



# Moving healthcare forward.

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2019  
Annual  
Report

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## Dear Shareholder,

As a company driven by its mission to help make healthcare better for everyone, we believe HMS is well positioned to continue to grow and succeed long term. Our firm belief is supported by our key assets – robust, market-leading data; advanced analytics; deep healthcare expertise; and an expansive client base – as well as a favorable long-term macro-environment.

In 2019, HMS delivered solid revenue and profit growth, and we posted record operating cash flow for the year that will continue to fuel further investment in our people, processes and technology. We also made significant progress with new product development and market expansion, which positions our Company to drive HMS' growth in 2020 and beyond.

### Financial Performance

Total revenue in 2019 increased 4.7% from the prior year and reached \$626.4 million. On a business line basis, payment integrity (PI) revenue increased 12.6% while coordination of benefits (COB) and population health management (PHM) revenues increased 1.8% and 5.2%, respectively. Net income for the full year jumped 58.5% to \$87.2 million, or \$0.98 per diluted share, and adjusted earnings per share (EPS), excluding Medicare RAC reserve releases ("Reserve Releases") and discrete tax benefits in both years, increased eight cents to \$1.12 versus \$1.04 in 2018.

Adjusted EBITDA rose 10.6% to \$179.6 million in 2019, which included \$15.9 million in non-recurring benefits from a Reserve Release and an investment gain ("3Q 2019 Gain on Investment").

Our cash flow remained strong, with operating cash flow in 2019 reaching a record \$133.2 million, up 38.0% from 2018. We ended the year with very low net debt and a liquidity profile that positions HMS to continue investing for future business growth.

### Strategic Progress

2019 was an active year for new product development and client wins, as well as strategic acquisitions and investments. For example:

- Insurance eligibility verification. We leveraged our core data assets and analytics expertise to develop and launch a real-time insurance coverage verification platform. Our initial client was the federal insurance exchange, healthcare.gov, which applied our analytics tool to confirm individuals' eligibility for new insurance coverage. We also began similar work with a state-based insurance exchange, Covered California.
- Predictive and prescriptive analytics. We acquired VitreosHealth, which runs the predictive analytics engine for Elli, our PHM risk intelligence solution. The VitreosHealth analytics capabilities and prescriptive health insights are expected to further enrich our PHM suite to better predict and identify rising-risk patients.
- Expansion into commercial and Medicare COB. We completed the acquisition of Accent, extending our traditional payment accuracy solutions with cost avoidance and overpayment recovery solutions for the commercial and Medicare markets. Accent's capabilities and client base provide immediate growth opportunities with a broad spectrum of clients including large commercial health plans, Blue Cross and Blue Shield plans, provider-sponsored health plans, Medicare Advantage plans, third-party administrators and self-insured employer groups.
- Digital Health Cooperative Research Centre (DHCRC). HMS is the lead corporate partner in this global research cooperative of businesses, top universities and the Australian government dedicated to finding solutions for today's most critical healthcare issues. HMS works with leading universities, such as Stanford University and Southern Methodist University, to develop analytical models to address opioid misuse, hospital readmissions and other challenges. The output of these research projects will be commercialized for the benefit of healthcare organizations in the U.S. and around the globe.

- Strategic investment. We invested in MedAdvisor, an Australian-based digital medication adherence company, to help enhance our PHM capabilities, advance our international growth initiatives, and nurture continued innovation to improve clinical outcomes. We plan to pair MedAdvisor's medication adherence software platform with our PHM solution set and enter international markets – beginning with Australia – as part of this strategic relationship.
- Government policy driving opportunities. We signed an agreement with New Mexico to manage the Quality Assurance module for the state's Medicaid Enterprise Systems program. The QA module includes program integrity, third-party liability detection and recovery, fraud and abuse analytics, and quality reporting. New Mexico is one of the first states to implement this federally mandated program. Our comprehensive payment accuracy solutions were a natural fit for New Mexico, and we expect this approach will present additional opportunities with other states and will lead to more flexibility, drive efficiency and improve outcomes.

## Market Environment

We believe the market environment for our services continues to be favorable. The market for cost containment solutions is large and growing, driven by increasing healthcare costs, rising program enrollment and payment complexities.

CMS projects that Medicare programs in 2019 covered approximately 60.4 million people at a cost of approximately \$800.1 billion, and Medicare enrollment growth will increase by 2.8% in 2020, with expenditures to increase by 7.2% in 2020 compared to 2019. Medicaid/CHIP covered approximately 82.4 million people in 2019, costing approximately \$643.9 billion, and Medicaid/CHIP enrollment growth is expected to increase by 2.2% in 2020, with expenditures to increase by about 5.0% in 2020 compared to 2019. Medicare and Medicaid are projected to serve over 146.3 million beneficiaries and pay about 38% of the U.S. healthcare expenditures in 2020.

As commercial and government health plans focus on strategies to contain costs across their different lines of business, HMS will continue offering solutions to meet their evolving needs. We expect that our access to robust and market-leading data, advanced analytics capabilities, expansive client base and engaged workforce will serve as a strong foundation to help reduce the cost of healthcare and improve patient health and overall consumer experience of care, while driving growth for HMS for many years to come.

In 2019, we helped our clients achieve more than \$5 billion in savings and recoveries, and we are well positioned for growth in 2020 and beyond with sales momentum across all HMS solutions and tremendous opportunities for continued growth and expansion.

We enjoy long-standing relationships with our clients and have retention rates in excess of 96%, which creates visible, long-term revenue. Our large client base and proven track record of helping to bend the healthcare cost curve continue to offer our greatest growth opportunity, and that's cross-selling our solutions to expand our footprint across more than 350 managed care plans, over 40 state Medicaid agencies and federal agencies, including CMS and the CDC. Our ability to leverage enormous data assets, combined with our proprietary advanced analytics, are helping our clients to better understand the healthcare consumer and are impacting both outcomes and costs.



**William C. Lucia**  
Chairman and Chief  
Executive Officer

## 2020 Outlook

Looking ahead, we expect 2020 will be another solid year of growth and expansion. We plan to continue our increased investment in technology in order to develop innovative products, support data security, enhance our IT infrastructure, further our automation initiatives, and continue to increase efficiencies across our business.

We are focused on growing our business over the course of 2020 and beyond by leveraging existing key assets – data, analytics, in-house expertise, and distribution channel – and pursuing a number of strategic objectives, including:

- Expanding our existing client relationships and adding new clients. We are focused on selling new and additive solutions into our broad client base to continue to help bend the healthcare cost curve, enhance consumer engagement and improve clinical outcomes.
- Introducing new innovative solutions and services. We plan to introduce current and potential clients to new and innovative solutions and services through internal development initiatives designed to enhance or expand our existing suite of solutions.
- Utilizing technology and automation to enhance operational efficiency and results. We will continue to implement artificial intelligence, machine learning and robotic process automation to further improve our analytics, create a more nimble operating environment and identify new revenue opportunities within our current service delivery models.
- Entering new markets for diversification and growth. We are leveraging partnership opportunities to expand into adjacent markets, such as risk-bearing providers, and access new markets overseas.
- Strategically deploying capital. We will continue to invest in our IT infrastructure and organic growth initiatives and may make strategic acquisitions that represent long-term growth potential. We may also repurchase shares from time to time under our new \$50 million share repurchase plan approved by our Board of Directors.

We expect that leveraging our assets and pursuing these strategic objectives – combined with healthcare trends, which are currently in our favor – will fuel our growth this year and in the future.

We are very proud of our significant achievements last year, and we remain committed to delivering top and bottom line growth. We are confident HMS has the right talent, strategic industry expertise, and operational focus to achieve our objectives in 2020 and beyond.

Sincerely,



**William C. Lucia**

Chairman and Chief Executive Officer

April 17, 2020

**Safe Harbor:** This letter contains certain “forward-looking statements” within the meaning of the U.S. Private Securities Litigation Reform Act of 1995. These statements relate to our current expectations, projections and assumptions about our business, the economy and future events or conditions; they do not relate strictly to historical or current facts. For a discussion identifying important factors that could cause actual results to differ from those stated or implied in our forward-looking statements, see the Company’s filings with the SEC, including, but not limited to the “Cautionary Note Regarding Forward-Looking Statements,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and “Quantitative and Qualitative Disclosures about Market Risk” in the Form 10-K portion of this Annual Report. Our forward-looking statements speak only as of the date of this letter or as of the date they are made, and we undertake no obligation to update them.

Additionally, this letter contains certain non-GAAP measures that our management believes are relevant and provide our shareholders with useful information about the Company’s operating performance because the measures allow them to understand and compare the Company’s actual and expected operating results during the prior, current and future periods in a more consistent manner. These non-GAAP measures are not measurements of financial performance or liquidity under GAAP and should not be considered alternatives to the Company’s other financial information determined under GAAP. For a reconciliation of these non-GAAP measures to comparable GAAP measures, please refer to Appendix A.

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

Form 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934  
For the fiscal year ended December 31, 2019

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 000-50194



**HMS HOLDINGS CORP.**

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of  
incorporation or organization)  
5615 High Point Drive, Irving, TX  
(Address of principal executive  
offices)

11-3656261  
(I.R.S. Employer  
Identification No.)  
75038  
(Zip Code)

(214) 453-3000

(Registrant's telephone number, including  
area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock \$0.01 par value	HMSY	The Nasdaq Stock Market LLC (The Nasdaq Global Select Market)

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

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

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  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 (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes  No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer       Accelerated filer       Non-accelerated filer       Smaller reporting company

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 Act) Yes  No

The aggregate market value of the registrant’s common stock held by non-affiliates as of June 28, 2019 the last business day of the registrant’s most recently completed second quarter was approximately \$2.0 billion based on the last reported sale price of the registrant’s common stock on the Nasdaq Global Select Market on that date. Solely for purposes of this disclosure, shares of common stock held by executive officers, directors and persons who hold 10% or more of the outstanding shares of common stock of the registrant as of such date have been excluded because such persons may be deemed to be affiliates. This determination is not necessarily a conclusive determination for any other purposes.

There were 88,105,722 shares of common stock outstanding as of February 17, 2020.

### **Documents Incorporated by Reference**

Unless provided in an amendment to this Annual Report on Form 10-K, the information required by Part III is incorporated by reference to the registrant’s 2020 definitive proxy statement, to the extent stated herein. Such proxy statement or amendment will be filed with the Securities and Exchange Commission within 120 days of the registrant’s fiscal year ended December 31, 2019.

**HMS HOLDINGS CORP. AND SUBSIDIARIES**  
**ANNUAL REPORT ON FORM 10-K**  
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## Glossary

Throughout this 2019 Form 10-K, we may use certain abbreviations, acronyms and terms which are described below:

ACA	Patient Protections and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010
ACO	Accountable care organization
ADR	Additional documentation request
AI	Artificial intelligence
ASC	Accounting Standards Codification
ASO	Administrative service only
ASU	Accounting Standards Update
CHIP	Children's Health Insurance Program
CMS	Centers for Medicare & Medicaid Services
CMS NHE	CMS National Health Expenditures
COB	Coordination of Benefits
COSO	Committee of Sponsoring Organizations of the Treadway Commission
Credit Agreement	The Amended and Restated Credit Agreement dated as of May 3, 2013, as amended by Amendment No. 1 to Amended and Restated Credit Agreement dated as of March 8, 2017, and as further amended by Amendment No. 2 to Amended and Restated Credit Agreement, dated as of December 19, 2017, by and among HMS Holdings Corp., the Guarantors party thereto, the Lenders party thereto and Citibank, N.A. as Administrative Agent
DSO	Days sales outstanding
ERISA	Employment Retirement Income Security Act of 1974
Exchange Act	Securities Exchange Act of 1934, as amended
FASB	Financial Accounting Standards Board
FCPA	U.S. Foreign Corrupt Practices Act of 1977, as amended
HIPAA	Health Insurance Portability and Accountability Act of 1996
HITECH	Health Information Technology for Economic and Clinical Health
IRS	U.S. Internal Revenue Service
LIBOR or LIBO Rate	Intercontinental Exchange London Interbank Offered Rate (or any successor rate determined in accordance with the Credit Agreement)
MCO	Managed care organization
ML	Machine learning
NLP	Natural language processing
PBM	Pharmacy benefit manager
PHI	Protected health information
PHM	Population Health Management
PI	Payment Integrity
PMPM	Per member per month
PMPY	Per member per year
RAC	Recovery Audit Contractor
RFP	Request for proposal

ROU	Right-of-use
RPA	Robotic process automation
SEC	U.S. Securities and Exchange Commission
Securities Act	Securities Act of 1933, as amended
Section 199 Deduction	U.S. Production Activities Deduction pursuant to IRC Section 199
SG&A	Selling, general and administrative
TPL	Third-party liability
U.S. GAAP	United States Generally Accepted Accounting Principles
2006 Stock Plan	HMS Holdings Corp. Fourth Amended and Restated 2006 Stock Plan, as amended by Amendment No. 1 to the HMS Holdings Corp. Fourth Amended and Restated 2006 Stock Plan dated as of February 16, 2012
2011 HDI Plan	HDI Holdings, Inc. Amended 2011 Stock option and Stock Issuance Plan
2016 Omnibus Plan	HMS Holdings Corp. 2016 Omnibus Incentive Plan
2017 Tax Act	Tax Cuts and Jobs Act of 2017
2019 Form 10-K	HMS Holdings Corp. Annual Report on Form 10-K for the year ended December 31, 2019
2019 Omnibus Plan	HMS Holdings Corp. 2019 Omnibus Incentive Plan
401(k) Plan	HMS Holdings Corp. 401(k) Plan

## Cautionary Note Regarding Forward-Looking Statements

For purposes of this 2019 Form 10-K, the terms “HMS,” “Company,” “we,” “us,” and “our” refer to HMS Holdings Corp. and its consolidated subsidiaries unless the context clearly indicates otherwise. Included in this 2019 Form 10-K are “forward-looking statements” within the meaning of the U.S. Private Securities Litigation Reform Act of 1995. From time to time, we also provide forward-looking statements in other materials we release to the public, as well as oral forward-looking statements. Such statements relate to our current expectations, projections and assumptions about our business, the economy and future events or conditions. They do not relate strictly to historical or current facts.

We have tried to identify forward-looking statements by using words such as “aim,” “anticipate,” “believe,” “estimate,” “expect,” “forecast,” “future,” “intend,” “likely,” “may,” “outlook,” “plan,” “potential,” “project,” “seek,” “strategy,” “target,” “trend,” “will,” “would,” “could,” “should,” variations of such terms, and similar expressions and references to guidance, although some forward-looking statements may be expressed differently. These statements include, among other things, information concerning our future growth, business strategy, strategic or operational initiatives, our future operating or financial performance, our ability to invest in and utilize our data and analytics capabilities to expand our capabilities, the benefits and synergies to be obtained from completed and future acquisitions, investments or strategic relationships, including VitreosHealth, Inc. (“VitreosHealth”), MedAdvisor Limited (“MedAdvisor”), and West Claims Recovery Services, LLC (“Accent”), the future performance of companies or businesses we have acquired or in which we have invested, our future expenses, interest rates and tax rates, our ability to meet our future liquidity requirements, the impact of changes to U.S. healthcare legislation or healthcare spending affecting Medicare, Medicaid or other publicly funded or subsidized health programs, and other statements regarding our possible future actions, business plans, objectives and prospects.

Forward-looking statements are not guarantees and involve risks, uncertainties and assumptions that are difficult to predict. Actual results may differ materially from past results and from those indicated by such forward-looking statements if known or unknown risks or uncertainties materialize, or if underlying assumptions prove inaccurate. These risks and uncertainties include, among other things:

- our ability to execute our business plans or growth strategy;
- our ability to innovate, develop or implement new or enhanced solutions or services;
- the nature of acquisition, investment, strategic relationship and divestiture opportunities we are pursuing, and our ability to successfully execute on such opportunities;
- our ability to successfully integrate acquired businesses and operations and realize synergies;
- significant and increased competition for our solutions and services;
- variations in our results of operations;
- our ability to accurately forecast the revenue under our contracts and solutions;
- our ability to protect our systems from damage, interruption or breach, and to maintain effective information and technology systems and networks;
- our ability to protect our intellectual property rights, proprietary technology, information processes and know-how;
- our failure to maintain a high level of customer retention or the unexpected reduction in scope or termination of key contracts with major customers;
- customer dissatisfaction or our non-compliance with contractual provisions or regulatory requirements;
- our failure to meet performance standards triggering significant costs or liabilities under our contracts;
- our inability to manage our relationships with data sources and suppliers;
- our reliance on subcontractors and other third party providers and parties to perform services;
- our ability to secure future contracts and favorable contract terms through the competitive bidding process;
- pending or threatened litigation;
- unfavorable outcomes in legal proceedings;
- our success in attracting and retaining qualified employees and members of our management team;
- our ability to generate sufficient cash to cover our interest and principal payments under our credit facility;

- changes in tax laws, regulations or guidance or unexpected changes in our effective tax rate;
- unanticipated increases in the number or amount of claims for which we are self-insured;
- accounting changes or revisions;
- risks relating to our international operations, including political, regulatory, economic, foreign exchange, tax compliance and other risks;
- changes in the U.S. healthcare environment or healthcare financing system, including regulatory, budgetary or political actions that affect healthcare spending or the practices and operations of healthcare organizations;
- our failure to comply with applicable laws and regulations governing individual privacy and information security, domestically or internationally, or to protect such information from theft and misuse;
- our ability to comply with current and future legal and regulatory requirements;
- negative results of government or customer reviews, audits or investigations;
- state or federal limitations related to outsourcing of certain government programs or functions;
- restrictions on bidding or performing certain work due to perceived conflicts of interests;
- the market price of our common stock and lack of dividend payments; and
- anti-takeover provisions in our corporate governance documents.

*These and other risks are discussed under the headings “Part I, Item 1. Business,” “Part I, Item 1A. Risk Factors,” “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and “Part II, Item 7A. Quantitative and Qualitative Disclosures about Market Risk” of this 2019 Form 10-K and in other documents we file with the SEC.*

*Any forward-looking statements made by us in this 2019 Form 10-K speak only as of the date on which they are made. We undertake no obligation to publicly update forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required by law. We caution readers not to place undue reliance upon any of these forward-looking statements. You are advised, however, to consult any further disclosures we make on related subjects in our Form 10-Q and Form 8-K reports and our other filings with the SEC.*

### **Market and Industry Data**

*This 2019 Form 10-K contains market, industry and government data and forecasts that have been obtained from publicly available information, various industry publications, other published industry sources and our internal data and estimates. We have not independently verified the information from third party sources and cannot make any representation as to the accuracy or completeness of such information. None of the reports and other materials of third party sources referred to in this 2019 Form 10-K were prepared for use in, or in connection with, this 2019 Form 10-K. Additionally, our internal data and estimates are based upon information obtained from our customers, our partners, trade and business organizations, publicly available information and other contacts in the markets in which we operate and our management’s understanding of industry conditions. Estimates are difficult to develop and inherently uncertain, and we cannot assure you that they are accurate. Our estimates involve risks and uncertainties and are subject to change based on various factors, including those detailed above and under “Part I, Item 1A. Risk Factors” of this 2019 Form 10-K.*

### **Trademarks and Trade Names**

*We have a number of registered trademarks, including HMS<sup>®</sup>, as well as the corresponding HMS + logo design mark, Ell<sup>®</sup>, Eliza<sup>®</sup>, Essette<sup>®</sup>, VitreosHealth<sup>®</sup> and Accent<sup>®</sup>. These and other trademarks of ours appearing in this 2019 Form 10-K are our property. Solely for convenience, trademarks and trade names of ours referred to in this 2019 Form 10-K may appear without the <sup>®</sup> or <sup>™</sup> symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable licensor to these trademarks and trade names. This 2019 Form 10-K contains additional trade names and trademarks of other companies. We do not intend our use or display of other companies' trade names or trademarks to imply an endorsement or sponsorship of us by such companies, or any relationship with any of these companies.*

## PART I

### Item 1. Business

Founded in 1974, HMS is an industry-leading provider of cost containment and analytical solutions in the healthcare marketplace. Our mission is to make healthcare work better for everyone. We use data, technology and analytics to deliver coordination of benefits, payment integrity and population health management solutions that help healthcare organizations reduce costs, improve health outcomes and enhance consumer experiences. We provide a broad range of payment accuracy solutions to government and commercial healthcare payers, including coordination of benefits services, to ensure that the right payer pays the claim, and payment integrity services to address improper payments and fraud, waste and abuse. Our population health management solutions include a portfolio of integrated risk analytics, consumer engagement and care management solutions that provide healthcare organizations with reliable intelligence insight into their population and member risks to predict, identify and avoid preventable high cost events over the healthcare continuum. Through our solutions, we help move the healthcare system forward by saving billions of dollars for our customers while helping consumers lead healthier lives.

HMS began its operations as Health Management Systems, Inc., which became our wholly owned subsidiary in March 2003 when we assumed its business in connection with the adoption of a holding company structure. Since then, our business has evolved through a combination of organic growth and targeted acquisitions. We currently operate as one business segment with a single management team that reports to the Chief Executive Officer.

During fiscal year 2019, we made a number of acquisitions and strategic investments that accelerated the expansion of our service offerings and entry into new markets. In September 2019, we acquired VitreosHealth, an innovator in advanced analytics for predictive and prescriptive health insights, bolstering our predictive analytics capability within our population health management solution and establishing our geographic presence in India. We also made a strategic investment in MedAdvisor, a leading digital medication management company based in Australia, to further evolve our population health management capabilities and potentially expand our international presence. In December 2019, we completed the acquisition of Accent, a payment accuracy and cost containment business. The addition of Accent enhances our capabilities across all of our coordination of benefit and payment integrity solutions and extends our reach in both new and established market segments, offering immediate market expansion and growth opportunities.

We were originally incorporated in the State of New York in October 2002 and reincorporated in the State of Delaware in July 2013. Our principal executive offices are located at 5615 High Point Drive, Irving, Texas 75038, and our telephone number is (214) 453-3000. As of December 31, 2019, we had approximately 3,100 employees. Additional information about HMS is available on our website at [www.hms.com](http://www.hms.com).

Copies of our recent Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and Proxy Statements, as well as amendments to these reports or statements, are available free of charge on our website through the Investor Relations page, as soon as reasonably practicable after we electronically file them with, or furnish them to, the SEC. These materials, as well as similar materials for SEC registrants, may be obtained directly from the SEC through their website at <http://www.sec.gov>.

The content of any website referred to in this 2019 Form 10-K is not incorporated by reference into this filing unless expressly noted. References to the URLs for these websites are intended to be inactive textual references only.

## Our Solutions

We provide solutions that apply broadly across Medicaid, Medicare, commercial at-risk and employer self-insured populations. Our services span the payment and care continuum, from an individual's enrollment in a healthcare program to pre-payment review of their claims, through post-payment identification and recovery of improper payments, and back to the individual where our consumer-driven solutions allow healthcare organizations to manage individuals' healthcare on a personal level, and at scale, using actionable analytics that drive individuals to take actions that improve health outcomes. Our coordination of benefits and payment integrity services ensure payment accuracy by addressing a wide spectrum of payment errors, including eligibility and coordination of benefits errors, the identification and investigation of potential fraud, and the review of claims on a prepayment and post-payment basis for improper payments and utilization effectiveness. Our population health management services assist customers in managing quality, risk, cost and compliance across all lines of business by engaging consumers, providing the tools to manage their care, and identifying existing or emerging health risk among consumer populations. As a result of these services, our customers saved billions of dollars in 2019 through the prevention of erroneous payments, improved clinical outcomes and reduced insurance plan enrollment turnover; and they received billions more in cash recoveries for improperly paid claims.



### **Coordination of Benefits**

Industry-leading COB solution ensures the right payer pays the claim



### **Payment Integrity**

Data-driven solution set that addresses improper payments and fraud, waste and abuse



### **Population Health Management**

Integrated risk analytics, consumer engagement and care management solution

Our comprehensive solutions offer value throughout the healthcare continuum and include the following:

#### *Coordination of Benefits (COB)*

HMS provides a comprehensive, integrated suite of COB solutions to healthcare organizations, including Medicaid, Medicare, CHIP, healthcare exchanges, commercial payers and other at-risk entities. We deliver high value to our customers by delivering timely and accurate information about members' other insurance coverage, which enables our customers to better coordinate care, maximize cost savings, ensure accurate reimbursement and reduce administrative rework. We provide verified insurance coverage information as early as the point of enrollment, as well as at the point of prior authorization, or prior to the payment of a claim, to maximize cost avoidance. We pursue recovery for any healthcare claim for which another party was liable to pay first. Experience and analytics inform our ability to accurately

identify those claims and deploy workflows and processes that ensure we recover the maximum amount of inappropriately paid expenditures for our customers.

We also assist customers in identifying other third-party insurance and recovering medical expenses where a member is involved in a casualty or tort incident. For Medicaid agencies exclusively, we provide estate recovery services to identify and recover Medicaid expenditures from the estates of deceased Medicaid members, in accordance with state policies. For the years ended December 31, 2019, 2018 and 2017, our COB services represented 64.5%, 66.4% and 73.4% of our total revenue, respectively.

#### *Payment Integrity (PI)*

Our PI solutions and services employ advanced data analytics, leading technologies and clinical expertise to maximize savings and deliver proven, measureable results for federal and state governments, commercial health plans, and other at-risk or self-insured entities. We help our customers identify and avoid improper payments, recover those overpayments when they occur, detect and prevent fraud, ensure compliance with regulations, and increase cost savings with innovative technology and processes. Our PI solutions, delivered on a pre- and post-pay basis across all claims and provider types, are data-driven and stakeholder-sensitive, resulting in better payment accuracy, lower administrative costs, and decreased incidents of fraud and abuse. We leverage predictive and prescriptive analytics, AI, NLP, and ML, and incorporate RPA into our operations for increased efficiency and operational effectiveness. For the years ended December 31, 2019, 2018 and 2017, our PI services represented 25.9%, 24.1% and 20.0% of our total revenue, respectively.

#### *Population Health Management (PHM)*

HMS' comprehensive PHM solutions reduce cost, enhance engagement and improve outcomes throughout the member lifecycle. Our flexible, scalable architecture and modular platform integrates early risk identification, advanced analytics, multi-channel outreach and care management components to help our customers target the right members at the right time for interventions, with outreach that drives action and change. Our prescriptive approach leverages AI, ML, NLP and efficacy studies to proactively manage care for all members, drive better outcomes and quality scores, and enhance member satisfaction and retention, while reducing administrative and medical spend. Our PHM solutions enable our customers to understand the health of their unique populations in real-time, and identify future risks, then develop personalized care plans and actionable engagement programs for maximum return on investment. For the years ended December 31, 2019, 2018 and 2017, our PHM services represented 9.6%, 9.5% and 6.6%, of our total revenue, respectively.

#### **Intellectual Property**

Our ability to develop and maintain the proprietary aspects of our technology and operate without infringing the proprietary rights of others is important to our business and competitive position. We establish and protect our proprietary technology and intellectual property through a combination of patents, patent applications, trademarks, copyrights, domain names and trade secrets, as well as through contractual rights, including confidentiality, non-disclosure and invention assignment agreements, and other security measures.

As of December 31, 2019, our patent portfolio is comprised of approximately 80 domestic and international patents, and we are currently pursuing several patent applications in the United States and around the world. Our principal trademarks are our company name and corresponding design marks, including but not limited to HMS<sup>®</sup>, Eliza<sup>®</sup>, Essette<sup>®</sup>, VitreosHealth<sup>®</sup> and Accent<sup>®</sup>, and our key product marks, such as Elli<sup>®</sup>, COBManager<sup>®</sup> and other marks for our products. We also hold copyrights relating to certain aspects of our solutions and services. While we consider all of our intellectual and proprietary rights important to HMS, we believe our business as a whole is not materially dependent on any particular patent, trademark, license or other intellectual property right.

## Customers

We provide our solutions to customers across a broad range of entities within the healthcare industry, including state and federal government agencies, health plans and PBMs, healthcare exchanges, employers, at-risk providers and ACOs, and other healthcare organizations. For the years ended December 31, 2019, 2018 and 2017, our total revenue was \$626.4 million, \$598.3 million and \$521.2 million, respectively. No single customer accounted for 10% or more of our total revenue during any period presented.

The composition of our 10 largest customers changes periodically. For the years ended December 31, 2019, 2018 and 2017, our 10 largest customers represented 42.7%, 41.4% and 39.5% of our total revenue, respectively. We provide services under contracts (or subcontracts) that contain various revenue structures, including contingent revenue and to a lesser extent fixed-fee arrangements as well as cost-plus and time-and-materials pricing. The current terms of many of our federal and state government contracts range from one to five years, including renewal terms at the option of the customer. In many instances, we provide our services pursuant to agreements that are subject to periodic procurements. Several of our contracts, including those with some of our largest customers, may be terminated for convenience, in whole or in part, by the customer. Because we provide our services pursuant to agreements that are open to competition from various businesses in the U.S. healthcare arena, we cannot provide assurance that our contracts, including those with our largest customers, will not be terminated for convenience or awarded to other parties. Additionally, we cannot provide assurance that any contracts that are renewed will have the same fee structures as the expiring contracts or otherwise be on satisfactory terms. The early termination of key contracts with significant customers, or the inability to renew such contracts on favorable terms or at all, may have an adverse effect on our financial condition, results of operations and cash flows.

In providing solutions and services to our customers, we rely heavily upon our technology systems and networks, as well as on those of third-party providers, to process, transmit, maintain, store and host the confidential, proprietary and sensitive information and data we receive from our customers and other data suppliers, including private insurance plans and financial institutions. The secure processing and maintenance of this information is critical to our operations and business strategy. Although we have spent significant resources to implement security and privacy programs and controls, train our workforce and enhance our security measures with the implementation of new technologies and processes, our information technology and infrastructure, and those of third parties on which we rely, could continue to be potentially subject to various forms of cyber-attacks, as further discussed under the heading "Part I, Item 1A. Risk Factors."

## Healthcare Landscape

The market for cost containment solutions is large and growing, driven by increasing healthcare costs, rising program enrollment and payment complexities. Established in 1965 under the Social Security Act, Medicaid provides health insurance and long-term care services and support to low-income families and individuals with disabilities in the United States. Medicaid is funded jointly by the federal and state governments and administered by the states. The Balanced Budget Act of 1997 created CHIP to help states expand coverage primarily to children whose families earned too much to qualify for Medicaid, yet not enough to afford private health insurance. Medicare is a federal program that is administered by CMS, and provides eligible persons age 65 and over and some disabled persons with a variety of hospital, medical insurance and prescription drug benefits. All three of these programs have opted to contract with managed care organizations in whole or in part as a means of delivering quality healthcare to program beneficiaries and controlling costs.

By law, Medicaid programs serve as the payer of last resort and all other sources of coverage must pay for medical costs incurred by a Medicaid-eligible individual. The TPL rules of the Medicaid statute require, among other things, that states take reasonable measures to identify potentially liable third parties and process claims accordingly. Since 1985, we have provided state Medicaid agencies with services to identify third parties with primary liability for paying claims for Medicaid members, and since 2005, we have provided similar services to Medicaid managed care plans.



The Deficit Reduction Act enacted by Congress in 2006 contained provisions to strengthen the TPL rules and created the Medicaid Integrity Program under the Social Security Act to increase the government's capacity to prevent, detect and address fraud, waste and abuse in the Medicaid program. Later that year, Congress passed the Tax Relief and Health Care Act of 2006, which established the Medicare RAC program. These measures, at both the federal and state level, have strengthened our ability to identify and recover erroneous payments on behalf of our customers. We became the Medicare RAC for Region D with our acquisition of HealthDataInsights, Inc. ("HDI") in 2011 and again were awarded a region under the new Medicare RAC contracts in October 2016. We also serve as a Medicaid RAC to certain states pursuant to provisions of the ACA.

