a form of OsteoSponge designed to fill bony defects in the subchondral region of joints. We have received permission from the U.S. Food and Drug Administration ("FDA"), which is a Federal agency of the United States Department of Health and Human Services, to market this product as a subchondral bone void filler and are currently marketing it as such.

- OsteoSelect DBM Putty is engineered with the surgeon in mind. With outstanding handling characteristics, OsteoSelect is designed to be easily molded into any shape and compressed into bony voids. Bacterin has validated a low-dose, low-temperature gamma sterilization process to provide maximum osteoinductive potential while still affording device level sterility. Every production batch of OsteoSelect is tested for osteoinductive bone growth characteristics allowing us to make that unique marketing claim.

- OsteoSelect PLUS combines the exceptional cohesive characteristics of OsteoSelect DBM Putty with demineralized cortical chunks. OsteoSelect PLUS is designed to deliver differentiated handling properties and insure patient safety through validated, terminal sterilization. Each lot of OsteoSelect PLUS DBM is tested for osteoinductivity in vivo prior to being released. OsteoSelect PLUS is indicated as a bone void filler and bone graft substitute in the pelvis, extremities, and posterolateral spine.

- OsteoWrap is 100% human cortical bone demineralized through a proprietary process to make the graft flexible while maintaining allograft integrity. This product has various applications in orthopedic, neurological, trauma, oral/maxillofacial and reconstructive procedures. OsteoWrap can wrap around non-union fractures to assist with fusion, can act as a biologic plate or can be used in conjunction with a hardware plate system. Additionally, this product provides the surgeon with superior handling characteristics as the allograft can be easily sized using surgical scissors or a scalpel and will withhold sutures or staples for fixation.

- OsteoSTX are demineralized cortical sticks processed from human allograft bone. Utilizing our patented demineralization technology, the grafts are flexible and feature osteoinductive properties. The nature of demineralized cortical bone provides all the necessary elements for bone regeneration. OsteoSTX are designed for posterolateral spine surgery applications ranging from one-level to multi-level fusions, including scoliosis procedures.

- 3Demin is a family of allografts that maximizes osteoconductivity and the osteoinductive potential of human bone. They consist of 100% demineralized cortical bone with excellent, malleable handling characteristics, and are distributed as a sterile allograft. Bacterin's 3Demin products are easily hydrated with any biocompatible liquid, making them an ideal option for various bone grafting applications. They are most commonly used in spinal fusion procedures.

All of our biologics are terminally sterilized and packaged to enhance the safety of our grafts for our physician customers and their patients.

We also process and distribute (i) sports allografts which are processed specifically for anterior and posterior cruciate ligament repairs, anterior cruciate ligament reconstruction and meniscal repair, (ii) milled spinal allografts which are comprised of cortical bone milled to desired shapes and dimensions, and (iii) traditional allografts for multi-disciplinary applications including orthopedics, neurology, podiatry, oral/maxillofacial, genitourinary and plastic/reconstructive.

Our related biologic products are described in multiple physician-initiated studies that continue to prove expanded indications for their use. These documents are available through our website at www.xtantmedical.com. Information contained on our website does not constitute part of this Form 10-K.

Our Spinal Implant Products

We offer a comprehensive line of products that are used to treat a variety of spinal and sacroiliac conditions, including trauma, degeneration, deformity and tumor, including use of Minimally Invasive Surgery techniques. Some of our key spinal implant product lines include:

Cervical Products

- The CertexTM Spinal Fixation System consists of screws, hooks, rods, and cross connectors. Various sizes of these implants are available so that adaptations can be made to take into account pathology and individual patient anatomy. It is intended to promote fusion of the subaxial cervical spine and cervico-thoracic junction (C3 − T3 inclusive).

- The Spider® Cervical Plating System consists of simple, single step locking with 3 forms of locking feedback providing confidence in Spider System construct and performance. Self-drilling screws preserve cancellous bone for secure screw purchase. If drilling is desired, instruments offer optional drill guides and drill bits. A full sweep of 15° angulation can be achieved with Spider System variable screws.

Thoracolumbar Products

- The Axle® Interspinous Fusion System is a fully modular interspinous device matched to the patient's individual anatomy and available in multiple implantable configurations.

- The Silex® Sacroiliac Joint Fusion System is a sacroiliac fixation system which actively compresses across the SI joint. Sacroiliac dysfunction is increasingly recognized as a frequent contributor to chronic low back pain.

- The XpressTM Minimally Invasive Pedicle Screw System combines minimally invasive functionality to the most common lumbar fixation procedures — pedicle screw fixation.

- The Fortex® Pedicle Screw System consists of titanium alloy bone screws, rods, cross-connectors and associated instruments. The system is indicated for attachment to the pedicles of the thoracic, lumbar, and sacral spine.

Interbody Products

- Calix® is a family of PEEK interbody spacers and precision instruments for both, cervical and thoracolumbar applications. Calix PC is a frictional titanium plasma-coated PEEK implant that provides additional biomechanical performance and end-plate visualization.

- The Axle-XTM Interspinous Fusion System is an internal fixation device for spinal surgery in the non-cervical spine (T1 − S1 inclusive). It is a minimally invasive, modular interspinous fusion system with angled spikes that allows for adequate L5 − S1 engagement and other variations in patient anatomy. The Axle-X Interspinous Fusion System is designed to provide spinal stability for lumbar fusion procedures, including the treatment of degenerative disc disease, spinal tumors and trauma.

- The Irix-CTM Cervical Integrated Fusion System consists of an integrated titanium ring, surrounded by an outer PEEK ring and two screws. It is intended for spinal fusion procedures at one level (C3 − T1 inclusive) in skeletally mature patients for the treatment of degenerative disc disease.

- The Irix-ATM Lumbar Integrated Fusion System consists of an integrated titanium ring, surrounded by an outer PEEK ring and three screws. It is intended for spinal fusion procedures at one or two contiguous levels of the lumbosacral spine (L2 − S1 inclusive) in skeletally mature patients for the treatment of degenerative disc disease.

Technology and Intellectual Property

We rely upon patents, trademarks, and trade secrets to maintain and improve our competitive position. We review third-party proprietary rights, including patents and patent applications, as available, to develop an effective intellectual property strategy, avoid infringement of third-party proprietary rights, identify licensing opportunities and monitor the intellectual property owned by others.

Patents

Our policy is to file patent applications in the United States and other countries when we believe it is commercially advantageous to do so. We do not consider our business to be materially dependent upon any individual patent.

As of December 31, 2018, our fixation patent portfolio includes over 53 issued patents globally and 1 patent application pending, and our biologics patent portfolio includes over 14 issued patents globally and over 12 patent applications pending.

We expect that additional patent applications will be filed and prosecuted as inventions are discovered, technological improvements and processes are developed, and specific applications are identified. There can be no assurance that we will be able to obtain final approval of any patents.

Trademarks

We have registered, and continue to seek registration, of trademarks and continuously monitor and aggressively pursue users of names and marks that potentially infringe upon our registered trademarks. We currently own the following registered trademarks under the Bacterin name: OsteoSponge ®, OsteoVine ®, OsteoWrap ®, OsteoLock ®, BacFast ®, OsteoSelect ®, Elutia ®, OsteoSTX ®, hMatrix ®, 3Demin®, BACTERINSE ®, and Circle of Life ®. Under the X-spine name, we own the following registered trademarks: SILEX®, X-SPINE®, IRIX®, CAPLESS®, CERTEX®, CALIX®, H-GRAFT®, SPIDER, X90®, HYDRAGRAFT®, BUTREX®, FORTEX®, AXLE®, FIXCET®, Capless® and X-spine's square design logo.

Trade Secrets

To safeguard our proprietary knowledge and technology, we rely upon trade secret protection and non-disclosure/confidentiality agreements with employees, consultants and third-party collaboration partners with access to our confidential information. There can be no assurance, however, that these measures will adequately protect against the unauthorized disclosure or use of confidential information, or that third parties will not be able to independently develop similar technology. Additionally, there can be no assurance that any agreements concerning confidentiality and non-disclosure will not be breached, or if breached, that we will have an adequate remedy to protect us against losses. Although we believe our proprietary technology has value, because of rapid technological changes in the medical industry, we also believe that proprietary protection is of less significance than factors such as the intrinsic knowledge and experience of our management, advisory board, consultants and personnel and their ability to identify unmet market needs and to create, invent, develop and market innovative and differentiated products.

Donor Procurement

We have agreements with multiple recovery agencies, and we continue to expand our network for access to donor tissue in anticipation of increased demand. We expect to be able to continue to build our network for donor tissue as our processing capabilities and sales increase.

Sales and Marketing

We distribute our products in the United States through a distribution network of over 300 commissioned independent sales agents and stocking agents. We also maintain a national accounts program to enable our agents to gain access to independent health delivery network hospitals and through group purchasing organizations.

Our international footprint includes distribution partners in Canada, Mexico, South America, Europe, Australia, and certain Pacific region countries.

Competition

There are various public and private organizations that offer both, fixation and orthobiologics to their customers. The market is dominated by large competitors including Medtronic plc, Johnson and Johnson, Zimmer Biomet Holdings, Inc., Nuvasive, Inc., and Globus Medical, Inc. Together, we believe these large competitors have almost 80% market share. We compete with these larger competitors and several others including RTI Surgical, Inc., SeaSpine Holdings Corporation, OrthoFix Medical Inc., Alphatec Holdings, Inc., as well as dozens of privately-owned companies. We also compete with tissue banks that do not offer spinal fixation products, such as AlloSource International, Inc., LifeNet Health, and MTF Biologics.

Government Regulation

We are registered with the FDA as a manufacturer of human cellular and tissue products ("HCT/Ps") as well as medical devices, and we are an accredited member in good standing of the American Association of Tissue Banks. We meet all licensing requirements for the distribution of HCT/Ps in states with licensing requirements, including Florida, California, Delaware, Illinois, Louisiana, Maryland, Oregon, and New York. Our industry is highly regulated, and we cannot predict the impact of future regulations on either us or our customers.

Our fixation products and instrumentation systems are regulated as medical devices and therefore are subject to extensive regulation by the FDA, as well as by other domestic and international regulatory bodies. These regulations govern multiple activities that Xtant and suppliers, licensors and partners perform and will continue to perform. These regulated activities include product design and development, testing, manufacturing, labeling, storage, safety, premarket clearance, advertising and promotion, product marketing, sales and distribution, post-market surveillance and post-market adverse event reporting. All products currently marketed by Xtant are regulated as HCT/Ps or have received 510(k) clearances.

Human Tissue

Human tissue products have been regulated by the FDA since 1993. In May 2005, three new comprehensive regulations went into effect that address manufacturing activities associated with HCT/Ps. The first requires that companies that produce and distribute HCT/Ps register with the FDA. The second provides criteria that must be met for donors to be eligible to donate tissues and is referred to as the "Donor Eligibility" rule. The third rule governs the processing and distribution of the tissues and is often referred to as the "Current Good Tissue Practices" rule. Together, they are designed to ensure that sound, high quality practices are followed to reduce the risk of tissue contamination and communicable disease transmission to recipients. Several of our products including OsteoSponge and OsteoWrap are regulated as HCT/Ps as determined by the Tissue Reference Group and regulated under Section 361 of the Public Health Service Act ("PHSA") and 21 CFR Part 1271.

Medical Devices

Our medical devices require the clearance of the FDA prior to sale within the United States. The FDA process requires a premarket notification, or a 510(k) submission, to the FDA to demonstrate that the medical device is safe and effective and is substantially equivalent to a legally marketed device that is not subject to premarket approval. Applicants must compare the device to one or more similar devices that are commercially available in the United States (known as the "predicate device") and make and support a claim of substantial equivalency to such predicate device. Support for such claims must include descriptive data and, when necessary, performance data. In some cases, data from clinical trials must also be submitted in support of a 510(k) submission. The FDA must then issue an order finding substantial equivalency before the devices may be commercially distributed in the United States. The Center for Devices and Radiological Health Division of the FDA governs HCT/Ps that are regulated as medical devices, including our OsteoSelect DBM putty.

The discussion of what data is needed is sometimes conducted in a formal process called the Pre-Submission process whereby companies meet with the FDA to discuss the data needed for clearance. If the FDA finds the applicant's device is substantially equivalent to the predicate device, it will send a letter to the applicant stating that fact. This allows the applicant's device to be commercially distributed in the United States. The Center for Devices and Radiological Health division of the FDA governs the clearance of conventional medical devices such as our spinal hardware as well as some of the HCT/Ps that are also regulated as medical devices, such as our OsteoSelect DBM putty.

Another procedure for obtaining marketing authorization for a medical device is the "de novo classification" procedure. If the FDA agrees that the device is substantially equivalent to a predicate device currently on the market, it will grant 510(k) clearance to commercially market the device. If the FDA determines that the device is "not substantially equivalent" to a previously cleared device, the device is automatically designated as a Class III device. The device sponsor must then fulfill more rigorous premarket approval or "PMA" requirements or can request a risk-based classification determination for the device in accordance with the "de novo" process, which is a route to market for novel medical devices that are low to moderate risk and are not substantially equivalent to a predicate device. A company files for a de novo approval when it does not have a predicate to which it can claim substantial equivalence. Once a de novo application is reviewed and approved, it results in the device having a Class II status and future devices from the company or a competitor may use the company de novo-approved device as a 510(k) predicate. A de novo approval is reserved for Class II moderate risk devices and a company must show that special controls can be created which subsequent applicants can follow to obtain a 510(k) clearance. The advantage of the de novo approval is that it requires less data than a PMA. The disadvantage is that it may require more data than a 510(k) and most often will include human clinical data. FDA is increasingly moving devices with slightly different proposed indication statements or different technological features off the 510(k) path and on to the de novo path resulting in more time and expense for the company.

The process of obtaining regulatory clearances or approvals to market a medical device can be costly and time-consuming, and we may not be able to obtain these clearances or approvals on a timely basis, if at all. Products that are approved through a PMA application generally need FDA approval before they can be modified. Similarly, some modifications made to products cleared through a 510(k) may require a new 510(k) or a PMA.

In the future, Xtant may decide to strategically commercialize products in the United States that would require a PMA, but there are no plans to do so at the present time. Clinical trials are almost always required to support a PMA.

International Regulation

Many foreign countries have regulatory bodies and restrictions similar to the FDA. International sales are subject to foreign government regulation, the requirements of which vary substantially from country to country. The time required to obtain approval in a foreign country or to obtain a CE Certificate of Conformity may be longer or shorter than that required for FDA approval and the related requirements may differ. Some third-world countries accept CE Certificates of Conformity or FDA clearance or approval as part of applications of approval for marketing of medical devices in their territory. Other countries, including Brazil, Canada, Australia and Japan, require separate regulatory filings.

To market our product devices in the member countries of the European Union, we are required to comply with the European Medical Device Directives and to obtain CE mark certification. CE mark certification is the European symbol of adherence to quality assurance standards and compliance with applicable European Medical Device Directives. Under the European Medical Device Directives, all medical devices must qualify for CE marking. To obtain authorization to affix the CE mark to one of our products, a recognized European Notified Body must assess our quality systems and the product's conformity to the requirements of the European Medical Device Directives. We are subject to inspection by the Notified Bodies for compliance with these requirements. In March 2019, our Notified Body informed us that we are at risk of losing our CE mark on several products for failing to comply with post market clinical follow up requirements. We are working with our Notified Body to remediate this nonconformance. There can be no assurance that we will be able to remediate this matter on a timeline that is satisfactory to the Notified Body. If this risk were to materialize, we may be required to remove the effected products from the EU market countries until remediation is complete.

The new European MDR intended to replace the current Medical Device Directives came into force May 2017. Manufacturers of approved medical devices will have until May 2020 to transition their devices to meet the requirements of the MDR. After May 2020, manufacturers are offered a grace period which further extends the transition time for some medical devices. We are currently reviewing our product portfolios, quality system and processes in an effort to meet the new regulations within the timeframes we are afforded, although no assurance can be provided that we will be able to do so. Our failure to meet these new regulations would cause us to lose our CE mark certification.

Healthcare Fraud and Abuse

Healthcare fraud and abuse laws apply to Xtant's business when a customer submits a claim for an item or service that is reimbursed under Medicare, Medicaid or most other federally-funded healthcare programs. The Federal Anti-Kickback Statute prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of, items or services for which payment may be made, in whole or in part, under federal health care programs, such as by Medicare or Medicaid. The concerns that the Anti-Kickback Statute addresses are multiple, but primary among them are, first, that the federal government pays/reimburses health care providers for the true acquisition cost of goods and services provided to patients served by government programs. The government does not want, for example, health care providers obtaining manufacturer discounts which are not disclosed to the government on cost report forms submitted for reimbursement to the government. The government wants to be the beneficiary of such discounts. Second, for that reason, the government wants transparency in the billing process which discloses such discounts to the government. Third, the government does not want purchasing, prescription or referral decisions for medical devices biased by economics unrelated to the best choices for a patient.

The Federal Anti-Kickback Statute is subject to evolving interpretations and has been applied by government enforcement officials to a number of common business arrangements in the medical device industry. Remunerative relationships with physicians in which manufacturers give health care providers gifts or pay for entertainment, sporting events, trips or other perquisites, may be viewed as an attempt to buy loyalty to the manufacturer's products. A number of states also have anti-kickback laws that establish similar prohibitions that may apply to items or services reimbursed by government programs as well as any third-party payors, including commercial insurers.

Further, federal legislation, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act (collectively "PPACA"), among other things, clarified the intent requirements of the Federal Anti-Kickback Statute and the federal criminal statutes governing healthcare fraud. Specifically, a person or entity can be found to have violated the statutes without actual knowledge of these statutes or specific intent to violate them. In addition, the PPACA amended the Social Security Act to provide that the government may assert that a claim including items or services resulting from a violation of the Federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the Federal False Claims Act or federal civil money penalties statute. Recent amendments to the Federal False Claims Act provide that a violation of the Federal Anti-Kickback Statute is also a violation of the Federal False Claims Act, subjecting healthcare entities to treble damages and mandatory penalties for each false claim or statement.

Additionally, the civil Federal False Claims Act prohibits, among other things, knowingly presenting or causing the presentation of a false, fictitious or fraudulent claim for payment of federal funds, or knowingly making, or causing to be made, a false record or statement material to a false or fraudulent claim to avoid, decrease or conceal an obligation to pay money to the federal government. The purpose of the Federal False Claims Act is to prevent manufacturers from causing or inducing inappropriate prescriptions leading to an inappropriate government reimbursement. It often comes into play where a manufacturer suggests or assists a health care provider to bill for an off-label, uncovered use. It also can occur when the reimbursement advice given by a manufacturer results in inappropriate reimbursement claims from "upcoding," miscoding, "stretched" coding, the use of inappropriate modifiers or inappropriate care settings. These behaviors can result in the government paying for products or procedures that should not be reimbursed by the federal government. The manufacturer must be truthful and not misleading in the reimbursement advice it gives to customers.

Actions under the Federal False Claims Act may be brought by the Attorney General or as a qui tam action by a private individual in the name of the government. Violations of the Federal False Claims Act can result in very significant monetary penalties and treble damages. The federal government is using the Federal False Claims Act, and the accompanying threat of significant liability, in its investigations of healthcare companies throughout the country for a wide variety of Medicare billing practices, as well as federal Anti-Kickback Statute violations and certain marketing practices, including off-label promotion, and has obtained multi-million and multi-billion dollar settlements under the Federal False Claims Act in addition to individual criminal convictions under applicable criminal statutes. Given the significant size of actual and potential settlements, it is expected that the government will continue to devote substantial resources to investigating healthcare providers' and suppliers' compliance with the healthcare reimbursement rules and fraud and abuse laws.

The Federal False Claims Act amendments in 2009 and 2010 expanded the scope of the liability for health care entities generally to potentially reach violations of regulatory duties, such as good manufacturing practices. There have been large settlements in the life sciences arena related to FDA regulatory violations for promotional activities and good manufacturing practice.

Even in instances where a company may have no actual liability, the Federal False Claims Act private citizen provisions (qui tam) allow the filing of Federal False Claims Act actions under seal and impose a mandatory duty on the United States Department of Justice to investigate such allegations. Most private citizen actions are declined by the Department of Justice or dismissed by federal courts. However, the investigation costs for a company can be significant and material even if the allegations are without merit.

Federal False Claims Act liability is potentially significant in the health industry because the statute provides for treble damages and mandatory minimum penalties of $5,500 to $11,000 per false claim or statement. Because of the potential for large monetary exposure, health care companies resolve allegations without admissions of liability for significant and material amounts to avoid the uncertainty of treble damages that may awarded in litigation proceedings. They may be required, however, to enter into corporate integrity agreements with the government, which may impose substantial costs to companies to ensure compliance.

The Federal Physician Payments Sunshine Act imposes annual reporting requirements on device manufacturers for payments and other transfers of value provided by them, directly or indirectly, to physicians (including physician family members) and teaching hospitals, as well as ownership and investment interests held by physicians. A manufacturer's failure to submit timely, accurately and completely the required information for all payments, transfers of value or ownership or investment interests may result in civil monetary penalties of up to an aggregate of $150,000 per year, and up to an aggregate of $1.0 million per year for "knowing failures." Manufacturers must submit reports by the 90th day of each calendar year. Certain states also mandate implementation of commercial compliance programs, impose restrictions on device manufacturer marketing practices and require tracking and reporting of gifts, compensation and other remuneration to healthcare professionals and entities. The shifting commercial compliance environment and the need to build and maintain robust and expandable systems to comply with different compliance or reporting requirements in multiple jurisdictions increase the possibility that a healthcare company may fail to comply fully with one or more of these requirements.

If a governmental authority were to conclude that Xtant is not in compliance with applicable laws and regulations, Xtant and its officers and employees could be subject to severe criminal and civil penalties, including, for example, exclusion from participation as a supplier of product to beneficiaries covered by Medicare, Medicaid and other federal health care programs. Our United States operations are subject to the U.S. Foreign Corrupt Practices Act ("FCPA"). We are required to comply with the FCPA, which generally prohibits covered entities and their intermediaries from engaging in bribery or making other prohibited payments to foreign officials for the purpose of obtaining or retaining business or other benefits. In addition, the FCPA imposes accounting standards and requirements on publicly traded United States corporations and their foreign affiliates, which are intended to prevent the diversion of corporate funds to the payment of bribes and other improper payments, and to prevent the establishment of "off books" slush funds from which such improper payments can be made. We also are subject to similar anticorruption legislation implemented in Europe under the Organization for Economic Co-operation and Development's Convention on Combating Bribery of Foreign Public Officials in International Business Transactions.

Coverage and Reimbursement

Xtant's currently approved products are commonly treated as general supplies utilized in spinal and orthopedic surgery and if covered by third-party payors, are paid for as part of the surgical procedure. Accordingly, healthcare providers in the United States generally rely on third-party payors, principally private insurers and governmental payors such as Medicare and Medicaid, to cover and reimburse all or part of the cost of a spine surgery in which Xtant products are used. Sales volumes and fees for Xtant products will continue to depend in large part on the availability of coverage and reimbursement from such third-party payors. Third-party payors perform analyses on new technologies to determine if they are medically necessary before providing coverage for them. These third-party payors may still deny reimbursement on covered technologies if they determine that a device used in a procedure was not used in accordance with the payor's coverage policy. Particularly in the United States, third-party payors continue to carefully review, and increasingly challenge, the prices charged for procedures and medical products.

In the United States, a large percentage of insured individuals receive their medical care through managed care programs, which monitor and often require pre-approval of the services that a member will receive. Some managed care programs pay their providers on a per capita basis, which puts the providers at financial risk for the services provided to their patients by paying these providers a predetermined payment per member per month and, consequently, may limit the willingness of these providers to use Xtant products.

The overall escalating cost of medical products and services has led to, and will likely continue to lead to, increased pressures on the healthcare industry to reduce the costs of products and services. Government or private third-party payors cannot be guaranteed to cover and reimburse the procedures using Xtant products in whole or in part in the future or that payment rates will be adequate. In addition, it is possible that future legislation, regulation or coverage and reimbursement policies of third-party payors will adversely affect the demand for Xtant products or the ability to sell them on a profitable basis.

Internationally, reimbursement and healthcare payment systems vary substantially from country to country and include single-payor, government-managed systems as well as systems in which private payors and government managed systems exist side-by-side. Xtant's ability to achieve market acceptance or significant sales volume in international markets will be dependent in large part on the availability of reimbursement for procedures performed using company products under the healthcare payment systems in such markets. A number of countries may require Xtant to gather additional clinical data before recognizing coverage and reimbursement for its products.

ISO Certification

Xtant is proud to be an International Organization for Standardization ("ISO") certified organization, which declares our company-wide commitment to quality. To obtain ISO 13485:2016 certification, an organization must demonstrate its ability to provide medical devices that consistently meet applicable customer and regulatory requirements. The primary objective of ISO 13485:2016 is to facilitate harmonized medical device regulatory requirements for quality management systems. All requirements of ISO 13485:2016 are specific to organizations providing medical devices, regardless of the type or size of the organization. The certification assures our customers and partners of our commitment to quality, and in the quality of our innovative products and processes. Additionally, we believe that our ISO 13485:2016 certification may offer new markets and business opportunities for our products in the global marketplace.

Employees

As of December 31, 2018, Xtant had 166 employees, of whom 75 were in operations, 39 were in sales and marketing, 8 in research and development and engineering, 19 in regulatory and quality affairs, and 25 were in administrative functions. In addition, we make use of a varying number of outsourced services to manage normal business cycles. None of our employees are covered by a collective bargaining agreement and management considers relations with employees and service partners to be good.

Available Information

We make available, free of charge and through our Internet web site, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and any amendments to any such reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after we electronically file such material with, or furnishes it to, the Securities and Exchange Commission ("SEC"). Reports filed with the SEC may be viewed at www.sec.gov.

ITEM 1A. RISK FACTORS

Our business and an investment in our common stock are subject to a variety of risks. The following risk factors describe some of the most significant events, facts or circumstances that could have a material adverse effect upon our business, financial condition, results of operations, ability to implement our business plan and the market price for our common stock. Many of these events are outside of our control. If any of these risks actually occur, our business, financial condition or results of operations may be materially adversely affected. In such case, the trading price of our common stock could decline and investors in our common stock could lose all or part of their investment.

Risks Related to Our Outstanding Indebtedness, Need for Additional Financing and Financial Condition

We have incurred significant losses, expect to continue to incur losses and may never be profitable.

We have a history of operating losses and at December 31, 2018, we had an accumulated deficit of $215.0 million. Our ability to achieve profitability will be influenced by many factors, including, among others, the level and timing of future revenues and expenditures; development, commercialization and market acceptance of our products; competing technologies and market developments; regulatory requirements and delays; ability to attract and retain key personnel; and pending litigation. As a result, we may continue to incur operating losses for the foreseeable future. These losses will continue to have an adverse impact on our stockholders' equity, and we may never achieve or sustain profitability.

We will need additional financing to satisfy our anticipated future liquidity requirements, which financing may not be available on favorable terms at the time it is needed and which could reduce our operational and strategic flexibility.

We have substantial operating expenses associated with the sales and marketing of our products. Although it is difficult for us to predict our future liquidity requirements, we believe that our cash and cash equivalents balance of approximately $6.8 million, as of December 31, 2018, together with existing credit availability and $10.0 million in availability under our Second Amended and Restated Credit Facility dated March 29, 2019 will be sufficient to meet our anticipated cash requirements through the end of March 2020. Although we recently increased availability under our Second Amended and Restated Credit Agreement, we still believe we may require additional funds to fund our future operations and business strategy. Accordingly, there is no assurance that we will not need or seek additional funding. We may elect to raise additional funds even before we need them if market conditions for raising additional capital are favorable. We may seek to raise additional funds through various sources, such as equity and debt financings, additional debt restructurings or refinancings, or through strategic collaborations and license agreements. We can give no assurances that we will be able to secure additional sources of funds to support our operations, or if such funds are available to us, that such additional financing will be sufficient to meet our needs or on terms acceptable to us. This is particularly true if economic and market conditions deteriorate. Any failure by us to raise additional funds on terms favorable to us, or at all, could result in our inability to pay our expenses as they come due, limit our ability to expand our business operations, and harm our overall business prospects. If adequate funds are not otherwise available, we could be required to curtail operations significantly, including reducing our sales and marketing expenses which could negatively impact product sales and we could even be required to cease operations, liquidate our assets and possibly seek bankruptcy protection.

To the extent that we raise additional capital through the sale of equity or convertible debt securities or the restructuring or refinancing of our debt, the interests of our current stockholders may be diluted, and the terms may include liquidation or other preferences that adversely affect the rights of our current stockholders. If we issue preferred stock, it could affect the rights of our stockholders or reduce the value of our common stock. In particular, specific rights granted to future holders of preferred stock may include voting rights, preferences as to dividends and liquidation, conversion and redemption rights, sinking fund provisions, and restrictions on our ability to merge with or sell our assets to a third party. Additional debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. Prior to raising additional equity or debt financing, we must obtain the consent of ROS and Royalty Opportunities, the lenders under our Second Amended and Restated Credit Agreement, and no assurance can be provided that ROS and Royalty Opportunities would provide such consent, which could limit our ability to raise additional financing.

We have a significant amount of indebtedness. We may not be able to generate enough cash flow from our operations to service our indebtedness, and we may incur additional indebtedness in the future, which could adversely affect our business, financial condition, and operating results.

We have a significant amount of indebtedness, including, as of December 31, 2018, $77.9 million in aggregate principal plus additional accrued interest outstanding under our credit facility. Our ability to make payments on, and to refinance, our indebtedness, including amounts borrowed under our credit facility, and our ability to fund planned capital expenditures, contractual cash obligations, known and unknown liabilities, research and development efforts, working capital, any future acquisitions and business combinations, and other general corporate purposes depends on our ability to generate cash in the future. This, to a certain extent, is subject to general economic, financial, competitive, legislative, regulatory, and other factors, some of which are beyond our control. If we do not generate sufficient cash flow from operations or if future borrowings are not available to us in an amount sufficient to pay our indebtedness or to fund our liquidity needs, we may be forced to refinance all or a portion of our indebtedness on or before the maturity dates thereof, sell assets, reduce or delay capital expenditures, seek to raise additional capital, or take other similar actions. We may not be able to execute any of these actions on commercially reasonable terms or at all. Our ability to refinance our indebtedness will depend on our financial condition at the time, the restrictions in the instruments governing our indebtedness, the consent of our lenders, and other factors, including market conditions. Our inability to generate sufficient cash flow to satisfy our debt service obligations, or to refinance or restructure our obligations on commercially reasonable terms or at all, would likely have an adverse effect, which could be material, on our business, financial condition, and operating results.

In addition, our significant indebtedness, combined with our other financial obligations and contractual commitments, could have other important consequences. For example, it could:

- make us more vulnerable to adverse changes in general U.S. and worldwide economic, industry, and competitive conditions and adverse changes in government regulation;
- limit our flexibility in planning for, or reacting to, changes in our business and our industry;
- restrict our ability to make strategic acquisitions, business combinations or dispositions or to exploit business opportunities;
- place us at a competitive disadvantage compared to our competitors who have less debt; and
- limit our ability to borrow additional amounts or raise financing for working capital, capital expenditures, contractual obligations, research and development efforts, acquisitions or business combinations, debt service requirements, execution of our business strategy, or other purposes.

Any of these factors could materially and adversely affect our business, financial condition, and operating results. In addition, we may incur additional indebtedness, and if we do, the risks related to our business and our ability to service our indebtedness would increase.

A failure to comply with the covenants and other provisions of our Second Amended and Restated Credit Agreement could require the immediate repayment of our outstanding indebtedness. If we are at any time unable to generate sufficient cash flows from operations to service our indebtedness when payment is due, we may be required to attempt to renegotiate the terms of the credit agreement, seek to refinance all or a portion of the indebtedness, or obtain additional financing. There can be no assurance that we will be able to successfully renegotiate such terms, that any such refinancing would be possible, or that any additional financing could be obtained on terms that are favorable or acceptable to us.

The terms of our Second Amended and Restated Credit Agreement could limit our ability to conduct our business, take advantage of business opportunities and respond to changing business, market, and economic conditions.

Our Second Amended and Restated Credit Agreement includes a number of significant financial and operating restrictions. For example, the agreement contains financial covenants that, among other things, require us to maintain a minimum liquidity covenant and a minimum revenue base, each as defined in the agreement, and contains provisions that restrict our ability, subject to specified exceptions, to, among other things:

- make loans and investments, including acquisitions and transactions with affiliates;
- create liens or other encumbrances on our assets;
- dispose of assets;
- enter into contingent obligations;
- NYSE compliance;
- engage in mergers or consolidations; and
- pay dividends.

We may be unable to comply with these covenants, which could result in a default under the agreement. In addition, these provisions may limit our ability to conduct our business, take advantage of business opportunities, and respond to changing business, market, and economic conditions. In addition, they may place us at a competitive disadvantage relative to other companies that may be subject to fewer, if any, restrictions or may otherwise adversely affect our business. Transactions that we may view as important opportunities, such as significant acquisitions or business combinations, may be subject to the consent of the lenders, which consent may be withheld or granted subject to conditions specified at the time that may affect the attractiveness or viability of the transaction.

Our Credit Facility involves additional risks that may adversely affect our liquidity, results of operations, and financial condition.

Availability under the Second Amended and Restated Credit Agreement is based on the amount of our liquidity, financial performance, and sales results. As a result, our access to credit under the Second Amended and Restated Credit Facility is subject to fluctuations depending on our financial results and projected cash balances as of any valuation date. Our inability to borrow additional amounts under the credit facility may adversely affect our liquidity, results of operations, and financial condition.

Our outstanding indebtedness under the credit facility will, after March 31, 2020, bear interest at variable rates, which subjects us to interest rate risk and could increase the cost of servicing our indebtedness. The impact of increases in interest rates could be more significant for us than it would be for some other companies because of our indebtedness, thereby affecting our profitability. In the event of a default under our Second Amended and Restated Credit Agreement, the lenders may terminate their commitments to lend additional money under the credit facility and declare all amounts outstanding thereunder to be immediately due and payable. While an event of default is continuing under the Second Amended and Restated Credit Agreement, the lenders thereunder may elect to increase the rates at which interest accrues. Subject to certain exceptions, amounts outstanding under the credit facility are secured by a senior first priority security interest in substantially all existing and after-acquired assets of our company and each borrower. Accordingly, under certain circumstances, the lenders could seek to enforce security interests in our assets securing our indebtedness under the credit facility, including restricting our access to collections on our accounts receivable. Any acceleration of amounts due under our Second Amended and Restated Credit Agreement or the exercise by the lenders thereto of their rights under the security documents, would have a material adverse effect on us.

We may be unable to meet financial or other covenant requirements in our Second Amended and Restated Credit Agreement, and we may be unable to successfully negotiate waivers to cure any covenant violations.

Our Second Amended and Restated Credit Agreement contains representations, warranties, fees, affirmative and negative covenants, including a minimum liquidity covenant and a minimum revenue base covenant, and default provisions. A breach of any of these covenants could result in a default under this agreement. Upon the occurrence of an event of default under the Second Amended and Restated Credit Agreement, the lenders could elect to declare all amounts outstanding under the credit facility to be immediately due and payable and terminate all commitments to extend further credit. If the lenders accelerate the repayment of borrowings, we may not have sufficient assets to repay our indebtedness. Also, should there be an event of default, or should we need to obtain waivers following an event of default, we may be subject to higher borrowing costs and/or more restrictive covenants in future periods. In addition, to secure the performance of our obligations under the Second Amended and Restated Credit Agreement, we pledged substantially all of our assets, including our intellectual property, to the lenders. Our failure to comply with the covenants under the Second Amended and Restated Credit Agreement could result in an event of default, the acceleration of our debt and the loss of our assets.

We rely on our subsidiaries for funds necessary to meet our financial obligations.

We conduct substantially all of our activities through our subsidiaries. We depend on those subsidiaries for dividends and other payments to generate the funds necessary to meet our financial obligations, including our outstanding indebtedness. The ability of our subsidiaries to make payments to us may be restricted by, among other things, applicable state corporation or similar statutes and other laws and regulations. The earnings from, or other available assets of, our subsidiaries may be insufficient to enable us to pay the outstanding principal or interest due on our outstanding indebtedness when due.

Risks Related to Our Business

Many competitive products exist and more will be developed. Our operating results have suffered due to intense competition and we may not be able to successfully compete because we are smaller and have fewer financial resources.

The markets for our products are highly competitive and subject to rapid and profound technological change. Our success depends, in part, on our ability to maintain a competitive position in the development of technologies and products for use by our customers. Many of the companies developing or marketing competitive products enjoy several competitive advantages over us, including greater financial and human resources for product development and sales and marketing; greater name recognition; established relationships with surgeons, hospitals and third-party payors; broader product lines and the ability to offer rebates or bundle products to offer greater discounts or incentives to gain a competitive advantage; and established sales and marketing and distribution networks. Our competitors may develop and patent processes or products earlier than us, obtain regulatory clearances or approvals for competing products more rapidly than us, develop more effective or less expensive products or technologies that render our technology or products obsolete or non-competitive or acquire technologies and technology licenses complementary to our products or advantageous to our business, which could adversely affect our business and operating results. Not all of our sales and other personnel have non-compete agreements. We also compete with other organizations in recruiting and retaining qualified sales and management personnel. If our competitors are more successful than us in these matters, we may be unable to compete successfully against our existing or future competitors. Intense competition adversely affected our operating results during 2018. In addition, our industry has been subject to increasing consolidation. Consolidation in our industry not involving our company could result in existing competitors increasing their market share through business combinations and result in stronger competitors, which could have a material adverse effect on our business, financial condition, and operating results. We may be unable to compete successfully in an increasingly consolidated industry and cannot predict with certainty how industry consolidation will affect our competitors or us.

If we are unable to continue to develop and market new products and technologies, we may experience a decrease in demand for our products, or our products could become obsolete, and our business and operating results would suffer.

Due to lack of funding, our research and development efforts have suffered during the past few years. We may be unable to compete effectively with our competitors unless we can keep up with existing or new products and technologies in the markets in which we compete. If we do not continue to introduce new products and technologies, or if those products and technologies are not accepted, we may not be successful. Moreover, research and development efforts require a substantial investment of time and resources before we are adequately able to determine the commercial viability of a new product, technology, material, or innovation. Demand for our products also could change in ways we may not anticipate due to evolving customer needs, changing demographics, slow industry growth rates, declines in our markets, the introduction of new products and technologies, evolving surgical philosophies, and evolving industry standards, among others. Additionally, our competitors' new products and technologies may beat our products to market, may be more effective or less expensive than our products, or may render our products obsolete. It is also important that we carefully manage our introduction of new and enhanced products and technologies. If potential customers delay purchases until new or enhanced products are available, it could negatively impact our revenue. Our new products and technologies also could reduce demand for or render our existing products obsolete and thus adversely affect sales of our existing products and lead to increased expense for excess and obsolete inventory.

We are highly dependent on the availability of human donors; any disruptions could cause our customers to seek alternative providers or technologies.

We are highly dependent on our ability to obtain donor cadavers as the raw material for many of our biologics products. The availability of acceptable donors is relatively limited, and we compete with many other companies for this limited availability. The availability of donors is also impacted by regulatory changes, general public opinion of the donor process and our reputation for our handling of the donor process. In addition, due to seasonal changes in the mortality rates, some scarce tissues are at times in short supply. Any disruption in the supply of this crucial raw material could have significant consequences for our revenue, operating results and continued operations.

Our inability to attract and retain key personnel could adversely affect our business and results of operations.

Our success is highly dependent upon the services of our executives. However, we have experienced a high level of turnover among our executive team over the past year, including the departure of our interim CEO and our CFO during the first quarter of 2019. Most of the members of our management team have joined the Company in the past year. Currently, our Vice President of Finance, Greg Jensen, is serving as our interim Chief Financial Officer and our principal executive officer as we search for qualified replacements. The loss of Mr. Jensen, or the loss of any of the remaining key members of our management team, such as our Chief Commercial Officer and Chief Operations Officer, could have a material adverse effect on our future operations. We do not currently maintain key-person life insurance policies insuring the life of any member of our management team.

Our future success also depends, in part, upon our ability to retain and motivate key managerial, sales, and technical personnel, as well as our ability to continue to attract and retain additional highly qualified personnel. We compete for such personnel with other companies, academic institutions, governmental entities, and other organizations. There can be no assurance that we will be successful in retaining our current personnel or in hiring or retaining qualified personnel in the future. Any unanticipated loss or interruption of services of our management team and our key personnel could significantly reduce our ability to meet our strategic objectives due to extended time required for us to find appropriate replacement personnel, if at all, should the need arise. Loss of key personnel or the inability to hire or retain qualified personnel in the future could have a material adverse effect on our ability to operate successfully.

We are highly dependent on the continued availability of our facilities and would be harmed if they were unavailable for any prolonged period of time.

Any failure in the physical infrastructure of our facilities or services could lead to significant costs and disruptions that could reduce our revenues and harm our business reputation and financial results. We are highly reliant on our Belgrade, Montana facilities. Any natural or man-made event that impacts our ability to utilize these facilities could have a significant impact on our operating results, reputation and ability to continue operations. The regulatory process for approval of facilities is time-consuming and our ability to rebuild facilities would take a considerable amount of time and expense and cause a significant disruption in service to our customers. Further, the FDA or some other regulatory agency could identify deficiencies in future inspections of our facilities or our supplies that could disrupt our business and harm our operating results. This is risk is particularly relevant with respect to the Class 2 recall of our Calix Lumbar Spine Implant System initiated in December 2018.

We may be subject to product liability litigation that could be expensive, and our insurance coverage may not be adequate in a catastrophic situation.

The manufacture and sale of medical devices and biologics expose us to significant risk of product liability claims. We may incur material liabilities relating to product liability claims, including product liability claims arising out of the use of our products. We also could experience a material design or manufacturing failure in our products, a quality system failure, other safety issues, or heightened regulatory scrutiny that would warrant a recall of some of our products. This risk is relevant with respect to our Calix Lumbar Spine Implant System recall initiated in December 2018. Product liability lawsuits and claims, safety alerts and product recalls, regardless of their ultimate outcome, could result in decreased demand for our products, injury to our reputation, significant litigation and other costs, substantial monetary awards to or costly settlements with patients, product recalls, loss of revenue, increased regulatory scrutiny, and the inability to commercialize new products or product candidates, and otherwise have a material adverse effect on our business and reputation and on our ability to attract and retain customers. We currently carry product liability insurance; however, our insurance coverage may not be adequate, and our business could suffer material adverse consequences due to product liability claims.

Litigation may result in financial loss and/or impact our ability to sell our products going forward.

We are subject to certain pending litigation and dispute matters. For example, in December 2018, a complaint was filed by RSB Spine, LLC against us which claims that some of our products, including the Irix-ATM Lumbar Integrated Fusion System and the Irix-CTM Cervical Integrated Fusion System, infringe certain of RSB Spine's patents. The complaint seeks, among other relief, an injunction against future infringement, unspecified damages for infringement, and treble damages for willful infringement. Our pending litigation is discussed in Note 9 to our consolidated financial statements. Although we intend to vigorously defend any existing or future litigation or dispute in which we may be involved, there can be no assurance that we will prevail in these matters. An unfavorable judgment or settlement may result in a financial burden on us. An unfavorable judgment or settlement may also result in restrictions on our ability to sell certain products and therefore may impact future operating results. Moreover, costs, fees, expenses, settlement amounts, judgments or other liabilities associated with such matters may not be covered by our insurance.

We have completed acquisitions and business combinations in the past and may complete them in the future. Acquisitions and business combinations are risky and may harm our business, reputation, financial condition, and operating results.

We have completed acquisitions and business combinations in the past, including the acquisition of X-spine Systems, Inc. in 2015, and may complete them in the future. Our ability to complete acquisitions and business combinations will depend, in part, on the availability of suitable candidates at acceptable prices, terms, and conditions; our ability to compete effectively for acquisition candidates; and the availability of capital and personnel to complete such acquisitions and run the acquired business effectively. Any acquisition or business combination could impair our business, financial condition, reputation, and operating results. The benefits of an acquisition or business combination may take more time than expected to develop or integrate into our operations, and we cannot guarantee that previous or future acquisitions or business combinations will, in fact, produce any benefits. Acquisitions and or business combinations may involve a number of risks, the occurrence of which could adversely affect our business, reputation, financial condition, and operating results, including:

- diversion of management's attention;
- disruption to our existing operations and plans;

- inability to effectively manage our expanded operations;
- difficulties or delays in integrating and assimilating information and financial systems, operations, manufacturing processes and products of an acquired business or other business venture or in realizing projected efficiencies, growth prospects, cost savings, and synergies;
- inability to successfully integrate or develop a distribution channel for acquired product lines;
- potential loss of key employees, customers, distributors, or sales representatives of the acquired businesses or adverse effects on existing business relationships with suppliers, customers, distributors, and sales representatives;
- violation of confidentiality and non-compete obligations or agreements by employees of an acquired business;
- adverse impact on overall profitability if our expanded operations do not achieve the financial results projected in our valuation models;
- reallocation of amounts of capital from other operating initiatives and/or an increase in our leverage and debt service requirements to pay acquisition purchase prices or other business venture investment costs, which could in turn restrict our ability to access additional capital when needed or pursue other important elements of our business strategy;
- infringement by acquired businesses or other business ventures of intellectual property rights of others;
- inaccurate assessment of additional post-acquisition investments, undisclosed, contingent or other liabilities or problems, unanticipated costs associated with an acquisition, and an inability to recover or manage such liabilities and costs;
- incorrect estimates made in the accounting for acquisitions and incurrence of non-recurring charges; and
- write-off of significant amounts of goodwill or other assets as a result of deterioration in the performance of an acquired business or product line, adverse market conditions, changes in the competitive landscape, changes in laws or regulations that restrict activities of an acquired business or product line, or as a result of a variety of other circumstances.

During the year ended December 31, 2018, we incurred a goodwill impairment of $38.3 million as well as an impairment charge of $9.8 million to tradenames, technology, and customer relationships related to the fixation business that we acquired in connection with our 2015 acquisition of X-spine Systems, Inc.

In addition, effective internal controls are necessary for us to provide reliable and accurate financial reports and to effectively prevent fraud. The integration of acquired businesses may result in our systems and controls becoming increasingly complex and more difficult to manage. We devote significant resources and time to comply with the internal control over financial reporting requirements of the Sarbanes-Oxley Act of 2002. However, we cannot be certain that these measures will ensure that we design, implement, and maintain adequate control over our financial processes and reporting in the future, especially in the context of acquisitions of other businesses. Any difficulties in the assimilation of acquired businesses into our control system could harm our operating results or cause us to fail to meet our financial reporting obligations. Also, some acquisitions may require the consent of the lenders under our credit facility. We cannot predict whether such approvals would be forthcoming or the terms on which the lenders would approve such acquisitions. These risks, among others, could be heightened if we complete a large acquisition or other business combination or multiple transactions within a relatively short period of time.

Our quarterly operating results are subject to substantial fluctuations, and you should not rely on them as an indication of our future results.

Our quarterly operating results may vary significantly due to a combination of factors, many of which are beyond our control. These factors include:

- demand for products;
- the level of competition;
- the number, timing, and significance of new products and product introductions and enhancements by us and our competitors;
- our ability to develop, introduce, and market new and enhanced versions of our products on a timely basis;
- the timing of or failure to obtain regulatory clearances or approvals for products;
- changes in pricing policies by us and our competitors;
- changes in the treatment practices of our customers;
- changes in distributor or independent sales representative relationships and sales force size and composition;
- the timing of material expense- or income-generating events and the related recognition of their associated financial impact;
- the number and mix of products sold in the quarter and the geographies in which they are sold;
- the number of selling days;
- the availability and cost of components and materials;
- the timing of orders and shipments;
- ability to obtain reimbursement for our products and the timing of patients' use of their calendar year medical insurance deductibles;
- work stoppages or strikes in the healthcare industry;
- changes in FDA and foreign governmental regulatory policies, requirements, and enforcement practices;
- changes in accounting standards, policies, estimates, and treatments;
- restructuring, impairment, and other special charges;
- costs associated with our pending litigation;
- variations in cost of sales due to the amount and timing of excess and obsolete inventory charges, commodity prices, and manufacturing variances;
- income tax fluctuations and changes in tax rules;
- general economic factors; and
- increases of interest rates, which can increase the cost of borrowings under our credit facility, and generally affect the level of economic activity.

We believe our quarterly revenue and operating results may vary significantly in the future and period-to-period comparisons of our results of operations are not necessarily meaningful and should not be relied upon as indications of future performance. We cannot assure you that our revenue will increase or be sustained in future periods or that we will be profitable in any future period. Any shortfalls in revenue or earnings from levels expected by industry analysts could have an immediate and significant adverse effect on the trading price of our common stock in any given period.

A significant portion of our product revenue is made through independent distributors and sales agents who we do not control.

A significant portion of our product revenue is made through distributors and independent sales agents. Because the independent distributor often controls the customer relationships within its territory (and, in certain countries outside the United States, the regulatory relationship), there is a risk that if our relationship with the distributor ends, our relationship with the customer will be lost (and, in certain countries outside the United States, that we could experience delays in amending or transferring our product registrations). Also, because we do not control the field sales agents of a distributor or independent sales agent, there is a risk we will be unable to ensure that our sales processes, compliance, and other priorities will be consistently communicated and executed by the distributor or sales agent. If we fail to maintain relationships with our key distributors and independent sales representatives or fail to ensure that our distributors and independent sales agent adhere to our sales processes, compliance, and other priorities, this could have an adverse effect on our operations. Changes to or turnover within our independent distributor and independent sales agent organization or transitions to direct selling models also could adversely affect our business if these transitions are not managed effectively. During 2018, we experienced changes to and turnover within our distributor and independent sales organization which had an adverse effect on our business. Further, independent distributors and sales agents of companies we have acquired may decide not to renew or may decide to seek to terminate, change and/or renegotiate their relationships with us. A loss of a significant number of our distributors or agents could have a material adverse effect on our business and results of operations.

In addition, our success is partially dependent upon our ability to retain and motivate our distributors, independent sales agencies, and their representatives to sell our products in certain territories. They may not be successful in implementing our marketing plans. Some of our distributors and independent sales agencies do not sell our products exclusively and may offer similar products from other orthopedic companies. Our distributors and independent sales agencies may terminate their contracts with us, may devote insufficient sales efforts to our products, or may focus their sales efforts on other products that produce greater commissions for them, which could have an adverse effect on our operations and operating results.

The recent notification of the termination of a consulting agreement effective on March 22, 2019 will likely adversely affect our operating results beginning with the first quarter of 2019.

In December 2018, we received notification of the termination of a consulting agreement with an entity that has close relationships with several of our customers representing approximately 23% of our revenue during the year ended December 31, 2018. As a result of this notification, this agreement will terminate effective March 22, 2019. We anticipate that the termination of this agreement will negatively impact our revenues based on our ability to continue to sell products through our distribution channels to our customers affiliated with this entity.

Worldwide economic instability could adversely affect our net sales, financial condition, or results of operations.

The health of the global economy, and the credit markets and the financial services industry in particular, affects our business and operating results. If the credit markets are not favorable, we may be unable to raise additional financing when needed or on favorable terms. Our customers may experience financial difficulties or be unable to borrow money to fund their operations which may adversely impact their ability to purchase our products or to pay for our products on a timely basis, if at all. In addition, any economic crisis could also adversely impact our suppliers' ability to provide us with materials and components, either of which may negatively impact our business. As with our customers and vendors, these economic conditions make it more difficult for us to accurately forecast and plan our future business activities. Further, there are concerns for the overall stability and suitability of the Euro as a single currency, given the economic and political challenges facing individual Eurozone countries and Brexit. Continuing deterioration in the creditworthiness of the Eurozone countries, the withdrawal of one or more member countries from the European Union, or the failure of the Euro as a common European currency could adversely affect our sales, financial condition, or operating results.

Although our international business is not substantial, we do operate in some markets outside the United States that are subject to political, economic, and social instability and expose us to additional risks.

Operations in countries outside of the United States accounted for approximately 5% of our total revenue for our year ended December 31, 2018. Our operations outside of the United States are accompanied by certain financial and other risks. Our international sales operations expose us and our representatives, agents, and distributors to risks inherent in operating in foreign jurisdictions. These risks include:

- the imposition of additional U.S. and foreign governmental controls or regulations on orthopedic implants and biologic products;
- withdrawal from or revision to international trade policies or agreements and the imposition or increases in import and export licensing and other compliance requirements, customs duties and tariffs, import and export quotas and other trade restrictions, license obligations, and other non-tariff barriers to trade;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- the imposition of U.S. or international sanctions against a country, company, person, or entity with whom we do business that would restrict or prohibit continued business with that country, company, person, or entity;
- economic instability, including currency risk between the U.S. dollar and foreign currencies, in our target markets;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- the imposition of restrictions on the activities of foreign agents, representatives, and distributors;
- scrutiny of foreign tax authorities, which could result in significant fines, penalties, and additional taxes being imposed upon us;
- difficulties in managing and staffing international operations and increases in infrastructure costs including legal, tax, accounting, and information technology;
- a shortage of high-quality international salespeople and distributors;
- loss of any key personnel who possess proprietary knowledge or are otherwise important to our success in international markets;
- changes in third-party reimbursement policy that may require some of the patients who receive our products to directly absorb medical costs or that may necessitate our reducing selling prices for our products;
- unexpected changes in foreign regulatory requirements;
- differing local product preferences and product requirements;
- changes in tariffs and other trade restrictions, particularly related to the exportation of our biologic products;
- difficulties in protecting, enforcing and defending intellectual property rights;
- foreign currency exchange controls that might prevent us from repatriating cash;
- longer payment cycles and difficulties in enforcing agreements and collecting receivables through certain foreign legal systems;
- transportation delays and interruptions;
- national and international conflicts, including foreign policy changes, acts of war or terrorist acts;
- complex data privacy requirements and labor relations laws; and
- exposure to different legal and political standards.

In addition, in June 2016, the United Kingdom held a referendum in which voters approved an exit from the European Union, commonly referred to as "Brexit." In March 2017, the government of the United Kingdom formally gave notice of its intent to withdraw from the European Union. Serving this notice began a two-year period for the United Kingdom to negotiate terms for its withdrawal from the European Union and future terms of the United Kingdom's relationship with the European Union, including the terms of trade between the United Kingdom and the European Union. Although it is unknown what those terms will be, it is possible that there will be greater restrictions on the movement of goods and people between the United Kingdom and European Union countries and increased regulatory complexities, which could affect our ability to sell our products in certain European Union countries. Brexit could adversely affect European and worldwide economic and market conditions and could contribute to instability in global financial and foreign exchange markets, including volatility in the value of the British pound and Euro. We do not know to what extent these changes will impact our business. Any of these effects of Brexit, and others that we cannot anticipate, could adversely affect our business, operations and financial results. In addition, other European countries may seek to conduct referenda with respect to continuing membership with the European Union. At this time, it is not certain what steps, may be taken to facilitate the United Kingdom's exit from the European Union, which has created significant uncertainty about the future relationship between the United Kingdom and the European Union. This development has had and may continue to have a material adverse effect on global economic conditions and the stability of global financial markets. Given the lack of comparable precedent, it is unclear what implications the withdrawal of the United Kingdom from the European Union will have and how such withdrawal could affect, or whether it could have a material adverse effect on, our business, financial condition and operating results.

The costs of complying with the requirements of the EU-wide General Data Protection Regulation and the potential liability associated with failure to do so could materially adversely affect our business and results of operations.

In May 2018, the EU-wide General Data Protection Regulation ("GDPR") became effective, replacing the current data protection laws of each EU member state. The GDPR implemented more stringent operational requirements for personal data, including, for example, expanded disclosures about how personal information is to be used, limitations on retention of information, increased requirements pertaining to health data and pseudonymised (i.e., key-coded) data, mandatory data breach notification requirements and higher standards for data controllers to demonstrate that they have obtained valid consent for certain data processing activities. Any failure or perceived failure by us to comply with privacy or security laws, policies, legal obligations or industry standards or any security incident that results in the unauthorized release or transfer of personally identifiable information may result in governmental enforcement actions and investigations including by European Data Protection Authorities, fines and penalties, litigation and/or adverse publicity, and could cause our customers to lose trust in us, which could have an adverse effect on our reputation and business. Such failures could have a material adverse effect on our operating results and financial condition. If the third parties we work with violate applicable laws, contractual obligations or suffer a security breach, such violations may also put us in breach of our obligations under privacy laws and regulations and/or could in turn have a material adverse effect on our business. In addition, we have spent and expect to continue to expend significant time, costs and resources to comply with the GDPR.

We are dependent on various information technology systems, and failures of, interruptions to, or unauthorized tampering of those systems could have a material adverse effect on our business.

We rely extensively on information technology ("IT") systems to conduct business. These systems include, but are not limited to, ordering and managing materials from suppliers, converting materials to finished products, shipping products to customers, processing transactions, summarizing and reporting results of operations, complying with regulatory, legal or tax requirements, and providing data security and other processes necessary to manage our business. In addition, we have grown in part through strategic business combinations and acquisitions. As a result of these transactions, we may face risks due to implementation, modification, or remediation of the IT controls, procedures, and policies at the acquired businesses. We continue to consolidate and integrate the number of systems we operate, and we plan to continue system roll-outs in the future and to otherwise upgrade and expand our IT system capabilities. We may experience difficulties in our business operations, or difficulties in operating our business under these systems, either of which could disrupt our operations, including our ability to timely ship and track product orders, project inventory requirements, manage our supply chain, and otherwise adequately service our customers, and lead to increased costs and other difficulties. In the event we experience significant disruptions as a result of the implementation or upgrade of new systems or otherwise, we may not be able to fix our systems in an efficient and timely manner. Accordingly, such events may disrupt or reduce the efficiency of our entire operations and have a material adverse effect on our operating results and cash flows.

In addition, if our systems are damaged or cease to function properly due to any number of causes, ranging from catastrophic events to power outages to security breaches, and our business continuity plans do not effectively compensate timely, we may suffer interruptions in our ability to manage operations. Increased global cybersecurity vulnerabilities, threats and more sophisticated and targeted cybersecurity attacks pose a risk to the security of our systems and networks and those of our customers, suppliers and third-party service providers, and the confidentiality, availability and integrity of any underlying information and data. We have programs, processes and technologies in place to prevent, detect, contain, respond to and mitigate security related threats and potential incidents. We undertake considerable ongoing improvements to our IT systems in order to minimize vulnerabilities, in accordance with industry and regulatory standards. Because the techniques used to obtain unauthorized access change frequently and can be difficult to detect, anticipating, identifying or preventing these intrusions or mitigating them if and when they occur, may be challenging. Our IT systems require an ongoing commitment of significant resources to maintain, protect and enhance existing systems and develop new systems to keep pace with continuing changes in information processing technology, evolving systems and regulatory standards. We also outsource certain elements of our IT systems to third parties that, as a result of this outsourcing, could have access to certain confidential information and whose systems may also be vulnerable to these types of attacks or disruptions. There can be no assurance that our protective measures or those of these third parties will prevent or detect security breaches that could have a significant impact on our business, reputation, operating results and financial condition. The failure of these systems to operate or integrate effectively with other internal, customer, supplier or third-party service provider systems and to protect the underlying IT system and data integrity, including from cyber-attacks, intrusions or other breaches or unauthorized access of these systems, or any failure by us to remediate any such attacks or breaches, may also result in damage to our reputation or competitiveness, delays in product fulfillment and reduced efficiency of our operations, and could require significant capital investments to remediate any such failure, problem or breach, all of which could adversely affect our business, operating results and financial condition. We maintain cyber liability insurance; however, this insurance may not be sufficient to cover the financial, legal, business or reputational losses that may result from an interruption or breach of our systems.

Our inability to maintain effective internal controls could cause investors to lose confidence in our reported financial information.

Effective internal controls are necessary for us to provide reliable and accurate financial reports and to effectively prevent fraud. The integration of combined or acquired businesses is likely to result in our systems and controls becoming increasingly complex and more difficult to manage. We devote significant resources and time to comply with the internal control over financial reporting requirements of the Sarbanes-Oxley Act of 2002. However, we cannot be certain that these measures will ensure that we design, implement, and maintain adequate control over our financial processes and reporting in the future, especially in light of anticipated changes in accounting standards and in the context of acquisitions of other businesses.

If we fail to maintain the adequacy of our internal control over financial reporting or our disclosure controls and procedures, we could be subjected to regulatory scrutiny, civil or criminal penalties or shareholder litigation, the defense of any of which could cause the diversion of management's attention and resources, we could incur significant legal and other expenses, and we could be required to pay damages to settle such actions if any such actions were not resolved in our favor. Continued or future failure to maintain adequate internal control over financial reporting could also result in financial statements that do not accurately reflect our financial condition or results of operations. There can be no assurance that we will not identify any significant deficiencies or material weaknesses that will impair our ability to report our financial condition and results of operations accurately or on a timely basis. Inferior internal controls could also cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our ordinary shares and our access to capital.

Changes in accounting standards, policies, or assumptions utilized in determining accounting estimates could adversely affect our financial statements, including our operating results and financial condition.

In preparing our consolidated financial statements in conformity with U.S. generally accepted accounting principles ("GAAP"), we must make decisions that impact our results of operations and/or financial condition. Such decisions include the selection of the appropriate accounting principles to be applied and the assumptions on which to base accounting estimates. In reaching such decisions, we apply judgments based on our understanding and analysis of the relevant circumstances, historical experience, and actuarial valuations, as appropriate. As a result, actual amounts could differ from those estimated at the time our consolidated financial statements are prepared. Our critical accounting estimates are described later in this report under Part II. Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations. In addition, various authoritative accounting or regulatory entities, including the Financial Accounting Standards Board ("FASB"), Public Company Accounting Oversight Board, and the SEC may amend, expand, and/or eliminate the financial accounting or reporting standards that govern the preparation of our consolidated financial statements or could reverse their previous interpretations or positions on how various financial accounting and/or reporting standards should be applied. For example, recently, the FASB issued Accounting Standards Update ("ASU") No. 2016-02, *Leases*, that amend the accounting standards and related disclosure requirements related to lease accounting. We disclose the impact of accounting pronouncements that have been issued but not yet adopted within our annual and quarterly reports on Form 10-K and Form 10-Q, respectively. However, we do not provide an assessment of proposed accounting pronouncements, as such proposals are subject to change through the exposure process and therefore, we cannot meaningfully assess their effects on our consolidated financial statements. Future changes to accounting standards could modify the accounting policies and procedures that are currently utilized in the preparation of our consolidated financial statements. Such changes may be difficult to predict and implement and could materially, or otherwise, impact how we prepare and report our consolidated financial statements, results of operations, and financial condition.

Our ability to use our net operating loss carry-forwards and other tax attributes to offset future taxable income is limited.

Section 382 of the Internal Revenue Code of 1986, as amended ("Code"), imposes restrictions on the use of a corporation's net operating losses, as well as other tax attributes including capital loss carryforwards and other losses and credits, after an "ownership change" occurs. A Section 382 "ownership change" occurs if one or more stockholders or groups of stockholders who own at least 5% of our stock (including certain "public groups" deemed created for Section 382 purposes) increase their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. We believe that we experienced an ownership change within the meaning of Section 382 upon the conversion of our prior convertible notes in early 2018 that could result in significant limitations under Sections 382 on the use of our net operating losses and other tax attributes. However, Section 382 of the Code is an extremely complex provision with respect to which there are many uncertainties, and we have not requested an opinion of a law firm or accounting firm to confirm our analysis of the ownership change limitations related to the net operating losses generated by the Company. Therefore, we have not established whether the IRS would agree with our analysis regarding the application of Section 382 of the Code.

When an "ownership change" occurs, Section 382 imposes an annual limit on the amount of pre-change net operating losses and other tax attributes we can use to reduce our taxable income generally equal to the product of the total value of our outstanding equity immediately prior to the "ownership change" (subject to certain adjustments) multiplied by the applicable federal long-term tax-exempt interest rate for the month of the "ownership change."

Losses arising in taxable years beginning after December 31, 2017 are limited in the amount of taxable income they can offset but carry forward indefinitely. Net operating losses incurred in taxable years ending on or before December 31, 2017 generally may be carried forward for up to 20 years to offset future taxable income but are subject to the Section 382 limitations for losses incurred prior to an ownership change date. Any Section 382 annual limitation may effectively provide a cap on the cumulative amount of pre-ownership change losses that may be utilized during a carryforward period. Such pre-ownership change losses in excess of the cap may be lost and could cause a net increase in our United States federal income tax liability in the future, with United States federal income taxes to be paid earlier than they otherwise would be paid if such limitations were not in effect. Further, for financial reporting purposes the amount or value of these deferred tax assets may be reduced as a result of the Section 382 limitation. Such reduction could negatively impact the book value of our common stock and could result in an incremental U.S. income tax expense for the Company.

In addition, the Tax Cuts and Jobs Act limits the deduction for net operating loss carryforwards to 80 percent of taxable income for losses arising in taxable years beginning after December 31, 2017. Net operating losses subject to these limitations may be carried forward indefinitely.

Our ability to deduct interest is limited.

Under the Tax Cuts and Jobs Act, our ability to deduct interest on indebtedness properly allocable to our trade or business (which excludes investment interest) will be limited to an amount equal to the sum of (i) our business interest income during the taxable year and (ii) 30% of our adjusted taxable income for such taxable year. Disallowed interest deductions will be carried forward indefinitely and treated as business interest paid or accrued in the succeeding taxable year. In addition, the interest paid or incurred with respect to our prior convertible notes is not deductible.

Risks Related to Governmental Regulation

Our business is subject to extensive regulation, including requirements for regulatory clearances or approvals prior to commercial distribution of our products. If we fail to maintain regulatory clearances and approvals, or are unable to obtain, or experience significant delays in obtaining, FDA clearances or approvals for our future products or product enhancements, our ability to commercially distribute and market these products could suffer.

Our medical device products and operations are subject to extensive regulation by the FDA and various other federal, state and foreign governmental authorities. Government regulation of medical devices is meant to assure their safety and effectiveness, and includes regulation of, among other things:

- design, development and manufacturing;
- testing, labeling, packaging, content and language of instructions for use, and storage;
- clinical trials;
- product safety;
- premarket clearance and approval;
- marketing, sales and distribution (including making product claims);
- advertising and promotion;
- product modifications;
- recordkeeping procedures;
- reports of corrections, removals, enhancements, recalls and field corrective actions;
- post-market surveillance, including reporting of deaths or serious injuries and malfunctions that, if they were to recur, could lead to death or serious injury;
- complying with the federal law and regulations requiring Unique Device Identifiers (UDI) on devices and their labeling and also requiring the submission of certain information about each device to FDA's Global Unique Device Identification Database (GUDID); and
- product import and export

Before a new medical device, or a new use of, or claim for, an existing product can be marketed in the United States, it must first receive either premarket clearance under Section 510(k) of the U.S. Federal Food, Drug, and Cosmetic Act ("FDCA"), a de novo classification or a Premarket Approval ("PMA"), from the FDA, unless an exemption applies. The process of obtaining regulatory clearances or approvals to market a medical device can be costly and time-consuming, and we may not be able to obtain these clearances or approvals on a timely basis, if at all.

Most of our currently commercialized products have received premarket clearances under Section 510(k) of the FDCA. In the future, the FDA may determine that our products will require the more costly, lengthy and uncertain de novo or PMA processes. If the FDA requires us to go through a lengthier, more rigorous examination for future products or modifications to existing products than we had expected, our product introductions or modifications could be delayed or canceled, which could cause our revenue to decline. Although we do not currently market any devices under PMA and have not gone through the de novo classification for marketing authorization, we cannot assure you that the FDA will not demand that we obtain a PMA or de novo classification prior to marketing or that we will be able to obtain 510(k) clearances with respect to future products.

The FDA can delay, limit or deny clearance or approval of a device for many reasons, including:

- we may not be able to demonstrate to the FDA's satisfaction that our products meet the definition of "substantial equivalence" for a 510(k) or meet the standard for the FDA to grant a petition for de novo classification;
- we may not be able to demonstrate to the FDA's satisfaction that our products are safe and effective for their intended uses;
- the data from our pre-clinical studies (bench and/or animal) and clinical trials may be insufficient to support clearance or approval in general or for specific, commercially desirable indications, where required;
- the manufacturing process or facilities we use may not meet applicable requirements; and
- changes in FDA clearance or approval policies or the adoption of new regulations may require additional data.

In addition, even if we do obtain clearance or approval, the FDA may not approve or clear these products for the indications that are necessary or desirable for successful commercialization. Any delay in, or failure to receive or maintain, clearances or approvals for our products under development could prevent us from generating revenue from these products or achieving profitability.

We are subject, directly and indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, and physician payment transparency laws. Failure to comply with these laws may subject us to substantial penalties.

We are subject to federal and state healthcare laws and regulations pertaining to fraud and abuse, and physician payment transparency, including false claims laws, anti-kickback laws and physician self-referral laws. Many states such as Massachusetts, Connecticut, Nevada and Vermont require different types of compliance such as having a code of conduct, as well as reporting remuneration paid to health care professionals or entities in a position to influence prescribing behavior. Violations of these federal and state laws can result in criminal and/or civil punishment, including fines, imprisonment and, in the United States, exclusion from participation in government healthcare programs. Greater scrutiny of marketing practices in our industry has resulted in numerous government investigations by various government authorities and this industry-wide enforcement activity is expected to continue. If a governmental authority were to determine that we do not comply with these laws and regulations, we and our directors, officers and employees could be subject to criminal and civil penalties, including exclusion from participation in U.S. federal healthcare reimbursement programs.

Many of these healthcare laws inevitably influence company standards of conduct. Other laws tie into these standards as well, such as compliance with the advertising and promotion regulations under the FDCA, the Federal Anti-Kickback Statute, the Federal False Claims Act, the Federal Physician Payments Sunshine Act and other laws. We use many distributors and independent sales representatives in certain territories and thus rely upon their compliance with applicable laws and regulations, such as with the advertising and promotion regulations or similar laws under countries located outside the United States and other applicable federal, state or international laws. These laws include:

- the Federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual for, or the purchase, order or recommendation of, any good or service for which payment may be made under federal healthcare programs, such as the Medicare and Medicaid programs. A person or entity does not need to have actual knowledge of the Federal Anti-Kickback Statute or specific intent to violate it to have committed a violation. In addition, the government may assert that a claim including items or services resulting from a violation of the Federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the Federal False Claims Act; this may constrain our marketing practices and those of our independent sales agencies, educational programs, pricing, bundling and rebate policies, grants for physician-initiated trials and continuing medical education, and other remunerative relationships with healthcare providers;

- federal false claims laws (such as the Federal False Claims Act) which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid or other federal third-party payors that are false or fraudulent; this may impact the reimbursement advice we give to our customers as it cannot be inaccurate and must relate to on-label uses of our products;

- federal criminal laws that prohibit executing a scheme to defraud any federal healthcare benefit program or making false statements relating to healthcare matters;

- the Federal Physician Payments Sunshine Act, which requires manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report annually to the Centers for Medicare & Medicaid Services ("CMS"), information related to payments or other "transfers of value" made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, and requires applicable manufacturers and group purchasing organizations to report annually to CMS ownership and investment interests held by the physicians described above and their immediate family members and payments or other "transfers of value" to such physician owners. Effective January 2022, we will also be required to collect and report information on payments or transfers of value to physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists, and certified nurse-midwives;

- analogous state and foreign law equivalents of each of the above federal laws, such as the Anti-Kickback Statue and the Federal False Claims Act which may apply to items or services reimbursed by any third-party payor, including commercial insurers; state laws that require device companies to comply with the industry's voluntary compliance guidelines and the applicable compliance guidance promulgated by the federal government or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state laws that require device manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts; and

- the Federal Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), and its implementing regulations, which created federal criminal laws that prohibit executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters and which also imposes certain regulatory and contractual requirements regarding the privacy, security and transmission of individually identifiable health information.

Certain of these laws have "safe harbors" which if met will protect certain arrangements from liability. For example, the Anti-Kickback Statute allows for payments that would technically fall under the definition of "remuneration" and be illegal, are allowed because they meet a safe harbor established by the Office of Inspector General ("OIG") of the U.S. Department of Health and Human Services. These safe harbors include, for example, the "Discount" safe harbor which allows companies to provide discounts to their customers in many forms (such as rebates, volume discounts, etc.) as long as they meet the requirements of the safe harbor. Certain safe harbors under the Anti-Kickback Statute may also apply to consulting and other arrangements for personal services which may apply to relationships we have with physician consultants. These safe harbors are technical in nature and failure to meet any element of a safe harbor will cause an arrangement to lose safe harbor protection. Therefore, no assurances can be given that any of our arrangements or relationships will meet an otherwise applicable safe harbor.

Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available under such laws, it is possible that some of our business activities, including our relationships with customers, physicians and other healthcare providers, some of whom have ownership interests in the Company and recommend and/or use our products, could be subject to challenge under one or more of such laws. We are also exposed to the risk that our employees, independent contractors, principal investigators, consultants, vendors, and distributors may engage in fraudulent or other illegal activity. Misconduct by these parties could include, among other infractions or violations, intentional, reckless and/or negligent conduct or unauthorized activity that violates FDA regulations, manufacturing standards, federal and state healthcare fraud and abuse laws and regulations, laws that require the true, complete and accurate reporting of financial information or data or other commercial or regulatory laws or requirements. It is not always possible to identify and deter misconduct by our employees and other third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations.

There is also an increasing trend toward more criminal prosecutions and compliance enforcement activities for noncompliance with the HIPAA as well as for data breaches involving protected health information (PHI). In the ordinary course of our business, we may receive PHI. If we are unable to comply with HIPAA or experience a data breach involving PHI, we could be subject to criminal and civil sanctions.

If our operations are found to violate any of the laws described above or any other laws and regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines, the curtailment or restructuring of our operations, the exclusion from participation in federal and state healthcare programs and imprisonment, any of which could adversely affect our ability to market our products and materially adversely affect our business, results of operations and financial condition. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business.

U.S. governmental regulation could restrict the use of our tissue products or our procurement of tissue.

In the United States, the procurement and transplantation of allograft bone tissue is subject to federal law pursuant to the National Organ Transplant Act ("NOTA"), a criminal statute which prohibits the purchase and sale of human organs used in human transplantation, including bone and related tissue, for "valuable consideration." NOTA permits reasonable payments associated with the removal, transportation, processing, preservation, quality control, implantation and storage of human bone tissue. We provide services in all of these areas in the United States, with the exception of removal and implantation, and receive payments for all such services. We make payments to certain of our clients and tissue banks for their services related to recovering allograft bone tissue on our behalf. If NOTA is interpreted or enforced in a manner which prevents us from receiving payment for services we render, or which prevents us from paying tissue banks or certain of our clients for the services they render for us, our business could be materially and adversely affected.

We are engaged through our marketing employees, independent sales agents and sales representatives in ongoing efforts designed to educate the medical community as to the benefits of our products, and we intend to continue our educational activities. Although we believe that NOTA permits payments in connection with these educational efforts as reasonable payments associated with the processing, transportation and implantation of our products, payments in connection with such education efforts are not exempt from NOTA's restrictions and our inability to make such payments in connection with our education efforts may prevent us from paying our sales representatives for their education efforts and could adversely affect our business and prospects. No federal agency or court has determined whether NOTA is, or will be, applicable to every allograft bone tissue-based material which our processing technologies may generate. Assuming that NOTA applies to our processing of allograft bone tissue, we believe that we comply with NOTA, but there can be no assurance that more restrictive interpretations of, or amendments to, NOTA will not be adopted in the future which would call into question one or more aspects of our method of operations.

Outside of the United States, our medical devices must comply with the laws and regulations of the foreign countries in which they are marketed, and compliance may be costly and time-consuming. Failure to obtain and maintain regulatory approvals in jurisdictions outside the United States will prevent us from marketing our products in such jurisdictions.

We currently market, and intend to continue to market, our products outside the United States. To market and sell our product in countries outside the United States, we must seek and obtain regulatory approvals, certifications or registrations and comply with the laws and regulations of those countries. These laws and regulations, including the requirements for approvals, certifications or registrations and the time required for regulatory review, vary from country to country. Obtaining and maintaining foreign regulatory approvals, certifications or registrations are expensive, and we cannot be certain that we will receive regulatory approvals, certifications or registrations in any foreign country in which we plan to market our products. The regulatory approval process outside the United States may include all of the risks associated with obtaining FDA clearance or approval in addition to other risks.

In order to market our products in the Member States of the European Economic Area ("EEA"), our devices are required to comply with the essential requirements of the EU Medical Devices Directives (Council Directive 93/42/EEC of 14 June 1993 concerning medical devices, as amended, and Council Directive 90/385/EEC of 20 June 2009 relating to active implantable medical devices, as amended). On April 5, 2017 the EU adopted MDR 2017/745, the new Medical Devices Regulation, replacing the two existing directives, the Medical Devices Directive and the Active Implantable Medical Devices Directive. The new regulation will enter into force after a three-year transition period ending in spring 2020. This means that the market access framework for all member countries of the European single market (28 EU member states including the UK, the members of the EEA – Iceland, Lichtenstein and Norway, and through bilateral treaties Switzerland) will change significantly. The key changes that are expected include stricter control, transparency, and enforcement, the strengthening of post market surveillance requirements, and the possibility that the classification of some of our products will change, requiring more rigorous clinical testing and data.

Compliance with these requirements entitles us to affix the CE conformity mark to our medical devices, without which they cannot be commercialized in the EEA. In order to demonstrate compliance with the essential requirements and obtain the right to affix the CE conformity mark we must undergo a conformity assessment procedure, which varies according to the type of medical device and its classification. Except for low risk medical devices (Class I), where the manufacturer can issue an EC Declaration of Conformity based on a self-assessment of the conformity of its products with the essential requirements of the Medical Devices Directives, a conformity assessment procedure requires the intervention of a "Notified Body", which is an organization accredited by a Member State of the EEA to conduct conformity assessments. The Notified Body would typically audit and examine the quality system for the manufacture, design and final inspection of our devices before issuing a certification demonstrating compliance with the essential requirements. Based on this certification we can draw up an EC Declaration of Conformity, which allows us to affix the CE mark to our products.

We may not obtain regulatory approvals or certifications outside the United States on a timely basis, if at all. Clearance or approval by the FDA does not ensure approval or certification by regulatory authorities or Notified Bodies in other countries, and approval or certification by one foreign regulatory authority or Notified Body does not ensure approval by regulatory authorities in other countries or by the FDA. We may be required to perform additional pre-clinical or clinical studies even if FDA clearance or approval, or the right to bear the CE mark, has been obtained. If we fail to obtain or maintain regulatory approvals, certifications or registrations in any foreign country in which we plan to market our products, our business, financial condition and operating results could be adversely affected.

In the EEA we must comply with the EU Medical Device Vigilance System, the purpose of which is to improve the protection of health and safety of patients, users and others by reducing the likelihood of reoccurrence of incidents related to the use of a medical device. Under this system, incidents must be reported to the competent authorities of the Member States of the EEA. An incident is defined as any malfunction or deterioration in the characteristics and/or performance of a device, as well as any inadequacy in the labeling or the instructions for use which, directly or indirectly, might lead to or might have led to the death of a patient or user or of other persons or to a serious deterioration in their state of health. Incidents are evaluated by the EEA competent authorities to whom they have been reported, and where appropriate, information is disseminated between them in the form of National Competent Authority Reports ("NCARs"). The Medical Device Vigilance System is further intended to facilitate a direct, early and harmonized implementation of Field Safety Corrective Actions ("FSCAs") across the Member States of the EEA where the device is in use. An FSCA is an action taken by a manufacturer to reduce a risk of death or serious deterioration in the state of health associated with the use of a medical device that is already placed on the market. An FSCA may include the recall, modification, exchange, destruction or retrofitting of the device. FSCAs must be communicated by the manufacturer or its legal representative to its customers and/or to the end users of the device through Field Safety Notices.

Further, the advertising and promotion of our products is subject to EEA Member States Medical Device related laws including 2017/745, the new Medical Device Regulation, or the 2006/114/EC concerning misleading and comparative advertising, as amended, or Directive 2005/29/EC on unfair commercial practices, as amended, as well as other EEA Member State legislation governing the advertising and promotion of medical devices. These laws may limit or restrict the advertising and promotion of our products to the general public and may impose limitations on our promotional activities with healthcare professionals. Our failure to comply with all these laws and requirements may harm our business and operating results.

We may also be required to perform post market clinical follow up studies to periodically evaluate the safety and performance of previously approved products. The results of these studies may cause us to lose our approvals, to market the product or require us to modify our products to address deficiencies in order to preserve our approvals to market the product. In March 2019, our Notified Body informed us that we are at risk of losing our CE mark on several products for failing to comply with post market clinical follow up requirements. We are working with our Notified Body to remediate this nonconformance. There can be no assurance that we will be able to remediate this matter on a timeline that is satisfactory to the Notified Body. If this risk were to materialize, we may be required to remove the effected products from the EU market countries until remediation is complete.

Modifications to our products may require new regulatory clearances or approvals or may require us to recall or cease marketing our products until clearances or approvals are obtained.

Any modification to a 510(k)-cleared device that could significantly affect its safety or effectiveness, including significant changes to a device's design, materials, chemical composition, energy source, or manufacturing process, or that would constitute a major change in its intended use, may require a new 510(k) clearance, a de novo classification, or possibly a PMA. Modifications to our products that were implemented without obtaining clearance or approval and for which FDA subsequently concludes that clearance or approval was required, may require us to recall or cease marketing the modified devices until clearance or approval is obtained. The FDA requires device manufacturers to initially make and document a determination of whether or not a modification requires a new approval, supplement or clearance. To do that, a manufacturer must determine if a change/modification to labeling of the device is a "major" change to the intended use statement (previously cleared by the FDA) or if a physical change/modification to the device itself "could significantly affect safety or effectiveness." If the labeling change is major and/or the physical change significantly affects safety and effectiveness, the manufacturer must file for an additional 510(k) clearance, de novo classification, or PMA for those changes before the modified device can be lawfully marketed. If the company concludes in its own self-determination that the changes do not meet either of the thresholds of "major "or "significantly affects," it may simply document those changes by way of an internal letter-to-file as part of the manufacturer's quality system recording keeping. However, the FDA can review a manufacturer's decision and may disagree. The FDA will normally review a decision made by a manufacturer in a letter-to-file during a routine plant inspection, which FDA targets to conduct every two years for high-risk (Class III) device manufacturers and certain low and moderate risk (Class I and II) device manufacturers. In such a review the FDA may determine that a new clearance or approval was required before the device was put into commercial distribution.

We have made modifications to our products in the past that we concluded did not require a new clearance or approval, and we may make additional modifications in the future that we believe do not or will not require additional clearances or approvals. No assurance can be given that the FDA would agree with any of our decisions not to seek 510(k) clearance, de novo classification, or PMA approval. The issue of whether a product modification requires clearance or approval, as opposed to a "letter-to-file" documenting the change, is not always clear and companies rely on FDA guidance to assist in making such decisions. Up until recently, companies looked to a 1997 guidance document from FDA regarding when a change to a cleared device required a new 510(k) clearance. FDA and manufacturers were very familiar with this guidance document. The FDA released new guidance, in October 2017, that superseded the 1997 guidance. The new guidance is more burdensome in terms of assessing and documenting whether a new 510(k) should be submitted.

If the FDA requires us to cease marketing and recall a modified device until we obtain a new 510(k) clearance, de novo classification, or PMA, our business, financial condition, operating results and future growth prospects could be materially and adversely affected. Further, our products could be subject to recall if the FDA determines, for any reason, that our products are not safe or effective. Any recall or FDA requirement that we seek additional approvals or clearances could result in significant delays, fines, increased costs associated with modification of a product, loss of revenue and potential operating restrictions imposed by the FDA. Obtaining clearances and approvals can be a time-consuming process, and delays in obtaining required future clearances or approvals would adversely affect our ability to introduce new or enhanced products in a timely manner, which in turn would harm our future growth.

Clinical trials can be long, expensive and ultimately uncertain, which could jeopardize our ability to obtain regulatory approval and market our products or affect our ability to make claims for our products that are necessary or desirable for commercialization.

Clinical trials are generally required to support a de novo or PMA application and are sometimes required for 510(k) clearance. Such trials generally require an investigational device exemption application, or IDE, approved in advance by the FDA for a specified number of patients and study sites, unless the product is deemed a nonsignificant risk device, or another exemption applies. Clinical trials are subject to extensive monitoring, recordkeeping and reporting requirements. All clinical trials, including IDE studies and nonsignificant risk device studies, must be conducted under the oversight of an institutional review board ("IRB") for the relevant clinical trial sites and must comply with FDA regulations, including but not limited to those relating to good clinical practices. To conduct a clinical trial, we also are required to obtain the patients' informed consent in a form and substance that complies with both FDA requirements and state and federal privacy and human subject protection regulations, unless an exemption applies. We, the FDA or the IRB could suspend a clinical trial at any time for various reasons, including a belief that the risks to study subjects outweigh the anticipated benefits. In addition, the commencement or completion of any clinical trial may be delayed or halted for numerous reasons, including, but not limited to patients not enrolling in clinical trials at the rate we expect, patients experiencing adverse side effects, third-party contractors failing to perform in accordance with our anticipated schedule or consistent with good clinical practices, negative interim trial results, or our inability to obtain sufficient quantities of raw materials to produce our products. Clinical trials often take several years to execute. The outcome of any trial is uncertain and may have a significant impact on the success of our current and future products and future profits. Our development costs may increase if we have material delays in clinical trials or if we need to perform more or larger clinical trials than planned. If this occurs, our financial results and the commercial prospects for our products may be harmed. Even if a trial is completed, the results of clinical testing may not adequately demonstrate the safety and effectiveness of the device or may otherwise not be sufficient to obtain FDA approval or clearance to market the product in the United States. Moreover, success in pre-clinical studies and early clinical trials does not ensure that later clinical trials will be successful, and we cannot be sure that the results of the later trials will replicate those of earlier or prior trials. It is also possible that subjects enrolled in our clinical trials will experience adverse side effects that are not an anticipated part of the product's safety profile and, if so, these findings may result in lower market acceptance, which could have a material and adverse effect on our business, results of operations and financial condition.

Our manufacturing operations are required to comply with the FDA's and other governmental authorities' laws and regulations regarding the manufacture and production of medical devices, which is costly and could subject us to enforcement action.

We and certain of our third-party manufacturers and suppliers are required to comply with the FDA's current Good Manufacturing Practices ("cGMP") requirements and Quality System Regulations ("QSR"), which cover, among other things, the methods of documentation of the design, testing, production, control, quality assurance, labeling, packaging, sterilization, storage and shipping of our products. We and certain of our suppliers also are subject to the regulations of foreign jurisdictions regarding the manufacturing process for our products marketed outside of the United States. The FDA enforces the QSR through periodic announced (routine) and unannounced ("for cause" or directed) inspections of manufacturing facilities. The failure by us or one of our third-party manufacturers or suppliers to comply with applicable statutes and regulations administered by the FDA and other regulatory bodies, or the failure to timely and adequately respond to any adverse inspectional observations or product safety issues, could result in, among other things, any of the following enforcement actions:

- untitled letters, warning letters, fines, injunctions, consent decrees, disgorgement of profits, criminal and civil penalties;
- customer notifications or repair, replacement, refunds, recall, detention or seizure of our products;
- operating restrictions or partial suspension or total shutdown of production;
- refusing or delaying our requests for clearance (510(k)), de novo classification, or approval (PMA) of new products or modified products;
- withdrawing 510(k) clearances, de novo classifications, or PMAs that have already been granted;
- refusal to grant export certificates for our products; or
- criminal prosecution.

Any of these actions could impair our ability to produce our products in a cost-effective and timely manner in order to meet our customers' demands. We also may be required to bear other costs or take other actions that may have a negative impact on our future revenue and our ability to generate profits. Furthermore, our key component suppliers may not currently be or may not continue to be in compliance with all applicable regulatory requirements, which could result in our failure to produce our products on a timely basis and in the required quantities, if at all.

Even if our medical device products are cleared or approved by regulatory authorities, if we or our suppliers fail to comply with ongoing FDA or other foreign regulatory authority requirements, or if we experience unanticipated problems with our products, these products could be subject to restrictions or withdrawal from the market.

Any product that we market, will be subject to continued regulatory review, oversight and periodic inspections by the FDA and other domestic and foreign regulatory bodies. Such oversight will cover, among other things, the product's design and manufacturing processes, the company's quality system and compliance with reporting requirements, the company's compliance with post-approval clinical data requirements, and the company's promotional activities related to its products.

Even if regulatory clearance or approval of a product is granted, such clearance or approval may be subject to limitations on the intended uses for which the product may be marketed and reduce our potential to successfully commercialize the product and generate revenue from the product. If the FDA determines that our promotional materials, labeling, training or other marketing or educational activities constitute promotion of an unapproved use, it could request that we cease or modify our training or promotional materials or subject us to regulatory enforcement actions. It is also possible that other federal, state or foreign enforcement authorities might take action if they consider our training or other promotional materials to constitute promotion of an unapproved use, which could result in significant fines or penalties under other statutory authorities, such as laws prohibiting false claims for reimbursement.

In addition, we may be required to conduct costly post-market testing and surveillance to monitor the safety or effectiveness of our products. Later discovery of previously unknown problems with our products, including unanticipated adverse events or adverse events of unanticipated severity or frequency, manufacturing problems, or failure to comply with regulatory requirements such as QSR, may result in, among other things, changes to labeling, restrictions on such products or manufacturing processes, product corrections, removal of the products from the market, voluntary or mandatory recalls, a requirement to repair, replace or refund the cost of any medical device we manufacture or distribute, fines, withdrawal of regulatory clearance or approvals, delays in or refusals of new 510(k)s, de novo or PMA applications, untitled letters, warning letters, refusal to grant export certificates for our products, product seizures, injunctions or the imposition of civil or criminal penalties which would adversely affect our business, operating results and prospects.

The use, misuse or off-label use of our products may harm our image in the marketplace or result in injuries that lead to product liability suits, which could be costly to our business or result in FDA sanctions if we are deemed to have engaged in improper promotion of our products.

Our products currently marketed in the United States have been cleared by the FDA's 510(k) process for use under specific circumstances. Our promotional materials and training methods must comply with FDA and other applicable laws and regulations, including the prohibition on the promotion of a medical device for a use that has not been cleared or approved by the FDA. We believe that the specific surgical procedures for which our products are marketed fall within the general intended use of the surgical applications that have been cleared by the FDA. However, the FDA could disagree and require us to stop promoting our products for those specific indications/procedures until we obtain FDA clearance or approval for them. Use of a device outside of its cleared or approved indication is known as "off-label" use. We cannot prevent a surgeon from using our products or procedure for off-label use, as the FDA does not restrict or regulate a physician's choice of treatment within the practice of medicine. However, if the FDA determines that our promotional activities, reimbursement advice or training of sales representatives or physicians constitute promotion of an off-label use, the FDA could request that we modify our training or promotional or reimbursement materials or subject us to regulatory or enforcement actions, including, among other things, the issuance of an untitled letter, a warning letter, injunction, seizure, disgorgement of profits, a civil fine and criminal penalties. Other federal, state or foreign governmental authorities also might take action if they consider our promotion or training materials to constitute promotion of an uncleared or unapproved use, which could result in significant fines or penalties under other statutory authorities, such as laws prohibiting false claims for reimbursement. For example, the government may take the position that off-label promotion resulted in inappropriate reimbursement for an off-label use in violation of the Federal False Claims Act for which it might impose a civil fine and even pursue criminal action. In those possible events, our reputation could be damaged, and adoption of the products would be impaired. Although we train our sales force not to promote our products for off-label uses, and our instructions for use in all markets specify that our products are not intended for use outside of those indications cleared for use, the FDA or another regulatory agency could conclude that we have engaged in off-label promotion.

There may be increased risk of injury if surgeons attempt to use our products off-label. Furthermore, the use of our products for indications other than those indications for which our products have been cleared by the FDA may not effectively treat such conditions, which could harm our reputation in the marketplace among surgeons and patients.

There may be increased risk of injury and product liability if surgeons misuse our products or do not follow recommended user and techniques and guidelines. Product liability claims are expensive to defend and could divert our management's attention and result in substantial damage awards against us. Any of these events could harm our business and operating results.

If our products cause or contribute to a death or a serious injury, or malfunction in certain ways, we will be subject to medical device reporting regulations, which can result in voluntary corrective actions or agency enforcement actions.

Under the FDA medical device reporting regulations, medical device manufacturers are required to report to the FDA information that a device has or may have caused or contributed to a death or serious injury or has malfunctioned in a way that would likely cause or contribute to death or serious injury if the malfunction of the device or one of our similar devices were to recur. Under the FDA's reporting regulations applicable to human cells and tissue and cellular and tissue-based products ("HCT/Ps"), we are required to report all adverse reactions involving a communicable disease if it is fatal, life threatening, or results in permanent impairment of a body function or permanent damage to body structure. If we fail to report these events to the FDA within the required timeframes, or at all, the FDA could take enforcement action against us. Any such adverse event involving our products also could result in future voluntary corrective actions, such as recalls or customer notifications, or agency action, such as mandatory recalls, inspection or enforcement action. Any corrective action, whether voluntary or involuntary, as well as defending ourselves in a lawsuit, would require the dedication of our time and capital, distract management from operating our business, and may harm our reputation and financial results.

We may implement a product recall or voluntary market withdrawal due to product defects or product enhancements and modifications, which would significantly increase our costs.

The FDA and similar foreign governmental authorities have the authority to require the recall of commercialized products. In addition, foreign governmental bodies have the authority to require the recall of our products in the event of material deficiencies or defects in design or manufacture. Manufacturers may, under their own initiative, recall a product if any material deficiency in a device is found. A government-mandated or voluntary recall by us or one of our distributors could occur as a result of component failures, manufacturing errors, design or labeling defects or other deficiencies and issues. Recalls of any of our products would divert managerial and financial resources and have an adverse effect on our financial condition and results of operations. The FDA requires that certain recalls undertaken to reduce a risk to health be reported to the FDA within 10 working days after the recall is initiated. Companies are required to maintain certain records of recalls, even if they are not reportable to the FDA. We may initiate voluntary recalls involving our products in the future that we determine do not require notification of the FDA. If the FDA disagrees with our determinations, they could require us to report those actions as recalls. A future recall announcement could harm our reputation with customers and negatively affect our sales. In addition, the FDA could take enforcement action for failing to report the recalls when they were conducted.

In December 2018, we initiated a Class 2 recall of our Calix Lumbar Spine Implant System due to a risk of compromised sterilization of the product. There were no device related adverse events reported for this product and we are working with the FDA on this recall and expect to have it closed out in 2019.

If we or our suppliers fail to comply with ongoing FDA or other regulatory authority requirements pertaining to Human Tissue Products, these products could be subject to restrictions or withdrawal from the market.

The FDA has statutory authority to regulate HCT/Ps. An HCT/P is a product containing or consisting of human cells or tissue intended for transplantation into a human patient, including allograft-based products. The FDA, EU and Health Canada have been working to establish more comprehensive regulatory frameworks for allograft-based, tissue-containing products, which are principally derived from cadaveric tissue. Certain of our products are regulated as HCT/Ps and are not marketed pursuant to the FDA's medical device regulatory authority, and therefore are not subject to FDA clearance or approval. Although we have not obtained premarket approval for these products, they are nonetheless subject to regulatory oversight. Human tissues intended for transplantation have been regulated by the FDA since 1993.

Section 361 of the PHSA authorizes the FDA to issue regulations to prevent the introduction, transmission or spread of communicable disease. HCT/Ps regulated as 361 HCT/Ps are subject to requirements relating to: registering facilities and listing products with the FDA; screening and testing for tissue donor eligibility; current Good Tissue Practice, or cGTP, when processing, storing, labeling and distributing HCT/Ps, including required labeling information; stringent recordkeeping; and adverse event reporting. The FDA has also proposed extensive additional requirements that address sub-contracted tissue services, tracking to the recipient/patient, and donor records review. If a tissue-based product is considered human tissue, the FDA requirements focus on preventing the introduction, transmission and spread of communicable diseases. A product regulated solely as a 361 HCT/P is not required to undergo premarket clearance (510(k)) or approval (de novo or PMA).

The FDA may inspect facilities engaged in manufacturing 361 HCT/Ps and may issue untitled letters, warning letters, or otherwise authorize orders of retention, recall, destruction and cessation of manufacturing if the FDA has reasonable grounds to believe that an HCT/P or the facilities where it is manufactured are in violation of applicable regulations. There also are requirements relating to the import of HCT/Ps that allow the FDA to make a decision as to the HCT/Ps' admissibility into the United States.

An HCT/P is eligible for regulation solely as a 361 HCT/P if it is: (i) minimally manipulated; (ii) intended for homologous use as determined by labeling, advertising or other indications of the manufacturer's objective intent; (iii) the manufacture does not involve combination with another article, except for water, crystalloids or a sterilizing, preserving, or storage agent (not raising new clinical safety concerns for the HCT/P); and (iv) it does not have a systemic effect and is not dependent upon the metabolic activity of living cells for its primary function or, if it has a systemic effector is dependent upon the metabolic activity of living cells for its primary function, it is intended for autologous use or allogeneic use in a first or second degree relative or for reproductive use. If any of these requirements are not met, then the HCT/P is also subject to applicable biologic, device, or drug regulation under the FDCA or the PHSA. These biologic, device or drug HCT/Ps must comply both with the requirements exclusively applicable to 361 HCT/Ps and, in addition, with requirements applicable to biologics under the PHSA, or devices or drugs under the FDCA, including premarket licensure, clearance or approval.

Over the course of several years, the FDA issued comprehensive regulations that address manufacturer activities associated with HCT/Ps. The first requires that companies that produce and distribute HCT/Ps register with the FDA. This set of regulations also includes the criteria that must be met in order for the HCT/P to be eligible for marketing solely under Section 361 of the PHSA and the regulations in 21 CFR Part 1271, rather than under the drug or device provisions of the FDCA or the biological product licensing provisions of the PHSA. The second set of regulations provides criteria that must be met for donors to be eligible to donate tissues and is referred to as the "Donor Eligibility" rule. The third rule governs the processing and distribution of the tissues and is often referred to as the "Current Good Tissue Practices" rule. The "Current Good Tissue Practices" rule covers all stages of allograft processing, from procurement of tissue to distribution of final allografts. Together these regulations are designed to ensure that sound, high quality practices are followed to reduce the risk of tissue contamination and of communicable disease transmission to.

At the time they came into effect approximately fifteen years ago, these regulations increased regulatory scrutiny within the industry in which we operate and have led to increased enforcement action which affects the conduct of our business. In addition, these regulations can increase the cost of tissue recovery activities. The FDA periodically inspects tissue processors to determine compliance with these requirements. Allegations of violations of applicable regulations noted by the FDA during facility inspections could adversely affect the continued marketing of our products. We believe we comply with all aspects of 21 CFR Part 1271 that we are required to comply with, although there can be no assurance that we will comply, or will comply on a timely basis, in the future. Entities that provide us with allograft bone tissue are responsible for performing donor recovery, donor screening and donor testing and our compliance with those aspects of the Current Good Tissue Practices regulations that regulate those functions are dependent upon the actions of these independent entities. If our suppliers fail to comply with applicable requirements, our products and our business could be negatively affected. If the FDA determines that we have failed to comply with applicable regulatory requirements, it can impose a variety of enforcement actions from public warning letters, fines, injunctions, consent decrees and civil penalties to suspension or delayed issuance of approvals, seizure of our products, total or partial shutdown of our production, withdrawal of approvals, and criminal prosecutions. If any of these events were to occur, it could materially adversely affect us.

In addition, the FDA could disagree with our conclusion that some of our HCT/Ps meet the criteria for marketing solely under Section 361 of the PHSA, and therefore do not require approval or clearance of a marketing application. For our HCT/Ps that are not combined with another article, the FDA could conclude that the tissue is more than minimally manipulated, that the product is intended for a non-homologous use, or that the product has a systemic effect or is dependent on the metabolic activity of living cells for its primary function. If the FDA were to draw these conclusions, it would likely require the submission and approval or clearance of a marketing application in order for us to continue to market the product. Such an action by the FDA could cause negative publicity, decreased or discontinued product sales, and significant expense in obtaining required marketing approval or clearance.

Procurement of certain human organs and tissue for transplantation, including allograft tissue we may use in future products, is subject to federal regulation under National Organ Transplant Act. NOTA prohibits the acquisition, receipt, or other transfer of certain human organs, including bone and other human tissue, for valuable consideration within the meaning of NOTA. NOTA permits the payment of reasonable expenses associated with the removal, transportation, implantation, processing, preservation, quality control and storage of human organs. For any future products implicating NOTA's requirements, we would reimburse tissue banks for their expenses associated with the recovery, storage and transportation of donated human tissue that they would provide to us. NOTA payment allowances may be interpreted to limit the amount of costs and expenses that we may recover in our pricing for our services, thereby negatively impacting our future revenue and profitability. If we were to be found to have violated NOTA's prohibition on the sale or transfer of human tissue for valuable consideration, we would potentially be subject to criminal enforcement sanctions, which could materially and adversely affect our operating results. Further, in the future, if NOTA is amended or reinterpreted, we may not be able to pass these expenses on to our customers and, as a result, our business could be adversely affected.

Other regulatory entities with authority over our products and operations include state agencies enforcing statutes and regulations covering tissue banking. Regulations issued by Florida, New York, California and Maryland will be particularly relevant to our business. Most states do not currently have tissue banking regulations. It is possible that others may make allegations against us or against donor recovery groups or tissue banks about non-compliance with applicable FDA regulations or other relevant statutes or regulations.

Allegations like these could cause regulators or other authorities to take investigative or other action or could cause negative publicity for our business and the industry in which we operate.

Our products may be subject to regulation in the European Union ("EU") as well, should we enter that market. In the European Union regulations, if applicable, differ from one EU member state to the next. Because of the absence of a harmonized regulatory framework and the proposed regulation for advanced therapy medicinal products in the European Union, as well as for other countries, the approval process for human derived cell or tissue based medical products may be extensive, lengthy, expensive and unpredictable. Some of our products may be subject to EU member states' regulations that govern the donation, procurement, testing, coding, traceability, processing, preservation, storage, and distribution of human tissues and cells and cellular or tissue-based products. Some EU member states have their own tissue banking regulations.

Loss of AATB Accreditation would have a material adverse effect on us.

We are accredited with the American Association of Tissue Banks ("AATB"), a private non-profit organization that accredits tissue banks and sets industry standards. Although AATB accreditation is voluntary and not required by law, as a practical matter, many of our customers would not purchase our products if we failed to maintain our AATB accreditation. Although we make every effort to maintain our AATB accreditation, the accreditation process is somewhat subjective and lacks regulatory oversight. There can be no assurance that we will continue to remain accredited with the AATB.

Federal regulatory reforms may adversely affect our ability to sell our products profitably.

From time to time, legislation is drafted and introduced in Congress that could significantly change the statutory provisions governing the regulatory approval, manufacture and marketing of regulated products or the reimbursement thereof. In addition, FDA regulations and guidance are often revised or reinterpreted by the FDA in ways that may significantly affect our business and our products. Any new regulations or revisions or reinterpretations of existing regulations may impose additional costs or lengthen review times of future products. In addition, FDA regulations and guidance are often revised or reinterpreted by the agency in ways that may significantly affect our business and our products. It is impossible to predict whether legislative changes will be enacted or FDA regulations, guidance or interpretations changed, and what the impact of such changes, if any, may be.

For example, the FDA may change its clearance and approval policies, adopt additional regulations or revise existing regulations, or take other actions which may prevent or delay approval or clearance of our products under development or impact our ability to modify our currently cleared products on a timely basis. Any change in the laws or regulations that govern the clearance and approval processes relating to our current and future products could make it more difficult and costly to obtain clearance or approval for new products, or to produce, market and distribute existing products. Significant delays in receiving clearance or approval, or the failure to receive clearance or approval for our new products would have an adverse effect on our ability to expand our business.

Product pricing (and, therefore, profitability) is subject to regulatory control which could impact our revenue and financial performance.

The pricing and profitability of our products may become subject to control by the government and other third-party payors. The continuing efforts of governmental and other third-party payors to contain or reduce the cost of healthcare through various means may adversely affect our ability to successfully commercialize our products. In most foreign markets, the pricing and/or profitability of certain diagnostics and prescription pharmaceuticals are subject to governmental control. In the United States, we expect that there will continue to be federal and state proposals to implement similar governmental control, though it is unclear which proposals will ultimately become law, if any. Changes in prices, including any mandated pricing, could impact our revenue and financial performance.

Our revenues depend upon prompt and adequate coverage and reimbursement from public and private insurers and national health systems.

Political, economic and regulatory influences are subjecting the healthcare industry, including the medical device industry, in the United States to fundamental change. The ability of hospitals to purchase our products depends in part on the extent to which reimbursement for the costs of such materials and related treatments will continue to be available from governmental health administration authorities, private health coverage insurers and other organizations. In the United States, healthcare providers who purchase our products generally rely on these third-party payors to pay for all or a portion of the cost of our products as a component of a single bundled payment amount for the procedures in which the products are used. Because there is often no separate third-party payor reimbursement to the provider for our products, the additional cost associated with purchasing our products can impact the provider's profit margin. If third-party payor reimbursement to providers for procedures involving our products decreases, some of our target customers may be unwilling to purchase our products in favor of purchasing less expensive alternatives. In addition, third-party payors of hospital services and hospital outpatient services, including Medicare, Medicaid and private healthcare insurers, annually revise their payment methodologies and amounts, which can result in stricter standards for reimbursement of hospital charges for certain medical procedures or the elimination of or reduction in reimbursement. Further, Medicare, Medicaid and private healthcare insurer cutbacks could create downward price pressure on our products. All of these factors could adversely affect our business.

Our employees may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements, which could have a material adverse effect on our business.

We are exposed to the risk of employee fraud or other misconduct. Misconduct by employees could include failures to comply with FDA regulations, provide accurate information to the FDA, comply with manufacturing and reporting standards we have established, comply with federal and state healthcare fraud and abuse laws and regulations, report financial information or data accurately, or disclose unauthorized activities to us. In particular, sales, marketing, and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, kickbacks, self-dealing, and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs, and other business arrangements. Employee misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a substantial impact on our business and results of operations, including the imposition of substantial fines or other sanctions.

Risks Related to Our Intellectual Property

If we lose any existing or future intellectual property lawsuits, a court could require us to pay significant damages or prevent us from selling our products.

The medical device industry is litigious with respect to patents and other intellectual property rights. Companies in the medical device industry have used intellectual property litigation to gain a competitive advantage. In December 2018, a complaint was filed by RSB Spine, LLC against us which claims that some of our products, including the Irix-ATM Lumbar Integrated Fusion System and the Irix-CTM Cervical Integrated Fusion System, infringe certain of RSB Spine's patents. The complaint seeks, among other relief, an injunction against future infringement, unspecified damages for infringement, and treble damages for willful infringement. Legal proceedings, regardless of the outcome, could drain our financial resources and divert the time and effort of our management. If we lose one of these proceedings, a court could require us to pay significant damages to third parties, indemnify third parties from loss, require us to seek licenses from third parties, pay ongoing royalties, redesign our products, or prevent us from manufacturing, using or selling our products. In addition to being costly, protracted litigation to defend or prosecute our intellectual property rights could result in our customers or potential customers deferring or limiting their purchase or use of the affected products until resolution of the litigation.

If our patents and other intellectual property rights do not adequately protect our products, we may lose market share to our competitors and be unable to operate our business profitably.

We rely on patents, trade secrets, copyrights, know-how, trademarks, license agreements, and contractual provisions to establish our intellectual property rights and protect our products. These legal means, however, afford only limited protection and may not completely protect our rights, for example, competitors may be able to design around some of our intellectual property rights to develop competing but non-infringing technologies. In addition, we cannot be assured that any of our pending patent applications will issue. The U.S. Patent and Trademark Office (or applicable foreign intellectual property office) may deny or require a significant narrowing of the claims in its pending patent applications and the patents issuing from such applications. Any patents issuing from the pending patent applications may not provide us with significant commercial protection or sufficient commercial protection to prevent competitors from utilizing similar but non-infringing technologies. We could incur substantial costs in proceedings before the U.S. Patent and Trademark Office. These proceedings could result in adverse decisions as to the priority of our inventions and the narrowing or invalidation of claims in issued patents. In addition, the laws of some of the countries in which our products are or may be sold may not protect our intellectual property to the same extent as U.S. laws or at all. We also may be unable to protect our rights in trade secrets and unpatented proprietary technology in these countries.

In addition, we hold licenses from third parties that are necessary to utilize certain technologies used in the design and manufacturing of some of our products. The loss of such licenses would prevent us from manufacturing, marketing, and selling these products, which could harm our business. If we, or the other parties from whom we would license intellectual property, fail to obtain and maintain adequate patent or other intellectual property protection for intellectual property used in our products, or if any protection is reduced or eliminated, others could use the intellectual property used in our products, resulting in harm to our competitive business position.

We seek to protect our trade secrets, know-how, and other unpatented proprietary technology, in part, with confidentiality agreements with our employees, independent distributors, and consultants. We cannot be assured, however, that the agreements will not be breached, adequate remedies for any breach would be available, or our trade secrets, know-how, and other unpatented proprietary technology will not otherwise become known to or independently developed by our competitors.

We may not be able to obtain or protect our proprietary rights relating to our products without resorting to costly and time-consuming litigation.

We may not be able to obtain, maintain and protect certain proprietary rights necessary for the development and commercialization of our products or product candidates. Our commercial success will depend in part on obtaining and maintaining patent protection on our products, successfully asserting these patents against competitors employing infringing technology, and successfully defending these patents against third-party challenges. Even if our patents cover a competing technology, a competitor may not accede to our demands to cease and desist or license our patent rights, which will then require us to pursue costly and time-consuming litigation. Our ability to commercialize our products will also depend in part on the patent positions of third parties, including those of our competitors. The patent positions of medical device and biotechnology companies can be highly uncertain and involve complex legal and factual questions. Accordingly, we cannot predict with certainty the scope and breadth of patent claims that may be afforded to other companies' patents. We could incur substantial costs in litigation if we are required to defend against patent suits brought by third parties, or if we initiate suits to protect our patent rights. Such suits that we may need to defend extend beyond suits by our competitors and may include patent assertion entities, which acquire and assert patents as a means to generate income, due to the expensive nature of patent litigation. In the ordinary course of litigation, attorney fees are not recoverable.

In addition to the risks involved with patent protection, we also face the risk that our competitors will infringe on our trademarks. Any infringement could lead to a likelihood of confusion and could result in lost sales. Similarly, while we are cautious to avoid infringing the rights of third parties, we cannot control a third party asserting its trademarks against us. There can be no assurance that we will prevail in any claims we make to protect our intellectual property, or in defense of any claims brought against us.

Future protection for our proprietary rights is uncertain which may impact our ability to successfully compete in our industry. The degree of future protection for our proprietary rights is uncertain. We cannot ensure that:

- we were the first to make the inventions covered by each of our patent applications;
- we were the first to file patent applications for these inventions;
- others will not independently develop similar or alternative technologies or duplicate any of our technologies;
- any of our pending patent applications will result in issued patents;
- any of our issued patents or those of our licensors will be valid and enforceable;
- any patents issued to us or our collaborators will provide a basis for commercially viable products or will provide us with any competitive advantages or will not be challenged by third parties;
- any of our patent or other intellectual property rights in the U.S. and the technologies embodied therein will provide or be subject to similar or any protection in foreign markets;
- we will develop additional proprietary technologies that are patentable;
- the patents of others will not have a material adverse effect on our business rights; or
- the measures we rely on to protect the intellectual property underlying our products will be adequate to prevent third parties from using our technology, all of which could harm our ability to compete in the market.

Risks Related to Our Common Stock

Shares of our common stock are equity securities and are subordinate to our outstanding indebtedness, which is significant.

Shares of our common stock are common equity interests. This means that our common stock will rank junior to any outstanding shares of our preferred stock that we may issue in the future or to the indebtedness under our Second Amended and Restated Credit Agreement and any future indebtedness we may incur and to all creditor claims and other non-equity claims against us and our assets available to satisfy claims on us, including claims in a bankruptcy or similar proceeding. Additionally, unlike indebtedness, where principal and interest customarily are payable on specified due dates, in the case of our common stock, (i) dividends are payable only when and if declared by our board of directors or a duly authorized committee of our board of directors, and (ii) as a corporation, we are restricted to making dividend payments and redemption payments out of legally available assets. We have never paid a dividend on our common stock and have no current intention to pay dividends in the future. Furthermore, our common stock places no restrictions on our business or operations or on our ability to incur indebtedness or engage in any transactions, subject only to the voting rights available to stockholders generally.

Funds affiliated with OrbiMed own, in the aggregate, approximately 70% of our outstanding common stock, and beneficially own, with their warrants, approximately 75%, and hold all of our outstanding indebtedness and therefore can exert significant influence or control over our corporate matters.

Funds affiliated with OrbiMed Advisors LLC, OrbiMed Royalty Opportunities II, LP ("Royalty Opportunities") and ROS Acquisition Offshore LP ("ROS"), own approximately 70% of our outstanding common stock and beneficially own, with their warrants, approximately 75% of our outstanding common stock. Pursuant to an Investor Rights Agreement, dated as of February 14, 2018 ("Investor Rights Agreement"), by and among the Company and certain stockholders, including without limitation, Royalty Opportunities and ROS, for so long as the Ownership Threshold (as defined in the Investor Rights Agreement) is met, these funds are entitled to nominate such individuals to the Board of Directors constituting a majority of the directors. Michael Eggenberg, Matthew Rizzo and Jeffrey Peters are currently the three director representatives per the terms of the Investor Rights Agreement. In addition, Royalty Opportunities and ROS are the lenders under our Second Amended and Restated Credit Agreement and hold all of our outstanding indebtedness thereunder and hold warrants to purchase in the aggregate an additional 2,407,309 shares of our common stock. Because of their significant share ownership and control, OrbiMed has the ability to exert substantial influence or actual control over our management and affairs and over substantially all matters requiring action by our stockholders, including amendments to our Amended and Restated Certificate of Incorporation, Amended and Restated Bylaws, election and removal of directors, any proposed merger, consolidation or sale of all or substantially all of our assets and other corporate transactions. This concentration of ownership may delay or prevent a change in control otherwise favored by our other stockholders and could depress our stock price.

We are a "controlled company" within the meaning of the NYSE American rules and rely on exemptions from various corporate governance requirements.

We are a "controlled company" as defined in section 801(a) of the NYSE American Company Guide because more than 50% of the combined voting power of all of our outstanding common stock is beneficially owned by OrbiMed Advisors LLC. As a "controlled company," we are exempt from certain NYSE American rules requiring our board of directors to have a majority of independent members, a compensation committee composed entirely of independent directors and a nominating committee composed entirely of independent directors. These independence standards are intended to ensure that directors who meet those standards are free of any conflicting interest that could influence their actions as directors. We rely on NYSE American's controlled company exemptions and do not have a majority of independent directors on the Board, an independent nomination and governance committee or an independent compensation committee. Accordingly, you do not have the same protections afforded to stockholders of companies that are subject to all of the corporate governance requirements of the NYSE American rules.

We are subject to the continued listing standards of the NYSE American and our failure to satisfy these criteria may result in the delisting of our common stock.

Our common stock is listed on the NYSE American. In order to maintain this listing, we must maintain certain share prices, financial and share distribution targets, including maintaining a minimum amount of shareholders' equity and a minimum number of public shareholders. In addition to these objective standards, the NYSE American may delist the securities of any issuer (i) if, in its opinion, the issuer's financial condition and/or operating results appear unsatisfactory; (ii) if it appears that the extent of public distribution or the aggregate market value of the security has become so reduced as to make continued listing on the NYSE American inadvisable; (iii) if the issuer sells or disposes of principal operating assets or ceases to be an operating company; (iv) if an issuer fails to comply with the NYSE American's listing requirements; (v) if an issuer's common stock sells at what the NYSE American considers a "low selling price" and the issuer fails to correct this via a reverse split of shares after notification by the NYSE American; or (vi) if any other event occurs or any condition exists which makes continued listing on the NYSE America, in its opinion, inadvisable.

As part of these continued listing requirements, we must maintain stockholders' equity of $6.0 million or more since we have reported losses from continuing operations and/or net losses in our five most recent fiscal years under Section 1003(a)(iii) of the NYSE American Company Guide. Our audited consolidated financial statements for the year ended December 31, 2018 reflect stockholders' deficit of $43.8 million. According to Section 1003(a) of the Company Guide, the NYSE American will normally consider providing an exemption for entities not in compliance with Section 1003(a)(iii) of the Company Guide if the entity is in compliance with the following standards: (1) total value of market capitalization of at least $50,000,000; or total assets and revenue of $50,000,000 each in its last fiscal year, or in two of its last three fiscal years; and (2) the issuer has at least 1,100,000 shares publicly held, a market value of publicly held shares of at least $15,000,000 and 400 round lot shareholders. No assurance can be provided, however, that the Company will be able to meet this exemption.

If we fail to meet these continued listing requirements, we may receive a deficiency notice by the NYSE American that we are not in compliance with the requirements set forth in the NYSE American Company Guide. In response to this notice, we would likely submit to the NYSE American a plan to regain compliance with the requirements. If NYSE Regulation does not approve our plan or if we are unable to regain compliance by the end of the cure period which we expect to receive or if the NYSE American determines that we are not making progress consistent with the plan during the plan period, the NYSE American may initiate suspension and delisting procedures. If delisting proceedings are commenced, the NYSE American rules permit us to appeal a staff delisting determination. Our common stock will continue to be listed and traded on the NYSE American during the plan period, subject to our compliance with the NYSE American's other applicable continued listing standards. If the NYSE American delists our common stock, investors may face material adverse consequences, including, but not limited to, a lack of trading market for our securities, reduced liquidity, decreased analyst coverage of our securities, and an inability for us to obtain additional financing to fund our operations.

The market price of our common stock is extremely volatile, which may affect our ability to raise capital in the future and may subject the value of your investment to sudden decreases.

The market price for securities of medical device and biotechnology companies, including ours, historically has been highly volatile, and the market from time to time has experienced significant price and volume fluctuations that are unrelated to the operating performance of such companies. The trading volume and prices of our common stock have been and may continue to be volatile and could fluctuate widely due to factors beyond our control. During 2018, the sale price of our common stock ranged from $1.61 to $11.50 per share, after giving effect to the one-for-12 reverse stock split effected on February 13, 2018. Such volatility may be the result of broad market and industry factors. Future fluctuations in the trading price or liquidity of our common stock may harm the value of your investment in our common stock. Factors that may have a significant impact on the market price and marketability of our common stock include:

- the terms of any potential future debt restructuring or reorganization;
- our ability to make interest payments under our Second Amended and Restated Credit Agreement;
- our observance of covenants under our Second Amended and Restated Credit Agreement;
- announcements of technological innovations or new commercial products by us or our present or potential competitors;
- developments or disputes concerning patent or other proprietary rights;
- developments in our relationships with employees, suppliers, distributors, sales representatives and customers;
- acquisitions or divestitures;
- litigation and government proceedings;
- adverse legislation, including changes in governmental regulation;
- third-party reimbursement policies;
- additions or departures of key personnel;
- sales of our equity securities by our significant stockholders or management or sales of additional equity securities by our company;
- changes in securities analysts' recommendations;
- short selling;
- changes in health care policies and practices;
- the delisting of our common stock or halting or suspension of trading in our common stock by the NYSE American;
- economic and other external factors; and
- general market conditions.

In the past, following periods of volatility in the market price of a company's securities, securities class action litigation has often been instituted. These lawsuits often seek unspecified damages, and as with any litigation proceeding, one cannot predict with certainty the eventual outcome of pending litigation. Furthermore, we may have to incur substantial expenses in connection with any such lawsuits and our management's attention and resources could be diverted from operating our business as we respond to any such litigation. We maintain insurance to cover these risks for us and our directors and officers, but our insurance is subject to high deductibles to reduce premium expense, and there is no guarantee that the insurance will cover any specific claim that we currently face or may face in the future, or that it will be adequate to cover all potential liabilities and damages.

We may issue additional common stock resulting in stock ownership dilution.

Future dilution may occur due to additional future equity issuances and/or equity financing events by us, including any potential future restructuring of our outstanding indebtedness. In addition, we may raise additional capital through the sale of equity or convertible debt securities which would further dilute the ownership interests of our stockholders. In addition, if outstanding options or warrants or are exercised or otherwise converted into shares of our common stock, our stockholders will experience additional dilution.

The sale or availability for sale of substantial amounts of our securities could adversely affect their market price.

Sales of substantial amounts of our common stock or a preferred stock in the public market, or the perception that these sales could occur, could adversely affect the market price of our common stocks and could materially impair our ability to raise capital through equity offerings in the future. We cannot predict what effect, if any, market sales of securities beneficially owned by OrbiMed or any other stockholder or the availability of these securities for future sale will have on the market price of our common stock.

If securities analysts stop publishing research or reports about us or our business, or if they downgrade our common stock, the trading volume and market price of our common stock could decline.

The market for our common stock relies in part on the research and reports that industry or financial analysts publish about us or our business. We do not control these analysts. If any analyst who covers us downgrades our stock or lowers its future stock price targets or estimates of our operating results, our stock price could decline rapidly. Furthermore, if any analyst ceases to cover our Company, we could lose visibility in the market. Each of these events could, in turn, cause our trading volume and the market price of our common stock to decline.

We could issue "blank check" preferred stock without stockholder approval with the effect of diluting interests of then-current stockholders and impairing their voting rights, and provisions in our charter documents and under Delaware law could discourage a takeover that stockholders may consider favorable.

Our Amended and Restated Certificate of Incorporation provides for the authorization to issue up to 10,000,000 shares of "blank check" preferred stock with designations, rights and preferences as may be determined from time to time by the Board of Directors. The Board of Directors is empowered, without stockholder approval, to issue one or more series of preferred stock with dividend, liquidation, conversion, voting or other rights which could dilute the interest of, or impair the voting power of, our common stockholders. The issuance of a series of preferred stock could be used as a method of discouraging, delaying or preventing a change in control. For example, it would be possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of our company. In addition, advanced notice is required prior to stockholder proposals, which might further delay a change of control.

We have never paid dividends and do not expect to do so in the foreseeable future.

We have not declared or paid any cash dividends on our common stock. The payment of dividends in the future will be dependent on our earnings and financial condition and on such other factors as our Board of Directors considers appropriate. Unless and until we pay dividends, stockholders may not receive a return on their shares. There is no present intention by our Board of Directors to pay dividends on our common stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, the terms of our Second Amended and Restated Credit Agreement preclude us from paying dividends. As a result, appreciation, if any, in the market price of our common stock will be your sole source of gain for the foreseeable future.

Item 1B. Unresolved Staff Comments

This Item 1B is inapplicable to Xtant as a smaller reporting company.

Item 2. Properties

We lease approximately 17,700 square feet in a building located at 600 Cruiser Lane, Belgrade, Montana 59714. This space includes six Class 100 (ISO 5) clean rooms, a fully equipped diagnostics laboratory, microbiology laboratory and testing laboratory. We lease the building under a ten-year operating lease which runs through August 2023. The lease also has a ten-year renewal option.

We lease an approximately 14,000 square foot facility at 664 Cruiser Lane, Belgrade, Montana 59714. This building is an FDA registered facility with a Class 10,000 (ISO 7) environmentally controlled area. The validated manufacturing areas and laboratory facilities located in this facility provide processing and testing space to manufacture medical devices pursuant to FDA, GMP regulations, and ISO 13485:2003. The facility is registered with the FDA for device design, device manufacture, and contract manufacture, as well as for screening, testing, storing, and distributing biological tissues.

We also lease approximately 21,000 square feet in a building located at 732 Cruiser Lane, Belgrade, Montana 59714, where one Class 1,000 (ISO 6) clean room is located.

We lease office space of approximately 225 square feet located at 9990 Coconut Road, Bonita Springs, FL 34135.

We lease office space of approximately 1,800 square feet located at 6363 Poplar Avenue, Suite 400, Memphis TN 38119 We plan to allow this lease to expire on August 1, 2019.

We lease office space of approximately 3,000 square feet located at 363 Centennial Parkway, Suite 220, Louisville, Colorado 80027. The Company intends to assign this lease to a third party.

We also lease a facility at 452 Alexandersville Road, Miamisburg, Ohio 45342. The leased property contains approximately 31,600 square feet. The Company's offices and operations at this facility were transferred to the Company's facilities in Belgrade, Montana in the fourth quarter of 2017. The facilities are leased under a three-year lease which runs through November 2019. As of February 28, 2019, we terminated our Miamisburg, OH lease, which was set to expire December 1, 2019.

Item 3. Legal Proceedings

On December 13, 2018, a complaint was filed by RSB Spine, LLC against Xtant Medical Holdings, Inc. which claims that some of our products, including the Irix-ATM Lumbar Integrated Fusion System and the Irix-CTM Cervical Integrated Fusion System, infringe certain of RSB Spine's patents. The complaint seeks an adjudication of infringement, an injunction against future infringement, unspecified damages for infringement, a finding that such infringement is willful, and treble damages for such willful infringement. This action was brought in the United States District Court for the District of Delaware. We intend to vigorously defend the claims in this action. Because this matter is in early stages and because of the complexity of the case, we cannot estimate the possible loss or range of loss, if any, associated with its resolution. However, there can be no assurance that the ultimate resolution of this matter will not result in a material adverse effect on our business, financial condition or results of operations.

On August 10, 2017, a civil suit complaint was filed against Xtant in the United States District Court, District of Nevada by Axis Spine NV, LLC ("Axis"), Case No. 2:17-CV-02147-APG-VCF. The complaint alleges breach of contract, breach of the implied covenant of good faith and fair dealing, and tortious interference with prospective economic advantage with respect to an alleged medical device distribution relationship between the parties. Specifically, Axis alleges that Xtant owes payments to Axis for its medical device distributions. Axis seeks relief in the form of damages in an amount in excess of $1.0 million. On March 6, 2019, the Court granted Xtant's motion for summary judgment on Axis's claims for breach of contract, and breach of the covenant of good faith and fair dealing but denied Xtant's motion for summary judgment on Axis's unjust enrichment claim. Xtant is evaluating its alternatives in light of the court order. Because this matter is in early stages and because of the complexity of the case, we cannot estimate the possible loss or range of loss, if any, associated with its resolution. However, there can be no assurance that the ultimate resolution of this matter will not result in a material adverse effect on our business, financial condition or results of operations.

In October 2016, Phoenix Surgical, Inc., a former distributor sued Xtant for its alleged participation in a scheme orchestrated by a former Phoenix Surgical sales representative to divert sales away from Phoenix Surgical to another entity. The other entity diverted approximately $285,000 in sales (or approximately $205,000 in gross profit) that would otherwise have gone to Phoenix Surgical. Phoenix Surgical alleges that Xtant and one of its former employees participated in this diversion of sales and that Xtant is liable to Phoenix Surgical for its loss, with treble damages for violation of a Connecticut statute. Xtant claims that the other entity was a legitimate distributor, its former employee acted on his own and Xtant had no way of knowing the other parties were diverting sales. Phoenix initially sued Xtant in Connecticut and in federal bankruptcy court because some other individuals involved have filed bankruptcy. Xtant was dismissed from those actions, and the dispute is now subject to arbitration in Colorado. The arbitration is scheduled for July 2019.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our common stock is listed on the NYSE American under the ticker symbol "XTNT."

Holders of Record

As of March 29, 2019, we had 174 holders of record.

Dividends

We have not paid any cash dividends and do not expect to do so in the foreseeable future. In addition, our Second Amended and Restated Credit Agreement precludes us from paying dividends.

Recent Sales of Unregistered Securities

On March 29, 2019, we entered into the Second Amended and Restated Credit Agreement with OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP (collectively, the "Investors"), as described in Item 9B below. As a condition to the effectiveness of the Second Amended and Restated Credit Agreement, on April 1, 2019, the Company will issue warrants to purchase an aggregate of 1.2 million shares of our Common Stock to the Investors, with an exercise price of $0.01 per share and an expiration date of April 1, 2029 (collectively, the "2019 Warrants"). The issuance of the 2019 Warrants was exempt from the registration requirements of the Securities Act of 1933, as amended (the "Securities Act"), pursuant to Section 4(a)(2) thereof and/or Regulation D promulgated thereunder. The issuance of any shares of our Common Stock in connection with the exercise of the 2019 Warrants is also expected to be exempt from the registration requirements of the Securities Act, pursuant to Section 4(a)(2) thereof and/or Regulation D promulgated thereunder.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

Not applicable.

Item 6. Selected Financial Data

This Item 6 is inapplicable to Xtant as a smaller reporting company.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operation

This Management's Discussion and Analysis provides material historical and prospective disclosures intended to enable investors and other users to assess our financial condition and results of operations. The following discussion should be read in conjunction with our consolidated financial statements and accompanying notes included in this Annual Report on Form 10-K. In addition to historical financial information, the following discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Some of the numbers included herein have been rounded for the convenience of presentation. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of many factors, including those discussed in the "Cautionary Statement Regarding Forward-Looking Statements" and under the heading "Part I. Item 1A. Risk Factors."

Executive Summary

We develop, manufacture and market regenerative medicine products and medical devices for domestic and international markets. Our products serve the specialized needs of orthopedic and neurological surgeons, including orthobiologics for the promotion of bone healing, implants and instrumentation for the treatment of spinal disease. We promote our products in the United States largely through independent distributors and stocking agents, augmented by direct employees.

During the first quarter of 2018, we effected a significant restructuring pursuant to which we converted an aggregate of $71.9 million of aggregate principal amount of debt into equity by issuing an aggregate of 10,590,954 shares of our common stock, in cancellation thereof; issued an additional 945,819 shares of our common stock in a private placement for an aggregate purchase price of $6.8 million, completed a 1-for-12 reverse split of our common stock after the close of business on February 13, 2018, and replaced our entire Board of Directors. We completed this restructuring during the second quarter of 2018 with a common stock stockholder rights offering, which expired on June 18, 2018 and resulted in the issuance of an additional 129 shares of common stock. Upon completion of this restructuring and as of December 31, 2018, two funds affiliated with OrbiMed, which held a significant portion of our converted indebtedness and continue to hold all of our currently outstanding debt, own approximately 70% of our outstanding common stock. Because of this significant ownership, we are a "controlled company" within the meaning of the NYSE American corporate governance standards.

During 2018, we experienced reduced revenues due primarily to company-initiated discontinued distributor arrangements and challenges in channel management, the highly competitive fixation distribution network, and no new product introductions over the past two years. We focused on reducing our operating expenses during 2018, which resulted in a 19.3% decrease in general and administrative expenses, a 20.9% decrease in sales and marketing expenses and a 30.5% decrease in research and development expenses compared to 2017. These decreases, however, were offset by a significant non-cash impairment of goodwill charge of $38.3 million and impairment of intangible assets charge of $9.8 million during the fourth quarter of 2018 relating primarily to assets acquired in connection with our 2015 X-spine acquisition.

As of December 31, 2018, our cash and cash equivalents were $6.8 million.

On March 29, 2019, we entered into a Second Amended and Restated Credit Agreement with our lenders (the "Second Amended and Restated Credit Agreement"), which amended and restated our prior Amended and Restated Credit Agreement dated as of July 27, 2015 among the parties thereto, and as subsequently amended through the Twenty-Fifth Amendment to the Amended and Restated Credit Agreement, the "Prior Credit Agreement").

Under the terms of the Second Amended and Restated Credit Agreement, the Prior Credit Agreement was amended to provide that:

- X-Spine may request additional term loans with ROS and Royalty Opportunities in the remaining amount available as Additional Delayed Draw Loans, and may make a request for new term loans in an aggregate amount of up to $10,000,000, the amount of each loan draw to be subject to our production of a thirteen-week cash flow forecast that is approved by ROS and Royalty Opportunities and shows a projected cash balance for the following two-week period of less than $1,500,000, as well as the satisfaction (or waiver in writing by each lender) of conditions precedent, including closing certificate, delivery of budget, and other satisfactory documents;
- No interest will accrue on the Loans under the Second Amended and Restated Credit Agreement from and after January 1, 2019 until March 31, 2020;
- Beginning April 1, 2020 through the maturity date of the Second Amended and Restated Credit Agreement, interest payable in cash will accrue on the Loans under the Credit Agreement at a rate per annum equal to the sum of (i) 10.00% plus (ii) the higher of (x) the LIBO Rate (as such term is defined in the Second Amended and Restated Credit Agreement) and (y) 2.3125%;
- The maturity date of the Loans is March 31, 2021;
- The Consolidated Senior Leverage Ratio and Consolidated EBITDA (as such terms were defined in the Credit Agreement) financial covenants were deleted and a new Revenue Base (as such term is defined in the Second Amended and Restated Credit Agreement) financial covenant was added; and
- The key person event default provision was revised to refer specifically to Kevin Brandt and Ron Berlin.

Comparison of Years Ended December 31, 2018 and December 31, 2017 (in thousands):

The following table sets forth our results of operations for 2018 and 2017.

	Year Ended December 31,			
	2018		2017	
	Amount	% of Revenue	Amount	% of Revenue
Revenue				
Orthopedic product sales	$ 71,814	99.5%	$ 82,513	99.9%
Other revenue	389	0.5%	99	0.1%
Total Revenue	72,203	100.0%	82,612	100.0%
Cost of Sales	28,717	39.8%	32,511	39.4%
Gross Profit	43,486	60.2%	50,101	60.6%
Operating Expenses				
General and administrative	12,881	17.0%	15,246	18.5%
Sales and marketing	32,059	44.4%	40,511	49.0%
Research and development	1,702	2.4%	2,441	3.0%
Depreciation and amortization	4,118	5.7%	5,485	6.6%
Impairment of goodwill and intangible assets	48,146	66.7%	17,586	21.3%
Restructuring expenses	2,970	4.1%	4,680	5.7%
Separation related expenses	1,568	2.2%	1,901	2.3%
Non-cash consulting expenses	120	1.0%	85	0.1%
Total Operating Expenses	103,564	143.4%	87,935	106.4%
Loss from Operations	(60,078)	(83.2)%	(37,834)	(45.8)%
Other Income (Expense)				
Interest expense	(10,145)	(14.1)%	(14,705)	(17.8)%
Change in warrant derivative liability	121	0.2%	203	0.2%
Other income (expense)	3	0.0%	(75)	(0.0)%
Total Other Income (Expense)	(10,021)	(13.9)%	(14,577)	(17.6)%
Net Loss from Operations Before (Provision) Benefit for Income Taxes	(70,099)	(97.1)%	(52,411)	(63.4)%
Benefit (Provision) for Income Taxes				
Current	-	0.0%		0.0%
Deferred	-	0.0%	-	0.0%
Net Loss	$ (70,099)	(97.1)%	$ (52,411)	(63.4)%

Revenue

Total revenue for the year ended December 31, 2018 decreased 12.6% to $72.2 million compared to $82.6 million in the prior year. The decrease of $10.4 million is primarily due to company-initiated discontinued distributor arrangements and challenges in channel management the highly competitive fixation distribution network, and no new product introductions over the past two years.

Cost of Sales

Costs of sales consist primarily of manufacturing and product purchase costs and depreciation of surgical trays. Cost of sales also includes reserves for estimated excess inventory, inventory on consignment that may be missing and not returned, and reserves for estimated missing and damaged consigned surgical instruments. Cost of sales decreased by 11.7%, or $3.8 million, to $28.7 million for the year ended December 31, 2018 from $32.5 million for the year ended December 31, 2017. This was primarily due to manufacturing cost savings achieved during 2018 as a result of the consolidation of facilities following the closure of our Dayton, Ohio operations in early 2018 and cost reduction initiatives to fully integrate hardware and biologics operations at the beginning of 2018. Cost of sales as a percent of total revenue was 39.8% of revenue for the year ended December 31, 2018, compared to 39.4% for the prior year. Reserves for estimated excess inventory, inventory on consignment that may be missing and not returned, and estimated missing and damaged consigned surgical instruments were $4.6 million in 2018 and $4.0 million in 2017. The reserve for 2018 was due primarily to the significant decrease in fixation sales and our change in estimate for determining excess and obsolete inventory to include 100% of fixation products with quantity on hand greater than two years of sales. The reserve for 2017 was due, in part, to litigation with a certain distributor.

Operating Expenses

Operating expenses include general and administrative expenses, sales and marketing expenses, research and development expenses, depreciation and amortization, impairment of goodwill and intangible assets, restructuring expenses and compensation costs, including separation related expenses and incentive compensation. Operating expenses increased 17.8%, or $15.6 million, for the year ended December 31, 2018 compared to the year ended December 31, 2017, primarily due to the $48.1 million impairment of goodwill and intangible assets. Almost all other components of operating expenses decreased during 2018 compared to 2017.

General and Administrative

General and administrative expenses consist principally of personnel costs for corporate employees, cash based and stock-based compensation related costs and corporate expenses for legal, accounting and other professional fees, as well as occupancy costs. General and administrative expenses decreased 15.5%, or $2.4 million, to $12.9 million for the year ended December 31, 2018, compared to the year ended December 31, 2017. The reduction in expenses is largely the result of decreased bad debt expense, personnel costs, and legal expenses incurred in 2018 compared to 2017.

Sales and Marketing

Sales and marketing expenses consist primarily of sales commissions, personnel costs for sales and marketing employees, costs for trade shows, sales conventions and meetings, travel expenses, advertising and other sales and marketing related costs. Sales and marketing expenses decreased 20.9%, or $8.5 million, to $32.1 million for the year ended December 31, 2018, compared to $40.5 million for of the year ended December 31, 2017. As a percentage of revenue, sales and marketing expenses were 44.4% in 2018 and 49.0% in the prior year. This reduction in sales and marketing expenses as a percent of revenue was primarily the result of changes made to the commission rate structure under certain distribution agreements, lower sales commissions, personnel reductions and a decline of other direct marketing expenses.

Research and Development

Research and development expenses consist primarily of internal costs for the development of new product technologies and processes. Research and development expenses decreased $0.7 million, or 30.3%, to $1.7 million for the year-ended December 31, 2018 from $2.4 million for the year ended December 31, 2017. The decrease is primarily due to the consolidation of the Dayton, Ohio, facility and the corresponding reduction in headcount.

Depreciation and Amortization

Depreciation and amortization expense consist of depreciation and amortization of long-lived intangible assets, patents, leasehold improvements and equipment. Depreciation and amortization expense decreased $1.4 million to $4.1 million for the year ended December 31, 2018, from $5.5 million for the year ended December 31, 2017 primarily due to lower new capital investments in 2018.

Impairment of Goodwill and Intangible Assets

The Company recorded an impairment charge in 2018 of $38.3 million to Goodwill based on the analysis performed in comparing the carrying value of assets, including cash, and non-interesting bearing liabilities to the derived enterprise value of the business.

The Company also recorded an impairment charge in 2018 of $9.8 million to Tradenames, Technology and Customer Relationships and in 2017 of $17.6 million related to Technology and Tradenames based on the carrying amount exceeding the future net cash flows expected to be generated by these intangible assets acquired through the X-spine acquisition.

See Note 4 to the consolidated financial statements for more information regarding these charges.

Restructuring expenses

Restructuring expenses decreased $1.7 million to $3.0 million for the year ended December 31, 2018, from $4.7 million for the year-ended December 31, 2017. Restructuring costs were incurred by the Company related to our recapitalization and performance improvement measurements.

Separation Related Expenses

Separation related expenses decreased $0.3 million to $1.6 million for the year ended December 31, 2018, from $1.9 million for the year ended December 31, 2017. Separation related expenses consist severance and related benefit expenses for personnel reductions as part of our restructuring and closure of our Dayton, Ohio facility, as well as severance paid to our former Chief Executive Officer.

Non-cash Consulting Expense

Non-cash consulting expense consists of non-cash expense associated with granting restricted stock and stock to directors and consultants. Non-cash consulting expense was $0.1 million for the year ended December 31, 2018, remaining consistent to the $0.1 million for the year ended December 31, 2017.

Interest Expense

Interest expense is related to interest incurred on our debt instruments. Interest expense for the year ended December 31, 2018 decreased $4.6 million to $10.1 million as compared to $14.7 million for the year ended December 31, 2017. The decrease in interest expense is due to the 24th and 25th amendments to the Prior Credit Agreement, resulting in lower effective interest rates on outstanding debt.

Change in Warrant Derivative Liability

For the year ended December 31, 2018, we recorded a gain in our non-cash warrant derivative liability of $0.1 million, and a gain in the year ended December 31, 2017 of $0.2 million were primarily driven by a change in the closing price of our common stock at December 31, 2018 and 2017, respectively. The liability is associated with the issuance of warrants as part of our prior convertible debt financing, our 2010 financing and our 2014 equity financing which contains certain provisions requiring the Company to record a change in the fair value of the warrant derivative liability from period to period.

Liquidity and Capital Resources

Working Capital

Since our inception, we have historically financed our operations through operating cash flows, as well as the private placement of equity securities and convertible debt, an equity credit facility, a debt facility, a common stock rights offering and other debt transactions.

The following table highlights several key measures of our working capital performance, and debt levels (in thousands):

	December 31,	
	2018	2017
Cash and cash equivalents	$ 6,797	$ 2,856
Accounts receivable, net	9,990	12,714
Inventories, net	17,301	22,423
Total current assets	34,677	39,699
Accounts payable	6,465	9,476
Accrued liabilities	5,150	15,845
Total current liabilities	12,051	25,818
Total working capital	22,626	13,881
Long-term debt, less issuance costs	77,939	137,962

Xtant has reduced its accounts payable from $9.5 million at December 31, 2017, to $6.5 million as of December 31, 2018. Accrued liabilities of $5.2 million at December 31, 2018 decreased from $15.8 million at December 31, 2017 primarily due to the accumulation of accrued interest on long-term debt, the payment of which has been delayed or converted to equity as noted in recent amendments of the Company's long-term debt agreements.

Total liabilities as of December 31, 2018 include $77.9 million of long-term debt due to the lenders under our credit facility.

Cash Flows

Net cash provided by operating activities for the year ended December 31, 2018 was $1.2 million driven primarily from management of working capital. For the comparable period of 2017, net cash used in operating activities was $0.5 million. The improvement in cash provided by operating activities is the result of our restructuring efforts in 2017 to improve liquidity, convert receivables to cash and reduce payables and accrued liabilities. The amendments to our Prior Credit Agreement during 2018 to allow for the non-payment of then current interest decreased our accrued interest on long-term debt by $5.9 million in the year ended December 31, 2018.

Net cash used in investing activities for the year ended December 31, 2018 was $0.4 million, primarily representing purchases of property and equipment. Net cash used in investing activities for the year ended December 31, 2017 was $1.6 million, primarily representing purchases of property and equipment, partially offset by proceeds from the sale of fixed assets.

Net cash provided by financing activities was $3.1 million for the year-ended December 31, 2018 due to $6.8 million in proceeds from a private placement, partially offset by $3.4 million in costs associated therewith and our debt conversion.

Second Amended and Restated Credit Agreement

On March 29, 2019, we entered into a Second Amended and Restated Credit Agreement (the "Second Amended and Restated Credit Agreement") with OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP. (collectively, the "Investors"), which amended and restated the prior Amended and Restated Credit Agreement dated as of July 27, 2015 among the parties thereto, and as subsequently amended through the Twenty-Fifth Amendment to the Amended and Restated Credit Agreement, the "Prior Credit Agreement").

The Second Amended and Restated Credit Agreement amended the Prior Credit Agreement to provide that X-Spine may request term loans with the Investors in an amount equal to the remaining commitment for additional delayed draw loans, which was approximately $2,200,000 as of the date of the Second Amended and Restated Credit Agreement, and request additional term loans in an aggregate amount of up to $10,000,000, the amount of each loan draw to be subject to our production of a thirteen-week cash flow forecast that is approved by the Investors and which shows a projected cash balance for the following two-week period of less than $1,500,000, as well as the satisfaction (or waiver in writing by each Investor) of conditions precedent, including closing certificate, delivery of budget, and other satisfactory documents. In addition, the Second Amended and Restated Credit Agreement provides that (i) no interest will accrue on the Loans under the Second Amended and Restated Credit Agreement from and after January 1, 2019 until March 31, 2020; (ii) beginning April 1, 2020 through the maturity date of the Second Amended and Restated Credit Agreement, interest payable in cash will accrue on the Loans under the Credit Agreement at a rate per annum equal to the sum of (a) 10.00% plus (b) the higher of (x) the LIBO Rate (as such term is defined in the Second Amended and Restated Credit Agreement) and (y) 2.3125%; (iii) the maturity date of the Loans is March 31, 2021; (iv) the Consolidated Senior Leverage Ratio and Consolidated EBITDA (as such terms were defined in the Prior Credit Agreement) financial covenants were deleted and a new Revenue Base (as such term is defined in the Second Amended and Restated Credit Agreement) financial covenant was added; and (v) the key person event default provision was revised to refer specifically to Kevin Brandt and Ron Berlin.

