



**CFRA**

# Industry Surveys

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## Health Care Technology

MARCH 2023

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## NEW THEMES



**What's Changed:** We added several new topics under the Operating Environment section discussing some trends that we think would help to alleviate the overall quality of the health care system in the future. Check out pages 12 and 13.



**What's Changed:** For an overview of the major health-related Covid-19 federal emergency declarations pertaining to telehealth, turn to page 17.

# EXECUTIVE SUMMARY

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CFRA introduced our first survey on the Health Care Technology sub-industry in Fall 2022. Our Health Care industry survey coverage now spans Biotechnology, Health Care Equipment & Supplies, Health Care Facilities (including Health Care Services), Life Sciences Tools & Services, Managed Health Care, and Pharmaceuticals. This survey includes companies involved in health care software, electronic health records (EHRs), telemedicine, and more.

## ***Economic Uncertainty Prompting Our Neutral Outlook***

CFRA maintains a neutral 12-month fundamental outlook on the Health Care Technology sub-industry. While recent data suggests inflation could be declining vs. recent record levels, we expect labor pressures at hospitals and other health care facilities, which tend to be significant customers for EHR names like NextGen Healthcare and telemedicine companies like Teladoc, to continue in the near term. Furthermore, the higher interest rate environment and indications of a possible near-term recession could slow industry growth among names like Inspire Medical Systems, which we feel would be negatively affected by weaker demand for outpatient procedures. However, we see reasons for optimism amid the uncertainty. Many EHR vendors have subscription-based, recurring revenue streams that could hold up better in tough economic times. Additionally, several health care technology companies maintain low or even negative net debt (cash exceeds debt), mitigating the impact of rising interest rates and boosting financial flexibility in a weaker economic environment, in our view.

## ***Health Care Technology Landscape Becoming More Competitive***

We think the global pandemic offered an opportunity for health care technology firms to demonstrate the utility of digital solutions in a time when in-person health care activity was limited. In response, we saw strong trends in M&A activity with several high-profile IPOs, signaling a healthy appetite for consolidation before capital market activity slumped amid record inflation and new geopolitical risks during 2022. Several Big Tech firms recently entered into the health care technology space, including Oracle with its acquisition of EHR software business Cerner and Amazon with the acquisition of membership-based and telemedicine-enabled health care provider One Medical. Not to mention, firms like Apple, Google, and Microsoft continue to develop capabilities for health care data, analytics, and connectivity.

## ***Regulatory Updates for Telehealth Following the End of Public Health Emergency***

The global pandemic drove telehealth visit demand to unprecedented levels in 2020, though volumes have moderated over the past two years. Recent FAIR Health data indicates that telehealth visits, while still well above pre-pandemic levels, have stabilized as a percentage of medical claims, indicating a potential foothold or floor for telehealth within the wider industry, in our view. Telehealth has benefitted from relaxed HIPAA restrictions, such as expanded technologies providers can use to communicate with patients, as well as several states adopting interstate telehealth care waivers. However, some of these temporary flexibilities are set to end following the public health emergency, which the Biden administration intends to phase out on May 11, 2023. Recent data suggests telehealth may have an outsized benefit in the mental health space, though the industry continues to grapple with fundamental issues related to privacy, fraud, and potential added costs to the overall health care system from increased patient volumes.

## HEALTH CARE TECHNOLOGY

Outlook: Neutral

## MARKET CAP BREAKDOWN\*

(as of February 28, 2023)

RANK NO.	COMPANY NAME	MARKET CAP (\$ billion)
1	Veeva Systems	25.8
2	Inspire Medical Systems	7.7
3	Teladoc Health	4.4
4	Omniceil Corp	2.4
5	GoodRx Holdings	2.1
	Others†	3.4

Source: CFRA, S&amp;P Global Market Intelligence.

†Refer to the "Comparative Company Analysis" section of this survey for the list of companies.

## BY THE NUMBERS

**\$83.5 billion**

Global telehealth market value in 2022

**\$224.8 billion**

Estimated global telehealth market value by 2030

**\$15.3 billion**

Amount that U.S. health care tech companies raised in 2022

**\$29.1 billion**

Amount that health care tech companies raised in 2021

**13%**

Expected growth in health care occupations until 2031

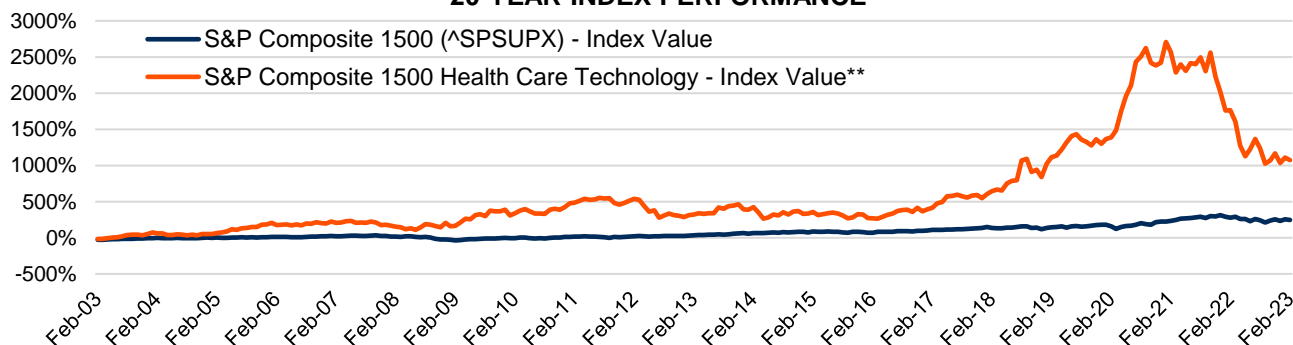
**24%**

Projected CAGR of the U.S. telehealth market from 2023 to 2030

## ETF FOCUS

<b>XLV</b> Health Care Select Sector SPDR Fund	AUM (\$M) <b>39,389.5</b>	Expense Ratio <b>0.10</b>
<b>VHT</b> Vanguard Health Care	AUM (\$M) <b>16,567.1</b>	Expense Ratio <b>0.10</b>
<b>EDOC</b> Global X Telemedicine & Digital Health	AUM (\$M) <b>135.6</b>	Expense Ratio <b>0.68</b>

## 20-YEAR INDEX PERFORMANCE\*



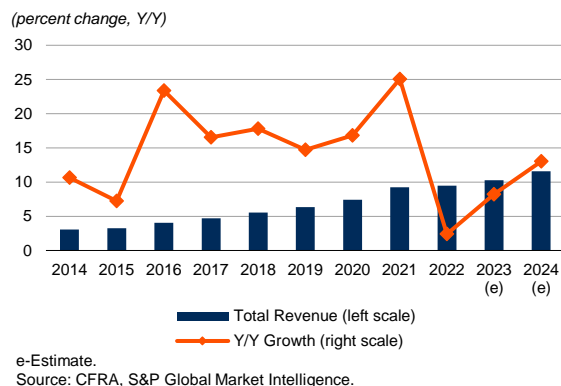
\*Data as of February 28, 2023.

\*\*Custom Index based on list of companies in Comparative Company Analysis.

Source: S&amp;P Global Market Intelligence.

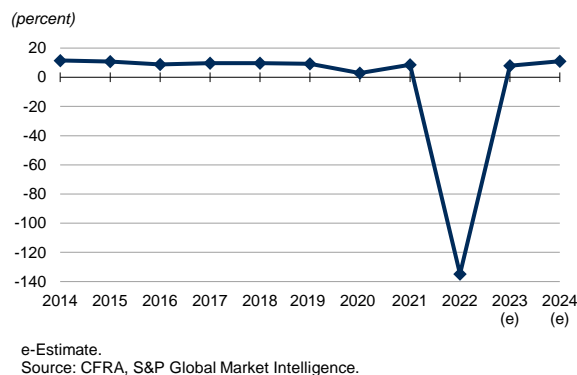
# FINANCIAL METRICS

## Revenue Growth



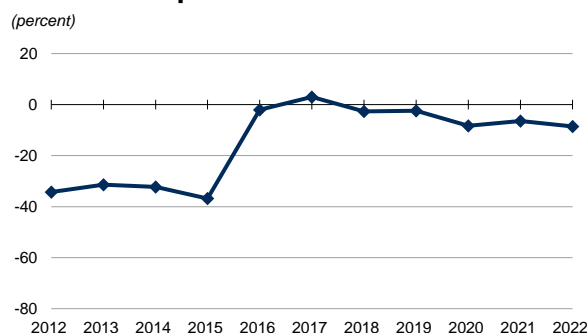
- ◆ For constituents in the S&P Composite 1500 Health Care Technology custom index, revenue growth fell to 2.6% in 2022 from 25.1% in 2021, driven in part by company-specific trends from some of the higher-revenue index constituents – for example, Veeva Systems’ slowing sales growth and Veradigm’s (previously known as Allscripts Healthcare Solutions) lower revenue base following the sale of its Hospital & Large Physician segment. We also see some impact of slower growth in telehealth versus earlier in the pandemic for companies like Teladoc and American Well.
- ◆ We anticipate revenue growth near 7.1% in 2023 and 12.5% in 2024, with expected sales and customer growth across telehealth names like Teladoc, medical records software companies like NextGen Healthcare, and cloud software companies such as Veeva Systems.

## EBITDA Margin



- ◆ Our custom index’s EBITDA margin severely declined to around -135% in 2022 from 8.5% in 2021, largely reflecting lower margins among telehealth firms. For example, we saw a significant decline in Teladoc’s margins with impairment charges, slower visit growth, and challenges in converting ad spending to customer growth. We also saw higher losses at American Well with higher R&D spending and lower revenue per visit.
- ◆ We anticipate health care technology firms will regain momentum with forecasted margin growth of 8.0% in 2023 and 11.5% in 2024.