The ACA, generally referred to as "Obamacare," was signed into law on March 23, 2010. The law aimed to decrease the uninsured population in the U.S. by expanding Medicaid, enabling access to healthcare coverage through health insurance exchanges, and mandating coverage for pre-existing conditions and other healthcare situations. It is estimated that 20 million people have gained healthcare coverage as a result of the ACA.

For 2020, Medicare and Medicaid are projected to pay approximately 38% of the nation's healthcare expenditures and serve over 146.3 million beneficiaries. Many of these beneficiaries are enrolled in managed care plans, which have the responsibility for both patient care and claims adjudication. The dual aims of cost containment and quality healthcare outcomes are the same across all at-risk entities, including commercial health plans and government healthcare programs, such as Medicaid and Medicare.

Within the commercial market, health plans sell policies directly to individuals (on the open market or via health insurance exchanges), contract with employers to underwrite their employees' care, or contract with self-insured employers to oversee benefit administration for their employees. This market also includes a growing number of risk bearing provider-sponsored plans that operate and market health plan benefits. According to CMS NHE projections, private health insurance covered approximately 196.3 million individuals at a cost of approximately \$1.28 trillion in 2019.

Several commercial health plans also offer government-sponsored lines of business, including partnering with Medicare, Medicaid and CHIP to oversee care delivery for beneficiaries enrolled in those programs. States continue to focus on improving value, quality and outcomes through arrangements with MCOs. At the end of 2019, 47 Medicaid programs operated with some form of managed care, and North Carolina reported plans to implement a managed care program in 2020. Comprehensive risk-based managed care continues to be the predominant delivery system for Medicaid services in the U.S. Among the 40 programs with comprehensive risk-based MCOs, 33 reported that 75% or more of their Medicaid beneficiaries were enrolled in MCOs as of July 1, 2019. Two states (Maine and Virginia) implemented the ACA Medicaid expansion in 2019, bringing the total number of states to 34. As of July 1, 2019, 29 of these states were using MCOs to cover newly eligible adults. Managed care health plans continue to assume risk for Medicare lives, with approximately one-third (34%) of all Medicare beneficiaries, or 22 million people, enrolled in Medicare Advantage plans in 2019.

HMS continues to serve government agency fee-for-service programs at the state and federal level. These plans are generally reliant on and susceptible to the government appropriations process that determines their budget and governs the number of beneficiaries they serve. According to the CMS NHE projections, Medicare programs in 2019 covered approximately 60.4 million people at a cost of approximately \$800.1 billion and Medicaid/CHIP covered approximately 82.4 million people, costing approximately \$643.9 billion. Altogether, it is projected that the government programs we serve covered approximately 142.8 million people at a total cost of nearly \$1.44 trillion in 2019.

CMS projects that Medicare enrollment growth will increase by 2.81% in 2020, with expenditures to increase by 7.19% in 2020 compared to 2019; and Medicaid/CHIP enrollment growth will increase by 2.18% in 2020, with expenditures to increase by 4.96% in 2020 compared to 2019. As commercial and government health plans focus on strategies to contain costs across their different lines of business, HMS will continue offering solutions to meet their evolving needs.

## Competitors

The U.S. healthcare marketplace is a dynamic industry with a range of businesses currently offering cost containment services, both directly or indirectly (through subcontracting), to some or all of the various healthcare payers, providers, employers and consumers. In addition, with improvements in technology and the growth in healthcare spending, new businesses are incentivized to enter this marketplace. Many customers also have the ability to perform some or all of the needed cost containment services themselves and choose to exercise that option to varying degrees. Therefore, competition is robust as customers have many alternatives available to them in their effort to contain healthcare costs.

We compete based on a variety of factors, including our ability to provide a broad range of solutions that span the entire healthcare claims payment and care services continuum. These include payment accuracy solutions focused on COB and PI related functions, as well as PHM solutions that support the ability of payers to better understand and engage consumers, perform effective outreach, and impact both costs and health outcomes.

We have a proven record of delivering results that optimize savings and recoveries, enabled by:

- in-depth government and commercial healthcare program experience;
- a nationally-acclaimed technology team with analytics, engineering, infrastructure and security expertise;
- robust data that drives value solutions;
- prescriptive and predictive analytics, applied across Medicaid, Medicare and commercial at-risk populations;
- an experienced team of clinical experts, supported by a panel of credentialed physicians from all specialties with deep healthcare policy and program expertise;
- ongoing technology investment in big data, AI, ML, NLP and RPA;
- long-term relationships with customers and other industry stakeholders; and
- an ability to provide customers with actionable intelligence to improve clinical outcomes, optimize patient engagement, and better manage costs.

Our competitors range in size from large, diversified national companies, to small, specialized firms. Some of these competitors have significantly greater financial and technical resources, and others have longer operating histories and greater name recognition than we do in certain markets. Within our payment accuracy portfolio of products and services, we compete primarily with large business outsourcing and technology firms, claims processors, healthcare consulting firms, and other vendors who provide some or all of these solutions to payers. In addition, we frequently work with customers who may elect to perform some or all of their cost avoidance and recovery functions in-house. Within the population health management sector, we compete primarily with vendors who provide care management, consumer engagement, and related technology services. Examples of companies with whom we currently compete across our offerings include:

- |                     |                                    |   |
|---------------------|------------------------------------|---|
| ▪ Accenture plc     | ▪ Casenet LLC                      | ▪ Change Healthcare   |
| ▪ Cotiviti, Inc.    | ▪ DXC Technology Company           | ▪ ExlService Holdings, Inc.   |
| ▪ IBM Watson Health | ▪ Inovalon Holdings, Inc.          | ▪ MEDdecision, Inc.   |
| ▪ MHK               | ▪ Performant Financial Corporation | ▪ Optum, Inc. (subsidiary of UnitedHealth Group; Equian is part of Optum) |
| ▪ WellTok, Inc.     | ▪ ZeOmega, Inc.                    |   |

## Business Strategy

We believe that the steadily increasing enrollment and rising expenditures for Medicare and Medicaid, with most new enrollees entering managed care plans; an aging U.S. population with an increasing concentration of individuals with high-cost chronic conditions and often co-morbidities; and the overall complexity of the healthcare claims payment system in the U.S. all combine to create substantial growth opportunities for the suite of cost containment solutions we offer.

We also believe these factors present growth opportunities for our PHM services. We are focused on growing our business over the course of 2020 and beyond, both organically and inorganically, by leveraging existing key assets (e.g., our data, analytics, in-house expertise, and distribution channel) and pursuing a number of strategic objectives or initiatives, including:

- *Expanding the scope of our relationship with existing customers* – by selling additional solutions and services to our broad customer base, including those designed to improve consumer engagement and improve clinical outcomes.
- *Adding new customers* – by marketing to commercial health plans, including Medicaid managed care and Medicare Advantage plans, at-risk group and individual health lines of business, and ASO plans; government healthcare payers, including Medicaid agencies, state employee health benefit plans and CHIPs; at-risk provider organizations and ACOs; and commercial self-insured employers.
- *Entering new markets for diversification and growth* – by expanding into adjacent markets, such as Medicare, Medicare Advantage and risk-bearing providers; leveraging opportunities through our international operations to access new markets overseas; developing and launching new and enhanced PI, PHM and engagement solutions targeted at global and high-growth markets; and executing acquisitions and strategic investments of complementary businesses.
- *Introducing new innovative solutions and services* – through internal development initiatives designed to enhance or expand our existing suite of cost containment solutions.
- *Utilizing technology tools to leverage a big data environment* – to further enhance our analytics, create a more nimble operating environment, create operating efficiencies, improve the yield on our existing solution suite and identify new revenue opportunities within our current service delivery models.
- *Promoting automation and innovation to improve the efficiency and effectiveness of our services* – by continuing to implement new technology and process improvements designed to increase recovery yields, increase customer satisfaction and achieve greater operating efficiencies.
- *Prudent deployment of capital* – by investing in our IT infrastructure; internal growth initiatives; capabilities, technologies, and assets to complement our cost-containment expertise; building or acquiring adjacent population health management capabilities to complement our PHM solution set; and expanding our data analytics capabilities. Our focus may include acquisitions that represent long-term growth potential, target high-growth areas, are accretive to earnings, enhance our technological capabilities and fill a strategic need in our business portfolio as we seek to provide increasingly comprehensive solutions to our customers. We may also repurchase our shares, pursuant to a two-year \$50 million authority granted by our Board of Directors in November 2019.

## Item 1A. Risk Factors

Our business is subject to significant risks, including the risks and uncertainties described below. You should carefully consider these risks, as well as the other information in this 2019 Form 10-K, including our Consolidated Financial Statements and the related Notes. The occurrence of any of these risks could adversely affect our business, financial condition, results of operations, and cash flows in a material way.

### Risks Relating to Our Company

***Our ability to expand our business will be adversely affected if we fail to implement our growth strategy.***

The size and scope of our business operations have expanded over the past several years, and we currently intend to continue our growth and expansion into new healthcare areas and markets, however, our growth and expansion strategy carries costs and risks that, if not properly managed, could adversely affect our business. Our future growth will depend on, among other things, our ability to successfully execute our business plans, which includes penetrating new markets, cross-selling our solutions to new and existing customers, broadening and deepening our customer relationships, our brand identity and our talent pool, identifying and executing future acquisitions, investments and strategic relationships, and increasing the speed, quality, capacity and scale at which we deliver our services across emerging and more established markets, all while remaining competitive. We must also be flexible and responsive to customers' needs and changes in the political, economic and regulatory environment in which we operate. The greater size and complexity of our expanding business may put additional strain on our administrative, operational and financial resources and can make optimal resource allocation more difficult to determine. It is possible that we may not be able to maintain or accelerate our growth. A failure to anticipate or properly address the demands and challenges that our continued growth and diversification may have on our resources and existing infrastructure may result in unanticipated costs and inefficiencies that could negatively impact our ability to execute on our business plans and growth goals, which may have a material adverse effect on our business, financial condition, results of operations and cash flows.

***If we fail to innovate and develop new or enhanced solutions and services, or if these solutions and services are not adopted by our customers, it could have a material adverse effect on our business, financial condition, results of operations and cash flows.***

Part of our growth strategy depends on our ability to respond to the evolving healthcare landscape with new and enhanced solutions and services that our existing and potential customers are willing to adopt. The development, marketing and implementation of these solutions and services may require that we make substantial financial and resource investments. We face risks that our new or modified offerings may not be responsive to customer preferences or industry changes, appropriately timed with market opportunity or effectively brought to market, and that the solution and service development initiatives that we prioritize may not yield the gains that we anticipate, if any. If we are unable to predict market preferences or healthcare industry changes, or if we are unable to develop or adapt solutions and services that are responsive to existing and potential customers' needs, we may fail to expand our business, which could constrain our future revenue growth and materially adversely affect our business, financial condition, results of operations and cash flows.

***Our acquisition and investment strategy may subject us to considerable business and financial risk.***

To achieve our strategic goals, we have made a significant number of acquisitions and investments in businesses that have expanded our service offerings, including our population health management solutions, and broadened our customer base and our market and geographic presence. We intend to pursue future acquisitions, investments and strategic relationships that will continue to complement and grow our business lines and to engage periodically in discussions regarding such transactions. We are subject to risks and uncertainties relating to our ability to identify

suitable candidates for potential acquisitions, investments and strategic relationships, and to consummate additional transactions that will be advantageous to us and successfully integrate acquired businesses, solutions, services, technologies or employees. Future and potential business acquisitions, investments and strategic relationships involve a number of risk factors that could affect our operations, including, but not limited to:

- diversion of management's attention and other resources;
- our ability to successfully and timely integrate operational, accounting and technology functions, policies, processes, systems and controls, and to implement these functions, policies, processes, systems and controls, without incurring substantial expenses, delays, difficulties or other issues;
- our ability to integrate personnel and human resource systems as well as the corporate cultures;
- continued coordination and cooperation with sellers pursuant to transition services agreements and with strategic partners;
- our ability to retain or replace key personnel and to manage a geographically dispersed workforce;
- our ability to maintain relationships with customers and suppliers of acquired businesses and operations;
- our ability to expand and further develop acquired businesses and operations and strategic relationships;
- our ability to combine service offerings, and to cross-sell our solutions and acquired solutions to our respective customers;
- customer dissatisfaction or performance problems with acquired businesses, operations, solutions or services or strategic partners;
- our ability to comply with regulatory requirements and avoid potential conflicts of interest in markets that we serve;
- the misuse of intellectual property by personnel of acquired businesses and operations and strategic partners;
- our ability to successfully enter into unfamiliar markets or manage new business lines;
- compliance challenges related to new regulatory requirements or changes in international laws and regulations, such as those pertaining to data privacy, employment matters and taxation;
- assumption of unanticipated legal or financial liabilities and/or negative publicity related to prior acts by acquired businesses and operations and strategic partners;
- exposure to litigation or other claims in connection with acquired businesses and operations and strategic partners, including claims from terminated employees, customers, former shareholders or third parties;
- use of substantial portions of available cash or the risk of becoming significantly leveraged as a result of incurring debt to finance an acquisition, investment or strategic relationship;
- the failure of acquired businesses, operations, solutions or services to perform as expected or meet financial projections, which could negatively impact earnings or contingent consideration;
- our lack of control and sole decision-making authority with respect to the operations of investments and strategic partners, potential changes in the economic or business interests, goals, financial condition or reputation of our strategic partners or potential changes in control of our strategic partners, and potential adverse changes in our relationships with our strategic partners;
- potential impairment of goodwill and other acquired intangible assets or potential impairment of strategic investments made by us; and
- potential dilution to our earnings per share.

In addition, we periodically evaluate, and may engage in, the future disposition of assets and businesses. Divestitures could involve a number of risks, including separation of operations, services or personnel, diversion of management's attention, significant costs and expenses, disruption of the Company's business, potential loss of key employees, customer relationships or cash flow, and continued financial involvement in or liability with respect to the divested assets and businesses, including through indemnification or other financial obligations. If we fail to adequately address these risks, or any of the foregoing factors, or to successfully integrate the businesses, operations, solutions or services that we acquire, we may not realize cost efficiencies, synergies or other benefits that we anticipated from the divestiture of assets and businesses or when selecting our acquisition, investment or strategic relationship candidates, and our reputation, business, financial condition, results of operations and cash flows could be materially adversely affected.

***We face significant competition for our solutions and services and we expect competition to increase, which could materially adversely affect our business, financial condition, results of operations and cash flows.***

The markets for payment accuracy and population health management solutions are intensely competitive, driven by rapidly changing technologies, evolving industry standards, customer demands to become more cost-effective and efficient, and increased consolidation in both the IT and healthcare industries. Our competitors range in size from large, diversified national companies (some of which have emerged as a result of industry consolidation), to small, specialized firms. Some of our competitors may include current or former subcontractors or teaming partners seeking to establish direct relationships with our customers and provide similar services as the prime contractor, as well as current and prospective customers that elect to perform recovery and cost avoidance functions in-house or to develop in-house capacities for solutions and services that we provide or seek to provide. For example, certain state customers have combined or “bundled” TPL services under large-scale IT procurements, as they shift to implementing modular Medicaid Enterprise Systems. As part of this modular approach, they may select a new or less experienced vendor to provide the TPL module based on preferred relationships or favorable pricing. Consolidation among vendors and healthcare providers, as well as the merging of some of our competitors or formation of business alliances with other competitors, have contributed to the increasingly competitive environment. In addition, companies that have invested in proprietary technology different from our own service offerings, such as front-end analytics or consumer-centric capabilities, have emerged as new competitors due to the rapidly evolving healthcare IT landscape. There is also increasing sophistication in the solutions and services that our competitors are developing that may become more efficient or appealing to our customers and their member populations, or may offer greater interoperability. In order to remain competitive, we may need to quickly develop and market new and enhanced solutions and services responsive to emerging technologies and changes in the healthcare industry, which may require that we make substantial financial and resource investments.

We may not be able to compete successfully against our existing or future competitors. Some of these competitors have significantly greater financial and technical resources, and others have longer operating histories and greater name recognition than we do in certain markets. They may be able to (i) offer lower prices or negotiate fee reductions on our current solutions and services, (ii) respond more quickly than we can to new and emerging technologies and changing customer requirements, (iii) devote greater resources to the sale and promotion of their products and the development and implementation of new and improved systems, solutions and services for customers that we serve, and (iv) pursue various acquisitions that allow them to rapidly amass a wide array of capabilities. We may be forced to lower our pricing, unexpectedly increase or enhance our technological or data capabilities, or modify our solution or service offerings. Additionally, competitors may affect our business by entering into exclusive arrangements with our existing or potential customers or vendors. Notwithstanding any changes we make in response to increased competition, the demand for our solutions and services may still decrease as a result of increased competition. A failure to be responsive to our existing and potential customers’ needs or the changing industry landscape could hinder our ability to maintain or expand our customer base, hire and retain new employees, pursue new business opportunities, complete future acquisitions, investments and strategic relationships and operate our business effectively. Any inability to compete effectively could materially adversely affect our business, financial condition, results of operations and cash flows.

***You will not be able to rely on our operating results in any particular period as an indication of our future performance because they are subject to significant fluctuation which may cause the market price of our common stock to decrease significantly.***

Our revenue and operating results may fail to match our past or projected performance and could vary significantly from period-to- period as a result of a number of factors, some of which are outside of our control. We have experienced fluctuations in our revenue and operating results in the past and they may vary in the future for reasons that include, but are not limited to:

- fluctuations in sales activity given our sales cycle;

- the length of contract and implementation periods;
- the commencement, completion or termination of contracts during any particular quarter;
- contract costs and expenses, which may be incurred in periods prior to revenue being recognized;
- the timing of period revenue recovery projects and third party payers' claim adjudication;
- the billing and budgeting cycles of our customers;
- the timing of government procurement activities, including when contract awards are announced and the time required to resolve bid protests;
- contract renewal discussions, which may result in delayed payments for services already performed;
- changes in the pricing structure or other significant terms in our contracts, or the scope of services we perform;
- technological and operational issues affecting our customers, including delays in payment receipt for previously recognized revenue due to certain customers' delayed processing of our findings through their systems, and restrictions on our ability to use or access certain data or a lack of integrity or quality in the data or information we receive from certain data sources;
- adjustments to age/quality of receivables and accruals as a result of factors such as delays involving contract limitations or changes, customer decisions to delay, avoid or refuse to make payments for our properly provided services, subcontractor performance deficiencies or managerial decisions not to pursue identified claim revenue from customers;
- the impact of service disruptions or delays in the systems or operations of subcontractors, partners, vendors and other third party providers on which we rely on to deliver a single-source solution or service to our customers;
- the timing of expenses related to the development, acquisition, or divestiture of technologies or businesses and the timing of expenses related to strategic investments, dispositions and relationships;
- changes in applicable laws;
- changes in accounting policies or guidelines; and
- regulatory changes or general economic conditions as they affect healthcare providers and payers.

We cannot predict the extent to which future variations could occur due to these or other factors. In addition, occasionally our state and federal customers are requested by third party payers to refund payments that we previously recovered for our customers. If our state and federal customers choose to refund money in response to these requests, regardless of whether an error actually occurred in connection with the payments, we may also be required to return contingent revenue which we were previously paid associated with such refunded payment. Consequently, our operating results are subject to significant fluctuation for any particular quarter, fiscal year, or other period, and may not be indicative of future periods. Our business is also subject to seasonal patterns resulting from increased efforts at year-end by certain customers to generate additional savings, complete compliance obligations and close gaps in care. However, taken as a whole, we do not consider our operations to be seasonal to any material degree. Due to all of these factors, our revenue and operating results are difficult to predict and are subject to significant fluctuation, which may cause the market price of our common stock to decrease significantly.

***We face challenges associated with forecasting the revenue under our contracts, and any failure to accurately forecast such revenue could have a material adverse effect on our business, financial condition, results of operations and cash flows.***

We may not be able to accurately estimate the factors upon which we base our contract pricing, or the costs and timing for implementing and completing our contracts. For a majority of our customer contracts, the payment of our fee is contingent upon the recoveries received by our customers. We also have cost-plus or time-and-materials based contracts with the federal government where our revenue is recognized based on costs incurred plus an estimate of the negotiated fee earned. Our ability to earn a profit on these contracts requires that we accurately estimate the costs involved with these contracts and assess the probability of achieving certain outcomes or milestones within the contracted time period. In addition, we cannot predict with certainty the costs or the period in which implementation or contracts may be completed when we introduce new solutions into the marketplace. For our coordination of benefits and

payment integrity services, we may face a long implementation period with a new customer or a new contract with an existing customer, making it difficult to reliably forecast revenue under those contracts. If we do not accurately estimate the costs and timing for completing projects, or if we encounter increased or unexpected costs, delays, failures, liabilities or risks, including those outside of our control, our contracts could prove unprofitable for us or yield lower profit margins than anticipated. Although we believe that we have recorded adequate provisions in our financial statements for losses on our fixed price and cost-plus contracts where applicable, as required under U.S. GAAP, our contract loss provisions may not be adequate to cover all actual future losses.

***System interruptions or failures could expose us to liability and harm our business.***

Our data and operation centers are essential to our business and our operations depend on our ability to maintain and protect our information systems. We attempt to mitigate the potential adverse effects of a disruption, relocation or change in operating environment; however, the situations we plan for and the amount of insurance coverage that we maintain may not be adequate in every case. Despite systems redundancy and security measures, our systems and operations are vulnerable to damage or interruption from, among other sources:

- power loss, transmission cable cuts and telecommunications failures;
- fires, floods, earthquakes, extreme weather conditions or other natural disasters;
- software or hardware malfunctions, failures or defects;
- operator error;
- cyber-attacks, physical break-ins, sabotage or intentional acts of vandalism; and
- other events beyond our control, such as medical epidemics or pandemics, war, terrorist attacks or other catastrophic events.

In addition, while there are backup systems in many of our facilities, an extended outage of utility or network services supplied by third party IT vendors may delay or disrupt the delivery or performance of the services we provide for our customers. We also utilize third-party cloud service providers to help us efficiently scale certain cloud-based solutions. If we or our cloud service providers encounter a lengthy business interruption, or in the event our disaster recovery and business continuity plans are not effective, or our applicable insurance coverage is denied or not sufficient to compensate for all the liability on a timely basis, we could suffer operational, communication and service disruptions, disputes with customers and third parties, civil or criminal penalties, regulatory problems, increases in administrative expenses, loss of our ability to produce timely and accurate financial and other reports, damage to our reputation or customer relationships or other adverse consequences, any of which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

***Our systems and networks and those of third parties on which we rely may be subject to cyber security breaches and other disruptions that could compromise our information and harm our business.***

In the ordinary course of our business, we rely heavily upon our technology systems and networks, as well as on those of third-party providers, to process, transmit, maintain, store and host the confidential, proprietary and sensitive information and data we receive from our customers and other data suppliers, including private insurance plans and financial institutions. Some of the data we process, access, store and transmit may be outside of the United States due to our international business operations. In addition, subcontractors, teaming partners or other third-party vendors may receive or utilize this information on our behalf in support of the services we perform for our customers. The secure processing and maintenance of this information is critical to our operations and business strategy. We have devoted and continue to devote significant resources to implement security and privacy programs and controls, train our workforce and augment our security measures with new and enhanced technologies and processes, among other investments. Despite our security management efforts, our information technology and infrastructure, and those of third parties on which we rely, may continue to be vulnerable to computer hacking or phishing efforts, acts of vandalism or theft, introduction of malware, computer viruses, other malicious codes or other cyber-attacks, employee or insider malfeasance and misfeasance issues, fraud, human error, catastrophes, or unforeseen events. We may be unable to



implement adequate preventive measures to protect against such compromises in the future or to effectively adapt our security measures to evolving security risks. As a result, our technology systems, including our data and our customers' data, could be accessed improperly, made unavailable, improperly modified, corrupted or otherwise breached or compromised, or we could suffer system disruptions, shutdowns and denials of service. Similarly, we could be materially adversely affected by the loss of proprietary, trade secret or confidential technical and financial data if our internal networks are compromised. The occurrence of any of these events could harm the market perception of the effectiveness of our security measures, lead to reputational damage or the loss of our customers' confidence in our solutions, negatively affect our ability to attract new customers, cause existing customers to terminate or not renew their existing contracts with us, or deter them from using our solutions or services in the future, all of which could reduce our revenue, increase our expenses and expose us to potential liability under privacy, security or other applicable laws and regulations, including losses and costs associated with any resulting fraud. We also may be subject to regulatory fines and penalties imposed by government regulatory agencies, and damages and other substantial costs associated with litigation, indemnification and contractual obligations, increased cybersecurity insurance premiums, and additional remediation efforts, such as credit monitoring, call center services or other corrective plans. We may be forced to spend significant time and resources investigating the cause of the breach, repairing system damage, remediating vulnerabilities in our security procedures, disseminating breach notifications, enhancing cyber security protection controls and measures, and deploying additional security personnel and protection technologies, all of which could increase our expenses, divert the attention of our management and key personnel away from our business operations and materially adversely affect our business, financial condition, results of operations and cash flows.

***Any failure to maintain effective information processing systems and the integrity of the data in, and operations of, those systems could materially adversely affect our business, financial condition, results of operations and cash flows.***

Our ability to conduct our operations and accurately report our financial results depends on the integrity of the data in our information systems and the processes performed by those systems. As a result of the services we provide, we process a number of complex transactions that require us to access, store, retrieve, manipulate, manage and transmit the information and data of our customers' and external third parties, as well as our own data. Although we have invested a great deal of time and resources in developing systems, processes and controls that protect the integrity of the data, such measures cannot provide absolute security. It is possible that failures or errors in hardware and software, including those in third-party technology, or technical deficiencies in our systems could result in data loss or corruption, or cause the data that we collect, utilize or disseminate to be incomplete or contain inaccuracies that our customers regard as significant. In addition, these information systems and applications require continual maintenance, upgrading and enhancement to meet our operational needs, satisfy customer requests and handle our expansion and growth. Despite our testing and quality control measures, we cannot be certain that errors or system deficiencies will be found and that remediation can be done in a timeframe that is acceptable to our customers, or that customer relationships will not be impaired by the occurrence of errors or the need for remediation. In addition, implementation of upgrades and enhancements may cost more, take longer or require more testing than originally expected. As we continue to expand our business, we face additional challenges in implementing adequate internal control over financial reporting. Situations may also arise in which the accuracy of our data analysis or the content and quality of our work product is central to the disposition of claims, controversies or litigation between our customers and third parties that would require us to allocate significant resources to fulfilling our contractual obligations to provide our customers with full and complete access to records, analysis and back-up documentation of our work. Assuring our capacity to fulfill these obligations as well as actually fulfilling them could impose significant burdens on our infrastructure for data storage, maintenance and processing, and require us to incur increased costs to supplement our personnel, data storage and computing resources, which could materially and negatively impact other business operations.

***If we are unable to protect our proprietary technology, information, processes, know-how, and other intellectual property, or become subject to third party claims of intellectual property infringement or misappropriation, the value of our solutions and services may be diminished and our business may be materially adversely affected.***

Our success as a company depends in part upon our ability to protect our core technology and intellectual property. Our expanding operations and efforts to develop new solutions and services also make protection of our intellectual property more critical. We seek to protect our intellectual property and other proprietary information through a combination of patent, trademark, copyright, trade secret and unfair competition laws, confidentiality agreements and invention assignment agreements with employees, consultants and other third parties, as well as through the terms of our agreements with customers and vendors, and other security measures. However, the steps we have taken to deter misappropriation of intellectual property may be insufficient to protect our proprietary information. For example, we may not always be successful at obtaining government registrations for our patents, trademarks, or copyrights that we seek to register. Even if we are successful, the existing U.S. federal and state intellectual property laws offer only limited protection, and our property rights in foreign jurisdictions in which we operate or seek to do business may not receive the same degree of protection or enforceability as those in the United States. Third parties may also attempt to misuse our company name or trademarks to engage in improper or illegal conduct such as cyber-squatting or other cybercrimes using our marks, and we may not always be successful at quickly obtaining relief from agencies tasked with enforcing parties' rights, or stopping such conduct before harm to third parties occurs. Similarly, misappropriation of our other intellectual property by third parties, or any disclosure or dissemination of our confidential and proprietary trade secrets, business intelligence, queries, algorithms and other similar information by any means, could undermine any competitive advantage we currently derive or may derive from that intellectual property. For example, our current or former employees, consultants or other third parties may unintentionally or willfully disclose our trade secrets, know-how or other confidential and proprietary information to competitors. Competitors have also attempted to use state and/or federal open records laws (such as the federal Freedom of Information Act and analogous state laws) to obtain our proposal responses and other documents we provide to our government customers. We cannot be certain that our efforts to protect the confidential and proprietary trade secret information or intellectual property in these proposals or other documents will always be successful, due to the many factors underlying the various state and federal decisions to release information in response to open records requests (even in spite of our objections and efforts to protect such information). Additionally, certain of our service or solutions offerings from our recent acquisitions may incorporate open source software that are licensed under various public domain licenses or without warranties, indemnification or other contractual protections. Although we carefully monitor and manage our use of open source software to avoid uses that would require us to disclose proprietary source code or violate applicable open source licenses, if we engage in such uses inadvertently, we may be required to take remedial action or release certain of our proprietary source code. Moreover, there remains the possibility that others will independently develop competing technologies that may be equivalent or superior to ours. If our efforts to protect our intellectual property and other proprietary rights are inadequate to prevent unauthorized use or appropriation by third parties or our employees, the value of our brand and other intangible assets may be diminished and make us less competitive, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

In addition, third parties may claim that we are infringing upon or misappropriating their intellectual property, using their intellectual property inconsistent with or without the appropriate license terms, or assert other legal challenges to our intellectual property. Our exposure to these risks may further increase after we acquire a business or technology because third parties may make infringement and similar or related claims after we have acquired technology. Any of these situations could cause us to expend significant time and resources and to incur substantial costs associated with settlements, litigation or other legal proceedings that may be necessary to defend ourselves or to enforce our intellectual property rights, in which we may not ultimately prevail, and could result in our being prevented from furnishing certain solutions and services. We may also be required to indemnify our customers if they become subject to third party claims relating to intellectual property that we license or otherwise provide to them, which could be costly.

***Our business could be materially adversely affected if we fail to maintain a high level of customer retention, if our customers elect to reduce the scope of our contracts or terminate them before their scheduled expiration dates or if we fail to meet performance standards under our customer contracts.***

We historically have derived and expect to continue to generate a significant portion of our revenue from a limited number of large customers at the federal and state level. Our contracts with these customers are subject to periodic

renewal and some permit them to terminate their contracts on short notice, with or without cause. If a customer is dissatisfied with the quality or pricing of our work or if we fail to meet performance standards under our contracts, or if our solutions, technical infrastructure or services do not comply with the provisions of our contractual agreements or applicable regulatory requirements, the customer might seek to reduce the scope of the services we perform or prematurely terminate its agreements with us, or we could incur additional costs that may impair the profitability of a contract and damage our ability to obtain additional work from that customer, or other current or prospective customers. For example, some of our contracts contain liquidated damages provisions and financial penalties related to performance failures, which if triggered, could materially adversely affect our reputation, business, financial condition, results of operations and cash flows. We also may be required to disclose such liquidated damages or other financial penalties assessed against us in connection with future bids for services with other customers.