Under the terms of the Prior Credit Agreement we were required to comply with a minimum liquidity covenant, a consolidated leverage ratio covenant and a minimum consolidated EBITDA covenant. We were in compliance with all covenants under the Prior Credit Agreement as of December 31, 2018. As of December 31, 2018, we had $55.8 million in borrowings outstanding under the Prior Credit Agreement and $2.2 million in unused availability under the Prior Credit Agreement. As a result of the Second Amended and Restated Credit Agreement, as of March 29, 2019 we added an additional $10 million in unused availability under our Credit Facility.

Cash Requirements

We believe that our December 31, 2018 cash and cash equivalents of $6.8 million, together with the subsequent availability of $10.0 million under our new Second Amended and Restated Credit Agreement, will be sufficient to meet our anticipated cash requirements through the end of March 2020. However, we may require additional funds to fund our future operations and business strategy. Accordingly, there is no assurance that we will not need or seek additional funding prior to such time. We may elect to raise additional funds even before we need them if market conditions for raising additional capital are favorable. We may seek to raise additional funds through various sources, such as equity and debt financings, additional debt restructurings or refinancings, or through strategic collaborations and license agreements. We can give no assurances that we will be able to secure additional sources of funds to support our operations, or if such funds are available to us, that such additional financing will be sufficient to meet our needs or on terms acceptable to us. This is particularly true if economic and market conditions deteriorate.

To the extent that we raise additional capital through the sale of equity or convertible debt securities or the restructuring or refinancing of our debt, the interests of our current stockholders may be diluted, and the terms may include liquidation or other preferences that adversely affect the rights of our current stockholders. If we issue preferred stock, it could affect the rights of our stockholders or reduce the value of our common stock. In particular, specific rights granted to future holders of preferred stock may include voting rights, preferences as to dividends and liquidation, conversion and redemption rights, sinking fund provisions, and restrictions on our ability to merge with or sell our assets to a third party. Additional debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. Prior to raising additional equity or debt financing, we must obtain the consent of the Investors, and no assurance can be provided that the Investors would provide such consent, which could limit our ability to raise additional financing.

Off Balance Sheet Arrangements

We do not have any off-balance sheet arrangements that have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity or capital expenditures or capital resources that are material to an investor in our shares.

Recent Accounting Pronouncements

Information regarding recent accounting pronouncements is included in Note 1 to the consolidated financial statements in "Item 8. Financial Statements and Supplementary Data."

Critical Accounting Estimates

All of our significant accounting policies and estimates are described in Note 1 to the consolidated financial statements in "Item 8. Financial Statements and Supplementary Data." Certain of our more critical accounting estimates require the application of significant judgment by management in selecting the appropriate assumptions in determining the estimate. By their nature, these judgments are subject to an inherent degree of uncertainty. We develop these judgments based on our historical experience, terms of existing contracts, our observance of trends in the industry, information provided by our customers, and information available from other outside sources, as appropriate. Different, reasonable estimates could have been used in the current period. Additionally, changes in accounting estimates are reasonably likely to occur from period to period. Both of these factors could have a material impact on the presentation of our financial condition, changes in financial condition, or results of operations.

We believe that the following financial estimates are both important to the portrayal of our financial condition and results of operations and require subjective or complex judgments. Further, we believe that the items discussed below are properly recorded in our financial statements for all periods presented. Our management has discussed the development, selection, and disclosure of our most critical financial estimates with the Audit Committee of the Board of Directors and with our independent auditors. The judgments about those financial estimates are based on information available as of the date of our financial statements. Those financial estimates include:

Goodwill and Intangible Assets

Goodwill represents the excess of costs over fair value of assets of businesses acquired. Goodwill and intangible assets acquired in a purchase business combination and determined to have indefinite useful lives are not amortized, instead they are tested for impairment annually and whenever events or circumstances indicate the carrying amount of the asset may not be recoverable. We conduct our impairment test on an annual basis and review the analysis assumptions on a quarterly basis. We test goodwill for impairment at the reporting unit level, which is an operating segment or one level below an operating segment, referred to as a component. A component of an operating segment is a reporting unit if the component constitutes a business for which discrete financial information is available and segment management regularly reviews the operating results of that component.

We chose December 31 to assess our annual goodwill for any impairment in order to closely align with the timing of our annual planning process. On an annual basis, or more frequently upon the occurrence of certain events, we test for goodwill impairment. In conducting the impairment test, we first assessed qualitative factors to determine whether it was more likely than not that the fair value of a reporting unit was less than its carrying amount as a basis for determining whether it was necessary to perform the two-step goodwill impairment test. If the qualitative step was not passed, we performed a two-step impairment test whereby in the first step, we would compare the fair value of the reporting unit with its carrying amount. If the carrying amount exceeded its fair value, we performed the second step of the goodwill impairment test to determine the amount of impairment. The second step, measuring the impairment loss, compared the implied fair value of the goodwill with the carrying value of the goodwill. Any excess of the goodwill carrying value over the implied fair value would be recognized as an impairment loss.

In our evaluation of goodwill, we performed an assessment of qualitative factors to determine if it is more-likely-than-not that goodwill might be impaired. We considered factors such as, but not limited to, macroeconomic conditions, industry and market considerations, and financial performance, including the planned revenue and earnings of X-spine. The results from the assessment and a Step 1 analysis allowed us to conclude that a further valuation of goodwill was necessary, as indicators of impairment existed as of December 31, 2018. As part of the Step 1 analysis, we updated the discounted cash flow analysis used to determine our initial fair value as of December 31, 2018. Based on the results of the impairment test and analysis, we concluded that the fair value of the Company was less than its carrying amount.

Based on the results of the impairment test and analysis, we concluded that a Step 2 goodwill impairment test was needed to determine the amount of impairment loss, if any. We engaged a third-party specialist to assist in the valuation. We compared the carrying value of the assets, including cash, and non-interest-bearing liabilities to the derived enterprise value of the business. As a result, we recorded a non-cash goodwill impairment charge of $38.3 million during the fourth quarter of 2018. The remaining Goodwill is valued at $3.2 million as of December 31, 2018.

During the fourth quarter of 2018, a few things changed in our business that led us to conclude that a goodwill impairment charge was appropriate. First, in connection with our annual planning process for 2019, we determined that the revenue growth rates for our fixation business likely would not be consistent with the expectations on which our initial 2018 annual plan was built. Second, in connection with our annual planning process for 2019, we abandoned a new sales channel strategy that we had implemented in 2018 to build a direct sales force since we determined that the sales channel strategy was not reaping the benefits that we had originally thought it would. We also determined by the end of 2018 that our assumptions regarding the expansion of our international business were inaccurate and likely would not prove out to be true in the near future in light of our business priorities, international regulatory issues and anticipated funding requirements.

Intangible assets consist of various patents with regards to processes for our products and intangible assets associated with the acquisition of X-spine.

Given the level of impairment initially indicated by the Step 1 analysis, an ASC 360, *Property, Plant and Equipment*, test was performed on our identified intangible assets. As a result of the analysis, we recorded an impairment charge in 2018 of $9.8 million to Tradenames, Technology and Customer Relationships based on the carrying amount exceeding the future net cash flows expected to be generated by these intangible assets. We also recorded an impairment charge in 2017 of $17.6 million related to Technology and Tradenames.

Inventory Valuation

Inventories are stated at the lower of cost or net realizable value. Cost is determined using the specific identification method and includes materials, labor and overhead. We calculate an inventory reserve for estimated obsolescence and excess inventory based on historical usage and sales, as well as assumptions about future demand for its products. A significant decrease in demand could result in an increase in the amount of excess inventory quantities on hand. Additionally, our industry is characterized by regular new product development that could result in an increase in the amount of obsolete inventory quantities on hand due to cannibalization of existing products. Our estimates for excess and obsolete inventory are reviewed and updated on a quarterly basis. Our estimates of future product demand may prove to be inaccurate in which case we may be required to incur charges for excess and obsolete inventory. Increases in the inventory reserves result in a corresponding expense, which is recorded to cost of sales.

Total charges incurred to write down excess and obsolete inventory to net realizable value included in Cost of sales were approximately $4.6 million and $4.0 million for the years ended December 31, 2018 and 2017. During the year ended December 31, 2018, due primarily to the significant decrease in fixation sales, we changed our estimate for determining excess and obsolete inventory to include 100% of fixation products with quantity on hand greater than two years of sales which resulted in our excess and obsolete inventory reserve being much larger than in prior periods.

In the future, if additional inventory write-downs are required, we would recognize additional cost of goods sold at the time of such determination. Regardless of changes in our estimates of future product demand, we do not increase the value of our inventory above its adjusted cost basis. Therefore, although we make every effort to ensure the accuracy of our forecasts of future product demand, significant unanticipated decreases in demand or technological developments could have a significant impact on the value of our inventory and our reported operating results.

Instruments

We deploy certain surgical instruments through various sales channels for use with purchased implants during surgical procedures. The instruments are classified as non-current assets within property and equipment and depreciated using the straight-line method over a five-year useful life. The net book value of consigned surgical instruments was approximately $4.4 million and $6.6 million at December 31, 2018 and December 31, 2017, respectively. We review instruments for impairment whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. An impairment loss would be recognized when estimated future undiscounted cash flows relating to an asset are less than the asset's carrying amount. An impairment loss is measured as the amount by which the carrying amount of an asset exceeds its fair value. An impairment charge of $1.6 million was recorded for the year ended December 31, 2017 for instruments on consignment which were determined not to be recoverable. No impairment was recorded for the year ended December 31, 2018.

Accounts Receivable and Allowances

Accounts receivable represents amounts due from customers for which revenue has been recognized. Normal terms on trade accounts receivable are net 30 days and some customers are offered discounts for early pay. We perform credit evaluations when considered necessary, but generally do not require collateral to extend credit.

The allowance for doubtful accounts is our best estimate of the amount of probable credit losses in our existing receivables. We determine the allowance based on factors such as historical collection experience, customer's current creditworthiness, customer concentration, age of accounts receivable balance, general economic conditions that may affect a customer's ability to pay, and management judgment. Actual customer collections could differ from estimates. Account balances are charged to the allowance after all means of collection have been exhausted and the potential for recovery is considered remote. Provisions to the allowance for doubtful accounts are charged to expense. We do not have any off-balance sheet credit exposure related to our customers.

Deterioration in the financial condition of any key customer or a significant slowdown in the economy could have a material negative impact on our ability to collect a portion or all of our accounts receivable. We believe that an analysis of historical trends and our current knowledge of potential collection problems provide us with sufficient information to establish a reasonable estimate for an allowance for doubtful accounts. However, since we cannot predict with certainty future changes in the financial stability of our customers, our actual future losses from uncollectible accounts may differ from our estimates. In the event we determined that a smaller or larger uncollectible accounts reserve is appropriate, we would record a credit or charge to sales and marketing expense in the period that we made such a determination.

Our allowance for doubtful accounts was $2.1 million at December 31, 2018 and 2017.

Valuation of Deferred Tax Assets and Liabilities and Uncertain Tax Positions

We account for income taxes in accordance with provisions which set forth an asset and liability approach that requires the recognition of deferred tax assets and deferred tax liabilities for the expected future tax consequences of temporary differences between the carrying amounts and the tax bases of assets and liabilities. Realization of deferred tax assets in each taxable jurisdiction is dependent on our ability to generate future taxable income sufficient to realize the benefits. Management evaluates deferred tax assets on an ongoing basis and provides valuation allowances to reduce net deferred tax assets to the amount that is more likely than not to be realized.

The ultimate realization of deferred tax assets is dependent upon the existence, or generation, of taxable income in the periods when those temporary differences and net operating loss carryovers are deductible. Management considers the scheduled reversal of deferred tax liabilities, taxes paid in carryover years, projected future taxable income, available tax planning strategies, and other factors in making this assessment. Based on available evidence, management does not believe it is more likely than not that all of the deferred tax assets will be realized. Accordingly, we have established a valuation allowance equal to the net realizable deferred tax assets. Our valuation allowance balances totaled $29.9 million and $22.6 million at December 31, 2018 and 2017, respectively. The valuation allowance increased by $7.3 million in 2018 and increased by $6.4 million in 2017.

As a multinational corporation, we are subject to taxation in many jurisdictions and the calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in various taxing jurisdictions. In accordance with ASC 740, *Income Taxes*, we recognize the tax effects of an income tax position only if they are "more-likely-than-not" to be sustained based solely on the technical merits as of the reporting date. If we ultimately determine that the payment of these liabilities will be unnecessary, we will reverse the liability and recognize a tax benefit in the period in which we determine the liability no longer applies. Conversely, we record additional tax charges in a period in which we determine that a recorded tax liability is less than we expect the ultimate assessment to be. The company has not recorded any uncertain tax positions for the years ended December 31, 2018 and December 31, 2017.

Under the Tax Reform Act of 1986, as amended, the amounts of and benefits from net operating loss carryovers and research and development credits may be impaired or limited in certain circumstances. Events which cause limitations in the amount of net operating losses that we may utilize in any one year include, but are not limited to, a cumulative ownership change of more than 50%, as defined, over a three-year period. We do not believe that such an ownership change has occurred in 2018 and 2017.

On December 22, 2017, the Tax Cuts and Jobs Act (the "Tax Act"), was signed into legislation. As a result of the lower enacted corporate tax rate, we have remeasured certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21%. The amount recorded at December 31, 2017 related to the remeasurement of our deferred tax balance was $11.8 million, that was fully offset by a corresponding decrease to the valuation allowance.

On December 22, 2017, Staff Accounting Bulletin No. 118 ("SAB 118"), was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Act. In accordance with SAB 118, we have provisionally determined that there is no tax deferred tax benefit or expense with respect to the remeasurement of certain deferred tax assets and liabilities due to the full valuation allowance against net deferred tax assets. The Company analyzed certain aspects of the Act further and refined its calculations during 2018. The Company has completed their analysis of the impact of the Tax Act at December 31, 2018 and has incorporated it into the current year provision. The most significant impact as a result of the Act, beginning in tax year 2018, is the limitation placed on the deductibility of interest expense.

Going Concern

The accompanying consolidated financial statements have been prepared assuming that we will continue as a going concern which contemplates the realization of assets and liquidation of liabilities in the normal course of business and do not include any adjustments relating to the recoverability or classification of assets or the amounts of liabilities that might result from the outcome of these uncertainties. Our ability to continue as a going concern, realize the carrying value of our assets and discharge our liabilities in the ordinary course of business is dependent upon a number of factors, including, the level and timing of future revenues and expenditures; development, commercialization and market acceptance of our products; competing technologies and market developments; regulatory requirements and delays; ability to attract and retain key personnel; and pending litigation.

Management's evaluation of going concern was conducted as part of the multiple discussions with the review by the Board of Directors of our 2019 Annual Operating Plan. The Company and OrbiMed have entered into a Second Amended and Restated Credit Agreement and commitment for up to an additional $10 million in debt capital. Management believes these actions, along with the $16.7 million of cash and accounts receivable on the balance sheet as of December 31, 2018, will enable the Company to continue as a going concern through the end of March 2020.

Although we recently increased availability under our Second Amended and Restated Credit Agreement we still believe we may require additional funds to fund our future operations and business strategy. Accordingly, there is no assurance that we will not need or seek additional funding. We may elect to raise additional funds even before we need them if market conditions for raising additional capital are favorable. We may seek to raise additional funds through various sources, such as equity and debt financings, additional debt restructurings or refinancings, or through strategic collaborations and license agreements. We can give no assurances that we will be able to secure additional sources of funds to support our operations, or if such funds are available to us, that such additional financing will be sufficient to meet our needs or on terms acceptable to us. This is particularly true if economic and market conditions deteriorate. Any failure by us to raise additional funds on terms favorable to us, or at all, could result in our inability to pay our expenses as they come due, limit our ability to expand our business operations, and harm our overall business prospects. If adequate funds are not otherwise available, we would be required to curtail operations significantly, including reducing our sales and marketing expenses which could negatively impact product sales and we could even be required to cease operations, liquidate our assets and possibly seek bankruptcy protection.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

This Item 7A is inapplicable to Xtant as a smaller reporting company.

Item 8. Financial Statements and Supplementary Data

The following items are included herein:

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors of
Xtant Medical Holdings, Inc.
Belgrade, Montana

OPINIONS ON THE CONSOLIDATED FINANCIAL STATEMENTS

We have audited the accompanying consolidated balance sheet of Xtant Medical Holdings, Inc. (the "Company") as of December 31, 2017, and the related consolidated statements of operations, stockholders' equity (deficit), and cash flows, for the year ended December 31, 2017, and the related notes (collectively referred to as the "financial statements").

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2017, and the results of its operations and its cash flows for the year ended December 31, 2017, in conformity with accounting principles generally accepted in the United States of America.

BASIS FOR OPINION

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud.

/s/ EKS&H LLLP

April 2, 2018
Denver, Colorado

To the Stockholders and Board of Directors of Xtant Medical Holdings, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheet of Xtant Medical Holdings, Inc. (the "Company") as of December 31, 2018, and the related consolidated statements of operations, stockholders' equity (deficit), and cash flows for the year ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018, and the results of its operations and its cash flows for the year ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

The Company's management is responsible for these financial statements. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audit included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

/s/ Plante & Moran, PLLC

We have served as the Company's auditor since 2011.

Denver, Colorado

April 1, 2019

XTANT MEDICAL HOLDINGS, INC.
Consolidated Statements of Operations
(In thousands, except number of shares and per share amounts)

	Year Ended December 31,	
	2018	**2017**
Revenue		
Orthopedic product sales	$ 71,814	$ 82,513
Other revenue	389	99
Total Revenue	72,203	82,612
Cost of Sales	28,717	32,511
Gross Profit	43,486	50,101
Operating Expenses		
General and administrative	12,881	15,246
Sales and marketing	32,059	40,511
Research and development	1,702	2,441
Depreciation and amortization	4,118	5,485
Impairment of goodwill and intangible assets	48,146	17,586
Restructuring expenses	2,970	4,680
Separation related expenses	1,568	1,901
Non-cash consulting expense	120	85
Total Operating Expenses	103,564	87,935
Loss from Operations	(60,078)	(37,834)
Other Income (Expense)		
Interest expense	(10,145)	(14,705)
Change in warrant derivative liability	121	203
Other income (expense)	3	(75)
Total Other Expense	(10,021)	(14,577)
Net Loss from Operations Before Provision for Income Taxes	(70,099)	(52,411)
Provision for Income Taxes		
Current and Deferred	-	-
Net Loss	$ (70,099)	$ (52,411)
Net loss per share:		
Basic	$ (5.97)	$ (34.76)
Dilutive	$ (5.97)	$ (34.76)
Shares used in the computation:		
Basic	11,740,550	1,507,769
Dilutive	11,740,550	1,507,769

See notes to audited consolidated financial statements.

XTANT MEDICAL HOLDINGS, INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except number of shares and par value)

	As of December 31, 2018	As of December 31, 2017
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 6,797	$ 2,856
Trade accounts receivable, net of allowance for doubtful accounts of $2,140 and $2,135, respectively	9,990	12,714
Inventories, net	17,301	22,423
Prepaid and other current assets	589	1,706
Total current assets	34,677	39,699
Property and equipment, net	7,174	9,913
Goodwill	3,205	41,535
Intangible assets, net	573	13,826
Other assets	793	732
Total Assets	$ 46,422	$ 105,705
LIABILITIES & STOCKHOLDERS' EQUITY (DEFICIT)		
Current Liabilities:		
Accounts payable	$ 6,465	$ 9,316
Accounts payable - related party	-	160
Accrued liabilities	5,150	15,845
Warrant derivative liability	10	131
Current portion of capital lease obligations	426	366
Total current liabilities	12,051	25,818
Long-term Liabilities:		
Capital lease obligation, less current portion	204	624
Long-term convertible debt, less issuance costs	-	70,853
Long-term debt, less issuance costs	77,939	67,109
Total Liabilities	90,194	164,404
Commitments and Contingencies (note 9)		
Stockholders' Equity (Deficit):		
Preferred stock, $0.000001 par value; 10,000,000 shares authorized; no shares issued and outstanding		
Common stock, $0.000001 par value; 50,000,000 shares authorized; 13,172,179 shares issued and outstanding as of December 31, 2018 and 1,514,899 shares issued and outstanding as of December 31, 2017	-	-
Additional paid-in capital	171,273	86,247
Accumulated deficit	(215,045)	(144,946)
Total Stockholders' Equity (Deficit)	(43,772)	(58,699)
Total Liabilities & Stockholders' Equity (Deficit)	$ 46,422	$ 105,705

See notes to audited consolidated financial statements.

XTANT MEDICAL HOLDINGS, INC.
Consolidated Statements of Changes in Stockholders' Equity (Deficit)
(In thousands, except number of shares)

	Common Stock		Additional	Retained	Total Stockholders'
	Shares	Amount	Paid-In-Capital	Deficit	Equity (deficit)
Balance at December 31, 2016	1,437,442	$ -	$ 85,461	$ (92,535)	$ (7,074)
Stock-based compensation			127		127
Issuance of restricted stock	7,183		179		179
Issuance of common stock	70,274		480		480
Net loss				(52,411)	(52,411)
Balance at December 31, 2017	1,514,899	$ -	$ 86,247	$ (144,946)	$ (58,699)
Stock-based compensation			814		814
Issuance of common stock	11,657,280	-	79,098		79,098
Issuance of warrants (note 6)			5,114		5,114
Net loss				(70,099)	(70,099)
Balance at December 31, 2018	13,172,179	$ -	$ 171,273	$ (215,045)	$ (43,772)

See notes to audited consolidated financial statements.

XTANT MEDICAL HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,	
	2018	**2017**
Operating activities:		
Net loss	$ (70,099)	$ (52,411)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	6,590	8,409
Loss on goodwill and intangible impairment and disposal of fixed assets	48,249	21,242
Non-cash interest	9,848	14,685
Loss on sale of fixed assets	-	10
Non-cash consulting expense/stock option expense	694	212
Provision for losses on accounts receivable and inventory	5,120	4,213
Change in warrant derivative liability	(121)	(203)
Changes in operating assets and liabilities:		
Trade accounts receivable	2,536	4,747
Inventories	40	2,122
Prepaid and other assets	1,055	(460)
Accounts payable	(3,011)	(1,637)
Accrued liabilities	311	(1,472)
Net cash provided by (used in) operating activities	1,212	(543)
Investing activities:		
Purchases of property and equipment and intangible assets	(624)	(1,641)
Proceeds from sale of fixed assets	257	33
Net cash used in investing activities	(367)	(1,608)
Financing activities:		
Proceeds from long-term and convertible debt, net of deferred and financing costs	-	12,787
Payments on capital leases	(359)	(88)
Net payments on the revolving line of credit	-	(10,448)
Costs associated with conversion of debt and private placement	(3,356)	-
Proceeds from equity private placement	6,810	-
Net proceeds from issuance of stock and warrants	1	178
Net cash provided by financing activities	3,096	2,429
Net change in cash and cash equivalents	3,941	278
Cash and cash equivalents at beginning of year	2,856	2,578
Cash and cash equivalents at end of year	$ 6,797	$ 2,856

See notes to audited consolidated financial statements.

(1) Business Description and Summary of Significant Accounting Policies

Business Description

The accompanying consolidated financial statements include the accounts of Xtant Medical Holdings, Inc., formerly known as Bacterin International Holdings, Inc., a Delaware corporation, and its wholly owned subsidiaries, Xtant Medical, Inc., a Delaware corporation, Bacterin International, Inc., ("Bacterin") a Nevada corporation and X-Spine Systems, Inc. ("X-spine"), an Ohio corporation, (Xtant Medical Inc., Bacterin and X-spine are jointly referred to herein as "Xtant" or the "Company"). All intercompany balances and transactions have been eliminated in consolidation. Xtant products serve the combined specialized needs of orthopedic and neurological surgeons, including orthobiologics for the promotion of bone healing, implants and instrumentation for the treatment of spinal disease, tissue grafts for the treatment of orthopedic disorders to promote healing following spine, cranial and foot surgeries and the development, manufacturing and sale of medical devices for use in orthopedic spinal surgeries.

The markets in which the Company competes are highly competitive and rapidly changing. Significant technological advances, changes in customer requirements, or the emergence of competitive products with new capabilities or technologies could adversely affect the Company's operating results. The Company's business could be harmed by a decline in demand for, or in the prices of, its products or as a result of, among other factors, any change in pricing or distribution methods, increased price competition, changes in government regulations or a failure by the Company to keep up with technological change. Further, a decline in available donors could have an adverse impact on our business.

As described in more detail below, effective as of February 13, 2018, the Company effected a 1-for-12 reverse split of its common stock (the "Reverse Stock Split"). The Reverse Stock Split is reflected in the share amounts in all periods presented in this report.

At December 31, 2018, the Company had cash on hand balances of $6.8 million, and accumulated deficit of $215 million and has incurred significant losses in the current and prior periods.

Management's evaluation of going concern was conducted as part of the multiple discussions with the Xtant Board of Directors' review of the Annual Operating Plan. The Company and OrbiMed have entered into a Second Amended and Restated Credit Agreement and commitment for up to an additional $10 million in debt capital. Management believes these actions along with the $16.7 million of cash and accounts receivable on the balance sheet as of December 31, 2018 will enable the Company to continue as a going concern through the end of March 2020.

Corporate Restructuring

Restructuring Agreement

On January 11, 2018, we entered into a Restructuring and Exchange Agreement (the "Restructuring Agreement") with ROS Acquisition Offshore LP, OrbiMed Royalty Opportunities II, LP (collectively referred to herein as the "Investors"), Bruce Fund, Inc., Park West Partners International, Limited ("PWPI"), Park West Investors Master Fund, Limited ("PWIMF"), and Telemetry Securities, L.L.C., and with the Investors, are collectively referred to herein as the "Holders".

Pursuant to the Restructuring Agreement, and following the execution of the Sixth Amendment to the 2017 Notes, described in the "Debt" and "Equity" sections below, on January 17, 2018, the Investors converted the 6.00% convertible senior unsecured notes due 2021, plus accrued and unpaid interest, at the $9.11 per share conversion rate originally provided thereunder (the "2017 Notes"), into 189,645 shares of our common stock.

On February 14, 2018, after giving effect to the Reverse Stock Split (described below), $70.3 million aggregate principal amount of our then outstanding 6.00% convertible senior unsecured notes due 2021 held by the Holders (the "Remaining Notes"), plus accrued and unpaid interest, were exchanged for newly-issued shares of our common stock at an exchange rate of 138.8889 shares per $1,000 principal amount of the Remaining Notes, for an exchange price of $7.20 per share (the "Notes Exchange"). This resulted in the issuance of 10,401,309 shares of our common stock to the Holders and the Investors acquiring an approximately 70% controlling interest in our outstanding shares of common stock. Upon the completion of the Notes Exchange, all outstanding obligations under our convertible senior secured notes were satisfied in full and the Indentures governing such notes were discharged.

Pursuant to the terms of the Restructuring Agreement, we commenced a rights offering to allow our stockholders as of April 27, 2018 record date to purchase up to an aggregate of 1,137,515 shares of our common stock at a subscription price of $7.20 per share. The rights offering expired on June 18, 2018. We issued 129 shares of common stock in the rights offering and received $0.9 thousand gross proceeds.

Amended and Restated Certificate of Incorporation

On February 13, 2018, following a special meeting of our stockholders, we filed with the Secretary of State of the State of Delaware a Certificate of Amendment to our Certificate of Incorporation (the "Certificate Amendment"). The Certificate Amendment amended and restated our Certificate of Incorporation (the "Charter") to, among other things:

- effect the Reverse Stock Split;
- after giving effect to the Reverse Stock Split, decrease the number of authorized shares of common stock available for issuance from 95,000,000 to 50,000,000 and increase the number of authorized shares of preferred stock available for issuance from 5,000,000 to 10,000,000;
- authorize the Board of Directors ("Board") to increase or decrease the number of shares of any series of our capital stock, provided that such increase or decrease does not exceed the number of authorized shares or be less than the number of shares then outstanding;
- authorize the Board to issue new series of preferred stock without approval of the holders of common stock or other series of preferred stock, with such powers, preferences and rights as may be determined by the Board;
- authorize a majority of the Board to fix the number of our directors;
- indemnify the members of the Board to the fullest extent permitted by law;
- remove the classification of the Board to require all directors to be elected annually;
- provide that special meetings of our stockholders may only be called by the Board, the chairman of the Board or our chief executive officer;
- provide that no stockholder will be permitted cumulative voting at any election of directors;
- elect not to be governed by Section 203 of the Delaware General Corporation Law (the "DGCL");
- elect the Court of Chancery of the State of Delaware to be the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of a fiduciary duty owed by any of our directors, officers or other employees, any action under the DGCL, our Charter or bylaws or any actions governed by the internal affairs doctrine; and
- require the vote of at least two-thirds of the voting power of the then outstanding shares of our capital stock to amend or repeal certain provisions of our Charter.

The Reverse Stock Split became effective as of 5:00 p.m. Eastern Time on February 13, 2018, and our common stock began trading on a split-adjusted basis when the market opened on February 14, 2018. Upon the effectiveness of the Reverse Stock Split, every 12 shares of our issued and outstanding common stock automatically converted into one share of common stock, without any change in the par value per share. In addition, a proportionate adjustment was made to the per share exercise or conversion price and the number of shares issuable upon the exercise of all of our outstanding stock options and convertible securities to purchase shares of common stock and the number of shares underlying restricted stock awards and reserved for issuance pursuant to our equity incentive compensation plan. Any fraction of a share of common stock that would otherwise have resulted from the Reverse Stock Split was rounded down to the nearest whole share. All share and per share amounts have been retroactively restated to reflect the Reverse Stock Split.

Private Placement SPA

On February 14, 2018, we entered into a Securities Purchase Agreement (the "Private Placement SPA") with the Investors pursuant to which the Investors purchased from us an aggregate of 945,819 shares of our common stock, at a price of $7.20 per share, for aggregate proceeds of $6.8 million.

Investor Rights Agreement

Effective February 14, 2018, we entered into an Investor Rights Agreement (the "Investor Rights Agreement") with the Holders. Under the Investor Rights Agreement, the Investors are permitted to nominate a majority of our directors and designate the chairperson of the Board at subsequent annual meetings, as long as the Investors maintain an ownership threshold in the Company of at least 40% of our then outstanding common stock (the "Ownership Threshold"). If the Investors are unable to maintain the Ownership Threshold, the Investor Rights Agreement contemplates a reduction of nomination rights commensurate with their ownership interests.

For so long as the Ownership Threshold is met, we must obtain the approval of the Investors to proceed with the following actions: (i) issue new securities; (ii) incur over $0.25 million of debt in a fiscal year; (iii) sell or transfer over $0.25 million of our assets or businesses or our subsidiaries in a fiscal year; (iv) acquire over $0.25 million of assets or properties in a fiscal year; (v) make capital expenditures over $0.125 million individually, or $1.5 million in the aggregate during a fiscal year; (vi) approve our annual budget; (vii) hire or terminate our chief executive officer; (viii) appoint or remove the chairperson of the Board; and (ix) make, loans to, investments in, or purchase, or permit any subsidiary to purchase, any stock or other securities in another entity in excess of $0.25 million in a fiscal year. As long as the Ownership Threshold is met, we may not increase the size of the Board beyond seven directors without the approval of a majority of the directors nominated by the Investors.

The Investor Rights Agreement grants the Holders the right to purchase from us a pro rata amount of any new securities that we may propose to issue and sell. The Investor Rights Agreement may be terminated (a) upon the mutual written agreement of all the parties, (b) upon written notice of the Company or an Investor, if such Investor's ownership percentage of our then outstanding common stock is less than 10%, or (c) upon written notice by the Investors. PWPI and PWIMF's right to purchase from us a pro rata amount of any new securities will also terminate at such time as their aggregate ownership percentage of our then outstanding common stock is less than 8.5%.

Registration Rights Agreement

Effective February 14, 2018, we entered into a Registration Rights Agreement (the "Registration Rights Agreement") with the Holders. The Registration Rights Agreement requires us to, among other things, file with the U. S. Securities and Exchange Commission ("SEC") a shelf registration statement within 90 days of the date of the Registration Rights Agreement covering the resale, from time to time, of our common stock issued. This registration statement became effective on June 4, 2018.

Second Amended and Restated Bylaws

On February 14, 2018, we amended and restated our current bylaws by adopting the Second Amended and Restated Bylaws of the Company (the "Amended Bylaws"). The Amended Bylaws amended our existing bylaws to, among other things:

- provide for annual and special meetings of stockholders to be held through remote communications;
- provide for the election of any directors not elected at an annual meeting of stockholders to be elected at a special meeting of stockholders;
- declassify the Board into one group of directors that will hold office until the subsequent annual meeting of stockholders and until the election and qualification of such directors' respective successors;
- provide for the filling of a new directorship or director vacancy by the affirmative vote of the holders of a majority of the voting power of our shares of stock;
- allow for a majority of the Board present to adjourn a Board meeting if a quorum is not met;
- unless otherwise restricted in the Amended Bylaws or our Charter, provide the Board with the authority to fix the compensation of directors, including without limitation, compensation for services as members of Board committees;
- allow us to enter into an agreement with a stockholder to restrict the transfer of shares held by such stockholder in any manner not prohibited by the DGCL; and
- allow the Board to declare dividends on our capital stock, subject to any provisions of our Charter and applicable law.

Concentrations and Credit Risk

The Company's accounts receivables are from a variety of health care organizations and distributors throughout the world. No single customer accounted for more than 10% of revenue or accounts receivable in the fiscal years 2018 or 2017. The Company provides for uncollectible amounts when specific credit issues arise. Management believes that all significant credit risks have been identified at December 31, 2018.

Use of Estimates

The preparation of the financial statements requires management of the Company to make a number of estimates and assumptions relating to the reported amount of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the period. Significant estimates include the carrying amount of property and equipment (including surgical instruments), goodwill, and intangible assets and liabilities; valuation allowances for trade receivables, inventory valuation, and deferred income tax assets and liabilities; valuation of the warrant derivative liability; inventory and estimates for the fair value of stock options grants and other equity awards upon which the Company determines stock-based compensation expense. Actual results could differ from those estimates.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with an original maturity date of three months or less to be cash equivalents. Cash equivalents are recorded at cost, which approximates market value. At times the Company maintains deposits in financial institutions in excess of federally insured limits.

Trade Accounts Receivable

Accounts receivable represents amounts due from customers for which revenue has been recognized. Normal terms on trade accounts receivable are net 30 days and some customers are offered discounts for early pay. The Company performs credit evaluations when considered necessary, but generally does not require collateral to extend credit.

The allowance for doubtful accounts is the Company's best estimate of the amount of probable credit losses in the Company's existing receivables. The Company determines the allowance based on factors such as historical collection experience, customer's current creditworthiness, customer concentration, age of accounts receivable balance, general economic conditions that may affect a customer's ability to pay, and management judgment. Actual customer collections could differ from estimates. Account balances are charged to the allowance after all means of collection have been exhausted and the potential for recovery is considered remote. Provisions to the allowance for doubtful accounts are charged to expense. The Company does not have any off-balance sheet credit exposure related to its customers.

Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is determined using the specific identification method and includes materials, labor and overhead. The Company calculates an inventory reserve for estimated obsolescence and excess inventory based on historical usage and sales, as well as assumptions about future demand for its products. These estimates for excess and obsolete inventory are reviewed and updated on a quarterly basis. Increases in the inventory reserves result in a corresponding expense, which is recorded to cost of sales.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, generally three to seven years for computers and equipment and five years for surgical instruments. Leasehold improvements are depreciated over the shorter of their estimated useful life or the remaining term of the lease. Repairs and maintenance are expensed as incurred.

Intangible Assets

Intangible assets with estimable useful lives are amortized over their respective estimated useful lives to their estimated residual values and reviewed for impairment whenever events or circumstances indicate their carrying amount may not be recoverable. Intangible assets include trademarks and patents and include costs to acquire and protect Company patents. Intangible assets are carried at cost less accumulated amortization. The Company amortizes these assets on a straight-line basis over their estimated useful lives.

In 2015 with the acquisition of X-spine, the Company established a fair value for the technology, tradenames and intangible assets which was determined based upon a "relief from royalty" approach. The amortization of these assets is consistent with the valuation method used to establish their fair value which in turn was based on the assets' future cash flow.

Other Assets

Other Assets consist of the short-term and the long-term portion of prepaid expenses and security deposits.

Long-Lived Assets

Long-lived assets, including intangible assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the estimated fair value of the assets.

Goodwill

Goodwill represents the excess of costs over fair value of assets of businesses acquired. Goodwill and intangible assets acquired in a purchase business combination and determined to have indefinite useful lives are not amortized, instead they are tested for impairment at least annually and whenever events or circumstances indicate the carrying amount of the asset may not be recoverable. The Company conducts its impairment test on an annual basis and will review the analysis assumptions on a quarterly basis. We test goodwill for impairment at the reporting unit level, which is an operating segment or one level below an operating segment, referred to as a component. A component of an operating segment is a reporting unit if the component constitutes a business for which discrete financial information is available and segment management regularly reviews the operating results of that component.

Revenue Recognition

The Company adopted the provisions of Accounting Standards Update ("ASU") No. 2014-09, *Topic 606, Revenue from Contracts with Customers*, effective January 1, 2018. This new accounting standard outlines a single comprehensive model used in accounting for revenue arising from contracts with customers. This standard supersedes existing revenue recognition requirements and eliminates most industry specific guidance from GAAP. The core principle of the new accounting standard is to recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In addition, the adoption of this new accounting standard resulted in increased disclosure, including qualitative and quantitative disclosures about the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers.

Adoption Impact

Given that our revenue recognition has remained generally the same as in prior years, the Company has elected the modified retrospective method of adoption. On January 1, 2018, we analyzed contracts that were not completed as of adoption date. The cumulative effect of initially applying ASC 606 would have been an adjustment to decrease the opening balance of retained earnings by $24 thousand as of January 1, 2018. Due to the amount being de minimis, no adjustment was recorded. In addition, the Company determined that there is a de minimis difference in 2018 revenues under ASC 606 versus the previous guidance.

Disaggregation of Revenue

The Company operates in one reportable segment with our net revenue derived primarily from the sale of orthobiologics and spinal implant products across North America, Europe, Asia Pacific and Latin America. Sales are reported net of returns. No rebates, group purchasing organization fees or other customer allowances are present, and so are not relevant to net revenue determination. The following table presents revenues from these product lines for the year ended December 31, 2018:

	Year-Ended December 31, 2018	Percentage of Total Revenue
Orthobiologics	$ 48,984	68%
Spinal implant	22,830	31%
Other revenue	389	1%
Total revenue	$ 72,203	100%

In the United States, we generate most of our revenue from independent commissioned sales agents. We consign our orthobiologics products to hospitals and consign or loan our spinal implant sets to the independent sales agents. The spinal implant sets typically contain the instruments, disposables, and spinal implants required to complete a surgery. Consigned sets are managed by the sales agent to service hospitals that are high volume users for multiple procedures. We ship replacement inventory to independent sales agents to replace the consigned inventory used in surgeries. Loaned sets are returned to the Company's distribution center, replenished, and made available to sales agents for the next surgical procedure.

For each surgical procedure, the sales agent reports use of the product by the hospital and, as soon as practicable thereafter, ensures that the hospital provides a purchase order to the Company. Upon receipt of the hospital purchase order, the Company invoices the hospital and revenue is recognized.

Additionally, the Company sells product directly to domestic and international stocking resellers and private label resellers. Upon receipt and acceptance of a purchase order from a stocking reseller, the Company ships product and invoices the reseller. We recognize revenue when the products are shipped, and the transfer of title and risk of loss occurs. There is generally no customer acceptance or other condition that prevents us from recognizing revenue in accordance with the delivery terms for these sales transactions.

The following table presents revenues from these sales channels for the year-ended December 31, 2018 (in thousands):

	Year-Ended December 31, 2018	Percentage of Total Revenue
Independent agents	$ 63,063	87%
Direct sales	8,751	12%
Other revenue	389	1%
Total revenue	$ 72,203	100%

Performance Obligations

The Company's contracts do not include a right of acceptance or a right to cancel, therefore our process for recognizing revenue does not require an evaluation of whether acceptance is received or a right to cancel has expired. Further, the Company does not incur upfront costs or exclusivity fees in conjunction with entering into a customer contract. The Company's customer contracts do not provide for percentage of completion performance measures or contingent consideration.

In the normal course of business, the Company accepts returns of product that have not been implanted. Product returns are not material to the Company's consolidated statements of operations. The Company accounts for shipping and handling activities as a fulfillment cost rather than a separate performance obligation. The Company's policy is to record revenue net of any applicable sales, use, or excise taxes. Payment terms are generally net 30 days from invoice date and some customers are offered discounts for early pay.

Contract Assets and Liabilities

The Company does not have deferred or unearned revenue arrangements with its customers that would give rise to contract liabilities. The Company recognizes sales commissions as incurred because the amortization period is less than one year. Additionally, the Company does not recognize unbilled receivables or progress payments to be billed that would result in a contract asset. All pricing and agreements are completed based on the contracted individual unit price; no other methods of determining price are allowed within the Company's sales agreements. Therefore, no contract assets or contract liabilities are recorded in our consolidated balance sheets as of December 31, 2018.

Research and Development

Research and development costs, which are principally related to internal costs for the development of new products are expensed as incurred.

Net Loss Per Share

Basic net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding. Shares issued during the period and shares reacquired during the period are weighted for the portion of the period that they were outstanding. Diluted net loss per share is computed in a manner consistent with that of basic earnings per share while giving effect to all potentially dilutive common shares outstanding during the period, which include the assumed exercise of stock options and warrants using the treasury stock method. Diluted net loss per share was the same as basic net loss per share for the years ended December 31, 2018 and 2017, as shares issuable upon the exercise of stock options and warrants were anti-dilutive as a result of the net losses incurred for those periods. Dilutive loss per share are not reported as their effects of including 2,207,567 and 587,382 outstanding stock options and warrants for the years ended December 31, 2018 and 2017, respectively, are anti-dilutive.

Fair Value of Financial Instruments

The carrying values of financial instruments, including trade accounts receivable, accounts payable, accrued liabilities and long-term debt, approximate their fair values based on terms and related interest rates.

The Company follows a framework for measuring fair value. The framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy are described below:

Level 1: Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets.

Level 2: Inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument.

Level 3: Inputs to the valuation methodology are unobservable and significant to the fair value measurement.

A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. During the years ended December 31, 2018 and 2017, there was no reclassification in financial assets or liabilities between Level 1, 2 or 3 categories.

The following table sets forth by level, within the fair value hierarchy, our liabilities as of December 31, 2018 and 2017 that are measured at fair value on a recurring basis (in thousands):

Warrant derivative liability

	As of December 31, 2018	As of December 31, 2017
Level 1	-	-
Level 2	-	-
Level 3	$ 10	$ 131

The valuation technique used to measure fair value of the warrant liability is based on a lattice valuation model and significant assumptions and inputs determined by us (See Note 8, "Warrants" below).

Level 3 Changes

The following is a reconciliation of the beginning and ending balances for liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 3) during the years ended December 31, 2018 and 2017 (in thousands):

Warrant derivative liability

Balance at January 1, 2017	$ 334
Gain recognized in earnings	(203)
Balance at January 1, 2018	$ 131
Gain recognized in earnings	(121)
Balance at December 31, 2018	$ 10

During the year ended December 31, 2018, the Company did not change any of the valuation techniques used to measure its liabilities at fair value.

Recent Accounting Pronouncements

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842),* which requires lessees to recognize a right-of-use ("ROU") asset and lease liability on their balance sheet for all leases with terms beyond 12 months. The new standard also requires enhanced disclosures that will provide more transparency and information to financial statement users about our lease portfolio. The distinction between operating and finance leases will continue to exist under the new standard. Additionally, the recognition and measurement of operating and finance lease expenses and cash flows will not change significantly from current treatment. For finance leases, lessees will continue to recognize interest expense on the lease liability using the effective yield method, while the right-of-use asset will be amortized on a straight-line basis. For operating leases, expense will be recognized on a straight-line basis, consistent with the previous standard.

We will adopt this ASU on January 1, 2019 using the modified retrospective approach and will not restate comparative periods. We are substantially complete with our implementation plan. We plan to elect the transition package of three practical expedients permitted within the standard. In accordance with the package of practical expedients, we will not reassess initial direct costs, lease classification, or whether our contracts contain or are leases. Based on our lease portfolio as of December 31, 2018, we plan to recognize an operating lease liability and related right-of-use asset on our balance sheet of approximately $3.0 million, which represents the present value of our future minimum lease payments related to operating leases. We do not anticipate material changes to our consolidated statement of operations or our consolidated statement of cash flows.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit losses: Measurement of Credit Losses on Financial Instruments*, which amends certain provisions of ASC 326, *Financial Instruments-Credit Loss*. The ASU changes the impairment model for most financial assets and certain other instruments. For trade and other receivables, held to maturity debt securities, loans and other instruments, entities will be required to use a new forward-looking "expected loss" model that generally will result in the earlier recognition of allowances for losses. The ASU is effective for annual reporting periods beginning after December 15, 2019, including interim periods within those annual periods, and will be applied as a cumulative effect adjustment to retained earnings as of the beginning of the first reporting period for which the guidance is effective. We currently do not expect that the adoption of these provisions will have a material effect on our consolidated financial statements.

In June 2018, the FASB issued ASU No. 2018-07, *Stock Compensation (Topic 718),* which amends the current standard. Specifically, the new standard expands the scope of Topic 718 to include share-based payment awards to non-employees. Additionally, the ASU expands and amends the current standard to include and realign consistent with the changes to revenue standard Topic 606. Management expects that the adoption of this new standard will qualitatively impact the Company's financial reporting. See further information in the Stock-Based Compensation of the management disclosure section below.

In August 2018, the FASB issued ASU No. 2018-15, *Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40)*, to simplify the accounting for goodwill impairment. The update removes Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. A goodwill impairment will now be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. The ASU is effective for annual reporting periods beginning after December 15, 2019, but early adoption is permitted. We are currently evaluating this update to determine the full impact of its adoption but do not expect this accounting standards update to have a material impact on our consolidated financial position, results of operations or cash flows.

Reclassification

Certain prior year amounts have been reclassified to conform with current year presentation.

(2) Inventories

Inventories consist of the following (in thousands):

	December 31, 2018	December 31, 2017
Raw materials	$ 4,136	$ 4,277
Work in process	949	1,515
Finished goods	24,618	24,342
Gross inventories	29,703	30,134
Reserve for obsolescence	(12,402)	(7,711)
	$ 17,301	$ 22,423

The Company provides implants and biologic inventory on consignment through its various sales channels to logistically place the inventory near the anticipated surgical location. Consigned inventory was approximately $8.8 million and $12.0 million at December 31, 2018 and December 31, 2017, respectively.

(3) Property and Equipment, Net

Property and equipment, net are as follows (in thousands):

	December 31, 2018	December 31, 2017
Equipment	$ 4,145	$ 4,471
Computer equipment	481	489
Computer software	570	524
Furniture and fixtures	164	215
Leasehold improvements	3,941	4,030
Vehicles	10	10
Surgical instruments	10,772	11,461
Total cost	20,083	21,201
Less: accumulated depreciation	(12,909)	(11,288)
	$ 7,174	$ 9,913

The Company deploys certain surgical instruments through its various sales channels for use with purchased implants during surgical procedures. The instruments are classified as non-current assets within property and equipment and depreciated using the straight-line method over a five-year useful life. The net book value of consigned surgical instruments was approximately $4.4 million and $6.6 million at December 31, 2018 and December 31, 2017, respectively. An impairment charge of $1.6 million was recorded for the year ended December 31, 2017 for instruments on consignment which were determined not to be recoverable. No impairment was recorded for the year ended December 31, 2018.

Depreciation expense related to property and equipment, including property under capital lease, for the years ended 2018 and 2017 was $3.2 million and $3.8 million, respectively.

The Company leases certain equipment under capital leases. For financial reporting purposes, minimum lease payments relating to the assets have been capitalized. As of December 31, 2018, the Company has recorded $1.6 million gross capital lease assets within Equipment, and $0.9 million of accumulated depreciation.

(4) Goodwill and Intangible Assets

Goodwill represents the excess of costs over fair value of assets on businesses acquired associated with the acquisition of X-spine.

During the fourth quarter of 2018, a few things changed in our business that led us to conclude that a goodwill impairment charge was appropriate. First, in connection with our annual planning process for 2019, we determined that the revenue growth rates for our fixation business likely would not be consistent with the expectations on which our initial 2018 annual plan was built. Second, in connection with our annual planning process for 2019, we curtailed a new sales channel strategy that we had implemented in 2018 to build a direct sales force since we determined that the sales channel strategy was not generating the benefits that we had originally thought it would. We also determined by the end of 2018 that our assumptions regarding the expansion of our international business were inaccurate and likely would not prove out to be true in the near future in light of our business priorities, international regulatory issues and anticipated funding requirements.

In its evaluation of goodwill, the Company performs an assessment of qualitative factors to determine if it is more-likely-than-not that goodwill might be impaired. We considered factors such as, but not limited to, macroeconomic conditions, industry and market considerations, and financial performance, including the planned revenue and earnings of X-spine. The results from the assessment and a Step 1 analysis allowed the Company to conclude that a further valuation of goodwill was necessary, as indicators of impairment existed as of December 31, 2018. As part of the Step 1 analysis, we updated the discounted cash flow analysis used to determine the Company's initial fair value as of December 31, 2018. Based on the results of the impairment test and analysis, we concluded that the fair value of the Company was less than its carrying amount.

Based on the results of the impairment test and analysis, we concluded that a Step 2 goodwill impairment test was needed to determine the amount of impairment loss, if any. We engaged a third-party specialist to assist in the valuation. We compared the carrying value of the assets, including cash, and non-interest-bearing liabilities to the derived enterprise value of the business. As a result, we recorded a non-cash goodwill impairment charge of $38.3 million. The remaining Goodwill is valued at $3.2 million as of December 31, 2018.

Intangible assets consist of various patents with regards to processes for our products and intangible assets associated with the acquisition of X-spine.

Given the level of impairment initially indicated by the Step 1 analysis, an ASC 360, *Property, Plant and Equipment*, test was performed on the Company's identified intangible assets. As a result of the analysis, the Company recorded an impairment charge of $9.8 million to its intangible assets.

The following table sets forth information regarding intangible assets (in thousands):

	December 31, 2018	December 31, 2017
Patents	$ 847	$ 847
Acquisition related intangibles:		
Technology	-	13,789
Customer relationships	-	9,911
Tradename	-	1,867
Non-compete	-	41
Accumulated amortization	(274)	(12,629)
Net carrying value	$ 573	$ 13,826
Aggregate amortization expense:	$ 2,539	$ 4,629

The following is a summary of estimated future amortization expense for intangible assets as of December 31, 2018 (in thousands):

2019	$ 56
2020	56
2021	55
2022	54
2023	53
Thereafter	299
Total	$ 573

The Company recorded the impairment charge in 2018 of $9.8 million to Tradenames, Technology and Customer Relationships and in 2017 of $17.6 million related to Technology and Tradenames based on the carrying amount exceeding the future net cash flows expected to be generated by these intangible assets.

(5) Accrued Liabilities

Accrued liabilities consist of the following (in thousands):

	December 31, 2018	December 31, 2017
Accrued interest payable	$ -	$ 10,835
Wages/commissions payable	3,332	2,831
Accrued stock compensation	-	120
Other accrued liabilities	1,818	2,059
Accrued Liabilities	$ 5,150	$ 15,845

(6) Debt

Convertible Note Indenture

During the first quarter of 2018 in connection with our Restructuring, all of the outstanding 6.00% convertible senior unsecured notes due 2021 were converted into shares of our common stock and the Indenture governing such notes was discharged.

Twenty-Second Amendment to the Prior Credit Agreement

Effective January 30, 2018, the Company and Investors entered into the Twenty-Second Amendment to the Amended and Restated Credit Agreement dated July 27, 2015, which amended the Amended and Restated Credit Agreement by and between Bacterin and ROS Acquisition Offshore LP (collectively, the "Prior Credit Agreement" and the facility created under such agreement, the "Credit Facility"). This amendment further deferred the Company's accrued interest payment date for the fiscal quarters ended on December 31, 2016, March 31, 2017, June 30, 2017, September 30, 2017 and December 31, 2017 until February 28, 2018.

Twenty-Third Amendment to the Prior Credit Agreement

Effective February 14, 2018, the Company and Investors entered into the Twenty-Third Amendment to the Prior Credit Agreement, which further amended the Prior Credit Agreement and terms of the Credit Facility. As of this amendment, the interest payable has been carried forward and as modified, the interest rate options within the Credit Facility are as follows: (a) through December 31, 2018, we will have the option at our sole discretion (i) to pay PIK Interest at LIBOR (as defined in the Credit Facility) plus 12% or (ii) pay cash interest at LIBOR plus 10%; (b) beginning January 1, 2019 through June 30, 2019, we will have the option at our sole discretion to either (i) pay PIK Interest at LIBOR plus 15% or (ii) pay cash interest at LIBOR plus 10%; and (c) beginning July 1, 2019 through the maturity date of the Credit Facility, we will pay cash interest at LIBOR plus 10%. The amendment also reduced the prepayment or repayment fee under the Credit Facility to 1%.

This amendment also modified the financial covenants in the Prior Credit Agreement, including removing the minimum revenue covenant, providing a minimum liquidity covenant, a consolidated leverage ratio covenant, and a minimum consolidated EBITDA covenant, all as defined in the Prior Credit Agreement.

Twenty-Fourth Amendment to the Prior Credit Agreement

On September 17, 2018, the Company and Investors entered into the Twenty-Fourth Amendment to the Prior Credit Agreement (the "24 th Amendment"), which further amended the Prior Credit Agreement and terms of the Credit Facility, effective as of April 1, 2018. Under the terms of the 24 th Amendment, no interest will be charged on the loans under the Credit Facility (the "Loans") from April 1, 2018 until June 30, 2018.

Due to the interest rate relief provided by the 24th Amendment, the Company performed an assessment of the changes to the terms of the Credit Facility in accordance ASC 470, *Debt*. The Credit Facility was modified based on an evaluation of the present value of cash flows for the old and new debt instruments. Given the modification, a new effective interest rate of 13.45% for the modified loan was calculated based on the carrying amount of the debt and the present value of the revised future cash flows. The modified interest rate is effective through the remaining life of the loan.

Twenty-Fifth Amendment to the Prior Credit Agreement

Also, on September 17, 2018, the Company and the Investors entered into the Twenty-Fifth Amendment to the Prior Credit Agreement (the "25 th Amendment"), which further amended the Prior Credit Agreement and terms of the Credit Facility, effective as of August 1, 2018. Under the terms of the 25 th Amendment:

- no interest will be charged on the Loans under the Credit Facility from July 1, 2018 until December 31, 2018;
- the Optional PIK Interest (as such term is defined in the Prior Credit Agreement) was decreased from 15% plus the LIBO Rate (as such term is defined in the Prior Credit Agreement) to 10% plus the LIBO Rate, with a 2.3125% floor;
- a LIBO Rate floor of 2.3125% was added; and
- the fee due upon payment, prepayment or repayment of the principal amount of the Loans under the Credit Facility, whether on the maturity date or otherwise, was increased to 2% from 1% of the aggregate principal amount of such payment, prepayment or repayment.

The Company issued warrants to purchase an aggregate of 1.2 million shares of Company common stock to the Investors, with an exercise price of $0.01 per share and an expiration date of August 1, 2028 (collectively, the "2018 Warrants"). The issuance of the 2018 Warrants occurred on September 17, 2018 and was a condition to the effectiveness of the 25th Amendment. (See Note 8, "Warrants" below).

Second Amended and Restated Credit Agreement

On March 29, 2019, the Company and the Investors entered into a Second Amended and Restated Credit Agreement (the "Second Amended and Restated Credit Agreement"), which amended and restated the Prior Credit Agreement, as described under Note 16, "Subsequent Events" below. Under the Second Amended and Restated Credit Agreement, X-Spine may continue to make requests for term loans in amounts equal to the remaining commitment for additional delayed draw loans, which was approximately $2,200,000 as of the date of the Second Amended and Restated Credit Agreement, and may request additional term loans with the Investors in an aggregate amount of up to $10,000,000, with the amount of each loan draw to be subject to our production of a thirteen-week cash flow forecast that is approved by the Investors and which shows a projected cash balance for the following two-week period of less than $1,500,000, as well as the satisfaction (or waiver in writing by each Investor) of conditions precedent, including closing certificate, delivery of budget, and other satisfactory documents. In addition, the Second Amended and Restated Credit Agreement amended the Prior Credit Agreement to provide that (i) no interest will accrue on the Loans under the Second Amended and Restated Credit Agreement from and after January 1, 2019 until March 31, 2020; (ii) beginning April 1, 2020 through the maturity date of the Second Amended and Restated Credit Agreement, interest payable in cash will accrue on the Loans under the Credit Agreement at a rate per annum equal to the sum of (a) 10.00% plus (b) the higher of (x) the LIBO Rate (as such term is defined in the Second Amended and Restated Credit Agreement) and (y) 2.3125%; (iii) the maturity date of the Loans is March 31, 2021; (iv) the Consolidated Senior Leverage Ratio and Consolidated EBITDA (as such terms were defined in the Prior Credit Agreement) financial covenants were deleted and a new Revenue Base (as such term is defined in the Second Amended and Restated Credit Agreement) financial covenant was added; and (v) the key person event default provision was revised to refer specifically to Kevin Brandt and Ron Berlin.

On April 1, 2019 the Company will issue warrants to purchase an aggregate of 1.2 million shares of Company common stock to the Investors, with an exercise price of $0.01 per share and an expiration date of April 1, 2029 (collectively, the "2019 Warrants"). The issuance of the 2019 Warrants occurred on April 1, 2019 and was a condition to the effectiveness of Second Amended and Restated Credit Agreement (See Note 16, "Subsequent Events" below).

Long-term debt consists of the following (in thousands):

	December 31, 2018	December 31, 2017
Amounts due under the Credit Facility	$ 55,787	$ 55,787
PIK interest payable related to the Credit Facility	27,178	11,582
Plus: 2% exit fee on Credit Facility	254	-
6% convertible senior unsecured notes due 2021	-	71,865
Gross long-term debt	83,219	139,234
Less: discount on Credit Facility	(5,114)	-
Less: total debt issuance costs	(166)	(1,272)
Long-term debt, less issuance costs	$ 77,939	$ 137,962

All gross long-term debt will mature March 31, 2021 and become payable at that time.

(7) Stock-Based Compensation

Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan

On August 1, 2018, our stockholders approved the Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan (the "2018 Plan") at the 2018 annual meeting of stockholders of Xtant. The 2018 Plan became effective immediately upon approval by our stockholders and will expire on July 31, 2028, unless terminated earlier. The 2018 Plan replaced the Amended and Restated Xtant Medical Equity Incentive Plan (the "Prior Plan") with respect to future grants of equity awards. The Prior Plan will continue to govern equity awards granted under the Prior Plan. The 2018 Plan permits the Board, or a committee thereof, to grant to eligible employees, non-employee directors and consultants of the Company non-statutory and incentive stock options, stock appreciation rights, restricted stock awards, restricted stock units, deferred stock units, performance awards, non-employee director awards, and other stock-based awards. The Board may select 2018 Plan participants and determine the nature and amount of awards to be granted. Subject to adjustment as provided in the 2018 Plan, the number of shares of our common stock available for issuance under the 2018 Plan is 1,307,747 shares. Under the 2018 Plan, shares of our common stock related to awards granted under the plan that terminate by expiration, forfeiture, cancellation or otherwise without the issuance of the shares will be available again for grant under the plan.

After the approval and effectiveness of the 2018 Plan, the Board granted various awards thereunder to certain officers and employees, consisting of stock option grants to purchase an aggregate of 650,770 shares of our common stock and restricted stock units covering 40,000 shares. In addition, a restricted stock award for 26,042 shares was granted to one of our non-employee directors.

As of December 31, 2018, of the 1,307,747 shares of common stock available for issuance under the 2018 Plan, 716,812 shares were subject to outstanding awards under the 2018 Plan and 590,935 shares remained available for future issuance. Shares of common stock issued under the 2018 Plan may be newly issued shares or reacquired shares. From time to time, we have granted options to purchase shares of our common stock outside of any stockholder-approved plan to new hires (collectively the "Non-Plan Grants").

Stock options granted under the 2018 Plan may be either incentive stock options to employees, as defined in Section 422A of the Internal Revenue Code of 1986, or non-qualified stock options. The exercise price of all stock options granted under the 2018 Plan must be at least equal to the fair market value of the shares of common stock on the date of the grant. The 2018 Plan is administered by the Board. Stock options granted under the 2018 Plan are generally not transferable, vest in installments over the requisite service period and are exercisable during the stated contractual term of the option only by such optionee.

Stock-based compensation expense recognized in the consolidated statements of operations for the year ended December 31, 2018 and 2017 is based on awards expected to vest and reflects an estimate of awards that will be forfeited. ASC 718 requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Stock options to purchase an aggregate of 650,770 shares of common stock were issued during the year ended December 31, 2018; zero options were issued during the year ended December 31, 2017.

Stock option activity, including options granted under the 2018 Plan, the Prior Plan and the Non-Plan Grants, was as follows (in thousands, except number of shares and per share amounts):

	2018			2017		
	Shares	Weighted Average Exercise Price	Weighted Average Fair Value at Grant Date	Shares	Weighted Average Exercise Price	Weighted Average Fair Value at Grant Date
Outstanding at January 1	67,465	$ 71.03	$ 36.85	100,492	$ 62.52	$ 33.84
Granted	650,770	4.79	4.15	-	-	-
Cancelled or expired	(221,277)	13.45	7.77	(33,027)	45.13	30.74
Outstanding at December 31	496,958	$ 9.90	$ 6.62	67,465	$ 71.03	$ 36.85
Exercisable at December 31	66,188	$ 46.88	$ 25.92	32,750	$ 128.39	$ 62.23

The estimated fair value of stock options granted is done using the Black-Scholes-Merton method applied to individual grants. Key assumptions used to estimate the fair value of stock awards are as follows:

	Year Ended December 31,	
	2018	2017
Risk free interest rate	2.97%	-
Dividend Yield	0%	-
Expected term	10.0 years	-
Expected Volatility	89%	-
Expected forfeiture rate	20%	-

The aggregate intrinsic value of options outstanding as of December 31, 2018 was zero because the closing price of the stock at December 31, 2018 was less than the exercise prices of all options issued under the Prior Plan or the 2018 Plan were fully vested and expensed due to the change of control as a result of the Corporate Restructuring, noted above.

Total stock-based compensation expense recognized for employees and directors was $0.7 million and $0.2 million for the years ended December 31, 2018 and 2017, respectively, and was recognized as Non-cash compensation expense as discussed below.

During the year ended December 31, 2018, the Board granted an aggregate of 93,750 shares of restricted stock to our non-employee directors of the Company. These awards will vest and become non-forfeitable with respect to one-half of the underlying shares on February 14, 2019 and the remaining half on February 14, 2020. The total grant date fair value of these restricted stock awards amounts to $0.4 million in the aggregate or $4.80 per share and is being recognized ratably over the vesting period. During the year ended December 31, 2018, $0.2 million was expensed as compensation.

On August 15, 2018, the Company issued restricted stock units covering 40,000 shares, with a value of $6.20 per share, to an employee and during the year ended December 31, 2018 recognized $16 thousand of expense associated with this award.

On July 25, 2017, we granted 25,974 shares of restricted stock to certain former non-employee directors of the Company. These awards became fully vested and non-forfeitable on February 13, 2018 as a result of the Restructuring, which constituted a change of control under the Prior Plan. The total expense of these restricted stock awards, which amounted to $0.2 million in the aggregate, or $9.24 per share, was being recognized over the vesting period as Non-cash compensation expense. During the three months ended March 31, 2018, the remaining $0.1 million of expense was recognized as non-cash compensation expense.

Effective October 6, 2016, the Board granted our former Chief Executive Officer, an option to purchase 25,000 shares of common stock at an exercise price of $13.32 per share. This option was granted outside the Prior Plan as an inducement option. As a result of the Restructuring, which constituted a change of control under the option agreement, this option became fully vested on February 13, 2018 and was fully expensed during the three months ended March 31, 2018. On August 15, 2018, the Board granted our former Chief Executive Officer an additional option to purchase 200,000 shares of common stock at an exercise price of $6.20 per share, which was scheduled to vest and become exercisable in four equal annual installments, commencing on August 15, 2019. The option to purchase 200,000 shares of common stock terminated as a result of the termination of his employment and his vested options to purchase 25,000 shares of common stock expired January 10, 2019, which is the 90th day after his termination date.

As of December 31, 2018, 590,935 shares are available under the 2018 Plan, prior to forfeited shares being made available for reissuance.

(8) Warrants

2018 Warrants

The Company issued warrants to purchase an aggregate of 1.2 million shares of Company common stock to the Investors, with an exercise price of $0.01 per share and an expiration date of August 1, 2028. The issuance of the 2018 Warrants occurred on September 17, 2018 and was a condition to the effectiveness of the 25th Amendment. The fair value of these warrants upon issue was determined to be $5.1 million (see Note 6). In accordanc e with ASC 815-40, the 2018 Warrants meet all requirements to be classified as equity awards. The number of shares of Company common stock issuable upon exercise of the 2018 Warrants are subject to standard and customary anti-dilution provisions for stock splits, stock dividends or similar transactions.

The following table summarizes our warrant activities for the period ended December 31, 2018:

	Common Stock Warrants	Weighted Average Exercise Price
Outstanding as of January 1, 2017	524,277	$ 26.76
Expired	(4,360)	135.36
Outstanding at January 1, 2018	519,917	$ 25.68
Issued	1,200,000	0.01
Expired	(9,308)	88.84
Outstanding at December 31, 2018	1,710,609	$ 7.33

The estimated fair value was derived using the lattice model with the following weighted-average assumptions:

	Year Ended December 31,	
	2018	2017
Value of underlying common stock (per share)	$ 1.61	$ 6.84
Risk free interest rate	2.48%	2.12%
Expected term	3.6 years	4.6 years
Volatility	92%	92%
Dividend yield	0%	0%

The following table summarizes our activities related to warrants accounted for as a derivative liability for the years ended December 31, 2018 and 2017:

	2018	2017
Balance at January 1	93,759	93,759
Derivative warrants issued	-	-
Derivative warrants exercised	-	-
Derivative warrants expired	(6,250)	-
Balance at December 31	87,509	93,759

We utilize a lattice model to determine the fair market value of the warrants accounted for as liabilities. The valuation model accommodates the probability of exercise price adjustment features as outlined in the warrant agreements. We recorded an unrealized gain of $0.1 million resulting from the change in the fair value of the warrant derivative liability for the year ended 2018. Under the terms of some of our warrant agreements, at any time while the warrant is outstanding, the exercise price per share can be reduced to the price per share of future subsequent equity sales of our common stock or a common stock equivalent that is lower than the exercise price per share as stated in the warrant agreement.

2019 Warrants

On April 1, 2019, the Company will issue warrants to purchase an aggregate of 1.2 million shares of Company common stock to the Investors, with an exercise price of $0.01 per share and an expiration date of April 1, 2029. The issuance of the 2019 Warrants was a condition to the effectiveness of the Second Amended and Restated Credit Agreement, as described below under Note 16, “Subsequent Events” below. The 2019 Warrants are expected to meet all the requirements to be classified as equity awards in accordance with ASC 815-40. However, our final analysis will be completed in connection with the filing of our March 31, 2019 interim financial statements on Form 10-Q. The number of shares of Company common stock issuable upon exercise of the 2019 Warrants are subject to standard and customary anti-dilution provisions for stock splits, stock dividends or similar transactions.

Total outstanding common stock warrants as of April 1, 2019 were 2,910,609, with a weighted average exercise price of $4.31.

(9) Commitments and Contingencies

Operating Leases

We currently lease six office facilities, having terminated the Miamisburg, OH lease on February 28, 2019. These leases are under non-cancelable operating lease agreements with expiration dates between 2019 and 2025. We have the option to extend certain leases to five or ten-year term(s) and we have the right of first refusal on any sale.

Future minimum payments, (including payments related to the February 1, 2019 renewal for 732 Cruiser Lane premises) for the next five years and thereafter as of December 31, 2018, under these operating leases, are as follows (in thousands):

2019	$	817
2020		528
2021		507
2022		485
2023		426
Thereafter		662
Total	$	3,425

Rent expense was $0.8 million for the years ended December 31, 2018 and 2017, respectively. Rent expense is determined using the straight-line method of the minimum expected rent paid over the term of the agreement. We have no contingent rent agreements.

Capital Leases

Future minimum payments for the next five years and thereafter as of December 31, 2018, under these capital leases, are as follows (in thousands):

2019	$	502
2020		217
2021		-
2022		-
2023		-
Thereafter		-
Total minimum lease payments		719
Less amount representing interest		(89)
Present value of obligations under capital leases		630
Less current portion		(426)
Long-term capital lease obligations	$	204

Litigation

On August 10, 2017, a civil suit complaint was filed against Xtant in the United States District Court, District of Nevada by Axis Spine NV, LLC ("Axis"), Case No. 2:17-CV-02147-APG-VCF. The complaint alleges breach of contract, breach of the implied covenant of good faith and fair dealing, and tortious interference with prospective economic advantage with respect to an alleged medical device distribution relationship between the parties. Specifically, Axis alleges that Xtant owes payments to Axis for its medical device distributions. Axis seeks relief in the form of damages in an amount in excess of $1.0 million. On March 6, 2019, the Court granted Xtant's motion for summary judgment on Axis's claims for breach of contract, and breach of the covenant of good faith and fair dealing, but denied Xtant's motion for summary judgment on Axis's unjust enrichment claim. Xtant is evaluating its alternatives in light of the court order. Because this matter is in early stages and because of the complexity of the case, we cannot estimate the possible loss or range of loss, if any, associated with its resolution. However, there can be no assurance that the ultimate resolution of this matter will not result in a material adverse effect on our business, financial condition or results of operations.

On December 13, 2018, a complaint was filed by RSB Spine, LLC against Xtant Medical Holdings, Inc. which claims that some of our products, including the Irix-ATM Lumbar Integrated Fusion System and the Irix-CTM Cervical Integrated Fusion System, infringe certain of RSB Spine's patents. The complaint seeks an adjudication of infringement, an injunction against future infringement, unspecified damages for infringement, a finding that such infringement is willful, and treble damages for such willful infringement. This action was brought in the United States District Court for the District of Delaware. We intend to vigorously defend the claims in this action. Because this matter is in early stages and because of the complexity of the case, we cannot estimate the possible loss or range of loss, if any, associated with its resolution. However, there can be no assurance that the ultimate resolution of this matter will not result in a material adverse effect on our business, financial condition or results of operations.

In October 2016, Phoenix Surgical, Inc., a former distributor sued Xtant for its alleged participation in a scheme orchestrated by a former Phoenix Surgical sales representative to divert sales away from Phoenix Surgical to another entity. The other entity diverted approximately $285,000 in sales (or approximately $205,000 in gross profit) that would otherwise have gone to Phoenix Surgical. Phoenix Surgical alleges that Xtant and one of its former employees participated in this diversion of sales and that Xtant is liable to Phoenix Surgical for its loss, with treble damages for violation of a Connecticut statute. Xtant claims that the other entity was a legitimate distributor, its former employee acted on his own and Xtant had no way of knowing the other parties were diverting sales. Phoenix initially sued Xtant in Connecticut and in federal bankruptcy court because some other individuals involved have filed bankruptcy. Xtant was dismissed from those actions, and the dispute is now subject to arbitration in Colorado. The arbitration is scheduled for July 2019.

In addition, we are engaged in ordinary routine litigation incidental to our business from time to time, including product liability dispute.

Indemnifications

Our arrangements generally include limited warranties and certain provisions for indemnifying customers against liabilities if our products or services infringe a third-party's intellectual property rights. To date, we have not incurred any material costs as a result of such warranties or indemnification provisions and have not accrued any liabilities related to such obligations in the accompanying financial statements.

We have also agreed to indemnify our directors and executive officers for costs associated with any fees, expenses, judgments, fines and settlement amounts incurred by any of these persons in any action or proceeding to which any of those persons is, or is threatened to be, made a party by reason of the person's service as a director or officer, including any action by us, arising out of that person's services as our director or officer or that person's services provided to any other company or enterprise at our request.

(10) Income Taxes

The Company's provision for income taxes differs from applying the statutory U.S. Federal income tax rate to income before taxes. The primary difference results from providing for state income taxes and from deducting certain expenses for financial statement purposes but not for federal income tax purposes.