## Net Debt/Capitalization

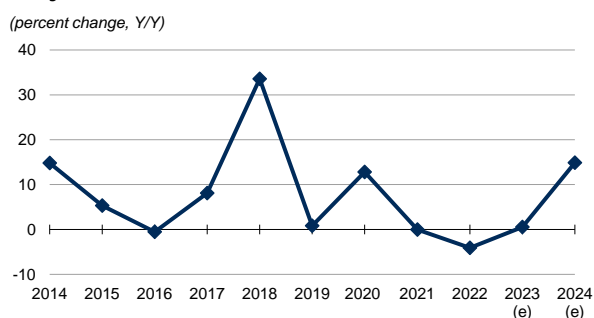


Source: CFRA, S&P Global Market Intelligence.

◆ The industry's net debt to capital ratio has been low in the past several years compared to other industries. In 2022, the custom index maintained an overall negative debt figure for the year at -2.6%, up from -6.4% in 2021. We think a negative net debt to capital ratio (cash exceeds debt) indicates healthy balance sheets, on average, among these companies.

◆ In our view, this provides more downside protection against weakening economic conditions or a recession, as well as an upside in the form of increased financial flexibility for potential acquisitions or other strategic initiatives.

## Adjusted EPS Growth



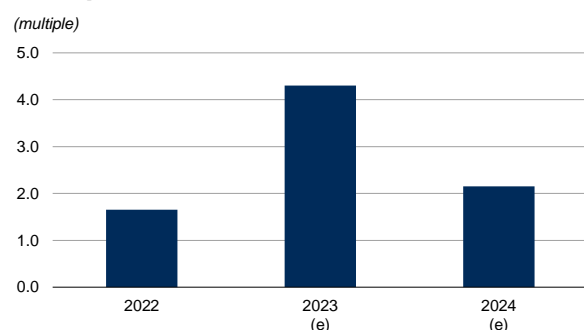
e-Estimate.

Source: CFRA, S&P Global Market Intelligence.

◆ In 2022, adjusted EPS for health care technology companies declined 4.1% from flat growth in 2021, driven by losses for unprofitable companies in the custom index (American Well, Inspire Medical Systems, Tabula Rasa, and Teladoc).

◆ We estimate a 1.1% decline in adjusted EPS growth in 2023, followed by 19.7% growth in 2024 with expected earnings growth by Veradigm and Veeva Systems, as well as several of the unprofitable companies in the custom index moving closer to profitability.

## Enterprise Value-to-Forward Revenue Ratio



e-Estimate.

Source: CFRA, S&P Global Market Intelligence.

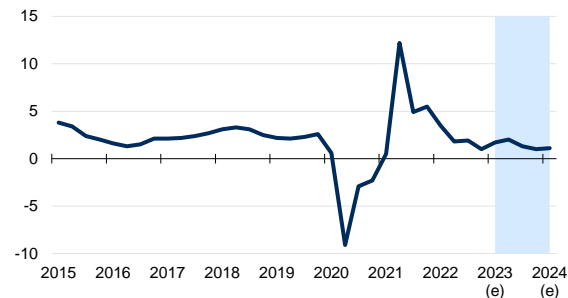
◆ For the companies in the health care technology custom index, we anticipate average enterprise value-to-forward revenue ratio of 4.1x in 2023 and 2.0x in 2024. Several companies are trading below peak valuations in 2020-2021, a period of lower interest rates and better equity market returns compared to the current environment.

◆ We think this could be favorable for potential industry M&A activity, as lower valuations may make companies more attractive as takeover targets.

# KEY INDUSTRY DRIVERS

## U.S Real GDP Growth

(percent change, Y/Y)

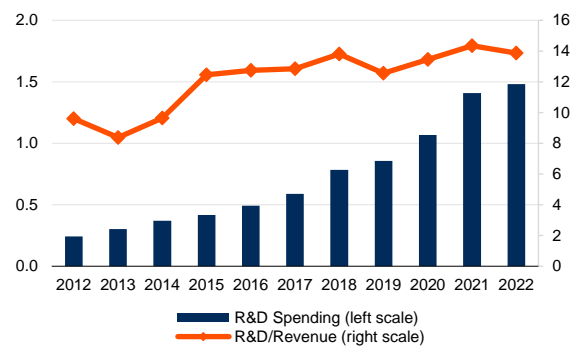


Note: Actual data as of 2022. Forecast by Action Economics in shaded area.  
Source: Bureau of Economic Analysis, Action Economics.

- ◆ Economic uncertainty remains high, and many forecasts expect the U.S. economy to enter a recession in the near term. Recent forecasts from Action Economics indicate modest real GDP growth at 1.0% in 2023, followed by 2.1% growth in 2024.

## R&D Spending

(\$, in billions)



Source: CFRA, S&P Global Market Intelligence.

- ◆ Average industry research & development (R&D) spending as a percentage of revenue increased from 2019-2021 as companies spent more to research and develop new innovative products. We expect final 2022 results to indicate a modest decline in research and development as a percentage of revenue, largely driven by Veradigm (full-year results still unavailable) selling its Hospital and Large Physician segment during the year.
- ◆ Some companies, such as American Well, expect near-term R&D spend to decline as they convert recent improvements to products and sales infrastructure into new customer deals in 2023 and 2024.



# INDUSTRY TRENDS

## Profit Pools

### PROFIT SHARE MAP OF HEALTH CARE SECTOR\*



\*Companies within the S&P Composite 1500 Index for the full year of 2022.

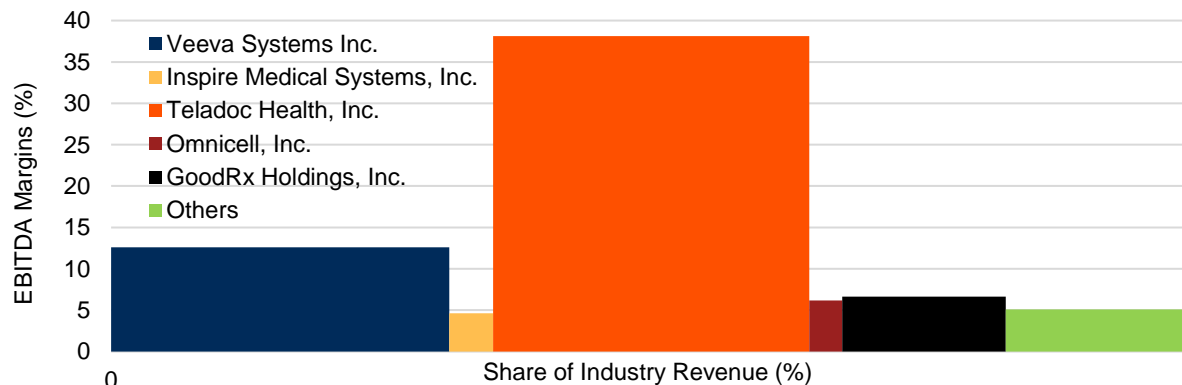
\*\*Custom index based on the list of companies in the Comparative Company Analysis section.

Source: CFRA, S&P Global Market Intelligence.

The Health Care Providers & Services industry is the largest in terms of total revenue in the Health Care sector. Pharmaceuticals is the second largest industry, comprising 12.3% of the entire Health Care sector's revenue. Companies in the Health Care Technology custom index have a 1.7% share of the overall sector revenue. Within the Health Care Technology custom index, Veeva Systems contributed the highest percentage of total revenue (32%) in 2022. Teladoc contributed 28.6%, while GoodRx contributed 14.6%.

In recent years, the Health Care Technology industry's average profit margins have lagged other industries in the sector, apart from Health Care Providers & Services, which tends to make up the largest share of industry revenue but the lowest profit margins. One reason for this, in our view, is the emergence of newer, growth-oriented companies in the Health Care Technology sub-industry, several of which continue to sustain operating losses as they work towards eventual profitability by growing sales and expanding market share. American Well Corporation, Inspire Medical Systems, Tabula Rasa, and Teladoc are expected to post operating losses in the near term.

### PROFIT SHARE MAP OF HEALTH CARE TECHNOLOGY CUSTOM INDEX\*



\*Companies within the S&P Composite 1500 custom index for the full year of 2022.

Source: CFRA, S&P Global Market Intelligence.

## Porter's Five Forces



### Threat of new entrants: High

The Health Care Technology sub-industry has low barriers to entry, as the health care system is rapidly shifting towards digitalization when digital health care reached a peak during the Covid-19 outbreak. Artificial intelligence (AI) and machine learning have been in practice in the Health Care sector for years with ongoing research and tests on the models. On top of that, AI became crucial over the last few years in developing predictive models for Covid-19 cases and to track and estimate the risk of Covid-19 patients developing severe symptoms. The health digital transformation since the pandemic has led to companies becoming more adaptable to evolving technology, which creates more opportunities for new companies to penetrate the market.

### Threat of substitutes: Low

The threat of substitution is low in the Health Care Technology sub-industry because switching costs can be very high for buyers. The technology used in the industry typically comprises a combination of automation solutions including a vast amount of data, coupled with AI and machine learning. For instance, many health care facilities have started adopting EHR systems to increase efficiency in day-to-day operations. The data migration process to a new system can be cumbersome and expensive for customers to switch to another product.

### Bargaining power of buyers: Low

The bargaining power of buyers in the Health Care Technology sub-industry is expected to be relatively low. Lack of awareness about technologies such as Big Data and high costs associated with these technologies are some of the factors responsible for lowering the bargaining power of buyers. Furthermore, switching cost for buyers is expected to be high, which negatively impacts the bargaining power of buyers.