In addition, our government and commercial healthcare customers are subject to financial pressures or pressure from stakeholders that may cause them to terminate contracts for our services that they regard as non-essential or have the ability to develop or perform in-house. They could also redefine or reduce the scope of our contracts by, for example, significantly reducing the volume of data that we are permitted to audit, or decide to renew our contracts at lower performance fee levels. Despite our right to prompt and full payment under the terms of our contracts, we could face challenges in obtaining timely or full payments for our properly provided services from our customers. If there is a substantial reduction in the scope of our services under, or a termination of, any of our key contracts with our major customers, or if we are exposed to significant costs, liabilities or negative publicity, our ability to compete for new contracts with current or prospective customer could be damaged and our business, financial condition, reputation, results of operations and cash flows could be materially adversely affected.

***We depend on many different entities to supply information, and any inability to successfully manage our relationships with a number of these suppliers may harm the quality and availability of our solutions and services.***

We obtain the data used in our solutions and services from many sources, including commercial health insurance plans, financial institutions, managed care organizations, government entities and non-government entities. From time to time, challenges arise in managing and maintaining our relationships with data sources that are not our customers and that furnish information to us pursuant to a combination of voluntary cooperation and legal obligations under laws and regulations that are often subject to differing interpretations. If a number of our information sources become unable or unwilling to provide us with certain data under terms and conditions of receipt, processing or use that are acceptable to us and our customers, or if laws and regulations for use and protection of this data changes in a way that could disincentivize our suppliers, or impose unacceptable or unreasonable conditions, costs, or risks on us, we may not be able to obtain new or favorable agreements with alternative data suppliers. In addition, our ability to normalize and fully utilize the information we receive from various data sources to enhance and improve current services for our customers is an important component of our growth strategy. Although we believe that we have the legal and contractual rights necessary to normalize and use the data we have obtained from these sources for potential or contemplated solution and service offerings, we cannot provide assurance that these entities will permit the use of their data for these purposes. If we lose a number of our data sources or our access to their data, and fail to identify and reach the requisite agreements with suitable alternative suppliers or to successfully integrate their data into our solutions and services, or if there is a lack of accuracy or integrity in the data that current or future suppliers provide, we could experience service disruptions, increased costs, reduced quality of our solutions and services, or performance penalties under our customer contracts, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

***We may rely on subcontractors and other third party providers to provide customers with a single-source solution or service or we may serve as a subcontractor to a third party prime contractor. If these parties fail to satisfy their obligations to us or if we are unable to maintain these relationships, our business, financial condition, results of operations and cash flows could be materially adversely affected.***

In some areas of our business, we may engage subcontractors, teaming partners, vendors or other third party providers to provide our customers with a single-source solution for a broader range of service needs. These third parties include software vendors, utility and network providers, cloud service providers, contingent workers and other information technology service providers and solution partners. Our ability to deliver and implement solutions and serve our customers effectively depends on these third parties meeting our service standards in both timeliness and quality, and in certain instances, on our ability to obtain customer approval for the use of these third party subcontractors. While we believe that we perform appropriate due diligence on these third parties and take adequate measures to ensure that they comply with the appropriate laws and regulations, we cannot guarantee that they will comply with the terms set forth in their agreements with us. Performance deficiencies or misconduct by subcontractors, teaming partners, vendors or other third party providers may be perceived as inadequacies in our solutions or services or cause us to fail to fulfill our contractual obligations to our customers, which could materially adversely affect our customer relationships and reputation, result in termination of customer contracts, and subject us to disputes with our customers. In addition, if our third party service providers terminate or refuse to renew their relationships with us or offer their products to us in the future on less advantageous terms, we may not be able to perform or deliver solutions or services for existing customers as expected.

Similarly, we are and may in the future be engaged as a subcontractor to a third party prime contractor which contracts directly with the customer. Subcontracting arrangements where we are not the prime contractor pose unique risks to us because we do not have control over the customer relationship, and our ability to generate revenue under such subcontracts is dependent on the prime contractor, its performance and relationship with the customer, and its relationship with us. We cannot be certain that the prime contractor will provide adequate and timely services to the customer, comply with the terms of its prime contract with the customer or its subcontract agreement with us, or that it will construe its contractual rights and obligations in a reasonable way, act appropriately in dealing with us or customers, and remain in compliance with the relevant laws, rules or regulations. Any failure of the prime contractor to adequately perform its obligations under the prime contract or to comply with applicable laws, rules and regulations could materially adversely affect our reputation and subject us to a dispute with the prime contractor or the customer. In the event a prime contract is terminated, whether for non-performance by the prime contractor or otherwise, our subcontract will similarly terminate, and the resulting contract loss could materially adversely affect our business, financial condition, results of operations and cash flows.

***We obtain a portion of our business through competitive bidding in response to government requests for proposals. Re procurements and future contracts may not be awarded through this process on the same level or our contract awards may be challenged by interested parties which could materially adversely affect our business, financial condition, results of operations and cash flows.***

In order to market our solutions and compete for contracts with existing and potential state and federal customers, we are often required to respond to government-issued RFPs. These responses typically require us to assemble and submit a large volume of information within a rigid timetable, and to accurately estimate our cost structure for servicing the proposed contract, the time required to establish operations and the likely terms of proposals submitted by our competitors. We may also be required to disclose the occurrence of certain negative events suffered by our business, such as customer disputes, a government inquiry or audit, or an adverse judgment or settlement in litigation or a legal proceeding, which could impair our ability to win the contract at issue or have a material adverse effect on our reputation in the industry.

Even if we win these contracts, we may fail to secure favorable contract terms and conditions, or a government's determination to award us the contract may be challenged by an interested party. Under the state and federal laws and regulations governing procurements of goods and services, challenges and award protests may be filed even if there are no valid legal grounds on which to base the protest. The filing of such challenges could potentially delay the start or implementation of the contract if the government agency determines to withhold a contract award or suspend contract performance while the protest is being considered, or to take corrective action on its own, such as soliciting new bids or

terminating the contract award or current procurement. In the event of irregularities that we perceive or learn of in the award or bidding process, we also may be forced to file protests in response to RFP awards to other bidders. Resolution of a protest, even in our favor, could force us to expend considerable funds in disputing the potential award or to incur additional expenses to maintain our ability to timely start implementation, which may cause our actual results to differ materially and adversely from those anticipated. In addition, if we are unable to win reprocurments or protests of particular contracts, we may be precluded from entering certain customer markets for the term of the contract awarded to another party. Any failure to continue to obtain contracts in response to government RFPs, to design proposals that result in profitable contracts, to win new contracts or re-procure current contracts after they expire or to prevail in protests or challenges of contract awards could have a material adverse effect on our business, financial condition, results of operations and cash flows.

***Adverse judgments or settlements in legal proceedings could materially harm our business, financial condition, operating results and cash flows.***

We are subject and may be a party to legal proceedings and claims that arise from time to time in the ordinary course of our business, which may include, but are not limited to, those related to, claims brought by our customers in connection with billing and contractual disputes, subcontracts and teaming agreements, protection of confidential information or trade secrets, individual or class action claims in relation to the services we provide, claims relating to pending, terminated or completed acquisitions or dispositions, or relating to investments or strategic relationships, adversary proceedings arising from customer bankruptcies, employment of our workforce and immigration requirements or compliance with any of a wide array of statutes, rules and regulations that pertain to different aspects of our business, both domestically and internationally. We may also be required to initiate expensive litigation or other proceedings to protect our business interests. There is a risk that we will not be successful or otherwise be able to satisfactorily resolve any pending or future litigation. In addition, litigation and other legal claims are subject to inherent uncertainties and management's view of currently pending legal matters may change in the future. Those uncertainties include, but are not limited to, litigation costs and attorneys' fees, unpredictable judicial or jury decisions, and differing laws and judicial proclivities regarding damage awards in the jurisdictions in which we operate. Resolution may also require that HMS accept some amount of loss or liability in order to avoid customer abrasion, negative marketplace perceptions and other disadvantageous results. Unexpected outcomes in such legal proceedings, or changes in management's evaluation or predictions of the likely outcomes of such proceedings (possibly resulting in changes in established reserves), could have a material adverse effect on our business, financial condition, results of operations and cash flows.

***We may not be able to deliver our solutions and perform services efficiently if we are unable to attract and retain qualified employees.***

Our successful delivery of solutions and services and ability to maintain our productivity and profitability is dependent on our ability to identify, recruit, employ, train and retain skilled personnel. The success of recruitment and retention strategies depend on a number of factors, including the competitive demands for employees having the skills we need, the level of compensation required to hire and retain such employees and immigration requirements that may affect our ability to sponsor employees for employment-based visas. Customers or competitors may seek to hire away qualified and seasoned employees, which could reduce our ability to innovate and operate effectively. We may not be able to recruit or maintain the personnel necessary to efficiently operate and support our business in the future, and even if our recruitment and retention strategies are successful, our labor costs may increase significantly. Our inability to hire sufficient personnel on a timely basis without significantly increasing our labor costs could materially adversely affect our business, financial condition, results of operations and cash flows.

***Our future success depends, in part, on the continued service of members of our management team.***

Our ability to execute on our business plans and future success requires that we attract, develop, motivate and retain experienced and innovative executive officers and senior leaders who have successfully managed, designed, implemented and led government services programs or information technology initiatives, or have relevant experience in other healthcare sectors, including data management and analytics. These individuals are in great demand and are likely to remain a limited resource in our industry. The loss of services of one or more members of our management team could adversely affect our business, financial condition, results of operations and cash flows. In addition, to the extent we lose an executive officer or senior leader, we may incur increased expenses in connection with the hiring, promotion or replacement of these individuals and the transition of leadership and critical knowledge.

***Our outstanding indebtedness could materially adversely affect our financial condition and our ability to operate our business, and we may not be able to generate sufficient cash flows to meet our debt service obligations or capital requirements.***

As of December 31, 2019, the outstanding principal balance under our Credit Agreement was \$240 million. Our Credit Agreement provides for a senior secured revolving credit facility in an aggregate principal amount equal to \$500 million and is secured, subject to certain customary carve-outs and exceptions, by a first priority lien and security interest in substantially all of our tangible and intangible assets. Our outstanding indebtedness and any additional indebtedness we incur may have important consequences for us, including, without limitation, that:

- we may be required to use a substantial portion of our cash flow to pay the principal of and interest on our indebtedness;
- our indebtedness and leverage may increase our vulnerability to adverse changes in general economic and industry conditions, as well as to competitive pressures;
- our indebtedness may expose us to the risk of increased interest rates because certain of our borrowings are and will be at variable interest rates;
- our ability to obtain additional financing for working capital, capital expenditures, acquisitions, investments, strategic relationships and for general corporate and other purposes may be limited;
- our indebtedness and leverage may prevent us from taking advantage of business opportunities as they arise or successfully carrying out our plans to expand our business; and
- our flexibility in planning for, or reacting to, changes in our business and our industry may be limited.

Under the Credit Agreement, we are also required to comply with specified financial and operating covenants, which may limit our ability to operate our business as we otherwise might operate it. The Credit Agreement also contains (i) certain affirmative covenants that impose certain reporting and/or performance obligations on us and our restricted subsidiaries, (ii) certain negative covenants that generally limit, subject to various exceptions, us and our restricted subsidiaries from taking certain actions, including, without limitation, incurring indebtedness, creating liens, engaging in mergers and consolidations, disposing of certain assets or property, making certain investments and acquisitions, entering into certain transactions with affiliates, swap agreements or sale-leasebacks, making certain restricted payments, including dividends and share repurchases, changing our fiscal year or the lines of business that we or our restricted subsidiaries conduct to a material extent, and prepaying certain junior indebtedness, (iii) financial covenants consisting of a maximum consolidated leverage ratio and a minimum interest coverage ratio, and (iv) customary events of default for financings of this type.

Our obligations under the Credit Agreement may be declared due and payable upon the occurrence and during the continuance of an event of default, which includes, without limitation: non-payment of principal or reimbursement obligations when due; non-payment of interest, fees and other amounts for a period of five business days after the due date; material inaccuracies of representations and warranties; failure to perform or observe covenants, conditions or agreements (subject to any applicable grace periods); cross-defaults of certain indebtedness; inability to pay debts;

certain acts of bankruptcy or insolvency; certain ERISA events; failure to pay certain material judgments; and a change of control as defined in the Credit Agreement. If not cured, an event of default could result in any amounts outstanding, including any accrued interest and unpaid fees, becoming immediately due and payable, and would give our lenders the right to proceed against the collateral granted to them to secure the debt, which would require us to, among other things, seek additional financing in the debt or equity markets, refinance or restructure all or a portion of our indebtedness, sell selected assets, and/or reduce or delay planned capital or operating expenditures. Such measures might not be sufficient to enable us to service our debt, and any such financing or refinancing might not be available on economically favorable terms or at all. Our ability to make payments of principal and interest on our outstanding credit facility depends upon our future performance and our ability to generate cash flows. If we are unable to generate sufficient cash flows to meet our debt service obligations or are forced to take additional measures to be able to service our indebtedness, our business, financial condition and results of operations could be materially and adversely affected.

Additionally, certain of our indebtedness bears interest at variable interest rates, primarily based on LIBOR. In July 2017, the United Kingdom's Financial Conduct Authority announced its intention to phase out the use of LIBOR by the end of 2021. Our Credit Agreement includes language to determine a replacement rate for LIBOR, if necessary; however, no consensus exists as to what rate or rates may become accepted alternatives to LIBOR, whether LIBOR will cease to be published or supported before or after 2021, or whether such alternative base rate will be more or less favorable than LIBOR. A transition away from LIBOR as a benchmark for establishing the applicable interest rate on certain borrowings could have a material adverse effect on the availability of financing and on our financing costs.

***Changes in tax rules and regulations, or in interpretations thereof, may materially adversely affect our effective tax rates.***

We are a U.S.-based company subject to taxation in multiple U.S. and foreign jurisdictions. As we continue to expand our business outside of the United States, we may become subject to additional tax laws and regulations, including those that could increase our exposure to additional tax liabilities, such as foreign tax laws, and laws relating to U.S. taxes on foreign operations. Our future effective tax rates could be materially affected by various factors, including changes in the tax rates of jurisdictions in which we do business, changes in relevant tax and accounting rules, regulations and interpretations, increases in expenses not deductible for tax purposes, including impairments of goodwill, changes in the valuation of our deferred tax assets and liabilities, and changes in geographic sales mix. For example, in December 2017, Congress enacted the 2017 Tax Act which, among other things, reduced the U.S. corporate tax rate, modified limitations on certain deductions for executive compensation, placed new limitations on interest deductions, repealed the Section 199 Deduction and certain capital investment deductions, and shifted U.S. taxation of multinational corporations from a tax on worldwide income to a territorial system. Any unanticipated changes in our tax rates could affect our future results of operations.

In addition, we are subject to the continual examination of our income tax returns by the IRS and other domestic and foreign tax authorities. We regularly assess the likelihood of outcomes resulting from these examinations to determine the adequacy of our provision for income taxes and have reserved for potential adjustments that may result. The final determination of any of these examinations could have a material adverse effect on our business, financial condition, results of operations and cash flows.

***Our insurance coverage and self-insurance reserves may not cover future claims, which could materially adversely affect our business, financial condition, results of operations and cash flows.***

We currently self-insure a significant portion of expected losses associated with workers' compensation claims, general business liabilities, property damage and employee health care benefits. We have purchased a fully-insured stop loss policy for our health plans to help offset our liability for both individual and aggregate claim costs and maintain insurance coverage with varying limits and retention amounts to help limit exposure to certain other risks. Insurance reserves are established for our estimated cost of claims incurred and unpaid as of the balance sheet date on an undiscounted basis,

which is based on a number of assumptions and factors, including historical trends, actuarial assumptions, economic conditions and management judgments about the present and expected level of cost per claim. This determination is closely monitored and adjusted when warranted by changing circumstances. Our prior growth could affect the accuracy of estimates based on historical experience. Should a greater amount of claims occur compared to what was estimated or medical costs increase beyond what was expected, our accrued liabilities might not be sufficient and we may be required to record additional expense. Unanticipated changes in the assumptions and estimates underlying our reserves could result in materially different amounts of expense reported under these programs, which could materially adversely affect our business, financial condition, results of operations and cash flows.

***Our international operations expose us to a number of business and financial risks, which could materially adversely affect our business, financial condition, results of operations and cash flows.***

We have expanded our business to include operations, investments, strategic relationships and personnel outside of the United States. Our international operations expose us to a number of business and financial risks, including, but not limited to:

- unfavorable foreign currency exchange rates or fluctuations;
- difficulties and increased costs involved in staffing and managing foreign operations;
- seasonal reductions in business activity;
- our ability to protect our intellectual property in foreign jurisdictions;
- legal uncertainties inherent in transnational operations such as export and import regulations, tariffs and other trade barriers;
- the impact of foreign laws, regulations and trade customs;
- U.S. and foreign taxation issues;
- increased costs of marketing to and servicing international clients;
- general political and economic trends, including the potential impact of political unrest, terrorist attacks or international hostilities; and
- legal compliance costs and risks associated with international operations, including heightened risks with respect to certain laws, including without limitation, healthcare and other data privacy laws, FCPA and similar laws and regulations in foreign jurisdictions.

If any of these risks materialize, our business, financial condition, results of operations and cash flows could be materially adversely affected.

***Changes in accounting standards issued by the FASB or other standard-setting bodies may adversely affect our business.***

Our financial statements are subject to the application of U.S. GAAP, which is periodically revised and/or expanded. From time to time, we are required to adopt new or revised accounting standards issued by recognized authoritative bodies, including the FASB and the SEC. It is possible that accounting standards we are required to adopt may require changes to the current accounting treatment that we apply to our consolidated financial statements and may require us to make significant changes to our systems. Changes in accounting standards could result in a material adverse impact on our business, financial condition and results of operations.

### **Risks Relating to Our Industry**

***Our business could be materially adversely affected by changes in the U.S. healthcare environment or in laws relating to healthcare programs and policies, particularly as they relate to the ACA and the Medicare and Medicaid programs.***

The healthcare industry in which we operate is subject to changing political, economic and regulatory influences that directly affect the practices and operations of federal, state and commercial healthcare organizations in the United



States. When the ACA was passed, its emphasis on program integrity, cost containment and expansion of Medicaid created new opportunities to grow our business and our service offerings. However, certain provisions of the ACA have yet to be implemented and the regulatory framework of the ACA and other healthcare reforms continues to evolve as a result of executive, legislative, regulatory and administrative developments and judicial proceedings. Since its adoption into law in 2010, there have been continued efforts by Congress to amend, repeal or replace all or part of the ACA. Congress has introduced several other bills to delay, defund or repeal implementation or amend significant provisions of the ACA, though none of these other bills have passed the House and Senate.

In addition to these legislative proposals, the current presidential administration has taken several steps to limit the functionality of the ACA and to undermine or delay the implementation of the ACA. During 2017, the President signed two executive orders and other directives designed to waive, defer, grant exemptions from or delay the implementation of certain requirements mandated by the ACA. Although legislative attempts to completely repeal the ACA have been unsuccessful to date, there have been a number of attempts to amend, repeal or replace certain aspects of the ACA through other legislative actions and legal challenges. For example, in December 2017, the 2017 Tax Act was signed into law, which, among other things, repealed the penalty under the "individual mandate" introduced by the ACA. In February 2018, a number of states filed suit in the U.S. District Court for the Northern District of Texas alleging that the ACA was unconstitutional in light of the repeal of the penalties associated with the individual mandate. In December 2018, the district court issued a ruling that the mandate was no longer permissible under Congress's taxing power and was thus unconstitutional and inseverable from the ACA. As such, the court further found that the remaining provisions of the ACA were also deemed to be invalid. The district court's ruling was appealed to the U.S. Court of Appeals for the Fifth Circuit. On December 18, 2019, the U.S. Court of Appeals for the Fifth Circuit affirmed part of the lower court's ruling that the individual mandate was unconstitutional, but remanded the case back to the district court to determine whether the remaining provisions of the ACA were nonetheless valid. On January 3, 2020, the attorney generals of 20 states and the District of Columbia filed a petition requesting the Supreme Court to take up the case with an expedited review, which was denied. Although, a stay and partial final judgment has been issued pending appeals, ensuring that the ACA remains operational in all respects, we cannot predict the outcome of the litigation that has been filed relating to the constitutionality of the ACA. As such, there remains considerable uncertainty surrounding the continued implementation of the ACA and what similar healthcare reform measures or other changes might be enacted at the federal and/or state level.

There have also been a number of proposed and adopted legislative initiatives and healthcare reform proposals from the federal and state governments in response to budgetary or deficit considerations. These include (i) block grants and other proposals that would fundamentally change the financial structure of the Medicaid program (currently funded jointly by the states and the U.S. Federal Government), which could result in early termination, reduced scopes or non-renewal of our contracts with certain state government customers, and (ii) changes at the federal level that would reduce reimbursement rates to states, establish new payment models, further limit the Medicare RAC program, or otherwise change the operating environment for our customers and transform the government's involvement in healthcare. Future healthcare legislation could also have a significant impact on our business. Due to uncertainties regarding the outcome of future healthcare reform initiatives, and their enactment and implementation, we cannot predict which, if any, of the future reform proposals will be adopted or the effect such adoption may have on us.

Another variable that impacts our business will be how state programs, commercial health plans, private employers and other healthcare payers will respond to changes during this continued period of uncertainty surrounding the ACA. These organizations may react to such changed circumstances and financial pressures by taking actions to ramp up, curtail or defer their retention of cost containment providers like us, which could impact the demand for our solutions and services and our ability to increase or maintain sales of our existing solutions and services. While certain changes may present new opportunities to us, our business, financial condition, results of operations and cash flows could be materially adversely affected if we are unable to adapt our solutions and services to meet changing requirements or expand service delivery into new areas, or if the demand for our solutions and services is reduced as a result of future legislative changes affecting Medicare, Medicaid or other publicly funded or subsidized health programs, or efforts to

waive, modify or otherwise change or invalidate the ACA. Although we will continue to evaluate the effect that the ACA and its possible invalidation or repeal and replacement may have on our business, it is difficult to predict the full impact and influence that the ACA and the varying healthcare reform measures may have on the U.S. healthcare industry or policy, and any resulting changes may take time to unfold.

***Healthcare spending fluctuations, simplification of the healthcare payment process or other aspects of the healthcare financing system, budgetary pressures and/or programmatic changes diminishing the scope of program benefits, or limiting payment integrity initiatives, could reduce the need for and the price of our solutions and services, which would have a material adverse effect on our business, financial condition, results of operations and cash flows.***

Our projections and expectations are premised, in part, upon consistent growth rates in the Medicare and Medicaid programs and government spending on these programs, and the impact on the current healthcare financing system overall and need for our solutions and services within that existing framework. Our continued success as a company is based in large part on offering solutions and services that improve the ability of our customers to identify and recover revenue that would otherwise be lost often as a result of procedural inefficiencies and complexities in the healthcare delivery and payment system. However, the need for our solutions and services, the price customers are willing to pay for them and the scope and profitability of our contracts could be negatively affected by a number of factors, including, but not limited to:

- a lower than projected growth in Medicare and Medicaid program enrollment and expenditures;
- changes in the level of federal government spending due to budgetary or deficit considerations, including the continuance of existing programs, as well as budgetary pressures that may drive changes at the state level;
- unanticipated reductions in the scope of healthcare program benefits (such as, for example, state decisions to eliminate coverage of optional Medicaid populations or services or shifting lives into managed care plans);
- the transition of healthcare beneficiaries from fee-for-service plans to value-based care and other alternative risk models;
- modifications in provider billing behavior and habits, often in response to the success of our solutions and services or to changes that reduce healthcare spending;
- the adoption of healthcare plans with significantly higher deductibles or other consumer healthcare cost-sharing;
- customer improvements and enhancements to their internal healthcare claims and billing processes;
- the simplification of the healthcare benefit and payment system through legislative or regulatory changes at the federal or state level (for example, legislative changes impacting the scope of mandatory audits, including limits on the look-back period for review in areas where we conduct audits);
- limits placed on ongoing program integrity initiatives, including the Medicare RAC program and state Medicaid RAC programs (for example, limitations or reductions in the amount of reviewable claims we audit, such as the modified ADR limits and sliding scale policy implemented by CMS for the current Medicare RAC contracts, which have a significant impact on the volumes of claims that Medicare RACs are permitted to review for inpatient providers and reduce their ability to identify overpayments and underpayments); and
- legislative and regulatory healthcare reforms and developments, including the absence of near-term compliance deadlines effected by the ACA, the possible repeal or modification of the ACA, changes in rules and regulations that discourage participation in government-sponsored healthcare programs among certain key populations and other legislative actions to reduce program eligibility or services, or reform Medicaid spending.

The occurrence of any of these events, or other changes to the funding of the Medicare and Medicaid programs or limitations in the scope of program eligibility, benefits, initiatives and healthcare spending that materially reduce our revenue or profitability with such programs may have an adverse effect on our future business, financial condition, results of operations and cash flows.

***A failure to comply with the laws and regulations that apply to companies in our industry regarding individual privacy and information security could subject us to legal actions, fines and penalties and negatively impact our reputation and operations.***

As a cost containment service provider, we often receive, process, transmit and store sensitive data, including PHI and personally identifiable information of individuals, as well as other financial, confidential and proprietary information belonging to our customers, subcontractors, government agencies, data suppliers and other third parties from whom we obtain information. The use and disclosure of that information is regulated at the federal, state, international and industry levels. In particular, we are subject to federal regulation under HIPAA, as amended by HITECH, and the Final Omnibus Privacy, Security, Breach Notification, and Enforcement Rule, as well as various U.S. state laws. HIPAA also imposes standards and requirements on our business associates (as defined under HIPAA). We are also obligated by our contractual requirements with customers, which may require that we comply with additional privacy regulations imposed upon certain types of customers, such as the federal Gramm-Leach-Bliley Act and other laws. Additional legislation governing the acquisition, storage and transmission or other dissemination of health record information and other personal or sensitive information, including information outside the scope of HIPAA, continues to be proposed and come into force at the state level, such as the recently enacted California Consumer Privacy Act of 2018. There are also numerous international privacy and security laws that govern the collection, dissemination, use, access, retention, storage, protection and confidentiality of personal information. For example, the European Union General Data Protection Regulation, which became effective in May 2018, introduced new data protection requirements, which relate to, among other things, the security, confidentiality and processing of personal data in the European Union. The transferring of personal information across international borders is also becoming increasingly complex. Additionally, several countries, including Australia, have established specific legal requirements for cross-border transfers, and other countries, such as India, are considering requirements for data localization.

In addition, laws, rules and regulations concerning the protection of personal information may be inconsistent across jurisdictions and are subject to evolving interpretations and frequent change by legislation, regulatory issuances or industry standards. As regulatory focus on privacy issues continues to increase and these laws and regulations continue to expand and become more complex, these potential risks to our business could intensify. Changes in laws or regulations associated with the enhanced protection of certain types of sensitive data, such as healthcare data or other personally identifiable information, along with increased customer demands for enhanced data security infrastructure, could greatly increase our cost of providing our solutions and services, and may subject us to additional liabilities.

Even though we take measures to comply with all applicable regulations and to ensure our business associates and subcontractors comply with these laws, regulations and rules, we have less than complete control over our business associates' and subcontractors' actions and practices. We may be exposed to data breach risk if there is unauthorized access to one of our or our subcontractors' secure facilities, or to third-party enterprise cloud storage and cloud computing application services that we use, or from lost or stolen laptops or other portable media from current or former employee theft of data containing PHI, from computer hacking, malware, computer viruses or other malicious codes, phishing or other cyber-attacks, from misdirected mailings containing PHI, or other forms of administrative or operational error. If we or our subcontractors fail to comply with applicable laws; if unauthorized parties gain physical access to one of our facilities and steal or misuse confidential information; if we erroneously use or disclose data in a way that is inconsistent with our granted rights; or if such information is misdirected, lost or stolen during transmission or transport, we may suffer damage to our reputation, potential loss of existing customers and difficulty attracting new customers. We could also be exposed to, among other things, unfavorable publicity, governmental inquiry and oversight, allegations by our customers that we have not performed our contractual obligations, costs to provide notifications or remediation (such as credit monitoring) to affected individuals, fines or other penalties imposed by government regulatory agencies, or litigation by affected parties and possible financial obligations for damages or indemnification obligations related to the theft or misuse of such information, any of which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

***We are subject to extensive domestic and foreign laws and regulations, including government and customer audits and investigations relating to our compliance with such laws and regulations applicable to companies in our industry, and a negative finding or other adverse determination could have a material adverse effect on our reputation, business, financial condition, results of operations and cash flows.***

We operate in an increasingly complex regulatory environment. A significant portion of our business is regulated by the U.S. federal government and the states in which we operate. These laws and regulations are generally intended to benefit and protect individual citizens, including government program beneficiaries, health plan members and their dependents. As such, the federal and state governmental agencies administering these laws and regulations have broad latitude to enforce them. Our contracts with U.S. government agencies are also subject to unique contractual provisions and performance requirements, and, on an ongoing basis, government and customer reviews, audits and investigations to verify our compliance with our contracts and applicable laws and regulations, as well as specialized legal actions and enforcement proceedings. For example, because we receive payments from federal and state governmental agencies, we are subject to laws, such as the Federal Acquisition Regulations, federal and state employment, equal opportunity and affirmative action laws, federal and state prompt pay statutes, healthcare fraud, waste and abuse laws, including anti-kickback laws, and similar legislation. We are also subject to the Federal False Claims Act and similar state statutes, which permit government law enforcement agencies to institute suits against us for violations and, in some cases, to seek double or treble damages, penalties and assessments. In addition, private citizens, acting as whistleblowers, can sue on behalf of the government under the “*qui tam*” provisions of the Federal False Claims Act and similar statutory provisions in many states.

As we expand into new areas of the healthcare industry, we may develop new or enhanced solutions that may further expose us to requirements under additional statutes and legislative schemes that have previously not been relevant to our business, such as the Fair Debt Collection Practices Act and other banking and credit reporting statutes. For example, in connection with our acquisition of Eliza Corporation (“Eliza”), we became subject to the Telephone Consumer Protection Act of 1991, state and federal audio and telephone recording laws, and other consumer laws and regulations as a result of the member engagement services that we perform. We also face heightened consumer communication protections as a result of the changing regulatory environment. Our increased involvement in population health services and penetration into new markets, such as ACOs, PBMs and commercial self-insured employers, could increase the likelihood and incidence of our being subjected to regulatory scrutiny or legal actions by third parties other than our customers, which may impose significant costs and strain on our resources.

In addition, the growth and continued expansion of our operations internationally subject us to additional and sometimes conflicting legal and regulatory requirements, such as those relating to local and cross-border taxation, anticorruption, anti-competition, immigration, government compliance, securities regulation, internal and disclosure control obligations, import/export controls, trade restrictions, conflict of interest, wage-and-hour standards, employment and labor relations, and data privacy and protection, including cross-border data transfers. Our non-U.S. businesses and operations are also subject to U.S. laws that regulate the conduct and activities of U.S.-based businesses operating abroad, such as the FCPA. Our exposure for violating the FCPA and other anticorruption, anti-bribery and anti-money laundering laws may increase as we expand internationally and commence sales and operations in foreign jurisdictions. Any changes in the laws and regulations of the countries in which we operate or utilize third-party resources outside of the United States may increase our future legal and regulatory compliance burden and involve significant costs and resources, and the inadequate enforcement of such laws or regulations could affect our business and results of operations. Despite our efforts, we may not be in compliance with all regulations in the countries in which we operate at all times, and may be subject to sanctions, penalties or fines as a result.