The components of income loss before provision for income taxes consist of the following (in thousands):

	Year Ended December 31,	
	2018	2017
United States	$ (70,059)	$ (52,411)
Total	$ (70,059)	$ (52,411)

The components of the income tax provision are as follows (in thousands):

	Year Ended December 31,	
	2018	2017
Current:		
Federal	$ -	$ -
State	-	-
Total current	-	-
Deferred:		
Federal	-	-
State	-	-
Total deferred	-	-
Total Provision for Income Taxes	$ -	$ -

The reconciliation of income tax attributable to operations computed at the U.S. Federal statutory income tax rate of 21% to income tax expense is as follows (in thousands):

	Year Ended December 31,	
	2018	2017
Statutory Federal tax rate	$ (14,712)	$ (18,315)
Valuation allowance	7,270	6,390
State income taxes, net of Federal benefit	(1,740)	(2,818)
Goodwill impairment	8,049	-
Change in state income tax rate	396	755
Change in warrant derivative liability	(25)	(71)
Stock compensation adjustment and other reconciling items	349	(190)
Tax Cuts and Jobs Act	-	11,772
Nondeductible interest	247	1,473
Restructuring expenses	117	952
Other	-	-
Nondeductible meals and entertainment expense	49	52
Total Provision for Income Taxes	$ -	$ -

Deferred tax components are as follows (in thousands):

	At December 31,	
	2018	2017
Deferred tax assets:		
Accrued liability for vacation	$ 77	$ 81
Accrued commissions and bonuses / compensation	332	60
Accrued contingencies	121	68
Amortization	40	-
Bad debt reserve	552	580
Charitable contributions carryforward	7	8
Interest expense	2,173	-
Inventory reserve	3,200	2,075
Net operating loss carryovers	22,996	23,174
Stock option compensation	475	560
Other	24	42
Total deferred tax assets	29,997	26,648
Deferred tax liabilities:		
Depreciation	(137)	(704)
Amortization	-	(3,355)
Total deferred tax liabilities	(137)	(4,059)
Valuation allowance	(29,860)	(22,589)
Net deferred tax assets	$ -	$ -

The ultimate realization of deferred tax assets is dependent upon the existence, or generation, of taxable income in the periods when those temporary differences and net operating loss carryovers are deductible. Management considers the scheduled reversal of deferred tax liabilities, taxes paid in carryover years, projected future taxable income, available tax planning strategies, and other factors in making this assessment. Based on available evidence, management does not believe it is more likely than not that all of the deferred tax assets will be realized. Accordingly, the Company has established a valuation allowance equal to the net realizable deferred tax assets. The valuation allowance increased by $7.3 million in 2018 and increased by $6.4 million in 2017.

At December 31, 2018 and 2017, the Company had total domestic Federal and state net operating loss carryovers of approximately $158.7 million and $164.8 million, respectively. Federal and state net operating loss carryovers both expire at various dates between 2024 and 2038. Federal net operating losses generated in 2018 have an indefinite carryforward and are only available to offset 80% taxable income.

Under the Tax Reform Act of 1986, as amended, the amounts of and benefits from net operating loss carryovers and research and development credits may be impaired or limited in certain circumstances. Events which cause limitations in the amount of net operating losses that the Company may utilize in any one year include, but are not limited to, a cumulative ownership change of more than 50%, as defined, over a three-year period. The Company has not performed an analysis to determine if an ownership change has occurred for 2018 or 2017.

In March 2016, the FASB issued ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting.* Prior GAAP required an entity to recognize excess tax benefit or deficiency as additional paid-in capital. To simplify the presentation of stock compensation, the amendments in this Update require that the excess tax benefit or deficiency is recognized as expense. For non-public business entities, the amendments in this Update are effective for financial statements issued for annual periods beginning after December 15, 2017, and interim periods within annual periods beginning after December 15, 2018. The Company adopted the update as of January 1, 2017. Due to a full valuation allowance, there was no qualitative impact to the tax provision upon adoption.

On December 22, 2017, the *Tax Cuts and Jobs Act (the "Act")*, was signed into legislation. As a result of the lower enacted corporate tax rate, the Company has remeasured certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21%. The amount recorded at December 31, 2017 related to the remeasurement of the Company's deferred tax balance was $11.8 million, that was fully offset by a corresponding decrease to the valuation allowance.

On December 22, 2017, *Staff Accounting Bulletin No. 118 ("SAB 118")*, was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Act. In accordance with SAB 118, the Company has provisionally determined that there is no tax deferred tax benefit or expense with respect to the remeasurement of certain deferred tax assets and liabilities due to the full valuation allowance against net deferred tax assets. The Company analyzed certain aspects of the Act further and refined its calculations during 2018. The Company has completed their analysis of the impact of the Tax Act at December 31, 2018 and has incorporated it into the current year provision. The most significant impact as a result of the Act, beginning in tax year 2018, is the limitation placed on the deductibility of interest expense.

The 2015 through 2017 tax years remain open to examination by the Internal Revenue Service and various other state tax agencies. These taxing authorities have the authority to examine those tax years until the applicable statute of limitations expire.

The Company did not recognize any material interest or penalties related to income taxes for the years ended December 31, 2018 and 2017.

(11) Equity

Convertible Note Indenture

During the first quarter of 2018, in connection with our Restructuring (defined above), all of the outstanding 6.00% convertible senior unsecured notes due 2021 were converted or exchanged into shares of our common stock and the Indenture governing such notes was discharged. On January 17, 2018, the Investors converted $1.6 million aggregate principal amount of 6.00% convertible senior unsecured promissory notes due in 2021, which were issued effective January 17, 2017, plus accrued and unpaid interest, into 189,645 shares of our common stock. On February 14, 2018, an additional $70.3 million aggregate principal amount of notes, plus accrued and unpaid interest, were exchanged for 10,401,309 newly-issued shares of our common stock.

Private Placement SPA

On February 14, 2018, we sold to the Investors pursuant to the Private Placement SPA 945,819 shares of our common stock, at a price of $7.20 per share, for aggregate proceeds of $6.8 million.

Registration Rights Agreement

On May 15, 2018, we filed a shelf resale registration statement with the SEC pursuant to our obligations under the Registration Rights Agreement. This registration statement was declared effective by the SEC on June 4, 2018.

Rights Offering

On May 18, 2018, we distributed to holders of our common stock, at no charge, non-transferable subscription rights to purchase up to an aggregate of 1,137,515 shares of our common stock (the "Rights Offering"). In the Rights Offering, holders received 0.0869816 subscription rights for each share of common stock held on the record date, April 27, 2018. The units were priced at $7.20 per unit. The Rights Offering expired on June 18, 2018, at which time the rights were no longer exercisable. We issued 129 shares of our common stock in the Rights Offering, resulting in $0.9 thousand in gross proceeds to us.

(12) Employee Benefit Plans

The Company combined the previous two 401(k) plans for Bacterin and X-spine in 2017. Under the combined plan, the employee becomes qualified upon starting employment. In 2018, the Company contributed $0.3 million as part of the employer match program. Terms for the plan are as follows:

Discretionary Match: 3%

Contribution Limit: $18,000 or the statutorily prescribed limit

(13) Supplemental Disclosure of Cash Flow Information

Supplemental cash flow information is as follows (in thousands):

	Year Ended December 31,	
	2018	**2017**
Cash paid during the period for:		
Interest	$ 186	$ 627
Non-cash activities:		
Issuance of capital leases	$ 84	$ 173
Interest converted into common stock	$ 556	$ 480
Conversion of convertible debt to equity	$ 71,865	$ -
Convertible PIK interest	$ 4,764	$ -
Conversion of interest related to the Credit Facility to long-term debt	$ 7,977	$ -
Write-off of convertible debt issuance cost	$ 1,012	$ -
Debt discount on long-term credit facility	$ 5,114	$ -
Net Transfer of inventory to property and equipment	$ 149	$ -
RSU vesting	$ 120	$ -

(14) Related Party Transactions

The Investors, which collectively own approximately 70% of our outstanding common stock, are the sole holders of our outstanding long-term debt. In addition, as described in more detail under Note (1), we are parties to an Investor Rights Agreement and Registration Rights Agreement with the Investors. Transactions between the Company and the Investors are conducted under the provisions of Amended and Restated Credit Agreement, the Investor Rights Agreement and the Registration Rights Agreement, as noted above.

(15) Segment and Geographic Information

The Company's management reviews financial results and manages the business on an aggregate basis. Therefore, financial results are reported in a single operating segment: the development, manufacture and marketing of orthopedic medical products and devices.

The Company attributes revenues to geographic areas based on the location of the customer. Approximately 95% and 97% of revenue were in the United States, respectively, for the years ended December 31, 2018 and 2017. Total revenue by major geographic area is as follows (in thousands):

	Year Ended December 31,	
	2018	2017
United States	$ 68,880	$ 79,738
Rest of World	3,323	2,874
Total	$ 72,203	$ 82,612

(16) Subsequent Events

On March 29, 2019, Xtant Medical Holdings, Inc., and our subsidiaries, Bacterin International, Inc., Xtant Medical Systems, Inc. and X-spine Systems, Inc., entered into a Second Amended and Restated Credit Agreement ("Second Amended and Restated Credit Agreement") with OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP. (collectively, the "Investors"), which amended and restated the prior Amended and Restated Credit Agreement dated as of July 27, 2015 among the parties thereto, and as subsequently amended through the Twenty-Fifth Amendment to the Amended and Restated Credit Agreement, the "Prior Credit Agreement").

Under the terms of the Second Amended and Restated Credit Agreement, the Prior Credit Agreement was amended to provide that:

- X-Spine Systems, Inc. may request additional term loans from the Investors in the remaining amount available to be requested as Additional Delayed Draw Loans, which was approximately $2,200,000 as of the date of the Second Amended and Restated Credit Agreement, and may request new additional term loans in an aggregate amount of up to $10,000,000, the making of each such Loan to be subject to the discretion of the Investors and the Company's production of a thirteen-week cash flow forecast that is approved by the Investors and shows a projected cash balance for the following two-week period of less than $1,500,000, as well as the satisfaction (or waiver in writing by each Investor) of conditions precedent, including closing certificate, delivery of budget, and other satisfactory documents;
- No interest will accrue on the Loans under the Second Amended and Restated Credit Agreement from and after January 1, 2019 until March 31, 2020;
- Beginning April 1, 2020 through the maturity date of the Second Amended and Restated Credit Agreement, interest payable in cash will accrue on the Loans under the Credit Agreement at a rate per annum equal to the sum of (i) 10.00% plus (ii) the higher of (x) the LIBO Rate (as such term is defined in the Second Amended and Restated Credit Agreement) and (y) 2.3125%;
- The maturity date of the Loans is March 31, 2021;
- The Consolidated Senior Leverage Ratio and Consolidated EBITDA (as such terms were defined in the Prior Credit Agreement) financial covenants were deleted and a new Revenue Base (as such term is defined in the Second Amended and Restated Credit Agreement) financial covenant was added; and
- The key person event default provision was revised to refer specifically to Kevin Brandt and Ron Berlin.

On April 1, 2019 Xtant will issue warrants to purchase an aggregate of 1.2 million shares of Company common stock to the Investors, with an exercise price of $0.01 per share and an expiration date of April 1, 2029. The issuance of the 2019 Warrants occurred on April 1, 2019 and was a condition to the effectiveness of the Second Amended and Restated Credit Agreement. The 2019 Warrants are expected to meet all the requirements to be classified as equity awards in accordance with ASC 815-40. However, our final analysis will be completed in connection with the filing of our March 31, 2019 interim financial statements on Form 10-Q. The number of shares of Company common stock issuable upon exercise of the 2019 Warrants are subject to standard and customary anti-dilution provisions for stock splits, stock dividends or similar transactions.

The issuance of the 2019 Warrants was exempt from the registration requirements of the Securities Act of 1933, as amended (the "Securities Act"), pursuant to Section 4(a)(2) thereof and/or Regulation D promulgated thereunder. The issuance of any shares of Company common stock in connection with the exercise of the 2019 Warrants is also expected to be exempt from the registration requirements of the Securities Act, pursuant to Section 4(a)(2) thereof and/or Regulation D promulgated thereunder.

The Investors, which collectively own approximately 70% of the Company's outstanding common stock, and beneficially own, with their warrants, approximately 75% of the Company's outstanding common stock, are the sole holders of the Company's outstanding long-term debt. In addition, as described in more detail in the definitive proxy statement for the Company's 2018 annual meeting of stockholders filed with the SEC on June 26, 2018, as amended, the Company is a party to an Investor Rights Agreement and Registration Rights Agreement with the Investors in addition to the Second Amended and Restated Credit Agreement.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management with the participation of our chief executive officer and principal financial officer evaluated the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) as of December 31, 2018. Based upon that evaluation, our chief executive officer and principal financial officer concluded that as of December 31, 2018, our disclosure controls and procedures were effective.

Management's Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in rule 13a-15(f) under the Securities Exchange Act of 1934 as amended. Under the supervision and with the participation of senior and executive management, we conducted an evaluation of our internal controls over financial reporting based upon the framework Internal Control - Integrated Framework (2013) as outlined by COSO, the Committee of Sponsoring Organizations of the Treadway Commission. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of an evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions or that the degree of compliance with the policies or procedures may deteriorate.

Based on our evaluation under the framework Internal Control - Integrated Framework (2013), management concluded that our internal control over financial reporting was effective as of December 31, 2018.

Changes in Internal Control over Financial Reporting

There were no changes in the Company's internal control over financial reporting during the fourth quarter ended December 31, 2018 that have materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

On March 29, 2019, Xtant Medical Holdings, Inc., and our subsidiaries, Bacterin International, Inc., Xtant Medical Systems, Inc. and X-spine Systems, Inc., entered into a Second Amended and Restated Credit Agreement ("Second Amended and Restated Credit Agreement") with OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP. collectively, the "Investors"), which amended and restated the prior Amended and Restated Credit Agreement dated as of July 27, 2015 among the parties thereto, and as subsequently amended through the Twenty-Fifth Amendment to the Amended and Restated Credit Agreement, the "Prior Credit Agreement").

Under the terms of the Second Amended and Restated Credit Agreement, the Prior Credit Agreement was amended to provide that:

- X-Spine Systems, Inc. may make additional term loans with ROS and Royalty Opportunities in an aggregate amount of up to $10,000,000, the amount of each loan draw to be subject to the Company's production of a thirteen-week cash flow forecast that is approved by ROS and Royalty Opportunities, as well as the satisfaction (or waiver in writing by each lender) of conditions precedent, including closing certificate, delivery of budget, and other satisfactory documents;
- No interest will accrue on the Loans under the Second Amended and Restated Credit Agreement from and after January 1, 2019 until March 31, 2020;
- Beginning April 1, 2020 through the maturity date of the Second Amended and Restated Credit Agreement, interest payable in cash will accrue on the Loans under the Credit Agreement at a rate per annum equal to the sum of (i) 10.00% plus (ii) the higher of (x) the LIBO Rate (as such term is defined in the Second Amended and Restated Credit Agreement) and (y) 2.3125%;
- The maturity date of the Loans is March 31, 2021;
- The Consolidated Senior Leverage Ratio and Consolidated EBITDA (as such terms were defined in the Prior Credit Agreement) financial covenants were deleted and a new Revenue Base (as such term is defined in the Second Amended and Restated Credit Agreement) financial covenant was added; and
- The key person event default provision was revised to refer specifically to Kevin Brandt and Ron Berlin.

On April 1, 2019 Xtant will issue warrants to purchase an aggregate of 1.2 million shares of Company common stock to the Investors, with an exercise price of $0.01 per share and an expiration date of April 1, 2029 (collectively, the "2019 Warrants"). The issuance of the 2019 Warrants was a condition to the effectiveness of the Second Amended and Restated Credit Agreement. The number of shares of Company common stock issuable upon exercise of the 2019 Warrants are subject to standard and customary anti-dilution provisions for stock splits, stock dividends or similar transactions. The issuance of the 2019 Warrants was exempt from the registration requirements of the Securities Act pursuant to Section 4(a)(2) thereof and/or Regulation D promulgated thereunder. The issuance of any shares of Company common stock in connection with the exercise of the 2019 Warrants is also expected to be exempt from the registration requirements of the Securities Act, pursuant to Section 4(a)(2) thereof and/or Regulation D promulgated thereunder.

The Investors, which collectively own approximately 70% of the Company's outstanding common stock, and beneficially own, with their warrants, approximately 75% of the Company's common stock, are the sole holders of the Company's outstanding long-term debt. In addition, as described in more detail in the definitive proxy statement for the Company's 2018 annual meeting of stockholders filed with the SEC on June 26, 2018, as amended, the

Company is a party to an Investor Rights Agreement and Registration Rights Agreement with the Investors in addition to the Second Amended and Restated Credit Agreement.

The foregoing summary description of the Second Amended and Restated Credit Agreement and 2019 Warrants does not purport to be complete and is qualified in its entirety by reference to the full text of the Second Amended and Restated Credit Agreement which is filed as Exhibit 10.47 and the 2019 Warrants which are filed as Exhibit 4.11 and Exhibit 4.12 to this Annual Report on Form 10-K and incorporated herein by reference.

PART III

Item 10. Directors and Executive Officers of the Registrant

Information with respect to this item will be set forth in the Proxy Statement for the 2019 Annual Meeting of Stockholders ("Proxy Statement") under the headings "Proposal One – Election of Directors," "Executive Officers," "Section 16(a) Beneficial Ownership Reporting Compliance" and "General Information About the Board of Directors and Corporate Governance" and is incorporated herein by reference or an amendment to this Annual Report on Form 10-K ("Form 10-K/A"). The Proxy Statement or Form 10-K/A, as the case may be, will be filed with the SEC within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 11. Executive Compensation

Information with respect to this item will be set forth in the Proxy Statement under the headings "Executive Compensation" and "General Information About the Board of Directors and Corporate Governance—Director Compensation" and is incorporated herein by reference or the Form 10-K/A. The Proxy Statement or Form 10-K/A, as the case may be, will be filed with the SEC within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Information with respect to this item will be set forth in the Proxy Statement under the headings "Security Ownership of Certain Beneficial Owners and Management" and "Executive Compensation—Securities Authorized for Issuance Under Equity Compensation Plans" and is incorporated herein by reference or the Form 10-K/A. The Proxy Statement or Form 10-K/A, as the case may be, will be filed with the SEC within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 13. Certain Relationships and Related Transactions, and Director Independence

Information with respect to this item will be set forth in the Proxy Statement under the headings "Transactions with Related Persons, Promoters and Certain Control Persons" and "General Information About the Board of Directors and Corporate Governance—Director Independence" and is incorporated herein by reference or the Form 10-K/A. The Proxy Statement or Form 10-K/A, as the case may be, will be filed with the SEC within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

Item 14. Principal Accountant Fees and Services

Information with respect to this item will be set forth in the Proxy Statement under the headings "Proposal Two – Ratification of Appointment of Independent Registered Public Accounting Firm—Audit and Non-Audit Related Fees" and "Proposal Two – Ratification of Appointment of Independent Registered Public Accounting Firm—Pre-Approval Policy" and is incorporated herein by reference or the Form 10-K/A. The Proxy Statement or Form 10-K/A, as the case may be, will be filed with the SEC within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

PART IV

Item 15. Exhibits and Financial Statement Schedules

The following documents are filed as part of or are included in this Annual Report on Form 10-K:

1. Financial statements included in Item 8 of this Annual Report; and

2. The exhibits listed below.

Exhibit Index

Exhibit No.	Description
2.1	Stock Purchase Agreement dated July 27, 2015 among Bacterin International Holdings, Inc., X-spine Systems, Inc. and the sellers named therein (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on July 28, 2015 (SEC File No. 0-34941) and incorporated by reference herein).
3.1	Amended and Restated Certificate of Incorporation (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 13, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
3.2	Second Amended and Restated Bylaws (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
3.3	Form of Common Stock Certificate (filed as Exhibit 4.2 to the Registrant's Registration Statement on Form S-1 filed with the SEC on December 21, 2015 (SEC File No. 333-208677) and incorporated by reference herein).
4.1	Form of Warrant to Purchase Common Stock (filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the SEC on June 5, 2013 (SEC File No. 0-34941) and incorporated by reference herein).
4.2	Form of Warrant to Purchase Common Stock (filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the SEC on July 31, 2014 (SEC File No. 0-34941) and incorporated by reference herein).
4.3	Form of Warrant Certificate for Warrants underlying Units (filed as Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2016 (SEC File No. 0-34941) and incorporated by reference herein).
4.4	Form of Pre-Funded Warrant (filed as Exhibit 4.3 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2016 (SEC File No. 0-34941) and incorporated by reference herein).
4.5	Warrant dated as of September 17, 2018 issued by Xtant Medical Holdings, Inc. to ROS Acquisition Offshore LP (filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the SEC on September 17, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
4.6	Warrant dated as of September 17, 2018 issued by Xtant Medical Holdings, Inc. to OrbiMed Royalty Opportunities II, LP (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed with the SEC on September 17, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
4.7	Registration Rights Agreement (for Common Stock underlying the Indenture Notes) dated January 17, 2017 among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP. (filed as Exhibit 10.9 to the Registrant's Current Report on Form 8-K filed with the SEC on January 20, 2017 (SEC File No. 0-34941) and incorporated by reference herein).

4.8	Registration Rights Agreement (for Common Stock underlying the PIK Notes) dated January 17, 2017 among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP. (filed as Exhibit 10.13 to the Registrant's Current Report on Form 8-K filed with the SEC on January 20, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
4.9	Registration Rights Agreement (for Common Stock issued upon the exchange of the Notes and pursuant to the Private Placement) dated as of February 14, 2018 among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP, Telemetry Securities, L.L.C., Bruce Fund, Inc., Park West Investors Master Fund, Limited, and Park West Partners International, Limited (filed as Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
4.10	Investor Rights Agreement dated February 14, 2018 among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP, Park West Partners International, Limited and Park West Investors Master Fund, Limited (filed as Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
4.11*	Warrant dated as of April 1, 2019 issued by Xtant Medical Holdings, Inc. to ROS Acquisition Offshore LP (filed herewith).
4.12*	Warrant dated as of April 1, 2019 issued by Xtant Medical Holdings, Inc. to OrbiMed Royalty Opportunities II, LP (filed herewith).
10.1•	Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on August 3, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.2•	Form of Employee Stock Option Award Agreement for use with the Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on August 3, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.3•	Form of Employee Restricted Stock Unit Award Agreement for use with the Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan (filed as Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed with the SEC on August 3, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.4•	Form of Non-Employee Director Restricted Stock Award Agreement for use with the Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan (filed as Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed with the SEC on August 3, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.5•	Amended and Restated Xtant Medical Equity Incentive Plan (filed as Exhibit 10.8 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2015 (SEC File No. 0-34941) and incorporated by reference herein).
10.6•	Form of Stock Option Agreement under Amended and Restated Xtant Medical Equity Incentive Plan (filed as Exhibit 10.23 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2012 (SEC File No. 0-34941) and incorporated by reference herein).
10.7•	Form of Amended and Restated Restricted Stock Agreement under Amended and Restated Xtant Medical Equity Incentive Plan (filed as Exhibit 10.4 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2015 (SEC File No. 0-34941) and incorporated by reference herein).
10.8•	Form of Indemnification Agreement for Directors and Officers (filed as Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.9•	Employment Agreement effective October 6, 2017 between Xtant Medical Holdings, Inc. and Carl O'Connell (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 6, 2016 (SEC File No. 0-34941) and incorporated by reference herein).
10.10•	Non-Plan Inducement Stock Option Grant effective as of October 6, 2016 between Xtant Medical Holdings, Inc. and Carl O'Connell (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on October 6, 2016 (SEC File No. 0-34941) and incorporated by reference herein).

10.11•	Amendment No. 1 to Employment Agreement effective as of February 17, 2017 between Xtant Medical Holdings, Inc. and Carl O'Connell (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 23, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.12•	Amendment No. 2 to Employment Agreement effective as of May 15, 2018 between Xtant Medical Holdings, Inc. and Carl O'Connell (filed as Exhibit 10.67 to the Registrant's Pre-Effective Amendment No. 2 to Registration Statement on Form S-1 filed with the SEC on May 30, 2018 (SEC Reg. No. 333-224940) and incorporated by reference herein).
10.13•*	Separation Agreement and Release dated November 29, 2018 between Xtant Medical Holdings, Inc. and Carl O'Connell (filed herewith).
10.14•	Interim Executive Employment Agreement dated as of October 12, 2018 between Xtant Medical Holdings, Inc. and Michael Mainelli (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 15, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.15•	Stock Option Award Agreement dated as of October 15, 2018 between Xtant Medical Holdings, Inc. and Michael Mainelli (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on October 15, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.16•	Letter Agreement dated as of May 21, 2018 between Xtant Medical Holdings, Inc. and Michael Mainelli (filed as Exhibit 10.68 to the Registrant's Pre-Effective Amendment No. 2 to Registration Statement on Form S-1 filed with the SEC on May 30, 2018 (SEC Reg. No. 333-224940) and incorporated by reference herein).
10.17•	Employment Agreement effective as of August 20, 2018 between Xtant Medical Holdings, Inc. and Kathie J. Lenzen (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on August 20, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.18•*	Employment Agreement effective as of July 9, 2018 between Xtant Medical Holdings, Inc. and Kevin D. Brandt (filed herewith).
10.19•	Offer Letter dated February 7, 2019 between Xtant Medical Holdings, Inc. and Greg Jensen (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 11, 2019 (SEC File No. 0-34941) and incorporated by reference herein).
10.20•	Employment Agreement effective as of February 11, 2019 between Xtant Medical Holdings, Inc. and Greg Jensen (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on February 11, 2019 (SEC File No. 0-34941) and incorporated by reference herein.
10.21	Amended and Restated Credit Agreement dated July 27, 2015 between Bacterin International, Inc. and ROS Acquisition Offshore LP (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on July 28, 2015 (SEC File No. 0-34941) and incorporated by reference herein).
10.22	First Amendment to Amended and Restated Credit Agreement dated March 31, 2016 among Bacterin International, Inc. and OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on April 4, 2016 (SEC File No. 0-34941) and incorporated by reference herein).
10.23	Amendment to Amended and Restated Credit Agreement dated as of April 14, 2016 among Bacterin International, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.5 to the Registrant's Current Report on Form 8-K filed with the SEC on April 19, 2016 (SEC File No. 0-34941) and incorporated by reference herein).
10.24	Fourth Amendment to Amended and Restated Credit Agreement dated as of July 29, 2016 among Bacterin International, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on August 2, 2016 (SEC File No. 0-34941) and incorporated by reference herein).

10.25	Sixth Amendment to Amended and Restated Credit Agreement dated as of September 27, 2016 among Bacterin International, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on September 28, 2016 (SEC File No. 0-34941) and incorporated by reference herein).
10.26	Seventh Amendment to Amended and Restated Credit Agreement dated as of December 31, 2016 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on January 6, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.27	Eighth Amendment to Amended and Restated Credit Agreement dated as of January 13, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on January 20, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.28	Ninth Amendment to Amended and Restated Credit Agreement dated as of January 31, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 1, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.29	Tenth Amendment to Amended and Restated Credit Agreement dated as of February 14, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 15, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.30	Eleventh Amendment to Amended and Restated Credit Agreement dated as of February 28, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on March 2, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.31	Twelfth Amendment and Waiver to Amended and Restated Credit Agreement dated as of March 31, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on April 6, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.32	Thirteenth Amendment to Amended and Restated Credit Agreement dated as of April 30, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP. (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on May 4, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.33	Fourteenth Amendment to Amended and Restated Credit Agreement dated as of May 11, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP. (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on May 12, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.34	Fifteenth Amendment to Amended and Restated Credit Agreement dated as of June 30, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP. (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on July 7, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.35	Sixteenth Amendment to Amended and Restated Credit Agreement dated as of July 15, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP. (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on July 20, 2017 (SEC File No. 0-34941) and incorporated by reference herein).

10.36	Seventeenth Amendment and Waiver to Amended and Restated Credit Agreement dated as of August 11, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on August 17, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.37	Eighteenth Amendment to Amended and Restated Credit Agreement dated as of September 29, 2017 by and among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 3, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.38	Nineteenth Amendment to Amended and Restated Credit Agreement dated as of October 31, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 31, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.39	Twentieth Amendment and Waiver to Amended and Restated Credit Agreement dated as of November 30, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on December 4, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.40	Twenty-First Amendment to Amended and Restated Credit Agreement dated as of December 28, 2017 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on December 29, 2017 (SEC File No. 0-34941) and incorporated by reference herein).
10.41	Twenty-Second Amendment to Amended and Restated Credit Agreement dated as of January 30, 2018 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on January 31, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.42	Twenty-Third Amendment to Amended and Restated Credit Agreement dated as of February 14, 2018 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.43	Twenty-Fourth Amendment to Amended and Restated Credit Agreement effective as of April 1, 2018 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on September 17, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.44	Twenty-Fifth Amendment to Amended and Restated Credit Agreement effective as of August 1, 2018 among Bacterin International, Inc., Xtant Medical Holdings, Inc., X-Spine Systems, Inc., Xtant Medical, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on September 17, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.45	Restructuring and Exchange Agreement dated as of January 11, 2018 among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP, Bruce Fund, Inc., Park West Partners International, Limited, Park West Investors Master Fund, Limited, and Telemetry Securities, L.L.C. (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on January 12, 2018 (SEC File No. 0-34941) and incorporated by reference herein).

10.46	Securities Purchase Agreement dated as of February 14, 2018 among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP. (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
10.47*	Second Amended and Restated Credit Agreement dated March 29, 2019 among Xtant Medical Holdings, Inc., Bacterin International, Inc., Xtant Medical Systems, Inc., X-spine Systems, Inc., OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP (filed herewith).
10.48	Distribution Agreement dated January 23, 2014 between X-spine Systems, Inc. and Zimmer Spine, Inc., as amended (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on August 3, 2015 (SEC File No. 0-34941) and incorporated by reference herein).
16.1	Letter from EKS&H LLLP to the SEC dated October 8, 2018 (filed as Exhibit 16.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 9, 2018 (SEC File No. 0-34941) and incorporated by reference herein).
21.1	Subsidiaries of the Registrant (filed as Exhibit 21.1 to the Registrant's Post-Effective Amendment No. 1 to Form S-1 Registration Statement filed with the SEC on August 25, 2015 (SEC File No. 333-203492 and incorporated by reference herein).
23.1*	Consent of Independent Registered Public Accounting Firm, Plante & Moran, PLLC
31.1*	Rule 13a-14(a)/15d-14(a) Certification of Chief Executive Officer and Chief Financial Officer
32.1**	Section 1350 Certification of Chief Executive Officer and Chief Financial Officer
101.INS*	XBRL INSTANCE DOCUMENT
101.SCH*	XBRL TAXONOMY EXTENSION SCHEMA
101.CAL*	XBRL TAXONOMY EXTENSION CALCULATION LINKBASE
101.DEF*	XBRL TAXONOMY EXTENSION DEFINITION LINKBASE
101.LAB*	XBRL TAXONOMY EXTENSION LABEL LINKBASE
101.PRE*	XBRL TAXONOMY EXTENSION PRESENTATION LINKBASE

• Indicates a management contract or compensatory plan.
* Filed herewith.
** Furnished herewith.

Item 16. Form 10-K Summary

Optional disclosure, not included in this Annual Report on Form 10-K.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

XTANT MEDICAL HOLDINGS, INC.

By: */s/ Greg Jensen*
Name: Greg Jensen
Title: Vice President, Finance and Interim Chief Financial Officer
(principal executive, financial and accounting officer and duly authorized person)

Date: April 1, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated on April 1, 2019.

Signature	**Title**
/s/ Greg Jensen Greg Jensen	Vice President, Finance and Interim Chief Financial Officer (principal executive, financial and accounting officer)
/s/ John Bakewell John Bakewell	Director
/s/ Michael Eggenberg Michael Eggenberg	Director
/s/ Robert McNamara Robert McNamara	Director
/s/ Jeffrey Peters Jeffrey Peters	Director
/s/ Matthew Rizzo Matthew Rizzo	Director

THIS WARRANT AND THE SECURITIES PURCHASABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 AND MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FILED UNDER SAID ACT AND ANY APPLICABLE STATE SECURITIES LAWS, UNLESS AN EXEMPTION FROM SUCH REGISTRATION IS AVAILABLE.

XTANT MEDICAL HOLDINGS, INC.

WARRANT

dated as of April 1, 2019

THIS CERTIFIES THAT, for value received, ROS ACQUISITION OFFSHORE LP or its successors or permitted assigns (such Person and such successors and assigns each being the "Warrant Holder" with respect to the Warrant held by it), at any time and from time to time on any Business Day on or prior to 5:00 p.m. (New York City time), on the Expiration Date (as herein defined), is entitled (a) to subscribe for the purchase from Xtant Medical Holdings, Inc., a Delaware corporation (the "Company"), 765,992 Shares at a price per Share equal to the Exercise Price (as herein defined), and (b) to the other rights set forth herein; provided that the number of Shares issuable upon any exercise of this Warrant and the Exercise Price shall be adjusted and readjusted from time to time in accordance with Section 4. By accepting delivery hereof, the Warrant Holder agrees to be bound by the provisions hereof.

IN FURTHERANCE THEREOF, the Company irrevocably undertakes and agrees for the benefit of Warrant Holder as follows:

Section 1. Definitions and Construction.

(a) Certain Definitions. As used herein (the following definitions being applicable in both singular and plural forms):

"Affiliate" means, with respect to any Person, any other Person that directly or indirectly controls, is controlled by, or is under common control with such Person.

"Appraised Value" means at any time the fair market value thereof determined in good faith by the Board of Directors of the Company as of a date which is within ten (10) days of the date as of which the determination is to be made, subject to the rights of the Requisite Holders pursuant to Section 4(m).

"Business Day" means any day except a Saturday, Sunday or other day on which commercial banks in New York City are authorized by law to close.

"Closing Price" means, for any trading day with respect to a Share, (a) the last reported sale price on such day on the principal national securities exchange on which the Shares are listed or admitted to trading or, if no such reported sale takes place on any such day, the average of the closing bid and asked prices thereon, as reported in The Wall Street Journal, or (b) if such Shares shall not be listed or admitted to trading on a national securities exchange, the last reported sales price on the NASDAQ National Market System or, if no such reported sale takes place on any such day, the average of the closing bid and asked prices thereon, as reported in The Wall Street Journal, or (c) if such Shares shall not be quoted on such National Market System nor listed or admitted to trading on a national securities exchange, then the average of the closing bid and asked prices, as reported by The Wall Street Journal for the over-the-counter market; provided that if clause (a), (b), or (c) applies and no price is reported in The Wall Street Journal for any trading day, then the price reported in The Wall Street Journal for the most recent prior trading day shall be deemed to be the price reported for such trading day.

"Commission" means the Securities and Exchange Commission or any other Federal agency administering the Securities Act at the time.

"Exchange Act" means the Securities Exchange Act of 1934, or any successor Federal statute, and the rules and regulations of the Commission thereunder, all as the same shall be in effect at the time.

"Exercise Amount" means for any number of Warrant Shares as to which this Warrant is being exercised the product of (i) such number of Warrant Shares times (ii) the Exercise Price.

"Exercise Price" means $0.01 per Warrant Share, as adjusted from time to time pursuant to Section 4.

"Expiration Date" means April 1, 2029.

"Initial Holder" means ROS Acquisition Offshore LP.

"Market Price" on any day means (a) the unweighted average of the daily Closing Prices per Share for the 20 consecutive trading days prior to such date or (b) if clauses (a), (b) and (c) of the definition of "Closing Price" are inapplicable, then the Appraised Value as of such day shall apply; provided that for purposes of the application of Section 4(b) to a Share Distribution pursuant to a public offering registered under the Securities Act, "Market Price" means the Closing Price per Share for the trading day preceding the effective date of the registration statement with respect to such public offering (or in the case of an initial public offering, the price per Share in such offering).

"Person" means an individual, a corporation, a partnership, an association, a trust or any other entity or organization, including a government or political subdivision or an agency or instrumentality thereof.

"Requisite Holders" means at any time holders of Warrant Shares and Warrants representing at least a majority of all of the Warrant Shares either outstanding or issuable upon the exercise of all the outstanding Warrants.

"Securities Act" means the Securities Act of 1933, or any successor Federal statute, and the rules and regulations of the Commission thereunder, all as the same shall be in effect at the time.

"Shares" means the Company's currently authorized common stock, $0.000001 par value, and stock of any other class or other consideration into which such currently authorized capital stock may hereafter have been changed.

"Warrant" means, as the context requires, this warrant and any successor warrant thereto or warrants issued upon a whole or partial transfer or assignment of any such Share purchase warrant or of any such successor warrant thereto.

"Warrant Shares" means the number of Shares issued or issuable upon exercise of this Warrant as set forth in the introduction hereto, as adjusted from time to time pursuant to Section 4.

(b) Accounting Terms and Determinations. Unless otherwise specified herein, all accounting terms used herein shall be interpreted, all accounting determinations hereunder shall be made, and all financial statements required to be delivered hereunder shall be prepared, in accordance with generally accepted accounting principles. When used herein, the term "financial statements" shall include the notes and schedules thereto. References to fiscal periods are to fiscal periods of the Company.

(c) Computation of Time Periods. With respect to the computation of periods of time from a specified date to a later specified date, the word "from" means "from and including" and the words "to" and "until" each mean "to but excluding." Periods of days shall be counted in calendar days unless otherwise stated.

(d) Construction. Unless the context requires otherwise, references to the plural include the singular and to the singular include the plural, references to any gender include any other gender, the part includes the whole, the term "including" is not limiting, and the term "or" has, except where otherwise indicated, the inclusive meaning represented by the phrase "and/or." The words "hereof," "herein," "hereby," "hereunder," and similar terms in this Warrant refer to this Warrant as a whole and not to any particular provision of this Warrant. Section, subsection, clause, exhibit and schedule references are to this Warrant, unless otherwise specified. Any reference to this Warrant includes any and all permitted alterations, amendments, changes, extensions, modifications, renewals, or supplements thereto or thereof, as applicable.

(e) Exhibits and Schedules. All of the exhibits and schedules attached hereto shall be deemed incorporated herein by reference.

(f) No Presumption Against Any Party . Neither this Warrant nor any uncertainty or ambiguity herein or therein shall be construed or resolved using any presumption against any party hereto or thereto, whether under any rule of construction or otherwise. On the contrary, this Warrant has been reviewed by each of the parties and their counsel and, in the case of any ambiguity or uncertainty, shall be construed and interpreted according to the ordinary meaning of the words used so as to fairly accomplish the purposes and intentions of all parties hereto.

Section 2. Exercise of Warrant.

(a) Exercise and Payment. The Warrant Holder may exercise this Warrant in whole or in part, at any time or from time to time on any Business Day beginning six months after the date on which this Warrant is issued on or prior to the Expiration Date, by delivering to the Company either the original Warrant or a lost warrant affidavit, a duly executed notice (a **"Notice of Exercise"**) in the form of Exhibit A and by payment to the Company of the Exercise Price per Warrant Share, at the election of the Warrant Holder, either (i) by wire transfer of immediately available funds to the account of the Company in an amount equal to the Exercise Amount, (ii) by receiving from the Company the number of Warrant Shares equal to (A) the number of Warrant Shares as to which this Warrant is being exercised minus (B) the number of Warrant Shares having a value, based on the Closing Price on the trading day immediately prior to the date of such exercise (or if there is no such Closing Price, then based on the Appraised Value as of such day), equal to the Exercise Amount, or (iii) any combination of the foregoing. The Company acknowledges that the provisions of clause (ii) are intended, in part, to ensure that a full or partial exchange of this Warrant pursuant to such clause (ii) will qualify as a conversion, within the meaning of paragraph (d)(3)(ii) of Rule 144 under the Securities Act. At the request of any Holder, the Company will accept reasonable modifications to the exchange procedures provided for in this Section in order to accomplish such intent. For all purposes of this Warrant (other than this Section 2(a)), any reference herein to the exercise of this Warrant shall be deemed to include a reference to the exchange of this Warrant into Shares in accordance with the terms of clause (ii).

(b) Effectiveness and Delivery. As soon as practicable but not later than five Business Days after the Company shall have received such Notice of Exercise, (provided requisite payment shall have been received prior to such date), the Company shall execute and deliver or cause to be executed and delivered, in accordance with such Notice of Exercise, a certificate or certificates representing the number of Shares specified in such Notice of Exercise, issued in the name of the Warrant Holder or in such other name or names of any Person or Persons designated in such Notice of Exercise. This Warrant shall be deemed to have been exercised and such Share certificate or certificates shall be deemed to have been issued, and the Warrant Holder or other Person or Persons designated in such Notice of Exercise shall be deemed for all purposes to have become a holder of record of Shares, all as of the date that such Notice of Exercise.

(c) Surrender of Warrant. The Warrant Holder shall surrender this Warrant to the Company when it delivers the Notice of Exercise, and in the event of a partial exercise of the Warrant, the Company shall execute and deliver to the Warrant Holder, at the time the Company delivers the Share certificate or certificates issued pursuant to such Notice of Exercise, a new Warrant for the unexercised portion of the Warrant, but in all other respects identical to this Warrant.

(d) Legend. Each certificate for Warrant Shares issued upon exercise of this Warrant, unless at the time of exercise such Warrant Shares are registered under the Securities Act, shall bear the following legend:

> THIS SECURITY HAS NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 AND MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FILED UNDER SAID ACT AND ANY APPLICABLE STATE SECURITIES LAWS, UNLESS AN EXEMPTION FROM SUCH REGISTRATION IS AVAILABLE.

Any certificate for Warrant Shares issued at any time in exchange or substitution for any certificate bearing such legend (unless at that time such Warrant Shares are registered under the Securities Act) shall also bear such legend unless, in the written opinion of counsel selected by the holder of such certificate (who may be an employee of such holder), which counsel and opinion shall be reasonably acceptable to the Company, the Warrant Shares represented thereby need no longer be subject to restrictions on resale under the Securities Act. If the Warrant is exercised when there is an effective registration statement covering the underlying Warrant Shares, the certificate for the Warrant Shares shall not bear a legend.

(e) No Fractional Shares. No fractional Shares shall be issued by the Company in connection with any exercise of this Warrant. If any fractional Shares would, but for this restriction, be issuable upon an exercise of the Warrant, in lieu of delivering such fractional Shares, the number of Shares to be issued shall be rounded down to the next whole number and the Company shall pay to the Warrant Holder, in cash, an amount equal to the same fraction times the Closing Price on the trading day immediately prior to the date of such exercise (or if there is no such Closing Price, then based on the Appraised Value as of such day).

(f) Expenses and Taxes. Except for taxes payable with respect to any income or revenue realized or recognized by the Warrant Holder or any transferee thereof, the Company shall pay all expenses, taxes and owner charges payable in connection with the preparation, issuance and delivery of certificates for the Warrant Shares and any new Warrants, except that if the certificates for the Warrant Shares or the new Warrants are to be registered in a name or names other than the name of the Warrant Holder, funds sufficient to pay all transfer taxes payable as a result of such transfer shall be paid by the Warrant Holder at the time of its delivery of the Notice of Exercise or promptly upon receipt of a written request by the Company for payment.

Section 3. Validity of Warrant and Issuance of Shares.

(a) The Company represents and warrants that this Warrant has been duly authorized, is validly issued, and constitutes the valid and binding obligation of the Company.

(b) The Company further represents and warrants that on the date hereof it has duly authorized and reserved, and the Company hereby agrees that it will at all times until the Expiration Date have duly authorized and reserved, such number of Shares as will be sufficient to permit the exercise in full of the Warrant, and that all such Shares are and will be duly authorized and, when issued upon exercise of the Warrant, will be validly issued, fully paid and non-assessable, and free and clear of all security interests, claims, liens, equities and other encumbrances.

Section 4. Antidilution Provisions. The Exercise Price in effect at any time, and the number of Warrant Shares that may be purchased upon any exercise of the Warrant, shall be subject to change or adjustment as follows:

(a) Share Reorganization. If the Company shall subdivide its outstanding Shares into a greater number of Shares, by way of a stock split, stock dividend or otherwise, or consolidate its outstanding Shares into a smaller number of Shares (any such event being herein called a **"Share Reorganization"**), then (i) the Exercise Price shall be adjusted, effective immediately after the effective date of such Share Reorganization, to a price determined by multiplying the Exercise Price in effect immediately prior to such effective date by a fraction, the numerator of which shall be the number of Shares outstanding on such effective date before giving effect to such Share Reorganization and the denominator of which shall be the number of Shares outstanding after giving effect to such Share Reorganization, and (ii) the number of Shares subject to purchase upon exercise of this Warrant shall be adjusted, effective at such time, to a number determined by multiplying the number of Shares subject to purchase immediately before such Share Reorganization by a fraction, the numerator of which shall be the number of Shares outstanding after giving effect to such Share Reorganization and the denominator of which shall be the number of Shares outstanding immediately before giving effect to such Share Reorganization.

(b) Share Distribution. [Reserved]

(c) Special Distributions; Above Market Purchases of Securities.

(i) If the Company shall issue or distribute to any holder or holders of Shares evidences of indebtedness, any other securities of the Company or any cash, property or other assets (excluding (i) a Share Reorganization and (ii) a Share Distribution), whether or not accompanied by a purchase, redemption or other acquisition of Shares (any such nonexcluded event being herein called a **"Special Distribution"**), then the Warrant Holder shall be entitled to a pro-rata Share of such Special Distribution as though the Warrant Holder had fully exercised this Warrant immediately prior to the record date for such Special Distribution, and the Company shall pay or distribute such pro-rata share to Warrant Holder when paid or distributed to the holders of the Shares. A reclassification of the Shares (other than a change in par value, or from par value to no par value or from no par value to par value) into shares of any other class of stock shall be deemed to be a distribution by the Company to the holders of its Shares of such class of stock and, if the outstanding Shares shall be changed into a larger or smaller number of Shares as part of such reclassification, a Share Reorganization.

(ii) If, at any time after the date hereof, the Company or any Subsidiary shall repurchase (a **"Repurchase"**), by self-tender offer or otherwise, any securities of the Company at an aggregate repurchase price that exceeds the aggregate Market Price for the securities repurchased determined as of the Business Day immediately prior to the earliest of (i) the date of such Repurchase, (ii) the commencement of an offer to repurchase or (iii) the public announcement of either (such date being referred to as the "Determination Date"), then the Exercise Price and the number of Warrant Shares issuable upon exercise of this Warrant shall be adjusted as follows:

The Exercise Price shall be reduced to an amount equal to the product of (A) the Exercise Price in effect immediately prior to such issuance or sale times (B) a fraction, (I) the numerator of which shall be (x) the product of (1) the Market Price for the Shares as of the Determination Date times (2) the number of Shares outstanding immediately following the consummation of the Repurchase less (y) the Repurchase Premium (as defined below), and (II) the denominator of which shall be (x) the product of (1) the Market Price for the Shares as of the Determination Date times (2) the number of Shares outstanding immediately following the consummation of the Repurchase.

The number of Warrant Shares issuable upon exercise of this Warrant shall be increased to the number of Shares determined by multiplying (x) the number of Warrant Shares issuable upon exercise of this Warrant immediately prior to such distribution times (y) a fraction (1) the numerator of which shall be the Exercise Price in effect immediately prior to the adjustment in clause (A) of this Section 4(c)(ii) and (2) the denominator of which shall be the Exercise Price in effect immediately after such adjustment.

The amount by which the aggregate repurchase price for all securities repurchased in any Repurchase (including for such purposes any fees or other direct or indirect consideration payable in connection therewith) exceeds the aggregate Market Price for such securities is referred to as the "Repurchase Premium."

(d) Capital Reorganization. Without limiting any of the other provisions hereof, if any (i) capital reorganization; (ii) reclassification of the capital stock of the Company; (iii) merger, consolidation or reorganization or other similar transaction or series of related transactions which results in the voting securities of the Company outstanding immediately prior thereto representing immediately thereafter (either by remaining outstanding or by being converted into voting securities of the surviving or acquiring entity) less than 50% of the combined voting power of the voting securities of or economic interests in the Company or such surviving or acquiring entity outstanding immediately after such merger, consolidation or reorganization; (iv) sale, lease, license, transfer, conveyance or other disposition of all or substantially all of the assets of the Company; (v) sale of shares of capital stock of the Company, in a single transaction or series of related transactions, representing at least 50% of the voting power of the voting securities of or economic interests in the Company; or (vi) the acquisition by any "person" (together with his, her or its Affiliates) or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) acquires, directly or indirectly, the beneficial ownership (as such term is defined in Rule 13d-3 promulgated under the Exchange Act) of outstanding shares of capital stock and/or other equity securities of the Company, in a single transaction or series of related transactions (including, without limitation, one or more tender offers or exchange offers), representing at least 50% of the voting power of or economic interests in the then outstanding shares of capital stock of the corporation (each of (i)-(vi) above a **"Corporate Reorganization"**) shall be effected, then the Company shall use its best efforts to ensure that lawful and adequate provision shall be made whereby each Warrant Holder shall thereafter continue to have the right to purchase and receive upon the basis and upon the terms and conditions herein specified and in lieu of the Warrant Shares issuable upon exercise of the Warrants held by such Warrant Holder, shares of stock in the surviving or acquiring entity (**"Acquirer"**), as the case may be, such that the aggregate value of the Warrant Holder's warrants to purchase such number of shares, where the value of each new warrant to purchase one share in the Acquirer is determined in accordance with the Black-Scholes Option Pricing formula set forth in Appendix (A) hereto, is equivalent to the aggregate value of the Warrants held by such Warrant Holder, where the value of each Warrant to purchase one share in the Company is determined in accordance with the Black-Scholes Option Pricing formula set forth Appendix (B) hereto. Furthermore, the new warrants to purchase shares in the Acquirer referred to herein shall have the same expiration date as the Warrants, and shall have a strike price, K_{Acq}, that is calculated in accordance with Appendix (A) hereto. For the avoidance of doubt, if the surviving or acquiring entity, as the case may be, is a member of a consolidated group for financial reporting purposes, the "Acquirer" shall be deemed to be the parent of such consolidated group for purposes of this Section 4(d) and Appendix (A) hereto.

Moreover, appropriate provision shall be made with respect to the rights and interests of each Warrant Holder to the end that the provisions hereof (including, without limitation, provision for adjustment of the Warrant Price) shall thereafter be applicable, as nearly equivalent as may be practicable in relation to any shares of stock thereafter deliverable upon the exercise thereof. The Company shall not effect any such Corporate Reorganization unless prior to or simultaneously with the consummation thereof the successor corporation resulting from such consolidation or merger, or the corporation purchasing or otherwise acquiring such assets or other appropriate corporation or entity shall assume by written instrument, reasonably deemed by the Board of Directors of the Company and the Requisite Holders to be satisfactory in form and substance, the obligation to deliver to the holder of the Warrants, at the last address of such holder appearing on the books of the Company, such shares of stock, as, in accordance with the foregoing provisions, such holder may be entitled to purchase, and the other obligations under these Warrants. The provisions of this Section 4(d) shall similarly apply to successive Corporate Reorganizations. If the Company, in spite of using its best efforts, is unable to cause these Warrants to continue in full force and effect until the Expiration Date in connection with any Corporate Reorganization, then the Company shall pay the Warrant Holders an amount per Warrant to purchase one share in the Company that is calculated in accordance with the Black-Scholes Option Pricing formula set forth in Appendix (B) hereto. Such payment shall be made in cash in the event that the Corporate Reorganization results in the Company or the shareholders of the Company receiving cash from the Acquirer at the closing of the transaction, and shall be made in shares of the Company (with the value of each share in the Company is determined according to S_{Corp} in Appendix (B) hereto) for all other Corporate Reorganizations. In the event that a Corporate Reorganization involves the payment of cash as well as other securities, such payment to the Warrant Holders shall be also be made in both cash and shares in the same proportion as the cash and non-cash portions of the considerations.

(e) Adjustment Rules.

(i) Any adjustments pursuant to this Section 4 shall be made successively whenever any event referred to herein shall occur, except that, notwithstanding any other provision of this Section 4, no adjustment shall be made to the number of Warrant Shares to be delivered to the Warrant Holder (or to the Exercise Price) if such adjustment represents less than 1% of the number of Warrant Shares previously required to be so delivered, but any lesser adjustment shall be carried forward and shall be made at the time and together with the next subsequent adjustment which together with any adjustments so carried forward shall amount to 1% or more of the number of Warrant Shares to be so delivered.

(ii) No adjustments shall be made pursuant to this Section 4 in respect of the issuance of Warrant Shares upon exercise of the Warrant;

(iii) If the Company shall take a record of the holders of its Shares for any purpose referred to in this Section 4, then (x) such record date shall be deemed to be the date of the issuance, sale, distribution or grant in question and (y) if the Company shall legally abandon such action prior to effecting such action, no adjustment shall be made pursuant to this Section 4 in respect of such action.

(iv) In computing adjustments under this Section 4, (A) fractional interests in Shares shall be taken into account to the nearest one-thousandth of a Share, and (B) calculations of the Exercise Price shall be carried to the nearest one-thousandth of one cent.

(f) Proceedings Prior to Any Action Requiring Adjustment . As a condition precedent to the taking of any action which would require an adjustment pursuant to this Section 4, the Company shall take any action which may be necessary, including obtaining regulatory approvals or exemptions, in order that the Company may thereafter validly and legally issue as fully paid and nonassessable all Shares which the Warrant Holder is entitled to receive upon exercise of the Warrant.

(g) Notice of Adjustment. Not less than 20 days prior to the record date or effective date, as the case may be, of any action which requires or might require an adjustment or readjustment pursuant to this Section 4, the Company shall give notice to the Warrant Holder of such event, describing such event in reasonable detail and specifying the record date or effective date, as the case may be, and, if determinable, the required adjustment and computation thereof. If the required adjustment is not determinable as the time of such notice, the Company shall give notice to the Warrant Holder of such adjustment and computation as soon as reasonably practicable after such adjustment becomes determinable. In connection with any such adjustment or readjustment, at its sole cost and expense, the Company will also cause independent certified public accountants of recognized national standing (which may be the regular auditors of the Company) selected by the Company to verify its computations and, in connection with the preparation of the Company's quarterly financial statements prepare a report setting forth such adjustment or readjustment and showing in reasonable detail the method of calculation thereof and the facts upon which such adjustment or readjustment is based, including a statement of (i) the consideration received or to be received by the Company for any Share Distribution issued or sold or deemed to have been issued, (ii) the number of Shares outstanding or deemed to be outstanding, and (iii) the Exercise Price in effect immediately prior to such issue or sale and as adjusted and readjusted (if required by this Section 4) on account thereof. The Company will forthwith mail a copy of each such report to the Warrant Holder and will, upon the written request at any time of the Warrant Holder, furnish to such holder a like report setting forth the Exercise Price at the time in effect and showing in reasonable detail how it was calculated. The Company will also keep copies of all such reports at its office and will cause the same to be available for inspection at such office during normal business hours by the Warrant Holder or any prospective purchaser of this Warrant designated by the Warrant Holder.

(h) Subsequent Warrants. Irrespective of any adjustments in the Exercise Price or the number of Warrant Shares issuable upon exercise of this Warrant, any successor or replacement warrants issued theretofore or thereafter may continue to express the same Exercise Price per Share and number and kind of Warrant Shares as are stated in this Warrant.

(i) Disputes. Any dispute which arises between the Warrant Holder and the Company with respect to the calculation of the adjusted Exercise Price or Warrant Shares issuable upon exercise shall be determined by the independent auditors of the Company, and such determination shall be binding upon the Company and the holders of the Warrants and the Warrant Shares if made in good faith and without manifest error.

(j) Other Actions Affecting Shares.

(i) Equitable Equivalent. In case any event shall occur as to which the provisions of this Section 4 set forth above hereof are not strictly applicable but the failure to make any adjustment would not, in the opinion of the Warrant Holder, fairly protect the purchase rights represented by this Warrant in accordance with the essential intent and principles of this Section 4, then, in each such case, at the request of the Warrant Holder, the Company shall appoint, at the Company's expense, a firm of independent investment bankers of recognized national standing (which shall be completely independent of the Company and shall be satisfactory to the holder or the Requisite Holders), which shall give their opinion upon the adjustment, if any, on a basis consistent with the essential intent and principles established in this Section 4, necessary to preserve, in an manner so as to reduce dilution, the purchase rights represented by this Warrant. Upon receipt of such opinion, the Company will promptly mail a copy thereof to the holder of this Warrant and shall make the adjustments described therein.

(ii) No Avoidance. The Company shall not, by amendment of its certificate of incorporation or by-laws or through any consolidation, merger, reorganization, transfer of assets, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the holder of this Warrant against unlimited dilution or other impairment as if the holder was a shareholder of the Company entitled to the benefit of fiduciary duties afforded to shareholders under Delaware law.

(k) Calculation of Consideration Received. The consideration for the issue or sale of any Share Distribution shall, irrespective of the accounting treatment of such consideration:

(i) insofar as it consists of cash, be computed at the amount of cash actually received by the Company without reduction for any expenses paid or incurred by the Company or any commissions or compensations paid or concessions or discounts allowed to underwriters, dealers or others performing similar services in connection with such issue or sale;

(ii) insofar as it consists of property (including securities) other than cash actually received by the Company, be computed at the Appraised Value thereof at the time of such issue or sale; and

(iii) insofar as it consists neither of cash nor of other property, be computed as having no value.

(l) Adjustment of Par Value. If for any reason (including the operation of the adjustment provisions set forth in this Warrant), the Exercise Price on any date of exercise of this Warrant shall not be lawful and adequate consideration for the issuance of the relevant Warrant Shares, then the Company shall take such steps as are necessary (including the amendment of its certificate of incorporation so as to reduce the par value of the Shares) to cause such Exercise Price to be adequate and lawful consideration on the date the payment thereof is due, but if the Company shall fail to take such steps, then the Company acknowledges that the Warrant Holder shall have been damaged by the Company in an amount equal to an amount, which, when added to the total Exercise Price for the relevant Warrant Shares, would equal lawful and adequate consideration for the issuance of such Warrant Shares, and the Company irrevocably agrees that if the Warrant Holder shall then forgive the right to recover such damages from the Company, such forgiveness shall constitute, and Company shall accept such forgiveness as, additional lawful consideration for the issuance of the relevant Warrant Shares.

(m) Appraisal.

(i) If the Requisite Holders shall, for any reason whatsoever, disagree with the Company's determination of the Appraised Value of a Share, then such holders shall by notice to the Company (an **"Appraisal Notice"**) given within sixty (60) days after the Company notifies the holders of such determination, elect to dispute such determination, and such dispute shall be resolved as set forth in clause (ii) of this Section.

(ii) The Company shall within ten (10) days after an Appraisal Notice shall have been given, engage an independent investment bank of national repute (the **"Appraiser"**) selected by the Requisite Holders and retained pursuant to an engagement letter between the Company and the Appraiser with respect to such valuation in form and substance reasonably acceptable to Requisite Holders, to make an independent determination of the Appraised Value of a Share; such value shall be determined without deduction for (a) liquidity considerations, (b) minority shareholder status, or (c) any liquidation or other preference or any right of redemption in favor of any other equity securities of the Company. The costs of engagement of such investment bank for any such determination of Appraised Value shall be paid by the Company.

Section 5. [Reserved].

Section 6. Transfer of Warrant. The Warrant Holder upon transfer of the Warrant must deliver to the Company a duly executed Warrant Assignment in the form of Exhibit B and upon surrender of this Warrant to the Company, the Company shall execute and deliver a new Warrant with appropriate changes to reflect such Assignment, in the name or names of the assignee or assignees specified in the Warrant Assignment or other instrument of assignment and, if the Warrant Holder's entire interest is not being transferred or assigned, in the name of the Warrant Holder, and upon the Company's execution and delivery of such new Warrant, this Warrant shall promptly be cancelled; and provided that any assignee shall have all of the rights of an Initial Holder hereunder. The Warrant Holder shall pay any transfer tax imposed in connection with such assignment (if any). Any transfer or exchange of this Warrant shall be without charge to the Warrant Holder (except as provided above with respect to transfer taxes, if any) and any new Warrant issued shall be dated the date hereof.

Section 7. Assistance in Disposition of Warrant or Warrant Shares. Notwithstanding any other provision herein, in the event that it becomes unlawful for the Warrant Holder to continue to hold the Warrant, in whole or in part, or some or all of the Shares held by it, or restrictions are imposed on any the Warrant Holder by any statute, regulation or governmental authority which, in the judgment of the Warrant Holder, make it unduly burdensome to continue to hold the Warrant or such Shares, the Warrant Holder may sell or otherwise dispose of the Warrant (subject to the restrictions on transfer provided in Section 6) or its Shares, and the Company agrees to provide reasonable assistance to the Warrant Holder in disposing of the Warrant and such Shares in a prompt and orderly manner and, at the request of the Warrant Holder, to provide (and authorize the Warrant Holder to provide) financial and other information concerning the Company to any prospective purchaser of the Warrant or Shares owned by the Warrant Holder.

Section 8. Identity of Transfer Agent. The Transfer Agent for the Common Stock is Corporate Stock Transfer, Inc. with a mailing address of 3200 Cherry Creek Drive South #430, Denver, CO 80209. Upon the appointment of any subsequent transfer agent for the Shares, the Company will mail to the Warrant Holder a statement setting forth the name and address of such transfer agent.

Section 9. Covenants. The Company agrees that:

(a) [Reserved].

(b) [Reserved].

(c) [Reserved].

(d) Securities Filings; Rules 144 & 144A. The Company will (i) timely file any reports required to be filed by it under the Securities Act, the Exchange Act or the rules and regulations adopted by the Commission thereunder, (ii) use its best efforts to cooperate with the Warrant Holder and each holder of Warrant Shares in supplying such information concerning the Company as may be necessary for the Warrant Holder or holder of Warrant Shares to complete and file any information reporting forms currently or hereafter required by the Commission as a condition to the availability of an exemption from the Securities Act for the sale of any Warrants or Warrant Shares, and (iii) take such further action as the Warrant Holder may reasonably request to the extent required from time to time to enable the Warrant Holder to sell Warrant Shares without restriction and without registration under the Securities Act within the limitation of the exemptions provided by Rule 144 or 144A under the Securities Act, as such Rules may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission; provided that this subsection (d) shall not require the Company to make any filing under the Securities Act or Exchange Act which the Company is not otherwise obligated to make; and provided, further, that this subsection (d) shall not require the Company to make any cash payment to the Warrant Holder.

(e) Obtaining of Governmental Approvals and Stock Exchange Listings. The Company will, at its own expense, (i) obtain and keep effective any and all permits, consents and approvals of governmental agencies and authorities which may from time to time be required of the Company in order to satisfy its obligations hereunder, and (ii) take all action which may be necessary so that the Warrant Shares, immediately upon their issuance upon the exercise of the Warrants, will be listed on each securities exchange, if any, on which the Shares are then listed.

(f) [Reserved].

(g) Structural Dilution. So long as this Warrant remains outstanding, the Company shall not permit any of its Subsidiaries to issue, sell, distribute or otherwise grant in any manner (including by assumption) any rights to subscribe for or to purchase, or any warrants or options for the purchase of any equity securities of such Subsidiary or any securities convertible into or exchangeable for such equity securities (or any rights to subscribe for or to purchase, or any warrants or options for the purchase of any such convertible or exchangeable securities), whether or not immediately exercisable or exercisable prior to the Expiration Date or thereafter.

(h) Notices Of Corporate Action. In the event of:

(i) any taking by the Company of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any distribution, or any right to subscribe for, purchase or otherwise acquire any Shares or any other securities or property, or to receive any other right, or

(i) any capital reorganization of the Company, any reclassification or recapitalization of the capital stock of the Company, any consolidation or merger involving the Company and any other Person or any transfer of all or substantially all the assets of the Company to any other Person, or any Corporate Reorganization, or

(ii) any voluntary or involuntary dissolution, liquidation or winding-up of the Company, or

(iii) any issuance of any Shares, Convertible Security or Option by the Company, the Company will mail to the Warrant Holder a notice specifying (i) the date or expected date on which any such record is to be taken for the purpose of such dividend, distribution or right, and the amount and character of such dividend, distribution or right, (ii) the date or expected date on which any such reorganization, reclassification, recapitalization, consolidation, merger, transfer, dissolution, liquidation or winding-up is to take place, (iii) the time, if any such time is to be fixed, as of which the holders of record of Shares (or other securities under Section 4(d)) shall be entitled to exchange their Shares (or other securities under Section 4(d)) for the securities or other property deliverable upon such reorganization, reclassification, recapitalization, consolidation, merger, transfer, dissolution, liquidation or winding-up and a description in reasonable detail of the transaction and (iv) the date of such issuance, together with a description of the security so issued and the consideration received by the Company therefor. Such notice shall be mailed at least twenty (20) days prior to the date therein specified.

Section 10. Lost, Mutilated or Missing Warrants. Upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of any Warrant, and, in the case of loss, theft or destruction, upon receipt of indemnification satisfactory to the Company (in the case of an Initial Holder its unsecured, unbonded agreement of indemnity or affidavit of loss shall be sufficient) or, in the case of mutilation, upon surrender and cancellation of the mutilated Warrant, the Company shall execute and deliver a new Warrant of like tenor and representing the right to purchase the same aggregate number of Warrant Shares.

Section 11. Waivers; Amendments. Any provision of this Warrant may be amended or waived with (but only with) the written consent of the Company and the Requisite Holders; provided that no such amendment or waiver shall, without the written consent of the Company and the Warrant Holder, (a) change the number of Warrant Shares issuable upon exercise of the Warrant or the Exercise Price, (b) shorten the Expiration Date, or (c) amend, modify or waive the provisions of this Section or the definition of "Requisite Holders." Any amendment or waiver effected in compliance with this Section shall be binding upon the Company and the Warrant Holder. The Company shall give prompt notice to the Warrant Holder of any amendment or waiver effected in compliance with this Section. No failure or delay of the Company or the Warrant Holder in exercising any power or right hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any such right or power, or any abandonment or discontinuance of steps to enforce such a right or power, preclude any other or further exercise thereon or the exercise of any other right or power. No notice or demand on the Company in any case shall entitle the Company to any other or future notice or demand in similar or other circumstances. The rights and remedies of the Company and the Warrant Holder hereunder are cumulative and not exclusive of any rights or remedies which it would otherwise have.

Section 12. Miscellaneous.

(a) Shareholder Rights. The Warrant shall not entitle any Warrant Holder, prior to the exercise of the Warrant, to any voting or other rights as a shareholder of the Company.

(b) Expenses. The Company shall pay all reasonable expenses of the Warrant Holder, including reasonable fees and disbursements of counsel, in connection with the preparation of the Warrant, any waiver or consent hereunder or any amendment or modification hereof (regardless of whether the same becomes effective), or the enforcement of the provisions hereof; provided that the Company shall not be required to pay any expenses of the Warrant Holder arising solely in connection with a transfer of the Warrant.

(c) Successors and Assigns. All the provisions of this Warrant by or for the benefit of the Company or the Warrant Holder shall bind and inure to the benefit of their respective successors and assigns.

(d) Severability. In case any one or more of the provisions contained in this Warrant shall be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby. The parties shall endeavor in good faith negotiations to replace the invalid, illegal or unenforceable provisions with valid provisions the economic effect of which comes as close as possible to that of the invalid, illegal or unenforceable provisions.

(e) Notices. Any notice or other communication hereunder shall be in writing and shall be sufficient if sent by first-class mail or courier, postage prepaid, and addressed as follows: (a) if to the Company, addressed to the Company at its address for notices as set forth below its signature hereon or any other address as the Company may hereafter notify to the Warrant Holder and (b) if to the Warrant Holder, addressed to such address as the Warrant Holder may hereafter from time to time notify to the Company for the purposes of notice hereunder.

(f) Equitable Remedies. Without limiting the rights of the Company and the Warrant Holder to pursue all other legal and equitable rights available to such party for the other parties' failure to perform its obligations hereunder, the Company and the Warrant Holder each hereto acknowledge and agree that the remedy at law for any failure to perform any obligations hereunder would be inadequate and that each shall be entitled to specific performance, injunctive relief or other equitable remedies in the event of any such failure.

(g) Continued Effect. Rights and benefits conferred on the holders of Warrant Shares pursuant to the provisions hereof (including Section 6) shall continue to inure to the benefit of, and shall be enforceable by, such holders, notwithstanding the surrender of the Warrant to, and its cancellation by, the Company upon the full or partial exercise or repurchase hereof.

(h) Governing Law. THIS WARRANT SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH THE INTERNAL LAWS OF THE STATE OF NEW YORK, EXCEPT AS OTHERWISE REQUIRED BY MANDATORY PROVISIONS OF LAW.

(i) Section Headings. The section headings used herein are for convenience of reference only and shall not be construed in any way to affect the interpretation of any provisions of the Warrant.

[Signature Page Follows]

IN WITNESS WHEREOF, the Company has caused this Warrant to be duly executed by its authorized signatory as of the day and year first above written.

XTANT MEDICAL HOLDINGS, INC.

By *__/s/ Greg Jensen__*
Name: Greg Jensen
Title: Vice President, Finance and Interim Chief Financial Officer

Address for Notices:

Xtant Medical Holdings, Inc.
664 Cruiser Lane
Belgrade, Montana 59714
Attention: Greg Jensen

Exhibit A to Warrant

Form of Notice of Exercise

_____,20___

To: Xtant Medical Holdings, Inc.

Reference is made to the Warrant dated _____. Terms defined therein are used herein as therein defined.

The undersigned, pursuant to the provisions set forth in the Warrant, hereby irrevocably elects and agrees to purchase _____ Shares, and makes payment herewith in full therefor at the Exercise Price of $_____ in the following form: _____.

[If the number of Shares as to which the Warrant is being exercised is less than all of the Shares purchasable thereunder, the undersigned hereby requests that a new Warrant representing the remaining balance of the Shares be registered in the name of _____, whose address is: _____.]

The undersigned hereby represents that it is exercising the Warrant for its own account or the account of an Affiliate for investment purposes and not with the view to any sale or distribution and that the Warrant Holder will not offer, sell or otherwise dispose of the Warrant or any underlying Warrant Shares in violation of applicable securities laws.

[NAME OF WARRANT HOLDER]

By _____
Name:
Title:

[ADDRESS OF WARRANT HOLDER]

Exhibit B to Warrant

Form of Warrant Assignment

Reference is made to the Warrant dated _____, issued by [_____]. Terms defined therein are used herein as therein defined.

FOR VALUE RECEIVED _____ (the "Assignor") hereby sells, assigns and transfers all of the rights of the Assignor as set forth in such Warrant, with respect to the number of Warrant Shares covered thereby as set forth below, to the Assignee(s) as set forth below:

Number of Warrant Shares

Name(s) of Assignee(s)	Address(es)	Number of Warrant Shares

All notices to be given by the Company to the Assignor as Warrant Holder shall be sent to the Assignee(s) at the above listed address(es), and, if the number of Shares being hereby assigned is less than all of the Shares covered by the Warrant held by the Assignor, then also to the Assignor.

In accordance with Section 6 of the Warrant, the Assignor requests that the Company execute and deliver a new Warrant or Warrants in the name or names of the assignee or assignees, as is appropriate, or, if the number of Shares being hereby assigned is less than all of the Shares covered by the Warrant held by the Assignor, new Warrants in the name or names of the assignee or the assignees, as is appropriate, and in the name of the Assignor.

The undersigned represents that the Assignee has represented to the Assignor that the Assignee is acquiring the Warrant for its own account or the account of an Affiliate for investment purposes and not with the view to any sale or distribution, and that the Assignee will not offer, sell or otherwise dispose of the Warrant or the Warrant Shares except under circumstances as will not result in a violation of applicable securities laws.

Dated: _____, 20___

[NAME OF ASSIGNOR]

By _____
Name:
Title:

[ADDRESS OF ASSIGNOR]

APPENDIX A

Black Scholes Option Pricing formula to be used when calculating the value of each new warrant to purchase one share in the Acquirer shall be:

$C_{Acq} = S_{Acq}e^{-\lambda(TAcq-tAcq)}N(d_1) - K_{Acq}e^{-r(TAcq-tAcq)}N(d_2)$, **where**

C_{Acq} = value of each warrant to purchase one share in the Acquirer

S_{Acq} = price of Acquirer's stock as determined by reference to the average of the closing prices on the securities exchange or Nasdaq Global Market over the 20-day period ending three trading days prior to the closing of the Corporate Reorganization described in Section 4(d) if the Acquirer's stock is then traded on such exchange or system, or the average of the closing bid or sale prices (whichever is applicable) in the over-the-counter market over the 20-day period ending three trading days prior to the closing of the Corporate Reorganization if the Acquirer's stock is then actively traded in the over-the-counter market, or the then most recently completed financing if the Acquirer's stock is not then traded on a securities exchange or system or in the over-the-counter market.