### Bargaining power of suppliers: Unique

The Health Care Technology sub-industry has numerous suppliers nationwide that offer technology solutions software for EHR, which weakens the power of suppliers for this product. However, there may be critical suppliers that provide complex or unique components that are less substitutable such as Simulations Plus, Inc. The company specializes on AI and machine learning for drug discovery and development for mechanistic modeling and simulation, which gives it a competitive advantage and higher bargaining power in the market.

**Degree of rivalry: High**

Intense rivalry often exists among competitors in the Health Care Technology sub-industry because companies that make the most efficient product stand to capture the most market share. The digital transformation in health care was elevated to a new level as the industry had to rapidly roll out digital technologies such as telehealth to cope with the pandemic restrictions. Since then, the health care system relies heavily on technology, which supports high demand in the industry. As the health care system continues to adopt virtual care, companies are aggressively competing to capture market share and meet customer demands through new and improved products.

**Competitive Environment**

As the industry seeks to replace outdated platforms, improve capabilities, and reduce costs, competition within the Health Care Technology sub-industry continues to increase, which we think ultimately benefits customers and advances the state of the health care market. The market capitalization for the S&P 1500 Health Care Technology custom index stands at \$48.3 billion with aggregate industry revenue of \$58.4 billion as of February 28, 2023.

As a percentage of industry revenues, research and development spending dramatically increased over the past decade, indicative of intense competition and quickly evolving technology within the industry, in our view. In recent years, several large retail and big tech companies, which have established infrastructure and brand loyalty, have also entered the health care scene.

Alphabet is focusing to drive the industrywide push for predictive analytics, precision medicine, and interoperability by taking advantage on its expertise in AI and data storage. The company also has the ambition to improve consumer health and to taper health care costs. Several top health care solutions and platforms that Google offers include Google Fit, DeepMind, Verily, Calico, and FitBit. On top of that, it is also utilizing its cloud platform and search capabilities to improve the safety and functionality of electronic health records (EHRs). Oracle recently moved into the health care technology space with its acquisition of EHR-provider Cerner. Through its “Health” app and Watch device, Apple is competing to integrate its technology into existing health care platforms and promote the storage and sharing of key health data. Some of the top health care solutions and platforms offered are Apple Watch, Health Records, and Genetic Testing.

Another rival in the health care market, Microsoft is adopting a different strategy by concentrating on its data analytics expertise through its cloud platform, Azure, instead of entering the consumer-facing realm. Azure is a useful tool to assist in optimizing data storage as well as providing the facility for providers and payers to target specific pockets of populations for greater health outcomes. On May 24, 2022, the company unveiled its partnership with AI data security company BeeKeeperAI to enhance Azure and to streamline the complex AI research process in the health care industry.

While regulation is a barrier to entry in several parts of the Health Care Technology market, many regulations have been lifted or reduced during the Covid-19 pandemic, giving more exposure to smaller players and moving the industry towards a more inclusive and competitive environment.

# Operating Environment

## Technology Adoption: The Future Trend of Health Care

As the world continues to depend on a solid health care system, health care industry leaders have recognized their responsibility to progressively refine the quality of health care delivery. However, health care providers worldwide have encountered several challenges to sustain in the industry, factored by labor shortages, heavy workloads, and economic pressures. CFRA further illustrates some health care technology trends below that we view would help to relieve the predicament and alleviate the overall quality of the health care system in the future.

## Utilizing Workflow Automation and AI to Tackle Labor Shortages

Workforce shortages and burnout have been health care leaders' predominant concerns of potentially disrupting the health care system in the long run. According to the World Economic Forum, there is a likelihood of global shortfall of 13 million nurses by 2030, attributed by the exhaustion from the brunt of the pandemic causing millions of health care workers to leave the workforce. Furthermore, health care professionals are now battling to pick up the backlog of routine treatments that had been set aside during the pandemic.

Considering these workforce obstacles, we foresee health care providers to leverage on automation, supported by AI, to improve efficiencies and elevate staff capabilities. For example, AI would come in handy in increasing productivity in radiology departments by enabling faster scan times with higher resolution in imaging modalities such as magnetic resonance (MR). In addition, AI will also be able to improve productivity and lessen intra-user variability in ultrasound use by minimizing health care professionals' tedious manual work with the help of automatic measurements. We also view automation becoming a rising trend that could help to reduce the burden of repetitive administrative tasks for physicians, nurses, and technologists, and contribute to more time on patient interactions.

## Health Care Continues to Migrate to the Cloud

The cloud is another technological enabler that is crucial in establishing connected and integrated IT infrastructures in the health care system. To achieve a stable IT framework, it is essential for such infrastructures to be highly secure and highly scalable that would assist health care providers to fulfill fluctuating demand without having to fret about data security. In recent years, cloud adoption in health care has rapidly grown worldwide and we anticipate its proliferation, coupled with software-as-a-service (SaaS) solutions delivery, to continue going forward.

For instance, cloud-based SaaS solutions would be beneficial in cancer care in generating a unified and longitudinal patient view via data extraction from various hospital systems for collaborative decision-making. Moreover, health-care-compliant cloud platforms can also offer a flexible foundation for rapid development and testing of new digital applications. This would help to speed up the process for cross-functional teams to test digital applications into the hand of physicians and patients more quickly, and subsequently able to include new or improved features as they gather users' feedback more promptly.

## Empowering Technology Adoption Through Remote Operations

Another approach of promoting technology adoption among health care workers is by utilizing remote operations through virtual collaboration. This method has been a growing trend since the pandemic, and we predict it will continue to advance moving forward. This adoption can also help to boost the usage of technology among health care workers, enabling them to obtain remote guidance from more experienced colleagues using virtual collaboration.

Besides, virtual collaboration can be useful in other medical practice areas such as radiology and acute care. For example, remote collaboration can help connect experienced imaging experts in radiology operations command centers with technologists at peripheral scan locations. Other than that, remote

collaboration is also valuable for hospitals in acute care via Tele-ICU program, allowing an intensivist-led team in a central facility to surveil up to 500 remote ICU beds. This technology can help the team to provide support to the care teams on-site using a combination of audio-visual technology, predictive analysis, and data visualization in assuring patients obtain specific attention when needed.

### **Coherent Patient Monitoring from Hospital to Home**

According to Philips' 2022 Future Health Index report, extending care delivery beyond the hospital has become health care leaders' top priority, after staff satisfaction and retention. The further adoption of cloud-based digital solutions in health care will help to achieve this objective by building a more distributed health care system foundation that links the hospital to the home and the community.

Within the hospital, clinical surveillance technologies provide the convenience of producing timely insights on patients' status as well as generating actionable insights according to live-streaming data. These data would be helpful for caregivers to be proactive in reacting and addressing in case of any adverse events or potentially life-threatening events occurring among patients in the hospital.

Remote patient monitoring grew significantly during the pandemic and its trend is anticipated to continue to stay and help to connect the hospital to the home. For instance, this technology can be useful for health care professionals to track the health of stroke patients, where these patients are provided with wearable patches for early detection of heart rhythm irregularities to avoid stroke recurrence. These patches are also becoming more unobtrusive nowadays, permitting patients to maintain an active lifestyle while the care teams monitor their health remotely. On top of that, cloud-based AI also has the ability to spot early signs of any heart rhythm interferences based on more than 20 million electrocardiogram (ECG) recordings, allowing the care teams to take preventive measures whenever required.

### **Telehealth: An Emerging Trend Since the Pandemic**

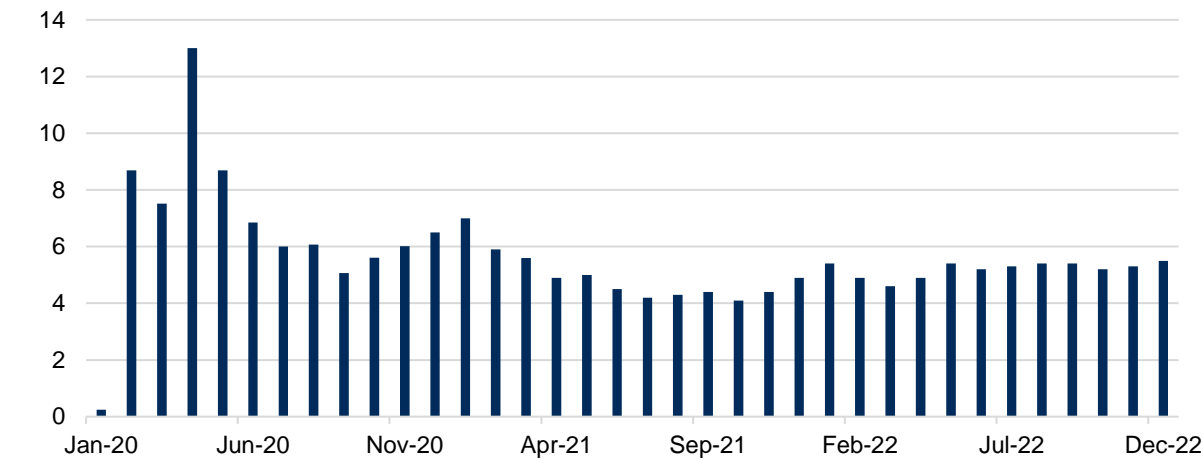
Under the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), health care providers are not reimbursed on a fee-for-service basis; rather, companies are paid based on the quality and effectiveness of care, *i.e.*, value-based care. The ongoing shift from fee-for-service to value-based compensation will likely provide opportunities for innovative health care technology firms, in our view. Medicare insurance reimbursement already incorporates quality-based guidance EHR systems that reward interoperability, a term for the ease of accessing and sharing health care data between doctors, hospitals, and other health care entities. As health care technology and EHR companies make medical data accessible across a variety of medical devices and systems, as well as enable real-time health information from multiple sources like test results and drug prescriptions, we think health care providers could ultimately make faster, more informed, and higher-quality decisions. Over time, these developments can also lower the overall cost of providing care. We believe that the U.S. health system is still in the early stages of shifting to value-based care, which will likely be a theme of growing importance in health care over time.