These laws and regulations, along with the terms of our government contracts, regulate how we do business, what services we offer and how we interact with customers, providers, other healthcare payers and the public. Although we have implemented policies and procedures designed to ensure compliance, there can be no assurance that our employees, subcontractors, vendors, agents, strategic partners or third parties with whom we do business, will not

violate our policies. If the government discovers improper or illegal activities in the course of audits or investigations, we may be subject to various civil and criminal penalties and administrative sanctions, which may include termination of contracts, forfeiture of profits, suspension of payments, significant monetary damages and fines, loss of required certifications or licenses, and suspension, disqualification or debarment from doing business with the government. Similarly, if our customers assert that we have failed to properly perform or comply with our contractual obligations, or if the carriers to which we send billings assert that we have failed to properly comply with applicable federal or state billing rules and regulations, we may be required to provide refunds or make payments to resolve such issues. If we are found to be in violation of any applicable law or regulation, or if we receive an adverse review, audit or investigation from a government agency or customer related to our compliance with such laws or regulations or the terms of our government contracts, any resulting negative publicity, penalties or sanctions could have an adverse effect on our reputation in the industry, impair our ability to compete for new contracts or bid in response to RFPs in one or more jurisdictions, and have a material adverse effect on our business, financial condition, results of operations and cash flows.

***Federal and state governments may limit or prohibit outsourcing of certain programs or functions to private entities, refuse to grant consents or waivers necessary for them to perform such work, or impose other limitations on outsourcing that may obstruct cost-effective performance of our contracts.***

U.S. federal or state governments could limit or prohibit private contractors like us from operating or performing elements of certain government functions or programs. As a condition of receiving federal funding, state and local government agencies may be required to operate such programs with government employees. Under current U.S. law, in order to privatize certain functions of government programs, the federal government must grant a consent and/or waiver to the petitioning state or local agency. If the federal government does not grant a necessary consent or waiver, the state or local government will be unable to outsource that function to a commercial entity. Such a situation could eliminate a contracting opportunity or reduce the value of an existing contract.

Similarly, the U.S. government may impose limitations or requirements on the outsourcing of work to offshore resources, which could make it more difficult for us to fulfill our contracts in a cost-effective manner. Certain areas of our operations use or involve vendor or subcontractor personnel located outside of the United States to supplement our workforce, who may (under carefully controlled circumstances) access certain PHI in the course of assisting us with various elements of the services we provide to our customers. The federal government and a number of states have proposed or passed laws or issued rules, regulations, and orders that would limit, restrict or wholly prohibit the use of offshore labor in performance of government contracts, or impose sanctions for the use of such resources. Some of our customers have already chosen to contractually limit or restrict our ability to use offshore personnel and systems. Intensified restrictions of this type or associated penalties could raise our costs of doing business, expose us to unexpected fines or penalties, increase the prices we must charge to customers to realize a profit and eliminate or significantly reduce the value of existing contracts or potential contract opportunities, any of which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

***We may be precluded from bidding on or performing certain work due to work we currently perform, which could materially adversely affect our business, financial condition, results of operations and cash flows.***

Various laws, regulations and administrative policies prohibit companies from performing work for government agencies in capacities that might be viewed to create an actual or perceived conflict of interest. In particular, CMS has stringent conflict of interest rules, which can limit our bidding for specific work for CMS, or for other contracts that might conflict, or be perceived by CMS to conflict, with contractual work for CMS. State governments and managed care organizations also have conflict of interest restrictions that could limit our ability to bid for certain work and impede our overall sales strategy. As we continue to expand and diversify our business operations, the likelihood that customers or potential customers will perceive conflicts of interest between our various subsidiaries, solutions, services, activities and customer relationships may increase. Such conflicts, whether real or perceived, could result in a loss of contracts or additional internal structural barriers that delay operational efficiency. We may also need to divest certain existing

businesses or reorganize our current management and personnel structure, as well as our corporate organization and entity structure, in order to qualify for new contract awards or to appropriately mitigate conflicts and otherwise accommodate the increasing complexity of our business. Our failure to devote sufficient care, attention and resources to managing these adjustments may result in technical or administrative errors that could expose us to potential liability or adverse regulatory action. In addition, conflict of interest rules and standards change frequently, and are subject to varying interpretations and varying degrees and consistency of enforcement. We may not be successful in navigating these restrictions. If we are prevented from expanding our business or are unable to effectively implement our strategic initiatives due to real or perceived conflicts of interest, our business, financial condition, results of operations and cash flows could be materially adversely affected.

### **Risks Relating to Our Common Stock**

***The market price of our common stock may be volatile, and fluctuations in the price of our common stock may materially adversely affect our business, financial condition, results of operations and cash flows and materially adversely affect our shareholders.***

The market price of our common stock has historically fluctuated and may continue to fluctuate. During the 52-week period ended December 31, 2019, our common stock traded on the Nasdaq Global Select Market as high as \$39.93 per share and as low as \$26.53 per share. Our stock price fluctuates based on a variety of factors, many of which are beyond our control, which include the risk factors described above and those related to:

- quarterly or annual earnings results or those of other companies in our industry;
- changes in financial estimates or recommendations by securities analysts about our future operating and stock price performance or in the operating and stock price performance of other companies that investors deem comparable to our company;
- news reports relating to trends, concerns and other issues in the healthcare industry, including perceptions in the marketplace regarding us and our competitors;
- the financial projections we publicly provide and any changes in or failure to meet those projections;
- future sales of shares of common stock in the public market by our executive officers or directors;
- any changes in the number of our outstanding shares, including as a result of share repurchases;
- actual or proposed changes in federal or state laws affecting the healthcare industry;
- changes in accounting principles;
- the public's response to our press releases, or other public announcements, including our filings with the SEC;
- securities class actions, shareholder lawsuits or other litigation; and
- market conditions in the industry and the economy as a whole.

In addition, stock markets often experience significant price and volume fluctuations. These broad market fluctuations may materially adversely affect the market price of our common stock regardless of our operating performance. In the past, shareholders have instituted securities class action litigation following periods of market volatility. Any litigation against us could cause us to incur substantial costs, divert the time and attention of our management and other resources or otherwise harm our business.

***Because we do not intend to pay dividends, you will benefit from an investment in our common stock only if it appreciates in value.***

We have not paid or declared cash dividends on any of our capital stock to date and currently intend to retain our future earnings, if any, to fund the development and continued growth of our business and repurchase shares opportunistically from time to time. As a result, we do not expect to pay any cash dividends in the foreseeable future. The success of your investment in our common stock will likely depend entirely upon any future appreciation. There is no guarantee that our common stock will appreciate in value or even maintain the price at which you purchased your shares.

***Certain provisions of our certificate of incorporation and bylaws could discourage unsolicited takeover attempts, which could depress the market price of our common stock.***

Our certificate of incorporation authorizes the issuance of up to 5,000,000 shares of “blank check” preferred stock with such designations, rights and preferences as may be determined by our Board of Directors. Accordingly, our Board of Directors is empowered, without shareholder approval, to issue preferred stock with dividend, liquidation, conversion, voting or other rights, that could adversely affect the voting power or other rights of holders of our common stock. In the event of issuance, preferred stock could be utilized, under certain circumstances, as a method of discouraging, delaying, or preventing a change in control. Although we have no present intention to issue any shares of preferred stock, it is possible that we will do so in the future. In addition, our bylaws currently require advance notice of shareholder proposals for business to be conducted at meetings of our shareholders and for nominations of candidates for election to our Board of Directors and provide for Delaware as an exclusive forum for certain disputes with our shareholders, all of which could also have the effect of discouraging a change of control.

**Item 1B. Unresolved Staff Comments**

None.

**Item 2. Properties**

Our corporate headquarters and other material leased properties as of December 31, 2019 are shown in the following table:

<b>Location</b>	<b>Approximate Square Footage</b>	<b>Owned/Leased</b>
Irving, TX (corporate headquarters)	242,260	Owned
Las Vegas, NV (office space)	63,593	Leased
Danvers, MA (office space)	38,868	Leased
New York , NY (office space)	34,759	Leased
Jackson, MN (office space)	27,932	Owned
Westerville, OH (office space)	25,212	Leased
All other locations (26)	120,556	Leased

All other locations consist principally of office space and two data centers, which are primarily located in the United States. Outside the U.S., we also lease office space in India. The leased locations have expiration dates through 2026. A portion of the above Las Vegas, NV and New York, NY office spaces are sub-leased. In general, we believe our existing facilities, including both owned and leased, are suitable to meet our current and reasonably anticipated future needs. See “Leases” in Note 16 to the Consolidated Financial Statements in Part II, Item 8 for additional information.

**Item 3. Legal Proceedings**

The information set forth under the caption “Litigation” in Note 14 to the Consolidated Financial Statements in Part II, Item 8 is incorporated herein by reference.

**Item 4. Mine Safety Disclosures**

Not applicable.

## PART II

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

#### *Market Information*

Our common stock is listed on the Nasdaq Global Select Market under the symbol "HMSY".

#### *Holders*

As of the close of business on February 17, 2020, there were 249 holders of record of our common stock.

#### *Dividends*

We have not paid or declared any cash dividends on our common stock and do not anticipate paying cash dividends in the foreseeable future. Our current intention is to retain future earnings to support the continued growth of our business and possibly for the repurchase of shares from time to time. Our Board of Directors will evaluate various factors, including, without limitation, our future earnings, operating cash flows, financial condition, results of operations and capital requirements in determining whether to pay any cash dividends in the future. In addition, our Credit Agreement generally limits, subject to certain exceptions, our ability to make certain payments or distributions with respect to our capital stock, including cash dividends to our shareholders. For additional detail, see the information under the heading "Liquidity and Capital Resources" in Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, and in Note 9 to the Consolidated Financial Statements in Part II, Item 8.

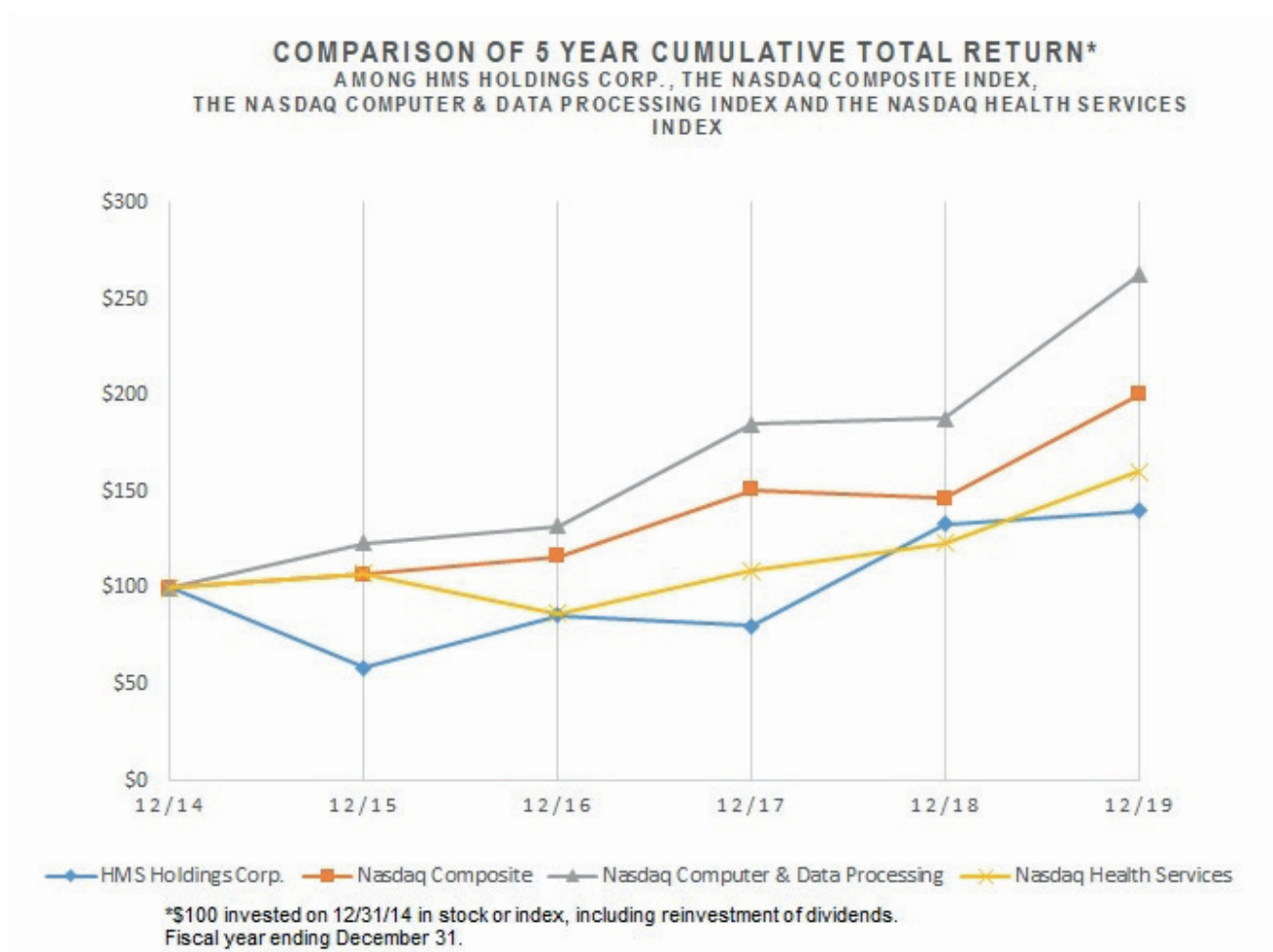
For equity compensation plan information, see Part III, Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters.

#### *Repurchases of Shares of Common Stock*

On November 1, 2017, our Board of Directors approved a share repurchase program authorizing the Company to repurchase up to \$50.0 million of shares of its common stock, which we publicly announced on November 3, 2017. This program expired on November 1, 2019 and had approximately \$29.9 million remaining at the time of expiration. On November 1, 2019, our Board of Directors approved a new share repurchase program authorizing the Company to repurchase up to \$50.0 million of shares of its common stock from time to time on the open market or in privately negotiated or other transactions. We publicly announced the new program on November 1, 2019. The new share repurchase program is authorized for a period of up to two years, and may be suspended or discontinued at any time. In order to facilitate repurchases, the Company may enter into a Rule 10b5-1 plan from time to time, which would permit shares to be repurchased when the Company might otherwise be precluded from doing so under insider trading laws or because of a self-imposed trading blackout period. See "Equity" in Note 10 to the Consolidated Financial Statements in Part II, Item 8 for additional information regarding share repurchases. There were no repurchases of shares of common stock under either share repurchase program during the fourth quarter of 2019.



## Comparative Stock Performance Graph



The graph above compares the cumulative total shareholder return on our common stock with the cumulative total shareholder returns of the Nasdaq Composite Index, the Nasdaq Computer & Data Processing Index and the Nasdaq Health Services Index assuming an investment of \$100 on December 31, 2014 and the reinvestment of dividends through the year ended December 31, 2019.

	12/31/14	12/31/15	12/31/16	12/31/17	12/31/18	12/31/19
HMS Holdings Corp.	\$ 100.00	\$ 58.37	\$ 85.90	\$ 80.18	\$ 133.07	\$ 140.02
Nasdaq Composite	100.00	106.96	116.45	150.96	146.67	200.49
Nasdaq Computer & Data Processing	100.00	123.21	132.37	185.07	187.89	262.83
Nasdaq Health Services	100.00	107.35	86.83	109.24	123.53	160.42

*Notwithstanding anything to the contrary set forth in any of our previous or future filings under the Securities Act or the Exchange Act that might incorporate by reference this 2019 Form 10-K or future filings made by us under those statutes, the Comparative Stock Performance Graph is not deemed filed with the SEC, is not deemed soliciting material and shall not be deemed incorporated by reference into any of those prior filings or into any future filings we make under those statutes, except to the extent that we specifically incorporate such information by reference into a previous or future filing, or specifically request that such information be treated as soliciting material, in each case under those statutes.*

## Item 6. Selected Financial Data

The following table sets forth selected consolidated financial amounts at and for each of the last five fiscal years in the period ended December 31, 2019. It should be read in conjunction with Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, and the Consolidated Financial Statements and Notes thereto, in Part II, Item 8 of this 2019 Form 10-K.

### Statement of Operations Data

<i>(in thousands, except per share amounts)</i>	Years ended December 31,				
	2019	2018	2017	2016	2015
<b>Revenue</b>	\$ 626,395	\$ 598,290	\$ 521,212	\$ 489,720	\$ 474,216
Total operating expenses	523,379	535,052	470,781	432,051	426,644
Operating income	103,016	63,238	50,431	57,669	47,572
Interest expense	(11,013)	(11,310)	(10,871)	(8,519)	(7,812)
Interest income	4,148	1,089	295	321	49
Other income	8,211	—	—	—	—
Income before income taxes	104,362	53,017	39,855	49,471	39,809
Income taxes	17,138	(1,972)	(199)	11,835	15,282
<b>Net income</b>	\$ 87,224	\$ 54,989	\$ 40,054	\$ 37,636	\$ 24,527

### Net Income Per Common Share

Basic income per common share:

Net income per common share — basic	\$ 1.00	\$ 0.66	\$ 0.48	\$ 0.45	\$ 0.28
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Diluted income per common share:

Net income per common share — diluted	\$ 0.98	\$ 0.64	\$ 0.47	\$ 0.43	\$ 0.28
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Weighted average shares:

Basic	87,222	83,625	83,821	84,221	87,881
Diluted	89,317	86,144	85,088	86,987	88,361

### Balance Sheet Data

<i>(in thousands)</i>	Years ended December 31,				
	2019	2018	2017	2016	2015
Cash and cash equivalents	\$ 139,268	\$ 178,946	\$ 83,313	\$ 175,999	\$ 145,610
Working capital	\$ 296,093	\$ 328,684	\$ 199,967	\$ 277,478	\$ 240,456
Total assets	\$ 1,244,276	\$ 1,078,518	\$ 975,160	\$ 882,755	\$ 850,597
Revolving credit facility	\$ 240,000	\$ 240,000	\$ 240,000	\$ 197,796	\$ 197,796
Total shareholders' equity	\$ 854,865	\$ 713,396	\$ 606,229	\$ 556,610	\$ 524,702

## Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

The following Management’s Discussion and Analysis is intended to help the reader understand the results of operations and financial condition of HMS. You should read this discussion and analysis in conjunction with the other sections of this 2019 Form 10-K, including the Cautionary Note Regarding Forward-Looking Statements appearing prior to Part I, the information in Part I, Item 1A, and the Consolidated Financial Statements and Notes thereto in Part II, Item 8. The historical results set forth in Part II, Item 6, Item 7 and Item 8 of this 2019 Form 10-K should not be taken as necessarily indicative of our future operations or financial results.

This section of this 2019 Form 10-K generally discusses 2019 and 2018 items and includes a year-to-year comparison of our results of operations and liquidity and capital resources between 2019 and 2018. For a discussion of 2017 items and year-to-year comparisons between 2018 and 2017 that are not included in this 2019 Form 10-K, please refer to the “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on February 25, 2019.

### Business Overview

HMS delivers healthcare technology, analytics and engagement solutions to help reduce costs, improve health outcomes and enhance consumer experiences. We provide a broad range of coordination of benefits, payment integrity and population health management solutions through our operating subsidiaries to move the healthcare system forward for our customers and contribute to improving health outcomes. We are managed and operate as one business segment with a single management team that reports to the Chief Executive Officer.

## Our Customers



Health Plans



States



Federal Government



Employers



Providers

We provide solutions that apply broadly across state and Federal government agencies, health plans and PBMs, employers, and at-risk providers. We also serve as a subcontractor for certain business outsourcing and technology firms. As of December 31, 2019, our customer base included the following:

- over 40 state Medicaid programs;
- more than 325 health plans, including 22 of the top 25 health plans nationally (based on membership) in support of their multiple lines of business, including Medicaid managed care, Medicare Advantage and group and individual health;
- over 150 private employers;
- CMS and the Centers for Disease Control and Prevention; and
- PBMs, third-party administrators and other risk-bearing entities, including independent practice associations, hospital systems, ACOs and specialty care organizations.

### Outlook

We have grown our business both organically, through internal innovation and the development of new solutions and services, as well as by acquisition of businesses whose core services strengthened our overall mission to help our customers contain healthcare costs and improve health outcomes. Our largest growth during 2019 was with government

payers including state and federal customers. In addition to cross-sales of our population health management solutions and other internal growth initiatives in 2019, various factors related to the macro healthcare environment are expected to provide opportunities for future growth, including:

- the rising and unsustainable costs of healthcare;
- increasing enrollment and rising expenditures for Medicare and Medicaid;
- the importance of treating the "whole person" with multi-dimensional analytics that provide a complete view of a person's coverage, health history and risks, enhanced with effective engagement solutions that impact behavior and improve outcomes;
- the transition to value-based care, and the overall complexity of the healthcare claims payment system in the U.S.; and
- the growing importance of analytics to preemptively identify early and rising risks, measure outcomes, and improve health.

To drive our future growth, we plan to enter into new markets and expand the scope of our relationships with existing customers, with a focus on selling additional solutions and services that span the payment and care continuum, from an individual's enrollment in a healthcare program to pre-payment review of their claims through post-payment identification and recovery of improper payments, and back to the individual where our consumer-driven solutions will allow healthcare organizations to manage individuals' healthcare on a personal level, at scale.

Our plan is to attract new customers, while broadening our relationships with current customers, through the introduction of innovative solutions and services, designed to enhance or expand our existing suite of cost containment solutions. By utilizing technology tools that leverage a big data environment, we intend to continue to promote automation and innovation to improve the effectiveness of our existing solution suite, and identify new revenue opportunities. We plan to continue to implement new technology and process improvements to increase customer satisfaction and achieve greater operating efficiencies that will improve the quality, effectiveness and profitability of our service offerings.

We are subject to a number of significant risks in the operation of our business, including operational, strategic, financial and regulatory risks. These include risks related to legal compliance, financial performance and condition, protection of our information technology networks and systems and intellectual property, and other risks. With respect to cybersecurity, the effective operation of our information technology networks and systems, and the secure processing and maintenance of the confidential, proprietary and sensitive information and data we receive from our customers and other data suppliers are critical to our operations and business strategy. Although we have processes and procedures to attempt to mitigate many of the risks that we face, there can be no assurance that such processes or procedures will be successful. For a discussion of certain risks relating to the Company, see the information under the heading "Part I, Item 1A. Risk Factors."

### **Critical Accounting Policies and Estimates**

Our consolidated financial statements are prepared in accordance with U.S. GAAP. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, costs and expenses, and related disclosures. We evaluate our estimates and assumptions on an ongoing basis. Our estimates are based on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Our actual results could differ from these estimates. The accounting policies that we believe to be the most critical to an understanding of our financial condition and results of operations and that require the most complex and subjective management judgments are as follows:

## Revenue Recognition

Description	Judgments and Uncertainties	Effect if Actual Results Differ from Assumptions
The Company recognizes revenue when performance obligations under the terms of the contracts with our customers are satisfied.	Due to the range of solutions and services that HMS provides and the differing fee structures associated with each type of contract, revenue may be recognized in irregular increments. A portion of our revenue is recorded net of an estimate of future revenue adjustments, with an offsetting entry to accounts receivable, based on historical patterns of billing adjustments, length of operating and collection cycle and customer negotiations, behaviors and payment patterns. Changes in these estimates are recorded to revenue in the period of change.	If we were to enter any new contracts with differing fee structures or performance obligations or if we were to change any of the judgments or estimates related to estimated future revenue adjustments, it could cause a material increase or decrease in the amount of revenue we report in a particular period.

## Business Combinations

Description	Judgments and Uncertainties	Effect if Actual Results Differ from Assumptions
We record assets acquired and liabilities assumed in a business combination based upon their acquisition date fair values. Goodwill is the excess of acquisition costs over the fair values of assets and liabilities of acquired businesses. During the measurement period, which is up to one year from the acquisition date, we may record adjustments to the assets acquired and liabilities assumed, with the corresponding offset to goodwill. Upon the conclusion of the measurement period, any subsequent adjustments are recorded to earnings.	In most instances there is not a readily defined or listed market price for individual assets and liabilities acquired in connection with a business, including intangible assets. We determine fair value through various valuation techniques including discounted cash flow models, quoted market values and third party independent appraisals, as considered necessary. Significant assumptions used in those techniques include, but are not limited to, growth rates, discount rates, customer attrition rates, expected levels of revenues, earnings, cash flows and tax rates.	The use of different valuation techniques and assumptions are highly subjective and inherently uncertain and, as a result, actual results may differ materially from estimates.

## Impairment of Goodwill

Description	Judgments and Uncertainties	Effect if Actual Results Differ from Assumptions
<p>Goodwill is subject to a periodic assessment for impairment. We assess goodwill for impairment on an annual basis as of June 30th of each year or more frequently if an event occurs or changes in circumstances would more likely than not reduce the fair value of a reporting unit below its carrying amount. Assessment of goodwill impairment is at the HMS Holdings Corp. entity level as we operate as a single reporting unit.</p> <p>We have the option to perform a qualitative or quantitative assessment to determine if impairment is more likely than not to have occurred. If we can support the conclusion that it is more likely than not that the fair value of a reporting unit is greater than its carrying amount using the qualitative assessment, then the Company would not need to perform the impairment test. If the Company cannot support such a conclusion, or the Company does not elect to perform the qualitative assessment, then the goodwill impairment test is used to identify potential impairment by comparing the fair value of the reporting unit with its carrying amount, including goodwill and recognizing an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, with the understanding that the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit.</p> <p>The Company's carrying amount of goodwill was \$599.4 million as of December 31, 2019.</p>	<p>The Company completed the quantitative annual impairment test as of June 30, 2018 and in June 30, 2019 elected to perform the qualitative assessment.</p> <p>When performing our quantitative analysis, the Company utilized a weighting across three commonly accepted valuation approaches: an income approach, a guideline public company approach, and a merger and acquisition approach. Significant assumptions in the income approach include income projections, a discount rate and a terminal growth value. The guideline public company approach and merger and acquisition approach are based on pricing multiples observed for similar publicly traded companies or similar market companies that were sold.</p> <p>When the qualitative assessment of goodwill impairment is performed, significant judgment is required in the assessment of qualitative factors including but not limited to an evaluation of macroeconomic conditions as they relate to our business, industry and market trends, as well as the overall future financial performance of our reporting units and future opportunities in the markets in which they operate.</p>	<p>The results of the annual impairment assessment provide that the fair value of the reporting unit was significantly in excess of the Company's carrying value, including goodwill; therefore, no impairment was indicated. If actual results are not consistent with our estimates or assumptions, the Company may be exposed to an impairment charge that could materially adversely impact our consolidated financial position and results of operations. There were no impairment charges related to goodwill during the years ended December 31, 2019, 2018, or 2017.</p>

### *Impairment of Long-Lived and Intangible Assets*

<b>Description</b>	<b>Judgments and Uncertainties</b>	<b>Effect if Actual Results Differ from Assumptions</b>
Long-lived assets, including property and equipment and intangible assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. When indicators exist, recoverability of assets is measured by a comparison of the carrying value of the asset group to the estimated undiscounted future net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized and charged to earnings is measured by the amount by which the carrying value of the asset group exceeds the fair value of the assets.	We use significant judgment in assessing events or changes in circumstances which indicate that the carrying amount of the asset may not be recoverable.	The Company's carrying amount of long-lived assets, including property and equipment and intangible assets was \$218.8 million as of December 31, 2019. The Company did not recognize any impairment charges related to long-lived and intangible assets during the years ended December 31, 2019, 2018 or 2017. However, if actual results are not consistent with our estimates or assumptions, we may be exposed to an impairment charge that could materially adversely impact our consolidated financial position and results of operations.

### *Valuation of Stock-Based Compensation*

<b>Description</b>	<b>Judgments and Uncertainties</b>	<b>Effect if Actual Results Differ from Assumptions</b>
The determination of the fair value of the options on the grant date using the Black-Scholes pricing model is affected by the Company's stock price, as well as assumptions regarding a number of complex and subjective variables. Certain key variables include: the Company's expected stock price volatility over the expected term of the awards; a risk-free interest rate; and any expected dividends. The fair value of all awards also includes an estimate of expected forfeitures.	We estimate stock price volatility based on the historical volatility of the Company's common stock and estimate the expected term of the awards based on the Company's historical option exercises for similar types of stock option awards. The assumed risk-free interest rate is based on the yield on the measurement date of a zero-coupon U.S. Treasury bond with a maturity period equal to the option's expected term. The Company does not anticipate paying any cash dividends in the foreseeable future and therefore, uses an expected dividend yield of zero in the option valuation models. Forfeitures are estimated based on historical experience.	If we were to change any of these judgments or estimates, it could cause a material increase or decrease in the amount of stock compensation expense we report in a particular period. For example, if actual forfeitures vary from estimates, a difference in compensation expense will be recognized in the period the actual forfeitures occur.

## Income Taxes

Description	Judgments and Uncertainties	Effect if Actual Results Differ from Assumptions
<p>Income taxes are accounted for under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. This method also requires the recognition of future tax benefits for net operating loss carry-forwards</p>	<p>Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized as income or expense in the period that includes the enactment date. A valuation allowance is provided against deferred tax assets to the extent their realization is not more likely than not.</p> <p>Uncertain income tax positions are accounted for by prescribing a minimum recognition threshold that a tax position is required to meet before being recognized in the financial statements. We make adjustments to these reserves in accordance with the income tax accounting guidance when facts and circumstances change, such as the closing of a tax audit or the refinement of an estimate.</p>	<p>To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will affect the provision for income taxes in the period in which such determination is made, and could have a material impact on our financial condition and operating results.</p> <p>Although the Company believes that it has adequately reserved for uncertain tax positions (including interest and penalties), it can provide no assurance that the final tax outcome of these matters will not be materially different.</p>



## Contingencies

Description	Judgments and Uncertainties	Effect if Actual Results Differ from Assumptions
From time to time, we are involved in legal proceedings in the ordinary course of business. We assess the likelihood of any adverse judgments or outcomes to these contingencies as well as potential ranges or probable losses and establish reserves accordingly.	We record accruals for outstanding legal matters when we believe it is probable that a loss will be incurred and the amount can be reasonably estimated. Significant judgment is required to determine both probability and the estimated amount. We review these provisions at least quarterly and adjust the provisions to reflect the impact of negotiations, settlements, rulings, advice of legal counsel and updated information.	Litigation is inherently unpredictable and is subject to significant uncertainties, some of which are beyond the Company's control. The amount of reserves required may change in future periods due to new developments in each matter or changes in approach to a matter such as a change in settlement strategy which could have a material impact on our financial condition and operating results.

For further information on these critical accounting policies and all other significant accounting policies, refer to the discussion under "Business and Summary of Significant Accounting Policies" in our Note 1 to the Consolidated Financial Statements in Part II, Item 8.