T_{Acq} = expiration date of new warrants to purchase shares in the Acquirer = T_{Corp}

t_{Acq} = date of issue of new warrants to purchase shares in the Acquirer

$T_{Acq}-t_{Acq}$ = time until warrant expiration, expressed in years

σ = volatility = annualized standard deviation of daily log-returns (using a 262-day annualization factor) of the Acquirer's stock price on the securities exchange or Nasdaq Global Market over a 20-day trading period, determined by the Warrant Holders, that is within the 100-day trading period ending on the trading day immediately after the public announcement of the Corporate Reorganization described in Section 4(d) if the Acquirer's stock is then traded on such exchange or system, or the annualized standard deviation of daily-log returns (using a 262-day annualization factor) of the closing bid or sale prices (whichever is applicable) in the over-the-counter market over a 20-day trading period, determined by the Warrant Holder, that is within the 100-day trading period ending on the trading day immediately after the public announcement of the Corporate Reorganization if the Acquirer's stock is then actively traded in the over-the-counter market, or 0.6 (or 60%) if the Acquirer's stock is not then traded on a securities exchange or system or in the over-the-counter market.

N = cumulative normal distribution function

$d_1 = (\ln(S_{Acq}/K_{Acq}) + (r-\lambda+\sigma^2/2)(T_{Acq}-t_{Acq})) \div (\sigma\sqrt{(T_{Acq}-t_{Acq})})$

ln = natural logarithm

λ = dividend rate of the Acquirer for the most recent 12-month period at the time of closing of the Corporate Reorganization.

K_{Acq} = strike price of new warrants to purchase shares in the Acquirer = $K_{Corp} * (S_{Acq} / S_{Corp})$

r = annual yield, as reported by Bloomberg at time t_{Acq}, of the United States Treasury security measuring the nearest time T_{Acq}

$d_2 = d_1 - \sigma\sqrt{(T_{Acq}-t_{Acq})}$

APPENDIX B

Black Scholes Option Pricing formula to be used when calculating the value of each Warrant to purchase one share in the Company shall be:

$C_{Corp} = S_{Corp}e^{-\lambda(TCorp-tCorp)}N(d_1) - K_{Corp}e^{-r(TCorp-tCorp)}N(d_2)$, **where**

C_{Corp} = value of each Warrant to purchase one share in the Company

S_{Corp} = price of Company stock as determined by reference to the average of the closing prices on the securities exchange or Nasdaq Global Market over the 20-day period ending three trading days prior to the closing of the Corporate Reorganization described in Section 4(d) if the Company's stock is then traded on such exchange or system, or the average of the closing bid or sale prices (whichever is applicable) in the over-the-counter market over the 20-day period ending three trading days prior to the closing of the Corporate Reorganization if the Company's stock is then actively traded in the over-the-counter market, or the then most recently completed financing if the Company's stock is not then traded on a securities exchange or system or in the over-the-counter market.

T_{Corp} = expiration date of Warrants to purchase shares in the Company

t_{Corp} = date of public announcement of transaction

$T_{Corp}-t_{Corp}$ = time until Warrant expiration, expressed in years

σ = volatility = the annualized standard deviation of daily log-returns (using a 262-day annualization factor) of the Company's stock price on the securities exchange or Nasdaq Global Market over a 20-day trading period, determined by the Warrant Holders, that is within the 100-day trading period ending on the trading day immediately after the public announcement of the Corporate Reorganization described in Section 4(d) if the Company's stock is then traded on such exchange or system, or the annualized standard deviation of daily-log returns (using a 262-day annualization factor) of the closing bid or sale prices (whichever is applicable) in the over-the-counter market over a 20-day trading period, determined by the Warrant Holder, that is within the 100-day trading period ending on the trading day immediately after the public announcement of the Corporate Reorganization if the Company's stock is then actively traded in the over-the-counter market, or 0.6 (or 60%) if the Company's stock is not then traded on a securities exchange or system or in the over-the-counter market.

N = cumulative normal distribution function

$d_1 = (\ln(S_{Corp}/K_{Corp}) + (r-\lambda+\sigma^2/2)(T_{Corp}-t_{Corp})) \div (\sigma\sqrt{(T_{Corp}-t_{Corp})})$

ln = natural logarithm

λ = dividend rate of the Company for the most recent 12-month period at the time of closing of the Corporate Reorganization.

K_{Corp} = strike price of warrant

r = annual yield, as reported by Bloomberg at time t_{Corp}, of the United States Treasury security measuring the nearest time T_{Corp}

$d_2 = d1 - \sigma\sqrt{(T_{Corp}-t_{Corp})}$

THIS WARRANT AND THE SECURITIES PURCHASABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 AND MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FILED UNDER SAID ACT AND ANY APPLICABLE STATE SECURITIES LAWS, UNLESS AN EXEMPTION FROM SUCH REGISTRATION IS AVAILABLE.

XTANT MEDICAL HOLDINGS, INC.

WARRANT

dated as of April 1, 2019

THIS CERTIFIES THAT, for value received, ORBIMED ROYALTY OPPORTUNITIES II, LP or its successors or permitted assigns (such Person and such successors and assigns each being the "Warrant Holder" with respect to the Warrant held by it), at any time and from time to time on any Business Day on or prior to 5:00 p.m. (New York City time), on the Expiration Date (as herein defined), is entitled (a) to subscribe for the purchase from Xtant Medical Holdings, Inc., a Delaware corporation (the "Company"), 434,008 Shares at a price per Share equal to the Exercise Price (as herein defined), and (b) to the other rights set forth herein; provided that the number of Shares issuable upon any exercise of this Warrant and the Exercise Price shall be adjusted and readjusted from time to time in accordance with Section 4. By accepting delivery hereof, the Warrant Holder agrees to be bound by the provisions hereof.

IN FURTHERANCE THEREOF, the Company irrevocably undertakes and agrees for the benefit of Warrant Holder as follows:

Section 1. Definitions and Construction.

(a) Certain Definitions. As used herein (the following definitions being applicable in both singular and plural forms):

"Affiliate" means, with respect to any Person, any other Person that directly or indirectly controls, is controlled by, or is under common control with such Person.

"Appraised Value" means at any time the fair market value thereof determined in good faith by the Board of Directors of the Company as of a date which is within ten (10) days of the date as of which the determination is to be made, subject to the rights of the Requisite Holders pursuant to Section 4(m).

"Business Day" means any day except a Saturday, Sunday or other day on which commercial banks in New York City are authorized by law to close.

"Closing Price" means, for any trading day with respect to a Share, (a) the last reported sale price on such day on the principal national securities exchange on which the Shares are listed or admitted to trading or, if no such reported sale takes place on any such day, the average of the closing bid and asked prices thereon, as reported in The Wall Street Journal, or (b) if such Shares shall not be listed or admitted to trading on a national securities exchange, the last reported sales price on the NASDAQ National Market System or, if no such reported sale takes place on any such day, the average of the closing bid and asked prices thereon, as reported in The Wall Street Journal, or (c) if such Shares shall not be quoted on such National Market System nor listed or admitted to trading on a national securities exchange, then the average of the closing bid and asked prices, as reported by The Wall Street Journal for the over-the-counter market; provided that if clause (a), (b), or (c) applies and no price is reported in The Wall Street Journal for any trading day, then the price reported in The Wall Street Journal for the most recent prior trading day shall be deemed to be the price reported for such trading day.

"Commission" means the Securities and Exchange Commission or any other Federal agency administering the Securities Act at the time.

"Exchange Act" means the Securities Exchange Act of 1934, or any successor Federal statute, and the rules and regulations of the Commission thereunder, all as the same shall be in effect at the time.

"Exercise Amount" means for any number of Warrant Shares as to which this Warrant is being exercised the product of (i) such number of Warrant Shares times (ii) the Exercise Price.

"Exercise Price" means $0.01 per Warrant Share, as adjusted from time to time pursuant to Section 4.

"Expiration Date" means April 1, 2029.

"Initial Holder" means OrbiMed Royalty Opportunities II, LP.

"Market Price" on any day means (a) the unweighted average of the daily Closing Prices per Share for the 20 consecutive trading days prior to such date or (b) if clauses (a), (b) and (c) of the definition of "Closing Price" are inapplicable, then the Appraised Value as of such day shall apply; provided that for purposes of the application of Section 4(b) to a Share Distribution pursuant to a public offering registered under the Securities Act, "Market Price" means the Closing Price per Share for the trading day preceding the effective date of the registration statement with respect to such public offering (or in the case of an initial public offering, the price per Share in such offering).

"Person" means an individual, a corporation, a partnership, an association, a trust or any other entity or organization, including a government or political subdivision or an agency or instrumentality thereof.

"Requisite Holders" means at any time holders of Warrant Shares and Warrants representing at least a majority of all of the Warrant Shares either outstanding or issuable upon the exercise of all the outstanding Warrants.

"Securities Act" means the Securities Act of 1933, or any successor Federal statute, and the rules and regulations of the Commission thereunder, all as the same shall be in effect at the time.

"Shares" means the Company's currently authorized common stock, $0.000001 par value, and stock of any other class or other consideration into which such currently authorized capital stock may hereafter have been changed.

"Warrant" means, as the context requires, this warrant and any successor warrant thereto or warrants issued upon a whole or partial transfer or assignment of any such Share purchase warrant or of any such successor warrant thereto.

"Warrant Shares" means the number of Shares issued or issuable upon exercise of this Warrant as set forth in the introduction hereto, as adjusted from time to time pursuant to Section 4.

(b) Accounting Terms and Determinations. Unless otherwise specified herein, all accounting terms used herein shall be interpreted, all accounting determinations hereunder shall be made, and all financial statements required to be delivered hereunder shall be prepared, in accordance with generally accepted accounting principles. When used herein, the term "financial statements" shall include the notes and schedules thereto. References to fiscal periods are to fiscal periods of the Company.

(c) Computation of Time Periods. With respect to the computation of periods of time from a specified date to a later specified date, the word "from" means "from and including" and the words "to" and "until" each mean "to but excluding." Periods of days shall be counted in calendar days unless otherwise stated.

(d) Construction. Unless the context requires otherwise, references to the plural include the singular and to the singular include the plural, references to any gender include any other gender, the part includes the whole, the term "including" is not limiting, and the term "or" has, except where otherwise indicated, the inclusive meaning represented by the phrase "and/or." The words "hereof," "herein," "hereby," "hereunder," and similar terms in this Warrant refer to this Warrant as a whole and not to any particular provision of this Warrant. Section, subsection, clause, exhibit and schedule references are to this Warrant, unless otherwise specified. Any reference to this Warrant includes any and all permitted alterations, amendments, changes, extensions, modifications, renewals, or supplements thereto or thereof, as applicable.

(e) Exhibits and Schedules. All of the exhibits and schedules attached hereto shall be deemed incorporated herein by reference.

(f) No Presumption Against Any Party. Neither this Warrant nor any uncertainty or ambiguity herein or therein shall be construed or resolved using any presumption against any party hereto or thereto, whether under any rule of construction or otherwise. On the contrary, this Warrant has been reviewed by each of the parties and their counsel and, in the case of any ambiguity or uncertainty, shall be construed and interpreted according to the ordinary meaning of the words used so as to fairly accomplish the purposes and intentions of all parties hereto.

Section 2. Exercise of Warrant.

(a) Exercise and Payment. The Warrant Holder may exercise this Warrant in whole or in part, at any time or from time to time on any Business Day beginning six months after the date on which this Warrant is issued on or prior to the Expiration Date, by delivering to the Company either the original Warrant or a lost warrant affidavit, a duly executed notice (a **"Notice of Exercise"**) in the form of Exhibit A and by payment to the Company of the Exercise Price per Warrant Share, at the election of the Warrant Holder, either (i) by wire transfer of immediately available funds to the account of the Company in an amount equal to the Exercise Amount, (ii) by receiving from the Company the number of Warrant Shares equal to (A) the number of Warrant Shares as to which this Warrant is being exercised minus (B) the number of Warrant Shares having a value, based on the Closing Price on the trading day immediately prior to the date of such exercise (or if there is no such Closing Price, then based on the Appraised Value as of such day), equal to the Exercise Amount, or (iii) any combination of the foregoing. The Company acknowledges that the provisions of clause (ii) are intended, in part, to ensure that a full or partial exchange of this Warrant pursuant to such clause (ii) will qualify as a conversion, within the meaning of paragraph (d)(3)(ii) of Rule 144 under the Securities Act. At the request of any Holder, the Company will accept reasonable modifications to the exchange procedures provided for in this Section in order to accomplish such intent. For all purposes of this Warrant (other than this Section 2(a)), any reference herein to the exercise of this Warrant shall be deemed to include a reference to the exchange of this Warrant into Shares in accordance with the terms of clause (ii).

(b) Effectiveness and Delivery. As soon as practicable but not later than five Business Days after the Company shall have received such Notice of Exercise, (provided requisite payment shall have been received prior to such date), the Company shall execute and deliver or cause to be executed and delivered, in accordance with such Notice of Exercise, a certificate or certificates representing the number of Shares specified in such Notice of Exercise, issued in the name of the Warrant Holder or in such other name or names of any Person or Persons designated in such Notice of Exercise. This Warrant shall be deemed to have been exercised and such Share certificate or certificates shall be deemed to have been issued, and the Warrant Holder or other Person or Persons designated in such Notice of Exercise shall be deemed for all purposes to have become a holder of record of Shares, all as of the date that such Notice of Exercise.

(c) Surrender of Warrant. The Warrant Holder shall surrender this Warrant to the Company when it delivers the Notice of Exercise, and in the event of a partial exercise of the Warrant, the Company shall execute and deliver to the Warrant Holder, at the time the Company delivers the Share certificate or certificates issued pursuant to such Notice of Exercise, a new Warrant for the unexercised portion of the Warrant, but in all other respects identical to this Warrant.

(d) Legend. Each certificate for Warrant Shares issued upon exercise of this Warrant, unless at the time of exercise such Warrant Shares are registered under the Securities Act, shall bear the following legend:

> THIS SECURITY HAS NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 AND MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FILED UNDER SAID ACT AND ANY APPLICABLE STATE SECURITIES LAWS, UNLESS AN EXEMPTION FROM SUCH REGISTRATION IS AVAILABLE.

Any certificate for Warrant Shares issued at any time in exchange or substitution for any certificate bearing such legend (unless at that time such Warrant Shares are registered under the Securities Act) shall also bear such legend unless, in the written opinion of counsel selected by the holder of such certificate (who may be an employee of such holder), which counsel and opinion shall be reasonably acceptable to the Company, the Warrant Shares represented thereby need no longer be subject to restrictions on resale under the Securities Act. If the Warrant is exercised when there is an effective registration statement covering the underlying Warrant Shares, the certificate for the Warrant Shares shall not bear a legend.

(e) No Fractional Shares. No fractional Shares shall be issued by the Company in connection with any exercise of this Warrant. If any fractional Shares would, but for this restriction, be issuable upon an exercise of the Warrant, in lieu of delivering such fractional Shares, the number of Shares to be issued shall be rounded down to the next whole number and the Company shall pay to the Warrant Holder, in cash, an amount equal to the same fraction times the Closing Price on the trading day immediately prior to the date of such exercise (or if there is no such Closing Price, then based on the Appraised Value as of such day).

(f) Expenses and Taxes. Except for taxes payable with respect to any income or revenue realized or recognized by the Warrant Holder or any transferee thereof, the Company shall pay all expenses, taxes and owner charges payable in connection with the preparation, issuance and delivery of certificates for the Warrant Shares and any new Warrants, except that if the certificates for the Warrant Shares or the new Warrants are to be registered in a name or names other than the name of the Warrant Holder, funds sufficient to pay all transfer taxes payable as a result of such transfer shall be paid by the Warrant Holder at the time of its delivery of the Notice of Exercise or promptly upon receipt of a written request by the Company for payment.

Section 3. Validity of Warrant and Issuance of Shares.

(a) The Company represents and warrants that this Warrant has been duly authorized, is validly issued, and constitutes the valid and binding obligation of the Company.

(b) The Company further represents and warrants that on the date hereof it has duly authorized and reserved, and the Company hereby agrees that it will at all times until the Expiration Date have duly authorized and reserved, such number of Shares as will be sufficient to permit the exercise in full of the Warrant, and that all such Shares are and will be duly authorized and, when issued upon exercise of the Warrant, will be validly issued, fully paid and non-assessable, and free and clear of all security interests, claims, liens, equities and other encumbrances.

Section 4. Antidilution Provisions. The Exercise Price in effect at any time, and the number of Warrant Shares that may be purchased upon any exercise of the Warrant, shall be subject to change or adjustment as follows:

(a) Share Reorganization. If the Company shall subdivide its outstanding Shares into a greater number of Shares, by way of a stock split, stock dividend or otherwise, or consolidate its outstanding Shares into a smaller number of Shares (any such event being herein called a **"Share Reorganization"**), then (i) the Exercise Price shall be adjusted, effective immediately after the effective date of such Share Reorganization, to a price determined by multiplying the Exercise Price in effect immediately prior to such effective date by a fraction, the numerator of which shall be the number of Shares outstanding on such effective date before giving effect to such Share Reorganization and the denominator of which shall be the number of Shares outstanding after giving effect to such Share Reorganization, and (ii) the number of Shares subject to purchase upon exercise of this Warrant shall be adjusted, effective at such time, to a number determined by multiplying the number of Shares subject to purchase immediately before such Share Reorganization by a fraction, the numerator of which shall be the number of Shares outstanding after giving effect to such Share Reorganization and the denominator of which shall be the number of Shares outstanding immediately before giving effect to such Share Reorganization.

(b) Share Distribution. [Reserved]

(c) Special Distributions; Above Market Purchases of Securities.

(i) If the Company shall issue or distribute to any holder or holders of Shares evidences of indebtedness, any other securities of the Company or any cash, property or other assets (excluding (i) a Share Reorganization and (ii) a Share Distribution), whether or not accompanied by a purchase, redemption or other acquisition of Shares (any such nonexcluded event being herein called a **"Special Distribution"**), then the Warrant Holder shall be entitled to a pro-rata Share of such Special Distribution as though the Warrant Holder had fully exercised this Warrant immediately prior to the record date for such Special Distribution, and the Company shall pay or distribute such pro-rata share to Warrant Holder when paid or distributed to the holders of the Shares. A reclassification of the Shares (other than a change in par value, or from par value to no par value or from no par value to par value) into shares of any other class of stock shall be deemed to be a distribution by the Company to the holders of its Shares of such class of stock and, if the outstanding Shares shall be changed into a larger or smaller number of Shares as part of such reclassification, a Share Reorganization.

(ii) If, at any time after the date hereof, the Company or any Subsidiary shall repurchase (a **"Repurchase"**), by self-tender offer or otherwise, any securities of the Company at an aggregate repurchase price that exceeds the aggregate Market Price for the securities repurchased determined as of the Business Day immediately prior to the earliest of (i) the date of such Repurchase, (ii) the commencement of an offer to repurchase or (iii) the public announcement of either (such date being referred to as the "Determination Date"), then the Exercise Price and the number of Warrant Shares issuable upon exercise of this Warrant shall be adjusted as follows:

The Exercise Price shall be reduced to an amount equal to the product of (A) the Exercise Price in effect immediately prior to such issuance or sale times (B) a fraction, (I) the numerator of which shall be (x) the product of (1) the Market Price for the Shares as of the Determination Date times (2) the number of Shares outstanding immediately following the consummation of the Repurchase less (y) the Repurchase Premium (as defined below), and (II) the denominator of which shall be (x) the product of (1) the Market Price for the Shares as of the Determination Date times (2) the number of Shares outstanding immediately following the consummation of the Repurchase.

The number of Warrant Shares issuable upon exercise of this Warrant shall be increased to the number of Shares determined by multiplying (x) the number of Warrant Shares issuable upon exercise of this Warrant immediately prior to such distribution times (y) a fraction (1) the numerator of which shall be the Exercise Price in effect immediately prior to the adjustment in clause (A) of this Section 4(c)(ii) and (2) the denominator of which shall be the Exercise Price in effect immediately after such adjustment.

The amount by which the aggregate repurchase price for all securities repurchased in any Repurchase (including for such purposes any fees or other direct or indirect consideration payable in connection therewith) exceeds the aggregate Market Price for such securities is referred to as the "Repurchase Premium."

(d) Capital Reorganization. Without limiting any of the other provisions hereof, if any (i) capital reorganization; (ii) reclassification of the capital stock of the Company; (iii) merger, consolidation or reorganization or other similar transaction or series of related transactions which results in the voting securities of the Company outstanding immediately prior thereto representing immediately thereafter (either by remaining outstanding or by being converted into voting securities of the surviving or acquiring entity) less than 50% of the combined voting power of the voting securities of or economic interests in the Company or such surviving or acquiring entity outstanding immediately after such merger, consolidation or reorganization; (iv) sale, lease, license, transfer, conveyance or other disposition of all or substantially all of the assets of the Company; (v) sale of shares of capital stock of the Company, in a single transaction or series of related transactions, representing at least 50% of the voting power of the voting securities of or economic interests in the Company; or (vi) the acquisition by any "person" (together with his, her or its Affiliates) or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) acquires, directly or indirectly, the beneficial ownership (as such term is defined in Rule 13d-3 promulgated under the Exchange Act) of outstanding shares of capital stock and/or other equity securities of the Company, in a single transaction or series of related transactions (including, without limitation, one or more tender offers or exchange offers), representing at least 50% of the voting power of or economic interests in the then outstanding shares of capital stock of the corporation (each of (i)-(vi) above a **"Corporate Reorganization"**) shall be effected, then the Company shall use its best efforts to ensure that lawful and adequate provision shall be made whereby each Warrant Holder shall thereafter continue to have the right to purchase and receive upon the basis and upon the terms and conditions herein specified and in lieu of the Warrant Shares issuable upon exercise of the Warrants held by such Warrant Holder, shares of stock in the surviving or acquiring entity (**"Acquirer"**), as the case may be, such that the aggregate value of the Warrant Holder's warrants to purchase such number of shares, where the value of each new warrant to purchase one share in the Acquirer is determined in accordance with the Black-Scholes Option Pricing formula set forth in Appendix (A) hereto, is equivalent to the aggregate value of the Warrants held by such Warrant Holder, where the value of each Warrant to purchase one share in the Company is determined in accordance with the Black-Scholes Option Pricing formula set forth Appendix (B) hereto. Furthermore, the new warrants to purchase shares in the Acquirer referred to herein shall have the same expiration date as the Warrants, and shall have a strike price, K_{Acq}, that is calculated in accordance with Appendix (A) hereto. For the avoidance of doubt, if the surviving or acquiring entity, as the case may be, is a member of a consolidated group for financial reporting purposes, the "Acquirer" shall be deemed to be the parent of such consolidated group for purposes of this Section 4(d) and Appendix (A) hereto.

Moreover, appropriate provision shall be made with respect to the rights and interests of each Warrant Holder to the end that the provisions hereof (including, without limitation, provision for adjustment of the Warrant Price) shall thereafter be applicable, as nearly equivalent as may be practicable in relation to any shares of stock thereafter deliverable upon the exercise thereof. The Company shall not effect any such Corporate Reorganization unless prior to or simultaneously with the consummation thereof the successor corporation resulting from such consolidation or merger, or the corporation purchasing or otherwise acquiring such assets or other appropriate corporation or entity shall assume by written instrument, reasonably deemed by the Board of Directors of the Company and the Requisite Holders to be satisfactory in form and substance, the obligation to deliver to the holder of the Warrants, at the last address of such holder appearing on the books of the Company, such shares of stock, as, in accordance with the foregoing provisions, such holder may be entitled to purchase, and the other obligations under these Warrants. The provisions of this Section 4(d) shall similarly apply to successive Corporate Reorganizations. If the Company, in spite of using its best efforts, is unable to cause these Warrants to continue in full force and effect until the Expiration Date in connection with any Corporate Reorganization, then the Company shall pay the Warrant Holders an amount per Warrant to purchase one share in the Company that is calculated in accordance with the Black-Scholes Option Pricing formula set forth in Appendix (B) hereto. Such payment shall be made in cash in the event that the Corporate Reorganization results in the Company or the shareholders of the Company receiving cash from the Acquirer at the closing of the transaction, and shall be made in shares of the Company (with the value of each share in the Company is determined according to S_{Corp} in Appendix (B) hereto) for all other Corporate Reorganizations. In the event that a Corporate Reorganization involves the payment of cash as well as other securities, such payment to the Warrant Holders shall be also be made in both cash and shares in the same proportion as the cash and non-cash portions of the considerations.

(e) Adjustment Rules.

(i) Any adjustments pursuant to this Section 4 shall be made successively whenever any event referred to herein shall occur, except that, notwithstanding any other provision of this Section 4, no adjustment shall be made to the number of Warrant Shares to be delivered to the Warrant Holder (or to the Exercise Price) if such adjustment represents less than 1% of the number of Warrant Shares previously required to be so delivered, but any lesser adjustment shall be carried forward and shall be made at the time and together with the next subsequent adjustment which together with any adjustments so carried forward shall amount to 1% or more of the number of Warrant Shares to be so delivered.

(ii) No adjustments shall be made pursuant to this Section 4 in respect of the issuance of Warrant Shares upon exercise of the Warrant;

(iii) If the Company shall take a record of the holders of its Shares for any purpose referred to in this Section 4, then (x) such record date shall be deemed to be the date of the issuance, sale, distribution or grant in question and (y) if the Company shall legally abandon such action prior to effecting such action, no adjustment shall be made pursuant to this Section 4 in respect of such action.

(iv) In computing adjustments under this Section 4, (A) fractional interests in Shares shall be taken into account to the nearest one-thousandth of a Share, and (B) calculations of the Exercise Price shall be carried to the nearest one-thousandth of one cent.

(f) Proceedings Prior to Any Action Requiring Adjustment . As a condition precedent to the taking of any action which would require an adjustment pursuant to this Section 4, the Company shall take any action which may be necessary, including obtaining regulatory approvals or exemptions, in order that the Company may thereafter validly and legally issue as fully paid and nonassessable all Shares which the Warrant Holder is entitled to receive upon exercise of the Warrant.

(g) Notice of Adjustment. Not less than 20 days prior to the record date or effective date, as the case may be, of any action which requires or might require an adjustment or readjustment pursuant to this Section 4, the Company shall give notice to the Warrant Holder of such event, describing such event in reasonable detail and specifying the record date or effective date, as the case may be, and, if determinable, the required adjustment and computation thereof. If the required adjustment is not determinable as the time of such notice, the Company shall give notice to the Warrant Holder of such adjustment and computation as soon as reasonably practicable after such adjustment becomes determinable. In connection with any such adjustment or readjustment, at its sole cost and expense, the Company will also cause independent certified public accountants of recognized national standing (which may be the regular auditors of the Company) selected by the Company to verify its computations and, in connection with the preparation of the Company's quarterly financial statements prepare a report setting forth such adjustment or readjustment and showing in reasonable detail the method of calculation thereof and the facts upon which such adjustment or readjustment is based, including a statement of (i) the consideration received or to be received by the Company for any Share Distribution issued or sold or deemed to have been issued, (ii) the number of Shares outstanding or deemed to be outstanding, and (iii) the Exercise Price in effect immediately prior to such issue or sale and as adjusted and readjusted (if required by this Section 4) on account thereof. The Company will forthwith mail a copy of each such report to the Warrant Holder and will, upon the written request at any time of the Warrant Holder, furnish to such holder a like report setting forth the Exercise Price at the time in effect and showing in reasonable detail how it was calculated. The Company will also keep copies of all such reports at its office and will cause the same to be available for inspection at such office during normal business hours by the Warrant Holder or any prospective purchaser of this Warrant designated by the Warrant Holder.

(h) Subsequent Warrants. Irrespective of any adjustments in the Exercise Price or the number of Warrant Shares issuable upon exercise of this Warrant, any successor or replacement warrants issued theretofore or thereafter may continue to express the same Exercise Price per Share and number and kind of Warrant Shares as are stated in this Warrant.

(i) Disputes. Any dispute which arises between the Warrant Holder and the Company with respect to the calculation of the adjusted Exercise Price or Warrant Shares issuable upon exercise shall be determined by the independent auditors of the Company, and such determination shall be binding upon the Company and the holders of the Warrants and the Warrant Shares if made in good faith and without manifest error.

(j) Other Actions Affecting Shares.

(i) Equitable Equivalent. In case any event shall occur as to which the provisions of this Section 4 set forth above hereof are not strictly applicable but the failure to make any adjustment would not, in the opinion of the Warrant Holder, fairly protect the purchase rights represented by this Warrant in accordance with the essential intent and principles of this Section 4, then, in each such case, at the request of the Warrant Holder, the Company shall appoint, at the Company's expense, a firm of independent investment bankers of recognized national standing (which shall be completely independent of the Company and shall be satisfactory to the holder or the Requisite Holders), which shall give their opinion upon the adjustment, if any, on a basis consistent with the essential intent and principles established in this Section 4, necessary to preserve, in an manner so as to reduce dilution, the purchase rights represented by this Warrant. Upon receipt of such opinion, the Company will promptly mail a copy thereof to the holder of this Warrant and shall make the adjustments described therein.

(ii) No Avoidance. The Company shall not, by amendment of its certificate of incorporation or by-laws or through any consolidation, merger, reorganization, transfer of assets, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the holder of this Warrant against unlimited dilution or other impairment as if the holder was a shareholder of the Company entitled to the benefit of fiduciary duties afforded to shareholders under Delaware law.

(k) Calculation of Consideration Received. The consideration for the issue or sale of any Share Distribution shall, irrespective of the accounting treatment of such consideration:

(i) insofar as it consists of cash, be computed at the amount of cash actually received by the Company without reduction for any expenses paid or incurred by the Company or any commissions or compensations paid or concessions or discounts allowed to underwriters, dealers or others performing similar services in connection with such issue or sale;

(ii) insofar as it consists of property (including securities) other than cash actually received by the Company, be computed at the Appraised Value thereof at the time of such issue or sale; and

(iii) insofar as it consists neither of cash nor of other property, be computed as having no value.

(l) Adjustment of Par Value. If for any reason (including the operation of the adjustment provisions set forth in this Warrant), the Exercise Price on any date of exercise of this Warrant shall not be lawful and adequate consideration for the issuance of the relevant Warrant Shares, then the Company shall take such steps as are necessary (including the amendment of its certificate of incorporation so as to reduce the par value of the Shares) to cause such Exercise Price to be adequate and lawful consideration on the date the payment thereof is due, but if the Company shall fail to take such steps, then the Company acknowledges that the Warrant Holder shall have been damaged by the Company in an amount equal to an amount, which, when added to the total Exercise Price for the relevant Warrant Shares, would equal lawful and adequate consideration for the issuance of such Warrant Shares, and the Company irrevocably agrees that if the Warrant Holder shall then forgive the right to recover such damages from the Company, such forgiveness shall constitute, and Company shall accept such forgiveness as, additional lawful consideration for the issuance of the relevant Warrant Shares.

(m) Appraisal.

(i) If the Requisite Holders shall, for any reason whatsoever, disagree with the Company's determination of the Appraised Value of a Share, then such holders shall by notice to the Company (an **"Appraisal Notice"**) given within sixty (60) days after the Company notifies the holders of such determination, elect to dispute such determination, and such dispute shall be resolved as set forth in clause (ii) of this Section.

(ii) The Company shall within ten (10) days after an Appraisal Notice shall have been given, engage an independent investment bank of national repute (the **"Appraiser"**) selected by the Requisite Holders and retained pursuant to an engagement letter between the Company and the Appraiser with respect to such valuation in form and substance reasonably acceptable to Requisite Holders, to make an independent determination of the Appraised Value of a Share; such value shall be determined without deduction for (a) liquidity considerations, (b) minority shareholder status, or (c) any liquidation or other preference or any right of redemption in favor of any other equity securities of the Company. The costs of engagement of such investment bank for any such determination of Appraised Value shall be paid by the Company.

Section 5. [Reserved].

Section 6. Transfer of Warrant. The Warrant Holder upon transfer of the Warrant must deliver to the Company a duly executed Warrant Assignment in the form of Exhibit B and upon surrender of this Warrant to the Company, the Company shall execute and deliver a new Warrant with appropriate changes to reflect such Assignment, in the name or names of the assignee or assignees specified in the Warrant Assignment or other instrument of assignment and, if the Warrant Holder's entire interest is not being transferred or assigned, in the name of the Warrant Holder, and upon the Company's execution and delivery of such new Warrant, this Warrant shall promptly be cancelled; and provided that any assignee shall have all of the rights of an Initial Holder hereunder. The Warrant Holder shall pay any transfer tax imposed in connection with such assignment (if any). Any transfer or exchange of this Warrant shall be without charge to the Warrant Holder (except as provided above with respect to transfer taxes, if any) and any new Warrant issued shall be dated the date hereof.

Section 7. Assistance in Disposition of Warrant or Warrant Shares. Notwithstanding any other provision herein, in the event that it becomes unlawful for the Warrant Holder to continue to hold the Warrant, in whole or in part, or some or all of the Shares held by it, or restrictions are imposed on any the Warrant Holder by any statute, regulation or governmental authority which, in the judgment of the Warrant Holder, make it unduly burdensome to continue to hold the Warrant or such Shares, the Warrant Holder may sell or otherwise dispose of the Warrant (subject to the restrictions on transfer provided in Section 6) or its Shares, and the Company agrees to provide reasonable assistance to the Warrant Holder in disposing of the Warrant and such Shares in a prompt and orderly manner and, at the request of the Warrant Holder, to provide (and authorize the Warrant Holder to provide) financial and other information concerning the Company to any prospective purchaser of the Warrant or Shares owned by the Warrant Holder.

Section 8. Identity of Transfer Agent. The Transfer Agent for the Common Stock is Corporate Stock Transfer, Inc. with a mailing address of 3200 Cherry Creek Drive South #430, Denver, CO 80209. Upon the appointment of any subsequent transfer agent for the Shares, the Company will mail to the Warrant Holder a statement setting forth the name and address of such transfer agent.

Section 9. Covenants. The Company agrees that:

(a) [Reserved].

(b) [Reserved].

(c) [Reserved].

(d) Securities Filings; Rules 144 & 144A. The Company will (i) timely file any reports required to be filed by it under the Securities Act, the Exchange Act or the rules and regulations adopted by the Commission thereunder, (ii) use its best efforts to cooperate with the Warrant Holder and each holder of Warrant Shares in supplying such information concerning the Company as may be necessary for the Warrant Holder or holder of Warrant Shares to complete and file any information reporting forms currently or hereafter required by the Commission as a condition to the availability of an exemption from the Securities Act for the sale of any Warrants or Warrant Shares, and (iii) take such further action as the Warrant Holder may reasonably request to the extent required from time to time to enable the Warrant Holder to sell Warrant Shares without restriction and without registration under the Securities Act within the limitation of the exemptions provided by Rule 144 or 144A under the Securities Act, as such Rules may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission; provided that this subsection (d) shall not require the Company to make any filing under the Securities Act or Exchange Act which the Company is not otherwise obligated to make; and provided, further, that this subsection (d) shall not require the Company to make any cash payment to the Warrant Holder.

(e) Obtaining of Governmental Approvals and Stock Exchange Listings. The Company will, at its own expense, (i) obtain and keep effective any and all permits, consents and approvals of governmental agencies and authorities which may from time to time be required of the Company in order to satisfy its obligations hereunder, and (ii) take all action which may be necessary so that the Warrant Shares, immediately upon their issuance upon the exercise of the Warrants, will be listed on each securities exchange, if any, on which the Shares are then listed.

(f) [Reserved].

(g) Structural Dilution. So long as this Warrant remains outstanding, the Company shall not permit any of its Subsidiaries to issue, sell, distribute or otherwise grant in any manner (including by assumption) any rights to subscribe for or to purchase, or any warrants or options for the purchase of any equity securities of such Subsidiary or any securities convertible into or exchangeable for such equity securities (or any rights to subscribe for or to purchase, or any warrants or options for the purchase of any such convertible or exchangeable securities), whether or not immediately exercisable or exercisable prior to the Expiration Date or thereafter.

(h) Notices Of Corporate Action. In the event of:

(i) any taking by the Company of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any distribution, or any right to subscribe for, purchase or otherwise acquire any Shares or any other securities or property, or to receive any other right, or

(i) any capital reorganization of the Company, any reclassification or recapitalization of the capital stock of the Company, any consolidation or merger involving the Company and any other Person or any transfer of all or substantially all the assets of the Company to any other Person, or any Corporate Reorganization, or

(ii) any voluntary or involuntary dissolution, liquidation or winding-up of the Company, or

(iii) any issuance of any Shares, Convertible Security or Option by the Company, the Company will mail to the Warrant Holder a notice specifying (i) the date or expected date on which any such record is to be taken for the purpose of such dividend, distribution or right, and the amount and character of such dividend, distribution or right, (ii) the date or expected date on which any such reorganization, reclassification, recapitalization, consolidation, merger, transfer, dissolution, liquidation or winding-up is to take place, (iii) the time, if any such time is to be fixed, as of which the holders of record of Shares (or other securities under Section 4(d)) shall be entitled to exchange their Shares (or other securities under Section 4(d)) for the securities or other property deliverable upon such reorganization, reclassification, recapitalization, consolidation, merger, transfer, dissolution, liquidation or winding-up and a description in reasonable detail of the transaction and (iv) the date of such issuance, together with a description of the security so issued and the consideration received by the Company therefor. Such notice shall be mailed at least twenty (20) days prior to the date therein specified.

Section 10. Lost, Mutilated or Missing Warrants. Upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of any Warrant, and, in the case of loss, theft or destruction, upon receipt of indemnification satisfactory to the Company (in the case of an Initial Holder its unsecured, unbonded agreement of indemnity or affidavit of loss shall be sufficient) or, in the case of mutilation, upon surrender and cancellation of the mutilated Warrant, the Company shall execute and deliver a new Warrant of like tenor and representing the right to purchase the same aggregate number of Warrant Shares.

Section 11. Waivers; Amendments. Any provision of this Warrant may be amended or waived with (but only with) the written consent of the Company and the Requisite Holders; provided that no such amendment or waiver shall, without the written consent of the Company and the Warrant Holder, (a) change the number of Warrant Shares issuable upon exercise of the Warrant or the Exercise Price, (b) shorten the Expiration Date, or (c) amend, modify or waive the provisions of this Section or the definition of "Requisite Holders." Any amendment or waiver effected in compliance with this Section shall be binding upon the Company and the Warrant Holder. The Company shall give prompt notice to the Warrant Holder of any amendment or waiver effected in compliance with this Section. No failure or delay of the Company or the Warrant Holder in exercising any power or right hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any such right or power, or any abandonment or discontinuance of steps to enforce such a right or power, preclude any other or further exercise thereon or the exercise of any other right or power. No notice or demand on the Company in any case shall entitle the Company to any other or future notice or demand in similar or other circumstances. The rights and remedies of the Company and the Warrant Holder hereunder are cumulative and not exclusive of any rights or remedies which it would otherwise have.

Section 12. Miscellaneous.

(a) Shareholder Rights. The Warrant shall not entitle any Warrant Holder, prior to the exercise of the Warrant, to any voting or other rights as a shareholder of the Company.

(b) Expenses. The Company shall pay all reasonable expenses of the Warrant Holder, including reasonable fees and disbursements of counsel, in connection with the preparation of the Warrant, any waiver or consent hereunder or any amendment or modification hereof (regardless of whether the same becomes effective), or the enforcement of the provisions hereof; provided that the Company shall not be required to pay any expenses of the Warrant Holder arising solely in connection with a transfer of the Warrant.

(c) Successors and Assigns. All the provisions of this Warrant by or for the benefit of the Company or the Warrant Holder shall bind and inure to the benefit of their respective successors and assigns.

(d) Severability. In case any one or more of the provisions contained in this Warrant shall be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby. The parties shall endeavor in good faith negotiations to replace the invalid, illegal or unenforceable provisions with valid provisions the economic effect of which comes as close as possible to that of the invalid, illegal or unenforceable provisions.

(e) Notices. Any notice or other communication hereunder shall be in writing and shall be sufficient if sent by first-class mail or courier, postage prepaid, and addressed as follows: (a) if to the Company, addressed to the Company at its address for notices as set forth below its signature hereon or any other address as the Company may hereafter notify to the Warrant Holder and (b) if to the Warrant Holder, addressed to such address as the Warrant Holder may hereafter from time to time notify to the Company for the purposes of notice hereunder.

(f) Equitable Remedies. Without limiting the rights of the Company and the Warrant Holder to pursue all other legal and equitable rights available to such party for the other parties' failure to perform its obligations hereunder, the Company and the Warrant Holder each hereto acknowledge and agree that the remedy at law for any failure to perform any obligations hereunder would be inadequate and that each shall be entitled to specific performance, injunctive relief or other equitable remedies in the event of any such failure.

(g) Continued Effect. Rights and benefits conferred on the holders of Warrant Shares pursuant to the provisions hereof (including Section 6) shall continue to inure to the benefit of, and shall be enforceable by, such holders, notwithstanding the surrender of the Warrant to, and its cancellation by, the Company upon the full or partial exercise or repurchase hereof.

(h) Governing Law. THIS WARRANT SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH THE INTERNAL LAWS OF THE STATE OF NEW YORK, EXCEPT AS OTHERWISE REQUIRED BY MANDATORY PROVISIONS OF LAW.

(i) Section Headings. The section headings used herein are for convenience of reference only and shall not be construed in any way to affect the interpretation of any provisions of the Warrant.

[Signature Page Follows]

IN WITNESS WHEREOF, the Company has caused this Warrant to be duly executed by its authorized signatory as of the day and year first above written.

XTANT MEDICAL HOLDINGS, INC.

By *__/s/ Greg Jensen__*
Name: Greg Jensen
Title: Vice President, Finance and Interim Chief Financial Officer

Address for Notices:

Xtant Medical Holdings, Inc.
664 Cruiser Lane
Belgrade, Montana 59714
Attention: Greg Jensen

Exhibit A to Warrant

Form of Notice of Exercise

_____,20___

To: Xtant Medical Holdings, Inc.

Reference is made to the Warrant dated _____. Terms defined therein are used herein as therein defined.

The undersigned, pursuant to the provisions set forth in the Warrant, hereby irrevocably elects and agrees to purchase _____ Shares, and makes payment herewith in full therefor at the Exercise Price of $_____ in the following form: _____.

[If the number of Shares as to which the Warrant is being exercised is less than all of the Shares purchasable thereunder, the undersigned hereby requests that a new Warrant representing the remaining balance of the Shares be registered in the name of _____, whose address is: _____.]

The undersigned hereby represents that it is exercising the Warrant for its own account or the account of an Affiliate for investment purposes and not with the view to any sale or distribution and that the Warrant Holder will not offer, sell or otherwise dispose of the Warrant or any underlying Warrant Shares in violation of applicable securities laws.

[NAME OF WARRANT HOLDER]

By _____
Name:
Title:

[ADDRESS OF WARRANT HOLDER]

Exhibit B to Warrant

Form of Warrant Assignment

Reference is made to the Warrant dated _____, issued by [_____]. Terms defined therein are used herein as therein defined.

FOR VALUE RECEIVED _____ (the "Assignor") hereby sells, assigns and transfers all of the rights of the Assignor as set forth in such Warrant, with respect to the number of Warrant Shares covered thereby as set forth below, to the Assignee(s) as set forth below:

Number of Warrant Shares

Name(s) of Assignee(s)	Address(es)	Number of Warrant Shares

All notices to be given by the Company to the Assignor as Warrant Holder shall be sent to the Assignee(s) at the above listed address(es), and, if the number of Shares being hereby assigned is less than all of the Shares covered by the Warrant held by the Assignor, then also to the Assignor.

In accordance with Section 6 of the Warrant, the Assignor requests that the Company execute and deliver a new Warrant or Warrants in the name or names of the assignee or assignees, as is appropriate, or, if the number of Shares being hereby assigned is less than all of the Shares covered by the Warrant held by the Assignor, new Warrants in the name or names of the assignee or the assignees, as is appropriate, and in the name of the Assignor.

The undersigned represents that the Assignee has represented to the Assignor that the Assignee is acquiring the Warrant for its own account or the account of an Affiliate for investment purposes and not with the view to any sale or distribution, and that the Assignee will not offer, sell or otherwise dispose of the Warrant or the Warrant Shares except under circumstances as will not result in a violation of applicable securities laws.

Dated: _____, 20___

[NAME OF ASSIGNOR]

By _____
Name:
Title:

[ADDRESS OF ASSIGNOR]

APPENDIX A

Black Scholes Option Pricing formula to be used when calculating the value of each new warrant to purchase one share in the Acquirer shall be:

$C_{Acq} = S_{Acq}e^{-\lambda(TAcq-tAcq)}N(d_1) - K_{Acq}e^{-r(TAcq-tAcq)}N(d_2)$, **where**

C_{Acq} = value of each warrant to purchase one share in the Acquirer

S_{Acq} = price of Acquirer's stock as determined by reference to the average of the closing prices on the securities exchange or Nasdaq Global Market over the 20-day period ending three trading days prior to the closing of the Corporate Reorganization described in Section 4(d) if the Acquirer's stock is then traded on such exchange or system, or the average of the closing bid or sale prices (whichever is applicable) in the over-the-counter market over the 20-day period ending three trading days prior to the closing of the Corporate Reorganization if the Acquirer's stock is then actively traded in the over-the-counter market, or the then most recently completed financing if the Acquirer's stock is not then traded on a securities exchange or system or in the over-the-counter market.

T_{Acq} = expiration date of new warrants to purchase shares in the Acquirer = T_{Corp}

t_{Acq} = date of issue of new warrants to purchase shares in the Acquirer

T_{Acq}-t_{Acq} = time until warrant expiration, expressed in years

σ = volatility = annualized standard deviation of daily log-returns (using a 262-day annualization factor) of the Acquirer's stock price on the securities exchange or Nasdaq Global Market over a 20-day trading period, determined by the Warrant Holders, that is within the 100-day trading period ending on the trading day immediately after the public announcement of the Corporate Reorganization described in Section 4(d) if the Acquirer's stock is then traded on such exchange or system, or the annualized standard deviation of daily-log returns (using a 262-day annualization factor) of the closing bid or sale prices (whichever is applicable) in the over-the-counter market over a 20-day trading period, determined by the Warrant Holder, that is within the 100-day trading period ending on the trading day immediately after the public announcement of the Corporate Reorganization if the Acquirer's stock is then actively traded in the over-the-counter market, or 0.6 (or 60%) if the Acquirer's stock is not then traded on a securities exchange or system or in the over-the-counter market.

N = cumulative normal distribution function

$d_1 = (\ln(S_{Acq}/K_{Acq}) + (r-\lambda+\sigma^2/2)(T_{Acq}-t_{Acq})) \div (\sigma\sqrt{(T_{Acq}-t_{Acq})})$

ln = natural logarithm

λ = dividend rate of the Acquirer for the most recent 12-month period at the time of closing of the Corporate Reorganization.

K_{Acq} = strike price of new warrants to purchase shares in the Acquirer = $K_{Corp} * (S_{Acq} / S_{Corp})$

r = annual yield, as reported by Bloomberg at time t_{Acq}, of the United States Treasury security measuring the nearest time T_{Acq}

$d_2 = d_1 - \sigma\sqrt{(T_{Acq}-t_{Acq})}$

APPENDIX B

Black Scholes Option Pricing formula to be used when calculating the value of each Warrant to purchase one share in the Company shall be:

$C_{Corp} = S_{Corp}e^{-\lambda(TCorp-tCorp)}N(d_1) - K_{Corp}e^{-r(TCorp-tCorp)}N(d_2)$, **where**

C_{Corp} = value of each Warrant to purchase one share in the Company

S_{Corp} = price of Company stock as determined by reference to the average of the closing prices on the securities exchange or Nasdaq Global Market over the 20-day period ending three trading days prior to the closing of the Corporate Reorganization described in Section 4(d) if the Company's stock is then traded on such exchange or system, or the average of the closing bid or sale prices (whichever is applicable) in the over-the-counter market over the 20-day period ending three trading days prior to the closing of the Corporate Reorganization if the Company's stock is then actively traded in the over-the-counter market, or the then most recently completed financing if the Company's stock is not then traded on a securities exchange or system or in the over-the-counter market.

T_{Corp} = expiration date of Warrants to purchase shares in the Company

t_{Corp} = date of public announcement of transaction

$T_{Corp}-t_{Corp}$ = time until Warrant expiration, expressed in years

σ = volatility = the annualized standard deviation of daily log-returns (using a 262-day annualization factor) of the Company's stock price on the securities exchange or Nasdaq Global Market over a 20-day trading period, determined by the Warrant Holders, that is within the 100-day trading period ending on the trading day immediately after the public announcement of the Corporate Reorganization described in Section 4(d) if the Company's stock is then traded on such exchange or system, or the annualized standard deviation of daily-log returns (using a 262-day annualization factor) of the closing bid or sale prices (whichever is applicable) in the over-the-counter market over a 20-day trading period, determined by the Warrant Holder, that is within the 100-day trading period ending on the trading day immediately after the public announcement of the Corporate Reorganization if the Company's stock is then actively traded in the over-the-counter market, or 0.6 (or 60%) if the Company's stock is not then traded on a securities exchange or system or in the over-the-counter market.

N = cumulative normal distribution function

$d_1 = (\ln(S_{Corp}/K_{Corp}) + (r-\lambda+\sigma^2/2)(T_{Corp}-t_{Corp})) \div (\sigma\sqrt{(T_{Corp}-t_{Corp})})$

ln = natural logarithm

λ = dividend rate of the Company for the most recent 12-month period at the time of closing of the Corporate Reorganization.

K_{Corp} = strike price of warrant

r = annual yield, as reported by Bloomberg at time t_{Corp}, of the United States Treasury security measuring the nearest time T_{Corp}

$d_2 = d1 - \sigma\sqrt{(T_{Corp}-t_{Corp})}$

SEPARATION AGREEMENT AND RELEASE

This Separation Agreement ("Agreement") and the Release, which is attached and incorporated by reference as Exhibit A ("Release"), are made by and between Carl D. O'Connell ("Executive"), and Xtant Medical Holdings, Inc., its affiliates, related or predecessor corporations, subsidiaries, successors and assigns ("Employer").

Employer and Executive (collectively, "Parties") wish to end their employment relationship in an honorable, dignified and orderly fashion. Toward that end, the Parties have agreed to separate according to the following terms.

IN CONSIDERATION OF THIS AGREEMENT, THE PARTIES AGREE AS FOLLOWS:

1. Termination. Executive's employment shall end on October 12, 2018 ("Termination Date").

2. Consideration. Employer shall, (1) after receipt of a fully executed Agreement and Release; (2) after expiration of all applicable rescission periods; and (3) provided Executive complies with his obligations under this Agreement, provide Executive with certain separation benefits ("Consideration") in compliance with that certain Employment Agreement effective October 6, 2016 between Employer and Executive, as amended on February 17, 2017 and May 15, 2018 (the "Employment Agreement"). Pursuant to Section 12B of the Employment Agreement, Employer will pay Executive severance pay equal to $43,333.33 per month for twelve (12) months following the Termination Date (the "Severance Period"), less all required tax withholdings and other applicable deductions, payable in accordance with Employer's standard payroll procedures; provided, however, that the first payment shall include any amounts that would have been paid to Executive if payment had commenced on the Termination Date. In addition, during the twelve (12) months following the Termination Date, with respect to group health benefits, Executive (and his dependents) may elect, in accordance with and subject to the Consolidated Omnibus Budget Reconciliation Act of 1985 ("COBRA") or similar state law, to remain covered under Employer's group health plan for the period mandated by COBRA or similar state law. If Executive timely and effectively elects such continuation coverage, Employer will pay the premiums for such coverage of Executive (and his dependents, as applicable) through such twelve-month period; provided, however, that Employer's obligation to make such payments shall immediately expire if Executive ceases to be eligible for continuation coverage under COBRA or similar state law or otherwise terminates such coverage. Any payments described above and due to Executive under Paragraph 12B of the Employment Agreement shall commence within sixty (60) days of Executive's termination of employment, provided, however, that if such sixty (60)-day period spans two (2) calendar years, payments shall commence in the latter calendar year.

3. Stock Options. The Company and the Executive acknowledge and agree that (a) the Executive holds options to purchase an aggregate of 225,000 shares of Common Stock of Company, 25,000 shares of which are vested as of the Termination Date and 200,000 shares of which are not vested as of the Termination Date, (b) the Executive has the right to exercise such vested options through January 12, 2019, at which time such vested options shall expire if not exercised, and (c) such unvested options expired as of the Termination Date.

4 . Expense Reimbursement. Employer and Executive acknowledge that Executive owes Employer $3,168.13 for personal expenses charged to Employer's corporate credit card, net of Executive's unreimbursed business expenses, and that Employer will deduct $3,168.13 from the first payment made under Section 2. Executive acknowledges that he does not have any additional unreimbursed business expenses.

5. Termination of Benefits. Except as otherwise provided by this Agreement, Executive's participation in Employer's employee benefits, bonus, and all other compensation or commission plans, will terminate on the Termination Date, unless otherwise provided by law or benefit plan. Executive shall receive no compensation or benefits under such plans, except as specifically provided in Section 2 of this Agreement.

6. Execution of Agreement and Mutual Release of all Claims. Executive agrees to fully execute this Agreement, and the Release attached as Exhibit A, releasing any and all actual or potential claims which Executive may have or may claim to have, arising at any time during his employment with or termination from employment with Employer, except for those claims arising from Employer's failure to comply with its obligations under Paragraph 12A of the Employment Agreement. Executive's failure to execute this Agreement and/or Release, or any attempt to rescind this Agreement or that Release, shall terminate this Agreement, and the Parties' respective rights and obligations under this Agreement. Likewise, Employer agrees to fully execute this Agreement, and by doing so, Employer hereby agrees to release, and hereby does release, any and all actual or potential claims which Employer may have or may claim to have, against Executive, arising at any time during his employment or termination of Executive.

7 . Satisfactory Performance and Cooperation During Transition. Executive shall fully cooperate with Employer in responding to questions, providing assistance and information, and defending against claims of any type, and will otherwise assist Employer as Employer may request through the Severance Period ("Transition Period"). More specifically:

(a) During the Transition Period, Executive shall reasonably cooperate with Employer as it meets and otherwise communicates/works, with Employer's employees, customers, strategic relationships, consultants, and vendors on the transition of Executive's duties to other individuals. Executive shall be available, upon reasonable notice, during business hours to respond to Employer's questions and electronic communications. Employer shall reimburse Executive for Executive's reasonable out-of-pocket expenses (such reimbursement shall not include compensation for any such time or Executive's attorney's fees) incurred in accordance with this paragraph upon submission of receipts to Employer for such expenses.

(b) Executive shall not, absent Employer's specific approval, initiate any form of communication with Employer's employees, customers or strategic partners regarding Employer, Employer's products or Executives, and shall communicate with such persons in the above capacity only in conjunction with person(s) who Employer has designated to participate in such communications.

8. Agreement to Cooperate in Investigations and Litigation. Executive agrees that Executive will, at any future time, be available upon reasonable notice from Employer, with or without a subpoena, to be interviewed, review documents or things, give depositions, testify, or engage in other reasonable activities, with respect to matters and/or disputes concerning which Executive has or may have knowledge as a result of or in connection with Executive's employment by Employer. In performing Executive's obligations under this Section 8 to testify or otherwise provide information, Executive will honestly, truthfully, forthrightly, and completely provide the information requested. Executive will comply with this Agreement upon notice from Employer that Employer or its attorneys believe that Executive's compliance will assist in the resolution of an investigation or the prosecution or defense of claims. Executive understands and agrees that Employer's obligations under this Agreement are contingent upon Executive cooperating with Employer in investigations and litigation.

9. Stipulation of No Charges. Executive affirmatively represents that he has not filed nor caused to be filed any charges, claims, complaints, or actions against Employer before any federal, state, or local administrative agency, court, or other forum. Except as expressly provided in this Agreement or required by law, Executive acknowledges and agrees that he has been paid all wages, bonuses, compensation, benefits and other amounts that are due, with the exception of any vested right under the terms of a written ERISA-qualified benefit plan. Executive waives any right to any form of recovery or compensation from any legal action, excluding any action claiming this Agreement and Release violate the Age Discrimination in Employment Act ("ADEA") and/or the Older Workers Benefit Protection Act ("OWBPA"), filed or threatened to be filed by Executive or on Executive's behalf based on Executive's employment, terms of employment, or separation from, Employer. Executive understands that any Consideration paid to Executive pursuant to this Agreement may be deducted from any monetary award he may receive as a result of a successful ADEA and/or OWBPA claim or challenge to this Agreement and Release. This does not preclude Executive from eligibility for unemployment benefits, and does not preclude or obstruct Executive's right to file a Charge with the Equal Employment Opportunity Commission ("EEOC").

10. Return of Property. Executive shall return, on or before the Termination Date, all Employer property in Executive's possession or control, including but not limited to any business or operating plans, board meeting materials, supplier or vendor information, customer information, Confidential Information (as defined in Section 14 below) drawings, orders, files, documents, notes, computers, laptop computers, fax machines, cell phones, smart devices, access cards, fobs, keys, reports, manuals, records, product samples, correspondence and/or other documents or materials related to Employer's business that Executive has compiled, generated or received while working for Employer, including all electronically stored information, copies, samples, computer data, disks, or records of such materials. Executive must return to Employer, and Executive shall not retain, any Employer property as previously defined in this section.

11. Agreement Not to Seek Future Employment. Executive agrees that he will never knowingly seek nor accept employment or a consulting/independent contractor relationship with Employer, nor any other entity owned by Xtant Medical Holdings, Inc., either directly or through a consulting firm.

12. Withholding For Amounts Owed to Employer. Execution of this Agreement shall constitute Executive's authorization for Employer to make deductions from Executive's Consideration for Executive's indebtedness to Employer, or to repay Employer for unaccrued Paid Time Off already taken, employee purchases, wage or benefit overpayment, or other Employer claims against Executive, to the extent permitted by applicable law.

13. Non-Disparagement. Executive agrees that, unless it is in the context of an EEOC or other civil rights or other government enforcement agency investigation or proceeding, Executive will make no critical, disparaging or defamatory comments regarding the performance of Employer's business or the business reputation of the Employer or of any Released Party, as defined in the Release. Employer agrees that, unless it is in the context of an EEOC or other civil rights or other government enforcement agency investigation or proceeding, Employer, its controlling shareholder, officers and directors will make no critical, disparaging or defamatory comments regarding the Executive's performance or the business reputation of the Executive. Furthermore, Executive agrees not to assist or encourage in any way any individual or group of individuals to bring or pursue a lawsuit, charge, complaint, or grievance, or make any other demands against Employer or any Released Party. This provision does not prohibit Executive from participating in an EEOC or other civil rights or other government enforcement agency charge, investigation or proceeding, or from providing testimony or documents pursuant to a lawful subpoena or as otherwise required by law.

14. Compliance with Employment Agreement and Protection of Confidential Information. Executive agrees to comply with the provisions of and the restrictions set forth in his Employment Agreement, attached as Exhibit B hereto. Executive agrees to never divulge or use any trade secrets, confidential information, or other proprietary information of Employer which Executive obtained or to which Executive had access during his employment with Employer. For purposes of this latter obligation, "Confidential Information" means information that is not generally known and that is proprietary to Employer or that Employer is obligated to treat as proprietary. It includes, but is not limited to, information or data of Employer concerning its business, financial statements, board meeting materials, customer or patient contact information and data, products, plans, ideas, drawings, designs, concepts, inventions, discoveries, improvements, patent applications, know-how, trade secrets, prototypes, processes, techniques and other proprietary information. It does not include information that Executive can establish: (i) is already lawfully in the possession of Executive through independent means at the time of disclosure thereof; (ii) is or later becomes part of the public domain through no fault of Executive; (iii) is lawfully received by Executive from a third party having no obligations of confidentiality to Employer; or (iv) is required to be disclosed by order of a governmental agency or by a court of competent jurisdiction. Any information that Executive knows or should reasonably know is Confidential Information, or that Employer reasonably treats as Confidential Information, will be presumed to be Confidential Information.

15. Confidentiality. It is the intent of Employer and Executive that the terms of this Agreement be treated as Confidential, except to the extent this Agreement is required to be disclosed under applicable federal securities laws, as determined by Employer. Executive warrants that he has not and agrees that he will not in the future disclose the terms of this Agreement, or the terms of the Consideration to be paid by Employer to Executive as part of this Agreement, to any person other than his attorney, tax advisor, spouse, or representatives of any state or federal regulatory agency, who shall be bound by the same prohibitions against disclosure as bind Executive, and Executive shall be responsible for advising those individuals or agencies of this confidentiality provision. Executive shall not provide or allow to be provided to any person this Agreement, or any copies thereof, nor shall Executive now or in the future disclose the terms of this Agreement to any person, with the sole exception of communications with Executive's spouse, attorney and tax advisor, unless otherwise ordered to do so by a court or agency of competent jurisdiction.

16. Invalidity. In case any one or more of the provisions of this Agreement or Release shall be held invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained in this Agreement and Release will not in any way be affected or impaired thereby.

17. Non-Admissions. The Parties expressly deny any and all liability or wrongdoing and agree that nothing in this Agreement or the Release shall be deemed to represent any concession or admission of such liability or wrongdoing or any waiver of any defense.

18. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of Colorado, without reference to its choice of law rules. Any action for breach or interpretation of this Agreement shall be brought in the federal or state courts, as appropriate, located in Colorado.

19. Voluntary and Knowing Action . Executive acknowledges that he has had sufficient opportunity to review the terms of this Agreement and attached Release, and that he has voluntarily and knowingly entered into this Agreement. Employer shall not be obligated to provide any Consideration to Executive pursuant to this Agreement in the event Executive elects to rescind/revoke the Release. The Release becomes final and binding on the Parties upon expiration of the rescission/revocation period, provided Executive has not exercised his option to rescind/revoke the Release. Any attempt by Executive to rescind any part of the Release obligates Executive to immediately return all Consideration under this Agreement to counsel for Employer.

20. Legal Counsel and Fees. Except as otherwise provided in this Agreement and the Release, the Parties agree to bear their own costs and attorneys' fees, if any. Executive acknowledges that Employer, by this Agreement, has advised his that he may consult with an attorney of his choice prior to executing this Agreement and the Release. Executive acknowledges that he has had the opportunity to be represented by legal counsel during the negotiation and execution of this Agreement and the Release, and that he understands he will be fully bound by this Agreement and the Release.

21. Modification. This Agreement may be modified or amended only by a writing signed by both Employer and Executive.

22. Successors and Assigns. This Agreement is binding on and inures to the benefit of the Parties' respective successors and assigns.

23. Notices. Any notice, request or demand required or desired to be given hereunder shall be in writing and shall be addressed as follows:

If to Employer:
Jeremy Carpenter
Human Resources Director
Xtant Medical Holdings, Inc.
664 Cruiser Lane
Belgrade, MT 59714

With a copy to:
Thomas A. Letscher
Fox Rothschild LLP
Campbell Mithun Tower - Suite 2000
222 South Ninth Street
Minneapolis, MN 55402-3338

If to Executive:
Carl D. O'Connell
XXXXXXXX
XXXXXXXX

Either Party may change its address by giving the other Party written notice of its new address.

24. Waivers. No failure or delay by either Party in exercising any right or remedy under this Agreement will waive any provision of this Agreement.

25. Miscellaneous. This Agreement may be executed simultaneously in counterparts, each of which shall be an original, but all of which shall constitute but one and the same agreement.

26. Entire Agreement. Except for any continuing, post-employment, obligations under Exhibit B, or employment related Employer policy, or as otherwise provided in this Agreement, this Agreement, the attached Release, and Exhibit B are the entire Agreement between Employer and Executive relating to his employment and his separation. The Parties understand that this Agreement and the Release cannot be changed unless it is done in writing and signed by both Employer and Executive.

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EXECUTIVE

/s/ Carl D. O'Connell

Carl D. O'Connell

Print Name

Dated: November 29, 2018

XTANT MEDICAL HOLDINGS, INC.

By: Michael Mainelli

Its: Interim CEO

Dated: November 29, 2018

EXHIBIT A

RELEASE

I. **Definitions**. I, Carl D. O'Connell, intend all words used in this release ("Release") to have their plain meanings in ordinary English. Technical legal words are not needed to describe what I mean. Specific terms I use in this Release have the following meanings:

A. "I," "Me," and "My" individually and collectively mean Carl D. O'Connell and anyone who has or obtains or asserts any legal rights or claims through Me or on My behalf.

B. "Employer" as used in this Release, shall at all times mean Xtant Medical Holdings, Inc. and any affiliates, related or predecessor corporations, parent corporations or subsidiaries, successors and assigns.

C. "Released Party" or "Released Parties" as used in this Release, shall at all times mean Xtant Medical Holdings, Inc. and its affiliates, related or predecessor corporations, subsidiaries, successors and assigns, present or former officers, directors, shareholders, agents, employees, representatives and attorneys, whether in their individual or official capacities, and its affiliates, related or predecessor corporations, parent corporations or subsidiaries, successors and assigns, present or former officers, directors, shareholders, agents, employees, representatives and attorneys, whether in their individual or official capacities, benefit plans and plan administrators, and insurers, insurers' counsel, whether in their individual or official capacities, and the current and former trustees or administrators of any pension, 401(k), or other benefit plan applicable to the employees or former employees of Employer, in their official and individual capacities.

D. "My Claims" mean any and all of the actual or potential claims of any kind whatsoever I may have had, or currently may have against Employer or any Released Party, whether known or unknown, that are in any way related to My employment with or separation from employment with Employer, including, but not limited to any claims for: invasion of privacy; breach of written or oral, express or implied, contract; fraud; misrepresentation; violation of the Age Discrimination in Employment Act of 1967 ("ADEA"), 29 U.S.C. § 626, as amended; the Genetic Information Nondiscrimination Act of 2008 ("GINA"), 42 U.S.C. § 2000, et seq., the Older Workers Benefit Protection Act of 1990 ("OWBPA"), 29 U.S.C. § 626(f), Title VII of the Civil Rights Act of 1964 ("Title VII"), 42 U.S.C. § 2000e, et seq., the Americans with Disabilities Act ("ADA"), 29 U.S.C. § 2101, et seq., and as amended ("ADAAA"), the Employee Retirement Income Security Act of 1974 ("ERISA"), as amended, 29 U.S.C. § 1001, et seq., Equal Pay Act ("EPA"), 29 U.S.C. § 206(d), the Worker Adjustment and Retraining Notification Act ("WARN"), 29 U.S.C. § 2101, et seq., the Family and Medical Leave Act ("FMLA"), 29 U.S.C. § 2601, et seq.; National Labor Relations Act, 29 U.S.C. § 141, et seq., Colorado's Anti-Discrimination Act, as amended, Colorado's Wage Claim Act, the Colorado Labor Peace Act, and all other Colorado statutes, regulations, and principles of common law, and related claims, the False Claims Act, 31 U.S.C. § 3729, et seq., Anti-Kickback Statute, 42 U.S.C. § 1320a, et seq., the Minnesota Human Rights Act, Minn. Stat. § 363A.01, et seq., Minn. Stat. § 181, et seq., the Minnesota Whistleblower Act, Minn. Stat. § 181.931, et seq., the Montana Human Rights Act, Mont. Code Ann. § 49-1-101, et seq., the Montana Wrongful Discharge for Employment Act, Mont. Code Ann. § 39-2-901, et seq., the Montana Wage Payment Act, Mont. Code Ann. § 39-3-201, et. seq., or any and all other Colorado, Minnesota, and Montana, and other state human rights or fair employment practices statutes, administrative regulations, or local ordinances, and any other Colorado, Minnesota, and Montana, or other federal, state, local or foreign statute, law, rule, regulation, ordinance or order, all as amended. This includes, but is not limited to, claims for violation of any civil rights laws based on protected class status; claims for assault, battery, defamation, intentional or negligent infliction of emotional distress, breach of the covenant of good faith and fair dealing; promissory estoppel; negligence; negligent hiring; retention or supervision; retaliation; constructive discharge; violation of whistleblower protection laws; unjust enrichment; violation of public policy; and, all other claims for unlawful employment practices, and all other common law or statutory claims.

II. **Agreement to Release My Claims.** Except as stated in Section V of this Release, I agree to release all My Claims and waive any rights to My Claims. I also agree to withdraw any and all of My charges and lawsuits against Employer; *except that* I may, but am not required to, withdraw or dismiss, or attempt to withdraw or dismiss, any charges that I may have pending against Employer with the Employment Opportunity Commission ("EEOC") or other civil rights enforcement agency. In exchange for My agreement to release My Claims, I am receiving satisfactory Consideration from Employer to which I am not otherwise entitled by law, contract, or under any Employer policy. The Consideration I am receiving is a full and fair consideration for the release of all My Claims. Employer does not owe Me anything in addition to what I will be receiving according to the Separation Agreement which I have signed.

III. **Unknown Claims.** In waiving and releasing any and all actual, potential, or threatened claims against Employer, whether or not now known to me, I understand that this means that if I later discover facts different from or in addition to those facts currently known by me, or believed by me to be true, the waivers and releases of this Release will remain effective in all respects – despite such different or additional facts and my later discovery of such facts, even if I would not have agreed to the Separation Agreement and this Release if I had prior knowledge of such facts.

IV. **Confirmation of No Claims, Etc.** I am not aware of any other facts, evidence, allegations, claims, liabilities, or demands relating to alleged or potential violations of law that may give rise to any claim or liability on the part of any Released Party under the Securities Exchange Act of 1934, the Sarbanes–Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the False Claims Act, the Anti-kickback Statute. I understand that nothing in this Release interferes with My right to file a complaint, charge or report with any law enforcement agency, with the Securities and Exchange Commission ("SEC") or other regulatory body, or to participate in any manner in an SEC or other governmental investigation or proceeding under any such law, statute or regulation, or to require notification or prior approval by Employer of any such a complaint, charge or report. I understand and agree, however, that I waive My right to recover any whistleblower award under the Securities Exchange Act of 1934, the Sarbanes–Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act, or other individual relief in any administrative or legal action whether brought by the SEC or other governmental or law enforcement agency, Me, or any other party, unless and to the extent that such waiver is contrary to law. I agree that the Released Parties reserve any and all defenses which they might have against any such allegations or claims brought by Me or on My behalf. I understand that Employer is relying on My representations in this Release and related Separation Agreement.

V. **Exclusions from Release**.

A. The term "Claims" does not include My rights, if any, to claim the following: unemployment insurance benefits; workers compensation benefits; claims for My vested post-termination benefits under any 401(k) or similar retirement benefit plan; My rights to group medical or group dental insurance coverage pursuant to section 4980B of the Internal Revenue Code of 1986, as amended ("COBRA"); My right to enforce Paragraph 12A of the Employment Agreement; My rights to enforce the terms of the Separation Agreement; My rights to enforce the terms of this Release; or My rights to assert claims that are based on events occurring after this Release becomes effective.

B. Nothing in this Release interferes with My right to file or maintain a charge with the Equal Employment Opportunity Commission or other local civil rights enforcement agency, or participate in any manner in an EEOC or other such agency investigation or proceeding. I, however, understand that I am waiving My right to recover individual relief including, but not limited to, back pay, front pay, reinstatement, attorneys' fees, and/or punitive damages, in any administrative or legal action whether brought by the EEOC or other civil rights enforcement agency, Me, or any other party.

C. Nothing in this Release interferes with My right to challenge the knowing and voluntary nature of this Release under the ADEA and/or OWBPA.

D. I agree that Employer reserves any and all defenses, which it has or might have against any claims brought by Me. This includes, but is not limited to, Employer's right to seek available costs and attorneys' fees as allowed by law, and to have any monetary award granted to Me, if any, reduced by the amount of money that I received in consideration for this Release.

VI. **Older Workers Benefit Protection Act.** The Older Workers Benefit Protection Act applies to individuals age 40 and older and sets forth certain criteria for such individuals to waive their rights under the Age Discrimination in Employment Act in connection with an exit incentive program or other employment termination program. I understand and have been advised that, if applicable, the above release of My Claims is subject to the terms of the OWBPA. The OWBPA provides that a covered individual cannot waive a right or claim under the ADEA unless the waiver is knowing and voluntary. If I am a covered individual, I acknowledge that I have been advised of this law, and I agree that I am signing this Release voluntarily, and with full knowledge of its consequences. I understand that Employer is giving Me twenty-one (21) days from the date I received a copy of this Release to decide whether I want to sign it. I acknowledge that I have been advised to use this time to consult with an attorney about the effect of this Release. If I sign this Release before the end of the twenty-one (21) day period it will be My personal, voluntary decision to do so, and will be done with full knowledge of My legal rights. I agree that material and/or immaterial changes to the Separation Agreement or this Release will not restart the running of this consideration period. I also acknowledge that the Separation Agreement, this Release and any other attachments or exhibits have each been written in a way that I understand.