The Department of Health and Human Services (HHS) has provided flexibility to HIPAA-covered (Health Insurance Portability and Accountability Act) health care during the pandemic. HIPAA-covered health care providers may seek to communicate with patients and provide telehealth services through remote communications technologies. The Centers for Medicare & Medicaid Services (CMS) has also issued temporary measures to make it easier for people enrolled in Medicare, Medicaid, and the Children's Health Insurance Program (CHIP) to receive medical care through telehealth services during the Covid-19 public health emergency.

With widespread closures of doctor's offices and a secular shift towards working from home, the pandemic dramatically increased the demand for certain segments of the Health Care Technology sub-industry, particularly telehealth. However, as the pandemic's severity declined, the industry observed weaker demand for telehealth from its peak over the past two years. According to Trilliant Health's "2022

Trends Shaping the Health Economy” report released in October 2022 (latest available), demand for telehealth continues to track below the pandemic peak with a decline of 37% (46.4 million visits) in the first quarter of 2022 compared to its peak in the second quarter of 2020 (73.7 million visits). Recent data from FAIR Health, a nonprofit health care information provider, indicates that telehealth comprised 5.5% of medical claim lines in December 2022 (latest available). The data suggests that telehealth, as a percentage of medical claims, remained within a range of 4% to 6% of claims for most of 2021 and 2022. In our view, the decline in telehealth utilization, relative to earlier in the pandemic, was likely due to the continued reduction of the reported number and severity of Covid-19 infections, which may have led more patients to return to in-person health care services.

**TELEHEALTH MEDICAL CLAIM LINES\***  
(in percent)

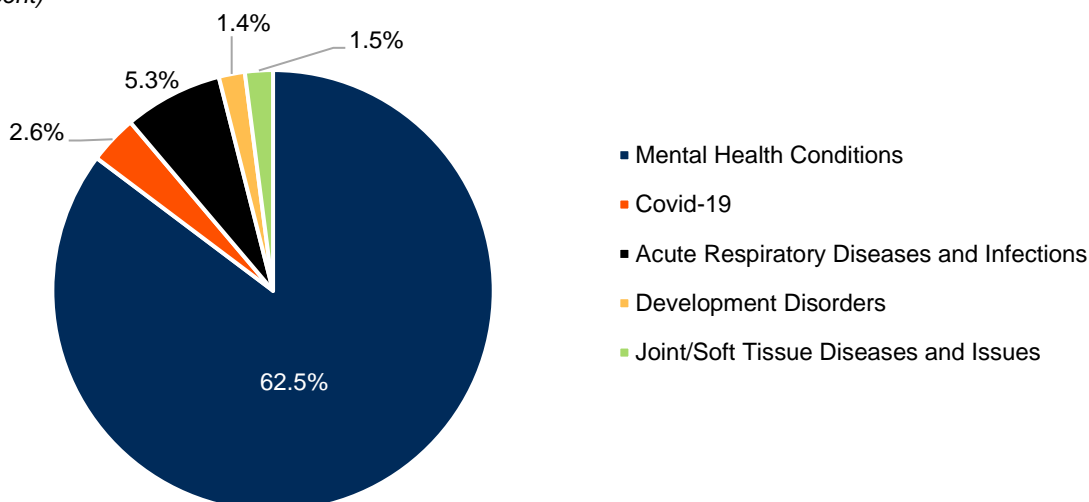


\*Latest available data.  
Source: FAIR Health.

Looking ahead, we think telehealth offers several positives for the Health Care sector. For example, telehealth helps to promote health care cost efficiency, as an in-person appointment with a doctor is typically more expensive compared to an online appointment. In addition, telehealth also increases patients’ flexibility by offering virtual appointment options. Telehealth technologies can also promote the sharing of data across the health care system and expedite the response to medical emergencies and urgent care needs. Furthermore, the CDC has emphasized the use of telehealth in helping to boost the health of rural residents. Convenience helps to reduce barriers for people who live far from health care services and specialists, as well as those with time or access restrictions and those who experience transportation or mobility issues. The CDC is also supporting telehealth projects to provide better access to rural residents for chronic disease prevention and management and specialist care. This includes services for stroke care and cardiac rehabilitation, diabetes management and Type 2 diabetes prevention, vision care for people with diabetes, tobacco cessation, and epilepsy management.

In addition, telehealth has also provided a substantial contribution in addressing multiple diagnoses among patients since the pandemic. According to FAIR Health, mental health conditions accounted for more than 62.5% of total telehealth utilization in December 2022 (latest available). One could argue that telehealth, with its convenience, privacy, and ability to take place across multiple platforms (*i.e.*, phone, video, chat), caters well to mental health treatment and may benefit from broader mental health initiatives in society.

**PERCENTAGE OF TOTAL TELEHEALTH SERVICES BY DIAGNOSIS\***  
(in percent)



\*Data as of December 2022.  
Source: FAIR Health.

Economically, questions remain as to whether telehealth has managed to provide savings to the health care industry. A 2017 study conducted by HealthAffairs revealed that telehealth visits cost patients an average of \$79 as opposed to \$146 for an office visit, with much of the savings attributed to cutting out costs of time and travel. However, the study also found evidence of increased costs due to higher utilization of health care. In other words, more patients using telehealth induced higher overall costs of care. For example, increased patient volumes imply occasionally higher acuity (more sick) cases, new testing and/or imaging, and higher usage of time by physicians and nurses.

Another potential source of savings is for chronic care management (CCM) for the Medicare beneficiary population, where telehealth would be convenient for patients who need quick but frequent check-ins with their doctors. The many forms of virtual care such as phone calls, video appointments, or remote patient monitoring could act as a replacement for more costly office visits. This convenience can help to tremendously lessen health care costs for this patient population.

On the other hand, there is also evidence that shows the convenience of telehealth could lead to higher costs rather than savings. Research discloses that telehealth services could encounter challenges including telehealth fraud, waste, and abuse, which might lead to higher costs. An example of direct telehealth fraud is upcoding phone call check-ins to full telehealth appointments as well as the risk of billing of services not rendered. The largest source of wasted costs related to telehealth could be the time and effort spent on assuring payment integrity, whether the payments are made correctly and by the right party.

## Regulatory Environment

### HIPAA

Originally passed in 1996, the Health Insurance Portability and Accountability Act (HIPAA) sets federal standards for safeguarding patient information and ensuring a level of privacy across the health care industry. HIPAA evolves over time as technological development and the rise of cybercrime puts patient data privacy at risk.



## **HITECH**

In response to the global financial crisis, Congress passed an economic stimulus package in 2009, called the American Recovery and Reinvestment Act (ARRA). Within ARRA was the HITECH (Health Information Technology for Economic and Clinical Health) Act, which provided financial incentives between 2011 and 2015 to spur the adoption of health care information technology (HCIT), including the implementation of EHRs. These incentives appear to have spurred significant adoption of EHR within the industry. According to the Office of the National Coordinator for Health Information Technology (ONC), the percent of non-federal acute care hospitals that had adopted at least the basic EHR with notes system grew from 12.2% in 2009 to 83.8% in 2015. Today, the CMS continues to direct government insurance reimbursement among health care providers for the use of “certified electronic health record technology” (CEHRT), with payments potentially lowered if providers do not meet the minimum criteria. HITECH also spurred greater enforcement of HIPAA by raising the financial penalties for HIPAA violations.

## **MACRA**

In 2015, the U.S. government introduced new legislation known as the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA). According to the American Academy of Family Physicians (AAFP), MACRA changed the Medicare reimbursement methodology for physicians and introduced two different quality-based payment systems: the Merit-Based Incentive Payment System (MIPS) and the Advanced Alternative Payment Model (AAPM). MIPS guidelines specifically incorporate the advancement of “interoperability,” which draws on the previous CEHRT guidance from MACRA.

## **CURES Act**

2016 saw the passage of the 21st Century Cures Act (CURES Act). Among other initiatives, the legislation built on HITECH and MACRA by promoting interoperability and working against the inappropriate blocking of electronic health care data and records. Over the past few years, the ONC expanded on the CURES Act by publishing guidance known as Final Rules, such as provisions for health information to be easily accessible in apps with open APIs (application programming interfaces). In addition, companies like Epic and NextGen Healthcare have recently signaled their intent to become qualified health information networks (QHIN), which promote clinical data sharing across the industry.

## **Evolving Regulation in Response to Covid-19**

The government played a vital role in addressing the Covid-19 pandemic when it announced the declaration of the public health emergency (PHE) on January 27, 2020. Over time, state legislators and federal agencies have increasingly evaluated medical technology regulation and introduced new laws in response to Covid-19. The pandemic has highlighted gaps in health care standards and outdated practices, while also accelerating the trend towards making health care technology more available in a regulatory fashion. This is especially evident in the telemedicine industry, where it has long been difficult for doctors to apply for the ability to provide services out of state medical services. According to the U.S. Department of Health and Human Services (HHS), traditional HIPAA restrictions have been relaxed during the PHE, allowing health care providers to utilize technologies like Zoom, Skype, WhatsApp, FaceTime, and Facebook Messenger. In addition, CMS agreed to allow Medicare and Medicaid reimbursement for telehealth doctors’ visits in place of in-person contacts, while also expanding the number of medical services allowed through telehealth and permitting these appointments to cross state lines, subject to state-by-state rules.