## Results of Operations

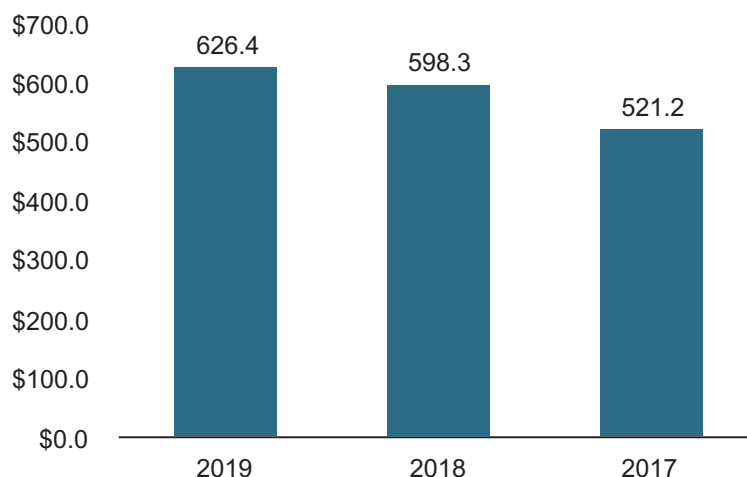
### 2019 Highlights

- Revenue growth of 4.7%
- Operating income growth of 63.0%
- Cash flow from operations of \$133.2 million
- Net income growth of 58.5%

### Comparison of 2019 to 2018 and 2018 to 2017

<i>(dollars in millions)</i>	Year Ended December 31,			\$ Change	% Change	\$ Change	% Change
	2019	2018	2017	2019 vs 2018		2018 vs 2017	
<b>Revenue</b>	\$ 626.4	\$ 598.3	\$ 521.2	\$ 28.1	4.7%	\$ 77.1	14.8%
Cost of services:							
Compensation	231.3	224.9	202.0	6.4	2.8	22.9	11.3
Direct project and other operating expenses	90.1	74.3	69.8	15.8	21.3	4.5	6.4
Information technology	53.9	53.4	45.7	0.5	0.9	7.7	16.8
Occupancy	16.4	16.0	17.2	0.4	2.5	(1.2)	(7.0)
Amortization of acquisition related software and intangible assets	17.0	33.0	30.4	(16.0)	(48.5)	2.6	8.6
Total cost of services	408.7	401.6	365.1	7.1	1.8	36.5	10.0
Selling, general and administrative expenses	114.7	113.5	105.7	1.2	1.1	7.8	7.4
Settlement expense	—	20.0	—	(20.0)	(100.0)	20.0	100.0
Total operating expenses	523.4	535.1	470.8	(11.7)	(2.2)	64.3	13.7
<b>Operating income</b>	103.0	63.2	50.4	39.8	63.0	12.8	25.4
Interest expense	(11.0)	(11.3)	(10.8)	0.3	(2.7)	(0.5)	4.6
Interest income	4.1	1.1	0.3	3.0	272.7	0.8	266.7
<b>Other income</b>	8.2	—	—	8.2	100.0	—	—
<b>Income before income taxes</b>	104.3	53.0	39.9	51.3	96.8	13.1	32.8
Income taxes	17.1	(2.0)	(0.2)	19.1	(955.0)	(1.8)	900.0
<b>Net income</b>	\$ 87.2	\$ 55.0	\$ 40.1	\$ 32.2	58.5%	\$ 14.9	37.2%

## Revenue (in millions)

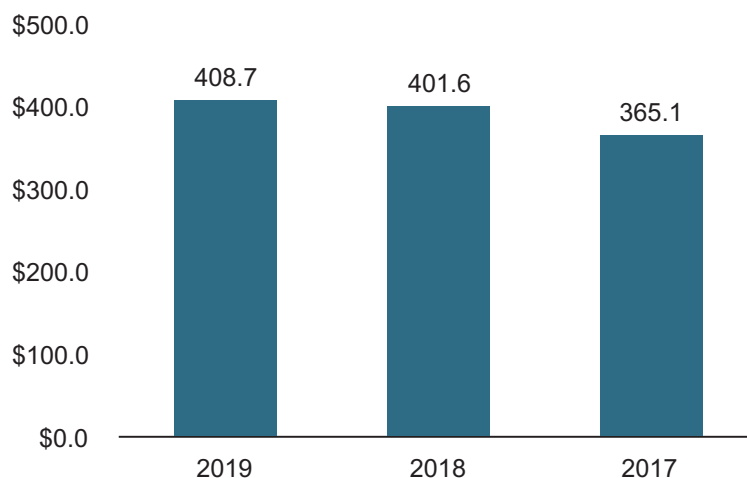


### 2019 vs 2018

During the year ended December 31, 2019, revenue was \$626.4 million, an increase of \$28.1 million or 4.7% compared to \$598.3 million for the year ended December 31, 2018.

- By solution:
  - Coordination of benefits revenue increased \$7.0 million or 1.8% which was attributable to incremental services and yield increases provided to existing customers in our cost recovery business, partially offset by the timing of recoveries related to certain customers.
  - Payment integrity revenue increased \$18.1 million or 12.6%, primarily due to a \$21.7 million increase in federal related claims, which included a \$2.1 million increase resulting from the release of the Company's remaining estimated liability and net receivables relating to the original Medicare RAC contract.
  - Population health management revenue increased \$3.0 million or 5.2% due to increased customer implementation and subscription fees.
  
- By market:
  - Commercial health plan market revenue decreased \$20.7 million or 6.4%, which was primarily due to scope and contract changes with existing customers.
  - State government market revenue increased \$23.8 million or 10.2%, which was attributable to expanded scopes and yield improvements.
  - Federal government market and other revenue increased \$25.0 million or 60.7% due to an increase in federal related claims processed, which included a \$2.1 million incremental increase associated with the release of the remaining estimated liability and net receivables relating to the original Medicare RAC contract.

### Cost of Services (in millions)

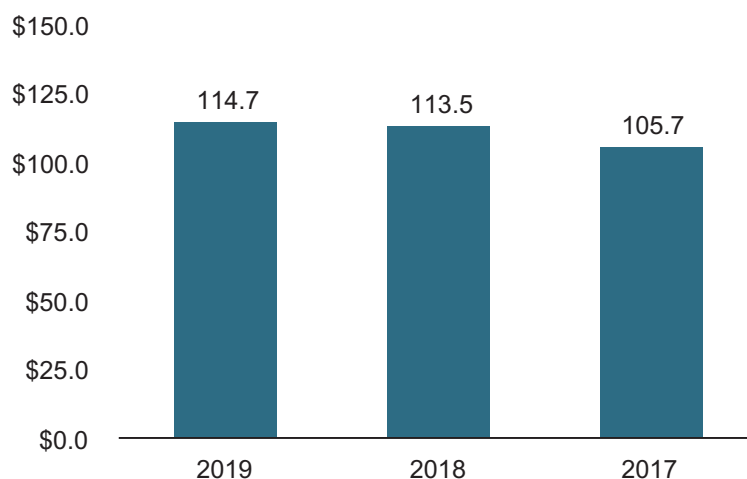


#### **2019 vs 2018**

During the year ended December 31, 2019, total cost of services was \$408.7 million, an increase of \$7.1 million or 1.8% compared to \$401.6 million for the year ended December 31, 2018.

- Compensation expense increased by \$6.4 million, which was primarily due to an increase in compensation costs partially offset by a decrease in variable compensation.
- Direct project and other operating costs increased by \$15.8 million primarily due to increases in labor costs, software costs and third party service providers expense.
- Amortization of acquisition related software and intangibles assets decreased by \$16.0 million due to certain intangible assets becoming fully amortized in prior periods.

### Selling, General and Administrative Expenses (in millions)



#### **2019 vs 2018**

During the year ended December 31, 2019, SG&A expense was \$114.7 million, an increase of \$1.2 million or 1.1% compared to \$113.5 million for the year ended December 31, 2018.

- Compensation expense decreased \$5.2 million due to a decrease in variable compensation.

- Professional fees increased by \$6.7 million compared to the prior year as the company leveraged additional external resources and expertise for certain SG&A related activities in 2019.

### Other income

#### 2019 vs 2018

In the third quarter of 2019, a third party acquired one hundred percent of the outstanding stock of InstaMed Holdings, Inc. ("InstaMed") including the Company's cost based investment in InstaMed of \$2.1 million. As a result, the Company received proceeds of \$9.8 million from the sale of the investment and recognized a \$7.7 million gain in other income for the year ended December 31, 2019.

### Income Taxes

#### 2019 vs 2018

During the year ended December 31, 2019, we recorded an income tax expense of \$17.1 million, the expense increased by \$19.1 million compared to an income tax benefit of \$(2.0) million for the year ended December 31, 2018.

- Our effective tax rate was 16.4% for the year ended December 31, 2019 compared to an effective tax rate of (3.7)% for the year ended December 31, 2018. The low 2018 effective tax rate is primarily due to favorable tax benefits related to current year credits, equity compensation, subsidiary basis write off, prior year state tax apportionment changes, uncertain tax position releases, and acquisition adjustments.
- Our normalized effective tax rate of 27.8% for 2019 increased from our normalized effective tax rate of 25.8% for 2018. The 2019 normalized effective tax rate excludes tax benefits related to stock compensation net windfalls and reversal of prior years' uncertain tax benefits of (10.0%) and (1.4%), respectively.

### Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements.

### Liquidity and Capital Resources

The following tables should be read in conjunction with the Consolidated Financial Statements and Notes thereto, in Part II, Item 8 of this 2019 Form 10-K.

Our cash and cash equivalents, working capital and available borrowings under our credit facility (based upon the borrowing base and financial covenants in our Credit Agreement) were as follows (*in thousands*):

	Years ended December 31,	
	2019	2018
Cash and cash equivalents	\$ 139,268	\$ 178,946
Working capital	\$ 296,093	\$ 328,684
Available borrowings under credit facility	\$ 253,500	\$ 253,500

A summary of our cash flows was as follows (*in thousands*):

	Years ended December 31,		
	2019	2018	2017
Net cash provided by operating activities	\$ 133,232	\$ 96,457	\$ 86,464
Net cash used in investing activities	(205,059)	(30,413)	(204,364)
Net cash provided by financing activities	32,149	29,589	25,214
<b>Net increase / (decrease) in cash and cash equivalents</b>	<b>\$ (39,678)</b>	<b>\$ 95,633</b>	<b>\$ (92,686)</b>

Our cash and cash equivalents and our working capital decreased as of December 31, 2019 as compared to December 31, 2018, primarily as a result of the cash used in investing activities as discussed below.

Our principal source of cash has been our cash flow from operations and our \$500 million five-year revolving credit facility. Other sources of cash include proceeds from exercise of stock options and tax benefits associated with stock option exercises. The primary uses of cash include, but are not limited to, acquisitions, strategic investments, capital investments, compensation expenses, data processing, direct project and other operating costs, SG&A expenses and other expenses.

We believe that expected cash flows from operations, available cash and cash equivalents, and funds available under our revolving credit facility will be sufficient to meet our liquidity requirements for the following year, which include:

- the working capital requirements of our operations;
- investments in our business;
- business development activities; and
- repurchases of common stock.

Any projections of future earnings and cash flows are subject to substantial uncertainty. We may need to access debt and equity markets in the future if unforeseen costs or opportunities arise, to meet working capital requirements, fund acquisitions or investments or repay our indebtedness under the Credit Agreement. If we need to obtain new debt or equity financing in the future, the terms and availability of such financing may be impacted by economic and financial market conditions as well as our financial condition and results of operations at the time we seek additional financing.

### ***Cash Flows from Operating Activities***

Net cash provided by operating activities for the year ended December 31, 2019 was \$133.2 million, a \$36.7 million increase from net cash provided by operating activities of \$96.5 million for the year ended December 31, 2018. The increase was primarily due to a \$32.2 million increase in net income, a \$14.7 million decrease in the amortization of intangibles and a \$7.7 million gain on the sale of a cost-basis investment. These increases were partially offset by a \$10.8 million change in deferred income taxes, a \$4.1 million increase in noncash lease expense and a net decrease in operating assets and liabilities of approximately \$13.5 million.

Our DSO calculation can be derived by dividing total net accounts receivable at the end of period, by the daily average of the current quarter's annualized revenue. For the year ended December 31, 2019, revenue was \$626.4 million, an increase of \$28.1 million compared to revenue of \$598.3 million for the year ended December 31, 2018. DSO increased by 4 days to 123 days as of December 31, 2019, as compared to 119 days as of December 31, 2018. The change was primarily due to the acquisition of Accent resulting in a 3 day increase. We do not currently anticipate collection issues with our accounts receivable, however, nor do we currently expect that any extended collections will materially impact our liquidity.

The majority of our customer relationships have been in place for several years. Our future operating cash flows could be adversely affected by a decrease in a demand for our services, delayed payments from customers or if one or more contracts with our largest customers is terminated or not renewed.

### ***Cash Flows from Investing Activities***

Net cash used in investing activities for the year ended December 31, 2019 was \$205.1 million, a \$174.7 million increase compared to net cash used in investing activities of \$30.4 million for the year ended December 31, 2018. This increase was primarily due to the use of approximately \$185.8 million, net of cash acquired, for the acquisitions of Accent and VitreosHealth, proceeds from the sale of our cost basis investment in InstaMed of \$9.8 million and purchase

of our cost basis investment in MedAdvisor of \$7.4 million, during the year ended December 31, 2019. Purchases of property and equipment and investment in capitalized software decreased by \$8.8 million million year over year.

We currently expect to incur capital expenditures of approximately \$34 million during the year ended December 31, 2020.

### **Cash Flows from Financing Activities**

Net cash provided by financing activities for the year ended December 31, 2019 was \$32.1 million, a \$2.5 million increase from net cash provided by financing activities of \$29.6 million for the year ended December 31, 2018. This increase was primarily a result of the Company not making any repurchases of common stock during fiscal year 2019, compared to approximately \$6.0 million in 2018, partially offset by an increase in tax withholding payments for employees' net-share settlement of stock options.

### **Share Repurchase Program**

During the year ended December 31, 2019, we did not repurchase any shares of our common stock. See the discussion under "Repurchases of Shares of Common Stock" under Part II, Item 5 and "Equity" in Note 10 to the Consolidated Financial Statements under Part II, Item 8 for additional information regarding share repurchases.

### **Credit Agreement**

In May 2013, we entered into the Credit Agreement with certain lenders and Citibank, N.A. as administrative agent. The Credit Agreement originally provided for an initial \$500 million five-year revolving credit facility maturing on May 3, 2018. On December 19, 2017, we entered into an amendment to the Credit Agreement that, among other things, provided for an extension of the maturity date of our then-existing senior secured revolving credit facility to December 19, 2022, which includes a \$50 million sublimit for the issuance of letters of credit and a \$25 million sublimit for swingline loans. In addition, the Credit Agreement includes an accordion feature that permits us to increase the revolving credit facility up to the sum of (a) the greater of \$120 million and 100% of Consolidated EBITDA (as defined in the Credit Agreement) and (b) additional amounts so long as our first lien leverage ratio (as defined in the Credit Agreement) on a pro forma basis is not greater than 3.00:1.00, in each case subject to obtaining commitments from lenders therefor and meeting certain other conditions.

The obligations and amounts due under the Credit Agreement are secured by a first security priority interest in all or substantially all of our tangible and intangible assets and our material 100% owned subsidiaries' assets. The Credit Agreement contains customary representations and warranties, affirmative and negative covenants, including financial covenants, and events of default.

As of December 31, 2019, the outstanding principal balance under our revolving credit facility was \$240.0 million.

As part of a contractual agreement with a customer, the Company has an outstanding irrevocable letter of credit for \$6.5 million, which is issued against our revolving credit facility and expires June 30, 2020.

As of December 31, 2019, we were in compliance with all terms of the Credit Agreement.

See Note 9 to the Consolidated Financial Statements in Part II, Item 8 for additional information regarding our Credit Agreement.

### **Contractual Obligations**

The following table represents the scheduled maturities of our contractual cash obligations and other commitments:

Contractual Obligations <sup>(1)</sup>	Payments Due by Period (in thousands)				
	Total	Less than 1 year	1 - 3 years	3 - 5 years	More than 5 years
Operating leases <sup>(2)</sup>	\$ 18,726	\$ 5,808	\$ 7,092	\$ 4,835	\$ 991
Revolving credit facility <sup>(3)</sup>	240,000	—	240,000	—	—
Interest expense <sup>(4)</sup>	24,027	8,171	15,856	—	—
Commitment fee <sup>(5)</sup>	1,949	653	1,296	—	—
Capital leases <sup>(6)</sup>	1,154	454	454	246	—
Letter of Credit fee <sup>(7)</sup>	53	53	—	—	—
Purchase obligations and commitments <sup>(8)</sup>	28,334	15,211	13,123	—	—
Total	\$ 314,243	\$ 30,350	\$ 277,821	\$ 5,081	\$ 991

- (1) The Company has excluded long-term unrecognized tax benefits, net of interest and penalties, of \$4.2 million from the amounts presented as the timing of these obligations is uncertain.
- (2) Represents the future minimum lease payments under non-cancelable operating leases. See Note 16 to the Consolidated Financial Statements in Part II, Item 8 for additional information regarding Leases.
- (3) Represents scheduled repayments of principal on the revolving credit facility under the terms of our Credit Agreement. See Note 9 to the Consolidated Financial Statements in Part II, Item 8 for additional information regarding the Credit Agreement.
- (4) Represents estimates of amounts due on the revolving credit facility based on the interest rate as of December 31, 2019 and on scheduled repayments of principal. See Note 9 to the Consolidated Financial Statements in Part II, Item 8 for additional information regarding the Credit Agreement.
- (5) Represents the commitment fee due on the revolving credit facility. See Note 9 to the Consolidated Financial Statements in Part II, Item 8 for additional information regarding the Credit Agreement.
- (6) Represents the future minimum lease payments under capital leases. See Note 16 to the Consolidated Financial Statements in Part II, Item 8 for additional information regarding Leases.
- (7) Represents the fees for the letter of credit issued against the revolving credit facility. See Note 9 to the Consolidated Financial Statements in Part II, Item 8 for additional information regarding the Credit Agreement.
- (8) Represents future purchases related to outstanding purchase orders and supplier requisitions.

### Recently Issued Accounting Pronouncements

The information set forth under the caption “Summary of Significant Accounting Policies” in Note 1 to the Consolidated Financial Statements in Part II, Item 8 is incorporated herein by reference.



## **Item 7A. Quantitative and Qualitative Disclosures About Market Risk**

At December 31, 2019, we were not a party to any derivative financial instruments. We conduct most of our business in U.S. currency and have limited operations outside of the United States. As such, do not have material foreign currency risk exposure. As we continue to grow our foreign operations, our exposure to foreign currency exchange rate risk could become more significant. We are exposed to changes in interest rates, primarily with respect to our revolving credit facility under our Credit Agreement. If the effective interest rate for all of our variable rate debt were to increase by 100 basis points (1%), our annual interest expense would increase by a maximum of \$2.4 million based on our debt balances outstanding at December 31, 2019. Further, we currently invest substantially all of our excess cash in short-term investments, primarily money market accounts, where returns effectively reflect current interest rates. As a result, market interest rate changes may impact our interest income or expense. The impact will depend on variables such as the magnitude of rate changes and the level of borrowings or excess cash balances. We do not consider this risk to be material. We manage such risk by continuing to evaluate the best investment rates available for short-term, high quality investments.

## **Item 8. Consolidated Financial Statements and Supplementary Data**

The information required by Item 8 is found under Item 15 of this 2019 Form 10-K.

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

None.

## **Item 9A. Controls and Procedures**

### **(a) Evaluation of Disclosure Controls and Procedures**

We are responsible for maintaining disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) that are designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures

As required by Rule 13a-15(b) under the Exchange Act, management, with the participation of our Chief Executive Officer and Chief Financial Officer, performed an evaluation of the effectiveness of our disclosure controls and procedures as of December 31, 2019. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by the 2019 Form 10-K.

### **(b) Management's Report on Internal Control Over Financial Reporting**

Our management is responsible for establishing and maintaining adequate internal control over financial reporting and for the assessment of the effectiveness of internal control over financial reporting. As defined by Rule 13a-15(f) under the Exchange Act, internal control over financial reporting is a process designed by, or under the supervision of our Chief Executive Officer and our Chief Financial Officer and effected by our Board of Directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the consolidated financial statements for external purposes in accordance with U.S. GAAP.

Our internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect our transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of the consolidated financial statements in accordance with generally accepted accounting principles and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the consolidated financial statements.

We excluded Accent and VitreosHealth from our assessment of internal control over financial reporting as of December 31, 2019 because the Company acquired Accent in a purchase business combination on December 23, 2019 and acquired VitreosHealth on September 16, 2019. Accent and VitreosHealth total assets represented approximately 17% and the revenues represented less than 1%, respectively, of the related consolidated financial statement amounts of the Company as of and for the year ended December 31, 2019. The scope of management's assessment of the effectiveness of the design and operation of the Company's disclosure controls and procedures as of December 31, 2019 excludes those disclosure controls and procedures of Accent and VitreosHealth that are subsumed by internal control over financial reporting.

In connection with the preparation of our annual consolidated financial statements, management has undertaken an assessment of the effectiveness of our internal control over financial reporting as of December 31, 2019, based on criteria established in the Internal Control-Integrated Framework issued by COSO. Management's assessment included an evaluation of the design of our internal control over financial reporting and testing of the operational effectiveness of those controls. Based on that assessment, we believe that the Company's internal control over financial reporting was effective based on those criteria as of December 31, 2019.

Our independent registered public accounting firm, Grant Thornton LLP, audited our consolidated financial statements and has issued an attestation report on the effectiveness of our internal control over financial reporting as of December 31, 2019, a copy of which is included with this 2019 Form 10-K.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any 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.

### **(c) Changes in Internal Control Over Financial Reporting**

There have been no changes to the Company's internal control over financial reporting during the quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

### **Item 9B. Other Information**

None.

## PART III

### Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item 10 is incorporated herein by reference to the applicable disclosure found in our definitive proxy statement to be filed with the SEC pursuant to Regulation 14A under the Exchange Act in connection with HMS Holdings Corp.'s 2020 Annual Meeting of Shareholders under "*Proposal One: Election of Directors*," "*Executive Officers*," "*Delinquent Section 16(a) Reports*," "*Director Nomination Process*," "*Additional Information—Shareholder Proposals and Director Nominations for 2021 Annual Meeting*," and "*Board Committees and Related Matters*."

Our Board of Directors has adopted a Code of Conduct applicable to all of our directors, officers and employees, including all employees, officers, directors, contractors, contingent workers and business affiliates of HMS subsidiaries. The Code of Conduct is publicly available on our website under the "Investors—Corporate Governance" tab at <http://investor.hms.com/corporate-governance.cfm> and can also be obtained free of charge by sending a written request to our Corporate Secretary. To the extent permissible under the Nasdaq Marketplace Rules, we intend to disclose amendments to our Code of Conduct, as well as waivers of the provisions thereof, that relate to our principal executive officer, principal financial officer, principal accounting officer, controller or persons performing similar functions on the Company's website under the "Investors—Corporate Governance" tab at <http://investor.hms.com/corporate-governance.cfm>.

### Item 11. Executive Compensation

The information required by this Item 11 is incorporated herein by reference to the applicable disclosure found in our definitive proxy statement to be filed with the SEC pursuant to Regulation 14A under the Exchange Act in connection with HMS Holdings Corp.'s 2020 Annual Meeting of Shareholders under the captions "*Executive Compensation*," "*Director Compensation*," and "*Compensation Committee Interlocks and Insider Participation*."

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

Except as provided below, the information required by this Item 12 is incorporated herein by reference to the applicable disclosure found in our definitive proxy statement to be filed with the SEC pursuant to Regulation 14A under the Exchange Act in connection with HMS Holdings Corp.'s 2020 Annual Meeting of Shareholders under the caption "*Ownership of HMS Common Stock*."

## Equity Compensation Plan Information

The following table summarizes information about our equity compensation plans as of December 31, 2019. For additional information about our equity compensation plans see the discussion set forth under the caption “Stock-Based Compensation” in Note 12 to the Consolidated Financial Statements in Part II, Item 8.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
	(a)	(b)	(c)
Equity compensation plans approved by shareholders	3,577,870 <sup>(1)</sup>	\$ 23.43	9,289,094
Equity compensation plans not approved by shareholders	17,184 <sup>(2)</sup>	\$ 12.95	—
<b>Total</b>	<b>3,595,054</b>		

(1) This includes stock options and restricted stock units granted under our 2006 Stock Plan, 2016 Omnibus Plan and 2019 Omnibus Plan.

(2) This includes stock options granted under the 2011 HDI Plan, which was assumed in connection with our acquisition of HDI and approved by the Compensation Committee of our Board.

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

The information required by this Item 13 is incorporated herein by reference to the applicable disclosure found in our definitive proxy statement to be filed with the SEC pursuant to Regulation 14A under the Exchange Act in connection with HMS Holdings Corp.’s 2020 Annual Meeting of Shareholders under the captions “*Certain Relationships and Related Transactions*” and “*Director Independence*.”

## Item 14. Principal Accounting Fees and Services

The information required by this Item 14 is incorporated herein by reference to the applicable disclosure from the proposal captioned “*Ratification of the Selection of Independent Registered Public Accounting Firm*” found in our definitive proxy statement to be filed with the SEC pursuant to Regulation 14A under the Exchange Act in connection with HMS Holdings Corp.’s 2020 Annual Meeting of Shareholders.

## PART IV

### Item 15. Exhibits and Financial Statement Schedules

1. *Financial Statements.*

The financial statements are listed in the Index to Consolidated Financial Statements on page 59.

2. *Financial Statement Schedules.*

Financial Statement Schedule II-Valuation and Qualifying Accounts is set forth on page 97. All other financial statement schedules have been omitted as they are either not required, not applicable or the information is otherwise included.

3. *Exhibits.*

The Exhibits include agreements to which the Company is a party or has a beneficial interest. The agreements have been filed to provide investors with information regarding their respective terms. The agreements are not intended to provide any other actual information about the Company or its business or operations. In particular, the assertions embodied in any representations, warranties, and covenants contained in the agreements may be subject to qualifications with respect to knowledge and materiality different from those applicable to investors and may be qualified by information in confidential disclosure schedules not included with the exhibits. These disclosure schedules may contain information that modifies, qualifies and creates exceptions to the representations, warranties and covenants set forth in the agreements. Moreover, certain representations, warranties, and covenants in the agreements may have been used for the purpose of allocating risk between parties, rather than establishing matters as facts. In addition, information concerning the subject matter of the representations, warranties and covenants may have changed after the date of the respective agreement, which subsequent information may or may not be fully reflected in the Company's public disclosures. Accordingly, investors should not rely on the representations, warranties and covenants in the agreements as characterizations of the actual state of facts about the Company or its business or operations on the date hereof.

Where an exhibit is filed by incorporation by reference to a previously filed registration statement or report, such registration statement or report is identified after the description of the exhibit.

<b>Exhibit Number</b>	<b>Description</b>
2.1	Agreement and Plan of Merger, dated March 10, 2017, by and among HMS Holdings Corp., Echo Acquisition Sub, Inc., Eliza Holding Corp., and Parthenon Investors III, L.P., solely in its capacity as the representative for equity holders of Eliza Holding Corp. (incorporated by reference to Exhibit 2.1 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on June 6, 2017)
2.2.1	Membership Interest Purchase Agreement, dated November 20, 2019, by and between West Receivable Services, Inc. and HMS Holdings Corp.
2.2.2	Letter Agreement Amendment to the Membership Interest Purchase Agreement, dated December 23, 2019, by and between West Receivable Services, Inc. and HMS Holdings Corp.
3.1	Conformed copy of Certificate of Incorporation of HMS Holdings Corp., as amended through May 23, 2018 (incorporated by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on August 6, 2018)
3.2	Second Amended and Restated Bylaws of HMS Holdings Corp. dated May 23, 2018 (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K (File No. 000-50194) as filed with the SEC on May 25, 2018)

<b>Exhibit Number</b>	<b>Description</b>
4.1	Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K/12g-3 (File No. 000-50194) as filed with the SEC on July 23, 2013)
4.2	Description of Company's Common Stock
10.1.1	HMS Holdings Corp. Fourth Amended and Restated 2006 Stock Plan (incorporated by reference to Exhibit 99.2 to the Company's Current Report on Form 8-K (File No. 000-50194) as filed with the SEC on July 12, 2011)†
10.1.2	Amendment No. 1 to the HMS Holdings Corp. Fourth Amended and Restated 2006 Stock Plan (incorporated by reference to Exhibit 10.6 to the Company's Annual Report on Form 10-K (File No. 000-50194) as filed with the SEC on February 29, 2012)†
10.1.3	Form of 2013 Director Non-Qualified Stock Option Agreement under the 2006 Stock Plan (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on May 12, 2014)†
10.1.4	Form of 2014 Director Non-Qualified Stock Option Agreement under the 2006 Stock Plan (incorporated by reference to Exhibit 10.26 to the Company's Annual Report on Form 10-K (File No. 000-50194) as filed with the SEC on March 2, 2015)†
10.1.5	Form of 2015 Director Non-Qualified Stock Option Agreement under the 2006 Stock Plan (incorporated by reference to Exhibit 10.21 to the Company's Annual Report on Form 10-K (File No. 000-50194) as filed with the SEC on February 29, 2016)†
10.1.6	Form of November 2015 Executive Non-Qualified Stock Option Agreement under the 2006 Stock Plan (incorporated by reference to Exhibit 10.23 to the Company's Annual Report on Form 10-K (File No. 000-50194) as filed with the SEC on February 29, 2016)†
10.1.7	Form of 2016 Executive and Senior Vice President Non-Qualified Stock Option Agreement under the 2006 Stock Plan (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on May 10, 2016)†
10.1.8	Form of 2016 Executive and Senior Vice President Restricted Stock Unit Agreement under the 2006 Stock Plan (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on May 10, 2016)†
10.2.1	HMS Holdings Corp. 2016 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 000-50194) as filed with the SEC on June 27, 2016)†
10.2.2	Form of Non-Qualified Stock Option Award Agreement for Employees under the 2016 Omnibus Plan (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on November 9, 2016)†
10.2.3	Form of Restricted Stock Unit Award Agreement for Employees under the 2016 Omnibus Plan (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on November 9, 2016)†
10.2.4	Form of Non-Qualified Stock Option Award Agreement for Non-Employee Directors under the 2016 Omnibus Plan (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on November 9, 2016)†
10.2.5	Form of Restricted Stock Unit Award Agreement for Non-Employee Directors under the 2016 Omnibus Plan (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on November 9, 2016)†
10.3.1	HMS Holdings Corp. 2019 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-50194) as filed with the SEC on May 22, 2019)†
10.3.2	Form of Nonqualified Stock Option Award Notice and Agreement for Employees under the 2019 Omnibus Plan (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on August 5, 2019)†
10.3.3	Form of Nonqualified Stock Option Award Notice and Agreement for Non-Employee Directors under the 2019 Omnibus Plan (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on August 5, 2019)†

<b>Exhibit Number</b>	<b>Description</b>
10.3.4	Form of Restricted Stock Unit Award Notice and Agreement for Employees under the 2019 Omnibus Plan (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on August 5, 2019)†
10.3.5	Form of Restricted Stock Unit Award Notice and Agreement for Non-Employee Directors under the 2019 Omnibus Plan (incorporated by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on August 5, 2019)†
10.4.1	Executive Employment Agreement, dated March 1, 2013, by and between William C. Lucia and HMS Holdings Corp. (incorporated by reference to Exhibit 10.29 to the Company's Annual Report on Form 10-K (File No. 000-50194) as filed with the SEC on March 1, 2013)†
10.4.2	Letter of Amendment to Executive Employment Agreement, dated April 30, 2013, by and between William C. Lucia and HMS Holdings Corp. (incorporated by reference to Exhibit 10.1 to Amendment No. 1 to the Company's Annual Report on Form 10-K/A (File No. 000-50194) as filed with the SEC on April 30, 2013)†
10.4.3	Second Amendment to Executive Employment Agreement, dated January 20, 2015, by and between William C. Lucia and HMS Holdings Corp. (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-50194) as filed with the SEC on January 23, 2015)†
10.4.4	Third Amendment to Executive Employment Agreement, dated February 21, 2018, by and between William C. Lucia and HMS Holdings Corp. (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-50194) as filed with the SEC on February 23, 2018)†
10.5	Amended and Restated Employment Agreement, dated April 2, 2018, by and between Jeffrey S. Sherman and HMS Holdings Corp. (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on May 7, 2018)†
10.6	Amended and Restated Employment Agreement, dated March 29, 2018, by and between Meredith W. Bjorck and HMS Holdings Corp. (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on May 7, 2018)†
10.7	Amended and Restated Employment Agreement, dated March 29, 2018, by and between Douglas M. Williams, Jr. and HMS Holdings Corp. (incorporated by reference to Exhibit 10.5 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on May 7, 2018)†
10.8	Amended and Restated Employment Agreement, dated April 2, 2018, by and between Emmet O' Gara and HMS Holdings Corp.(incorporated by reference to Exhibit 10.7 to the Company's Annual Report on Form 10-K (File No. 000-50194) as filed with the SEC on February 25, 2019)†
10.9	Amended and Restated Employment Agreement, dated March 29, 2018 by and between Teresa South and HMS Holdings Corp.†
10.10	Separation, Waiver and General Release Agreement, dated January 9, 2019, by and between Semone Neuman and HMS Holdings Corp.(incorporated by reference to Exhibit 10.9 to the Company's Annual Report on Form 10-K (File No. 000-50194) as filed with the SEC on February 25, 2019)†
10.11	Form of Indemnification Agreement (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on August 6, 2018)†
10.12	HMS Holdings Corp. Director Deferred Compensation Plan, as amended through June 29, 2016 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on August 9, 2016)†
10.13	HMS Holdings Corp. Annual Incentive Compensation Plan as amended and restated (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-50194) as filed with the SEC on June 27, 2016)†
10.14.1	Amended and Restated Credit Agreement, dated May 3, 2013, as amended by Amendment No. 1 to Amended and Restated Credit Agreement dated as of March 8, 2017, and as further amended by Amendment No. 2 to Amended and Restated Credit Agreement, dated as of December 19, 2017, by and among HMS Holdings Corp., the Guarantors party thereto, the Lenders party thereto and Citibank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 000-50194) as filed with the SEC on December 21, 2017)

<b>Exhibit Number</b>	<b>Description</b>
10.14.2	Amended and Restated Security Agreement, dated December 19, 2017, by and among HMS Holdings Corp., the Subsidiary Securing Parties party thereto and Citibank, N.A., as Collateral Agent (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K (File No. 000-50194) as filed with the SEC on December 21, 2017)
10.15	Settlement Agreement, dated June 27, 2018, by and among Dennis Demetre, Lori Lynn Lewis Demetre, John Alfred Lewis, Christopher Brandon Lewis, and HMS Holdings Corp. (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 000-50194) as filed with the SEC on August 6, 2018)
21.1	Subsidiaries of HMS Holdings Corp.
23.1	Consent of Grant Thornton LLP
31.1	Rule 13a-14(a)/15d-14(a) Certification of the Principal Executive Officer of HMS Holdings Corp., as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Rule 13a-14(a)/15d-14(a) Certification of the Principal Financial Officer of HMS Holdings Corp., as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Section 1350 Certification of the Principal Executive Officer of HMS Holdings Corp., as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002*
32.2	Section 1350 Certification of the Principal Financial Officer of HMS Holdings Corp., as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002*
101.INS	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted in Inline XBRL and contained in Exhibit 101)

† Indicates a management contract or compensatory plan, contract or arrangement

\* The certifications attached hereto as Exhibit 32.1 and Exhibit 32.2 are furnished with this 2019 Form 10-K and shall not be deemed "filed" by the Company for purposes of Section 18 of the Exchange Act

## **Item 16. Form 10-K Summary**

None.



## SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized on February 24, 2020.

HMS Holdings Corp.

/s/ William C. Lucia

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William C. Lucia

Chairman of the Board, President and  
Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Annual Report on Form 10-K has been signed below by the following persons on behalf of the Registrant and in the capacities indicated on February 24, 2020.

<u>Signature</u>	<u>Title</u>
<u>/s/ William C. Lucia</u> William C. Lucia	Director, Chairman of the Board, President and Chief Executive Officer (Principal Executive Officer)
<u>/s/ Jeffrey S. Sherman</u> Jeffrey S. Sherman	Executive Vice President, Chief Financial Officer and Treasurer (Principal Financial Officer)
<u>/s/ Greg D. Aunan</u> Greg D. Aunan	Senior Vice President and Chief Accounting Officer (Principal Accounting Officer)
<u>/s/ Katherine Baicker</u> Katherine Baicker	Director
<u>/s/ Robert Becker</u> Robert Becker	Director
<u>/s/ Craig R. Callen</u> Craig R. Callen	Director
<u>/s/ William F. Miller III</u> William F. Miller III	Director
<u>/s/ Jeffrey A. Rideout</u> Jeffrey A. Rideout	Director
<u>/s/ Ellen A. Rudnick</u> Ellen A. Rudnick	Director
<u>/s/ Bart M. Schwartz</u> Bart M. Schwartz	Director
<u>/s/ Richard H. Stowe</u> Richard H. Stowe	Director
<u>/s/ Cora M. Tellez</u> Cora M. Tellez	Director

**HMS HOLDINGS CORP. AND SUBSIDIARIES**  
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## Report of Independent Registered Public Accounting Firm

Board of Directors and Shareholders  
HMS Holdings Corp.

### Opinion on the financial statements

We have audited the accompanying consolidated balance sheets of HMS Holdings Corp. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2019 and 2018, the related consolidated statements of income, changes in shareholders’ equity, and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and financial statement schedule included under Item 15 (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the Company’s internal control over financial reporting as of December 31, 2019, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”), and our report dated February 24, 2020 expressed an unqualified opinion.

### Change in accounting principle

As discussed in Note 1 to the consolidated financial statements, the Company has changed its method of accounting for leases on January 1, 2019 using the optional transition method due to the adoption of Accounting Standards Update No. 2016-02: *Leases* (Topic 842).

### Basis for opinion

These financial statements are the responsibility of the Company’s management. 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 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 audits 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. Our audits 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 supporting the amounts and disclosures in the financial statements. Our audits 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 audits provide a reasonable basis for our opinion.

### Critical audit matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

### *Estimation of variable consideration for revenue transactions*

As described further in Note 2 to the consolidated financial statements, revenue is recognized based on the types of services provided. Within the coordination of benefits and payment integrity services revenue, there is variable consideration, which relates to establishing the transaction price. We identified the estimation of variable consideration related to the transaction price as a critical audit matter.

The principal consideration for our determination that the estimation of variable consideration for revenue transactions is a critical audit matter is that the transaction price has a high risk of estimation uncertainty due to significant management judgments, including the assumption that historical results are indicative of future activity. In turn, auditing management's assumptions involved significant auditor judgment and subjectivity.

Our audit procedures related to the estimation of variable consideration related to the transaction price included the following, among others:

- We tested the inputs used by management in developing the expected value of the variable consideration by selecting a sample of historical expected recoveries and actual recoveries and obtaining supporting documentation for this activity. Once accuracy of the inputs was verified, we recalculated the recovery percentages used in the estimation of variable consideration.
- We tested the design and operating effectiveness of controls relating to the estimation of variable consideration as it relates to revenue recognition, including the controls related to management's review of the inputs used in the recovery percentage.
- We compared current period recovery percentages to prior periods to identify whether there was unusual trend activity that would indicate that the usage of historical results to predict future activity was no longer reasonable.

### *Valuation of customer relationship in the West Claims Recovery Services, LLC business combination*

As described in Note 3 to the consolidated financial statements, the Company completed an acquisition which resulted in a preliminary purchase price allocation to goodwill of \$81.5 million, customer relationships of \$67.0 million, and other intangible assets of \$1.4 million. The determination of the fair value of the intangible assets acquired required management, with the assistance of a third-party valuation specialist, to make significant estimates and assumptions including the assumed revenue growth rate, margin percentages, economic life, customer attrition rate, and discount rate. We identified the valuation of customer relationships as a critical audit matter.

The principal consideration for our determination that the valuation of customer relationships associated with the acquisition is a critical audit matter is the subjective auditor judgment required in evaluating the inputs and assumptions used by management in determining fair value. The valuation of the customer relationships is subject to higher estimation uncertainty due to management judgments in determining key assumptions that include the assumed revenue growth rate, margin percentages, economic life, customer attrition rate, and discount rate. Changes in these significant assumptions could have a significant impact on the fair value of the customer relationships.

Our audit procedures related to the valuation of customer relationships included the following, among others.

- We tested the design and operating effectiveness of controls relating to the valuation of the intangible assets and preliminary allocation of the purchase price which included management's review of the valuation report for the completeness and accuracy of the data, and evaluating the reasonableness of assumptions used in the calculation.
- We utilized a valuation specialist to assist in evaluating the appropriateness of the Company's valuation models developed for acquired assets and evaluating the reasonableness of significant assumptions used including the assumed economic life, customer attrition rates, and discount rate as compared to industry and market data.

- We evaluated whether the assumptions used were reasonable by considering past performance, revenue growth rate, margin percentages, industry data, current market forecasts, and whether such assumptions were consistent with evidence obtained in other areas of the audit.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2017.

Dallas, Texas

February 24, 2020

## Report of Independent Registered Public Accounting Firm

Board of Directors and Shareholders  
HMS Holdings Corp.

We have audited the internal control over financial reporting of HMS Holdings Corp. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2019, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in the 2013 *Internal Control—Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the consolidated financial statements of the Company as of and for the year ended December 31, 2019, and our report dated February 24, 2020 expressed an unqualified opinion on those financial statements.

### **Basis for opinion**

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Report on Internal Control Over Financial Reporting (“Management’s Report”). Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Our audit of, and opinion on, the Company’s internal control over financial reporting does not include the internal control over financial reporting of VitreosHealth, Inc. and West Claims Recovery Services, LLC (“Accent”), wholly-owned subsidiaries whose financial statements reflect total assets and revenues constituting 17 and 1 percent, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2019. As indicated in Management’s Report, VitreosHealth, Inc. and Accent were acquired during 2019. Management’s assertion on the effectiveness of the Company’s internal control over financial reporting excluded internal control over financial reporting of VitreosHealth, Inc. and Accent.

### **Definition and limitations of internal control over financial reporting**

A company’s 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 generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any 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.

/s/ GRANT THORNTON LLP

Dallas, Texas  
February 24, 2020



**HMS HOLDINGS CORP. AND SUBSIDIARIES**  
**CONSOLIDATED BALANCE SHEETS**  
(in thousands, except share and per share amounts)

	December 31, 2019	December 31, 2018
<b>Assets</b>		
Current assets:		
Cash and cash equivalents	\$ 139,268	\$ 178,946
Accounts receivable, net	223,443	206,772
Prepaid expenses and other current assets	30,925	20,210
Income tax receivable	3,210	18,817
Deferred financing costs, net	564	564
Total current assets	397,410	425,309
Property and equipment, net	86,947	94,435
Goodwill	599,351	487,617
Intangible assets, net	131,849	67,140
Operating lease right-of-use assets	17,493	—
Deferred financing costs, net	1,109	1,673
Other assets	10,117	2,344
<b>Total assets</b>	<b>\$ 1,244,276</b>	<b>\$ 1,078,518</b>
<b>Liabilities and Shareholders' Equity</b>		
Current liabilities:		
Accounts payable, accrued expenses and other liabilities	\$ 97,747	\$ 74,902
Liability for appeals	3,570	21,723
Total current liabilities	101,317	96,625
Long-term liabilities:		
Revolving credit facility	240,000	240,000
Operating lease liabilities	14,881	—
Net deferred tax liabilities	25,587	18,485
Other liabilities	7,626	10,012
Total long-term liabilities	288,094	268,497
<b>Total liabilities</b>	<b>389,411</b>	<b>365,122</b>
Commitments and contingencies		
Shareholders' equity:		
Preferred stock -- \$0.01 par value; 5,000,000 shares authorized; none issued	—	—
Common stock -- \$0.01 par value; 175,000,000 shares authorized; 101,766,468 shares issued and 88,103,566 shares outstanding at December 31, 2019; 98,924,501 shares issued and 85,261,664 shares outstanding at December 31, 2018	1,018	989
Capital in excess of par value	479,964	425,748
Retained earnings	509,459	422,235
Treasury stock, at cost: 13,663,194 shares at December 31, 2019 and 13,663,194 shares at December 31, 2018	(135,576)	(135,576)
<b>Total shareholders' equity</b>	<b>854,865</b>	<b>713,396</b>
<b>Total liabilities and shareholders' equity</b>	<b>\$ 1,244,276</b>	<b>\$ 1,078,518</b>

See accompanying notes to the consolidated financial statements.

**HMS HOLDINGS CORP. AND SUBSIDIARIES**  
**CONSOLIDATED STATEMENTS OF INCOME**  
(in thousands, except per share amounts)

Year Ended December 31,

	2019	2018	2017
<b>Revenue</b>	\$ 626,395	\$ 598,290	\$ 521,212
Cost of services:			
Compensation	231,321	224,893	202,049
Direct project and other operating expenses	90,069	74,346	69,772
Information technology	53,950	53,428	45,723
Occupancy	16,375	15,968	17,190
Amortization of acquisition related software and intangible assets	16,999	32,975	30,393
Total cost of services	408,714	401,610	365,127
Selling, general and administrative expenses	114,665	113,442	105,654
Settlement expense	—	20,000	—
Total operating expenses	523,379	535,052	470,781
<b>Operating income</b>	103,016	63,238	50,431
Interest expense	(11,013)	(11,310)	(10,871)
Interest income	4,148	1,089	295
Other income	8,211	—	—
<b>Income before income taxes</b>	104,362	53,017	39,855
Income taxes	17,138	(1,972)	(199)
<b>Net income</b>	\$ 87,224	\$ 54,989	\$ 40,054
<b>Basic income per common share:</b>			
Net income per common share — basic	\$ 1.00	\$ 0.66	\$ 0.48
<b>Diluted income per common share:</b>			
Net income per common share — diluted	\$ 0.98	\$ 0.64	\$ 0.47
<b>Weighted average shares:</b>			
Basic	87,222	83,625	83,821
Diluted	89,317	86,144	85,088

See accompanying notes to the consolidated financial statements

**HMS HOLDINGS CORP. AND SUBSIDIARIES**  
**CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY**  
(in thousands, except share and per share amounts)

Year Ended December 31,

	2019	2018	2017
<b>Common Stock and paid-in capital</b>			
Balance, beginning of period	\$ 426,737	\$ 369,686	\$ 345,984
Exercise of stock options	39,332	38,362	2,720
Stock-based compensation expense	21,901	21,507	24,143
Vesting of restricted stock units, net of shares withheld for employee tax	(6,988)	(2,818)	(3,161)
Balance, end of period	480,982	426,737	369,686
<b>Retained earnings</b>			
Balance, beginning of period	422,235	366,164	326,110
Net income	87,224	54,989	40,054
Cumulative effect of accounting changes	—	1,082	—
Balance, end of period	509,459	422,235	366,164
<b>Treasury stock</b>			
Balance, beginning of period	(135,576)	(129,621)	(115,484)
Purchase of treasury stock	—	(5,955)	(14,137)
Balance, end of period	(135,576)	(135,576)	(129,621)
Total shareholders' equity	\$ 854,865	\$ 713,396	\$ 606,229
<b>Shares issued</b>			
Balance, beginning of period	98,924,501	96,536,251	95,966,852
Exercise of stock options	2,435,648	2,017,442	172,326
Vesting of restricted stock units, net of shares withheld for employee tax	406,319	370,808	397,073
Balance, end of period	101,766,468	98,924,501	96,536,251
<b>Treasury Stock</b>			
Balance, beginning of period	13,663,194	13,279,393	12,414,078
Purchase of treasury stock	—	383,801	865,315
Balance, end of period	13,663,194	13,663,194	13,279,393

See accompanying notes to the consolidated financial statements.

**HMS HOLDINGS CORP. AND SUBSIDIARIES**  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**  
(in thousands)

	Year Ended December 31,		
	2019	2018	2017
<b>Operating activities:</b>			
<b>Net income</b>	\$ 87,224	\$ 54,989	\$ 40,054
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization of property, equipment and software	33,293	33,254	27,724
Amortization of intangible assets	9,691	24,342	22,555
Amortization of deferred financing costs	564	564	2,258
Gain on sale of cost basis investment	(7,697)	—	—
Stock-based compensation expense	21,901	21,507	24,143
Deferred income taxes	7,290	(3,504)	(20,409)
Noncash lease expense	4,133	—	—
Change in fair value of contingent consideration	—	(35)	(2,865)
Release of estimated liability for appeals, net	(10,478)	(8,436)	—
Changes in operating assets and liabilities:			
Accounts receivable	(16,292)	(17,312)	(6,976)
Prepaid expenses and other current assets	(10,487)	(2,785)	(1,298)
Other assets	(2,173)	245	124
Income taxes receivable / (payable)	15,607	(16,925)	1,462
Accounts payable, accrued expenses and other liabilities	4,744	11,181	(340)
Operating lease liabilities	(5,315)	—	—
Liability for appeals	1,227	(628)	32
<b>Net cash provided by operating activities</b>	<b>133,232</b>	<b>96,457</b>	<b>86,464</b>
<b>Investing activities:</b>			
Acquisition of businesses, net of cash acquired	(185,790)	—	(171,321)
Proceeds from sale of cost basis investment	9,776	—	—
Investment in common stock	(7,421)	—	—
Purchases of property and equipment	(8,276)	(11,264)	(17,318)
Investment in capitalized software	(13,348)	(19,149)	(15,725)
<b>Net cash used in investing activities</b>	<b>(205,059)</b>	<b>(30,413)</b>	<b>(204,364)</b>
<b>Financing activities:</b>			
Proceeds from credit facility	—	—	42,204
Payments for deferred financing costs	—	—	(2,269)
Proceeds from exercise of stock options	39,332	38,362	2,720
Payments of tax withholdings on behalf of employees for net-share settlements	(6,988)	(2,818)	(3,161)
Payments on capital lease obligations	(195)	—	(143)
Purchases of treasury stock	—	(5,955)	(14,137)
<b>Net cash provided by financing activities</b>	<b>32,149</b>	<b>29,589</b>	<b>25,214</b>
<b>Net (decrease)/increase in cash and cash equivalents</b>	<b>(39,678)</b>	<b>95,633</b>	<b>(92,686)</b>
<b>Cash and Cash Equivalents</b>			
Cash and cash equivalents at beginning of year	178,946	83,313	175,999
<b>Cash and cash equivalents at end of period</b>	<b>\$ 139,268</b>	<b>\$ 178,946</b>	<b>\$ 83,313</b>
<b>Supplemental disclosure of cash flow information:</b>			
Cash (refunds received)/paid for income taxes, net of refunds	\$ (5,298)	\$ 22,225	\$ 17,995
Cash paid for interest	\$ 10,457	\$ 10,326	\$ 9,944
<b>Supplemental disclosure of non-cash activities:</b>			
Change in balance of accrued property and equipment purchases	\$ (1,303)	\$ 1,305	\$ 51

See accompanying notes to the consolidated financial statements.

## HMS HOLDINGS CORP. AND SUBSIDIARIES NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

### 1. Business and Summary of Significant Accounting Policies

#### *(a) Business*

The terms “HMS,” “Company,” “we,” “us,” and “our” refer to HMS Holdings Corp. and its consolidated subsidiaries unless the context clearly indicates otherwise. HMS is an industry-leading provider of cost containment and analytical solutions in the healthcare marketplace. Our mission is to make healthcare work better for everyone. We use data, technology and analytics to deliver coordination of benefits, payment integrity and population health management solutions that help healthcare organizations reduce costs, improve health outcomes and enhance consumer experiences. We provide a broad range of payment accuracy solutions to government and commercial healthcare payers, including coordination of benefit services to ensure that the right payer pays the claim, and payment integrity services to address improper payments and fraud, waste and abuse. Our population health management solutions include a portfolio of integrated risk analytics, consumer engagement and care management solutions that provide healthcare organizations with reliable intelligence insight into their population and member risks to predict, identify and avoid preventable high cost events over the healthcare continuum. Through our solutions, we help move the healthcare system forward by saving billions of dollars for our customers while helping consumers lead healthier lives. We currently operate as one business segment with a single management team that reports to the Chief Executive Officer.

#### *(b) Summary of Significant Accounting Policies*

For certain accounting topics, the description of the accounting policy may be found in the related Note.

##### *(i) Principles of Consolidation*

The consolidated financial statements include the Company’s accounts and transactions and those of the Company’s wholly owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

##### *(ii) Use of Estimates*

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

##### *(iii) Cash and Cash Equivalents*

The Company considers all highly liquid investments with an original maturity of three months or less to be cash equivalents. Cash equivalents consist of deposits that are readily convertible into cash.

In connection with coordination of benefits and certain payment integrity services, lockboxes and their associated bank accounts are set up to support recoveries and remittances. Generally, these bank accounts are for the benefit of the Company’s customers. Customer cash held in Company bank accounts for the benefit of the customer was approximately \$21.9 million as of December 31, 2019. This amount is included in cash and cash equivalents and other current liabilities on the accompanying consolidated balance sheet.

##### *(iv) Concentration of Credit Risk*

The Company’s policy is to limit credit exposure by placing cash in accounts which are exposed to minimal interest rate and credit risk. HMS maintains cash and cash equivalents in cash depository accounts with large financial

institutions with a minimum credit rating of A1/P1 or better, as defined by Standard and Poor's. The balance at these institutions generally exceeds the maximum balance insured by the Federal Deposit Insurance Corporation of up to \$250,000 per entity. HMS has not experienced any losses in cash and cash equivalents and believes these cash and cash equivalents do not expose the Company to any significant credit risk.

The Company is subject to potential credit risk related to changes in economic conditions within the healthcare market. However, HMS believes that the billing and collection policies are adequate to minimize the potential credit risk. The Company performs ongoing credit evaluations of customers and generally does not require collateral.

(v) *Property and Equipment*

Property and equipment are stated at cost less accumulated depreciation. Depreciation is provided over the estimated useful lives of the assets utilizing the straight-line method. HMS amortizes leasehold improvements on a straight-line basis over the shorter of (i) the term of the lease or (ii) the estimated useful life of the improvement. Equipment leased under capital leases is depreciated over the shorter of (i) the term of the lease or (ii) the estimated useful life of the equipment. Capitalized software costs relate to software that is acquired or developed for internal use while in the application development stage. All other costs to develop software for internal use, either in the preliminary project stage or post-implementation stage, are expensed as incurred. Amortization of capitalized software is calculated on a straight-line basis over the expected economic life. Land is not depreciated.

Estimated useful lives are as follows:

Property and Equipment	Useful Life (in years)		
Equipment	2	to	5
Leasehold improvements	5	to	10
Furniture and fixtures		5	
Capitalized software	3	to	10
Building and building improvements		up to	39

Property and equipment is reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. When indicators exist, recoverability of assets is measured by a comparison of the carrying value of the asset group to the estimated undiscounted future net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized and charged to earnings is measured by the amount by which the carrying value of the asset group exceeds the fair value of the assets. The Company did not recognize any impairment charges related to property and equipment during the years ended December 31, 2019, 2018 or 2017.

(vi) *Intangible Assets*

The Company records assets acquired and liabilities assumed in a business combination based upon their acquisition date fair values. In most instances there is not a readily defined or listed market price for individual assets and liabilities acquired in connection with a business, including intangible assets. The Company determines fair value through various valuation techniques including discounted cash flow models, quoted market values, relief from royalty methodologies, multi-period and third party independent appraisals, as considered necessary. Significant assumptions used in those techniques include, but are not limited to, growth rates, discount rates, customer attrition rates, expected levels of revenues, earnings, cash flows and tax rates. The use of different valuation techniques and assumptions are highly subjective and inherently uncertain and, as a result, actual results may differ materially from estimates.

All of the Company's intangible assets are subject to amortization and are amortized using the straight-line method over their estimated period of benefit. Estimated useful lives are as follows:

Intangible Assets	Useful Life (in years)		
Customer relationships	7	to	15
Restrictive covenants	1	to	3
Trade names	1.5	to	7
Intellectual property	4	to	6

Intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. When indicators exist, recoverability of assets is measured by a comparison of the carrying value of the asset group to the estimated undiscounted future net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized and charged to earnings is measured by the amount by which the carrying value of the asset group exceeds the fair value of the assets. The Company did not recognize any impairment charges related to intangible assets during the years ended December 31, 2019, 2018 or 2017.

*(vii) Goodwill*

Goodwill is the excess of acquisition costs over the fair values of assets and liabilities of acquired businesses. During the measurement period, which is up to one year from the acquisition date, the Company may record adjustments to the assets acquired and liabilities assumed, with the corresponding offset to goodwill. Upon the conclusion of the measurement period, any subsequent adjustments are recorded to earnings.

The Company assesses goodwill for impairment on an annual basis as of June 30th of each year or more frequently if an event occurs or changes in circumstances would more likely than not reduce the fair value of a reporting unit below its carrying amount. Assessment of goodwill impairment is at the HMS Holdings Corp. entity level as the Company operates as a single reporting unit. The Company has the option to perform a qualitative assessment to determine if impairment is more likely than not to have occurred. When the qualitative assessment of goodwill impairment is performed, significant judgment is required in the assessment of qualitative factors including but not limited to an evaluation of macroeconomic conditions as they relate to our business, industry and market trends, as well as the overall future financial performance of our reporting units and future opportunities in the markets in which they operate. If the Company can support the conclusion that it is more likely than not that the fair value of a reporting unit is greater than its carrying amount using the qualitative assessment, then the Company would not need to perform the two-step impairment test. If the Company cannot support such a conclusion, or the Company does not elect to perform the qualitative assessment, then the first step of the goodwill impairment test is used to identify potential impairment by comparing the fair value of the reporting unit with its carrying amount, including goodwill. The Company completed the annual impairment test as of June 30, 2019 using the qualitative assessment and determined no impairment existed. There were no impairment charges related to goodwill during the years ended December 31, 2019, 2018 or 2017.

*(viii) Income Taxes*

Income taxes are accounted for under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. This method also requires the recognition of future tax benefits for net operating loss carry-forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized as income or expense in the period that includes the enactment date. A valuation

allowance is provided against deferred tax assets to the extent their realization is not more likely than not. Uncertain income tax positions are accounted for by prescribing a minimum recognition threshold that a tax position is required to meet before being recognized in the financial statements. Although the Company believes that it has adequately reserved for uncertain tax positions (including interest and penalties), it can provide no assurance that the final tax outcome of these matters will not be materially different. The Company makes adjustments to these reserves in accordance with the income tax accounting guidance when facts and circumstances change, such as the closing of a tax audit or the refinement of an estimate. To the extent that the final tax outcome of these matters is different than the amounts recorded, such differences will affect the provision for income taxes in the period in which such determination is made, and could have a material impact on our financial condition and operating results.

*(ix) Expense Classifications*

HMS cost of services is presented in the categories set forth below. Each category within cost of services excludes expenses relating to selling, general and administrative ("SG&A") functions, which are presented separately as a component of total operating costs. A description of the primary expenses included in each category is as follows:

**Cost of Services:**

- *Compensation:* Salary, fringe benefits, bonus and stock-based compensation.
- *Information technology:* Hardware, software and data communication costs.
- *Occupancy:* Rent, utilities, depreciation, office equipment and repair and maintenance costs.
- *Direct project and other operating expenses:* Variable costs incurred from third party providers that are directly associated with specific revenue generating projects and employee travel expenses, professional fees, temporary staffing, travel and entertainment, insurance and local and property tax costs.
- *Amortization of acquisition related software and intangible assets:* Amortization of the cost of acquisition related software and intangible assets.

**SG&A:**

- Expenses related to general management, marketing and administrative activities.

*(x) Estimating Valuation Allowances and Accrued Liabilities*

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amount of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of revenue and expenses during the reported period. In particular, management must make estimates of the probability of collecting accounts receivable. When evaluating the adequacy of the accounts receivable allowance, management reviews the accounts receivable based on an analysis of historical revenue adjustments, bad debts, customer concentrations, customer credit-worthiness, current economic trends and changes in customer payment terms. As of December 31, 2019 and 2018, the accounts receivable balance was \$223.4 million and \$206.8 million, net of adjustments. Adjustments to the accounts receivable balance include revenue recognition related adjustments, such as customer discounts, and allowance for credit related losses. The allowance for credit related losses was not material to the financial statements as of December 31, 2019 and 2018.

*(xi) Stock-Based Compensation*

*Long-Term Incentive Award Plans*

The Company grants stock options and restricted stock units to HMS employees and non-employee directors of the Company under the HMS Holdings Corp. 2019 Omnibus Incentive Plan (the "2019 Omnibus Plan"), as approved by



the Company's shareholders on May 22, 2019. The 2019 Omnibus Plan replaced and superseded the HMS Holdings Corp. 2016 Omnibus Incentive Plan. As of December 31, 2019, the number of securities remaining available for future issuance under equity compensation plans, excluding securities to be issued upon exercise of outstanding options and vesting of restricted stock units, was 9,289,094 shares. All of the Company's employees as well as HMS non-employee directors are eligible to participate in the 2019 Omnibus Plan. Awards granted under the 2019 Omnibus Plan generally vest over one to four years. Subject to certain exceptions, the exercise price of stock options granted under the 2019 Omnibus Plan may not be less than the fair market value of a share of stock on the grant date, which is determined based on the closing price of the Company's common stock on the Nasdaq Global Select Market and the term of a stock option may not exceed ten years. Prior to 2018, the Company granted two types of equity awards: 1) equity awards with service conditions and 2) equity awards with market and service conditions. The market condition is based on the Company's common stock price during the applicable measurement period. In 2019 and 2018, the Company only issued equity awards with service conditions.

### Stock-Based Compensation Expense

The Company recognizes stock-based compensation expense equal to the grant date fair value of the award on a straight-line basis over the requisite service period.

The fair value of each option grant with only service-based conditions is estimated using the Black-Scholes pricing model. The fair value of each option grant with market and service-based conditions is estimated using a Monte Carlo simulation model. The fair value of each restricted stock unit is calculated based on the closing sale price of the Company's common stock on the grant date.

The determination of the fair value of the options on the grant date using the Black-Scholes pricing model and/or the Monte Carlo simulation model is affected by the Company's stock price, as well as assumptions regarding a number of complex and subjective variables. Certain key variables include: the Company's expected stock price volatility over the expected term of the awards; a risk-free interest rate; and any expected dividends. The Company estimates stock price volatility based on the historical volatility of the Company's common stock and estimates the expected term of the awards based on the Company's historical option exercises for similar types of stock option awards. The assumed risk-free interest rate is based on the yield on the measurement date of a zero-coupon U.S. Treasury bond with a maturity period equal to the option's expected term. The Company does not anticipate paying any cash dividends in the foreseeable future and therefore, uses an expected dividend yield of zero in the option valuation models. The fair value of all awards also includes an estimate of expected forfeitures. Forfeitures are estimated based on historical experience. If actual forfeitures vary from estimates, a difference in compensation expense will be recognized in the period the actual forfeitures occur. Upon the exercise of stock options or the vesting of restricted stock units, the resulting excess tax benefits or deficiencies, if any, are recognized as income tax expense or benefit.