VII. **Right to Rescind and/or Revoke.** I understand that insofar as this Release relates to My rights under the Minnesota Human Rights Act, it shall not become effective or enforceable until fifteen (15) days after I sign it. Any revocation must be in writing and hand-delivered to Employer or, if sent by mail, postmarked within the applicable time period, sent by certified mail, return receipt requested, and addressed as follows:

A. post-marked within the fifteen (15) day revocation period;

B. properly addressed to:

Jeremy Carpenter
Human Resources Director
Xtant Medical Holdings, Inc.
664 Cruiser Lane
Belgrade, MT 59714

C. sent by certified mail, return receipt requested.

I understand that the Consideration I am receiving for settling and releasing My Claims is contingent upon My agreement to be bound by the terms of this Release. Accordingly, if I decide to rescind or revoke this Release, I understand that I am not entitled to the Consideration described in the Separation Agreement. I further understand that if I attempt to rescind or revoke My release of any claim, I must immediately return to Employer all Consideration I have received under My Agreement.

VIII. **I Understand the Terms of this Release.** I have had the opportunity to read this Release carefully and understand all its terms. I have had the opportunity to review this Release with My own attorney. In agreeing to sign this Release, I have not relied on any oral statements or explanations made by Employer, including its employees or attorneys. I understand and agree that this Release and the attached Agreement contain all the agreements between Employer and Me. We have no other written or oral agreements.

/s/ Carl D. O'Connell
Carl D. O'Connell
Dated: November 29, 2018

EMPLOYMENT AGREEMENT

This Employment Agreement ("Agreement") is effective as of July 9, 2018 ("Effective Date"), by and between Xtant Medical Holdings, Inc., a Delaware corporation (the "Company"), and Kevin D. Brandt, an individual ("Employee"). The Company and Employee are sometimes referred to as the "Parties" or "Party" in this Agreement, and the Company may designate a subsidiary to be the employer of the Employee.

In consideration of the mutual promises, covenants and agreements contained in this Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. EMPLOYMENT AND DUTIES.

A. Job Title and Responsibilities. The Company hereby employs Employee, and Employee hereby agrees to be employed, as Vice President and Chief Commercial Officer (together with such other position or positions consistent with Employee's title as the Company's Chief Executive Officer may specify from time to time), reporting to the Chief Executive Officer and will have such duties and responsibilities commensurate with such title.

B. Full-Time Best Efforts. Employee agrees to devote Employee's full professional time and attention to the business of the Company (and its subsidiaries, affiliates, or related entities) and the performance of Employee's obligations under this Agreement, and will at all times faithfully, industriously and to the best of Employee's ability, experience and talent, perform all of Employee's obligations hereunder. Employee shall not, at any time during Employee's employment by the Company, directly or indirectly, act as a partner, officer, director, consultant or employee, or provide services in any other capacity to any other business enterprise that conflicts with the Company's business or Employee's duty of loyalty to the Company. Employee shall seek the written consent of the Company prior to accepting any outside board positions.

C. Duty of Loyalty. Employee acknowledges that during Employee's employment with the Company, Employee has participated in and will participate in relationships with existing and prospective clients, customers, partners, suppliers, service providers and vendors of the Company that are essential elements of the Company's goodwill. The parties acknowledge that Employee owes the Company a fiduciary duty to conduct all affairs of the Company in accordance with all applicable laws and the highest standards of good faith, trust, confidence and candor, and to endeavor, to the best of Employee's ability, to promote the best interests of the Company.

D. Conflict of Interest. Employee agrees that while employed by the Company, and except with the advance written consent of the Company's Board of Directors (the "Board"), Employee will not enter into, on behalf of the Company, or cause the Company or any of its affiliates to enter into, directly or indirectly, any transactions with any business organization in which Employee or any member of Employee's immediate family may be interested as a shareholder, partner, member, trustee, director, officer, employee, consultant, lender or guarantor or otherwise; provided, however, that nothing in this Agreement shall restrict transactions between the Company and any company whose stock is listed on a national securities exchange or actively traded in the over-the-counter market and over which Employee does not have the ability to control or significantly influence policy decisions.

2. COMPENSATION.

A. Base Pay. The Company agrees to pay Employee gross annual compensation of $400,000 ("Base Salary"), less usual and customary withholdings, which shall be payable in arrears in accordance with the Company's customary payroll practices. The Base Salary will be subject to normal periodic review, and such review will consider Employee's contributions to the Company and the Company's overall performance.

B. Bonus and Incentive Compensation. Employee shall be eligible for bonus and incentive based compensation approved by the Board (or a committee thereof) from time to time. The target annual bonus compensation will be 50% of Employee's Base Salary, except that for the 2018 calendar year, Employee shall only be eligible to receive a pro-rated bonus, with such proration based on Employee's start date, which bonus shall be contingent upon the achievement of performance objectives as established by the Board (or a committee thereof) and communicated to Employee. Such bonus and incentive compensation shall be less all tax withholdings and other applicable deductions the Company reasonably determines are required to be made. Except as otherwise provided in this Agreement, with respect to the annual bonus compensation, Employee must remain continuously employed by the Company through the date such bonus compensation is paid to be eligible to receive it and shall be paid no later than March 15 of the calendar year immediately following the calendar year in which the bonus is being measured.

C. Annual Equity Award. Subject to approval by the Board (or a committee thereof), Employee shall be granted annual equity-based compensation awards pursuant to the Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan or a successor plan thereto (such plan, the "Plan"); provided that the target grant date value of such awards granted each year while Employee is employed by the Company shall be not less than 50% of Employee's Base Salary. Notwithstanding the foregoing, for the 2018 calendar year, Employee shall only be eligible to receive a pro-rated equity-based compensation award, with such proration based on Employee's start date. The type of equity award(s) and vesting terms will be in the sole discretion of the Board (or a committee thereof).

D. Signing Benefits. The Company shall provide Employee the following one-time benefits: (1) a signing bonus of $90,000 (the "Signing Bonus") to be paid no later than February 28, 2019, and (2) forty thousand (40,000) restricted stock units in accordance with the Plan (collectively, the "RSUs"), which RSUs shall be subject to approval by the Board and shall vest in their entirety on the third year anniversary of the Effective Date, assuming Employee is still an employee of the Company as of such date. In the event Employee terminates his employment with the Company on or prior to the one (1) year anniversary of the Effective Date, Employee shall repay to the Company the Signing Bonus.

E. Benefits. During Employee's employment, Employee will be eligible to participate in the Company's benefit programs, as summarized and as governed by any plan documents concerning such benefits. Employee acknowledges that the Company may amend, modify or terminate any of its benefit plans or programs at any time and for any reason. Employee will be eligible for 20 days of paid vacation per year, subject to the Company's carryover policy for unused vacation in effect from time to time. The Company will also provide Employee with a $250,000 life insurance policy.

G. Clawback. Employee agrees that any compensation or benefits provided by the Company under this Agreement or otherwise will be subject to recoupment or clawback by the Company under any applicable clawback or recoupment policy of the Company as may be in effect from time-to-time or as required by applicable law, regulation or stock exchange listing requirement.

3. CONFIDENTIAL INFORMATION.

A. Employee understands that during Employee's employment relationship with the Company, the Company intends to provide Employee with information, including Confidential Information (as defined herein), without which Employee would not be able to perform Employee's duties to the Company. Employee agrees, at all times during the term of Employee's employment relationship and thereafter, to hold in strictest confidence, and not to use or disclose, except for the benefit of the Company to the extent necessary to perform Employee's obligations to the Company, any Confidential Information that Employee obtains, accesses or creates during the term of the relationship, whether or not during working hours, until such Confidential Information becomes publicly and widely known and made generally available through no wrongful act of Employee or of others under confidentiality obligations as to the information involved. Employee understands that "Confidential Information" means information and physical material not generally known or available outside the Company and information and physical material entrusted to the Company by third parties under an obligation of non-disclosure or non-use or both. "Confidential Information" includes, without limitation, inventions, technical data, trade secrets, clinical data, regulatory information and strategies, marketing ideas or plans, research, product or service ideas or plans, business strategies, investments, investment opportunities, potential investments, market studies, industry studies, historical financial data, financial information and results, budgets, identity of customers, forecasts (financial or otherwise), possible or pending transactions, customer lists and domain names, price lists, and pricing methodologies.

B. At all times, both during Employee's employment and after its termination, Employee will keep and hold all such Confidential Information in strict confidence and trust. Employee will not use or disclose any Confidential Information without the prior written consent of the Company, except as may be necessary to perform Employee's duties as an employee of the Company for the benefit of the Company. Employee may disclose information that Employee is required to disclose by valid order of a government agency or court of competent jurisdiction, provided that Employee will:

1. Notify the Company in writing immediately upon learning that such an order may be sought or issued,

2. Cooperate with the Company as reasonably requested if the Company seeks to contest such order or to place protective restrictions on the disclosure pursuant to such order, and

3. Comply with any protective restrictions in such order, and disclose only the information specified in the order.

C. Upon termination of employment with the Company, Employee will promptly deliver to the Company all documents and materials of any nature pertaining to Employee's work with the Company.

D. Employee agrees not to infringe the copyrights of the Company, its customers or third parties (including, without limitation, Employee's previous employer, customers, etc.) by unauthorized or unlawful copying, modifying or distributing of copyrighted material, including plans, drawings, reports, financial analyses, market studies, computer software and the like.

4. COVENANT NOT TO COMPETE.

A. Non-competition Covenant. Employee agrees that during the Restricted Period (as defined below), without the prior written consent of the Company, Employee shall not, directly or indirectly within the Territory (as defined below): (i) personally, by agency, as an employee, independent contractor, consultant, officer, director, manager, agent, associate, investor (other than as a passive investor holding less than five percent of the outstanding equity of an entity), or by any other artifice or device, engage in any Competitive Business (as defined below), (ii) assist others, including but not limited to employees of the Company, to engage in any Competitive Business, or (iii) own, purchase, finance, purchase, finance, or organize a Competitive Business.

B. Definitions.

1. "Competitive Business" means (i) any person, entity or organization which is engaged in, consulting regarding, or development, production, marketing or selling of any product, process, technology, device, invention or service which resembles, competes with or is intended to resemble or compete with a product, process, technology, device, invention or service under research or development or being promoted, marketed, sold or serviced by the Company or any subsidiary; or (ii) any other line of business that the Company or any subsidiary, is actively preparing to pursue at any time during the term of Employee's employment with the Company and in which Employee is involved.

2. "Territory" means the United States of America.

3. "Restricted Period" means the period of Employee's employment with the Company and for a period of twelve (12) months following the termination of Employee's employment.

5. NON-SOLICITATION AND NON-INTERFERENCE COVENANTS.

A. Non-solicitation of Employees and Others. During the Restricted Period, (i) Employee shall not, directly or indirectly, solicit, recruit, or induce, or attempt to solicit, recruit or induce any employee, consultant, independent contractor, vendor, supplier, or agent to terminate or otherwise adversely affect his or her employment or other business relationship (or prospective employment or business relationship) with the Company, and (ii) Employee shall not, directly or indirectly, solicit, recruit, or induce, or attempt to solicit, recruit or induce any employee to work for Employee or any other person or entity, other than the Company or its affiliates or related entities.

B. Non-solicitation of Customers. During the Restricted Period, Employee shall not, directly or indirectly, solicit, recruit, or induce any Customer (as defined below) for the purpose of (i) providing any goods or services related to a Competitive Business, or (ii) interfering with or otherwise adversely affecting the contracts or relationships, or prospective contracts or relationships, between the Company (including any related or affiliated entities) and such Customers. "Customer" means a person or entity with which Employee had contact or about whom Employee gained information while an Employee of the Company, and to which the Company was selling or providing products or services, was in active negotiations for the sale of its products or services, or was otherwise doing business as of the date of the cessation of Employee's employment with the Company or for whom the Company had otherwise done business within the twelve (12) month period immediately preceding the cessation of Employee's employment with the Company.

6. ACKNOWLEDGEMENTS. Employee acknowledges and agrees that:

A. The geographic and duration restrictions contained in Paragraphs 4 and 5 of this Agreement are fair, reasonable, and necessary to protect the Company's legitimate business interests and trade secrets, given the geographic scope of the Company's business operations, the competitive nature of the Company's business, and the nature of Employee's position with the Company;

B. Employee's employment creates a relationship of confidence and trust between Employee and the Company with respect to the Confidential Information, and Employee will have access to Confidential Information (including but not limited to trade secrets) that would be valuable or useful to the Company's competitors;

C. The Company's Confidential Information is a valuable asset of the Company, and any violation of the restrictions set forth in this Agreement would cause substantial injury to the Company;

D. The restrictions contained in this Agreement will not unreasonably impair or infringe upon Employee's right to work or earn a living after Employee's employment with the Company ends; and

E. This Agreement is a contract for the protection of trade secrets under applicable law and is intended to protect the Confidential Information (including trade secrets) identified above.

7. "BLUE PENCIL" AND SEVERABILITY PROVISION. If a court of competent jurisdiction declares any provision of this Agreement invalid, void, voidable, or unenforceable, the court shall reform such provision(s) to render the provision(s) enforceable, but only to the extent absolutely necessary to render the provision(s) enforceable and only in view of the parties' express desire that the Company be protected to the greatest possible extent under applicable law from improper competition and the misuse or disclosure of trade secrets and Confidential Information. To the extent such a provision (or portion thereof) may not be reformed so as to make it enforceable, it may be severed and the remaining provisions shall remain fully enforceable.

8. INVENTIONS.

A. Inventions Retained and Licensed. Attached as Exhibit A is a list describing all inventions and information created, discovered or developed by Employee, whether or not patentable or registrable under patent, copyright or similar statutes, made or conceived or reduced to practice or learned by Employee, either alone or with others before Employee's employment with the Company ("Prior Inventions"), which belong in whole or in part to Employee, and which are not being assigned by Employee to the Company. Employee represents that Exhibit A is complete and contains no confidential or Confidential information belonging to a person or entity other than Employee. Employee acknowledges and agrees that Employee has no rights in any Inventions (as that term is defined below) other than the Prior Inventions listed on Exhibit A. If there is nothing identified on Exhibit A, Employee represents that there are no Prior Inventions as of the time of signing this Agreement. Employee shall not incorporate, or permit to be incorporated, any Prior Invention owned by Employee or in which he has an interest in a Company product, process or machine without the Company's prior written consent. Notwithstanding the foregoing, if, in the course of Employee's employment with the Company, Employee directly or indirectly incorporates into a Company product, process or machine a Prior Invention owned by Employee or in which Employee has an interest, the Company is hereby granted and shall have a non-exclusive, royalty-free, irrevocable, perpetual, world-wide license to make, have made, modify, use, create derivative works from and sell such Prior Invention as part of or in connection with such product, process or machine.

B. Assignment of Inventions. Employee shall promptly make full, written disclosure to the Company, will hold in trust for the sole right and benefit of the Company, and hereby irrevocably transfers and assigns, and agrees to transfer and assign, to the Company, or its designee, all his right, title and interest in and to any and all inventions, original works of authorship, developments, concepts, improvements, designs, discoveries, ideas, trademarks (and all associated goodwill), mask works, or trade secrets, whether or not they may be patented or registered under copyright or similar laws, which Employee may solely or jointly conceive or develop or reduce to practice, or cause to be conceived or developed or reduced to practice, during Employee's employment by the Company (the "Inventions"). Employee further acknowledges that all original works of authorship which are made by Employee (solely or jointly with others) within the scope of and during the period of his employment with the Company and which may be protected by copyright are "Works Made For Hire" as that term is defined by the United States Copyright Act. Employee understands and agrees that the decision whether to commercialize or market any Invention developed by Employee solely or jointly with others is within the Company's sole discretion and the Company's sole benefit and that no royalty will be due to Employee as a result of the Company's efforts to commercialize or market any such invention.

Employee recognizes that Inventions relating to his activities while working for the Company and conceived or made by Employee, whether alone or with others, within one (1) year after cessation of Employee's employment, may have been conceived in significant part while employed by the Company. Accordingly, Employee acknowledges and agrees that such Inventions shall be presumed to have been conceived during Employee's employment with the Company and are to be, and hereby are, assigned to the Company unless and until Employee has established the contrary.

The requirements of this Paragraph 8B do not apply to any intellectual property for which no equipment, supplies, facility or trade secret information of the Company was used, and which was developed entirely on the Employee's own time, and (i) which does not relate (x) directly to the Company's business or (y) to the Company's actual or demonstrably anticipated research and development or (ii) which does not result from any work the Employee performed for the Company.

C. Maintenance of Records. Employee agrees to keep and maintain adequate and current written records of all Inventions made by Employee (solely or jointly with others) during his employment with the Company. The records will be in the form of notes, sketches, drawings and any other format that may be specified by the Company. The records will be available to and remain the sole property of the Company at all times.

D. Patent, Trademark and Copyright Registrations. Employee agrees to assist the Company, or its designee, at the Company's expense, in every proper way to secure the Company's rights in the Inventions and any copyrights, patents, trademarks, service marks, mask works, or any other intellectual property rights in any and all countries relating thereto, including, but not limited to, the disclosure to the Company of all pertinent information and data with respect thereto, the execution of all applications, specifications, oaths, assignments and all other instruments the Company reasonably deems necessary in order to apply for and obtain such rights and in order to assign and convey to the Company, its successors, assigns, and nominees the sole and exclusive rights, title, and interest in and to such inventions, and any copyrights, patents, trademarks, service marks, mask works, or any other intellectual property rights relating thereto. Employee further agrees that his obligation to execute or cause to be executed, when it is in his power to do so, any such instrument or paper shall continue after termination or expiration of this Agreement or the cessation of his employment with the Company. If the Company is unable because of Employee's mental or physical incapacity or for any other reason, after reasonably diligent efforts, to secure Employee's signature to apply for or to pursue any application for any United States or foreign patents, trademarks or copyright registrations covering inventions or original works of authorship assigned to the Company as above, then Employee hereby irrevocably designates and appoints the Company and its duly authorized officers and agents as Employee's agent and attorney-in-fact to act for and in his behalf and stead to execute and file any such applications and to do all other lawfully permitted acts to further the prosecution and issuance of letters patent, trademarks or copyright registrations thereon with the same legal force and effect as if executed by Employee; this power of attorney shall be a durable power of attorney which shall come into existence upon Employee's mental or physical incapacity.

9. SURVIVAL AND REMEDIES. Employee's obligations of nondisclosure, non-solicitation, non-interference, and non-competition under this Agreement shall survive the cessation of Employee's employment with the Company and shall remain enforceable. In addition, Employee acknowledges that upon a breach or threatened breach of any obligation of nondisclosure, non-solicitation, non-interference, or noncompetition of this Agreement, the Company may suffer irreparable harm and damage for which money alone cannot fully compensate the Company. Employee therefore agrees that upon such breach or threat of imminent breach of any such obligation, the Company shall be entitled to seek a temporary restraining order, preliminary injunction, permanent injunction or other injunctive relief, without posting any bond or other security, barring Employee from violating any such provision. This Paragraph shall not be construed as an election of any remedy, or as a waiver of any right available to the Company under this Agreement or the law, including the right to seek damages from Employee for a breach of any provision of this Agreement and the right to require Employee to account for and pay over to the Company all profits or other benefits derived or received by Employee as the result of such a breach, nor shall this Paragraph be construed to limit the rights or remedies available under state law for any violation of any provision of this Agreement.

10. RETURN OF COMPANY PROPERTY. All devices, records, reports, data, notes, compilations, lists, proposals, correspondence, specifications, equipment, drawings, blueprints, manuals, DayTimers, planners, calendars, schedules, discs, data tapes, financial plans and information, or other recorded matter, whether in hard copy, magnetic media or otherwise (including all copies or reproductions made or maintained, whether on the Company's premises or otherwise), pertaining to Employee's work for the Company, or relating to the Company or the Company's Confidential Information, whether created or developed by Employee alone or jointly during his employment with the Company, are the exclusive property of the Company. Employee shall surrender the same (as well as any other property of the Company) to the Company upon its request or promptly upon the cessation of employment. Upon cessation of Employee's employment, Employee agrees to sign and deliver the "Termination Certificate" attached as Exhibit B, which shall detail all Company property that is surrendered upon cessation of employment.

11. NO CONFLICTING AGREEMENTS OR IMPROPER USE OF THIRD-PARTY INFORMATION. During his employment with the Company, Employee shall not improperly use or disclose any Confidential information or trade secrets of any former employer or other person or entity, and Employee shall not bring on to the premises of the Company any unpublished document or Confidential information belonging to any such former employer, person or entity, unless consented to in writing by the former employer, person or entity. Employee represents that he has not improperly used or disclosed any Confidential information or trade secrets of any other person or entity during the application process or while employed or affiliated with the Company. Employee also acknowledges and agrees that he is not subject to any contract, agreement, or understanding that would prevent Employee from performing his duties for the Company or otherwise complying with this Agreement. To the extent Employee violates this provision, or his employment with the Company constitutes a breach or threatened breach of any contract, agreement, or obligation to any third party, Employee shall indemnify and hold the Company harmless from all damages, expenses, costs (including reasonable attorneys' fees) and liabilities incurred in connection with, or resulting from, any such violation or threatened violation.

12. TERMINATION.

A. By Either Party. Either Party may terminate the Employee's at-will employment at any time with or without notice, and with or without cause. Except as provided in this Paragraph 12, upon termination of employment, Employee shall only be entitled to Employee's accrued but unpaid Base Salary and other benefits earned under any Company-provided plans, policies and arrangements for the period preceding the effective date of the termination of employment.

B. Termination Without Cause. If the Company terminates Employee's employment without Cause (defined below), Employee shall be entitled to receive continuing severance pay at a rate equal to Employee's Base Salary, as then in effect, for twelve (12) months from the date of termination of employment, less all required tax withholdings and other applicable deductions, payable in accordance with the Company's standard payroll procedures, commencing on the effective date of a Separation Agreement and Release of claims against the Company that has not been revoked, in substantially the form of Exhibit C attached hereto, the timely execution and performance by Employee of which is specifically a condition to his receipt of any of the payments and benefits provided under this Paragraph 12B; provided that (1) such Separation Agreement and Release shall be executed and be fully effective within seventy (70) days of the Employee's termination of employment; (2) the first payment shall include any amounts that would have been paid to Employee if payment had commenced on the date of termination of employment; and (3) Employee shall not be required to execute a release of any claims arising from the Company's failure to comply with its obligations under Paragraph 12A. If Employee timely and effectively elects continuation coverage under the Company's group health plan pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985 ("COBRA") or similar state law, the Company will pay or reimburse the premiums for such coverage of Employee (and his dependents, as applicable) at the same rate it pays for active employees for a period for twelve (12) months from the date of termination of employment; provided that the Company's obligation to make such payments shall immediately expire if Employee ceases to be eligible for continuation coverage under COBRA or similar state law or otherwise terminates such coverage. Notwithstanding the foregoing, any of the foregoing payments due under this Paragraph 12B shall commence within seventy (60) days of Employee's termination of employment, provided that if such seventy (70)-day period spans two (2) calendar years, payments shall commence in the latter calendar year. In addition to the foregoing and subject to Employee's execution of a Separation Agreement and Release of claims against the Company that has been executed and not revoked within any applicable rescission period that has expired within seventy (70) days of the Employee's termination of employment, Employee shall be entitled to the pro-rated amount of any unpaid bonus for the calendar year in which his termination of employment occurs, if earned pursuant to the terms thereof and at such time and in such manner as determined by the Board (or a committee thereof) in its sole discretion pursuant to the terms thereof, less any payments thereof already made during such year.

C. Termination Upon a Change in Control. If the Company or any successor in interest to the Company terminates Employee's employment without Cause in connection with or within twelve (12) months after a Change in Control (defined below) or if Employee terminates his employment for Good Reason (defined below) within twelve (12) months after a Change in Control, Employee shall be entitled to receive (i) his accrued but unpaid Base Salary and other benefits earned under any Company-provided plans, policies and arrangements for the period preceding the effective date of the termination of employment, and (ii) a lump-sum payment equal to two times Employee's Base Salary, as then in effect, less all tax withholdings and other applicable deductions the Company reasonably determines are required to be made, payable on the first regular payroll date after the effective date of a Separation Agreement and Release that has been executed and not revoked within any applicable rescission period that has expired within seventy (70) days of the Employee's termination of employment, in substantially the form of Exhibit C attached hereto, the execution and performance by Employee of which is specifically a condition to his receipt of any of the payments and benefits provided under this Paragraph 12C; provided that Employee shall not be required to execute a release of any claims arising from the Company's failure to comply with its obligations under Paragraph 12A. If Employee timely and effectively elects continuation coverage under the Company's group health plan pursuant to COBRA or similar state law, the Company will pay or reimburse the premiums for such coverage of Employee (and his dependents, as applicable) at the same rate it pays for active employees for a period for twelve (12) months from the date of termination of employment; provided that the Company's obligation to make such payments shall immediately expire if Employee ceases to be eligible for continuation coverage under COBRA or similar state law or otherwise terminates such coverage. Notwithstanding the previous provisions of this Paragraph 12C, any payments due under this Paragraph 12C shall commence within seventy (70) days of Employee's termination of employment, provided that if such seventy (70)-day period spans two calendar years, payments shall commence in the latter calendar year. In addition to the foregoing and subject to Employee's timely execution of a Separation Agreement and Release that has been executed and not revoked within any applicable rescission period that has expired within seventy (70) days of the Employee's termination of employment, Employee shall be entitled to the immediate vesting of the RSUs and the pro-rated amount of any unpaid bonus for the calendar year in which his termination of employment occurs, if earned pursuant to the terms thereof and at such time and in such manner as determined by the Board (or a committee thereof) in its sole discretion (but consistent with other bonuses determined by the Board) pursuant to the terms thereof, less any payments thereof already made during such year. The payments and benefits described in this Paragraph 12C are in lieu of, and not in addition to, the payments and benefits described in Paragraph 12B, it being understood by Employee that he shall be paid and receive only one set of severance payments and benefits.

D. Termination for Cause, Death or Disability, or Resignation . If Employee's employment with the Company terminates voluntarily by Employee other than for Good Reason pursuant to Paragraph 12C above, for Cause by the Company or due to Employee's death or disability, then payments of compensation by the Company to Employee hereunder will terminate immediately (except as to amounts already earned). The award agreement evidencing the RSUs shall provide that if Employee dies after one-year but prior to the vesting date, the RSUs shall vest immediately in a pro rata number of underlying shares based on Employee's date of death.

E. Definitions.

1. "Cause." For all purposes under this Agreement, "Cause" is defined as (i) gross negligence or willful failure to perform Employee's duties and responsibilities to the Company; (ii) commission of any act of fraud, theft, embezzlement, financial dishonesty or any other willful misconduct that has caused or is reasonably expected to result in injury to the Company; (iii) conviction of, or pleading guilty or *nolo contendere* to, any felony or a lesser crime involving dishonesty or moral turpitude; or (iv) material breach by Employee of any of his obligations under this Agreement or any written agreement or covenant with the Company, including the policies adopted from time to time by the Company applicable to all employees, that has not been cured within thirty (30) days of notice of such breach.

2. "Good Reason." For all purposes under this Agreement, "Good Reason" is defined as Employee's resignation within thirty (30) days following the expiration of any Company cure period (discussed below) following the occurrence of one or more of the following, without Employee's express written consent: (i) a material reduction of Employee's duties, authority, reporting level, or responsibilities, relative to Employee's duties, authority, reporting level, or responsibilities in effect immediately prior to such Change in Control; (ii) a material reduction in Employee's base compensation; or (iii) the Company's requiring of Employee to change the principal location at which Employee is to perform his services by more than fifty (50) miles. Employee will not resign for Good Reason without first providing the Company with written notice within thirty (30) days of the initial occurrence of the event that Employee believes constitutes "Good Reason" specifically identifying the acts or omissions constituting the grounds for Good Reason and a reasonable cure period of not less than thirty (30) days following the date of such notice during which such condition shall not have been cured.

3. "Change in Control." For all purposes under this Agreement, a "Change in Control" of the Company is as defined in the Plan; provided, that a liquidation, dissolution or winding up of the Company or change in the state of the Company's incorporation shall not constitute a Change in Control event for purposes of this Agreement.

F. No Other Benefits. In the event of a termination of Employee's employment with the Company, the provisions of this Paragraph 12 are Employee's exclusive right to severance benefits and are in lieu of participation in any other severance policy or plan to which Employee might otherwise be entitled.

G. Termination from any Offices Held. Upon his termination of employment with the Company, Employee agrees that and any and all offices held, if applicable, shall be automatically terminated. Employee agrees to cooperate with the Company and execute any documents reasonably required by the Company or competent authorities to effect this provision.

13. GENERAL PROVISIONS.

A. Governing Law; Consent To Personal Jurisdiction. The laws of the State of Minnesota shall govern the Employee's employment and this Agreement without regard to conflict of laws principles. Employee and the Company each hereby consents to the personal jurisdiction of the state courts located in Hennepin County, State of Minnesota, and the federal district court sitting in Hennepin County, State of Minnesota, if that court otherwise possesses jurisdiction over the matter, for any legal proceeding concerning Employee's employment or termination of employment, or arising from or related to this Agreement or any other agreement executed between Employee and the Company.

B. Entire Agreement. This Agreement, together with the Exhibits hereto, sets forth this entire Agreement between the Company (and any of its related or affiliated entities, officers, agents, owners or representatives) and Employee relating to the subject matter herein, and supersedes any and all prior discussions and agreements, whether written or oral, on the subject matter hereof, including without limitation that certain Employment Offer Term Sheet provided to Employee by the Company prior to the commencement of his employment with the Company. To the extent that this Agreement may conflict with the terms of another written agreement between Employee and the Company, the terms of this Agreement will control.

C. Modification. No modification of or amendment to this Agreement will be effective unless in writing and signed by Employee and an authorized representative of the Company.

D. Waiver. The Company's failure to enforce any provision of this Agreement shall not act as a waiver of its ability to enforce that provision or any other provision. The Company's failure to enforce any breach of this Agreement shall not act as a waiver of that breach or any future breach. No waiver of any of the Company's rights under this Agreement will be effective unless in writing. Any such written waiver shall not be deemed a continuing waiver unless specifically stated, and shall operate only as to the specific term or condition waived and shall not constitute a waiver of such term or condition for the future or as to any act other than that specifically waived.

E. Successors and Assigns. This Agreement shall be assignable to, and shall inure to the benefit of and bind, the Company's, affiliates, subsidiaries, successors and assigns. Employee shall not have the right to assign his rights or obligations under this Agreement.

F. Construction. The language used in this Agreement will be deemed to be language chosen by Employee and the Company to express their mutual intent, and no rules of strict construction will be applied against either Party.

G. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be enforceable, and all of which together shall constitute one agreement. Signatures of the parties that are transmitted in person or by facsimile or e-mail shall be accepted as originals.

H. Further Assurances. Employee agrees to execute any proper oath or verify any document required to carry out the terms of this Agreement.

I. Title and Headings. The titles, captions and headings of this Agreement are included for ease of reference only and will be disregarded in interpreting or construing this Agreement.

J. Notices. All notices and communications that are required or permitted to be given under this Agreement shall be in writing and shall be sufficient in all respects if given and delivered in person, by electronic mail, by facsimile, by overnight courier, or by certified mail, postage prepaid, return receipt requested, to the receiving Party at such Party's address shown in the signature blocks below or to such other address as such Party may have given to the other by notice pursuant to this Paragraph. Notice shall be deemed given (i) on the date of delivery in the case of personal delivery, electronic mail or facsimile, or (ii) on the delivery or refusal date as specified on the return receipt in the case of certified mail or on the tracking report in the case of overnight courier.

K. Section 409A. The amounts payable under this Agreement are intended to be exempt from the requirements of Section 409A of the Internal Revenue Code of 1986, as amended ("Section 409A"). Any payments due under this Agreement on account of a termination of employment shall only be payable if the termination constitutes a "separation from service" within the meaning of Section 409A. To the extent that any such payments are determined to be subject to Section 409A, (i) the terms of this Agreement shall be interpreted to avoid incurring any penalties under Section 409A, (ii) any right to a series of installment payments is to be treated as a right to a series of separate payments, and (iii) any payments due to a "specified employee" of a publicly-traded company upon a separation from service shall be delayed until the first day of the seventh month following such separation from service. Notwithstanding the foregoing, in no event shall the Company be responsible for any taxes or penalties due under Section 409A.

14. EMPLOYEE'S ACKNOWLEDGMENTS. Employee acknowledges that he is executing this Agreement voluntarily and without duress or undue influence by the Company or anyone else and that Employee has carefully read this Agreement and fully understands the terms, consequences, and binding effect of this Agreement.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK.]

IN WITNESS WHEREOF, and intending to be legally bound, the Parties have executed this Employment Agreement as of the date first written above.

EMPLOYEE		**XTANT MEDICAL HOLDINGS, INC.**	
Print Name:	Kevin Brandt	Print Name:	Carl O'Connell
Signature:	*/s/ Kevin Brandt*	Signature:	*/s/ Carl O'Connell*
Date:	7/7/18	Title:	CEO
		Date:	7/7/18

SECOND AMENDED AND RESTATED CREDIT AGREEMENT

dated as of March 29, 2019

by and among

BACTERIN INTERNATIONAL, INC.

and X-SPINE SYSTEMS, INC.

as the Borrower,

The Guarantors Party Hereto,

The Lenders Party Hereto,

and

ROS ACQUISITION OFFSHORE LP

as the Administrative Agent

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SECOND AMENDED AND RESTATED CREDIT AGREEMENT

THIS SECOND AMENDED AND RESTATED CREDIT AGREEMENT, dated as of March 29, 2019 (as amended, restated, amended and restated, supplemented or otherwise modified from time to time, this "Agreement"), is by and among BACTERIN INTERNATIONAL, INC., a Nevada corporation ("Bacterin"), X-SPINE SYSTEMS, INC., an Ohio corporation (the "Additional Delayed Draw Borrower" and, together with Bacterin, the "Borrower"), ROS ACQUISITION OFFSHORE LP, a Cayman Islands Exempted Limited Partnership (together with its Affiliates, successors, transferees and assignees, "ROS"), as lender and as "Administrative Agent" for the lenders pursuant to Section 10.1.1 hereof, and ORBIMED ROYALTY OPPORTUNITIES II, LP, a Delaware limited partnership (together with its Affiliates, successors, transferees and assignees, "Royalty Opportunities" and together with ROS, each individually a "Lender" and collectively, the "Lenders") and, in their capacity as Guarantors, XTANT MEDICAL HOLDINGS, INC., a Delaware corporation ("Holdings") and XTANT MEDICAL, INC., a Delaware corporation.

W I T N E S S E T H:

WHEREAS, the Borrower has requested that the Lenders agree to amend and restate the Existing Credit Agreement in order to continue the existing Loans thereunder and provide up to $10,000,000 of Additional Second Delayed Draw Loans hereunder; and

WHEREAS, the Lenders are willing, on the terms and subject to the conditions hereinafter set forth, to continue Loans under the Existing Credit Agreement, extend the Existing Commitment, make Additional Second Delayed Draw Loans to the Borrower and amend and restate the Existing Credit Agreement in the form hereof;

NOW, THEREFORE, the parties hereto agree as follows.

ARTICLE I
DEFINITIONS AND ACCOUNTING TERMS

SECTION 1.1 Defined Terms. The following terms (whether or not underscored) when used in this Agreement, including its preamble and recitals, shall, except where the context otherwise requires, have the following meanings (such meanings to be equally applicable to the singular and plural forms thereof):

"2015 Loans" means Loans made by Lenders on the Existing Credit Agreement Restatement Date pursuant to Section 2.1 of the Existing Credit Agreement.

"361 Product" means a human cellular or tissue-based product that meets the criteria under 21 C.F.R. § 1271.10 and is subject to regulation under Section 361 of the Public Health Services Act and 21 C.F.R. Part 1271, but is not regulated under Section 351 of the Public Health Services Act or regulated as drug, biologic, or medical device.

"Additional Delayed Draw Borrower" is defined in the preamble.

"Additional Delayed Draw Closing Date" means the date of the making of each Additional Delayed Draw Loan hereunder.

"Additional Delayed Draw Commitment Amount" means $15,000,000, in the aggregate for all Lenders, allocated $9,574,950 to ROS and $5,425,050 to Royalty Opportunities.

"Additional Delayed Draw Loan" is defined in Section 2.6.

"Additional Second Delayed Draw Closing Date" means the date of the making of each Additional Second Delayed Draw Loan hereunder.

"Additional Second Delayed Draw Commitment Amount" means $10,000,000, in the aggregate for all Lenders, allocated $6,383,300 to ROS and $3,616,700 to Royalty Opportunities.

"Additional Second Delayed Draw Loan" is defined in Section 2.7.

"Administrative Agent" is defined in the Section 10.1.1(a).

"Affiliate" of any Person means any other Person which, directly or indirectly, Controls, is Controlled by or is under common Control with such Person. "Control" (and its correlatives) by any Person means the power of such Person, directly or indirectly, (i) to vote 10% or more of the Voting Securities (determined on a fully diluted basis) of another Person or (ii) to direct or cause the direction of the management and policies of such other Person (whether by contract or otherwise).

"Agreement" is defined in the preamble.

"Applicable Margin" means 14.00%.

"Authorized Officer" means, relative to Holdings, the Borrower or any of the Subsidiaries, those of its officers, general partners or managing members (as applicable) whose signatures and incumbency shall have been certified to the Lenders pursuant to Section 5.1.1.

"Bacterin" is defined in the preamble.

"Benefit Plan" means any employee benefit plan, as defined in section 3(3) of ERISA, that either: (i) is a "multiemployer plan," as defined in section 3(37) of ERISA, (ii) is subject to section 412 of the Code, section 302 of ERISA or Title IV of ERISA or (iii) provides welfare benefits to terminated employees, other than to the extent required by section 4980B(f) of the Code and the corresponding provisions of ERISA.

"BLA" means (a) (i) a biologics license application (as defined in the Public Health Services Act, 42 U.S.C. § 262) for authorization to introduce, or deliver for introduction, a biologic product into commerce in the U.S., or any successor application or procedure; and (ii) any similar application or functional equivalent relating to market authorization for biologics applicable to or required by any country, jurisdiction or Governmental Authority other than the U.S.; and (b) all supplements and amendments that may be filed with respect to the foregoing.

"Borrower" is defined in the preamble.

"Business Day" means any day which is neither a Saturday or Sunday nor a legal holiday on which banks are authorized or required to be closed in New York, New York, or the Cayman Islands.

"Capital Securities" means, with respect to any Person, all shares of, interests or participations in, or other equivalents in respect of (in each case however designated, whether voting or non-voting), of such Person's capital stock, whether now outstanding or issued after the Restatement Date.

"Capitalized Lease Liabilities" means, with respect to any Person, all monetary obligations of such Person and its Subsidiaries under any leasing or similar arrangement which have been (or, in accordance with GAAP, should be) classified as capitalized leases, and for purposes of each Loan Document the amount of such obligations shall be the capitalized amount thereof, determined in accordance with GAAP, and the stated maturity thereof shall be the date of the last payment of rent or any other amount due under such lease prior to the first date upon which such lease may be terminated by the lessee without payment of a premium or a penalty.

"Cash Equivalent Investment" means, at any time:

(a) any direct obligation of (or unconditionally guaranteed by) the United States (or any agency or political subdivision thereof, to the extent such obligations are supported by the full faith and credit of the United States) maturing not more than one year after such time;

(b) commercial paper maturing not more than 270 days from the date of issue, which is issued by a corporation (other than an Affiliate of the Borrower or any of its Subsidiaries) organized under the laws of any state of the United States or of the District of Columbia and rated A-1 or higher by S&P or P-1 or higher by Moody's; or

(c) any certificate of deposit, time deposit or bankers acceptance, maturing not more than 180 days after its date of issuance, which is issued by any bank organized under the laws of the United States (or any state thereof) and which has (x) a credit rating of A2 or higher from Moody's or A or higher from S&P and (y) a combined capital and surplus greater than $500,000,000.

"Casualty Event" means the damage, destruction or condemnation, as the case may be, of property of any Person or any of its Subsidiaries.

"cGTP" means Current Good Tissue Practices, including the requirements for registration, donor eligibility screening, and the processing and distribution of tissue-based products, as set forth in 21 C.F.R. § 1271 and guidance documents.

"Change in Control" means and shall be deemed to have occurred if (i) any "person" or "group" (within the meaning of Rule 13d-5 of the Securities Exchange Act of 1934 as in effect on the date hereof) (other than OrbiMed Advisors LLC and any of its Affiliates) shall own, directly or indirectly, beneficially or of record, determined on a fully diluted basis, more than 35% of the Voting Securities of Holdings; (ii) a majority of the seats (other than vacant seats) on the board of directors (or equivalent) of Holdings shall at any time be occupied by persons who were neither (x) nominated by the board of directors of Holdings nor (y) appointed by directors so nominated; or (iii) Holdings shall cease to own, directly or indirectly, beneficially and of record, 100% of the issued and outstanding Capital Securities of the Borrower or the Subsidiaries.

"Change in Law" means the occurrence, after the date of this Agreement, of any of the following: (i) the adoption or taking effect of any law, rule, regulation or treaty, (ii) any change in any law, rule, regulation or treaty or in the administration, interpretation, implementation or application thereof by any Governmental Authority or (iii) the making or issuance of any request, rule, guideline or directive (whether or not having the force of law) by any Governmental Authority; provided that, notwithstanding anything herein to the contrary, (x) the Dodd-Frank Wall Street Reform and Consumer Protection Act and all requests, rules, guidelines or directives thereunder or issued in connection therewith and (y) all requests, rules, guidelines or directives promulgated by the Bank for International Settlements, the Basel Committee on Banking Supervision (or any successor or similar authority) or the United States or foreign regulatory authorities, in each case pursuant to Basel III, shall in each case be deemed to be a "Change in Law", regardless of the date enacted, adopted or issued.

"Code" means the Internal Revenue Code of 1986, and the regulations thereunder, in each case as amended, reformed or otherwise modified from time to time.

"Commitment" means the Existing Commitment and the Additional Second Delayed Draw Commitment Amount.

"Compliance Certificate" means a certificate duly completed and executed by an Authorized Officer of the Borrower, substantially in the form of Exhibit C to the Existing Credit Agreement, together with such changes thereto as the Administrative Agent may from time to time request for the purpose of monitoring the Borrower's compliance with the financial covenants contained herein.

"Confidential Information" means any and all information or material (whether written or oral, or in electronic or other form) that, at any time before, on or after the Existing Credit Agreement Restatement Date, has been or is provided or communicated to the Receiving Party by or on behalf of the Disclosing Party pursuant to this Agreement or in connection with the transactions contemplated hereby or any discussions or negotiations with respect thereto.

"Consolidated EBITDA" shall mean, for Holdings and its Subsidiaries, for any period, an amount equal to the sum of (i) Consolidated Net Income for such period plus (ii) solely to the extent deducted in determining Consolidated Net Income for such period, and without duplication, (A) Consolidated Interest Expense, (B) income tax expense determined on a consolidated basis in accordance with GAAP, (C) depreciation and amortization determined on a consolidated basis in accordance with GAAP, (D) compensation paid solely in Capital Securities of Holdings that are not Disqualified Capital Securities, (E) non-cash impairment charges, (F) out-of-pocket fees, costs and expenses actually paid in connection with the closing of the transactions contemplated by that certain Restructurings and Exchange Agreement, dated as of January 11, 2018, by and among Holdings, the Lenders and the Consenting Noteholders parties thereto, (G) severance costs or other one-time reduction-in-force compensation expenses paid to employees, (H) expenses associated with the Dayton repurposing and restructuring of the sales organization approved by the Administrative Agent in its sole discretion and (I) all other non-cash charges approved by the Administrative Agent in its sole discretion, determined on a consolidated basis in accordance with GAAP, in each case for such period.

"Consolidated Interest Expense" shall mean, for Holdings and its Subsidiaries, for any period, the consolidated total interest expense (including that portion attributable to Capital Leases in accordance with GAAP and capitalized interest), in each case whether or not paid in cash during such period.

"Consolidated Net Income" shall mean, for Holdings and its Subsidiaries for any period, the net income (or loss) of Holdings and its Subsidiaries for such period determined on a consolidated basis in accordance with GAAP, but excluding therefrom (to the extent otherwise included therein) (i) extraordinary or non-recurring gains, losses or charges (such losses or charges to be approved by the Administrative Agent in its sole discretion), (ii) any non-cash gains or losses attributable to write-ups or write-downs of assets, (iii) any Capital Securities of Holdings or any of its Subsidiaries in the unremitted earnings of any Person that is not a Subsidiary, to the extent received by Holdings or any Subsidiary in cash, (iv) any income (or loss) of any Person accrued prior to the date it becomes a Subsidiary or is merged into or consolidated with Holdings or any Subsidiary on the date that such Person's assets are acquired by Holdings or any Subsidiary, (v) the income (but not loss) of any Subsidiary to the extent there is a legal or contractual restriction which limits distributions from such Subsidiary to Holdings and (vi) any non-cash gains or losses attributable to any increase or decrease of the warrant derivative liability of Holdings relating to changes in the fair value of warrants to purchase common stock of Holdings.

"Contingent Liability" means any agreement, undertaking or arrangement by which any Person guarantees, endorses or otherwise becomes or is contingently liable upon (by direct or indirect agreement, contingent or otherwise, to provide funds for payment, to supply funds to, or otherwise to invest in, a debtor, or otherwise to assure a creditor against loss) the Indebtedness of any other Person (other than by endorsements of instruments in the course of collection), or guarantees the payment of dividends or other distributions upon the Capital Securities of any other Person. The amount of any Person's obligation under any Contingent Liability shall (subject to any limitation set forth therein) be deemed to be the outstanding principal amount of the debt, obligation or other liability guaranteed thereby.

"Continuing Loans" means (i) the Continuing Loans (as such term is defined in the Existing Credit Agreement), (ii) the 2015 Loans, (iii) the Tranche A Loan and (iv) the Additional Delayed Draw Loans, in each case, made to the Borrower pursuant to the Existing Credit Agreement and continued under this Agreement pursuant to Section 2.1.

"Control" is defined within the definition of "Affiliate".

"Controlled Account" is defined in Section 7.13(a).

"Copyrights" means all copyrights, whether statutory or common law, and all exclusive and nonexclusive licenses from third parties or rights to use copyrights owned by such third parties, along with any and all (i) renewals, revisions, extensions, derivative works, enhancements, modifications, updates and new releases thereof, (ii) income, royalties, damages, claims and payments now and hereafter due and/or payable with respect thereto, including, without limitation, damages and payments for past, present or future infringements thereof, (iii) rights to sue for past, present and future infringements thereof and (iv) foreign copyrights and any other rights corresponding thereto throughout the world.

"Copyright Security Agreement" means any Copyright Security Agreement executed and delivered by Holdings, the Borrower or any of the Subsidiaries in substantially the form of Exhibit C to the Security Agreement, as amended, supplemented, amended and restated or otherwise modified from time to time.

"CTA" means a clinical trial application filed with any regulatory authority in the European Union.

"Default" means any Event of Default or any condition, occurrence or event which, after notice or lapse of time or both, would constitute an Event of Default.

"Designated Jurisdiction" means any country or territory to the extent that such country or territory is the subject of any Sanction.

"Device" means any instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent, or other similar or related article, including any component, part, or accessory, which is (a) recognized in the official National Formulary, or the United States Pharmacopeia, or any supplement to them, (b) intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, in man or other animals or (c) intended to affect the structure or any function of the body of man or other animals; and which does not achieve its primary intended purposes through chemical action within or on the body of man or other animals and which is not dependent upon being metabolized for the achievement of its primary intended purposes.

"Device Approval Application" means a premarket approval application (PMA) submitted under Section 515 of the FD&C Act (21 U.S.C. § 360e), a de novo request submitted under Section 513(f) of the FD&C Act (21 U.S.C. § 360c(f)), or premarket notification submitted under Section 510(k) of the FD&C Act (21 U.S.C. § 360(k)) seeking clearance from FDA for a device that is substantially equivalent to a legally marketed predicate device ("510(k)"), as defined in the FD&C Act, or any corresponding foreign application in the Territory, including, with respect to the European Union, a submission to a Notified Body for a Certificate of Conformity under EU Directive 93/42/EEC concerning medical devices.

"Disclosing Party" means the party disclosing Confidential Information.

"Disposition" (or similar words such as "Dispose") means any sale, transfer, lease, license, contribution or other conveyance (including by way of merger) of, or the granting of options, warrants or other rights to, any of Holdings, the Borrower's or the Subsidiaries' assets (including accounts receivable and Capital Securities of Subsidiaries) to any other Person (other than to the Borrower or any of its Subsidiaries) in a single transaction or series of transactions.

"Disqualified Capital Securities" shall mean any Capital Securities that, by their terms (or by the terms of any security or other Capital Securities into which they are convertible or for which they are exchangeable) or upon the happening of any event or condition, (a) mature or are mandatorily redeemable (other than solely for Qualified Capital Securities), pursuant to a sinking fund obligation or otherwise (except as a result of a Change in Control or asset sale so long as any rights of the holders thereof upon the occurrence of a Change in Control or asset sale event shall be subject to the prior repayment in full of the Loans and all other Obligations that are accrued and payable and the termination of the Commitment), (b) are redeemable at the option of the holder thereof (other than solely for Qualified Capital Securities) (except as a result of a Change in Control or asset sale so long as any rights of the holders thereof upon the occurrence of a Change in Control or asset sale event shall be subject to the prior repayment in full of the Loans and all other Obligations that are accrued and payable and the termination of the Commitment), in whole or in part, (c) provide for the scheduled payment of dividends in cash or (d) are or become convertible into or exchangeable for Indebtedness or any other Capital Securities that would constitute Disqualified Capital Securities, in each case, prior to the date that is one hundred and eighty-one (181) days after the Maturity Date; provided that if such Capital Securities are issued pursuant to a plan for the benefit of employees of Holdings or any of its Subsidiaries, or by any such plan to such employees, such Capital Securities shall not constitute Disqualified Capital Securities solely because they may be required to be repurchased by Holdings or its Subsidiaries in order to satisfy applicable statutory or regulatory obligations.

"EMA" means the European Medicines Agency or any successor entity.

"Environmental Laws" means all federal, state, local or international laws, statutes, rules, regulations, codes, directives, treaties, requirements, ordinances, orders, decrees, judgments, injunctions, notices or binding agreements issued, promulgated or entered into by any Governmental Authority, relating in any way to the environment, natural resources, Hazardous Material or health and safety matters.

"Environmental Liability" means any liability, loss, claim, suit, action, investigation, proceeding, damage, commitment or obligation, contingent or otherwise (including any liability for damages, costs of environmental remediation, fines, penalties or indemnities), of or affecting the Borrower or any Subsidiary directly or indirectly arising from, in connection with or based upon (i) any Environmental Law or Environmental Permit, (ii) the generation, use, handling, transportation, storage, treatment, recycling, presence, disposal, Release or threatened Release of, or exposure to, any Hazardous Materials or (iii) any contract, agreement, penalty, order, decree, settlement, injunction or other arrangement (including operation of law) pursuant to which liability is assumed, entered into, inherited or imposed with respect to any of the foregoing.

"Environmental Permit" is defined in Section 6.7(c).

"ERISA" means the Employee Retirement Income Security Act of 1974, as amended from time to time.

"ERISA Affiliate" means, as applied to any Person, (i) any corporation that is a member of a controlled group of corporations within the meaning of section 414(b) of the Code of which that Person is a member, (ii) any trade or business (whether or not incorporated) that is a member of a group of trades or businesses under common control within the meaning of section 414(c) of the Code of which that Person is a member and (iii) any member of an affiliated service group within the meaning of section 414(m) or 414(o) of the Code of which that Person, any corporation described in clause (i) above or any trade or business described in clause (ii) above is a member.

"Event of Default" is defined in Section 9.1.

"Exchange Act" means the Securities Exchange Act of 1934, as amended.

"Existing Commitment" means the Additional Delayed Draw Commitment Amount.

"Existing Credit Agreement" means that certain Amended and Restated Credit Agreement, dated as of July 27, 2015, as amended by that certain First Amendment to Amended and Restated Credit Agreement, dated as of March 31, 2016, that certain Second Amendment to Amended and Restated Credit Agreement, dated as of May 25, 2016, that certain Third Amendment to Amended and Restated Credit Agreement, dated as of June 30, 2016, that certain Fourth Amendment to Amended and Restated Credit Agreement, dated as of July 29, 2016, that certain Fifth Amendment to the Amended and Restated Credit Agreement, dated as of August 12, 2016, that certain Sixth Amendment to the Amended and Restated Credit Agreement, dated as of September 27, 2016, that certain Seventh Amendment to the Amended and Restated Credit Agreement, dated as of December 31, 2016, that certain Eighth Amendment to Amended and Restated Credit Agreement, dated as of January 13, 2017, that certain Ninth Amendment to Amended and Restated Credit Agreement, dated as of January 31, 2017, that certain Tenth Amendment to Amended and Restated Credit Agreement, dated as of February 14, 2017, that certain Eleventh Amendment to Amended and Restated Credit Agreement, dated as of February 28, 2017, that certain Twelfth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of March 31, 2017, that certain Thirteenth Amendment to Amended and Restated Credit Agreement, dated as of April 30, 2017, that certain Fourteenth Amendment to Amended and Restated Credit Agreement, dated as of May 11, 2017, that certain Fifteenth Amendment to Amended and Restated Credit Agreement, dated as of June 30, 2017, that certain Sixteenth Amendment to Amended and Restated Credit Agreement, dated as of July 15, 2017, that certain Seventeenth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of August 11, 2017, that certain Eighteenth Amendment to Amended and Restated Credit Agreement, dated as of September 29, 2017, that certain Nineteenth Amendment to Amended and Restated Credit Agreement, dated as of October 31, 2017, that certain Waiver, dated as of November 14, 2017, that certain Twentieth Amendment and Waiver to Amended and Restated Credit Agreement, dated as of November 30, 2017, that certain Twenty-First Amendment to Amended and Restated Credit Agreement, dated as of December 28, 2017, that certain Twenty-Second Amendment to Amended and Restated Credit Agreement, dated as of January 30, 2018, that certain Twenty-Third Amendment to Amended and Restated Credit Agreement, dated as of February 14, 2018, that certain Twenty-Fourth Amendment to Amended and Restated Credit Agreement, dated as of April 1, 2018 and that certain Twenty-Fifth Amendment to Amended and Restated Credit Agreement, dated as of August 1, 2018.

"Existing Credit Agreement Restatement Date" has the meaning of "Restatement Date" as set forth in the Existing Credit Agreement.

"FATCA" means Sections 1471 through 1474 of the Code, as of the date of this Agreement (or any amended or successor version that is substantively comparable and not more onerous to comply with), any regulations or official interpretations thereof, any agreement entered into pursuant to Section 1471(b)(1) of the Code, and any applicable intergovernmental agreement and local implementing law, regulation or official guidance with respect to the foregoing.

"FDA" means the U.S. Food and Drug Administration and any successor entity.

"FD&C Act" means the U.S. Food, Drug and Cosmetic Act (or any successor thereto), as amended from time to time, and the rules, regulations, guidelines, guidance documents and compliance policy guides issued or promulgated thereunder. For purposes of this Agreement, "FD&C Act" includes provisions of the Public Health Services Act that apply to biological products and products derived from human tissue.

"Fiscal Quarter" means a quarter ending on the last day of March, June, September or December.

"Fiscal Year" means any period of 12 consecutive calendar months ending on December 31; references to a Fiscal Year with a number corresponding to any calendar year (e.g., the "2011 Fiscal Year") refer to the Fiscal Year ending on December 31 of such calendar year.

"F.R.S. Board" means the Board of Governors of the Federal Reserve System or any successor thereto.

"GAAP" means generally accepted accounting principles in the United States.

"Governmental Authority" means any national, supranational, federal, state, county, provincial, local, municipal or other government or political subdivision thereof (including any Regulatory Agency), whether domestic or foreign, and any agency, authority, commission, ministry, instrumentality, regulatory body, court, tribunal, arbitrator, central bank or other Person exercising executive, legislative, judicial, taxing, regulatory or administrative powers or functions of or pertaining to any such government.

"Guarantee" means the guarantee executed and delivered by an Authorized Officer of Holdings and each Subsidiary, substantially in the form of Exhibit D to the Existing Credit Agreement, as amended, supplemented, amended and restated or otherwise modified from time to time.

"Guarantors" means, collectively, Holdings and each Subsidiary.

"Hazardous Material" means any material, substance, chemical, mixture or waste which is capable of damaging or causing harm to any living organism, the environment or natural resources, including all explosive, special, hazardous, polluting, toxic, industrial, dangerous, biohazardous, medical, infectious or radioactive substances, materials or wastes, noise, odor, electricity or heat, and including petroleum or petroleum products, byproducts or distillates, asbestos or asbestos-containing materials, urea formaldehyde, polychlorinated biphenyls, radon gas, ozone-depleting substances, greenhouse gases and all other substances or wastes of any nature regulated pursuant to any Environmental Law or as to which any Governmental Authority requires investigation, reporting or remedial action.

"Hedging Obligations" means, with respect to any Person, all liabilities of such Person under currency exchange agreements, interest rate swap agreements, interest rate cap agreements and interest rate collar agreements, and all other agreements or arrangements designed to protect such Person against fluctuations in interest rates or currency exchange rates.

"herein", "hereof", "hereto", "hereunder" and similar terms contained in any Loan Document refer to such Loan Document as a whole and not to any particular Section, paragraph or provision of such Loan Document.

"Holdings" is defined in the preamble.

"IDE" means an application, including an application filed with a Regulatory Authority, for authorization to commence human clinical studies, including (a) an Investigational Device Exemption as defined in the FD&C Act or any successor application or procedure filed with the FDA, (b) an abbreviated IDE as specified in FDA regulations in 21 C.F.R. § 812.2(b), (c) any equivalent of a United States IDE in other countries or regulatory jurisdictions, (d) all amendments, variations, extensions and renewals thereof that may be filed with respect to the foregoing and (e) all related documents and correspondence thereto, including documents and correspondence with Institutional Review Boards (IRBs).

"Impermissible Qualification" means any qualification or exception to the opinion or certification of any independent public accountant as to any financial statement of the Borrower (i) which is of a "going concern" or similar nature, (ii) which relates to the limited scope of examination of matters relevant to such financial statement or (iii) which relates to the treatment or classification of any item in such financial statement and which, as a condition to removal of such qualification or exception, would require an adjustment to such item the effect of which would be to cause the Borrower to be in Default.

"including" and "include" means including without limiting the generality of any description preceding such term, and, for purposes of each Loan Document, the parties hereto agree that the rule of *ejusdem generis* shall not be applicable to limit a general statement, which is followed by or referable to an enumeration of specific matters, to matters similar to the matters specifically mentioned.

"IND" means (a) (i) an investigational new drug application (as defined in the FD&C Act) that is required to be filed with the FDA before beginning clinical testing in human subjects, or any successor application or procedure; and (ii) any similar application or functional equivalent relating to any investigational new drug application applicable to or required by any country, jurisdiction or Governmental Authority other than the U.S. (including any CTA); and (b) all supplements and amendments that may be filed with respect to the foregoing.

"Indebtedness" of any Person means:

(a) all obligations of such Person for borrowed money or advances and all obligations of such Person evidenced by bonds, debentures, notes or similar instruments;

(b) all obligations, contingent or otherwise, relative to the face amount of all letters of credit, whether or not drawn, and banker's acceptances issued for the account of such Person;

(c) all Capitalized Lease Liabilities of such Person and all obligations of such Person arising under Synthetic Leases;

(d) net Hedging Obligations of such Person;

(e) all obligations of such Person in respect of Disqualified Capital Securities;

(f) whether or not so included as liabilities in accordance with GAAP, all obligations of such Person to pay the deferred purchase price of property or services (excluding trade accounts payable in the ordinary course of business which are not overdue for a period of more than 90 days or, if overdue for more than 90 days, as to which a dispute exists and adequate reserves in conformity with GAAP have been established on the books of such Person), and indebtedness secured by (or for which the holder of such indebtedness has an existing right, contingent or otherwise, to be secured by) a Lien on property owned or being acquired by such Person (including indebtedness arising under conditional sales or other title retention agreements), whether or not such indebtedness shall have been assumed by such Person or is limited in recourse; and

(g) all Contingent Liabilities of such Person in respect of any of the foregoing.

The Indebtedness of any Person shall include the Indebtedness of any other Person (including any partnership in which such Person is a general partner) to the extent such Person is liable therefor as a result of such Person's ownership interest in or other relationship with such Person, except to the extent the terms of such Indebtedness provide that such Person is not liable therefor.

"Indemnified Liabilities" is defined in Section 11.4.

"Indemnified Parties" is defined in Section 11.4.

"Infringement" and "Infringes" mean the misappropriation or other violation of know-how, trade secrets, confidential information, and/or Intellectual Property.

"Intellectual Property" means all (i) Patents; (ii) Trademarks; (iii) Copyrights and other works of authorship (registered or unregistered), and all applications, registrations and renewals therefor; (iv) Product Authorizations; (v) Product Agreements; (vi) computer software, databases, data and documentation; (vii) trade secrets and confidential business information, whether patentable or unpatentable and whether or not reduced to practice, know-how, inventions, manufacturing processes and techniques, research and development information, data and other information included in or supporting Product Authorizations; (vii) financial, marketing and business data, pricing and cost information, business, finance and marketing plans, customer and prospective customer lists and information, and supplier and prospective supplier lists and information; (viii) other intellectual property or similar proprietary rights; (ix) copies and tangible embodiments of any of the foregoing (in whatever form or medium); and (x) any and all improvements to any of the foregoing.

"Interest Period" means, (a) initially, the period beginning on (and including) the date on which the Loans are made hereunder pursuant to Section 2.4 of the Existing Credit Agreement and ending on (and including) the last day of the Fiscal Quarter in which such Loans were made, and (b) thereafter, the period beginning on (and including) the first day of each succeeding Fiscal Quarter and ending on the earlier of (and including) (x) the last day of such Fiscal Quarter and (y) the Maturity Date.

"Investment" means, relative to any Person, (i) any loan, advance or extension of credit made by such Person to any other Person, including the purchase by such Person of any bonds, notes, debentures or other debt securities of any other Person, (ii) Contingent Liabilities in favor of any other Person and (iii) any Capital Securities held by such Person in any other Person. The amount of any Investment shall be the original principal or capital amount thereof less all returns of principal or equity thereon and shall, if made by the transfer or exchange of property other than cash, be deemed to have been made in an original principal or capital amount equal to the fair market value of such property at the time of such Investment.

"Key Permits" means all Permits relating to the Products (including all Product Authorizations).

"knowledge" of the Borrower means the knowledge of any executive officer or the most senior legal officer of Holdings, the Borrower or any Subsidiary.

"Lender" and "Lenders" are each defined in the preamble.

"LIBO Rate" means, as to any Interest Period, the three-month London Interbank Offered Rate for deposits in U.S. Dollars at approximately 11:00 a.m. (London, England time), quoted by the Administrative Agent from the appropriate Bloomberg or Reuters page selected by the Administrative Agent (or any successor thereto or similar source determined by the Administrative Agent from time to time), which shall be that three-month London Interbank Offered Rate for deposits in U.S. Dollars in effect two Business Days prior to the first Business Day of such Interest Period, adjusted for any reserve requirement in effect on such Business Day (including, basic, supplemental, marginal and emergency reserves) under any regulations of the Board or other Governmental Authority having jurisdiction with respect thereto dealing with reserve requirements prescribed for eurocurrency funding (currently referred to as "Eurocurrency Liabilities" in Regulation D of the Board) maintained by a member bank of the Federal Reserve System), such rate to be rounded up to the nearest 1/16 of 1% and such rate to be reset quarterly as of the first Business Day of each Fiscal Quarter. If the Loans are advanced other than on the first Business Day of a Fiscal Quarter, the initial LIBO Rate shall be that three-month London Interbank Offered Rate for deposits in U.S. Dollars in effect two Business Days prior to the date of the Loans, which rate shall be in effect until (and including) the last Business Day of the Fiscal Quarter next ending. The Administrative Agent's internal records of applicable interest rates shall be determinative in the absence of manifest error.

"Lien" means any security interest, mortgage, pledge, hypothecation, assignment, deposit arrangement, encumbrance, lien (statutory or otherwise), charge against or interest in property, or other priority or preferential arrangement of any kind or nature whatsoever, to secure payment of a debt or performance of an obligation.

"Liquidity" means, at any time, an amount determined for Holdings and its Subsidiaries incorporated or organized under the laws of the United States of America, or any state or other political subdivision thereof equal to the sum of unrestricted cash-on-hand and Cash Equivalent Investments of Holdings and such Subsidiaries, to the extent held in a Controlled Account located in the United States.

"Loan Documents" means, collectively, this Agreement, the Notes, the Security Agreement, each other agreement pursuant to which the Lender is granted a Lien to secure the Obligations (including any mortgages entered into pursuant to Section 7.8), the Guarantee, and each other agreement, certificate, document or instrument delivered in connection with any Loan Document, whether or not specifically mentioned herein or therein.

"Loan Request" means a Loan request and certificate duly executed by an Authorized Officer of the Borrower substantially in the form of Exhibit B to the Existing Credit Agreement.

"Loans" means (i) the Continuing Loans and (ii) the Additional Second Delayed Draw Loans.

"MAA" means a marketing authorization application filed with any regulatory authority in the European Union.

"Material Adverse Effect" means a material adverse effect on (i) the business, condition (financial or otherwise), operations, performance, properties or prospects of Holdings and its Subsidiaries taken as a whole, (ii) the rights and remedies of the Administrative Agent or any Lender under any Loan Document or (iii) the ability of Holdings, the Borrower or any Subsidiary to perform its material Obligations under any Loan Document.

"Material Agreements" means (i) each contract or agreement to which Holdings, the Borrower or any Subsidiary is a party involving annual aggregate payments of more than $500,000, whether such payments are being made by Holdings, the Borrower or any Subsidiary to a non-Affiliated Person, or by a non-Affiliated Person to Holdings, the Borrower or any Subsidiary and (ii) all other contracts or agreements which are, individually or in the aggregate, material to the business, condition (financial or otherwise), operations, performance, properties or prospects of Holdings, the Borrower or any Subsidiary.

"Maturity Date" means March 31, 2021.

"Moody's" means Moody's Investors Service, Inc.

"NDA" means (a) (i) a new drug application (as defined in the FD&C Act) and (ii) any similar application or functional equivalent relating to any new drug application applicable to or required by any country, jurisdiction or Governmental Authority other than the U.S. (including any MAA); and (b) all supplements and amendments that may be filed with respect to the foregoing.

"Net Casualty Proceeds" means, with respect to any Casualty Event, the amount of any insurance proceeds or condemnation awards received by Holdings or any of its Subsidiaries in connection with such Casualty Event in excess of $2,000,000 in the aggregate through the Termination Date (net of all reasonable and customary collection expenses thereof, attorney's fees and taxes), but excluding any proceeds or awards required to be paid to a creditor (other than the Administrative Agent or a Lender under the Loan Documents) which holds a first priority Lien permitted by clause (e) of Section 8.3 on the property which is the subject of such Casualty Event.

"Net Equity Proceeds" means with respect to the sale or issuance after the Restatement Date by Holdings to any Person of any Capital Securities, warrants or options or the exercise of any such warrants or options, the excess of:

(a) the gross cash proceeds received by Holdings from such sale, exercise or issuance in excess of $50,000,000, individually or in the aggregate through the Termination Date, over

(b) all reasonable and customary underwriting commissions and legal, investment banking, brokerage and accounting and other professional fees, sales commissions and disbursements actually incurred in connection with such sale or issuance which have not been paid to Affiliates of Holdings in connection therewith.

"Net Sales" means, with respect to each Product, the gross invoiced amount on sales of, and distribution income, stocking orders, transfer payments and other consideration received, directly or indirectly, by Holdings or any of its Subsidiaries in respect of any such Product in any applicable Territory from any Third Party after deduction of: (i) normal and customary trade, quantity or prompt settlement discounts (including chargebacks, shelf stock adjustments and allowances) with respect to customers actually allowed; (ii) amounts repaid or credited by reason of rejection, returns or recalls of goods, rebates or bona fide price reductions; (iii) rebates and similar payments actually made with respect to sales paid for by Federal or state Medicaid, Medicare or similar programs in the Territory; and (iv) excise taxes, customs duties, customs levies and import fees imposed on the sale, importation, use or distribution of such Product (to the extent included in the gross invoiced amount), in each case as calculated (x) in a manner consistent with the Borrower's customary practice for its Products and (y) consistent with GAAP. Net Sales with respect to sales of such Product that are not made on an arm's length basis or that are made for consideration other than cash shall be calculated based on the average per-unit Net Sales of such Product during the applicable period without regard to such non-arm's length or non-cash sales.

"Non-Excluded Taxes" means any Taxes other than (i) net income and franchise Taxes imposed with respect to the Administrative Agent or any Lender by any Governmental Authority under the laws of which the Administrative Agent or such Lender is organized or in which it maintains its applicable lending office, (ii) any branch profits Taxes imposed by the United States or any similar Tax imposed by any other jurisdiction, (iii) any other tax imposed on the Administrative Agent or any Lender and any business activity of the Administrative Agent or such Lender that is not directly related to the Loans or the business of the Borrower, Holdings or any Subsidiary, (iv) in the case of a Lender resident in or organized under the laws of a jurisdiction other than the jurisdiction where the Borrower is resident for tax purposes, any U.S. federal withholding Tax that is imposed on amounts payable to or for the account of such Lender with respect to an applicable interest in a Loan or Commitment pursuant to a law in effect at the time such Lender acquires such interest in the Loan or Commitment (or designates a new lending office), except to the extent that such Lender (or its assignor, if any) was entitled, at the time of designation of a new lending office (or assignment), to receive additional amounts from the Borrower with respect to such withholding Tax pursuant to Section 4.3 (provided that such Lender has complied with Section 4.3(e)), (v) Taxes attributable to a Lender's failure or inability to comply with Section 4.3(e), and (vi) any U.S. federal withholding Taxes imposed under FATCA.

"Note" means a promissory note of the Borrower payable to a Lender, in the form of Exhibit A to the Existing Credit Agreement (as such promissory note may be amended, endorsed or otherwise modified from time to time), evidencing the aggregate Indebtedness of the Borrower to such Lender resulting from the outstanding amount of the Loans, and also means all other promissory notes accepted from time to time in substitution therefor or renewal thereof.

"Notified Body" means an entity licensed, authorized or approved by the applicable government agency, department or other authority to assess and certify the conformity of a medical device with the requirements of EU Directive 93/42/EEC concerning medical devices, and applicable harmonized standards.

"Observer" is defined in Section 7.14(a).

"Obligations" means all obligations (monetary or otherwise, whether absolute or contingent, matured or unmatured) of Holdings, the Borrower and each Subsidiary arising under or in connection with a Loan Document and the principal of and premium, if any, and interest (including interest accruing during the pendency of any proceeding of the type described in Section 9.1.8, whether or not allowed in such proceeding) on the Loans.

"OFAC" means the Office of Foreign Assets Control of the United States Department of the Treasury.

"Optional PIK Interest" is defined in Section 3.4(a)(iii).

"Organic Document" means, relative to Holdings, the Borrower or any Subsidiary, its certificate of incorporation, by-laws, certificate of partnership, partnership agreement, certificate of formation, limited liability agreement, operating agreement and all shareholder agreements, voting trusts and similar arrangements applicable to Holdings', the Borrower's or any Subsidiary's Capital Securities.

"Other Taxes" means any and all stamp, documentary or similar Taxes, or any other excise or property Taxes or similar levies that arise on account of any payment made or required to be made under any Loan Document or from the execution, delivery, registration, recording or enforcement of any Loan Document.

"Other Administrative Proceeding" means any administrative proceeding relating to a dispute involving a patent office or other relevant intellectual property registry which relates to validity, opposition, revocation, ownership or enforceability of the relevant Intellectual Property.

"Patent" means any patent, patent application or invention disclosure, including all divisions, continuations, continuations in-part, provisionals, continued prosecution applications, substitutions, reissues, reexaminations, renewals, extensions, restorations, supplemental protection certificates and other additions in connection therewith, whether in or related to the United States or any foreign country or other jurisdiction.

"Patent Security Agreement" means any Patent Security Agreement executed and delivered by Holdings, the Borrower or any of the Subsidiaries in substantially the form of Exhibit A to the Security Agreement, as amended, supplemented, amended and restated or otherwise modified from time to time.

"Permits" means all permits, licenses, registrations, certificates, orders, approvals, clearances, authorizations, consents, waivers, franchises, variances and similar rights issued by or obtained from any Governmental Authority or any other Person, including, without limitation, those relating to Environmental Laws.