As of February 27, 2023, 21 U.S. states have adopted long-term or permanent provisions allowing the practice of telemedicine across state lines, while 4 states have waivers in place that allow interstate telemedicine, according to the Federation of State Medical Boards. The Biden administration currently intends to end the PHE on May 11, 2023, bringing changes to the regulatory status quo in telehealth. According to Kaiser Family Foundation (KFF), several states set their temporary license waivers for interstate telemedicine to end at the conclusion of the PHE. For example, the scope of technologies



providers can use for telehealth treatment will narrow to just “HIPAA compliant” mediums, as opposed to a broader array of allowable methods during the PHE. However, under the Consolidated Appropriations Act of 2023, relaxed telehealth regulations will remain intact for Medicare beneficiaries through December 31, 2024. For Medicaid beneficiaries, states have the authority to reimburse telehealth regardless of federal policy, according to KFF. KFF also reports that several states have recently expanded their efforts to support telehealth services for Medicaid beneficiaries. Another notable change is that following the PHE, prescriptions for controlled substances must be based on in-person medical evaluations, rather than through telehealth mediums. The government has also provided an overview on the major health-related Covid-19 federal emergency declarations that have been formed, and summarized the flexibilities triggered by some areas particularly on telehealth as per the table below:

<b>TELEHEALTH</b>	
DESCRIPTION	EXPIRATION
<b>MEDICARE</b>	
<p>Among the major changes to Medicare coverage of telehealth during the PHE:</p> <ul style="list-style-type: none"> <li>• Medicare beneficiaries in any geographic area can receive telehealth services, rather than beneficiaries living in rural areas only.</li> <li>• Beneficiaries can remain in their homes for telehealth visits reimbursed by Medicare, rather than needing to travel to a health care facility.</li> <li>• Telehealth visits can be delivered via smartphone in lieu of equipment with both audio and video capability.</li> <li>• An expanded list of Medicare-covered services can be provided via telehealth.</li> </ul> <p>Federally qualified health centers and rural health clinics can provide telehealth services to Medicare beneficiaries (<i>i.e.</i>, can be distant site providers), rather than limited to being an originating site provider for telehealth (<i>i.e.</i>, where the beneficiary is located).</p>	<p>The Consolidated Appropriations Act 2023 extended these flexibilities through December 31, 2024, regardless of the status of the PHE; previously these flexibilities were set to expire after 151 days after the end of the PHE.</p> <p>The Consolidated Appropriations Act 2023 extended these flexibilities through December 31, 2024, regardless of the status of the PHE; previously these flexibilities were set to expire after 151 days after the end of the PHE.</p>
<b>MEDICAID AND CHIP</b>	
All 50 states and DC expanded coverage and/or access to telehealth services in Medicaid. States have broad authority to cover telehealth in Medicaid and CHIP without federal approval, including flexibilities for allowable populations, services and payment rates, providers, technology, and managed care requirements.	Various; may be tied to federal and/or state public health emergencies. Most states have made, or plan to make, some Medicaid telehealth flexibilities permanent.
<b>CROSSPAYER</b>	
<p>All states and D.C. temporarily waived some aspects of state licensure requirements, so that providers with equivalent licenses in other states could practice via telehealth.</p> <p>HHS waived potential penalties for HIPAA violations against health care providers that serve patients in good faith through everyday communications technologies during the Covid-19 nationwide PHE, which allows for widely accessible services like FaceTime or Skype to be used for telemedicine purposes, even if the service is not related to Covid-19.</p> <p>DEA-registered providers can use telemedicine to issue prescriptions for controlled substances to patients without an in-person evaluation, if they meet certain conditions.</p>	<p>Various; in some states; these waivers are still active and tied to the end of PHE, in others they have expired. Some states have made allowances for long-term or permanent interstate telemedicine.</p> <p>End of the PHE.</p> <p>End of the PHE, unless DEA specifies an earlier date.</p>
Source: Kaiser Family Foundation.	

## M&A Environment

According to Rock Health, digital health raised \$15.3 billion in funding across 572 deals in 2022, down from \$29.3 billion raised in 2021. 2022 was a downhill ride for digital health as the industry had to brace the impact of inflationary pressures and interest rate hikes.

We think the pandemic gave health care tech companies an opportunity to showcase the utility of digital solutions in a challenging health care environment. Initial public offering (IPO) activity in the industry had been strong before recent equity market volatility and rising interest rates slowed IPO volumes across the market during 2022. In 2020, we saw the IPOs of American Well, a competitor in the telehealth space, as well as GoodRx, which offers technology geared towards the prescription drug market, and One Medical, a membership-based health care company offering in-person and telehealth care options. One Medical recently gained notoriety with Amazon's \$3.9 billion acquisition of the company.

The Health Care Technology sub-industry also continues to experience consolidation, with several transactions aiming to add complementary products, expand into new markets, or tap into more robust data and analytical capabilities. In October 2019, Veeva Systems acquired Crossix, a health care data and analytics company. In October 2020, Teladoc completed an \$18.5 billion merger with Livongo, which provides services for the management of diabetes and other chronic conditions. In February 2022, EHR-provider athenahealth was acquired by private equity firms Bain Capital and Hellman & Friedman for \$17.0 billion.

Several large technology players have also made recent entries into the health care technology scene. In May 2022, Veradigm (previously known as Allscripts Healthcare Solutions) closed the sale of its Hospitals & Large Physician Practices segment to Harris Health, a subsidiary of Canada-based Constellation Software. In June 2022, software giant Oracle completed an acquisition of EHR-provider Cerner for approximately \$28 billion. Amazon also made recent headlines with reported interest in acquiring Signify Health, a company providing technologies for the in-home health care market, though the company was outbid by CVS Health's roughly \$8 billion acquisition price.

# HOW THE INDUSTRY OPERATES

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## Electronic Medical Records (EMRs)

Electronic medical records or EMRs are digital versions that are equivalent to the old-fashioned paper medical records. The system was developed to adapt to the rapid shift towards digitalization in the landscape of health services. As the amount of paper records continued to grow, many organizations had to occupy rooms and storage facilities for the sake of storing files. The process of performing physical documentations can also be time consuming and can heighten the probability of inaccuracies in record keeping.

The EMR system was developed in an effort to lessen the setbacks of paper medical records. The system helps to minimize the risk of misplacement, theft, damage, or tampering of sensitive data. In addition, the system's efficiency can also reduce physicians' time for record keeping and allow them to focus on patient interactions. It also helps to maintain current and accurate data of patients' information and eradicate errors caused by handwriting and legibility issues. EMRs also promote effective data tracking by allowing doctors and physicians to track data of individual patients associated with their practice. For instance, the system provides the tool for doctors to identify which patients are due for preventive screenings, vaccinations, or checkups. This ultimately eases doctors and physicians' day-to-day operations of improving their patients' care with effective data tracking as well as reminders for patient screenings and checkups.

EMR is a convenient tool for tracking patients' quality of care. However, it does not easily allow transfer of information to other health care organizations.

## Electronic Health Records (EHRs)

Electronic health records systems or EHRs were developed not long after the development of EMRs with the objective to create improvements from the existing system. EHRs serve many of the similar purposes of EMRs of collecting and storing patient health data in digital form but with stronger focus on individual patients. The EHR system is also designed to boost interoperability for patient information transfer between health care facilities. This allows hospitals to effectively update records and pull information in an accessible manner. Roughly 96% of hospitals have adopted EHRs as of 2021 (latest available). Doctors are also able to save time using the EHR system, which helps to simplify their logistical day-to-day tasks such as billing, scheduling, and patient test results.

The Michigan Center for Effective IT Adoption estimates that in-office EHR systems cost \$33,000 for initial implementation, followed by \$4,000 per year for maintenance, for a total five-year cost of \$48,000. For web-based software-as-a-service (SaaS) EHR systems, they estimate a lower upfront cost (\$26,000), followed by higher annual network and subscription fees (\$8,000), for a total five-year cost of \$58,000. Despite these costs, hospitals can rapidly increase their efficiency and receive incentives for using these systems.

North America has been dominant in the EHR market, and is forecasted to grow at an 8.2% CAGR from 2023 to 2033, according to Future Market Insights. The largest vendors by U.S. market share of the EHR market as of June 2022 (latest available) include Epic (36.9%), Cerner (22.6%), Meditech (14.1%), and CPSI (7.8%), according to Definitiv Healthcare. These companies compete to provide the best all-around platform to hospitals and organizations while also protecting sensitive data.

## Interoperability

By far one of the greatest advantages to digitizing health records is the ability for patient information to be transferred in the case of switching providers. The EHR offers the convenience for different hospitals to add on to data already collected, as opposed to reconstructing patient profiles, proving a significant improvement from EMRs. Doctors can quickly receive a complete history of previous tests and analyze a patient's profile to better judge diagnosis and treatments. Care center administrative costs can additionally be reduced by a considerable amount, avoiding the physical exchange of data through laborious tasks. Physicians and staff can therefore improve their quality of care as well as increase patient engagements.

The Office of the National Coordinator for Health IT (ONC) is responsible for interoperability oversight. From 2014 to 2015, the ONC revised its interoperability roadmap, with the result being a 10-year plan that sets standards, as well as goals for specific years within the timeframe.

## Data Analytics

Data analytics in the health care industry involves gathering and analyzing aggregate data to draw insights and thematic conclusions. While this information can be analyzed among large patient groups or populations, it can also be used to analyze individual patients' conditions as well as practitioners' performance. According to IBM, the pandemic has accelerated many health care institutions to transition from a fee-for-service (rewards health care providers for volume of care) to value-based care. In doing so, providers are adopting analytic technology to improve their ability to deliver health risk assessments. One of the largest segments of data analytics by market share is descriptive analytics. Descriptive analytics propels market growth of organizations through summarizing past events and occurrences relating to the business model. For example, descriptive analytics can provide data on how many new patients are using telehealth, or how many patients are hospitalized in a given time period. Furthermore, machine learning techniques are integrated into programs to develop the most accurate results. It is used by hospitals to provide health insights such as risk scoring or early signs of deterioration. It can also be used to ensure financial stability in the case of supply chain management, fraud, and efficiency. Two other areas of data analytics are diagnostic and prescriptive analytics. Diagnostic analytics helps doctors to further understand the reasons that patients experience certain conditions. In comparison, prescriptive analytics allows doctors to further understand what decisions and actions are needed to be taken to make specific recommendations in care intervention.