### *(xii) Fair Value of Financial Instruments*

Financial instruments are categorized into a three-level fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The fair value hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). If the inputs used to measure fair value fall within different levels of the hierarchy, the category level is based on the lowest priority level input that is significant to the fair value measurement of the instrument. In the event the fair value is not readily available or determinable, the financial instrument is carried at cost and referred to as a cost method investment. The fair value hierarchy is as follows:

- **Level 1:** Observable inputs such as quoted prices in active markets;
  - **Level 2:** Inputs, other than the quoted prices in active markets, that are observable either directly or indirectly;
- and

- **Level 3:** Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

Financial instruments (principally cash and cash equivalents, equity securities, accounts receivable, accounts payable and accrued expenses) are carried at cost, which approximates fair value due to the short-term maturity of these instruments. The Company's long-term credit facility is carried at cost, which approximates fair value due to the variable interest rate associated with the revolving credit facility.

There were no sales, settlements, purchases, issuances and/or transfers related to level 3 instruments in 2019 or 2018.

#### *(xiii) Leases*

The Company determines if an arrangement is a lease at inception. Operating leases are reported on the Company's consolidated balance sheet within Operating lease right-of-use ("ROU") assets, Operating lease liabilities and Accounts payable, accrued expenses and other liabilities. Finance leases are reported on the Company's consolidated balance sheets within Other assets, Other liabilities and Accounts payable, accrued expenses and other liabilities.

Operating lease ROU assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. As most of the Company's leases do not provide an implicit rate, we use the Company's incremental borrowing rate based on the information available at the lease's commencement date in determining the present value of future payments. The operating lease ROU asset also includes any lease payments made and excludes lease incentives and initial direct costs incurred. The lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term. For certain real estate and equipment leases, the Company has lease agreements with lease and non-lease components, which are generally accounted for as a single component.

The Company primarily leases real estate, information technology equipment and data centers on terms that expire on various dates through 2026, some of which include options to extend the lease for up to 10 years. We evaluate whether to include the option period in the calculation of the ROU asset and lease liability on a lease-by-lease basis. As of December 31, 2019, all operating and finance leases that create significant rights and obligations for the Company have commenced.

#### *(xiv) Recent Accounting Guidance*

##### *Recently Adopted Accounting Guidance*

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-9, *Revenue from Contracts with Customers* (Topic 606) ("ASU 2014-9"), which is the new comprehensive revenue recognition standard that supersedes all existing revenue recognition guidance under U.S. GAAP. The Company adopted ASU 2014-9 on January 1, 2018 using the modified retrospective method and the Company recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of retained earnings. The financial information for comparative prior periods has not been restated and continues to be reported under the accounting standards in effect for those periods. The effect of adopting ASU 2014-9 in 2018 as compared with the guidance that was in effect before the change is immaterial. The Company's internal control framework did not materially change, but existing internal controls were modified due to certain changes to business processes and systems to support the new revenue recognition standard as necessary. The adoption of this guidance did not have a material effect on the Company's consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Statements of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments* (“ASU 2016-15”). ASU 2016-15 clarifies where certain cash receipts and cash payments are presented and classified in the statement of cash flows. The amendments are effective for annual reporting periods beginning after December 15, 2017, and for interim reporting periods within such annual periods. The Company adopted this guidance on January 1, 2018. The adoption of this guidance in 2018 did not have a material effect on the Company’s consolidated financial statements.

In January 2017, the FASB issued ASU No. 2017-1, *Business Combinations (Topic 805) – Clarifying the Definition of a Business* (“ASU 2017-1”). ASU 2017-1 finalizes previous proposals regarding shareholder concerns that the definition of a business is applied too broadly. The guidance assists entities with evaluating whether transactions should be accounted for as acquisitions of assets or of businesses. The amendments are effective for annual periods beginning after December 15, 2017, including interim periods within those periods. The Company adopted this guidance on January 1, 2018. The adoption of this guidance in 2018 did not have a material effect on the Company’s consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-9, *Compensation – Stock Compensation (Topic 718): Scope of Modification Accounting*, (“ASU 2017-9”). ASU 2017-9 requires entities to apply modification accounting to changes made to a share-based payment award. The new guidance specifies that entities will apply modification accounting to changes to a share-based payment award only if any of the following are not the same immediately before and after the change: 1) The award’s fair value (or calculated value or intrinsic value, if those measurement methods are used), 2) the award’s vesting conditions, and 3) the award’s classification as an equity or liability instrument. ASU 2017-9 is effective for annual reporting periods beginning after December 15, 2017, including interim periods within such annual periods, with early adoption permitted. The Company adopted this guidance on January 1, 2018. The adoption of this guidance in 2018 did not have a material effect on the Company’s consolidated financial statements.

In January 2017, the FASB issued ASU No. 2017-4, *Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment* (“ASU 2017-4”). This amendment simplifies the manner in which an entity is required to test for goodwill impairment by eliminating Step 2 from the goodwill impairment test. Step 2 measures goodwill impairment loss by comparing the implied fair value of a reporting unit’s goodwill with the carrying amount of that goodwill. The amendment simplifies this approach by having the entity (1) perform its annual or interim goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount, and (2) recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit’s fair value, with the understanding that the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. The Company elected to early adopt the new guidance in the fourth quarter of fiscal year 2018. The adoption of this guidance in 2018 did not have a material effect on the Company’s consolidated financial statements.

On August 17, 2018, the SEC issued SEC Final Rule Release No. 33-10532, *Disclosure Update and Simplification* (“Final Rule”). The Final Rule amends certain disclosure requirements to facilitate the disclosure of information to investors and simplify compliance without significantly altering the total mix of information provided to investors. The Final Rule was effective for public entities that are SEC filers on November 5, 2018. The adoption of this guidance in 2018 did not have a material effect on the Company’s consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)* (“ASU 2016-02”). ASU 2016-02 requires most lessees to recognize a majority of the company’s leases on the balance sheet, which increases reported assets and liabilities. ASU 2016-02 was subsequently amended by ASU No. 2018-01, *Land Easement Practical Expedient for Transition to Topic 842*; ASU No. 2018-10, *Codification Improvements to Topic 842, Leases*; and ASU No. 2018-11, *Targeted Improvements*. The new standard establishes a ROU model that requires a lessee to recognize a ROU asset and lease liability on the balance sheet for all leases with a term longer than 12 months. Leases are classified as finance or operating, with classification affecting the pattern and classification of expense

recognition in the income statement. ASU 2016-02 is effective for annual reporting periods beginning after December 15, 2018 including interim periods within such annual reporting periods with early adoption permitted. The Company adopted this guidance on January 1, 2019, utilizing the optional transition method approach with an effective date of January 1, 2019. Consequently, financial information prior to the effective date was not updated and the disclosures required under the new standard are not provided for dates and periods prior to the effective date. There were no cumulative effect adjustments to retained earnings as part of adoption. The Company elected the available practical expedients, including the practical expedient to not separate lease and non-lease components of its leases and the short-term lease practical expedient. The Company's internal control framework did not materially change, but existing internal controls were modified due to certain changes to business processes and systems to support the new leasing standard as necessary. As the Company previously disclosed, the standard had a material impact on its consolidated balance sheets, the most significant impact being the recognition of approximately \$21.3 million of ROU assets and \$26.3 million of lease liabilities on the effective date, but there was no impact on its consolidated income statements. The Company continues to expect that any impact from its adoption of the new standard will be immaterial to its net income and its internal control framework for future periods.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation – Stock Compensation (Topic 718) – Improvements to Nonemployee Share-Based Payment Accounting*, ("ASU 2018-07"). ASU 2018-07 requires entities to apply similar accounting for share-based payment transactions with non-employees as with share-based payment transactions with employees. ASU 2018-07 is effective for public entities for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. The Company adopted this guidance on January 1, 2019. The adoption of this guidance did not have a material effect on the Company's consolidated financial statements.

#### Recent Accounting Guidance Not Yet Adopted

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments – Credit Losses* ("ASU 2016-13"). ASU 2016-13 introduces the current expected credit losses methodology for estimating allowances for credit losses. ASU 2016-13 applies to all financial instruments carried at amortized cost and off-balance-sheet credit exposures not accounted for as insurance, including loan commitments, standby letters of credit, and financial guarantees. The new accounting standard does not apply to trading assets, loans held for sale, financial assets for which the fair value option has been elected, or loans and receivables between entities under common control. ASU 2016-13 is effective for public entities for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. Early adoption is permitted. This guidance is not expected to have a material impact on the Company's financial position, results of operations or internal control framework.

In August 2018, the FASB issued ASU No. 2018-15, *Intangibles - Goodwill and Other - Internal Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract* ("ASU 2018-15"). The standard aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal use software. ASU 2018-15 is effective for public business entities for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. Early adoption is permitted, including adoption in any interim period for which financial statements have not been issued. Entities can choose to adopt the new guidance prospectively to eligible costs incurred on or after the date this guidance is first applied or retrospectively. This guidance is not expected to have a material impact on the Company's financial position, results of operations or internal control framework.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurements* ("ASU 2018-13"). The objective of the ASU

is to improve the disclosures related to fair value measurement by removing, modifying, or adding disclosure requirements related to recurring and non-recurring fair value measurements. ASU 2018-13 is effective for public business entities for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. Early adoption is permitted, including adoption in any interim period for which financial statements have not been issued. This guidance is not expected to have a material impact on the Company's financial position, results of operations or internal control framework.

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes* ("ASU 2019-12"). The guidance eliminates certain exceptions related to the approach for intraperiod tax allocation, the methodology for calculating income taxes in an interim period, and the recognition of deferred tax liabilities for outside basis differences related to changes in ownership of equity method investments and foreign subsidiaries. The guidance also simplifies aspects of accounting for franchise taxes and enacted changes in tax laws or rates, and clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill. ASU 2019-12 is effective for public business entities for fiscal years beginning after December 15, 2020, and interim periods within those fiscal years. Early adoption is permitted, including adoption in any interim period for which financial statements have not been issued. This guidance is not expected to have a material impact on the Company's financial position, results of operations or internal control framework.

## 2. Revenue

The Company's revenue disaggregated by service was as follows (*in thousands*):

	<b>Years ended December 31,</b>	
	<b>2019</b>	<b>2018</b>
Coordination of Benefits	\$ 404,123	\$ 397,095
Payment Integrity	162,194	144,063
Population Health Management	60,078	57,132
Total	\$ 626,395	\$ 598,290

Coordination of benefits revenue is derived from contracts with state governments and Medicaid managed care plans that typically span multiple years with the option to renew. Types of service contracts could include: (a) the identification of erroneously paid claims; (b) the delivery of verified commercial insurance coverage information; (c) the identification of paid claims where another third party is liable; and (d) the identification and enrollment of Medicaid members who have access to employer insurance. Most of these types of service contracts contain multiple promises, all of which are not distinct within the context of the contract. Therefore, the promises represent a single, distinct performance obligation for the types of services we offer. Revenue derived from these performance obligations is largely based on variable consideration where, based on the number of claims or amount of findings the Company identified, a contingent or fixed transaction price/recovery percentage is allocated to each distinct performance obligation. The Company utilizes the expected value method to estimate the variable consideration related to the transaction price for its service contracts. Key inputs and assumptions in determining variable consideration includes identified pricing and expected recoveries and/or savings. The expected recoveries and/or savings are based on historical experience of information received from our customers. Revenue is primarily recognized at a point in time when our customers realize economic benefits from our services when our services are completed. However, we have a limited number of fixed fee arrangements where revenue is recognized over time as performance obligations are satisfied within one to three years. Generally, coordination of benefit contract payment terms are not standardized within the respective contract; however, payment is typically due on demand and there is a clear and distinct history of customers making consistent payments.

Payment integrity services revenue is derived from contracts with federal and state governments, commercial health plans and other at-risk entities that can span multiple years with the option to renew. Types of service contracts could include: (a) services designed to ensure that healthcare payments are accurate and appropriate; and (b) the

identification of over/(under)payments or inaccurate charges based on a review of medical records. Most of these types of service contracts contain multiple promises, all of which are not distinct within the context of the contract. Therefore, the promises represent a single, distinct performance obligation for the types of services we offer. Revenue derived from these performance obligations is largely based on variable consideration where, based on the number of claims or amount of findings the Company identified, a contingent or fixed transaction price/recovery percentage is allocated to each distinct performance obligation. The Company utilizes the expected value method to estimate the variable consideration related to the transaction price for its service contracts. Key inputs and assumptions in determining variable consideration includes identified pricing and expected recoveries and/or savings. The expected recoveries and/or savings are based on historical experience of information received from our customers. Revenue is primarily recognized at a point in time when our customers realize economic benefits from our services when our services are completed. However, we have a limited number of fixed fee arrangements where revenue is recognized over time as performance obligations are satisfied within one to three years. Generally, payment integrity contract payment terms are not standardized within the respective contract; however, payment is typically due on demand and there is a clear and distinct history of customers making consistent payments.

Population health management revenue is derived from contracts with health plans and other risk-bearing entities that can span several years with the option to renew. Types of service contracts could include: (a) programs designed to improve member engagement; and (b) outreach services designed to improve clinical outcomes. Most of these types of service contracts contain multiple promises, all of which are not distinct within the context of the contract. Therefore, the promises represent a single, distinct performance obligation for the types of services we offer. Revenue derived from these services is largely based on consideration associated with prices per order/transfer and PMPM/PMPY fees. The Company believes the output method is a reasonable measure of progress for the satisfaction of our performance obligations, which are satisfied over time, as it provides a faithful depiction of (1) our performance toward complete satisfaction of the performance obligation under the contract and (2) the value transferred to the customer of the services performed under the contract. The Company has elected the right to invoice practical expedient for recognition of revenue related to its performance obligations when the amount we have the right to invoice the customer corresponds directly with the value to the customer. Additionally, certain population health management contracts have distinct performance obligations related to software license and implementation fees which have historically been recognized as revenue ratably over the life of the contract. Lastly, we have a limited number of fixed fee arrangements where revenue is recognized over time as performance obligations are satisfied within one to three years. Upon adoption of ASC 606 in 2018, revenue for software licenses is recognized at the beginning of the license period when control is transferred as the license is installed and revenue for implementation fees is recognized when control is transferred over time as the implementation is being performed. As the performance obligation is deemed to have been satisfied and control transferred to our customers for software licenses and implementation fees on or before December 31, 2017, the Company recorded a decrease to deferred revenue and an increase to opening retained earnings of \$1.1 million, net of tax, as of January 1, 2018 for the cumulative impact of adopting ASC 606. Generally, population health management contract payment terms are stated within the contract and are due within an explicitly stated time period (e.g., 30, 45, 60 days) from the date of invoice. A portion of the payment received may relate to future performance obligations and will result in an increase to deferred revenue until the obligation has been met.

The Company's revenue disaggregated by market is as follows (*in thousands*):

	<b>Years ended December 31,</b>	
	<b>2019</b>	<b>2018</b>
Commercial	\$ 302,489	\$ 323,150
State	257,685	233,921
Federal	66,221	41,219
Total	\$ 626,395	\$ 598,290

A portion of the Company's services are deferred and revenue is recognized at a later time. Deferred revenue was approximately \$5.6 million as of December 31, 2018; \$1.1 million, net of tax, was recorded as a decrease to deferred revenue as of January 1, 2018 as discussed above; and \$5.3 million of this amount was recognized as revenue during the year ended December 31, 2018. Approximately \$5.6 million of the December 31, 2018 deferred revenue balance was recognized as revenue during the year ended December 31, 2019. Deferred revenue was approximately \$4.2 million as of December 31, 2019. Deferred revenue is included in Accounts payable, accrued expenses and other liabilities in the Consolidated Balance Sheets.

Contract modifications are routine in nature and often done to account for changes in the contract specifications or requirements. In most instances, contract modifications are for services that are not distinct, and, therefore, modifications are accounted for as part of the existing contract. The Company has elected to use the practical expedient to expense the incremental costs of obtaining a contract if the amortization period of the asset that the Company would have otherwise recognized is one year or less.

### 3. Acquisitions

#### (a) Accent

On December 23, 2019, HMS acquired West Claims Recovery Services, LLC ("Accent"), a payment accuracy and cost containment business, for aggregate consideration of cash in the amount of \$158.6 million, which was funded through cash on hand. The purchase price is subject to certain post-closing purchase price adjustments and the initial purchase price allocation as of the date of acquisition was based on a preliminary valuation. Estimates and assumptions for which the Company is still obtaining or evaluating information are subject to change up to one year from the acquisition date as additional information becomes available and adjustments may require a change in the amounts allocated to goodwill during the periods in which the adjustments are determined.

The intangible assets are valued using various methods which require several judgments, including growth rates, discount rates, customer attrition rates, and expected levels of revenues, earnings, cash flows and tax rates. The intangible assets are amortized over their estimated useful lives on a straight-line basis. Goodwill was determined based on the difference between the purchase price and the fair values of the tangible and intangible assets acquired. Goodwill recognized from the acquisition was the result of synergies to be realized from future revenue growth. Goodwill is deductible for tax purposes, has an indefinite useful life and will be included in the Company's annual impairment testing or between annual tests if an indicator of impairment exists.

The preliminary allocation of the purchase price to the fair value of the assets acquired and the liabilities assumed as of December 23, 2019, the effective date of the acquisition, was as follows (*in thousands*):

Cash and cash equivalents	\$ 9,400
Accounts receivable	9,188
Prepaid expenses	129
Property and equipment	2,878
Intangible assets	68,400
Goodwill	81,545
Other assets	489
Accounts payable and accrued liabilities	(13,395)
<b>Total purchase price</b>	<b>\$ 158,634</b>

The purchase price allocated to the intangible assets acquired was as follows (*in thousands*):

**Useful Life  
(in years)**

Customer relationships	12	\$	67,000
Trade name	3		1,400
Fair value of intangibles acquired		\$	68,400

We incurred \$2.1 million of acquisition related costs related to the Accent acquisition for the year ended December 31, 2019. The costs include consulting, legal and transaction costs, and have been recorded in selling, general and administrative expenses.

The financial results of Accent's operations since December 23, 2019 have been included in the Company's consolidated financial statements and are not considered material for the year ended December 31, 2019.

The following table reflects the pro forma operating results for the Company which gives effect to the acquisition of Accent as if it had occurred on January 1, 2018. The pro forma results are based on assumptions that the Company believes are reasonable under the circumstances. The pro forma results are not necessarily indicative of future results. The pro forma financial information includes the historical results of the Company and Accent adjusted for certain items, which are described below, and does not include the effects of any synergies or cost reduction initiatives related to the acquisition of Accent.

	<b>Years ended December 31,</b>	
	<b>2019</b>	<b>2018</b>
	(pro forma, in thousands)	
	(unaudited)	
Revenue	\$ 675,259	\$ 650,203
Net income	\$ 92,845	\$ 60,011

Pro forma net income for the years ended December 31, 2019 and 2018 reflects adjustments primarily related to depreciation and amortization.

*(b) VitreosHealth*

On September 16, 2019, HMS acquired VitreosHealth, Inc. ("VitreosHealth"), a company that offers predictive and prescriptive health insights utilized by population risk models, for aggregate consideration of \$36.6 million, which was funded with cash on hand. The purchase price was subject to certain post-closing purchase price adjustments and the initial purchase price allocation as of the date of acquisition was based on a preliminary valuation.

The Company's allocation of consideration exchanged to the net tangible and intangible assets acquired and liabilities assumed in the acquisition is based on estimated fair values as of September 16, 2019. The Company allocated the purchase price, net of cash acquired, to the following significant assets: intellectual property subject to amortization of \$6.0 million, and goodwill of \$30.2 million which represents the excess purchase price over the net identifiable tangible and intangible assets. There were no additional material allocations to assets and liabilities. The intangible assets are valued using various methods which require several judgments, including growth rates, discount rates, expected levels of revenues, earnings, cash flows and tax rates. The intangible assets are amortized over their estimated useful lives on a straight-line basis and are not expected to be deductible for tax purposes. The goodwill recognized from the



acquisition was a result of expected synergies to be realized from future revenue growth, is not expected to be deductible for tax purposes, has an indefinite useful life and will be included in the Company's annual impairment testing.

Pro forma historical results of operations related to this business acquisition for the year ended December 31, 2018, or interim periods thereafter, and for the year ended December 31, 2019, have not been presented and are not considered material. The results of VitreosHealth's operations since September 16, 2019 have been included in the Company's consolidated financial statements and are not considered material.

*(c) Eliza Holding Corp.*

On April 17, 2017, the Company completed the acquisition of 100% of the outstanding capital stock of Eliza Holding Corp ("Eliza"), for a purchase price of \$171.6 million funded with available liquidity of approximately 75% cash on hand and 25% from the Company's existing credit line.

We incurred acquisition related costs of \$4.5 million related to the Eliza acquisition for the year ended December 31, 2017. The costs include consulting, legal and transaction costs, and have been recorded in selling, general and administrative expenses.

The financial results of Eliza's operations since April 17, 2017 have been included in the Company's consolidated financial statements. Eliza contributed \$52.5 million, \$51.9 million and \$30.4 million in revenue to HMS results of operations in the years ended December 31, 2019, 2018 and 2017, respectively.

#### 4. Property and Equipment

Property and equipment consisted of the following (*in thousands*):

	December 31,	
	2019	2018
Equipment	\$ 90,347	\$ 95,350
Leasehold improvements	8,042	7,547
Building	9,674	8,624
Building improvements	16,305	14,825
Land	2,949	2,769
Furniture and fixtures	8,685	9,404
Capitalized software	134,864	131,819
	270,866	270,338
Less: accumulated depreciation and amortization	(183,919)	(175,903)
Property and equipment, net	\$ 86,947	\$ 94,435

	Years ended December 31,		
	2019	2018	2017
Depreciation and amortization expense related to property and equipment	\$ 33,293	\$ 33,254	\$ 27,515

#### 5. Intangible Assets, Goodwill and Other Assets

*(a) Intangible Assets*

Intangible assets consisted of the following (*amounts in thousands*):

	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Amortization Period in Years
<b>December 31, 2019</b>				
Customer relationships	\$ 135,290	\$ (21,637)	\$ 113,653	12.1
Trade names	1,536	(147)	1,389	3.0
Intellectual property	27,700	(10,893)	16,807	3.7
<b>Total</b>	<b>\$ 164,526</b>	<b>\$ (32,677)</b>	<b>\$ 131,849</b>	

	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Amortization Period in Years
<b>December 31, 2018</b>				
Customer relationships	\$ 156,790	\$ (104,740)	\$ 52,050	12.8
Trade names	16,246	(16,215)	31	0.7
Intellectual property	21,700	(6,670)	15,030	4.1
Restrictive covenants	263	(234)	29	0.7
<b>Total</b>	<b>\$ 194,999</b>	<b>\$ (127,859)</b>	<b>\$ 67,140</b>	

Amortization expense of intangible assets is expected to approximate the following (*in thousands*):

Year ending December 31,	Amortization
2020	\$ 14,914
2021	14,447
2022	14,439
2023	11,605
2024	10,180
Thereafter	66,264
<b>Total</b>	<b>\$ 131,849</b>

For the years ended December 31, 2019, 2018 and 2017, amortization expense related to intangible assets was \$9.7 million, \$24.3 million, and \$22.6 million, respectively. In addition, during the year ended December 31, 2019, some of the intangible assets became fully amortized.

*(b) Goodwill*

As a result of the Accent and VitreosHealth acquisitions, the changes in the carrying amount of goodwill were as follows (*in thousands*):

<b>Balance at December 31, 2018</b>	<b>\$ 487,617</b>
Vitreos acquisition	30,189
Accent acquisition	81,545
<b>Balance at December 31, 2019</b>	<b>\$ 599,351</b>

### (c) Other Assets

In the third quarter of 2019, a third party acquired one hundred percent of the outstanding stock of InstaMed Holdings, Inc. ("InstaMed") including the Company's cost based investment in InstaMed of \$2.1 million. As a result, the Company received proceeds of \$9.8 million from the sale of the investment and recognized a \$7.7 million gain in other income for the year ended December 31, 2019.

In 2019, the Company made a investment of \$7.4 million in ordinary shares of MedAdvisor Limited ("MedAdvisor")(ASX: MDR), a digital medication management company based in Australia. The equity securities are categorized as Level 1 within the fair value hierarchy as the ordinary shares are actively traded on the Australian Stock Exchange. For the year ended December 31, 2019, the fair value measurement in relation to this equity instrument was \$7.9 million. There were no sales, settlements issuances or transfers related to this level 1 instrument in 2019 or 2018.

The Company recorded net unrealized gains of \$0.5 million for the year ended December 31, 2019. There were no realized or unrealized gains in 2018. These gains are reflected as a component of other income, in the accompanying Consolidated Statements of Income.

## 6. Accounts Payable, Accrued Expenses and Other Liabilities

Accounts payable, accrued expenses and other liabilities consisted of the following (*in thousands*):

	December 31, 2019	December 31, 2018
Accounts payable, trade	\$ 12,246	\$ 12,394
Accrued compensation and other	36,827	42,833
Accrued operating expenses	42,045	19,675
Current portion of lease liabilities	6,629	—
Total accounts payable, accrued expenses and other liabilities	\$ 97,747	\$ 74,902

## 7. Income Taxes

Income tax expense is as follows (*in thousands*):

	December 31,		
	2019	2018	2017
Current tax expense (benefit):			
Federal	\$ 6,167	\$ 2,965	\$ 17,008
State	3,678	(1,433)	3,201
Total current tax expense:	9,845	1,532	20,209
Deferred tax expense (benefit):			
Federal	6,219	(2,650)	(19,425)
State	1,074	(854)	(983)
Total deferred tax expense (benefit):	7,293	(3,504)	(20,408)
Total income tax expense (benefit)	\$ 17,138	\$ (1,972)	\$ (199)

A reconciliation of the income tax expense calculated using the applicable federal statutory rate to the actual income tax expense is as follows (*in thousands*):

	December 31,					
	2019	%	2018	%	2017	%
Computed at federal statutory rate	\$ 21,916	21.0	\$ 11,134	21.0	\$ 13,949	35.0
State and local tax expense, net of federal benefit	3,625	3.4	2,367	4.5	2,226	5.6
Net permanent deduction and credit tax benefits from current year	(1,166)	(1.1)	(1,143)	(2.2)	(1,513)	(3.8)
Net uncertain tax positions excluding current permanent deduction and credit benefits	(937)	(0.8)	(3,756)	(7.0)	(373)	(0.9)
Subsidiary basis write off	—	—	(3,423)	(6.5)	—	—
Equity compensation net tax windfall	(8,634)	(8.3)	(2,890)	(5.5)	—	—
State tax apportionment changes	—	—	(3,737)	(7.0)	—	—
Disallowed executive compensation	1,750	1.6	682	1.3	—	—
Tax Reform - revaluation of deferrals	—	—	—	—	(15,130)	(38.0)
Acquisition adjustments	—	—	(1,226)	(2.3)	(1,003)	(2.5)
Acquisition costs	245	0.3	—	—	697	1.7
Other, net	339	0.3	20	—	948	2.4
<b>Total income tax expense</b>	<b>\$ 17,138</b>	<b>16.4</b>	<b>\$ (1,972)</b>	<b>(3.7)</b>	<b>\$ (199)</b>	<b>(0.5)</b>

The Company has current period foreign income tax expense and includes global intangible low-taxed income as current period income tax expense, both of which are not material to the overall financial statements.

Deferred income taxes are recognized for the future tax consequences of temporary differences between the financial statement and tax bases of assets and liabilities. The tax effect of temporary differences that give rise to a significant portion of the deferred tax assets and deferred tax liabilities are as follows (*in thousands*):

	<b>December 31,</b>	
	<b>2019</b>	<b>2018</b>
<b>Deferred tax assets:</b>		
Stock-based compensation	\$ 8,056	\$ 9,545
Goodwill and intangible assets	5,516	5,874
Accounts receivable, net	4,442	3,537
Deferred rent	—	696
Tenant improvements	—	569
Liability for appeals	931	5,632
Net operating loss carry-forwards	2,644	1,527
Tax credit carry-forwards	1,815	4,076
Property and equipment	139	49
Accrued expenses and other	5,054	7,839
ROU Liability	5,799	—
<b>Total deferred tax assets</b>	<b>34,396</b>	<b>39,344</b>
<b>Deferred tax liabilities:</b>		
Goodwill and intangible assets	42,894	43,400
Section 481(a) adjustment	2,551	5,073
Prepaid expenses	734	668
Capitalized software cost	9,068	8,688
ROU Asset	4,736	—
<b>Total deferred tax liabilities</b>	<b>59,983</b>	<b>57,829</b>
<b>Total net deferred tax liabilities</b>	<b>\$ 25,587</b>	<b>\$ 18,485</b>

Included in Other Liabilities on the Consolidated Balance Sheets, are the total amount of unrecognized tax benefits of approximately \$4.2 million and \$4.8 million as of December 31, 2019 and 2018, respectively, net of the federal benefit for state issues that, if recognized, would favorably affect the Company's future effective tax rate. Also included in Other Liabilities on the Consolidated Balance Sheets are accrued liabilities for interest expense and penalties related to unrecognized tax benefits of \$0.7 million and \$0.7 million as of December 31, 2019 and 2018, respectively. HMS includes interest expense and penalties in the provision for income taxes in the Consolidated Statements of Income. The amount of interest expense, net of federal and state income tax benefits, and penalties in the Consolidated Statements of Income for the years ended December 31, 2019, 2018, and 2017 was \$0.04 million, \$0.1 million and \$0.02 million, respectively. The Company believes it is reasonably possible the amount of unrecognized tax benefits may decrease by \$1.7 million during 2020, due to the expiration of the statute of limitations in various jurisdictions.

A reconciliation of the beginning and ending amounts of unrecognized tax benefits are as follows (*in thousands*):

	2019	2018
Unrecognized tax benefits at January 1	\$ 4,839	\$ 8,234
Additions for tax positions taken during prior periods	543	399
Additions for tax positions taken during current period including amended prior years	409	360
Reductions relating to settlements with taxing authorities	—	(2,227)
Reductions related to the expiration of statutes of limitations	(1,542)	(1,927)
<b>Unrecognized tax benefits at December 31</b>	<b>\$ 4,249</b>	<b>\$ 4,839</b>

The Company increased the provision for unrecognized tax benefits by \$0.4 million during the year ended December 31, 2019, related to tax benefits recognized for current period U.S. Research and Experimentation Tax Credits pursuant to IRC Section 41. At December 31, 2019, HMS had federal and state pre-tax net operating loss and tax credit carryforwards of approximately \$30.3 million and \$1.8 million, respectively, which will be available to offset future taxable income. If not used, these net operating loss and tax credit carryforwards will begin to expire in 2020 and 2028, respectively. The Company files income tax returns with the U.S. Federal government and various state and local jurisdictions and will file income tax returns in certain foreign jurisdictions as a result of its acquisition of VitreosHealth. HMS is generally no longer subject to U.S. Federal income tax examinations for years before 2013. HMS operates in a number of state, foreign and local jurisdictions. Accordingly, HMS is subject to state, local, and foreign income tax examinations based on the various statutes of limitations in each jurisdiction. Previously recognized Texas refund claims were examined by the state and resulted in a favorable apportionment method change for all open tax years.

## 8. Liability for Appeals

Under the Company's contracts with certain commercial health plan customers and its Medicare Recovery Audit Contractor ("RAC") contract with the Centers for Medicare & Medicaid Services ("CMS") (included within the Company's payment integrity services revenue), providers have the right to appeal HMS claim findings and to pursue additional appeals if the initial appeal is found in favor of HMS's customer.