"Permitted Subordinated Indebtedness" means Indebtedness incurred after the Restatement Date by Holdings, the Borrower or the Subsidiaries that is (i) subordinated to the Obligations and all other Indebtedness owing from Holdings, the Borrower or the Subsidiaries to the Administrative Agent or the Lenders pursuant to a written subordination agreement satisfactory to the Administrative Agent in its sole discretion and (ii) in an amount and on terms approved by the Administrative Agent in its sole discretion.

"Person" means any natural person, corporation, limited liability company, partnership, joint venture, association, trust or unincorporated organization, Governmental Authority or any other legal entity, whether acting in an individual, fiduciary or other capacity.

"PIK Interest" is defined in Section 3.4(a)(ii).

"Product" means any current or future product developed, manufactured, licensed, marketed, sold or otherwise commercialized by Holdings or any of its Subsidiaries, including any such product in development or which may be developed.

"Product Agreement" means each agreement, license, document, instrument, interest (equity or otherwise) or the like under which one or more parties grants or receives any right, title or interest with respect to any Product Development and Commercialization Activities in respect of one or more Products specified therein or to exclude third parties from engaging in, or otherwise restricting any right, title or interest as to any Product Development and Commercialization Activities with respect thereto, including each contract or agreement with suppliers (including human tissue supply agreements), manufacturers, distributors, clinical research organizations, hospitals, group purchasing organizations, wholesalers, pharmacies or any other Person related to any such entity.

"Product Authorizations" means any and all approvals (including applicable supplements, amendments, pre and post approvals, clearances, drug master files, governmental price and reimbursement approvals and approvals of applications for regulatory exclusivity), licenses, notifications, registrations, certifications or authorizations of any Governmental Authority, any Standard Body or any Notified Body necessary for the manufacture, development, distribution, use, storage, import, export, transport, promotion, marketing, sale or other commercialization of a Product in any country or jurisdiction, including without limitation registration and listing (including registration and listing of 361 Products), IDEs, INDs, NDAs, Device Approval Applications and BLAs or similar applications.

"Product Development and Commercialization Activities" means, with respect to any Product, any combination of research, development, manufacture, import, use, sale, importation, storage, labeling, marketing, promotion, supply, distribution, testing, packaging, purchasing or other commercialization activities, receipt of payment in respect of any of the foregoing, or like activities the purpose of which is to commercially exploit such Product.

"Product Standards" means all safety, quality and other specifications and standards applicable to any Products, including all medical device and other standards promulgated by Standard Bodies.

"Projections" is defined in Section 6.5.

"Proportionate Share" means with respect to all matters (including, without limitation, the indemnification obligations arising under Section 11.4) arising under or in connection with this Agreement or any other Loan Document, 63.8% for ROS and 36.2% for Royalty Opportunities, such percentages to be adjusted commensurate with any permitted assignment by any Lender of its rights and interests hereunder.

"Qualified Capital Securities" shall mean any Capital Securities that are not Disqualified Capital Securities.

"Receiving Party" means the party receiving Confidential Information.

"Recipients" is defined in Section 11.14.

"Register" is defined in Section 10.3.

"Regulatory Agencies" means any Governmental Authority that is concerned with the use, control, safety, efficacy, reliability, manufacturing, marketing, distribution, sale or other Product Development and Commercialization Activities relating to any Product of Holdings, the Borrower or any of the Subsidiaries, including the FDA and all similar agencies in other jurisdictions, and includes Standard Bodies.

"Regulatory Authorizations" means all approvals, clearances, notifications, authorizations, orders, exemptions, registrations, certifications, licenses and permits granted by, submitted to or filed with any Regulatory Agencies or Notified Bodies, including all Product Authorizations.

"Related Parties" means the partners, directors, officers, employees, agents, trustees, administrators, managers, advisors and representatives of Holdings, the Borrower and the Subsidiaries.

"Release" means any releasing, disposing, discharging, injecting, spilling, leaking, leaching, pumping, pouring, dumping, depositing, emitting, escaping, emptying, seeping, dispersal, migrating or placing, including movement through, into or upon the environment or any natural or man-made structure.

"Released Parties" is defined in Section 11.18.

"Releasing Parties" is defined in Section 11.18.

"Restatement Date" means the date hereof.

"Restatement Date Certificate" means a restatement date certificate executed and delivered by an Authorized Officer of the Borrower in form and substance satisfactory to the Lenders.

"Restricted Payment" means (i) the declaration or payment of any dividend on, or the making of any payment or distribution on account of, or setting apart assets for a sinking or other analogous fund for the purchase, redemption, defeasance, retirement or other acquisition of, any class of Capital Securities of Holdings, the Borrower or any Subsidiary or any warrants, options or other right or obligation to purchase or acquire any such Capital Securities, whether now or hereafter outstanding or (ii) the making of any other distribution in respect of such Capital Securities or any warrants, options or other right or obligation to purchase or acquire any such Capital Securities, in each case either directly or indirectly, whether in cash, property or obligations of Holdings, the Borrower or any Subsidiary or otherwise.

"Revenue Base" means, with respect to any period, the Net Sales of all Products for such period.

"ROS" is defined in the preamble.

"Royalty Opportunities" is defined in the preamble.

"S&P" means Standard & Poor's Rating Services, a division of The McGraw-Hill Companies, Inc.

"Sanctions" means any international economic sanction administered or enforced by the United States Government (including, without limitation, OFAC), the United Nations Security Council, the European Union, Her Majesty's Treasury or other relevant sanctions authority.

"SEC" means the Securities and Exchange Commission.

"Security Agreement" means the Amended and Restated Pledge and Security Agreement executed and delivered by each of the parties thereto, substantially in the form of Exhibit E to the Existing Credit Agreement, as amended, supplemented, amended and restated or otherwise modified from time to time.

"Solvent" means, with respect to any Person on a particular date, that on such date (i) the fair value of the property of such Person is greater than the total amount of liabilities, including Contingent Liabilities, of such Person, (ii) the present fair saleable value of the assets of such Person is not less than the amount that will be required to pay the probable liability of such Person on its debts as they become absolute and matured, (iii) such Person does not intend to, and does not believe that it will, incur debts or liabilities beyond its ability to pay as such debts and liabilities mature, (iv) such Person is not engaged in a business or a transaction, and is not about to engage in a business or a transaction, for which the property of such Person would constitute an unreasonably small capital and (v) such Person has not executed this Agreement or any other Loan Document, or made any transfer or incurred any obligations hereunder or thereunder, with actual intent to hinder, delay or defraud either present or future creditors. The amount of Contingent Liabilities at any time shall be computed as the amount that, in light of all the facts and circumstances existing at such time, can reasonably be expected to become an actual or matured liability.

"Standard Bodies" means any of the organizations that create, sponsor or maintain safety, quality or other standards, including ISO, ANSI, CEN and SCC and the like.

"Subsidiary" means, with respect to any Person, any other Person of which more than 50% of the outstanding Voting Securities of such other Person (irrespective of whether at the time Capital Securities of any other class or classes of such other Person shall or might have voting power upon the occurrence of any contingency) is at the time directly or indirectly owned or controlled by such Person, by such Person and one or more other Subsidiaries of such Person, or by one or more other Subsidiaries of such Person. Unless the context otherwise specifically requires, the term "Subsidiary" shall be a reference to a Subsidiary of Holdings, which shall include the Borrower and its Subsidiaries.

"SVB Loan Agreement" means the Loan and Security Agreement, dated as of May 25, 2016, between Silicon Valley Bank, Xtant Medical Holdings, Inc., Bacterin International Inc., X-Spine Systems, Inc., and Xtant Medical Inc.

"Synthetic Lease" means, as applied to any Person, any lease (including leases that may be terminated by the lessee at any time) of any property (whether real, personal or mixed) (i) that is not a capital lease in accordance with GAAP and (ii) in respect of which the lessee retains or obtains ownership of the property so leased for federal income tax purposes, other than any such lease under which that Person is the lessor.

"Target" is defined in the preamble.

"Taxes" means all income, stamp or other taxes, duties, levies, imposts, charges, assessments, fees, deductions or withholdings, now or hereafter imposed, levied, collected, withheld or assessed by any Governmental Authority, and all interest, penalties or similar liabilities with respect thereto.

"Termination Date" means the date on which all Obligations have been paid in full in cash and the Commitment shall have terminated.

"Territory" means all of the countries and territories of the world.

"Trademark" means any trademark, service mark, trade name, logo, symbol, trade dress, domain name, corporate name or other indicator of source or origin, and all applications and registrations therefor, together with all of the goodwill associated therewith.

"Trademark Security Agreement" means any Trademark Security Agreement executed and delivered by Holdings, the Borrower or any of the Subsidiaries substantially in the form of Exhibit B to the Security Agreement, as amended, supplemented, amended and restated or otherwise modified from time to time.

"Tranche A Closing Date" means July 29, 2016.

"Tranche A Commitment Amount" means $1,000,000 in the aggregate. The Tranche A Commitment Amount of ROS is $638,333 and the Tranche A Commitment Amount of Royalty Opportunities is $361,667

"Tranche A Loan" means the term loan made to the Borrower on the Tranche A Closing Date in an amount equal to (but not less than) the Tranche A Commitment Amount of such Lender.

"UCC" means the Uniform Commercial Code as in effect from time to time in the State of New York; provided that, if, with respect to any financing statement or by reason of any provisions of law, the perfection or the effect of perfection or non-perfection of the security interests granted to the Administrative Agent for the benefit of the Lenders pursuant to the applicable Loan Document is governed by the Uniform Commercial Code as in effect in a jurisdiction of the United States other than New York, then "UCC" means the Uniform Commercial Code as in effect from time to time in such other jurisdiction for purposes of the provisions of each Loan Document and any financing statement relating to such perfection or effect of perfection or non-perfection.

"United States" or "U.S." means the United States of America, its fifty states and the District of Columbia.

"U.S. Tax Compliance Certificate" is defined in Section 4.3(e)(b)(3).

"Voting Securities" means, with respect to any Person, Capital Securities of any class or kind ordinarily having the power to vote for the election of directors, managers or other voting members of the governing body of such Person.

"Weekly Budget" is defined in Section 7.1(n).

SECTION 1.2 Use of Defined Terms. Unless otherwise defined or the context otherwise requires, terms for which meanings are provided in this Agreement shall have such meanings when used in each other Loan Document and the schedules attached hereto.

SECTION 1.3 Cross-References. Unless otherwise specified, references in a Loan Document to any Article or Section are references to such Article or Section of such Loan Document, and references in any Article, Section or definition to any clause are references to such clause of such Article, Section or definition.

SECTION 1.4 Accounting and Financial Determinations. Unless otherwise specified, all accounting terms used in each Loan Document shall be interpreted, and all accounting determinations and computations thereunder (including under Section 8.4 and the definitions used in such calculations) shall be made, in accordance with GAAP, as in effect from time to time; provided that, if either the Borrower or the Administrative Agent requests an amendment to any provision hereof to eliminate the effect of any change occurring after the date hereof in GAAP or the application thereof on the operation of such provision, regardless of whether any such notice is given before or after such change in GAAP or the application thereof, then such provision shall be interpreted on the basis of GAAP in effect and applied immediately before such change shall have become effective until such request shall have been withdrawn or such provision amended in accordance herewith. Unless otherwise expressly provided, all financial covenants and defined financial terms shall be computed on a consolidated basis for Holdings and its Subsidiaries, in each case without duplication.

ARTICLE II
COMMITMENT AND BORROWING PROCEDURES

SECTION 2.1 Restatement Date Transactions. Subject to the terms and conditions set forth herein, the Lenders will continue as Lenders under this Agreement holding on the Restatement Date, after giving effect to the transactions provided for herein, the Loans in the amounts set forth as Continuing Loans of such Lender on Schedule 2.1, which Schedule also sets forth as of the Restatement Date (a) the un-borrowed amount of the Additional Delayed Draw Commitment Amount, (b) the amount of accrued PIK Interest and Optional PIK Interest and (c) the amount of any accrued and unpaid cash interest on the Loans. Amounts paid or prepaid in respect of Loans may not be reborrowed.

SECTION 2.2 Loans and Borrowing. Each Loan outstanding on the Restatement Date, after giving effect to the transactions provided for in Section 2.1, shall be part of a borrowing consisting of Loans held ratably by the Lenders in accordance with the percentages that their respective Loans bear to the aggregate principal amount of the outstanding Loans.

SECTION 2.3 Borrowing Procedure. [Intentionally Omitted.]

SECTION 2.4 Funding. [Intentionally Omitted.]

SECTION 2.5 Reduction of the Commitment Amounts. [Intentionally Omitted.]

SECTION 2.6 Additional Delayed Draw Loans.

(a) On the terms and subject to the conditions of this Agreement, each Lender may, in its sole discretion, make term loans (each, an "Additional Delayed Draw Loan" and collectively the "Additional Delayed Draw Loans") to the Additional Delayed Draw Borrower on each Additional Delayed Draw Closing Date in an amount determined by each Lender (but in no event shall the aggregate amount of all such Additional Delayed Draw Loans exceed the Additional Delayed Draw Commitment Amount).

(b) The Additional Delayed Draw Borrower may irrevocably request that an Additional Delayed Draw Loan be made by delivering to the Administrative Agent a Loan Request on or before 1:00 p.m. Eastern Time on a day that is at least two Business Days prior to each Additional Delayed Draw Closing Date (or such other time as may be agreed by the Administrative Agent), which Loan Request shall specify the amount of Additional Delayed Draw Loans requested by the Additional Delayed Draw Borrower. Unless otherwise agreed by the Administrative Agent, such Loan Request shall be made in accordance with the most recent Weekly Budget.

(c) The Lenders may, in their sole collective discretion, on each Additional Delayed Draw Closing Date and subject to the terms and conditions hereof, make the Additional Delayed Draw Loan in the amount determined by the Lenders (and pro rata in accordance to their share of the Additional Delayed Draw Commitment Amount), but not greater than the amount requested in the applicable Loan Request, available to the Additional Delayed Draw Borrower, as applicable, by wire transfer to the account the Additional Delayed Draw Borrower, as applicable, shall have specified in the applicable Loan Request.

SECTION 2.7 Additional Second Delayed Draw Loans.

(a) On the terms and subject to the conditions of this Agreement, each Lender may, in its sole discretion, make term loans (each, an "Additional Second Delayed Draw Loan" and collectively the "Additional Second Delayed Draw Loans") to the Additional Delayed Draw Borrower on each Additional Second Delayed Draw Closing Date (but in no event shall the aggregate amount of all such Additional Second Delayed Draw Loans exceed the Additional Second Delayed Draw Commitment Amount).

(b) The Additional Delayed Draw Borrower may irrevocably request that an Additional Second Delayed Draw Loan be made by delivering to the Administrative Agent a Loan Request on or before 1:00 p.m. Eastern Time on a day that is at least twelve Business Days prior to each Additional Second Delayed Draw Closing Date (or such other time as may be agreed by the Administrative Agent), which Loan Request shall specify the amount of Additional Second Delayed Draw Loans requested by the Additional Delayed Draw Borrower. Unless otherwise agreed by the Administrative Agent, such Loan Request shall be made in accordance with the most recent Weekly Budget.

(c) The Lenders may, in their sole collective discretion, on each Additional Second Delayed Draw Closing Date and subject to the terms and conditions hereof, make the Additional Second Delayed Draw Loan in the amount determined by the Lenders (and pro rata in accordance to their share of the Additional Second Delayed Draw Commitment Amount), but not greater than the amount specified in the applicable Loan Request, available to the Additional Delayed Draw Borrower, as applicable, by wire transfer to the account the Additional Delayed Draw Borrower, as applicable, shall have specified in the applicable Loan Request.

ARTICLE III
REPAYMENTS, PREPAYMENTS, INTEREST AND FEES

SECTION 3.1 Repayments and Prepayments; Application. The Borrower agrees that the Loans, and any fees or interest accrued or accruing thereon, shall be repaid and prepaid solely in U.S. dollars pursuant to the terms of this Article III.

SECTION 3.2 Repayments and Prepayments. The Borrower shall repay in full the unpaid principal amount of the Loans on the Maturity Date. Prior thereto, payments and prepayments of the Loans shall be made as set forth below.

(a) Within three Business Days of receipt by Holdings of any Net Equity Proceeds, or receipt by Holdings, the Borrower or any Subsidiary of any Net Casualty Proceeds, the Borrower shall notify the Administrative Agent thereof. If requested by the Administrative Agent, the Borrower shall within three Business Days of such request make a mandatory prepayment of the Loans, in an amount equal to 50% of such Net Equity Proceeds or 100% of such Net Casualty Proceeds (or, in each case, such lesser amount as the Administrative Agent may specify on the date of such request), as the case may be, to be applied as set forth in Section 3.3; provided, however, that no such payment shall be required (and the Administrative Agent shall not make a request for any such payment) on account of Net Casualty Proceeds that are intended to be reinvested within 360 days in the repair or replacement of the property subject to the applicable Casualty Event; provided, further, that if such Net Casualty Proceeds are at any time no longer intended to be so reinvested or have not in fact been so re-invested at the expiration of such 360 day period then any such Net Casualty Proceeds shall be paid to Lenders as provided herein at such time.

(b) The Borrower shall repay the Loans in full immediately upon any acceleration of the Maturity Date thereof pursuant to Section 9.2 or Section 9.3, unless, pursuant to Section 9.3, only a portion of the Loans is so accelerated (in which case the portion so accelerated shall be so repaid).

(c) Subject to the terms of this Section 3.2, the Borrower may, in its sole discretion, voluntarily prepay, in whole or in part, any unpaid principal amount of the Loans.

At such time as the Borrower pays, prepays or repays, or is required to pay, prepay or repay, any principal amount of the Loans, whether on the Maturity Date or otherwise, whether voluntarily or involuntarily (if involuntarily, whether required by this Agreement or any other Loan Document) and whether before or after acceleration of the Obligations, including without limitation any payment pursuant to any provision of this Section 3.2, the Borrower shall pay to each Lender, a fee in the amount equal to 2.0% of the aggregate principal amount of such payment, prepayment or repayment to such Lender.

SECTION 3.3 Application. Except as provided in Section 4.4(b), amounts repaid or prepaid in respect of the outstanding principal amount of the Loans pursuant to Section 3.2 shall be applied pro rata to the Loans.

SECTION 3.4 Interest Rate.

(a) From and after the Existing Credit Agreement Restatement Date until June 30, 2016:

(i) interest payable in cash by the Borrower shall accrue on the Loans during such period at a rate per annum equal to 9.00%;

(ii) additional interest ("PIK Interest") shall accrue on the Loans during such period at a rate per annum equal to the difference of (A) the sum of (1) the Applicable Margin plus (2) the higher of (x) the LIBO Rate for such Interest Period and (y) 1.00% minus (B) 9.00%, and such PIK Interest shall be added to the outstanding principal amount of the Loans on the last day of each Fiscal Quarter until July 1, 2016; and]

(iii) notwithstanding anything in this Section 3.4(a) to the contrary, from and after the Existing Credit Agreement Restatement Date until March 31, 2016, the Borrower may elect, in its sole discretion and in lieu of interest payments pursuant to Section 3.4(a)(i) and Section 3.4(a)(ii) during such period, by delivering written notice to the Administrative Agent prior to the date on which the first cash interest payment would be payable pursuant to Section 3.4(a)(i) and Section 3.6(c), to have all or any portion (as the Borrower shall so elect) of interest on the Loans accrue on the Loans during such period at a rate per annum equal to the sum of (1) the Applicable Margin plus (2) the higher of (x) the LIBO Rate for such Interest Period and (y) 1.00% ("Optional PIK Interest"), and such Optional PIK Interest shall be added to the outstanding principal amount of the Loans on the last day of each Fiscal Quarter until March 31, 2016.

(b) From and after July 1, 2016 until February 13, 2018, PIK Interest shall accrue on the Loans during such period at a rate per annum equal to the difference of the sum of (1) the Applicable Margin plus (2) the higher of (x) the LIBO Rate for such Interest Period and (y) 1.00%, and such PIK Interest shall be added to the outstanding principal amount of the Loans on the last day of each Fiscal Quarter until December 31, 2017 and on February 14, 2018;

(c) From and after February 14, 2018 until March 31, 2018:

(i) interest payable in cash by the Borrower shall accrue on the Loans during such period at a rate per annum equal to the sum of (1) 10.00% plus (2) the LIBO Rate for such Interest Period; and

(ii) notwithstanding anything in this Section 3.4(c) to the contrary, from and after February 14, 2018 until March 31, 2018, the Borrower may elect, in its sole discretion and in lieu of interest payments pursuant to Section 3.4(c)(i) during such period, by delivering written notice to the Administrative Agent prior to the date on which the first cash interest payment would be payable pursuant to Section 3.4(c)(i) and Section 3.6(c), to have all or any portion (as the Borrower shall so elect) of interest on the Loans accrue on the Loans during such period as Optional PIK Interest at a rate per annum equal to the sum of (1) 12.00% plus (2) the LIBO Rate for such Interest Period, and such Optional PIK Interest shall be added to the outstanding principal amount of the Loans on the last day of the Fiscal Quarter ended March 31, 2018.

(d) From and after April 1, 2018 until June 30, 2018, no interest shall accrue on the Loans during such period.

(e) From and after June 30, 2018 until December 31, 2018, no interest shall accrue on the Loans during such period.

(f) From and after January 1, 2019 until March 31, 2020, no interest shall accrue on the Loans during such period.

(g) From and after April 1, 2020 until the Maturity Date, interest payable in cash by the Borrower shall accrue on the Loans during such period at a rate per annum equal to the sum of (1) 10.00% plus (2) the higher of (x) the LIBO Rate for such Interest Period and (y) 2.3125%.

(h) The interest rate shall be calculated and, if necessary, adjusted for each Interest Period, in each case pursuant to the terms hereof.

(i) All references hereunder to the principal amount of the Loans shall include any PIK Interest or Optional PIK Interest, if any, so added to the principal.

(j) Notwithstanding anything in this Section 3.4 to the contrary, the Borrower may, in its sole discretion, and in lieu of PIK Interest and/or Optional PIK Interest payments pursuant to Sections 3.4(a), (b) or (c), by delivering written notice to the Administrative Agent prior to the date on which any such payment-in-kind interest payment would have been payable pursuant to Section 3.4(a), (b) or (c) and Section 3.6(c), elect to pay such aggregate principal amount of PIK Interest and/or Optional PIK Interest in cash instead of making payment-in-kind, in which case the Borrower shall be required to make such PIK Interest and/or Optional PIK Interest payment in cash at the time such payment-in-kind interest would have been payable pursuant to Section 3.4(a), (b) or (c) and Section 3.6(c).

SECTION 3.5 Default Rate. At all times commencing upon the date any Event of Default occurs, and continuing until such Event of Default is no longer continuing, the Applicable Margin shall be increased by 3% per annum. Notwithstanding anything in Section 3.4 to the contrary, upon the occurrence and during the continuation of an Event of Default, the increased amount of the Applicable Margin shall be payable only in cash and not as PIK Interest or Optional PIK Interest.

SECTION 3.6 Payment Dates. Interest accrued on the Loans shall be payable in cash, without duplication:

(a) on the Maturity Date therefor;

(b) on the date of any payment or prepayment, in whole or in part, of principal outstanding on such Loan on the principal amount so paid or prepaid;

(c) on the last day of each Fiscal Quarter; provided that if such day is not a Business Day, then such payment shall be made on the next succeeding Business Day; and

(d) on that portion of the Loans that is accelerated pursuant to Section 9.2 or Section 9.3, immediately upon such acceleration.

Interest accrued on the Loans or other monetary Obligations after the date such amount is due and payable (whether on the Maturity Date, upon acceleration or otherwise) shall be payable upon demand.

ARTICLE IV
LIBO RATE AND OTHER PROVISIONS

SECTION 4.1 Increased Costs, Etc. The Borrower agrees to reimburse each Lender for any increase in the cost to such Lender of, or any reduction in the amount of any sum receivable by such Lender in respect of, such Lender's Commitment and the making, continuation or maintaining of the Loans hereunder that may arise in connection with any Change in Law, except for such changes with respect to increased capital costs and Taxes which are governed by Section 4.2 and Section 4.3, respectively and except for any changes with respect to Taxes described in (i) through (vi) of the definition of Non-Excluded Taxes. Each Lender shall notify the Borrower in writing of the occurrence of any such event, stating the reasons therefor and the additional amount required fully to compensate such Lender for such increased cost or reduced amount. Such additional amounts shall be payable by the Borrower directly to such Lender within five days of its receipt of such notice, and such notice shall, in the absence of manifest error, be conclusive and binding on the Borrower. Failure or delay on the part of any Lender to demand compensation pursuant to this Section 4.1 shall not constitute a waiver of such Lender's right to demand such compensation; provided that the Borrower shall not be required to compensate a Lender pursuant to this Section 4.1 for any increased costs incurred or reductions suffered more than nine months prior to the date that such Lender notifies the Borrower of the Change in Law giving rise to such increased costs or reductions, and of such Lender's intention to claim compensation therefor (except that, if the Change in Law giving rise to such increased costs or reductions is retroactive, then the nine-month period referred to above shall be extended to include the period of retroactive effect thereof).

SECTION 4.2 Increased Capital Costs. If any Change in Law affects or would affect the amount of capital required or expected to be maintained by any Lender or any Person controlling any Lender, and such Lender determines (in good faith but in its sole and absolute discretion) that the rate of return on its or such controlling Person's capital as a consequence of the Commitment or the Loans made by it hereunder is reduced to a level below that which such Lender or such controlling Person could have achieved but for the occurrence of any such circumstance, then upon notice from time to time by such Lender to the Borrower, the Borrower shall within five days following receipt of such notice pay directly to such Lender additional amounts sufficient to compensate such Lender or such controlling Person for such reduction in rate of return. A statement of any Lender as to any such additional amount or amounts shall, in the absence of manifest error, be conclusive and binding on the Borrower. In determining such amount, a Lender may use any method of averaging and attribution that it (in its sole and absolute discretion) shall deem applicable. Failure or delay on the part of any Lender to demand compensation pursuant to this Section 4.2 shall not constitute a waiver of such Lender's right to demand such compensation; provided that the Borrower shall not be required to compensate a Lender pursuant to this Section 4.2 for any such compensation suffered more than nine months prior to the date that such Lender notifies the Borrower of the Change in Law giving rise to such increased costs or reductions, and of such Lender's intention to claim compensation therefor (except that, if the Change in Law giving rise to such claim for compensation is retroactive, then the nine-month period referred to above shall be extended to include the period of retroactive effect thereof).

SECTION 4.3 Taxes. The Borrower covenants and agrees as follows with respect to Taxes.

(a) Any and all payments by the Borrower under each Loan Document shall be made without setoff, counterclaim or other defense, and free and clear of, and without deduction or withholding for or on account of, any Non-Excluded Taxes. In the event that any Taxes are imposed and required to be deducted or withheld from any payment required to be made by Holdings, the Borrower or any of the Subsidiaries to or on behalf of the Administrative Agent or any Lender under any Loan Document, then:

(i) the amount of such payment shall be increased as may be necessary so that such payment is made, after withholding or deduction for or on account of such Non-Excluded Taxes, in an amount that is not less than the amount provided for in such Loan Document; and

(ii) the Borrower shall withhold the full amount of such Non-Excluded Taxes from such payment (as increased pursuant to clause (a)(i) and shall pay such amount to the Governmental Authority imposing such Taxes in accordance with applicable law.

(b) In addition, the Borrower shall pay all Other Taxes imposed to the relevant Governmental Authority imposing such Other Taxes in accordance with applicable law.

(c) As promptly as practicable after the payment of any Non-Excluded Taxes or Other Taxes, and in any event within 45 days of any such payment being due, the Borrower shall furnish to the Administrative Agent a copy of an official receipt (or a certified copy thereof) evidencing the payment of such Non-Excluded Taxes or Other Taxes.

(d) The Borrower shall indemnify the Administrative Agent and each Lender for any Non-Excluded Taxes and Other Taxes levied, imposed or assessed on (and whether or not paid directly by) the Administrative Agent and each Lender whether or not such Non-Excluded Taxes or Other Taxes are correctly or legally asserted by the relevant Governmental Authority. Promptly upon having knowledge that any such Non-Excluded Taxes or Other Taxes have been levied, imposed or assessed, and promptly upon notice thereof by the Administrative Agent, the Borrower shall pay such Non-Excluded Taxes or Other Taxes directly to the relevant Governmental Authority (provided that, neither the Administrative Agent nor any Lender shall be under any obligation to provide any such notice to the Borrower). In addition, the Borrower shall indemnify the Administrative Agent and each Lender for any incremental Non-Excluded Taxes that may become payable by the Administrative Agent or any such Lender as a result of any failure of the Borrower to pay any Non-Excluded Taxes when due to the appropriate Governmental Authority or to deliver to the Administrative Agent, pursuant to clause (c), documentation evidencing the payment of Non-Excluded Taxes or Other Taxes. With respect to indemnification for Non-Excluded Taxes and Other Taxes actually paid by the Lender or the indemnification provided in the immediately preceding sentence, such indemnification shall be made within 30 days after the date the Administrative Agent or any Lender makes written demand therefor. The Borrower acknowledges that any payment made to the Administrative Agent, any Lender or any Governmental Authority in respect of the indemnification obligations of the Borrower provided in this clause shall constitute a payment in respect of which the provisions of clause (a) and this clause shall apply.

(e) Any Lender that is entitled to an exemption from or reduction of withholding Tax with respect to payments made under any Loan Document shall deliver to the Borrower and the Administrative Agent, at the time or times reasonably requested by the Borrower or the Administrative Agent, such properly completed and executed documentation reasonably requested by the Borrower or the Administrative Agent as will permit such payments to be made without withholding or at a reduced rate of withholding. In addition, any Lender, if reasonably requested by the Borrower or the Administrative Agent, shall deliver such other documentation prescribed by applicable law or reasonably requested by the Borrower or the Administrative Agent as will enable the Borrower or the Administrative Agent to determine whether or not such Lender is subject to backup withholding or information reporting requirements. Notwithstanding anything to the contrary in the preceding two sentences, the completion, execution and submission of such documentation (other than such documentation set forth in Section (A), (B) and (D) below) shall not be required if in the Lender's reasonable judgment such completion, execution or submission would subject such Lender to any material unreimbursed cost or expense or would materially prejudice the legal or commercial position of such Lender. Without limiting the generality of the foregoing, (i) any Lender that is a U.S. Person (as defined in Section 7701(a)(30) of the Code) shall deliver to the Borrower and the Administrative Agent on or prior to the date on which such Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), executed copies of IRS Form W-9 certifying that such Lender is exempt from U.S. federal backup withholding tax.

Without limiting the generality of the foregoing,

(A) any Lender that is a U.S. Person shall deliver to the Borrower and the Administrative Agent on or prior to the date on which such Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), executed copies of IRS Form W-9 certifying that such Lender is exempt from U.S. federal backup withholding tax;

(B) any Lender this is not a U.S. Person shall, to the extent it is legally entitled to do so, deliver to the Borrower and the Administrative Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), whichever of the following is applicable:

(1) in the case of a Lender claiming the benefits of an income tax treaty to which the United States is a party (x) with respect to payments of interest under any Loan Document, executed copies of IRS Form W-8BEN-E establishing an exemption from, or reduction of, U.S. federal withholding Tax pursuant to the "interest" article of such tax treaty and (y) with respect to any other applicable payments under any Loan Document, IRS Form W-8BEN-E establishing an exemption from, or reduction of, U.S. federal withholding Tax pursuant to the "business profits" or "other income" article of such tax treaty;

(2) executed copies of IRS Form W-8ECI;

(3) in the case of a Lender claiming the benefits of the exemption for portfolio interest under Section 881(c) of the Code, (x) a certificate substantially in the form of Exhibit F to the Existing Credit Agreement to the effect that such Lender is not a "bank" within the meaning of Section 881(c)(3)(A) of the Code, a "10 percent shareholder" of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, or a "controlled foreign corporation" described in Section 881(c)(3)(C) of the Code (a "U.S. Tax Compliance Certificate") and (y) executed copies of IRS Form W-8BEN-E; or

(4) to the extent a Lender is not the beneficial owner, executed copies of IRS Form W-8IMY, accompanied by IRS Form W-8ECI, IRS Form W-8BEN-E, a U.S. Tax Compliance Certificate substantially in the form of Exhibit G to the Existing Credit Agreement or Exhibit H to the Existing Credit Agreement, IRS Form W-9, and/or other certification documents from each beneficial owner, as applicable; provided that if the Lender is a partnership and one or more direct or indirect partners of such Lender are claiming the portfolio interest exemption, such Lender may provide a U.S. Tax Compliance Certificate substantially in the form of Exhibit I to the Existing Credit Agreement on behalf of each such direct and indirect partner;

(C) any Lender this is not a U.S. Person shall, to the extent it is legally entitled to do so, deliver to the Borrower and the Administrative Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), executed copies of any other form prescribed by applicable law as a basis for claiming exemption from or a reduction in U.S. federal withholding Tax, duly completed, together with such supplementary documentation as may be prescribed by applicable law to permit the Borrower or the Administrative Agent to determine the withholding or deduction required to be made; and

(D) if a payment made to a Lender under any Loan Document would be subject to U.S. federal withholding Tax imposed by FATCA if such Lender were to fail to comply with the applicable reporting requirements of FATCA (including those contained in Section 1471(b) or 1472(b) of the Code, as applicable), such Lender shall deliver to the Borrower and the Administrative Agent at the time or times prescribed by law and at such time or times reasonably requested by the Borrower or the Administrative Agent such documentation prescribed by applicable law (including as prescribed by Section 1471(b)(3)(C)(i) of the Code) and such additional documentation reasonably requested by the Borrower or the Administrative Agent as may be necessary for the Borrower and the Administrative Agent to comply with their obligations under FATCA and to determine that such Lender has complied with such Lender's obligations under FATCA or to determine the amount to deduct and withhold from such payment. Solely for purposes of this clause (D), "FATCA" shall include any amendments made to FATCA after the date of this Agreement.

Each Lender agrees that if any form or certification it previously delivered expires or becomes obsolete or inaccurate in any respect, it shall update such form or certification or promptly notify the Borrower and the Administrative Agent in writing of its legal inability to do so.

(f) If any party determines, in its sole discretion exercised in good faith, that it has received a refund of any Taxes as to which it has been indemnified pursuant to this Section 4.3 (including by the payment of additional amounts pursuant to this Section 4.3), it shall pay to the indemnifying party an amount equal to such refund (but only to the extent of indemnity payments made under this Section 4.3 with respect to the Taxes giving rise to such refund), net of all out-of-pocket expenses (including Taxes) of such indemnified party and without interest (other than any interest paid by the relevant Governmental Authority with respect to such refund). Such indemnifying party, upon the request of such indemnified party, shall repay to such indemnified party the amount paid over pursuant to this paragraph (f) (plus any penalties, interest or other charges imposed by the relevant Governmental Authority) in the event that such indemnified party is required to repay such refund to such Governmental Authority. Notwithstanding anything to the contrary in this paragraph (f), in no event will the indemnified party be required to pay any amount to an indemnifying party pursuant to this paragraph (f) the payment of which would place the indemnified party in a less favorable net after-Tax position than the indemnified party would have been in if the Tax subject to indemnification and giving rise to such refund had not been deducted, withheld or otherwise imposed and the indemnification payments or additional amounts with respect to such Tax had never been paid. This paragraph (f) shall not be construed to require any indemnified party to make available its Tax returns (or any other information relating to its Taxes that it deems confidential) to the indemnifying party or any other Person.

SECTION 4.4 Payments, Computations; Proceeds of Collateral, Etc. The parties hereto agree as follows:

(a) Unless otherwise expressly provided in a Loan Document, all payments by the Borrower pursuant to each Loan Document shall be made without setoff, deduction or counterclaim not later than 1:00 p.m. on the date due in same day or immediately available funds to the Administrative Agent for the pro rata account of the Lenders entitled to receive such payment. Funds received after 1:00 p.m. on any day shall be deemed to have been received by the Administrative Agent or the Lenders on the next succeeding Business Day. All interest and fees shall be computed on the basis of the actual number of days (including the first day but excluding the last day) occurring during the period for which such interest or fee is payable over a year comprised of 360 days. Payments due on other than a Business Day shall be made on the next succeeding Business Day and such extension of time shall be included in computing interest and fees in connection with that payment.

(b) All amounts received as a result of the exercise of remedies under the Loan Documents (including from the proceeds of collateral securing the Obligations) or under applicable law shall be applied upon receipt to the Obligations as follows: (i) first, to the payment in full in cash of all interest (including interest accruing after the commencement of a proceeding in bankruptcy, insolvency or similar law, whether or not permitted as a claim under such law) and fees owing under the Loan Documents, and all costs and expenses owing to the Administrative Agent and the Lenders pursuant to the terms of the Loan Documents, until paid in full in cash, (ii) second, after payment in full in cash of the amounts specified in clause (b)(i), to the payment of the principal amount of the Loans then outstanding, (iii) third, after payment in full in cash of the amounts specified in clauses (b)(i) and (b)(ii), to the payment of all other Obligations owing to the Administrative Agent and the Lenders, and (iv) fourth, after payment in full in cash of the amounts specified in clauses (b)(i) through (b)(iii), and following the Termination Date, to the Borrower or any other Person lawfully entitled to receive such surplus.

SECTION 4.5 Setoff. The Administrative Agent and each Lender shall, upon the occurrence and during the continuance of any Event of Default, have the right to appropriate and apply to the payment of the Obligations owing to it (whether or not then due), and (as security for such Obligations) the Borrower hereby grants to the Administrative Agent and each Lender a continuing security interest in, any and all balances, credits, deposits, accounts or moneys of the Borrower then or thereafter maintained with or on behalf of the Administrative Agent or any such Lender, as applicable. The Administrative Agent and each Lender agrees promptly to notify the Borrower after any such appropriation and application made by the Administrative Agent or any such Lender; provided that, the failure to give such notice shall not affect the validity of such setoff and application. The rights of the Administrative Agent and each Lender under this Section 4.5 are in addition to other rights and remedies (including other rights of setoff under applicable law or otherwise) which the Administrative Agent and such Lender may have.

SECTION 4.6 LIBO Rate Not Determinable. If prior to the commencement of any Interest Period, adequate and reasonable means do not exist for ascertaining the LIBO Rate for such Interest Period, then the Administrative Agent shall give notice thereof to the Borrower as promptly as practicable. In the event of any such determination, the Loans shall, until the Administrative Agent has advised the Borrower that the circumstances giving rise to such notice no longer exist, bear interest at the interest rate in effect for the immediately preceding Interest Period.

ARTICLE V
CONDITIONS TO MAKING THE LOANS

SECTION 5.1 Credit Extensions. The obligation of each Lender to cause its Continuing Loans to remain outstanding hereunder shall be subject to the execution and delivery of this Agreement by the parties hereto and the satisfaction of each of the conditions precedent set forth below in this Article V.

SECTION 5.1.1 Secretary's Certificate, Etc. The Administrative Agent shall have received from Holdings, the Borrower and each Subsidiary party to a Loan Document, (i) a copy of a good standing certificate, dated a date reasonably close to the Restatement Date, for each such Person and (ii) a certificate, dated as of the Restatement Date, duly executed and delivered by such Person's Secretary or Assistant Secretary, managing member or general partner, as applicable, as to:

(a) resolutions of each such Person's Board of Directors (or other managing body, in the case of other than a corporation), including, in the case of Holdings, a committee of Holdings' Board of Directors consisting solely of independent directors , then in full force and effect authorizing the execution, delivery and performance of each Loan Document to be executed by such Person and the transactions contemplated hereby and thereby;

(b) the incumbency and signatures of those of its officers, managing member or general partner, as applicable, authorized to act with respect to each Loan Document to be executed by such Person; and

(c) the full force and validity of each Organic Document of such Person and copies thereof;

upon which certificates the Administrative Agent may conclusively rely until it shall have received a further certificate of the Secretary, Assistant Secretary, managing member or general partner, as applicable, of any such Person cancelling or amending the prior certificate of such Person.

SECTION 5.1.2 Restatement Date Certificate. The Administrative Agent shall have received a Restatement Date Certificate, dated as of the Restatement Date, and duly executed and delivered by an Authorized Officer of the Borrower, in which certificate the Borrower shall agree and acknowledge that the statements made therein shall be deemed to be true and correct representations and warranties of the Borrower as of such date, and, at the time such certificate is delivered, such statements shall in fact be true and correct, and such statements shall include that (i) the representations and warranties set forth in each Loan Document shall, in each case, be true and correct in all material respects (except for any such representations qualified by materiality or Material Adverse Effect, which shall be true and correct in all respects), (ii) no Default shall have then occurred and be continuing, or would result from the Loan to be advanced on the Restatement Date and (iii) all of the conditions set forth in this Article V have been satisfied (other than to the extent satisfaction of any such conditions are subject to the satisfaction of the Administrative Agent, any Lender or any of their respective advisors or representatives). All documents and agreements required to be appended to the Restatement Date Certificate, if any, shall be in form and substance reasonably satisfactory to the Administrative Agent, shall have been executed and delivered by the requisite parties, and shall be in full force and effect.

SECTION 5.1.3 Solvency, Etc. The Administrative Agent shall have received a solvency certificate duly executed and delivered by the chief financial or accounting Authorized Officer of the Borrower, dated as of the Restatement Date, in form and substance reasonably satisfactory to the Administrative Agent.

SECTION 5.1.4 Opinions of Counsel. The Administrative Agent shall have received opinions, dated the Restatement Date and addressed to the Lenders, from:

(a) Fox Rothschild LLP, counsel to Bacterin, the Additional Delayed Draw Borrower and the Guarantors, in form and substance satisfactory to the Lenders; and

(b) Calfee, Halter & Griswold LLP, Ohio counsel to Bacterin, the Additional Delayed Draw Borrower and the Guarantors, in form and substance satisfactory to the Lenders.

SECTION 5.1.5 Closing Fees, Expenses, Etc. The Administrative Agent and each Lender shall have received for its own account all fees, costs and expenses due and payable pursuant to Section 11.3.

SECTION 5.1.6 Satisfactory Legal Form. All documents executed or submitted pursuant hereto by or on behalf of Holdings, the Borrower or any Subsidiary shall be reasonably satisfactory in form and substance to the Administrative Agent and its counsel, and the Administrative Agent and its counsel shall have received all information, approvals, resolutions, opinions, documents or instruments as the Lenders or their counsel may reasonably request.

SECTION 5.2 Conditions to Additional Delayed Draw Loans. The making of each Additional Delayed Draw Loan by the Lenders shall be in the sole and absolute discretion of the Lenders, collectively, and subject to the satisfaction (or waiver in writing by each Lender) of each of the following conditions precedent and such other conditions as each Lender may require in its sole and absolute discretion:

(a) The Administrative Agent shall have received a Closing Certificate, dated as of each Additional Delayed Draw Closing Date, as the case may be, and duly executed and delivered by an Authorized Officer of Holdings as well as by the Additional Delayed Draw Borrower, the Borrower and the Guarantors, in which certificate such parties shall agree and acknowledge that the statements made therein shall be deemed to be true and correct representations and warranties of such parties as of such date, and, at the time such certificate is delivered, such statements shall in fact be true and correct, and such statements shall include that (i) the representations and warranties set forth in each Loan Document shall, in each case, be true and correct in all respects (in the case of any representation or warranty qualified by materiality or Material Adverse Effect) or in all material respects (in the case of any representation or warranty not qualified by materiality or Material Adverse Effect), before and after giving effect to the making of the Additional Delayed Draw Loan and to the application of the proceeds thereof, as though made on and as of the date hereof, (ii) no Default shall have then occurred and be continuing, or would result from the Loan to be advanced on the Additional Delayed Draw Closing Date, as the case may be, and (iii) all of the conditions set forth in this Section 5.2 have been satisfied. All documents and agreements required to be appended to the Closing Certificate, if any, shall be in form and substance satisfactory to each Lender in its sole and absolute discretion, shall have been executed and delivered by the requisite parties, and shall be in full force and effect.

(b) Holdings, the Additional Delayed Draw Borrower, the Borrower and the Guarantors shall have delivered to the Administrative Agent the Weekly Budget; it being understood that the Lenders will not make an Additional Delayed Draw Loan to the Additional Delayed Draw Borrower if such Weekly Budget shows a projected cash balance for the upcoming two-week period of $1,500,000 or greater.

(c) All documents executed or submitted pursuant hereto by or on behalf of Holdings, the Borrower, the Additional Delayed Draw Borrower or any Subsidiary shall be satisfactory in form and substance to the Administrative Agent and its counsel, and the Administrative Agent and its counsel shall have received all information, approvals, resolutions, opinions, documents or instruments as the Administrative Agent or its counsel may reasonably request.

SECTION 5.3 Conditions to Additional Second Delayed Draw Loans. The making of each Additional Second Delayed Draw Loan by the Lenders shall be subject to the satisfaction (or waiver in writing by each Lender) of each of the following conditions precedent:

(a) The Administrative Agent shall have received a Closing Certificate, dated as of each Additional Second Delayed Draw Closing Date, as the case may be, and duly executed and delivered by an Authorized Officer of each of Holdings, Bacterin, the Additional Delayed Draw Borrower and the Guarantors, in which certificate such parties shall agree and acknowledge that the statements made therein shall be deemed to be true and correct representations and warranties of such parties as of such date, and, at the time such certificate is delivered, such statements shall in fact be true and correct, and such statements shall include that (i) the representations and warranties set forth in each Loan Document shall, in each case, be true and correct in all respects (in the case of any representation or warranty qualified by materiality or Material Adverse Effect) or in all material respects (in the case of any representation or warranty not qualified by materiality or Material Adverse Effect), before and after giving effect to the making of the Additional Second Delayed Draw Loan and to the application of the proceeds thereof, as though made on and as of the date hereof, (ii) no Default shall have then occurred and be continuing, or would result from the Loan to be advanced on the Additional Second Delayed Draw Closing Date, as the case may be, and (iii) all of the conditions set forth in this Section 5.3 have been satisfied. All documents and agreements required to be appended to the Closing Certificate, if any, shall be in form and substance satisfactory to each Lender in its sole and absolute discretion, shall have been executed and delivered by the requisite parties, and shall be in full force and effect.

(b) Holdings, the Additional Delayed Draw Borrower, the Borrower and the Guarantors shall have delivered to the Administrative Agent the Weekly Budget; it being understood that the Lenders will not make an Additional Second Delayed Draw Loan to the Additional Delayed Draw Borrower if such Weekly Budget shows a projected cash balance for the upcoming two-week period of $1,500,000 or greater.

(c) Holdings shall have issued the warrants required to be issued pursuant to Section 7.15.

(d) All documents executed or submitted pursuant hereto by or on behalf of Holdings, Bacterin, the Additional Delayed Draw Borrower or any Subsidiary shall be satisfactory in form and substance to the Administrative Agent and its counsel, and the Administrative Agent and its counsel shall have received all information, approvals, resolutions, opinions, documents or instruments as the Administrative Agent or its counsel may reasonably request.

ARTICLE VI
REPRESENTATIONS AND WARRANTIES

In order to induce the Administrative Agent and the Lenders to enter into this Agreement and to make the Loans hereunder, the Borrower, Holdings and the Subsidiaries each represents and warrants to each Lender as set forth in this Article VI.

SECTION 6.1 Organization, Etc. Holdings and each of its Subsidiaries (a) is validly organized and existing and in good standing under the laws of the jurisdiction of its incorporation or organization, (b) is duly qualified to do business and is in good standing as a foreign entity in each jurisdiction where the nature of its business requires such qualification, except where the failure to do so would not reasonably be expected to result in a Material Adverse Effect, (c) has full power and authority and holds all requisite governmental licenses, permits and other approvals to enter into and perform its Obligations under each Loan Document to which it is a party and (d) has full power and authority and holds all requisite material governmental licenses, permits and other approvals to own and hold under lease its property and to conduct its business substantially as currently conducted by it.

SECTION 6.2 Due Authorization, Non-Contravention, Etc. The execution, delivery and performance by Holdings and each of its Subsidiaries of each Loan Document executed or to be executed by it are in each case within such Person's powers, have been duly authorized by all necessary action, and do not:

(a) contravene (i) Holdings', the Borrower's or any Subsidiary's Organic Documents, (ii) any court decree or order binding on or affecting Holdings, the Borrower or any Subsidiary or (iii) any law or governmental regulation binding on or affecting Holdings, the Borrower or any Subsidiary; or

(b) result in (i) or require the creation or imposition of any Lien on Holdings', the Borrower's or any Subsidiary's properties (except as permitted by this Agreement) or (ii) a default under any contract, agreement, or instrument binding on or affecting Holdings, the Borrower or any Subsidiary.

SECTION 6.3 Government Approval, Regulation, Etc. No authorization or approval or other action by, and no notice to or filing with, any Governmental Authority or other Person (other than those that have been, or on the Restatement Date will be, duly obtained or made and which are, or on the Restatement Date will be, in full force and effect) is required for the due execution, delivery or performance by Holdings, the Borrower or any Subsidiary of any Loan Document to which it is a party.

SECTION 6.4 Validity, Etc. Each Loan Document to which Holdings or any of its Subsidiaries is a party constitutes the legal, valid and binding obligations of such Person enforceable against such Person in accordance with its respective terms (except, in any case, as such enforceability may be limited by applicable bankruptcy, insolvency, reorganization or similar laws affecting creditors' rights generally and by principles of equity).

SECTION 6.5 Financial Information. The financial statements of Holdings and its Subsidiaries furnished to the Administrative Agent pursuant to this Agreement have been prepared in accordance with GAAP, consistently applied, and present fairly the consolidated financial condition of the Persons covered thereby as at the dates thereof and the results of their operations for the periods then ended. The projections and pro forma financial information (the "Projections") included in such materials are based upon good faith estimates and assumptions believed by the Borrower to be reasonable at the time made; it being recognized by the Administrative Agent and the Lenders that such Projections as to future events are not to be viewed as fact and that actual results during the period or periods covered by the Projections may differ from such projected results and such differences may be material and adverse.

SECTION 6.6 No Material Adverse Change. Except as set forth on Schedule 6.6, there has been no material adverse change in the business, financial performance or condition, operations (including the results thereof), assets, properties or prospects of Holdings, the Borrower or any Subsidiary since December 31, 2018.

SECTION 6.7 Litigation, Labor Matters and Environmental Matters.

(a) Except as described on Schedule 6.7(a), there are no actions, suits or proceedings by or before any arbitrator or Governmental Authority pending against or, to the knowledge of the Borrower, threatened against or affecting Holdings or any of its Subsidiaries (i) as to which there is a reasonable likelihood of an adverse determination and that, if adversely determined, would reasonably be expected, individually or in the aggregate, to result in liabilities to Holdings, the Borrower and/or any Subsidiary in excess of $500,000 or (ii) that would reasonably be likely to adversely affect this Agreement or the transactions contemplated hereby in any material respect.

(b) Except as described on Schedule 6.7(b), there are no labor controversies pending against or, to the knowledge of the Borrower, threatened against or affecting Holdings or any of its Subsidiaries (i) that would reasonably be expected, individually or in the aggregate, to result in liabilities to Holdings, the Borrower and/or any Subsidiary in excess of $500,000 or (ii) that would reasonably be likely to result in a Material Adverse Effect or adversely affect this Agreement or the transaction contemplated hereby in any material respect.

(c) None of Holdings or any of its Subsidiaries (i) has failed to comply with any Environmental Law or to obtain, maintain or comply with any Permit under or in connection with any Environmental Law ("Environmental Permit") where such failure to comply would reasonably be expected, individually or in the aggregate, to result in liabilities to Holdings or any of its Subsidiaries in excess of $500,000, (ii) is or has been subject to any Environmental Liability reasonably expected to be in excess of $500,000, individually or in the aggregate, (iii) has received written notice of any Environmental Liability that would reasonably be expected, individually or in the aggregate, to result in liabilities to Holdings or any of its Subsidiaries in excess of $500,000, or (iv) knows of any basis for any Environmental Liability that would reasonably be expected, individually or in the aggregate, to result in liabilities to Holdings, the Borrower and/or any Subsidiary in excess of $500,000.

SECTION 6.8 Subsidiaries. Holdings has no Subsidiaries except those Subsidiaries which are identified in Schedule 6.8 (which Schedule also identifies the direct and indirect owners of the Capital Securities of such Subsidiaries) or which are permitted to have been organized or acquired after the Restatement Date in accordance with Section 8.5 or Section 8.7.

SECTION 6.9 Ownership of Properties. Holdings and its Subsidiaries own (i) in the case of owned real property, good and marketable fee title to, and (ii) in the case of owned personal property, good and valid title to, or, in the case of leased real or personal property, valid and enforceable leasehold interests (as the case may be) in, all of its properties and assets, tangible and intangible, of any nature whatsoever, free and clear in each case of all Liens or claims, except for Liens permitted pursuant to Section 8.3, except defects in title which are not material.

SECTION 6.10 Taxes. Holdings and each of its Subsidiaries has filed all tax returns and reports required by law to have been filed by it and has paid all Taxes due and owing, except (i) any such Taxes which are being diligently contested in good faith by appropriate proceedings and for which adequate reserves in accordance with GAAP shall have been set aside on its books and (ii) any Taxes that do not exceed, individually or in the aggregate, $500,000.

SECTION 6.11 Benefit Plans, Etc. None of Holdings or any of its Subsidiaries or any of their respective ERISA Affiliates sponsors, maintains, contributes to, is required to contribute to, or has any actual or potential liability with respect to, any Benefit Plan. None of Holdings or any of its Subsidiaries is a party to any collective bargaining agreement, and none of the employees of Holdings or any of its Subsidiaries are subject to any collective bargaining agreement. Each "employee benefit plan" as defined in section 3(3) of ERISA that provides retirement benefits and that is sponsored by Holdings or any of its ERISA Affiliates intended to be tax qualified under section 401 or 501 of the Code has a determination letter or opinion letter from the Internal Revenue Service on which it is entitled to rely, and no assets of any such plan are invested in Capital Securities of Holdings or the Borrower. Each employee benefit plan, program or arrangement sponsored, maintained, contributed to or required to be contributed to by Holdings or any of its Subsidiaries has complied in all material respects with its terms and applicable law.

SECTION 6.12 Accuracy of Information. None of the information heretofore or contemporaneously furnished in writing to the Administrative Agent or any Lender by or on behalf of Holdings or any of its Subsidiaries in connection with any Loan Document or any transaction contemplated hereby, taken as a whole, contains any untrue statement of a material fact, or omits to state any material fact necessary to make any information not misleading.

SECTION 6.13 Regulations U and X. None of Holdings or any of its Subsidiaries is engaged in the business of extending credit for the purpose of buying or carrying margin stock, and no proceeds of the Loans will be used to purchase or carry margin stock or otherwise for a purpose which violates, or would be inconsistent with, F.R.S. Board Regulation U or Regulation X. Terms for which meanings are provided in F.R.S. Board Regulation U or Regulation X or any regulations substituted therefor, as from time to time in effect, are used in this Section 6.13 with such meanings.

SECTION 6.14 Solvency. Both immediately before and after giving effect to the making of any Loans, Holdings and its Subsidiaries, taken as a whole, on a consolidated basis, are Solvent.

SECTION 6.15 Intellectual Property.

(a) Schedule 6.15(a) sets forth a complete and accurate list as of the Restatement Date of all (i) Patents, (ii) registered and material unregistered Trademarks (including domain names) and any pending registrations for Trademarks and (iii) any other registered Intellectual Property, in each case owned or licensed by Holdings, the Borrower or any of the Subsidiaries. For each item of Intellectual Property listed on Schedule 6.15(a), the Borrower has, where relevant, indicated (A) the countries in each case in which such item is registered, (B) the application numbers, (C) the registration or patent numbers, (D) with respect to the Patents, the expected expiration date of the issued Patents, (E) the owner of such item of Intellectual Property and (F) with respect to Intellectual Property owned by any third party, the agreement pursuant to which that Intellectual Property is licensed to Holdings, the Borrower or any Subsidiary.

(b) With respect to all Intellectual Property listed on Schedule 6.15(a):

(i) Holdings, the Borrower or a Subsidiary owns or has a valid license to such Intellectual Property free and clear of any and all Liens other than Liens permitted pursuant to Section 8.3 and all such Intellectual Property is in full force and effect, and have not expired, lapsed or been forfeited, cancelled or abandoned;

(ii) each of Holdings, the Borrower and the Subsidiaries, as applicable, has taken commercially reasonable actions to maintain and protect such Intellectual Property and, to the Borrower's knowledge, there are no unpaid maintenance or renewal fees payable by Holdings, the Borrower or any of the Subsidiaries that are currently overdue for any of such registered Intellectual Property;

(iii) except as described on Schedule 6.15(b), there is no proceeding challenging the validity or enforceability of any such Intellectual Property, none of Holdings, the Borrower or any of the Subsidiaries is involved in any such proceeding with any Person and none of the Intellectual Property is the subject of any Other Administrative Proceeding;

(iv) to the knowledge of the Borrower, (A) such Intellectual Property is valid, enforceable and subsisting and (B) no event has occurred, and nothing has been done or omitted to have been done, that would affect the validity or enforceability of such Intellectual Property; and

(v) except as otherwise indicated on Schedule 6.15(a), each of Holdings, the Borrower and each Subsidiary is the sole and exclusive owner of all right, title and interest in and to all such Intellectual Property that is owned by it.

(c) Except as described on Schedule 6.15(c), the Borrower has not given notice to any third party alleging that such third party is committing any act of Infringement of any Intellectual Property listed on Schedule 6.15(a).

(d) With respect to each license agreement listed on Schedule 6.15(a), such license agreement (i) is in full force and effect and is binding upon and enforceable against Holdings, the Borrower and the Subsidiaries party thereto and all other parties thereto in accordance with its terms, (ii) has not been amended or otherwise modified and (iii) has not suffered a default or breach thereunder. To the Borrower's knowledge, none of Holdings, the Borrower or any of the Subsidiaries has taken any action that would permit any other Person party to any such license agreement to have, and no such Person otherwise has, any defenses, counterclaims or rights of setoff thereunder.

(e) Except as set forth on Schedule 6.15(e), none of Holdings, the Borrower or any of the Subsidiaries has received written notice from any third party alleging that the conduct of its business (including the development, manufacture, use, sale or other commercialization of any Product) Infringes any Intellectual Property of that third party and, to the knowledge of the Borrower, the conduct of its business and the business of Holdings and the Subsidiaries (including the development, manufacture, use, sale or other commercialization of any Product) does not Infringe any Intellectual Property of any third party.

(f) Holdings, the Borrower and the Subsidiaries have used commercially reasonable efforts and precautions to protect their respective commercially significant unregistered Intellectual Property.

SECTION 6.16 Material Agreements. Set forth on Schedule 6.16 is a complete and accurate list as of the Restatement Date of all Material Agreements, with an adequate description of the parties thereto, subject matter thereof and amendments and modifications thereto. Each such Material Agreement (i) is in full force and effect and is binding upon and enforceable against (a) Holdings and each of its Subsidiaries party thereto, as the case may be, and (b) to the knowledge of the Borrower, all other parties thereto, in each case in accordance with its terms (except, in each case, as such enforceability may be limited by applicable bankruptcy, insolvency, reorganization or similar laws affecting creditors' rights generally and by principles of equity), and (ii) no material breach or default thereunder exists on the part of Holdings or any of its Subsidiaries or, to the knowledge of the Borrower, any other party thereto.

SECTION 6.17 Permits. Holdings and its Subsidiaries have all Permits, including Environmental Permits, necessary or required for the ownership, operation and conduct of their business and the distribution of the Products, except where the failure to do so would not reasonably be expected to be material to the business of Holdings and its Subsidiaries, taken as a whole. All such Permits are validly held and there are no defaults thereunder.

SECTION 6.18 Regulatory Matters.

(a) Set forth on Schedule 6.18(a) is a complete and accurate list as of the Restatement Date of all material Regulatory Authorizations relating to Holdings, the Borrower or any Subsidiary and the Products (on a per Product basis). All such Regulatory Authorizations are (i) legally and beneficially owned exclusively by Holdings, the Borrower or one of the Subsidiaries, free and clear of all Liens other than Liens permitted pursuant to Section 8.3, and (ii) validly registered and on file with the applicable Governmental Authority or Notified Body, in compliance with all filing and maintenance requirements (including any fee requirements) thereof, and are in good standing, valid and enforceable with the applicable Governmental Authority or Notified Body. No proceeding is pending against Holdings or any of its Subsidiaries or, to the Borrower's knowledge, threatened to revoke or amend any of the Regulatory Authorizations nor are there facts or circumstances of which the Borrower is aware which form a basis upon which a Governmental Authority or Notified Body reasonably could seek to revoke or amend any Regulatory Authorization. All required notices, registrations and listings, supplemental applications or notifications, reports (including field alerts, medical device reports or other reports of adverse experiences) and other required filings with respect to the Products have been filed with the FDA and all other applicable Governmental Authorities and Notified Bodies.

(b) Except as set forth on Schedule 6.18(b) and without limiting the generality of any other representations and warranties made by the Borrower, (i) the Products comply in all material respects with (A) all applicable laws, rules, regulations, orders, injunctions and decrees of the FDA and other applicable Governmental Authorities, including all applicable requirements of state authorities and the FD&C Act and (B) all Product Authorizations and other Regulatory Authorizations; (ii) Holdings, the Borrower, the Subsidiaries and their respective suppliers have not received any notification from any Governmental Authority asserting that any 361 Product lacks a required Product Authorization; (iii) there is no pending regulatory action, investigation or inquiry (other than non-material routine or periodic inspections or reviews) against Holdings, the Borrower or any of the Subsidiaries or any of their respective suppliers with respect to the Products, and to the Borrower's knowledge there is no basis for any adverse regulatory action against Holdings, the Borrower or any of the Subsidiaries or, to the knowledge of the Borrower, their respective suppliers with respect to the Products; and (iv) without limiting the foregoing, (A) no product recalls, safety alerts, corrections, withdrawals, marketing suspensions, removals or the like have been voluntarily initiated within the five years preceding the Restatement Date or requested, demanded or ordered by any Governmental Authority with respect to any Products, and there is no basis for the issuance of any such product recalls, safety alerts, corrections, withdrawals, marketing suspensions, removals or the like by any Person with respect to any Products and (B) no criminal, injunctive, seizure, detention or civil penalty actions have at any time been commenced or threatened in writing by any Governmental Authority with respect to or in connection with any Products, there are no consent decrees (including plea agreements) which relate to any Products, and there is no basis for the commencement for any criminal injunctive, seizure, detention or civil penalty actions by any Governmental Authority relating to the Products or for the issuance of any consent decrees. None of Holdings, the Borrower, any of the Subsidiaries or, to the Borrower's knowledge, any of their respective suppliers is employing or utilizing the services of any individual who has been debarred or temporarily suspended under any applicable law, rule or regulation.

(c) Except as set forth in Schedule 6.18(c), in all material respects with respect to Products, (i) all design, manufacturing, storage, distribution, packaging, labeling, recordkeeping and other supply activities by Holdings, the Borrower, the Subsidiaries and, to the Borrower's knowledge, their respective suppliers relating to such Products have been conducted, and are currently being conducted, in compliance with the applicable requirements of the FD&C Act and other requirements of the FDA and all other Governmental Authorities, including current good manufacturing practices, cGTPs and quality system regulations, (ii) none of Holdings, the Borrower, any of the Subsidiaries, or, to the knowledge of the Borrower, any of their respective suppliers has received written notice or threat of commencement of action by any Governmental Authority to withdraw its approval of or to enjoin production of the Products at any facility and (iii) all applicable post-approval and post-clearance procedures and activities have been carried out, and have been carried out in accordance with the requirements of the Regulatory Authorizations and all applicable laws, rules and regulations. No Product sold by or in the inventory of Holdings, the Borrower or any of the Subsidiaries is adulterated or misbranded, all labeling, packaging (including inserts), product information, advertising and promotional materials and activities are in compliance in all material respects with applicable FDA and other Governmental Authority requirements, and the Products are in compliance with all classification, registration, listing, marking, tracking and audit requirements of the FDA and any other Governmental Authority.

(d) Except as set forth in Schedule 6.18(d), all activities of Holdings, the Borrower, the Subsidiaries and, to the Borrower's knowledge, their respective suppliers related to the procurement, use, and transplantation of tissue, including allograft bone tissue, have been conducted, and are currently being conducted in material compliance with the applicable requirements of the National Organ Transplant Act.

(e) The Borrower has made available to the Administrative Agent complete and accurate copies of all Product Authorizations and regulatory dossiers relating thereto, all medical device reports and communications to or from the FDA and other relevant Governmental Authorities and Notified Bodies, including inspection reports, warning letters, and material reports, studies and other correspondence, other than opinions of counsel that are attorney-client privileged, with respect to regulatory matters relating to Holdings, the Borrower or any of the Subsidiaries, the conduct of their business and the Products.

(f) All studies, tests and preclinical and clinical trials conducted relating to the Products, in all material respects, by or on behalf of Holdings, the Borrower and the Subsidiaries and, to the knowledge of the Borrower, their respective licensees, licensors and third party services providers and consultants, have been conducted, and are currently being conducted, in accordance with experimental protocols, procedures and controls pursuant to, where applicable, current good clinical practices and current good laboratory practices and other applicable laws, rules regulations. All results of such studies, tests and trials, and all other material information related to such studies, tests and trials, have been made available to the Administrative Agent. The summaries and descriptions of any of the foregoing provided to the Administrative Agent are accurate and contain no material omissions. None of Holdings, the Borrower, any of the Subsidiaries, or, to the knowledge of the Borrower, any of their respective licensees, licensors or third party services providers or consultants, has received from the FDA or other applicable Governmental Authority any notices or correspondence requiring the termination, suspension, material modification or clinical hold of any studies, tests or clinical trials in any material respect with respect to or in connection with the Products.

(g) There has been no material untrue statement of fact and no fraudulent statement made by Holdings, the Borrower, any of the Subsidiaries, or, to the knowledge of the Borrower, any of their respective agents or representatives to the FDA or any other Governmental Authority, and there has been no failure to disclose any material fact required to be disclosed to the FDA or any other Regulatory Agency.

(h) The transactions contemplated by the Loan Documents (or contemplated by the conditions to effectiveness of any Loan Document) will not impair Holdings', the Borrower's or any of the Subsidiaries' ownership of or rights under (or the license or other right to use, as the case may be) any Regulatory Authorizations relating to the Products in any material manner.

SECTION 6.19 Transactions with Affiliates. Except as set forth on Schedule 6.19, (i) other than any transaction between Holdings, the Borrower, any Subsidiaries or the Lenders, none of Holdings, the Borrower or any Subsidiary has entered into, renewed, extended or been a party to, any transaction (including the purchase, sale, lease, transfer or exchange of property or assets of any kind or the rendering of services of any kind) with any of its Affiliates during the two-year period immediately prior to the Restatement Date and (ii) no such transaction is in existence as of the date hereof or the Restatement Date.

SECTION 6.20 Investment Company Act. None of Holdings, the Borrower or any Subsidiary is an "investment company" or is "controlled" by an "investment company," as such terms are defined in, or subject to regulation under, the Investment Company Act of 1940, as amended.

SECTION 6.21 OFAC. Except as set forth on Schedule 6.21, none of Holdings or any of its Subsidiaries or, to the knowledge of the Borrower, any Related Party (a) is currently the subject of any Sanctions, (b) is located, organized or residing in any Designated Jurisdiction or (c) is or has been (within the previous five years) engaged in any transaction with any Person who is now or was then the subject of Sanctions or who is located, organized or residing in any Designated Jurisdiction. No Loan, nor the proceeds from any Loan, has been or will be used, directly or indirectly, to lend, contribute or provide to, or has been or will be otherwise made available to fund, any activity or business in any Designated Jurisdiction or to fund any activity or business of any Person located, organized or residing in any Designated Jurisdiction or who is the subject of any Sanctions, or in any other manner that will result in any violation by Holdings or any of its Subsidiaries or, to the knowledge of the Borrower, any other Person (including the Lenders and their Affiliates) of Sanctions.

SECTION 6.22 Holdings. Holdings (i) is a holding company with no activities (other than activities customarily carried out or required of a publicly-owned passive holding company, including the entry into customary and ordinary course insurance programs and agreements concerning the Capital Securities of Holdings), (ii) has no operations, assets (other than Capital Securities of the Borrower and Subsidiaries) or liabilities (other than Obligations under the Loan Documents and liabilities arising in the ordinary course) and (iii) is not party to any contracts or agreements, in each case other than (a) employment and employee benefit contracts, (b) customary contracts with accountants, lawyers and other advisors and (c) activities, operations, assets, liabilities, contracts and agreements that do not exceed, and would not reasonably be expected to result in liabilities to Holdings, the Borrower and any Subsidiaries that exceed, $500,000 individually or $1,000,000 in the aggregate.

SECTION 6.23 Deposit and Disbursement Accounts. Set forth on Schedule 6.23 is a complete and accurate list as of the Restatement Date of all banks and other financial institutions at which Holdings, the Borrower or any Subsidiary maintains deposit accounts, lockboxes, disbursement accounts, investment accounts or other similar accounts, such Schedule correctly identifies the name, address and telephone number of each bank or financial institution, the name in which each such account is held, the type of each such account, and the complete account number for each such account, and each such account is a Controlled Account.

ARTICLE VII
AFFIRMATIVE COVENANTS

The Borrower, Holdings and the Subsidiaries each covenants and agrees with the Lenders that until the Termination Date has occurred, it will perform or cause to be performed the obligations set forth below.