The global health care analytics industry was valued at \$35.3 billion in 2022 and is forecasted to grow at a CAGR of 21.4% from 2023 to 2030, according to Grand View Research. Big Data in health care has the ability to yield key insights, although the volume of sensitive information at hand is a challenge.

## The Role of the Government

Because the U.S. federal government is responsible for financing health care services for elderly and poor citizens through Medicare and Medicaid, the federal government is a major force in shaping a health care system.

U.S. health care spending is projected to grow at an average rate of 9.9% from 2019 to 2030, according to CMS. National health spending was estimated to have grown 2.7% in 2021, unchanged from 2.7% growth in 2020. The national health care expenditure of GDP accounted for 18.3% of GDP in 2021 (latest available), compared to 19.7% 2020. The largest shares of total health spending in 2021 were sponsored by the federal government (34%) and households (27%).

# PERSONAL HEALTH CARE EXPENDITURES

(in \$, billions)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Hospital care	1,123	1,194	1,270	1,342	1,435	1,516	1,601	1,696	1,792	1,890	2,002	2,114	2,210
Professional services	979	1,022	1,069	1,144	1,201	1,272	1,347	1,424	1,503	1,582	1,664	1,751	1,827
Physician and clinical services	737	768	810	850	903	959	1,016	1,077	1,140	1,202	1,268	1,337	1,398
Other professional services	105	111	117	128	132	140	149	157	165	174	183	192	200
Dental services	138	143	142	166	166	173	182	191	199	206	214	222	230
Home health care	191	196	209	220	232	244	257	271	285	300	316	334	352
Nursing and continuing care facilities	106	113	124	122	129	139	149	160	172	184	198	213	226
Retail outlet sales	168	174	197	182	188	198	208	218	228	239	250	262	273
Prescription drugs	456	476	489	510	535	560	589	619	650	683	718	754	792
Medical products	324	338	348	365	380	398	419	440	462	486	511	539	567
Durable medical equipment	132	138	141	146	155	162	170	179	188	197	206	216	225
Non-durable medical products	54	57	55	57	60	63	66	70	73	77	81	84	88
Other personal health care	78	81	86	89	95	100	104	110	115	120	126	131	137
Total Expenditures	46	47	48	53	56	59	61	65	68	72	76	81	85

Source: Centers for Medicare and Medicaid Services.

# HOW TO ANALYZE A COMPANY IN THIS INDUSTRY

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When evaluating a company in the Health Care Technology sub-industry, it is important to consider the company's fundamental strengths and weaknesses, its business strategy, its competitive advantages, and the broad industry-level forces at play. Key variables influencing a company's financial health and future prospects vary significantly from sub-industry to sub-industry.

## Researching the Business

A thorough examination of the company's products and markets is the first step in the analysis. Below are a few important questions to consider regarding a health care technology company's product portfolio and strategy:

**What are the company's principal products?** Most companies in the Health Care Technology sub-industry offer electronic health record (EHR) systems while some companies specialize in niche products such as drug discovery and development software, neurostimulation technology, telemedicine equipment, cloud-based software, platform for drug prices comparison, and virtual health care services. Proprietary items, especially in high-tech devices and software, have high margins when they are introduced, considering that competition is relatively thin or, in some instances, nonexistent. Analysts and investors often focus heavily on key growth driving products for companies.

Margins are typically lower on commodity-like products that have been in the market for a long time – although cash flow from these products often supports R&D efforts. Investors and analysts generally do not assign as much value to this important revenue stream as they should because cash flow from these product lines, while important to the aims of the organization, is not seen as a growth area. However, these revenue streams tend to have a high level of consistency and help to fund working capital requirements.

**What are the growth dynamics of core business lines?** For companies participating in the Health Care Technology sub-industry, revenue growth is influenced by several factors, including rapid digitalization of the health care industry largely factored by the Covid-19 pandemic and rising adoption of advanced health care IT solutions and services.

**What are the company's primary competitive advantages?** For most companies in the Health Care Technology sub-industry, size has become one of the key factors driving both revenue growth and operating margin expansion. The demand for EHR systems is rapidly increasing in parallel with rising number of hospitals worldwide. Therefore, competition in the EHR business is intense, which threatens those who fail to innovate and incentivizes those who are successful to create competitive advantages or tap into less saturated markets.

## Financial Analysis

A number of items on the income statement and balance sheet are important in the analysis of a company in the Health Care Technology sub-industry. Given the diversity in terms of geography, sources of revenue, scope of operations, and methods of growth, these items must be evaluated on a company-by-company basis.

**Revenues.** Examine the company's recent and historical revenue growth. Has its revenue growth trend been consistent or volatile? It is important to identify the factors driving revenue expansion. Are revenues rising on sales volume growth from operations, or from one-time boosts related to acquisitions? If revenue growth is being driven by acquisitions, will the acquisitions enable cost reductions, and if so, will they

justify the purchase price of the acquired company? Is the company gaining market share or just hiking prices? If so, how sustainable are these price increases?

**EBITDA Margin.** A profitability ratio that measures how much in earnings a company is generating before interest, taxes, depreciation, and amortization, as a percentage of revenue. This metric is useful to gauge a company's financial health and operational profitability before accounting for extraneous costs of depreciation and amortization, taxation, and interest on debts.

**Adjusted Earnings per Share (EPS).** Among the most important financial metrics for investors in the Health Care Technology sub-industry, EPS performance is widely monitored because it combines several important factors including a company's ability to increase revenues, control operating expenses, and manage capitalization, as interest expense on debt and equity share count also factor into EPS. "Adjusted" refers to management's discretionary removal of certain non-operating items from the earnings calculation. These often include one-time legal expenses or non-cash amortization expenses resulting from acquisitions.



**Watch Out!** Costs for bad debts, sales returns, warranties, obsolete inventory, and other provisions are estimated by management and recorded as either expenses or offsets to revenue (depending upon the provision). Management has discretion in calculating these estimates, and therefore has the ability to manipulate earnings, and sometimes revenues. Specifically, by under-provisioning or reversing previous provisions, management can generate artificial, and therefore unsustainable earnings.

**R&D Spending.** R&D is one of the critical aspects of operations in the Health Care Technology sub-industry. These costs fund developer and researcher salaries and lab equipment needed to fuel technological innovation. Without maintaining a steady or growing R&D margin, a company in this industry can see its products become obsolete in only a few years. When comparing companies, investors may look at ratios such as R&D as a percentage of sales or R&D expenditures per employee.

## The Impact of Acquisitions

It is important to know whether sales and earnings growth is acquisition-driven or internally (organically) driven. Internal growth shows that a company can effectively manage and innovate within its existing geographic territory and facilities. If growth is acquisition-driven, it is important to examine relevant statistics on a "same-store" basis. Growth generated via acquisitions often masks underlying performance trends in revenue growth and margins.



**Watch Out!** A company can manipulate earnings by using the adjustment to fair market value of a target company's assets and liabilities in an acquisition to understate assets and overstate liabilities, thereby allocating a greater portion of the purchase price to goodwill.

## Behind the Balance Sheet

### Balance Sheet Integrity

While the income statement shows financials over periods of time, the balance sheet is a snapshot of a company's financial position at a specific moment. This picture can be useful in determining the stability and soundness of a firm.

**Net Debt-to-Capitalization Ratio.** This is the ratio of a company's total net debt to its total capitalization. Net debt can typically be calculated by deducting total debt (short-term debt plus long-term debt) with cash and cash equivalents. Many analysts tend to use the ratio of long-term debt-to-total capital. Companies with a lower net debt-to-capitalization ratio typically have more financial flexibility as they can usually borrow at lower rates and they are usually less burdened by existing interest and principal payments.



**Watch Out!** *Some companies engage in supplier financing arrangements (aka reverse factoring). There are several variations of these programs, but basically, a company arranges for a financial institution to pay its suppliers and the company repays the financial institution later. This effectively lengthens the supplier payment terms and thus improves working capital, which can result in overstated cash flows and understated leverage ratios.*

**Enterprise Value-to-Forward Revenue Ratio.** This is the ratio of a company's enterprise value to its estimated revenue of its next period's earnings. Enterprise value is calculated by adding market value of equity (market capitalization) with net debt (total debt less cash). This ratio is useful to determine a company's valuation within the context of a possible acquisition.



# GLOSSARY

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**21<sup>st</sup> Century Cures Act**—Signed into law on December 13, 2016, and is designed to help accelerate medical product development and bring new innovations and advances to patients who need them faster and more efficiently.

**Electrocardiogram (ECG)**—An electrocardiogram records the electrical signals in the heart that is a common and painless test used to quickly detect heart problems and monitor the heart's health.

**Electronic health records (EHR)**—A systematized collection of patient and population electronically stored health information in a digital format and can be shared across different health care settings.

**Electronic medical records (EMR)**—A digital system that is equivalent to the old-fashioned paper medical records.

**Health care information technology (HCIT)**—HCIT solutions target every element of the health care value chain with many applications ranging from workflow optimization and revenue management to care delivery and patient engagement.

**Health Information Technology for Economic and Clinical Health Act**—Enacted as part of the American Recovery and Reinvestment Act of 2009, this was signed into law on February 17, 2009, to promote the adoption and meaningful use of health information technology.

**Health Insurance Portability and Accountability Act (HIPAA)**—A federal law that required the creation of national standards to protect sensitive patient health information from being disclosed without the patient's consent or knowledge.