The appeal process established under the Medicare RAC contracts with CMS includes five levels of appeals, and resolution of appeals can take substantial time to resolve. HMS records a) an actual return obligation liability for findings which have been previously adjudicated in favor of providers and b) an estimated return obligation liability based on the amount of revenue that is subject to appeals and which are probable of being adjudicated in favor of providers following their successful appeal. The Company's estimate is based on the Company's historical experience. To the extent the amount to be returned to providers following a successful appeal exceeds or is less than the amount recorded, revenue in the applicable period would be reduced or increased by such amount.

A roll-forward of the activity in the liability for appeals is as follows (*in thousands*):

	Original RAC contract	RAC 4 contract	Commercial contracts	Total
Balance at December 31, 2017	\$ 27,816	\$ —	\$ 2,971	\$ 30,787
Provision	108	20	2,038	2,166
Appeals found in providers favor	(108)	—	(2,686)	(2,794)
Release of estimated liability	(8,436)	—	—	(8,436)
Balance at December 31, 2018	\$ 19,380	\$ 20	\$ 2,323	\$ 21,723
Provision	—	2,026	7,347	9,373
Appeals found in providers favor	—	(440)	(7,706)	(8,146)
Release of estimated liability	(19,380)	—	—	(19,380)
Balance at December 31, 2019	\$ —	\$ 1,606	\$ 1,964	\$ 3,570

The Company's original Medicare RAC contract with CMS expired on January 31, 2018. As a result of the original contract expiration, the Company's contractual obligation with respect to any appeals resolved in favor of providers subsequent to the expiration date have ceased and therefore the Company released its estimated return obligation liability and increased revenue by \$8.4 million during the first quarter of 2018.

In 2019, the Company determined, based on communications, that there was no further contractual obligation to CMS with respect to the original Medicare RAC contract as of June 30, 2019. Accordingly, the Company released its remaining estimated liability of \$19.4 million and net receivables during the second quarter of 2019. As a result of the release, there was a \$10.5 million increase to the Company's revenue for the three months ended June 30, 2019.

## 9. Credit Agreement

In May 2013, we entered into a credit agreement (as amended and restated, the "Credit Agreement") with certain lenders and Citibank, N.A. as administrative agent. The Credit Agreement originally provided for an initial \$500 million five-year revolving credit facility maturing on May 3, 2018.

On December 19, 2017, the Company entered into an amendment to the Credit Agreement, which, among other things, extended the maturity of its then existing \$500 million revolving credit facility by five years to December 2022 (the "Amended Revolving Facility"). The availability of funds under the Amended Revolving Facility includes sublimits for (a) up to \$50 million for the issuance of letters of credit and (b) up to \$25 million for swingline loans. In addition, the Company may increase the commitments under the Amended Revolving Facility and/or add one or more incremental term loan facilities, provided that such incremental facilities do not exceed in the aggregate the sum of (i) the greater of \$120 million and 100% of Consolidated EBITDA (as defined in the Credit Agreement) and (ii) an additional amount so long as our first lien leverage ratio (as defined in the Credit Agreement) on a pro forma basis is not greater than 3.00:1.00, subject to obtaining commitments from the lenders and meeting certain other conditions.

As of December 31, 2019 and December 31, 2018, the outstanding principal balance due on the Amended Revolving Facility was \$240 million. No principal payments were made against the Amended Revolving Facility during the year ended December 31, 2019.

Borrowings under the Credit Agreement will bear interest at a rate equal to, at the Company's election (except with respect to swingline borrowings, which will accrue interest based only at the base rate), either:

- a base rate determined by reference to the greatest of (a) the prime or base commercial lending rate of the administrative agent as in effect on the relevant date, (b) the federal funds effective rate plus 0.50% and (c) the one-month London Interbank Offered Rate (or any successor rate determined in accordance with the Credit Agreement)

("LIBO Rate") plus 1.00%, plus an interest margin ranging from 0.50% to 1.00% based on the Company's consolidated leverage ratio for the applicable period; or

- an adjusted LIBO Rate, equal to the LIBO Rate for the applicable interest period multiplied by the statutory reserve rate (equal to (x) one divided by (y) one minus the aggregate of the maximum reserve percentage (including any marginal, special, emergency or supplemental reserves) established by the Board of Governors of the Federal Reserve System of the United States), plus an interest margin ranging from 1.50% to 2.00% based on the Company's consolidated leverage ratio for the applicable period.

In addition to paying interest on the outstanding principal, the Company is required to pay unused commitment fees on the Amended Revolving Facility during the term of the Credit Agreement ranging from 0.375% to 0.250% per annum based on the Company's consolidated leverage ratio and letter of credit fees equal to 0.125% per annum on the aggregate face amount of each letter of credit, as well as customary agency fees. As part of a contractual agreement with a customer, the Company has an outstanding irrevocable letter of credit for \$6.5 million, which is issued against the Amended Revolving Facility and expires June 30, 2020.

The Amended Revolving Facility is secured, subject to certain customary carve-outs and exceptions, by a first priority lien and security interest in substantially all tangible and intangible assets of the Company and certain subsidiaries of the Company. The Amended Revolving Facility contains certain restrictive covenants, which affect, among other things, the ability of the Company and its subsidiaries to incur indebtedness, create liens, make investments, sell or otherwise dispose of assets, engage in mergers or consolidations with other entities, and pay dividends or repurchase stock. The Company is also required to comply, on a quarterly basis, with two financial covenants: (i) a minimum interest coverage ratio of 3.00:1.00, and (ii) a maximum consolidated leverage ratio of 4.75:1.00 through December 2019 and 4.25:1.00 from and after January 2020. The consolidated leverage ratio is subject to a step-up to 5.25:1.00 for four full consecutive fiscal quarters following a permitted acquisition or similar investment. As of December 31, 2019, the Company was in compliance with all terms of the Credit Agreement.

Interest expense and the commitment fees on the unused portion of the Company's revolving credit facility were as follows (*in thousands*):

	Years ended December 31,		
	2019	2018	2017
Interest expense	\$ 9,460	\$ 9,294	\$ 7,170
Commitment fees	638	1,189	1,359

At December 31, 2019 and 2018, the unamortized balance of deferred origination fees and debt issuance costs was \$1.7 million and \$2.2 million, respectively. The Company amortized deferred financing costs of \$0.6 million, \$0.6 million and \$2.3 million in the years ended December 31, 2019, 2018 and 2017, respectively.

## 10. Equity

### (a) Share Repurchase Activity

On November 1, 2019, our Board of Directors approved a new \$50.0 million share repurchase program to replace the previous share repurchase program, which expired in November 2019 and had \$29.9 million remaining at the time of expiration. We did not repurchase shares during fiscal year 2019.

### (b) Preferred Stock

The Company's certificate of incorporation, as amended, authorizes the issuance of up to 5,000,000 shares of "blank check" preferred stock with such designations, rights and preferences as may be determined by the Company's Board of Directors. As of December 31, 2019, no preferred stock had been issued.



## 11. Employee Benefit Plan

The Company sponsors the 401(k) Plan for eligible employees. Eligible employees must complete 90 days of service in order to enroll in the 401(k) Plan. Participants may make voluntary contributions to the 401(k) Plan of up to 60% of their annual base pre-tax compensation not to exceed the federally determined maximum allowable contribution. In addition, the 401(k) Plan permits the Company to make discretionary contributions. During 2019 and 2018, HMS matched 100% of the first 4% of pay contributed by each eligible employee and 50% of the next 1% of pay contributed. During 2017, HMS matched 100% of the first 3% of pay contributed by each eligible employee and 50% on the next 2% of pay contributed. These matching contributions vest immediately and are not in the form of the Company's common stock.

For the years ended December 31, 2019, 2018 and 2017, HMS contributed \$7.7 million, \$7.3 million and \$5.9 million, respectively, to the 401(k) Plan in the form of matching contributions.

## 12. Stock-Based Compensation

### *(a) Long-Term Incentive Award Plans*

The Company grants stock options and restricted stock units to HMS employees and non-employee directors of the Company under the 2019 Omnibus Plan, as approved by the Company's shareholders on May 22, 2019. The 2019 Omnibus Plan replaced and superseded the HMS Holdings Corp. 2016 Omnibus Incentive Plan.

### *(b) Stock-Based Compensation Expense*

Total stock-based compensation expense in the Company's Consolidated Statements of Income related to the Company's long-term incentive award plans was as follows (in thousands):

	Years ended December 31,		
	2019	2018	2017
Cost of services-compensation	\$ 8,887	\$ 7,421	\$ 7,354
Selling, general and administrative	13,014	14,086	16,789
Total	\$ 21,901	\$ 21,507	\$ 24,143

The total tax benefits recognized on stock-based compensation for the years ended December 31, 2019, 2018 and 2017 was \$16.7 million, \$9.1 million and \$4.0 million, respectively.

### *(c) Stock Options*

Stock-based compensation expense related to stock options was approximately \$8.9 million, \$9.6 million and \$10.3 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Presented below is a summary of stock option activity for the year ended December 31, 2019 (in thousands, except for weighted average exercise price and weighted average remaining contractual terms):

	Number of Options	Weighted Average Exercise Price	Weighted Average-Remaining Contractual Terms	Aggregate-Intrinsic Value
Outstanding balance at December 31, 2018	4,402	\$ 17.07		
Granted	640	38.61		
Exercised	(2,436)	16.20		
Forfeitures	(187)	21.21		
Expired	(8)	23.59		
Outstanding balance at December 31, 2019	2,411	23.43	7.28	\$ 20,242
Expected to vest at December 31, 2019	1,070	\$ 28.20	8.5	\$ 5,979
Exercisable at December 31, 2019	968	\$ 17.08	5.6	\$ 12,121

As of December 31, 2019 and 2018, the Company had 1,400,233 and 1,999,069, respectively, in unvested options with a weighted-average-grant-date fair value per share of \$10.13 and \$7.27, respectively. The weighted-average-grant-date fair value per share of the stock options granted during the years ended December 31, 2019, 2018 and 2017 was \$13.86, \$7.52 and \$7.66, respectively. The weighted-average-grant-date fair value per share of stock options vested during the year ended December 31, 2019 was \$7.36. The weighted-average-grant-date fair value per share of the stock options forfeited during the years ended December 31, 2019, 2018 and 2017 was \$7.94, \$6.86 and \$5.24, respectively.

HMS estimated the fair value of each stock option grant on the date of grant using a Black-Scholes option pricing model. Weighted-average assumptions are set forth in the following table:

	Year ended December 31, 2019		
	2019	2018	2017
Expected dividend yield	— %	— %	— %
Risk-free interest rate	2.5%	2.7%	1.8%
Expected volatility	41.1%	42.4%	44.2%
Expected life (years)	6.4	6.0	5.0

HMS estimated the fair value of 2017 market condition option grants on the date of grant using a Monte-Carlo simulation model. There were no market condition awards granted in 2019 or 2018. Assumptions are set forth in the following table:

	Year ended December 31,		
	2019	2018	2017
Expected dividend yield	— %	— %	— %
Risk-free interest rate	— %	— %	2.2 %
Expected volatility	— %	— %	52.5 %
Expected life (years)	0	0	6.5

During the years ended December 31, 2019, 2018 and 2017, the Company issued 2,435,648, 2,017,442 and 172,326 shares, respectively, of the Company's common stock upon the exercise of outstanding stock options and received proceeds of \$39.3 million, \$38.4 million and \$2.7 million, respectively. The total intrinsic value of stock options exercised during the years ended December 31, 2019, 2018 and 2017 was \$45.6 million, \$27.6 million and \$0.5 million, respectively.

As of December 31, 2019, there was approximately \$4.3 million of total unrecognized compensation cost related to stock options outstanding, which is expected to be recognized over a weighted average period of 0.8 years.

#### *(d) Restricted Stock Units*

Stock-based compensation expense related to restricted stock units was \$13.0 million, \$11.9 million and \$13.8 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Presented below is a summary of restricted stock units activity for the year ended December 31, 2019 (*in thousands, except for weighted average grant date fair value per unit*):

	Number of Units	Weighted Average Grant Date Fair Value per
Outstanding balance at December 31, 2018	1,488	\$ 17.60
Granted	487	34.02
Vesting of restricted stock units, net of units withheld for taxes	(406)	16.65
Units withheld for taxes	(201)	16.65
Forfeitures	(129)	21.32
Outstanding balance at December 31, 2019	1,239	\$ 21.37

As of December 31, 2019, 974,050 restricted stock units remained unvested and there was approximately \$9.9 million of unrecognized compensation cost related to restricted stock units, which is expected to be recognized over a weighted average vesting period of 0.84 years. During the years ended December 31, 2019, 2018 and 2017, the Company's vested restricted stock units had a fair value of \$10.7 million, \$9.9 million, and \$9.5 million, respectively. The weighted average grant date fair value per share of the restricted stock units vested during the years ended December 31, 2019, 2018 and 2017 was \$16.65, \$17.06 and \$15.39, respectively. The weighted average grant date fair value per share of the restricted stock units forfeited during the years ended December 31, 2019, 2018 and 2017 was \$21.32, \$17.31 and \$15.37, respectively.

### **13. Earnings per Share**

The following table sets forth the computation of basic and diluted earnings per share (*in thousands, except per share amounts*):

	Years ended December 31		
	2019	2018	2017
<b>Net income</b>	\$ 87,224	\$ 54,989	\$ 40,054
Weighted average common shares outstanding-basic	87,222	83,625	83,821
Plus: net effect of dilutive stock options and restricted stock units	2,095	2,519	1,267
Weighted average common shares outstanding-diluted	89,317	86,144	85,088
Net income per common share — basic	\$ 1.00	\$ 0.66	\$ 0.48
Net income per common share — diluted	\$ 0.98	\$ 0.64	\$ 0.47

For the years ended December 31, 2019, 2018 and 2017: (i) 509,617, 804,959 and 2,646,100 stock options, respectively, and (ii) restricted stock units representing 2,564, 0 and 31,155 shares of common stock, respectively, were not included in the diluted earnings per share calculation because the effect would have been anti-dilutive.

#### 14. Commitments and Contingencies

In July 2012, Dennis Demetre and Lori Lewis (the “Plaintiffs”), filed an action in the Supreme Court of the State of New York against HMS Holdings Corp., claiming an undetermined amount of damages alleging that various actions by HMS unlawfully deprived the Plaintiffs of the acquisition earn-out portion of the purchase price for Allied Management Group Special Investigation Unit, Inc. (“AMG”) under the applicable Stock Purchase Agreement (the “SPA”) and that HMS had breached certain contractual provisions under the SPA. The Plaintiffs filed a second amended complaint with two causes of action for breach of contract and one cause of action for breach of implied covenant of good faith and fair dealing. HMS asserted a counterclaim against Plaintiffs for breach of contract based on contractual indemnification costs, including attorneys’ fees arising out of the Company’s defense of AMG in *Kern Health Systems v. AMG, Dennis Demetre and Lori Lewis* (the “California Action”), which are recoverable under the SPA. In June 2016, Kern Health Systems and AMG entered into a settlement agreement that resolved all claims in the California Action. In July 2017, the Court issued a decision on the Company’s motion for partial summary judgment and granted the motion in part, dismissing one of Plaintiffs’ breach of contract causes of action against HMS. On November 3, 2017, following a jury trial, a verdict was returned in favor of the Plaintiffs on a breach of contract claim, and the jury awarded \$60.0 million in damages to the Plaintiffs. On March 14, 2018, the Court held a hearing on the Company’s post-trial motion for an order granting it judgment notwithstanding the verdict or, alternatively, setting aside the jury’s award of damages. On June 27, 2018, prior to the Court issuing a decision on the motion, the Company entered into a Settlement Agreement (the “Settlement Agreement”) with the Plaintiffs, John Alfred Lewis and Christopher Brandon Lewis. Pursuant to the terms of the Settlement Agreement, the Company paid \$20.0 million to resolve all matters in controversy pertaining to the lawsuit. On July 5, 2018, the Court entered an order to discontinue the lawsuit pursuant to the Stipulation of Discontinuance with Prejudice filed by the parties.

In February 2018, the Company received a Civil Investigative Demand (“CID”) from the Texas Attorney General, purporting to investigate possible unspecified violations of the Texas Medicaid Fraud Prevention Act. In March 2018, the Company provided certain documents and information in response to the CID. HMS has not received any further requests from the government in connection with this CID.

In September 2018, a former employee filed an action in the New York County Supreme Court entitled *Christopher Frey v. Health Management Systems, Inc.* alleging retaliation under New York law. The complaint seeks recovery of an unspecified amount of monetary damages, including back pay and other compensatory and equitable relief. In May 2019, the Court heard oral arguments on the Company’s motion to dismiss the complaint. The motion remains pending before the Court. The Company continues to believe that this claim is without merit and intends to vigorously defend this matter.

From time to time, HMS may be subject to investigations, legal proceedings and other disputes arising in the ordinary course of the Company's business, including but not limited to regulatory audits, billing and contractual disputes, employment-related matters and post-closing disputes related to acquisitions. Due to the Company's contractual relationships, including those with federal and state government entities, HMS's operations, billing and business practices are subject to scrutiny and audit by those entities and other multiple agencies and levels of government, as well as to frequent transitions and changes in the personnel responsible for oversight of the Company's contractual performance. HMS may have contractual disputes with its customers arising from differing interpretations of contractual provisions that define the Company's rights, obligations, scope of work or terms of payment, and with associated claims of liability for inaccurate or improper billing for reimbursement of contract fees, or for sanctions or damages for alleged performance deficiencies. Resolution of such disputes may involve litigation or may require that HMS accept some amount of loss or liability in order to avoid customer abrasion, negative marketplace perceptions and other disadvantageous results that could affect the Company's business, financial condition, results of operations and cash flows.

HMS records accruals for outstanding legal matters when it believes it is probable that a loss will be incurred and the amount can be reasonably estimated. The Company evaluates, on a quarterly basis, developments in legal matters that could affect the amount of any accrual and developments that would make a loss contingency both probable and reasonably estimable. If a loss contingency is not both probable and estimable, HMS does not establish an accrued liability.

## **15. Customer Concentration**

### *(a) Geographic Information*

The Company primarily operates within the United States with some international revenue that is not considered material.

### *(b) Major Customers*

For the years ended December 31, 2019, 2018 and 2017 no one individual Company customer accounted for more than 10% of the Company's total revenue.

### *(c) Concentration of Revenue*

The composition of the Company's ten largest customer's changes periodically. For the years ended December 31, 2019, 2018 and 2017, the Company's ten largest customers represented 42.7%, 41.4% and 39.5% of HMS' total revenue, respectively. Excluding those contracts that contain automatic renewal provisions or evergreen terms, the Company's agreements with the ten current largest customers generally expire between 2020 and 2026. In many instances, HMS provides services pursuant to agreements that may be renewed or subject to a competitive procurement process. Several of the Company's contracts, including those with some of its largest customers, may be terminated for convenience.

## **16. Leases**

The components of lease expense for the year ended December 31, 2019 were as follows (*in thousands*):

**Year ended  
December 31, 2019**

Operating lease cost	\$ 6,625
<b>Finance lease cost:</b>	
Amortization of right-of-use assets	\$ 202
Interest on lease liabilities	25
Total finance lease cost	\$ 227

Supplemental cash flow and other information related to leases for the year ended December 31, 2019 were as follows (*in thousands*):

**Year ended  
December 31, 2019**

<b>Cash paid for amounts included in measurement of lease liabilities:</b>	
Operating cash flows from operating leases	\$ 7,402
Operating cash flows from finance leases	\$ 24
Financing cash flows from finance leases	\$ 195
<b>Right-of-use assets obtained in exchange for new lease liabilities:</b>	
Operating leases	\$ 1,181
Finance leases	\$ 1,820

Supplemental balance sheet information related to leases as of December 31, 2019 consisted of the following (*in thousands*):

**Year ended  
December 31, 2019**

<b>Operating Leases</b>	
Operating lease right-of-use assets	\$ 17,493
Other current liabilities	\$ 6,269
Operating lease liabilities	14,881
Total operating lease liabilities	\$ 21,150
<b>Finance Leases</b>	
Other Assets	\$ 1,081
Other current liabilities	\$ 360
Other long-term liabilities	677
Total finance leases liabilities	\$ 1,037

As of December 31, 2019, the weighted-average remaining lease term for operating and finance leases was 4.1 years and 2.6 years, respectively. As of December 31, 2019, the weighted-average discount rates were 5.7% and 4.6% for operating and finance leases, respectively.

Sublease income for the years ended December 31, 2019 and 2018 was \$2.2 million and \$1.8 million, respectively.

Maturities of lease liabilities were as follows (in thousands):

Year ended December 31,	Operating Leases	Finance Leases
2020	\$ 7,266	\$ 399
2021	5,791	454
2022	3,546	246
2023	3,319	—
2024	2,833	—
Thereafter	991	—
Total lease payments	23,746	1,099
Less: Imputed interest	2,596	62
Total lease obligation	\$ 21,150	\$ 1,037

#### Disclosures related to periods prior to adoption of the New Lease Standard

As of December 31, 2018, minimum annual lease payments made under operating leases, net of \$8.3 million office space sublease payments to be received, for each of the next five years ending December 31 and thereafter were as follows (in thousands):

Year ended December 31,	Operating Leases
2019	\$ 5,778
2020	5,420
2021	3,742
2022	2,531
2023	2,236
Thereafter	2,947
Total lease payments	\$ 22,654

## 17. Subsequent Events

### Annual Grants to Employees

On February 13, 2020, the Compensation Committee of the Board of Directors approved approximately \$24.5 million in stock option and restricted stock unit awards to employees. The awards generally will vest over three years and will be issued three business days subsequent to the filing of this 2019 Form 10-K.

In connection with the preparation of our consolidated financial statements, an evaluation of subsequent events was performed through the date of filing and there were no other events that have occurred that would require adjustments to the financial statements or disclosure.

## 18. Quarterly Financial Data (Unaudited)

The table below summarizes the Company's unaudited quarterly operating results for the last two fiscal years (*in thousands, except per share amounts*):

<b>2019</b>	<b>First Quarter</b>	<b>Second Quarter</b>	<b>Third Quarter</b>	<b>Fourth Quarter</b>	<b>Year Ended</b>
Revenue	\$ 147,953	\$ 168,182	\$ 146,815	\$ 163,445	\$ 626,395
Gross profit	\$ 48,952	\$ 68,584	\$ 45,296	\$ 54,849	\$ 217,681
Operating income	\$ 19,706	\$ 40,548	\$ 17,064	\$ 25,698	\$ 103,016
Net income	\$ 19,642	\$ 29,100	\$ 21,136	\$ 17,346	\$ 87,224
Net income per common share - basic	\$ 0.23	\$ 0.34	\$ 0.24	\$ 0.20	\$ 1.00
Net income per common share - diluted	\$ 0.22	\$ 0.33	\$ 0.24	\$ 0.20	\$ 0.98

<b>2018</b>	<b>First Quarter</b>	<b>Second Quarter</b>	<b>Third Quarter</b>	<b>Fourth Quarter</b>	<b>Year Ended</b>
Revenue	\$ 141,425	\$ 146,791	\$ 154,246	\$ 155,828	\$ 598,290
Gross profit	\$ 43,920	\$ 45,769	\$ 52,409	\$ 54,582	\$ 196,680
Operating income/(loss)	\$ 11,922	\$ (763)	\$ 24,231	\$ 27,848	\$ 63,238
Net income/(loss)	\$ 6,391	\$ (3,367)	\$ 18,574	\$ 33,391	\$ 54,989
Net income/(loss) per common share - basic	\$ 0.08	\$ (0.04)	\$ 0.22	\$ 0.40	\$ 0.66
Net income/(loss) per common share - diluted	\$ 0.07	\$ (0.04)	\$ 0.22	\$ 0.38	\$ 0.64

(1) Third quarter 2019 results include the Company's sale of its investment in InstaMed, as described in Note 5(c).

(2) Second quarter 2018 results include the Company's entry into the Settlement Agreement for the payment of \$20.0 million, as described in Note 14.



**SCHEDULE II – VALUATION AND QUALIFYING ACCOUNTS**  
**For the years ended December 31, 2019, 2018 and 2017**

Accounts receivable allowance and Estimated liability for appeals as of December 31, 2019, 2018 and 2017 are as follows:

**Accounts Receivable Allowance (in thousands):**

	Balance at Beginning of Year	Provision	Recoveries	Charge-offs	Balance at End of Year
Year ended December 31, 2017	\$ 10,772	\$ 20,233	\$ —	\$ (16,206)	\$ 14,799
Year ended December 31, 2018	14,799	20,453	—	(21,569)	13,683
Year ended December 31, 2019	13,683	22,289	—	(18,890)	17,082

**Estimated liability for appeals (in thousands):**

	Balance at Beginning of Year	Provision	Appeals found in providers favor	Release of estimated liability	Balance at End of Year
Year ended December 31, 2017	\$ 11,126	\$ 83	\$ (2,665)	\$ —	\$ 8,544
Year ended December 31, 2018	8,544	—	(108)	(8,436)	—
Year ended December 31, 2019	—	—	—	—	—

The above chart represents the CMS estimated reserve liability only.

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## Appendix A

### HMS HOLDINGS CORP. AND SUBSIDIARIES (unaudited)

#### Reconciliation of Net Income to EBITDA and Adjusted EBITDA

(in thousands, except percentages)	Twelve Months Ended	
	December 31, 2019	December 31, 2018
Net income	\$ 87,224	\$ 54,989
Net interest expense	6,865	10,221
Income taxes	17,138	(1,972)
Depreciation and amortization of property and equipment and intangible assets	42,984	57,596
Earnings before interest, taxes, depreciation and amortization (EBITDA)	\$ 154,211	\$ 120,834
Stock-based compensation expense	21,901	21,507
Transaction and integration costs	3,489	—
Settlement Expense	—	20,000
Adjusted EBITDA	\$ 179,601	\$ 162,341
% of Revenue	28.7 %	27.1 %
Adjusted EBITDA, excluding Reserve Releases and 3Q 2019 Gain on Investment	\$ 163,701	\$ 156,041
% of Revenue	26.6 %	26.4 %

#### Reconciliation of Net Income to GAAP EPS (Diluted) and Adjusted EPS (Diluted)

(in thousands, except per share amounts)	Twelve Months Ended	
	December 31, 2019	December 31, 2018
Net income	\$ 87,224	\$ 54,989
Stock-based compensation expense	21,901	21,507
Transaction and integration costs	3,489	—
Settlement Expense	—	20,000
Amortization of acquisition related software and intangible assets	16,999	32,975
Income tax related to adjustments <sup>1</sup>	(11,784)	(19,216)
Adjusted net income	\$ 117,829	\$ 110,255
Weighted average common shares, diluted	89,317	86,144
Diluted GAAP EPS <sup>2</sup>	\$ 0.98	\$ 0.64
Diluted adjusted EPS <sup>2</sup>	\$ 1.32	\$ 1.28
Discrete tax benefits	\$ 0.07	\$ 0.19
Reserve Releases benefit <sup>3</sup>	\$ 0.07	\$ 0.05
3Q 2019 Gain on Investment <sup>3</sup>	\$ 0.06	\$ —
Diluted adjusted EPS excluding Reserve Releases, 3Q 2019 Gain on Investment, and discrete tax benefits	\$ 1.12	\$ 1.04

(1) Tax effect of adjustments is computed as the pre-tax effect of the adjustments multiplied by the adjusted annual effective tax rate at period end.

(2) Diluted GAAP EPS and Diluted Adjusted EPS included (i) discrete tax benefits of \$0.07 per diluted share primarily related to the exercise of employee stock options, \$0.07 per diluted share related to the Reserve Releases benefit and a \$0.06 per diluted share benefit related to the 3Q 2019 Gain on Investment benefit for the twelve months ended December 31, 2019, and (ii) discrete tax benefits of \$0.19 per diluted share and \$0.05 per diluted share related to the Reserve Releases benefit for the twelve months ended December 31, 2018. The discrete tax benefits recorded in the twelve months ended December 31, 2018 primarily related to state tax apportionments, the closure of routine outstanding prior year tax audits, the exercise of employee stock options, the abandonment of subsidiary stock related to a 2010 acquisition, and year-end federal and state tax adjustments or provision true ups.

(3) The Reserve Releases benefit of \$0.07 per diluted share for the twelve months ended December 31, 2019 is net of income tax of approximately \$0.03 per diluted share and the 3Q 2019 Gain on Investment benefit of \$0.06 per diluted share for the twelve months ended December 31, 2019 is net of income tax of approximately \$0.02 per diluted share. The Reserve Releases benefit of \$0.05 per diluted share for the twelve months ended December 31, 2018 is net of income tax of approximately \$0.02 per diluted share.

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## Board of Directors

### **Katherine Baicker, Ph.D.**

Dean and Emmett Dedmon Professor,  
University of Chicago Harris School of Public Policy

### **Robert Becker**

Retired President and Chief Executive Officer,  
Wolters Kluwer Health

### **Craig R. Callen**

Former Senior Advisor,  
Crestview Partners

### **William C. Lucia**

Chairman, President and Chief Executive Officer,  
HMS Holdings Corp.

### **William F. Miller III**

Senior Executive Advisor,  
Beecken Petty O'Keefe & Company

### **Jeffrey A. Rideout, M.D.**

President and Chief Executive Officer,  
Integrated Healthcare Association

### **Ellen A. Rudnick**

Senior Advisor for Entrepreneurship, Adjunct Faculty,  
University of Chicago Booth School of Business

### **Bart M. Schwartz**

Chairman and Chief Executive Officer,  
SolutionPoint International, LLC

### **Richard H. Stowe**

General Partner,  
Health Enterprise Partners, LP

### **Cora M. Tellez**

Lead Independent Director,  
HMS Holdings Corp.  
President and Chief Executive Officer,  
Sterling HSA

## Executive Officers

### **William C. Lucia**

Chairman, President and Chief Executive Officer

### **David A. Alexander**

Senior Vice President,  
Chief Human Resources and Chief Compliance Officer

### **Meredith W. Bjorck**

Executive Vice President,  
Chief Legal Officer and Corporate Secretary

### **Emmet W. O'Gara**

Group President, Population Health Management

### **Maria E. Perrin**

Executive Vice President,  
Chief Growth Officer

### **Jeffrey S. Sherman**

Executive Vice President,  
Chief Financial Officer and Treasurer

### **Jacob J. Sims**

Senior Vice President,  
Chief Technology Officer

### **Douglas M. Williams, Jr.**

Executive Vice President,  
Chief Operating Officer

## Corporate Headquarters

5615 High Point Drive  
Irving, TX 75038  
Tel. 214.453.3000  
Fax. 214.453.3023

### **Form 10-K Report/Quarterly Reporting**

The Company's 2019 Form 10-K, as filed with the SEC, is included in this Annual Report in its entirety with the exception of certain exhibits. Copies of the Company's quarterly earnings results and additional copies of the 2019 Form 10-K, including all exhibits, are available on the Internet at <http://investor.hms.com/financial-information/sec-filings> or by accessing our filings with the SEC. In addition, shareholders may obtain a paper copy of these materials upon request from our Office of Investor Relations by emailing [robert.borchert@hms.com](mailto:robert.borchert@hms.com).

### **Stock Registrar and Transfer Agent**

Common stock of HMS Holdings Corp. is traded on the Nasdaq Global Select Market under the symbol HMSY. Questions with regard to registered shares of HMSY should be submitted to: HMS Holdings Corp. c/o Broadridge Corporate Issuer Solutions, Inc., P.O. Box 1342, Brentwood, NY 11717. Phone: 855.418.5059. Email: [shareholder@broadridge.com](mailto:shareholder@broadridge.com). Internet: <http://www.broadridge.com>.

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