SECTION 7.1 Financial Information, Reports, Notices, Etc. The Borrower will furnish the Administrative Agent copies of the following financial statements, reports, notices and information:

(a) as soon as available and in any event within 30 days after the end of each calendar month, in each case with supporting detail and certified as complete and correct by the chief financial or accounting Authorized Officer of the Borrower (subject to normal year-end audit adjustments), for Holdings and its consolidated Subsidiaries, (i) unaudited reports of the Consolidated EBITDA and Revenue Base for such calendar month and the Liquidity at the end of such calendar month and (ii) unaudited reports of (x) the Revenue Base and Consolidated EBITDA for the period commencing at the end of the previous Fiscal Year and ending with the end of such calendar month, and including in comparative form the figures for the corresponding calendar month in, and the year to date portion of, the immediately preceding Fiscal Year and (y) the Liquidity for the corresponding calendar month in the preceding Fiscal Year, in comparative form;

(b) as soon as available and in any event within 45 days after the end of each of the first three Fiscal Quarters of each Fiscal Year, an unaudited consolidated balance sheet of Holdings, the Borrower and the Subsidiaries as of the end of such Fiscal Quarter and consolidated statements of income and cash flow of Holdings, the Borrower and the Subsidiaries for such Fiscal Quarter and for the period commencing at the end of the previous Fiscal Year and ending with the end of such Fiscal Quarter, and including (in each case) in comparative form the figures for the corresponding Fiscal Quarter in, and the year to date portion of, the immediately preceding Fiscal Year, certified as complete and correct by the chief financial or accounting Authorized Officer of the Borrower (subject to normal year-end audit adjustments); provided, that consolidated financial information in this clause (b) shall be deemed furnished to the Administrative Agent when Holdings files with the SEC a publicly available Quarterly Report on Form 10-Q containing such information;

(c) as soon as available and in any event within 90 days after the end of each Fiscal Year, a copy of the consolidated balance sheet of Holdings, the Borrower and the Subsidiaries, and the related consolidated statements of income and cash flow of Holdings, the Borrower and the Subsidiaries for such Fiscal Year, setting forth in comparative form the figures for the immediately preceding Fiscal Year, audited (without any Impermissible Qualification) by independent public accountants acceptable to the Administrative Agent (for the avoidance of doubt, the current independent public accountant of Holdings and the Borrower shall be considered acceptable to the Administrative Agent), which shall include a calculation of the financial covenants set forth in Section 8.4 and stating that, in performing the examination necessary to deliver the audited financial statements of the Borrower, no knowledge was obtained of any Event of Default; provided, that information in this clause (c) shall be deemed furnished to the Administrative Agent when Holdings files with the SEC a publicly available Annual Report on Form 10-K containing such information;

(d) concurrently with the delivery of the financial information pursuant to clauses (a), (b) or (c), a Compliance Certificate, executed by the chief financial or accounting Authorized Officer of the Borrower, (i) showing compliance with the financial covenants set forth in Section 8.4 and stating that no Default has occurred and is continuing (or, if a Default has occurred, specifying the details of such Default and the action that Holdings, the Borrower or any of the Subsidiaries has taken or proposes to take with respect thereto), (ii) stating that no Subsidiary has been formed or acquired since the delivery of the last Compliance Certificate (or, if a Subsidiary has been formed or acquired since the delivery of the last Compliance Certificate, a statement that such Subsidiary has complied with Section 7.8); (iii) stating that no real property has been acquired by Holdings, the Borrower or any of the Subsidiaries since the delivery of the last Compliance Certificate (or, if any real property has been acquired since the delivery of the last Compliance Certificate, a statement that the Borrower has complied with Section 7.8 with respect to such real property); and (iv) listing any new Material Agreements entered into, and any amendments or terminations of Material Agreements, in each case since the last Compliance Certificate delivered hereunder;

(e) concurrently with the delivery of the financial information pursuant to clauses (b) or (c), copies of the unaudited consolidating balance sheets and unaudited consolidating statements of income and cash flow for Holdings and each of its Subsidiaries, prepared by the management of Holdings and certified as complete and correct by the chief financial or accounting Authorized Officer of the Borrower;

(f) as soon as possible and in any event within three days after the Borrower obtains knowledge of the occurrence of a Default, a statement of an Authorized Officer of the Borrower setting forth details of such Default and the action which Holdings, the Borrower or any of the Subsidiaries has taken or proposes to take with respect thereto;

(g) as soon as possible and in any event within ten days after the Borrower obtains knowledge of (i) the occurrence of any material adverse development with respect to any litigation, action, proceeding or labor controversy described in Schedule 6.7(a) or Schedule 6.7(b) or (ii) the commencement of any litigation, action, proceeding or labor controversy of the type and materiality described in Section 6.7, notice thereof and, to the extent the Administrative Agent requests, copies of all documentation relating thereto; provided, that information in this clause (f) shall be deemed furnished to the Administrative Agent when Holdings files with the SEC a publicly available Quarterly Report on Form 10-Q or Annual Report on Form 10-K containing such information;

(h) as soon as possible and in any event within ten days after the Borrower obtains knowledge of any return, recovery, dispute or claim related to Product or inventory that involves more than $500,000;

(i) as soon as possible and in any event within ten days after the Borrower obtains knowledge of (i) any claim that Holdings, the Borrower, any of the Subsidiaries or one of their ERISA Affiliates has actual or potential liability under a Benefit Plan, (ii) any effort to unionize the employees of Holdings, the Borrower or any Subsidiary or (iii) correspondence with the Internal Revenue Service regarding the qualification of a retirement plan under Section 401(a) of the Code;

(j) as soon as possible and in any event within ten days after receipt thereof, copies of all "management letters" (or equivalent) submitted to Holdings, the Borrower or any of the Subsidiaries by the independent public accountants referred to in clause (b) in connection with each audit made by such accountants;

(k) as soon as possible and in any event within ten days after the sending or filing thereof, copies of all reports, notices, prospectuses and registration statements which Holdings, the Borrower or any of the Subsidiaries files with the SEC or any national securities exchange (to the extent they are not publicly available on EDGAR);

(l) as soon as possible and in any event within ten days upon receipt thereof, copies of all subpoenas, requests for information and other notices regarding any active or potential investigation of, or claim or litigation against, Holdings, the Borrower or any of the Subsidiaries by any Governmental Authority, and the results of any inspections of any manufacturing facilities of Holdings, the Borrower or any of the Subsidiaries or any third party suppliers of Holdings, the Borrower or any of the Subsidiaries by any Governmental Authority (including any Form FDA 483s);

(m) such other financial and other information as the Administrative Agent may from time to time reasonably request (including information and reports in such detail as the Administrative Agent may request with respect to the terms of and information provided pursuant to the Compliance Certificate); and

(n) by 1:00 p.m. Eastern Time on each Wednesday, commencing on April 30, 2019, a weekly budget, in form and substance satisfactory to each Lender in its sole discretion (the "Weekly Budget"), including (i) a cash flow projection for the following 13 weeks (inclusive of the current week), (ii) the prior week's financial performance, including as compared to the projection of such week's financial performance included in the most recent Weekly Budget delivered pursuant hereto, (iii) the prior week's sales results, including as compared to the sales results in the prior Fiscal Quarter and the prior year; (iv) a borrowing base certificate (which, for the avoidance of doubt, is furnished solely for reporting purposes and not for use as a basis for the availability of Loans hereunder), in substantially the same form as the borrowing base certificates delivered under the SVB Loan Agreement, including summary accounts receivable and accounts payable agings and inventory certificates, and (v) any additional supporting documentation that may be requested by each Lender in its sole and absolute discretion.

SECTION 7.2 Maintenance of Existence; Compliance with Contracts, Laws, Etc. Holdings and each of its Subsidiaries will (a) preserve and maintain its legal existence (except as otherwise permitted by Section 8.7), (b) perform in all material respects its obligations under Material Agreements to which Holdings, the Borrower or any of the Subsidiaries is a party, and (c) comply in all material respects with all applicable material laws, rules, regulations and orders, including the payment (before the same become delinquent), of all Taxes, imposed upon Holdings, the Borrower or any of the Subsidiaries or upon their property except to the extent being diligently contested in good faith by appropriate proceedings and for which adequate reserves in accordance with GAAP have been set aside on the books of Holdings, the Borrower or any of the Subsidiaries, as applicable.

SECTION 7.3 Maintenance of Properties. Each of Holdings, the Borrower and the Subsidiaries will maintain, preserve, protect and keep its and their respective properties in good repair, working order and condition (ordinary wear and tear excepted), and make necessary repairs, renewals and replacements so that the business carried on by Holdings, the Borrower or any of the Subsidiaries may be properly conducted at all times, unless Holdings, the Borrower or any of the Subsidiaries determines in good faith that the continued maintenance of such property is no longer economically desirable, necessary or useful to the business of Holdings, the Borrower or any of the Subsidiaries or the Disposition of such property is otherwise permitted by Section 8.7 or Section 8.8.

SECTION 7.4 Insurance. Each of Holdings, the Borrower and each of the Subsidiaries will maintain:

(a) insurance on its property with financially sound and reputable insurance companies against business interruption, loss and damage in at least the amounts (and with only those deductibles) customarily maintained, and against such risks as are typically insured against in the same general area, by Persons of comparable size engaged in the same or similar business as Holdings, the Borrower and the Subsidiaries; and

(b) all worker's compensation, employer's liability insurance or similar insurance as may be required under the laws of any state or jurisdiction in which it may be engaged in business.

Without limiting the foregoing, all insurance policies required pursuant to this Section 7.4 shall (i) name the Administrative Agent (for its benefit and the benefit of each Lender) as mortgagee and loss payee (in the case of property insurance) and additional insured (in the case of liability insurance), as applicable, and provide that no cancellation or modification of the policies will be made without at least 30 days' prior written notice to the Administrative Agent and (ii) be in addition to any requirements to maintain specific types of insurance contained in the other Loan Documents.

SECTION 7.5 Books and Records. Each of Holdings, the Borrower and each of the Subsidiaries will keep books and records in accordance with GAAP which accurately reflect all of its business affairs and transactions and permit the Administrative Agent or any of its representatives, at reasonable times and intervals upon reasonable notice to the Borrower, to visit Holdings', the Borrower's or any of the Subsidiaries' offices, to discuss Holdings', the Borrower's or any of the Subsidiaries' financial or other matters with its officers and employees, and its independent public accountants (and the Borrower hereby authorizes such independent public accountant to discuss Holdings', the Borrower's and any of the Subsidiaries' financial and other matters with the Administrative Agent or its representatives whether or not any representative of Holdings, the Borrower or any of the Subsidiaries is present) and to examine (and photocopy extracts from) any of its books and records. The Borrower shall pay any fees of such independent public accountant incurred in connection with the Administrative Agent's exercise of its rights pursuant to this Section 7.5.

SECTION 7.6 Environmental Law Covenant. Each of Holdings, the Borrower and each of the Subsidiaries will (i) use and operate all of its and their businesses, facilities and properties in material compliance with all Environmental Laws, and keep and maintain all Environmental Permits and remain in compliance therewith, and (ii) promptly notify the Administrative Agent of, and provide the Administrative Agent with copies of all material claims, complaints, notices or inquiries relating to, any actual or alleged non-compliance with any Environmental Laws or Environmental Permits or any actual or alleged Environmental Liabilities. Holdings, the Borrower and each of the Subsidiaries will promptly resolve, remedy and mitigate any such non-compliance or Environmental Liabilities, and shall keep the Administrative Agent informed as to the progress of same.

SECTION 7.7 Use of Proceeds. The Borrower will apply the proceeds of the Loans in accordance with Schedule 7.7.

SECTION 7.8 Future Guarantors, Security, Etc. Holdings, the Borrower and each Subsidiary will execute any documents, financing statements, agreements and instruments, and take all further action that may be required under applicable law, or that the Administrative Agent may reasonably request, in order to effectuate the transactions contemplated by the Loan Documents and in order to grant, preserve, protect and perfect the validity and first priority (subject to Liens permitted by Section 8.3) of the Liens created or intended to be created by the Loan Documents (including by obtaining landlord access agreements in form and substance reasonably satisfactory to the Administrative Agent in respect of any leased real property). Prior to or upon acquiring or organizing any new Subsidiary, the Borrower shall cause such Subsidiary to execute a supplement (in form and substance reasonably satisfactory to the Administrative Agent) to the Guarantee, Security Agreement and each other applicable Loan Document in favor of the Administrative Agent and the Lenders. The Borrower will promptly notify the Administrative Agent of any subsequently acquired real property and will provide the Administrative Agent with a description of such real property, the acquisition date thereof and the purchase price therefor. In addition, from time to time, each of Holdings, the Borrower and each of the Subsidiaries will, at its cost and expense, promptly secure the Obligations by pledging or creating, or causing to be pledged or created, perfected Liens with respect to such of its assets and properties as the Administrative Agent shall designate, it being agreed that it is the intent of the parties that the Obligations shall be secured by, among other things, substantially all the assets of Holdings, the Borrower and the Subsidiaries (including real property and personal property acquired subsequent to the Restatement Date). Such Liens will be created under the Loan Documents in form and substance reasonably satisfactory to the Administrative Agent, and Holdings, the Borrower and each of the Subsidiaries shall deliver or cause to be delivered to the Administrative Agent all such instruments and documents (including mortgages, legal opinions, title insurance policies and lien searches) as the Administrative Agent shall reasonably request to evidence compliance with this Section 7.8.

SECTION 7.9 Obtaining of Permits, Etc. With respect to Products, Holdings and each of its Subsidiaries will obtain, maintain and preserve, and take all necessary action to timely renew all material Permits and accreditations which are necessary for the conduct of its business.

SECTION 7.10 Product Licenses. Holdings and each of its Subsidiaries shall (i) maintain each material Permit, including each Regulatory Authorization, from, or file any notice or registration in, each jurisdiction in which Holdings or any of its Subsidiaries are required to obtain any Permit or Regulatory Authorization or to file any notice or registration, in order to sell or distribute the Products (excluding Products in development (other than those requiring an IDE) or discontinued Products) and (ii) upon request of the Administrative Agent, promptly provide evidence of same.

SECTION 7.11 Maintenance of Regulatory Authorizations, Contracts, Intellectual Property, Etc. With respect to the Products, Holdings and each of its Subsidiaries will (i) maintain in full force and effect all Regulatory Authorizations (including the Product Authorizations) and material contract rights, authorizations or other rights necessary for the operations of its business; (ii) notify the Administrative Agent, promptly after learning thereof, of any Product recalls, safety alerts, corrections, withdrawals, marketing suspensions, removals or the like conducted, to be undertaken or issued, by Holdings or any of its Subsidiaries or their respective suppliers whether or not at the request, demand or order of any Governmental Authority or otherwise with respect to any Product, or any basis for undertaking or issuing any such action or item; (iii) maintain in full force and effect, and pay all costs and expenses relating to, all material Intellectual Property owned or controlled by Holdings, the Borrower or any of the Subsidiaries and all Material Agreements; (iv) notify the Administrative Agent, promptly after learning thereof, of any Infringement or other material violation by any Person of its Intellectual Property; (v) use commercially reasonable efforts to pursue and maintain in full force and effect legal protection for all material new Intellectual Property developed or controlled by Holdings or any of its Subsidiaries; and (vi) notify the Administrative Agent, promptly after learning thereof, of any claim by any Person that the conduct of Holdings' or any of its Subsidiaries' business (including the development, manufacture, use, sale or other commercialization of any Product) Infringes any Intellectual Property of that Person.

SECTION 7.12 Inbound Licenses. Holdings and each of its Subsidiaries will, promptly after entering into or becoming bound by any material inbound license or agreement (other than over-the-counter software that is commercially available to the public): (i) provide written notice to the Administrative Agent of the material terms of such license or agreement with a description of its anticipated and projected impact on Holdings' and its Subsidiaries' business and financial condition; and (ii) take such commercially reasonable actions as the Administrative Agent may reasonably request to obtain the consent of, or waiver by, any Person whose consent or waiver is necessary for the Administrative Agent to be granted and perfect a valid security interest in such license or agreement and to fully exercise its rights under any of the Loan Documents in the event of a disposition or liquidation of the rights, assets or property that is the subject of such license or agreement.

SECTION 7.13 Cash Management. Holdings and each of its Subsidiaries will:

(a) maintain a current and complete list of all accounts (of the type initially set forth on Schedule 6.23) and promptly deliver any updates to such list to the Administrative Agent; execute and maintain an account control agreement for each such account, in form and substance reasonably acceptable to the Administrative Agent (each such account, a "Controlled Account"); and maintain each such account as a cash collateral account, with all cash, checks and other similar items of payment in such account securing payment of the Obligations (and in which Holdings, the Borrower and the Subsidiaries shall have granted a Lien to the Administrative Agent and the Lenders); provided that (a) any accounts with an end-of-day balance less than $50,000 individually, or $100,000 in the aggregate (or such other interim balance, on deposit for no more than three Business Days, used exclusively for the purposes of making payroll in the ordinary course of business), used exclusively for payroll, payroll taxes or employee benefits, to the extent legal requirements prohibit the granting of a Lien thereon, need not be Controlled Accounts and (b) account number xxxxxxxxx maintained at Big Sky Bank need not be a Controlled Account so long as such account does not have a balance which exceeds $50,000;

(b) deposit promptly, and in any event no later than two Business Days after the date of receipt thereof, all cash, checks, drafts or other similar items of payment relating to or constituting payments made in respect of any and all accounts and other rights and interests into Controlled Accounts; and

(c) at any time after the occurrence and during the continuance of an Event of Default, at the request of the Administrative Agent, promptly cause all payments constituting proceeds of accounts to be directed into lockbox accounts under agreements in form and substance satisfactory to the Administrative Agent.

SECTION 7.14 Board Observation Rights.

(a) Holdings and the Subsidiaries shall permit up to two people representing the Lenders (the "Observers") to attend and observe (but not vote) at all meetings of Holdings' (or the Borrower's or any Subsidiary's, as applicable) board of directors or any committee thereof, whether in person, by telephone or otherwise as requested by any Observer. Holdings and the Subsidiaries shall notify the Observers in writing at least five Business Days in advance (or, if a shorter notice period is reasonably necessary given the circumstances, as soon as possible and in all circumstances at least 24 hours in advance) of (i) the date and time for each general or special meeting of any such board of directors or any committee thereof and (ii) the adoption of any resolutions or actions by any such board of directors or any committee thereof by written consent (describing, in reasonable detail, the nature and substance of such action). The general meetings of Holdings' board of directors shall take place no less than three times per year. Holdings and the Subsidiaries shall concurrently deliver to the Observers all notices and any materials delivered to any such board of directors or any committee thereof in connection with a meeting or action to be taken by written consent, including a draft of any material resolutions or actions proposed to be adopted by written consent. The Observers shall be free prior to such meeting or adoption by written consent to contact the applicable board of directors and/or committee and discuss the pending actions to be taken. As long as Holdings is listed on the NYSE American, New York Stock Exchange or any other stock exchange which requires that such board of directors or committees have the ability to exclude the Observers in order to be in compliance with applicable stock exchange rules and policies, any such board of directors or committee thereof may meet in executive session without the Observers present at any time. In the event that Holdings ceases to be listed on a stock exchange which requires, or the stock exchange on which Holdings is listed no longer requires, that such board of directors or committees have the ability to exclude the Observers in order to be in compliance with applicable stock exchange rules and policies, any such board of directors or committee thereof may meet in executive session without the Observers present to the extent such board of directors or committee determines in good faith that each of the issues to be discussed at such session is not appropriate to be discussed with the Observers because (i) such issue directly involves the Loan Documents and discussion thereof would result in a conflict of interest with the Lenders with respect thereto or (ii) the discussion of such issue in the presence of the Observers would result in the disclosure of trade secrets or the loss of attorney-client privilege. In the event Holdings or the Borrower excludes the Observers from any meeting or portion thereof or withholds any information or materials related thereto, Holdings and the Borrower shall promptly provide to the Observers a general description, which shall be true and correct in all material respects, of the matters discussed during such meeting or portion thereof at which the Observers were excluded and any such withheld information or materials.

(b) Holdings (or the Borrower or a Subsidiary, as applicable) shall pay the Observers' reasonable out-of-pocket expenses (including the cost of travel, meals and lodging) in connection with the attendance of such meetings.

(c) Notwithstanding anything in this Section 7.14 to the contrary, in the event neither ROS nor any of its Affiliates is a Lender under this Agreement, the number of Observers pursuant to this Section 7.14 shall decrease from two people to one person.

SECTION 7.15 Warrants. Holdings shall issue, not later than April 5, 2019, (i) to ROS, a warrant to purchase 765,992 shares of common stock of Holdings and (ii) to Royalty Opportunities, a warrant to purchase 434,008 shares of common stock of Holdings, in each case, with an exercise price of $0.01 per share and an expiration date of ten years following the Restatement Date.

ARTICLE VIII
NEGATIVE COVENANTS

The Borrower, Holdings and the Subsidiaries each covenants and agrees with each Lender that until the Termination Date has occurred, it will perform or cause to be performed the obligations set forth below.

SECTION 8.1 Business Activities. None of Holdings, the Borrower or any of the Subsidiaries will engage in any business activity except those business activities engaged in on the date of this Agreement and activities reasonably related thereto.

SECTION 8.2 Indebtedness. None of Holdings, the Borrower or any of the Subsidiaries will create, incur, assume or permit to exist any Indebtedness, other than:

(a) Indebtedness in respect of the Obligations;

(b) Indebtedness existing as of the Restatement Date which is identified in Schedule 8.2(b), and extensions, renewals, refinancing or replacements of such Indebtedness in a principal amount not in excess of that which is outstanding on the Restatement Date (as such amount has been reduced following the Restatement Date);

(c) unsecured Indebtedness in respect of performance, surety or appeal bonds provided in the ordinary course of business in an aggregate amount at any time outstanding not to exceed $1,000,000;

(d) purchase money Indebtedness and Capitalized Lease Liabilities and extensions, renewals, refinancing or replacements thereof in an aggregate amount at any time outstanding not to exceed $2,000,000;

(e) Permitted Subordinated Indebtedness;

(f) Indebtedness of any Subsidiary, Holdings or the Borrower owing to Holdings, the Borrower or any Subsidiary; and

(g) other Indebtedness of Holdings, the Borrower and the Subsidiaries in an aggregate amount at any time outstanding not to exceed $1,000,000.

provided that, no Indebtedness otherwise permitted by clauses (b), (e) or (g) shall be assumed, created or otherwise incurred if a Default has occurred and is then continuing or would result therefrom.

SECTION 8.3 Liens. None of Holdings, the Borrower or any of the Subsidiaries will create, incur, assume or permit to exist any Lien upon any of its property (including Capital Securities of any Person), revenues or assets, whether now owned or hereafter acquired, except:

(a) Liens securing payment of the Obligations;

(b) Liens existing as of the Restatement Date and disclosed in Schedule 8.3(b) securing Indebtedness described in clause (b) of Section 8.2, and extensions, renewals, refinancing or replacements of such Indebtedness; provided that, no such Lien shall encumber any additional property and the amount of Indebtedness secured by such Lien is not increased from that existing on the Restatement Date (as such Indebtedness may have been permanently reduced subsequent to the Restatement Date);

(c) Liens securing payment of Permitted Subordinated Indebtedness that are (i) subordinate to the Liens securing payment of the Obligations and all other Indebtedness owing from Holdings, the Borrower or the Subsidiaries to the Administrative Agent and the Lenders and (ii) subject to a written subordination agreement satisfactory to the Administrative Agent in its sole discretion;

(d) Liens securing Indebtedness of Holdings, the Borrower or the Subsidiaries permitted pursuant to Section 8.2(d) (provided that (i) such Liens shall be created within 180 days of the acquisition of the assets financed with such Indebtedness and (ii) such Liens do not at any time encumber any property other than the property so financed);

(e) Liens in favor of carriers, warehousemen, mechanics, materialmen and landlords granted in the ordinary course of business for amounts not overdue or being diligently contested in good faith by appropriate proceedings and for which adequate reserves in accordance with GAAP shall have been set aside on its books;

(f) Liens incurred or deposits made in the ordinary course of business in connection with worker's compensation, unemployment insurance or other forms of governmental insurance or benefits, or to secure performance of tenders, statutory obligations, bids, leases or other similar obligations (other than for borrowed money) entered into in the ordinary course of business or to secure obligations on surety and appeal bonds or performance bonds;

(g) judgment Liens in existence for less than 45 days after the entry thereof or with respect to which execution has been stayed or the payment of which is covered in full (subject to a customary deductible) by insurance maintained with responsible insurance companies and which do not otherwise result in an Event of Default under Section 9.1.6;

(h) easements, rights-of-way, zoning restrictions, minor defects or irregularities in title and other similar encumbrances not interfering in any material respect with the value or use of the property to which such Lien is attached; and

(i) Liens for Taxes not at the time delinquent or thereafter payable without penalty or being diligently contested in good faith by appropriate proceedings and for which adequate reserves in accordance with GAAP shall have been set aside on its books.

SECTION 8.4 Financial Covenants.

(a) Minimum Liquidity. At all times, the Liquidity shall not be less than $500,000. Holdings and its Subsidiaries incorporated or organized under the laws of the United States of America, or any state or other political subdivision thereof shall maintain an amount equal to the amount required under this Section 8.4(a), along with their other cash and Cash Equivalent Investments, in Controlled Accounts.

(b) Minimum Revenue Base. The Revenue Base for the periods set forth below shall not be less than the amounts set forth opposite such periods for the periods set forth below:

Testing Period	Minimum Revenue Base
Two Fiscal Quarters ended June 30, 2019	$ 30,000,000
Three Fiscal Quarters ended September 30, 2019	$ 45,000,000
Four Fiscal Quarters ended December 31, 2019	$ 60,000,000
Four Fiscal Quarters ended March 31, 2020	$ 61,000,000
Four Fiscal Quarters ended June 30, 2020	$ 62,000,000
Four Fiscal Quarters ended September 30, 2020	$ 63,000,000
Four Fiscal Quarters ended December 31, 2020	$ 64,000,000
Four Fiscal Quarters ended March 31, 2021	$ 64,500,000

SECTION 8.5 Investments. None of Holdings or any of its Subsidiaries will purchase, make, incur, assume or permit to exist any Investment in any other Person, except:

(a) Investments existing on the Restatement Date and identified in Schedule 8.5(a);

(b) Cash Equivalent Investments;

(c) Investments received in connection with the bankruptcy or reorganization of, or settlement of delinquent accounts and disputes with, customers and suppliers, in each case in the ordinary course of business;

(d) Investments consisting of any deferred portion of the sales price received by Holdings, the Borrower or any of the Subsidiaries in connection with any Disposition permitted under Section 8.8;

(e) Investments constituting (i) accounts receivable arising, (ii) trade debt granted, or (iii) deposits made in connection with the purchase price of goods or services, in each case in the ordinary course of business;

(f) loans and advances to officers, directors, or employees of Holdings, the Borrower or any Subsidiary in the ordinary course of business (including for travel, entertainment and relocation expenses) in an aggregate amount not to exceed $500,000 at any time outstanding;

(g) Investments by Holdings, the Borrower or any Subsidiary in Holdings, the Borrower or any Subsidiary; and

(h) other Investments in an aggregate amount not to exceed $1,000,000 over the term of this Agreement;

provided that,

(i) any Investment which when made complies with the requirements of the definition of the term "Cash Equivalent Investment" may continue to be held notwithstanding that such Investment if made thereafter would not comply with such requirements; and

(ii) no Investment otherwise permitted by clause (i) shall be permitted to be made if any Default has occurred and is continuing or would result therefrom.

SECTION 8.6 Restricted Payments, Etc. None of Holdings or any of its Subsidiaries will declare or make a Restricted Payment, or make any deposit for any Restricted Payment, other than Restricted Payments made by the Borrower or Subsidiaries to Holdings, the Borrower or any Subsidiaries.

SECTION 8.7 Consolidation, Merger; Permitted Acquisitions, Etc. None of Holdings or any of its Subsidiaries will liquidate or dissolve, consolidate with, or merge into or with, any other Person, or purchase or otherwise acquire all or substantially all of the assets of any Person (or any division thereof), except that, so long as no Event of Default has occurred and is continuing (or would occur), any Subsidiary may liquidate or dissolve voluntarily into, and may merge with and into, the Borrower or any Subsidiary.

SECTION 8.8 Permitted Dispositions. None of Holdings or any of its Subsidiaries will Dispose of any of its assets (including accounts receivable and Capital Securities of the Borrower or Subsidiaries) to any Person in one transaction or series of transactions, except:

(a) Dispositions of (i) inventory or obsolete, damaged, worn out or surplus property in the ordinary course of its business and (ii) cash and cash equivalents in payment of goods and services used in the ordinary course of its business;

(b) Dispositions permitted by Section 8.5, Section 8.6 and Section 8.7;

(c) Dispositions of overdue accounts receivable arising in the ordinary course of business, but only in connection with the compromise or collection thereof;

(d) Dispositions of equipment to the extent that (i) such property is exchanged for credit against the purchase price of similar replacement property or (ii) the proceeds of such Disposition are promptly, and in any event within 60 days from the date of such Disposition, applied to the purchase price of such replacement property;

(e) Dispositions of property by Holdings or any of its Subsidiaries to Holdings or to a wholly-owned Subsidiary; and

(f) other Dispositions of assets with an aggregate fair market value not to exceed $1,000,000 over the term of this Agreement.

SECTION 8.9 Modification of Certain Agreements. None of Holdings or any of its Subsidiaries will consent to any amendment, supplement, waiver or other modification of, or enter into any forbearance from exercising any rights with respect to, the terms or provisions contained in (i) any Organic Documents of Holdings or any of its Subsidiaries, if the result would have an adverse effect on the rights or remedies of the Administrative Agent or any Lender, (ii) any agreement governing any Permitted Subordinated Indebtedness, if the result would shorten the maturity date thereof or advance the date on which any cash payment is required to be made thereon or would otherwise change any terms thereof in a manner adverse to the Administrative Agent or any Lender.

SECTION 8.10 Transactions with Affiliates. (a) Other than transactions with a Lender, none of Holdings or any of its Subsidiaries will enter into or cause or permit to exist any arrangement, transaction or contract (including for the purchase, lease or exchange of property or the rendering of services) with any of its Affiliates, unless such arrangement, transaction or contract (i) is on fair and reasonable terms no less favorable to Holdings or such Subsidiary than it could obtain in an arm's-length transaction with a Person that is not one of its Affiliates and (ii) is of the kind which would be entered into by a reasonably prudent Person in its position with a Person that is not one of its Affiliates.

SECTION 8.11 Restrictive Agreements, Etc. None of Holdings or any of its Subsidiaries will enter into any agreement prohibiting (i) the creation or assumption of any Lien upon its properties, revenues or assets, whether now owned or hereafter acquired, (ii) the ability of Holdings or any of its Subsidiaries to amend or otherwise modify any Loan Document or (iii) the ability of the Borrower or any Subsidiary to make any payments, directly or indirectly, to the Borrower or Holdings, including by way of dividends, advances, repayments of loans, reimbursements of management and other intercompany charges, expenses and accruals or other returns on investments. The foregoing prohibitions shall not apply to restrictions contained (x) in any Loan Document or (y) in the case of clause (i), any agreement governing any Indebtedness permitted by clause (d) of Section 8.2 as to the assets financed with the proceeds of such Indebtedness.

SECTION 8.12 Sale and Leaseback. None of Holdings or any of its Subsidiaries will directly or indirectly enter into any agreement or arrangement providing for the sale or transfer by it of any property (now owned or hereafter acquired) to a Person and the subsequent lease or rental of such property or other similar property from such Person.

SECTION 8.13 Product Agreements. None of Holdings or any its Subsidiaries will enter into any amendment with respect to any existing Product Agreement or enter into any new Product Agreement that contains (a) any provision which restricts or penalizes a security interest in, or the assignment of, any Product Agreements, upon the sale, merger or other disposition of all or a material portion of a Product to which such Product Agreement relates or (b) any other provision that has or is likely to adversely effect, in any material respect, any Product to which such agreement relates or to the Administrative Agent or any Lender's rights hereunder.

SECTION 8.14 Change in Name, Location, Executive Office, or Executive Management; Change in Fiscal Year. None of Holdings or any of its Subsidiaries will (i) change its legal name or any trade name used to identify it in the conduct of its business or ownership of its properties without providing the Administrative Agent with at least 30 days' prior written notice of such change, (ii) change its jurisdiction of organization or legal structure, (iii) relocate its chief executive office, principal place of business or any office in which it maintains books or records relating to its business, (iv) change its federal taxpayer identification number or organizational number (or equivalent) without 30 days' prior written notice to the Administrative Agent, (v) replace its chief executive officer or chief financial officer without written notification to the Administrative Agent within 30 days thereafter or (vi) change its Fiscal Year or any of its Fiscal Quarters.

SECTION 8.15 Benefit Plans. None of Holdings, the Borrower or any Subsidiary will (i) become the sponsor of, incur any responsibility to contribute to or otherwise incur actual or potential liability with respect to, any Benefit Plan, (ii) allow any "employee benefit plan" as defined in section 3(3) of ERISA that provides retirement benefits and that is sponsored by Holdings, the Borrower, any Subsidiary or any of their ERISA Affiliates intended to be tax qualified under section 401 or 501 of the Code to cease to be tax qualified, (iii) allow the assets of any tax qualified retirement plan to become invested in Capital Securities of Holdings, the Borrower or any Subsidiary or (iv) allow any employee benefit plan, program or arrangement sponsored, maintained, contributed to or required to be contributed to by Holdings, the Borrower or any Subsidiary to fail to comply in all material respects with its terms and applicable law.

SECTION 8.16 Holdings. Holdings shall not (i) engage in any activities (other than activities customarily carried out or required of a publicly-owned passive holding company, including the entry into customary and ordinary course insurance programs and agreements concerning the Capital Securities of Holdings), (ii) have any operations, own any assets (other than Capital Securities of the Borrower and Subsidiaries) or incur any liabilities (other than the Obligations under (or expressly permitted by) the Loan Documents) or (iii) be party to any contract or agreement, in each case other than (a) employment and employee benefit contracts, (b) customary contracts with accountants, lawyers and other advisors or (c) activities, operations, assets, liabilities, contracts and agreements that do not exceed, and would not reasonably be expected to result in liabilities to Holdings or any of its Subsidiaries that exceed, $500,000 individually or, with respect to any such activities, operations, assets, liabilities, contracts or agreements entered into or incurred after the Restatement Date, $1,000,000 in the aggregate.

ARTICLE IX
EVENTS OF DEFAULT

SECTION 9.1 Listing of Events of Default. Each of the following events or occurrences described in this Article IX shall constitute an "Event of Default".

SECTION 9.1.1 Non-Payment of Obligations. The Borrower shall default in the payment or prepayment when due of (i) any principal of any Loan or (ii) any interest on any Loan or any fee described in Article III or any other monetary Obligation, and in the case of clause (ii) such default shall continue unremedied for a period of two Business Days after such amount was due.

SECTION 9.1.2 Breach of Warranty. Any representation or warranty made or deemed to be made by Holdings, the Borrower or any of the Subsidiaries in any Loan Document (including any certificates delivered pursuant to Article V) is or shall be incorrect when made or deemed to have been made in any material respect.

SECTION 9.1.3 Non-Performance of Certain Covenants and Obligations. Holdings, the Borrower or any Subsidiary shall default in the due performance or observance of any of its obligations under Section 7.1, Section 7.7, Section 7.15 or Article VIII.

SECTION 9.1.4 Non-Performance of Other Covenants and Obligations. Holdings, the Borrower or any Subsidiary shall default in the due performance and observance of any other covenant, obligation or agreement contained in any Loan Document executed by it, and such default shall continue unremedied for a period of 30 days after the earlier to occur of (i) notice thereof given to the Borrower by the Administrative Agent or (ii) the date on which Holdings, the Borrower or any Subsidiary has knowledge of such default.

SECTION 9.1.5 Default on Other Indebtedness. A default shall occur in the payment of any amount when due (subject to any applicable grace period), whether by acceleration or otherwise, of any principal or stated amount of, or interest or fees on, any Indebtedness (other than the Obligations) of Holdings, the Borrower or any of the Subsidiaries having a principal or stated amount, individually or in the aggregate, in excess of $1,000,000, or a default shall occur in the performance or observance of any obligation or condition with respect to such Indebtedness if the effect of such default is to accelerate the maturity of any such Indebtedness or such default shall continue unremedied for any applicable period of time sufficient to permit the holder or holders of such Indebtedness, or any trustee or agent for such holders, to cause or declare such Indebtedness to become due and payable or to require such Indebtedness to be prepaid, redeemed, purchased or defeased, or require an offer to purchase or defease such Indebtedness to be made, prior to its expressed maturity.

SECTION 9.1.6 Judgments. Any judgment or order for the payment of money individually or in the aggregate in excess of $1,000,000 (exclusive of any amounts fully covered by insurance (less any applicable deductible) and as to which the insurer has acknowledged its responsibility to cover such judgment or order) shall be rendered against Holdings, the Borrower or any of the Subsidiaries and such judgment shall not have been vacated or discharged or stayed or bonded pending appeal within 45 days after the entry thereof or enforcement proceedings shall have been commenced by any creditor upon such judgment or order.

*S*ECTION 9.1.7 Change in Control. *Any Change in Control shall occur.*

SECTION 9.1.8 Bankruptcy, Insolvency, Etc. Holdings, the Borrower, or any of the Subsidiaries shall:

(a) become insolvent or generally fail to pay, or admit in writing its inability or unwillingness generally to pay, debts as they become due;

(b) apply for, consent to, or acquiesce in the appointment of a trustee, receiver, sequestrator or other custodian for any substantial part of the property of any thereof, or make a general assignment for the benefit of creditors;

(c) in the absence of such application, consent or acquiescence in or permit or suffer to exist the appointment of a trustee, receiver, sequestrator or other custodian for a substantial part of the property of any thereof, and such trustee, receiver, sequestrator or other custodian shall not be discharged within 60 days; provided that, Holdings, the Borrower and each Subsidiary hereby expressly authorizes the Administrative Agent to appear in any court conducting any relevant proceeding during such 60-day period to preserve, protect and defend its rights under the Loan Documents;

(d) permit or suffer to exist the commencement of any bankruptcy, reorganization, debt arrangement or other case or proceeding under any bankruptcy or insolvency law or any dissolution, winding up or liquidation proceeding, in respect thereof, and, if any such case or proceeding is not commenced by Holdings, the Borrower or any Subsidiary, such case or proceeding shall be consented to or acquiesced in by Holdings, the Borrower or such Subsidiary, as the case may be, or shall result in the entry of an order for relief or shall remain for 60 days undismissed; provided that, Holdings, the Borrower and each Subsidiary hereby expressly authorizes the Administrative Agent to appear in any court conducting any such case or proceeding during such 60-day period to preserve, protect and defend its rights under the Loan Documents; or

(e) take any action authorizing, or in furtherance of, any of the foregoing.

SECTION 9.1.9 Impairment of Security, Etc. Any Loan Document or any Lien granted thereunder shall (except in accordance with its terms), in whole or in part, terminate, cease to be effective or cease to be the legally valid, binding and enforceable obligation of Holdings, the Borrower or any Subsidiary thereto; Holdings, the Borrower or any Subsidiary shall, directly or indirectly, contest in any manner such effectiveness, validity, binding nature or enforceability; or, except as permitted under any Loan Document, any Lien securing any Obligation shall, in whole or in part, cease to be a perfected first priority Lien other than due to the Administrative Agent's failure to file any financing statement or continuation statement required to perfect such Lien.

SECTION 9.1.10 Key Permit Events. *Any Key Permit or any of Holdings', the Borrower's or any Subsidiary's material rights or interests thereunder is terminated or amended in any manner adverse to Holdings, the Borrower or any Subsidiary in any material respect.*

SECTION 9.1.11 Material Adverse Change. Any circumstance occurs that could reasonably be expected to have a Material Adverse Effect.

SECTION 9.1.12 Key Person Event. If any of Kevin Brandt or Ron Berlin, or any replacement individual for any of the aforementioned individuals or such person's subsequent replacement, ceases to be employed full time by Holdings and the Borrower and actively working, unless within 90 days after such individual ceases to be employed full time and actively working, Holdings or the Borrower hire a replacement for such individual approved by the Administrative Agent, such approval not to be unreasonably withheld, delayed or conditioned.

SECTION 9.1.13 Regulatory Matters. If *a*ny of the following occurs: (i) the FDA, the EMA or any other Governmental Authority (A) issues a letter or other communication asserting that any Product lacks a required Product Authorization (including an assertion that a 361 Product fails to meet the criteria of 21 C.F.R. 1271.10) or (B) initiates enforcement action against, or issues a warning letter with respect to, Holdings, the Borrower or any of the Subsidiaries, or any of their Products or the manufacturing facilities therefor, that causes Holdings, the Borrower or such Subsidiary to discontinue marketing or withdraw any of its material Products, or causes a delay in the manufacture of any of its material Products, which discontinuance, withdrawal or delay could reasonably be expected to last for more than three months; (ii) a recall which could reasonably be expected to result in liability to Holdings, the Borrower and the Subsidiaries in excess of $500,000; or (iii) Holdings, the Borrower or any of the Subsidiaries enters into a settlement agreement with the FDA, the EMA or any other Governmental Authority that results in aggregate liability as to any single or related series of transactions, incidents or conditions in excess of $500,000.

SECTION 9.2 Action if Bankruptcy. If any Event of Default described in clauses (a) through (d) of Section 9.1.8 with respect to the Borrower shall occur, the Commitments (if not theretofore terminated) shall automatically terminate and the outstanding principal amount of the Loans and all other Obligations shall automatically be and become immediately due and payable, without notice or demand to any Person.

SECTION 9.3 Action if Other Event of Default. If any Event of Default (other than any Event of Default described in clauses (a) through (d) of Section 9.1.8) shall occur for any reason, whether voluntary or involuntary, and be continuing, the Administrative Agent may, by notice to the Borrower declare all or any portion of the outstanding principal amount of the Loans and other Obligations to be due and payable and/or the Commitments (if not theretofore terminated) to be terminated, whereupon the full unpaid amount of the Loans and other Obligations which shall be so declared due and payable shall be and become immediately due and payable, without further notice, demand or presentment, and the Commitments shall terminate.

ARTICLE X
THE ADMINISTRATIVE AGENT

SECTION 10.1 Administrative Agent; Actions, Etc.

SECTION 10.1.1 Appointments. The parties hereto agree as follows:

(a) Each Lender hereby appoints ROS as the administrative agent (the "Administrative Agent") for the Lenders and for purposes of this Agreement and each other Loan Document, and the Borrower acknowledges and consents to such appointment. Each Lender authorizes the Administrative Agent to act on its behalf under this Agreement and each other Loan Document and to exercise such powers hereunder and thereunder as are specifically delegated to it or required of it by the terms hereof and thereof or as directed from time to time by the Lenders, together with such powers as may be incidental thereto (including the prosecution and defense of claims for and on behalf of the Lenders, the enforcement of rights and remedies, including foreclosure in respect of collateral, Liens and claims, the waiver of Defaults or obligations of the Borrower, the release of Liens on assets Disposed of in accordance with the terms of the Loan Documents and the delivery of notices, etc. to the Borrower); provided, however, that in no event may the Administrative Agent take any action on behalf of any Lender that, pursuant to Section 11.1, requires the express individual consent of such Lender, unless such Lender has so consented.

(b) For purposes of this Agreement and the other Loan Documents, the Administrative Agent may act as the "Collateral Agent", "Security Agent", "Documentation Agent" or in any similar capacity as the Lenders may determine to be necessary to protect the Lenders' interests under or pursuant to the Loan Documents or otherwise.

(c) Solely with respect to actions or omissions of the Administrative Agent acting in its capacity as the Administrative Agent, the Borrower hereby indemnifies (which indemnity shall survive any termination of this Agreement) and holds harmless the Administrative Agent from and against any and all obligations, losses, damages, claims, costs or expenses of any kind or nature whatsoever which may at any time be imposed on, incurred by or asserted against the Administrative Agent under or pursuant to this Agreement or any other Loan Document by any Person (including attorneys' fees), except for any such obligation, losses, damages, claims or expenses resulting from the wilful misconduct or gross negligence of the Administrative Agent, as determined in a final non-appealable judgment by a court of competent jurisdiction.

(d) Solely with respect to actions or omissions of the Administrative Agent acting in its capacity as the Administrative Agent and solely to the extent that the Administrative Agent is not reimbursed by the Borrower pursuant to clause (b) above, each Lender (acting in its respective capacity as a Lender) hereby indemnifies (which indemnity shall survive any termination of this Agreement) and holds harmless the Administrative Agent, pro rata according to such Lender's Proportionate Share, from and against any and all obligations, losses, damages, claims, costs or expenses of any kind or nature whatsoever which may at any time be imposed on, incurred by or asserted against the Administrative Agent under or pursuant to this Agreement or any other Loan Document by any Person (including attorneys' fees).

(e) The Administrative Agent shall not be required to take any action under any Loan Document, or to prosecute or defend any suit in respect of any Loan Document, unless it is indemnified hereunder to its satisfaction. If any indemnity in favor of the Administrative shall be or become, in the Administrative Agent's determination, inadequate, the Administrative Agent may call for additional indemnification from the Lenders and cease to do the acts indemnified against hereunder until such additional indemnity is given.

SECTION 10.1.2 Funding, Etc. In no event shall the Administrative Agent (acting in its capacity as the Administrative Agent) be liable or responsible for funding or advancing any obligation of any Lender or other Person owed or payable under or in connection with this Agreement, including in respect of any claims, damages, reimbursements, indemnities or otherwise.

SECTION 10.1.3 Exculpation. Neither ROS nor any of its directors, officers, employees, agents or Affiliates shall be liable to any Person for any action taken or omitted to be taken by it, whether in its capacity as (or in connection with its capacity as) the Administrative Agent under or in connection with any Loan Document, except for its own wilful misconduct or gross negligence, nor shall it be responsible for any recitals or warranties herein or therein, nor for the effectiveness, enforceability, validity or due execution of any Loan Document, nor for the creation, perfection or priority of any Liens purported to be created by any of the Loan Documents, or the validity, genuineness, enforceability, existence, value or sufficiency of any collateral security, nor to make any inquiry respecting the performance by any Guarantor of its Obligations. The Administrative Agent shall be entitled to rely upon advice of counsel concerning legal matters and upon any notice, consent, certificate, statement or writing which the Administrative Agent believes to be genuine and to have been presented by a proper Person.

SECTION 10.1.4 Successor. The Administrative Agent may resign as such at any time upon at least 30 days' prior notice to the Borrower and all the Lenders. If the Administrative Agent at any time shall resign, the Lenders may appoint another Lender as a successor Administrative Agent which shall thereupon become the Administrative Agent hereunder, provided that, so long as no Event of Default shall exist, the Borrower's consent to such successor shall be required (such consent not to be unreasonably withheld or delayed). If no successor Administrative Agent shall have been so appointed by the Lenders and shall have accepted such appointment within 30 days after the retiring Administrative Agent's giving notice of resignation, then the retiring Administrative Agent may, on behalf of the Lenders, appoint a successor Administrative Agent, which may be one of the Lenders (if such Lender consents to such appointment) or a commercial banking institution organized under the laws of the United States (or any State thereof) or a United States branch or agency of a commercial banking institution, and having a combined capital and surplus of at least $250,000,000; provided that, if, such retiring Administrative Agent is unable to find a commercial banking institution which is willing to accept such appointment and which meets the qualifications set forth above, the retiring Administrative Agent's resignation shall nevertheless thereupon become effective and the Lenders shall assume and perform all of the duties of the Administrative Agent hereunder until such time, if any, as the Lenders appoint a successor as provided for above. Upon the acceptance of any appointment as Administrative Agent hereunder by a successor Administrative Agent, such successor Administrative Agent shall be entitled to receive from the retiring Administrative Agent such documents of transfer and assignment as such successor Administrative Agent may reasonably request, and shall thereupon succeed to and become vested with all rights, powers, privileges and duties of the retiring Administrative Agent, and the retiring Administrative Agent shall be discharged from its duties and obligations under the Loan Documents. After any retiring Administrative Agent's resignation hereunder as the Administrative Agent, the provisions of this Article X shall inure to its benefit as to any actions taken or omitted to be taken by it while it was the Administrative Agent under the Loan Documents, and Section 11.3 and Section 11.4 shall continue to inure to its benefit.

SECTION 10.1.5 Loans, Etc. by ROS. ROS shall have the same rights and powers with respect to the Loans and other Obligations owing to it under or pursuant to the Loan Documents as any other Lender and may exercise all its rights and powers in respect thereof as if it were not the Administrative Agent. ROS and its Affiliates may generally engage in any kind of business with the Borrower or any Subsidiary or Affiliate of Holdings or any other Person (whether or not an Affiliate of Holdings or any other Person party hereto or to any other Loan Document) as if ROS was not the Administrative Agent hereunder. Without limiting the foregoing, no Person acting as the Administrative Agent hereunder shall have any fiduciary duty of any sort to the Borrower, any of its Subsidiaries or Affiliates, or to any other Person, merely as a result of its actions or involvement as the Administrative Agent. The Borrower, for itself and each of its Subsidiaries and Affiliates, hereby expressly waives to the fullest extent possible any claim (and any right to assert any claim) against the Administrative Agent (or Person acting as the Administrative Agent) or any of its Affiliates asserting that such acts or involvement of the Administrative Agent (or Person acting as the Administrative Agent) breaches any fiduciary or other duty or obligation owed to the Borrower or any of its Subsidiaries or Affiliates, or asserting that any such acts or involvement constitutes a conflict of interest by such Administrative Agent (or Person acting as the Administrative Agent) or any of its Affiliates with respect to the Borrower or any of its Subsidiaries or Affiliates.

SECTION 10.1.6 Credit Decisions. Each Lender acknowledges that it has, independently of the Administrative Agent and each other Lender, and based on such Lender's review of the financial information of the Borrower, the Loan Documents (the terms and provisions of which being satisfactory to such Lender) and such other documents, information and investigations as such Lender has deemed appropriate, made its own credit decision to extend its portion of the Loans. Each Lender also acknowledges that it will, independently of the Administrative Agent and each other Lender, and based on such other documents, information and investigations as it shall deem appropriate at any time, continue to make its own credit decisions as to exercising or not exercising from time to time any rights and privileges available to it under the Loan Documents.

SECTION 10.1.7 Copies, etc. The Administrative Agent shall give prompt notice to each Lender of each notice or request required or permitted to be given to the Administrative Agent by the Borrower pursuant to the terms of the Loan Documents (unless concurrently delivered to the Lenders by the Borrower). The Administrative Agent will distribute to each Lender each document or instrument received for its account and copies of all other communications received by the Administrative Agent from the Borrower for distribution to the Lenders by the Administrative Agent in accordance with the terms of the Loan Documents.

SECTION 10.1.8 Reliance by the Administrative Agent. The Administrative Agent shall be entitled to rely upon any certification, notice or other communication (including any thereof by telephone, telecopy, telegram or cable) believed by it to be genuine and correct and to have been signed or sent by or on behalf of the proper Person, and upon advice and statements of legal counsel, independent accountants and other experts selected by the Administrative Agent. As to any matters not expressly provided for by the Loan Documents, the Administrative Agent shall in all cases be fully protected in acting, or in refraining from acting, thereunder in accordance with instructions given by the Lenders, and such instructions of such Lenders and any action taken or failure to act pursuant thereto shall be binding on all Lenders.

SECTION 10.1.9 Defaults. The Administrative Agent shall not be deemed to have knowledge or notice of the occurrence of a Default unless the Administrative Agent has received a written notice from a Lender or the Borrower specifying such Default and stating that such notice is a "Notice of Default". In the event that the Administrative Agent receives such a notice of the occurrence of a Default, the Administrative Agent shall give prompt notice thereof to the Lenders. The Administrative Agent shall (subject to Section 11.1) take such action with respect to such Default as shall be directed by the Lenders; provided that, unless and until the Administrative Agent shall have received such directions, the Administrative Agent may (but shall not be obligated to) take such action, or refrain from taking such action, with respect to such Default as it shall deem advisable in the best interest of the Lenders except to the extent that this Agreement expressly requires that such action be taken, or not be taken, only with the consent or upon the authorization of all the Lenders.

SECTION 10.2 Administrative Agent Appointed Attorney-in-Fact . Each Lender hereby irrevocably authorizes, constitutes and appoints the Administrative Agent as its true and lawful attorney-in-fact, with full power and authority, in the place and stead of such Lender and in the name of such Lender or otherwise, to take any action and to execute any instrument which the Administrative Agent may deem necessary or advisable in connection with any Loan Document (but subject to the terms of such Loan Document), including any Security Agreement or the security interests created and the collateral pledged thereunder, including without limitation:

(a) to execute and deliver for and on its behalf any Loan Documents or other agreements, instruments any notices related thereto or to the security interests created thereunder;

(b) to execute and deliver any other agreements or other instruments relating to any Loan Documents that are required to be delivered on the Restatement Date; and

(c) to take any and all other actions and measures on behalf of such Lender which the Administrative Agent deems necessary or appropriate in connection with this Agreement, the Security Agreement, the collateral pledged under such Security Agreement, and the other Loan Documents, in each case in order to consummate the transactions contemplated hereby and thereby in such manner as described therein.

Each Lender hereby acknowledges, consents and agrees that the power of attorney granted pursuant to this Section 10.2 is irrevocable and coupled with an interest.

SECTION 10.3 Register. The Administrative Agent, acting solely for this purpose as an agent of the Borrower, shall maintain a register for the recordation of the names and addresses of the Lenders and principal amounts (and stated interest) of the Loans owing to each Lender pursuant to the terms hereof from time to time (the "Register"). The entries in the Register shall be conclusive absent manifest error, and the Borrower, the Administrative Agent and the Lenders shall treat each Person whose name is recorded in the Register pursuant to the terms hereof as a Lender hereunder for all purposes of this Agreement. The Register shall be available for inspection by the Borrower and any Lender, at any reasonable time and from time to time upon reasonable prior notice.

ARTICLE XI
MISCELLANEOUS PROVISIONS

SECTION 11.1 Waivers, Amendments, Etc. The provisions of each Loan Document may from time to time be amended, modified or waived, if such amendment, modification or waiver is in writing and consented to by the Administrative Agent (acting on behalf of the Lenders) and the Borrower.

No failure or delay on the part of any Lender in exercising any power or right under any Loan Document shall operate as a waiver thereof, nor shall any single or partial exercise of any such power or right preclude any other or further exercise thereof or the exercise of any other power or right. No notice to or demand on Holdings, the Borrower or any of the Subsidiaries in any case shall entitle it or any of them to any notice or demand in similar or other circumstances. No waiver or approval by any Lender under any Loan Document shall, except as may be otherwise stated in such waiver or approval, be applicable to subsequent transactions. No waiver or approval hereunder shall require any similar or dissimilar waiver or approval thereafter to be granted hereunder.

SECTION 11.2 Notices; Time. All notices and other communications provided under any Loan Document shall be in writing or by facsimile and addressed, delivered or transmitted, if to the Borrower or a Lender, to the applicable Person at its address or facsimile number set forth on Schedule 11.2 hereto, or at such other address or facsimile number as may be designated by such party in a notice to the other parties. Any notice, if mailed and properly addressed with postage prepaid or if properly addressed and sent by pre-paid courier service, shall be deemed given when received; any notice, if transmitted by facsimile, shall be deemed given when the confirmation of transmission thereof is received by the transmitter. Unless otherwise indicated, all references to the time of a day in a Loan Document shall refer to New York City time.

SECTION 11.3 Payment of Costs and Expenses. The Borrower agrees to pay on demand all reasonable expenses of the Administrative Agent (including the reasonable fees and out-of-pocket expenses of Covington & Burling LLP, counsel to the Administrative Agent and each Lender, and of local counsel, if any, who may be retained by or on behalf of the Administrative Agent or any such Lender) in connection with:

(a) the negotiation, preparation, execution and delivery of each Loan Document, including schedules and exhibits, and any amendments, waivers, consents, supplements or other modifications to any Loan Document as may from time to time hereafter be required, whether or not the transactions contemplated hereby are consummated;

(b) the filing or recording of any Loan Document (including any financing statements) and all amendments, supplements, amendment and restatements and other modifications to any thereof, searches made following the Restatement Date in jurisdictions where financing statements (or other documents evidencing Liens in favor of the Administrative Agent or any Lender) have been recorded and any and all other documents or instruments of further assurance required to be filed or recorded by the terms of any Loan Document; and

(c) the preparation and review of the form of any document or instrument relevant to any Loan Document.

The Borrower further agrees to pay, and to hold the Administrative Agent and each Lender harmless from all liability for, any stamp or other taxes which may be payable in connection with the execution or delivery of each Loan Document, the Loans or the issuance of the Note. The Borrower also agrees to reimburse the Administrative Agent and each Lender upon demand for all reasonable out-of-pocket expenses (including reasonable attorneys' fees and legal expenses of counsel to the Administrative Agent and each Lender) incurred by the Administrative Agent and each Lender in connection with (x) the negotiation of any restructuring or "work-out" with the Borrower, whether or not consummated, of any Obligations and (y) the enforcement of any Obligations.

SECTION 11.4 Indemnification. In consideration of the execution and delivery of this Agreement by the Administrative Agent and each Lender, the Borrower hereby indemnifies, agrees to defend, exonerates and holds the Administrative Agent and each Lender and each of their respective officers, directors, employees and agents (collectively, the "Indemnified Parties") free and harmless from and against any and all actions, causes of action, suits, losses, costs, liabilities, obligations and damages, and expenses incurred in connection therewith (irrespective of whether any such Indemnified Party is a party to the action for which indemnification hereunder is sought), including reasonable attorneys' and professionals' fees and disbursements, whether incurred in connection with actions between the parties hereto or the parties hereto and third parties (collectively, the "Indemnified Liabilities"), including, without limitation, Indemnified Liabilities arising out of or relating to (i) the entering into and performance of its obligations under any Loan Document by any of the Indemnified Parties (including any action brought by or on behalf of the Borrower as the result of any determination by the Lenders pursuant to Article V not to fund any Loan), and (ii) any Environmental Liability. If and to the extent that the foregoing indemnification may be unenforceable for any reason, the Borrower agrees to make the maximum contribution to the payment and satisfaction of each of the Indemnified Liabilities which is permissible under applicable law. No Indemnified Party shall have a right to indemnification for Indemnified Liabilities resulting from its wilful misconduct or gross negligence, as determined in a final non-appealable judgment by a court of competent jurisdiction.

SECTION 11.5 Survival. The obligations of the Borrower under Section 4.1, Section 4.2, Section 4.3, Section 11.3 and Section 11.4, shall in each case survive any assignment by any Lender and the occurrence of the Termination Date. The representations and warranties made by the Borrower in each Loan Document shall survive the execution and delivery of such Loan Document.

SECTION 11.6 Severability. Any provision of any Loan Document which is prohibited or unenforceable in any jurisdiction shall, as to such provision and such jurisdiction, be ineffective to the extent of such prohibition or unenforceability without invalidating the remaining provisions of such Loan Document or affecting the validity or enforceability of such provision in any other jurisdiction.

SECTION 11.7 Headings. The various headings of each Loan Document are inserted for convenience only and shall not affect the meaning or interpretation of such Loan Document or any provisions thereof.

SECTION 11.8 Execution in Counterparts, Effectiveness, Etc. This Agreement may be executed by the parties hereto in several counterparts, each of which shall be an original and all of which shall constitute together but one and the same agreement. This Agreement shall become effective when counterparts hereof executed on behalf of the Borrower, the Administrative Agent and the Lenders, shall have been received by the Administrative Agent. Delivery of an executed counterpart of a signature page to this Agreement by email (e.g. "pdf" or "tiff") or telecopy shall be effective as delivery of a manually executed counterpart of this Agreement.

SECTION 11.9 Governing Law; Entire Agreement. EACH LOAN DOCUMENT AND ANY CLAIMS, CONTROVERSY, DISPUTE OR CAUSE OF ACTION (WHETHER IN CONTRACT OR TORT OR OTHERWISE) BASED UPON, ARISING OUT OF OR RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT CONTEMPLATED HEREBY AND THEREBY SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE INTERNAL LAWS OF THE STATE OF NEW YORK (INCLUDING FOR SUCH PURPOSE SECTIONS 5-1401 AND 5-1402 OF THE GENERAL OBLIGATIONS LAW OF THE STATE OF NEW YORK). The Loan Documents (including this Agreement) constitute the entire understanding among the parties hereto with respect to the subject matter thereof and supersede any prior agreements, written or oral, with respect thereto.

SECTION 11.10 Successors and Assigns. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and assigns; provided that, the Borrower may not assign or transfer its rights or obligations hereunder without the consent of the Administrative Agent; provided further that, unless an Event of Default has occurred and is continuing, no Lender may assign or otherwise transfer its rights or obligations hereunder (i) in an aggregate principal amount less than $1,000,000, other than to an Affiliate of a Lender, and (ii) to any industry competitor of Holdings or its Subsidiaries.

SECTION 11.11 Other Transactions. Nothing contained herein shall preclude any Lender, from engaging in any transaction, in addition to those contemplated by the Loan Documents, with the Borrower or any of its Affiliates in which the Borrower or such Affiliate is not restricted hereby from engaging with any other Person.

SECTION 11.12 Forum Selection and Consent to Jurisdiction. ANY LITIGATION BASED HEREON, OR ARISING OUT OF, UNDER, OR IN CONNECTION WITH, ANY LOAN DOCUMENT, OR ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER ORAL OR WRITTEN) OR ACTIONS OF THE ADMINISTRATIVE AGENT, ANY LENDER OR THE BORROWER IN CONNECTION HEREWITH OR THEREWITH SHALL BE BROUGHT AND MAINTAINED IN THE COURTS OF THE BOROUGH OF MANHATTAN IN THE CITY OF NEW YORK IN THE STATE OF NEW YORK OR IN THE UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF NEW YORK; PROVIDED THAT, ANY SUIT SEEKING ENFORCEMENT AGAINST ANY COLLATERAL OR OTHER PROPERTY MAY BE BROUGHT, AT THE ADMINISTRATIVE AGENT'S OPTION, IN THE COURTS OF ANY JURISDICTION WHERE SUCH COLLATERAL OR OTHER PROPERTY MAY BE FOUND. THE BORROWER IRREVOCABLY CONSENTS TO THE SERVICE OF PROCESS BY REGISTERED MAIL, POSTAGE PREPAID, OR BY PERSONAL SERVICE WITHIN OR WITHOUT THE STATE OF NEW YORK AT THE ADDRESS FOR NOTICES SPECIFIED IN SECTION 11.2. THE BORROWER HEREBY EXPRESSLY AND IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY LAW, ANY OBJECTION WHICH IT MAY HAVE OR HEREAFTER MAY HAVE TO THE LAYING OF VENUE OF ANY SUCH LITIGATION BROUGHT IN ANY SUCH COURT REFERRED TO ABOVE AND ANY CLAIM THAT ANY SUCH LITIGATION HAS BEEN BROUGHT IN AN INCONVENIENT FORUM. TO THE EXTENT THAT THE BORROWER HAS OR HEREAFTER MAY ACQUIRE ANY IMMUNITY FROM JURISDICTION OF ANY COURT OR FROM ANY LEGAL PROCESS (WHETHER THROUGH SERVICE OR NOTICE, ATTACHMENT PRIOR TO JUDGMENT, ATTACHMENT IN AID OF EXECUTION OR OTHERWISE) WITH RESPECT TO ITSELF OR ITS PROPERTY, THE BORROWER HEREBY IRREVOCABLY WAIVES TO THE FULLEST EXTENT PERMITTED BY LAW SUCH IMMUNITY IN RESPECT OF ITS OBLIGATIONS UNDER THE LOAN DOCUMENTS.

SECTION 11.13 Waiver of Jury Trial. THE ADMINISTRATIVE AGENT, THE LENDERS AND THE BORROWER HEREBY KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVE TO THE FULLEST EXTENT PERMITTED BY LAW ANY RIGHTS THEY MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION BASED HEREON, OR ARISING OUT OF, UNDER, OR IN CONNECTION WITH, EACH LOAN DOCUMENT, OR ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER ORAL OR WRITTEN) OR ACTIONS OF THE ADMINISTRATIVE AGENT, THE LENDERS OR THE BORROWER IN CONNECTION THEREWITH. THE BORROWER ACKNOWLEDGES AND AGREES THAT IT HAS RECEIVED FULL AND SUFFICIENT CONSIDERATION FOR THIS PROVISION (AND EACH OTHER PROVISION OF EACH OTHER LOAN DOCUMENT TO WHICH IT IS A PARTY) AND THAT THIS PROVISION IS A MATERIAL INDUCEMENT FOR THE LENDERS ENTERING INTO THE LOAN DOCUMENTS.

SECTION 11.14 Confidentiality. Subject to the provisions of Section 11.15, the Receiving Party shall keep confidential and shall not publish or otherwise disclose any Confidential Information furnished to it by the Disclosing Party, except to those of the Receiving Party's employees, advisors or consultants who have a need to know such information to assist such Receiving Party in the performance of such Receiving Party's obligations or in the exercise of such Receiving Party's rights hereunder and who are subject to reasonable obligations of confidentiality (collectively, "Recipients"). Notwithstanding anything to the contrary set forth herein, ROS may disclose this Agreement and the terms and conditions hereof and any information related hereto to (i) its Affiliates, (ii) potential and actual permitted assignees of any of ROS' rights hereunder (including the right to receive any payments hereunder) and (iii) potential and actual investors in, or lenders to, ROS (including, in each of the foregoing cases, such Person's employees, advisors or consultants); provided that each such recipient shall be subject to reasonable obligations of confidentiality.

SECTION 11.15 Exceptions to Confidentiality. The Receiving Party's obligations set forth in this Agreement shall not extend to any Confidential Information of the Disclosing Party:

(a) that is or hereafter becomes part of the public domain (other than as a result of a disclosure by the Receiving Party or its Recipients in violation of this Agreement);

(b) that is received from a third party without restriction on disclosure and without, to the knowledge of the Receiving Party, breach of any agreement between such third party and the Disclosing Party;

(c) that the Receiving Party can demonstrate by competent evidence was already in its possession without any limitation on disclosure prior to its receipt from the Disclosing Party;

(d) that is generally made available to third parties by the Disclosing Party without restriction on disclosure;

(e) that the Receiving Party can demonstrate by competent evidence was independently developed by the Receiving Party without the use of Confidential Information; or

(f) that is, in the opinion of counsel to the Receiving Party, required to be disclosed pursuant to Law or Judgment binding upon the Receiving Party or pursuant to the requirement or request of any Governmental Authority; provided that, unless otherwise prohibited by Law, the Receiving Party shall notify the Disclosing Party of such disclosure prior thereto and the Receiving Party shall use its commercially reasonable best efforts (i) to limit the Confidential Information being disclosed to the extent possible and (ii) to require the Person receiving such Confidential Information to agree to be subject to confidentiality obligations that are substantially similar to the obligations set forth herein or, if not practicable, such other confidentiality obligations as may be reasonably practicable.

SECTION 11.16 Remedies. Each party hereto agrees that the unauthorized disclosure of any Confidential Information by the Receiving Party in violation of this Agreement will cause severe and irreparable damage to the Disclosing Party. In the event of any violation of Sections 11.14 or 11.15 hereof, the Receiving Party agrees that the Disclosing Party shall be authorized and entitled to obtain from any court of competent jurisdiction injunctive relief, whether preliminary or permanent, without the necessity of proving irreparable harm or monetary damages or posting any bond, as well as any other relief permitted by applicable Law.

SECTION 11.17 Waiver and Release. TO INDUCE THE ADMINISTRATIVE AGENT AND THE LENDERS TO AGREE TO THE TERMS OF THIS AGREEMENT, THE BORROWER, THE ADDITIONAL DELAYED DRAW BORROWER, THE GUARANTORS AND THEIR AFFILIATES (COLLECTIVELY, THE RELEASING PARTIES") REPRESENT AND WARRANT THAT AS OF THE DATE HEREOF THERE ARE NO CLAIMS OR OFFSETS AGAINST OR RIGHTS OF RECOUPMENT WITH RESPECT TO OR DEFENSES OR COUNTERCLAIMS TO THEIR OBLIGATIONS UNDER THE LOAN DOCUMENTS AND IN ACCORDANCE THEREWITH THEY:

(a) WAIVE ANY AND ALL SUCH CLAIMS, OFFSETS, RIGHTS OF RECOUPMENT, DEFENSES OR COUNTERCLAIMS, WHETHER KNOWN OR UNKNOWN, ARISING PRIOR TO THE DATE HEREOF; AND

(b) FOREVER RELEASE, RELIEVE, AND DISCHARGE THE ADMINISTRATIVE AGENT, THE LENDERS, THEIR OFFICERS, DIRECTORS, SHAREHOLDERS, MEMBERS, PARTNERS, PREDECESSORS, SUCCESSORS, ASSIGNS, ATTORNEYS, ACCOUNTANTS, AGENTS, EMPLOYEES, AND REPRESENTATIVES (COLLECTIVELY, THE " RELEASED PARTIES"), AND EACH OF THEM, FROM ANY AND ALL CLAIMS, LIABILITIES, DEMANDS, CAUSES OF ACTION, DEBTS, OBLIGATIONS, PROMISES, ACTS, AGREEMENTS, AND DAMAGES, OF WHATEVER KIND OR NATURE, WHETHER KNOWN OR UNKNOWN, SUSPECTED OR UNSUSPECTED, CONTINGENT OR FIXED, LIQUIDATED OR UNLIQUIDATED, MATURED OR UNMATURED, WHETHER AT LAW OR IN EQUITY, WHICH THE RELEASING PARTIES EVER HAD, NOW HAVE, OR MAY, SHALL, OR CAN HEREAFTER HAVE, DIRECTLY OR INDIRECTLY ARISING OUT OF OR IN ANY WAY BASED UPON, CONNECTED WITH, OR RELATED TO MATTERS, THINGS, ACTS, CONDUCT, AND/OR OMISSIONS AT ANY TIME FROM THE BEGINNING OF THE WORLD THROUGH AND INCLUDING THE DATE HEREOF, INCLUDING WITHOUT LIMITATION ANY AND ALL CLAIMS AGAINST THE RELEASED PARTIES ARISING UNDER OR RELATED TO THE LOAN DOCUMENTS OR THE TRANSACTIONS CONTEMPLATED THEREBY.

(c) IN CONNECTION WITH THE RELEASE CONTAINED HEREIN, THE RELEASING PARTIES ACKNOWLEDGE THAT THEY ARE AWARE THAT THEY MAY HEREAFTER DISCOVER CLAIMS PRESENTLY UNKNOWN OR UNSUSPECTED, OR FACTS IN ADDITION TO OR DIFFERENT FROM THOSE WHICH THEY KNOW OR BELIEVE TO BE TRUE, WITH RESPECT TO THE MATTERS RELEASED HEREIN. NEVERTHELESS, IT IS THE INTENTION OF THE RELEASING PARTIES, THROUGH THIS AGREEMENT AND WITH ADVICE OF COUNSEL, FULLY, FINALLY, AND FOREVER TO RELEASE ALL SUCH MATTERS, AND ALL CLAIMS RELATED THERETO, WHICH DO NOW EXIST, OR HERETOFORE HAVE EXISTED. IN FURTHERANCE OF SUCH INTENTION, THE RELEASES HEREIN GIVEN SHALL BE AND REMAIN IN EFFECT AS A FULL AND COMPLETE RELEASE OR WITHDRAWAL OF SUCH MATTERS NOTWITHSTANDING THE DISCOVERY OR EXISTENCE OF ANY SUCH ADDITIONAL OR DIFFERENT CLAIMS OR FACTS RELATED THERETO.

(d) THE RELEASING PARTIES COVENANT AND AGREE NOT TO BRING ANY CLAIM, ACTION, SUIT, OR PROCEEDING AGAINST THE RELEASED PARTIES, DIRECTLY OR INDIRECTLY, REGARDING OR RELATED IN ANY MANNER TO THE MATTERS RELEASED HEREBY, AND FURTHER COVENANT AND AGREE THAT THIS AGREEMENT IS A BAR TO ANY SUCH CLAIM, ACTION, SUIT, OR PROCEEDING.

(e) THE RELEASING PARTIES REPRESENT AND WARRANT TO THE RELEASED PARTIES THAT THEY HAVE NOT HERETOFORE ASSIGNED OR TRANSFERRED, OR PURPORTED TO ASSIGN OR TRANSFER, TO ANY PERSON OR ENTITY ANY CLAIMS OR OTHER MATTERS HEREIN RELEASED.

SECTION 11.18 Amendment and Restatement of Existing Credit Agreement. Effective upon satisfaction of all of the conditions precedent set forth in Section 5.1:

(a) this Agreement shall be deemed to amend and restate in its entirety the Existing Credit Agreement, the Existing Credit Agreement shall be superseded and replaced in its entirety by this Agreement and the Continuing Loans shall be deemed to be outstanding under this Agreement; provided that nothing in this Agreement shall be deemed to be a repayment or novation of any indebtedness or other Obligations (including the Continuing Loans), or to release or otherwise adversely affect any lien, mortgage or security interest securing such indebtedness or Obligations or any rights of the Administrative Agent or the Lenders against any guarantor, surety or other party primarily or secondarily liable for such indebtedness or Obligations; and

(b) this Agreement shall be deemed to be the "Credit Agreement" for purposes of references thereto in the other Loan Documents.

[*Signature Page Follows*]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their respective officers thereunto duly authorized as of the day and year first above written.

BACTERIN INTERNATIONAL, INC.,
as the Borrower

By: */s/ Greg Jensen*
Name: Greg Jensen
Title: Chief Financial Officer

XTANT MEDICAL HOLDINGS, INC.,
as a Guarantor

By: */s/ Greg Jensen*
Name: Greg Jensen
Title: Interim Chief Financial Officer

X-SPINE SYSTEMS, INC.,
as a Guarantor and the Additional Delayed Draw Borrower

By: */s/ Greg Jensen*
Name: Greg Jensen
Title: Chief Financial Officer

XTANT MEDICAL, INC.,
as a Guarantor

By: */s/ Greg Jensen*
Name: Greg Jensen
Title: Chief Financial Officer

ROS ACQUISITION OFFSHORE LP,
as the Administrative Agent and as a Lender

By OrbiMed Advisors LLC, solely in its capacity as Investment Manager

By: */s/ W. Carter Neild*
Name: W. Carter Neild
Title: Member

ORBIMED ROYALTY OPPORTUNITIES II, LP,
as a Lender

By OrbiMed ROF II LLC,
its General Partner

By OrbiMed Advisors LLC,
its Managing Member

By: */s/ W. Carter Neild*
Name: W. Carter Neild
Title: Member

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Xtant Medical Holdings, Inc.'s Registration Statements on Form S-1 (File Nos. 333-224940 and 333-213350), on Form S-3 (File Nos. 333-194944 and 333-189830) and on Form S-8 (File Nos. 333-172891, 333-187563, 333-191248, 333-212510 and 333-226588) of our report dated April 1, 2019 relating to the consolidated financial statements, which appears in this Annual Report on Form 10-K.

/s/ Plante & Moran PLLC

April 1, 2019
Denver, Colorado

Exhibit 31.1

Certification of Principal Executive Officer and Principal Financial Officer

I, Greg Jensen, certify that:

1. I have reviewed this Annual Report on Form 10-K of Xtant Medical Holdings, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 1, 2019

By: */s/ Greg Jensen*

Greg Jensen
Vice President, Finance and Interim Chief Financial Officer
(Principal Executive Officer and Principal Financial Officer)

Exhibit 32.1

Section 1350 Certification of Principal Executive Officer and Principal Financial Officer

In connection with the Annual Report on Form 10-K of Xtant Medical Holdings, Inc. (the "Company") for the annual period ended December 31, 2018 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Greg Jensen, Interim Chief Financial Officer of the Company, certify, to the best of my knowledge and belief, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a) or 78o(d)); and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Greg Jensen
Greg Jensen
Vice President, Finance and Interim Chief Financial Officer (Principal Executive Officer and Principal Financial Officer)
April 1, 2019