**Medicare Access and CHIP Reauthorization Act of 2015 (MACRA)**—A bipartisan legislation signed into law on April 16, 2015, which provides a new framework for reimbursing clinicians who successfully demonstrate value over volume in patient care.

**Magnetic resonance (MR) imaging**—A powerful imaging modality that combines excellent soft-tissue contrast and spatial resolution.

**Public health emergency (PHE)**—An emergency need for health care (medical) services to respond to a disaster, significant outbreak of an infectious disease, bioterrorist attack, or other significant or catastrophic events.

**Software-as-a-service (SaaS) delivery**—A method of providing hosted software applications to clients in a cloud computing environment.

**Telehealth**—Providing health care remotely by means of telecommunications technology.

# INDUSTRY REFERENCES

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## PERIODICALS

### American Academy of Family Physicians

[aafp.org](http://aafp.org)

A professional association that promotes and maintains high-quality standards for family medicine, an offshoot of the classical general practitioner.

### Fierce Healthcare

[fiercehealthcare.com](http://fiercehealthcare.com)

Provides critical business news to executives across the industry, including providers, and technology innovators.

### Health Affairs

[healthaffairs.org](http://healthaffairs.org)

A monthly peer-review health care journal.

### Healthcare Finance News

[healthcarefinancenews.com](http://healthcarefinancenews.com)

Industry's business newspaper, offering health care financial managers comprehensive news coverage of the health care finance industry.

### HIPAA Journal

[hipaajournal.com](http://hipaajournal.com)

Provides the most comprehensive coverage of HIPAA news anywhere online, in addition to independent advice about HIPAA compliance.

### Journal of Medical Economics

[medicaleconomics.com](http://medicaleconomics.com)

A monthly peer-reviewed academic journal that covers econometric assessments of novel therapeutic and medical device interventions.

### Trilliant Health

[trillianthealth.com](http://trillianthealth.com)

Provides unique expertise in health care delivery, data engineering, and data science.

## RESEARCH AND CONSULTING FIRMS

### Action Economics

[actioneconomics.com](http://actioneconomics.com)

Research firm that provides in-depth analysis of economic data and projections.

### Definitiv Healthcare

[defintivhc.com](http://defintivhc.com)

An information services firm that transforms data, analytics, and expertise into health care commercial intelligence.

### eMarketer

[insiderintelligence.com](http://insiderintelligence.com)

A subscription-based market research company that provides insights related to digital marketing and commerce.

### Future Market Insights

[futuremarketinsights.com](http://futuremarketinsights.com)

Provides market intelligence, consulting services, and custom and syndicated market research reports.

### Grand View Research

[grandviewresearch.com](http://grandviewresearch.com)

Business consulting firm that offers action-ready market research reports, market analysis, and consulting services.

### IBM

[ibm.com](http://ibm.com)

Global consulting firm that offers application management, integrated communications, artificial intelligence, Internet of Things, and security software solutions.

### IQVIA

[iqvia.com](http://iqvia.com)

Consulting firm that specializes in health care analysis, services, and solutions.

### McKinsey & Company

[mckinsey.com](http://mckinsey.com)

Global management consulting firm to many of the world's most influential business and institutions.

### Peterson-KFF Health System Tracker

[healthsystemtracker.org](http://healthsystemtracker.org)

A partnership between The Peterson Center on Healthcare and Kaiser Family Foundation that provides up-to-date information on trends of the U.S. health care system.

### Philips

[philips.com](http://philips.com)

A technology company that provides brand licenses to improve people's health and well-being.

### Rock Health

[rockhealth.com](http://rockhealth.com)

A full-service seed fund that supports startups working in digital health, also called health technology.

## **TRADE ASSOCIATIONS**

### **FAIR Health**

[fairhealthconsumer.org](http://fairhealthconsumer.org)

A non-profit organization with a mission to help understand health care costs and health coverage and to bring transparency to health care costs and insurance.

### **Federation of State Medical Boards**

[fsmb.org](http://fsmb.org)

A national non-profit organization that supports America's state medical boards in licensing, disciplining, and regulating physicians and other health care professionals.

### **World Economic Forum**

[weforum.org](http://weforum.org)

An independent international organization committed to improving the state of the world by engaging business, political, academic, and other leaders of society to shape global, regional and industry agendas.

## **GOVERNMENT AGENCIES**

### **Centers for Diseases Control and Prevention**

[cdc.gov](http://cdc.gov)

One of the major operating components of the U.S. Department of Health & Human Services that conducts critical science and provides health information.

### **Centers for Medicare & Medicaid Services**

[cms.gov](http://cms.gov)

A division of the U.S. Department of Health & Human Services that oversees the administration of the Medicare and Medicaid programs.

### **U.S. Department of Health and Human Services**

[hhs.gov](http://hhs.gov)

Federal agency charged with enhancing and protecting the health and well-being of all Americans.

# COMPARATIVE COMPANY ANALYSIS

## Operating Revenues

			Million \$								CAGR (%)			Index Basis (2012=100)					
Ticker	Company	Yr. End	2022	2021	2020	2019	2018	2017	2016	10-Yr.	5-Yr.	1-Yr.	2022	2021	2020	2019	2018	2017	
HEALTH CARE TECHNOLOGY																			
MDRX	\$ VERADIGM INC.	#	JAN	0.0	1,503.0	1,502.7	1,632.6	1,617.8	1,497.7	1,386.1	NA	NA	NA	0	108	108	118	117	108
CPSI	\$ COMPUTER PROGRAMS AND SYSTEMS, INC.		DEC	326.6	280.6	264.5	274.6	280.4	276.9	267.3	5.9	3.4	16.4	122	105	99	103	105	104
HSTM	\$ HEALTHSTREAM, INC.		DEC	266.8	256.7	244.8	254.1	231.6	214.9	192.1	9.9	4.4	3.9	139	134	127	132	121	112
NXGN	\$ NEXTGEN HEALTHCARE, INC.	#	MAR	0.0	596.4	556.8	540.2	529.2	531.0	509.6	3.3	3.2	7.1	0	117	109	106	104	104
OMCL	† OMNICELL, INC.		DEC	1,295.9	1,132.0	892.2	897.0	787.3	712.7	695.9	15.2	12.7	14.5	186	163	128	129	113	102
SLP	\$ SIMULATIONS PLUS, INC.		AUG	53.9	46.5	41.6	34.0	29.7	24.1	20.0	19.0	17.4	16.0	270	233	208	170	149	121
TRHC	TABULA RASA HEALTHCARE, INC.		DEC	299.5	331.3	297.2	284.7	204.3	133.5	94.8	NA	17.5	-9.6	316	349	314	300	215	141
AMWL	AMERICAN WELL CORPORATION		DEC	277.2	252.8	245.3	148.9	114.0	114.0	0.0	NA	NA	9.7	NA	NA	NA	NA	NA	NA
GDRX	GOODRX HOLDINGS, INC.		DEC	766.6	745.4	550.7	388.2	249.5	249.5	0.0	NA	NA	2.8	NA	NA	NA	NA	NA	NA
INSP	INSPIRE MEDICAL SYSTEMS, INC.		DEC	407.9	233.4	115.4	82.1	50.6	28.6	16.4	46.6	70.2	74.7	2483	1421	702	499	308	174
TDOC	TELADOC HEALTH, INC.		DEC	2,406.8	2,032.7	1,094.0	553.3	417.9	233.3	123.2	NA	59.5	18.4	1954	1651	888	449	339	189
VEEV	VEEVA SYSTEMS INC.	#	JAN	2,155.1	1,850.8	1,465.1	1,104.1	862.2	690.6	550.5	40.6	27.4	26.3	391	336	266	201	157	125

Note: Data as originally reported. CAGR-Compound annual growth rate.

[]Company included in the S&P 500. †Company included in the S&P MidCap 400. \$Company included in the S&P SmallCap 600. #Of the following calendar year.

Source: S&P Capital IQ.

## Net Income

				Million \$							CAGR (%)			Index Basis (2012=100)					
Ticker	Company	Yr. End	2022	2021	2020	2019	2018	2017	2016	10-Yr.	5-Yr.	1-Yr.	2022	2021	2020	2019	2018	2017	
HEALTH CARE TECHNOLOGY																			
MDRX	\$ VERADIGM INC.	#	JAN	0.0	134.4	700.4	-182.2	363.7	-196.5	-25.7	NA	NA	NA	0	-524	NM	710	NM	766
CPSI	\$ COMPUTER PROGRAMS AND SYSTEMS, INC.		DEC	15.9	18.4	14.2	20.5	17.6	-17.4	3.9	-6.2	NM	-13.9	403	469	362	520	448	-443
HSTM	\$ HEALTHSTREAM, INC.		DEC	12.1	5.8	14.1	15.8	32.2	10.0	3.8	4.7	3.9	106.9	322	156	375	420	858	266
NXGN	\$ NEXTGEN HEALTHCARE, INC.		MAR	0.0	1.6	9.5	7.5	24.5	2.4	18.2	-31.9	-38.4	-83.0	0	9	52	41	134	13
OMCL	† OMNICELL, INC.		DEC	5.6	77.8	32.2	61.3	37.7	30.5	9.8	-10.0	-28.6	-92.7	58	798	330	629	387	313
SLP	\$ SIMULATIONS PLUS, INC.		AUG	12.5	9.8	9.3	8.6	8.9	5.8	5.0	15.2	16.6	27.6	252	198	189	173	180	117
TRHC	TABULA RASA HEALTHCARE, INC.		DEC	-147.5	-79.1	-81.0	-32.4	-47.3	12.8	-5.5	NA	NM	86.6	2672	1432	1467	588	856	-232
AMWL	AMERICAN WELL CORPORATION		DEC	-270.4	-176.3	-224.4	-87.2	-52.7	-52.7	0.0	NA	NA	53.4	NA	NA	NA	NA	NA	NA
GDRX	GOODRX HOLDINGS, INC.		DEC	-32.8	-25.3	-293.6	66.0	43.8	43.8	0.0	NA	NA	30.0	NA	NA	NA	NA	NA	NA
INSP	INSPIRE MEDICAL SYSTEMS, INC.		DEC	-44.9	-42.0	-57.2	-33.2	-21.8	-17.5	-18.5	8.0	20.7	6.8	242	227	309	179	118	95
TDOC	TELADOC HEALTH, INC.		DEC	-13,659.5	-428.8	-485.1	-98.9	-97.1	-106.8	-74.2	NA	163.9	3,085.6	18405	578	654	133	131	144
VEEV	VEEVA SYSTEMS INC.	#	JAN	487.7	427.4	380.0	301.1	229.8	151.2	77.6	58.7	40.7	12.5	629	551	490	388	296	195

Note: Data as originally reported. CAGR-Compound annual growth rate.

[]Company included in the S&P 500. †Company included in the S&P MidCap 400. \$Company included in the S&P SmallCap 600. #Of the following calendar year.

Source: S&P Capital IQ.

			Return on Revenues (%)							Return on Assets (%)							Return on Equity (%)						
Ticker	Company	Yr. End	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017			
HEALTH CARE TECHNOLOGY																							
MDRX	\$ VERADIGM INC.	# JAN	0.0	0.0	8.9	46.6	NM	22.5	NA	NA	5.5	24.0	NM	11.4	NA	NA	8.7	NM	NM	NM			
CPSI	\$ COMPUTER PROGRAMS AND SYSTEMS, INC.	DEC	4.9	6.6	5.4	7.5	6.3	NM	3.7	4.8	4.4	6.0	5.4	NM	3.7	4.8	7.4	11.9	11.9	NM			
HSTM	\$ HEALTHSTREAM, INC.	DEC	4.5	2.3	5.8	6.2	13.9	4.7	2.4	1.2	2.8	3.2	7.3	2.4	2.4	1.2	4.2	4.3	4.3	3.0			
NXGN	\$ NEXTGEN HEALTHCARE, INC.	MAR	0.0	0.3	1.7	1.4	4.6	0.5	NA	0.3	1.5	1.0	4.6	0.5	NA	0.3	2.3	1.9	7.0	0.8			
OMCL	† OMNICELL, INC.	DEC	0.4	6.9	3.6	6.8	4.8	4.3	0.3	3.6	1.8	4.9	3.5	3.0	0.3	3.6	3.6	8.0	6.1	6.2			
SLP	\$ SIMULATIONS PLUS, INC.	AUG	23.2	21.1	22.4	25.3	30.1	24.0	6.6	5.4	5.5	19.0	20.6	15.0	6.6	5.4	9.6	24.7	31.0	23.8			
TRHC	TABULA RASA HEALTHCARE, INC.	DEC	NM	NM	NM	NM	NM	9.6	NM	NM	NM	NM	NM	6.8	NM	NM	NM	NM	NM	14.2			
AMWL	AMERICAN WELL CORPORATION	DEC	NM	NM	NM	NM	NM	0.0	NM	NM	NM	NM	NM	NA	NM	NM	NM	NM	0.0	0.0			
GDRX	GOODRX HOLDINGS, INC.	DEC	NM	NM	NM	17.0	17.6	0.0	NM	NM	NM	17.1	13.9	NA	NM	NM	NM	NM	0.0	0.0			
INSP	INSPIRE MEDICAL SYSTEMS, INC.	DEC	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM			
TDOC	TELADOC HEALTH, INC.	DEC	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM			
VEEV	VEEVA SYSTEMS INC.	# JAN	22.6	23.1	25.9	27.3	26.7	21.9	10.2	11.2	12.5	13.3	13.9	12.3	10.2	11.2	19.3	20.7	21.4	19.4			

Note: Data as originally reported. CAGR-Compound annual growth rate.

[]Company included in the S&P 500. †Company included in the S&P MidCap 400. \$Company included in the S&P SmallCap 600. #Of the following calendar year.

Source: S&P Capital IQ.

Ticker	Company	Yr. End	Current Ratio							Debt/Capital Ratio (%)						Debt as a % of Net Working Capital					
			2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	
HEALTH CARE TECHNOLOGY																					
MDRX	§ VERADIGM INC.	#	JAN	0.0	0.0	1.4	1.2	0.7	1.1	NA	NA	19.9	9.1	30.0	29.1	NA	NA	163.4	76.7	NM	1,057.5
CPSI	§ COMPUTER PROGRAMS AND SYSTEMS, INC.		DEC	1.7	1.5	1.8	1.6	1.8	1.4	37.1	29.9	26.8	35.0	43.8	50.1	453.1	420.7	247.0	399.3	396.3	802.3
HSTM	§ HEALTHSTREAM, INC.		DEC	1.0	1.1	1.0	2.1	2.3	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NXGN	§ NEXTGEN HEALTHCARE, INC.		MAR	0.0	1.2	1.1	1.8	1.2	1.1	NA	0.0	0.0	24.4	2.8	10.3	NA	0.0	0.0	110.4	34.8	523.3
OMCL	† OMNICELL, INC.		DEC	2.1	0.9	3.0	2.0	1.9	1.7	33.4	0.0	32.6	5.6	16.6	26.0	125.0	0.0	84.5	20.3	70.3	132.5
SLP	§ SIMULATIONS PLUS, INC.		AUG	19.0	12.0	23.4	4.4	3.7	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRHC	TABULA RASA HEALTHCARE, INC.		DEC	1.7	1.2	1.3	2.4	0.8	1.3	121.6	86.2	63.7	54.9	24.5	0.0	470.3	2,183.4	1,266.9	414.9	NM	0.0
AMWL	AMERICAN WELL CORPORATION		DEC	5.5	5.8	9.2	2.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	NA
GDRX	GOODRX HOLDINGS, INC.		DEC	12.1	13.4	18.2	2.6	4.4	0.0	44.4	44.1	48.1	211.9	246.0	NA	77.3	65.1	64.3	1,247.7	1,269.8	NA
INSP	INSPIRE MEDICAL SYSTEMS, INC.		DEC	8.7	6.5	13.0	10.1	17.9	3.4	0.0	6.5	9.7	14.9	13.2	91.7	0.0	7.0	9.9	15.9	13.2	97.1
TDOC	TELADOC HEALTH, INC.		DEC	3.3	3.7	3.2	6.5	8.5	3.9	40.1	7.1	8.0	30.3	29.0	27.1	168.6	138.1	191.1	88.5	88.2	178.9
VEEV	VEEVA SYSTEMS INC.	#	JAN	3.9	3.7	3.2	2.8	3.6	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Data as originally reported. CAGR-Compound annual growth rate.

[]Company included in the S&P 500. †Company included in the S&P MidCap 400. \$Company included in the S&P SmallCap 600. #Of the following calendar year.

Source: S&P Capital IQ.

Ticker	Company	Yr. End	Price/Earnings Ratio (High-Low)						Dividend Payout Ratio (%)						Dividend Yield (High-Low, %)					
			2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016	2021	2020	2019	2018	2017	2016
HEALTH CARE TECHNOLOGY																				
MDRX	\$ VERADIGM INC.	DEC	18 - 13	3 - 1	NM - NM	8 - 4	NM - NM	NM - NM	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0
CPSI	\$ COMPUTER PROGRAMS AND SYSTEMS, INC.	DEC	30 - 21	32 - 18	23 - 15	27 - 19	NM - NM	197 - 77	0.0	30.4	28.0	31.9	NM	638.0	0.0 - 0.0	0.0 - 0.0	2.3 - 0.0	1.9 - 1.2	1.6 - 1.2	6.3 - 1.3
HSTM	\$ HEALTHSTREAM, INC.	DEC	165 - 117	63 - 41	60 - 49	32 - 22	98 - 68	240 - 154	0.3	0.3	0.4	0.0	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0
NXGN	\$ NEXTGEN HEALTHCARE, INC.	MAR	164 - 60	179 - 50	60 - 35	463 - 323	53 - 36	184 - 131	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 5.0	0.0 - 0.0
OMCL	† OMNICELL, INC.	DEC	103 - 65	157 - 73	62 - 40	80 - 42	67 - 39	150 - 94	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0
SLP	\$ SIMULATIONS PLUS, INC.	AUG	183 - 86	138 - 51	85 - 36	46 - 28	47 - 25	39 - 22	49.2	45.5	48.9	46.6	59.6	69.0	0.7 - 0.4	0.6 - 0.3	0.9 - 0.3	1.4 - 0.6	1.7 - 1.0	2.5 - 1.3
TRHC	TABULA RASA HEALTHCARE, INC.	DEC	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	48 - 15	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0
AMWL	AMERICAN WELL CORPORATION	DEC	NM - NM	NM - NM	NA - NA	NA - NA	NA - NA		0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0
GDRX	GOODRX HOLDINGS, INC.	DEC	NM - NM	NM - NM	NA - NA	NA - NA	NA - NA		0.0	0.0	0.0	3074.4	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0
INSP	INSPIRE MEDICAL SYSTEMS, INC.	DEC	NM - NM	NM - NM	NM - NM	NM - NM	NA - NA	NA - NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0
TDOC	TELADOC HEALTH, INC.	DEC	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	NM - NM	0.0	0.0	0.0	0.0	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0
VEEV	VEEVA SYSTEMS INC.	#	JAN	122 - 48	86 - 52	69 - 34	62 - 39	83 - 36	79 - 55	0.0	0.0	0.0	0.0	0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0

Note: Data as originally reported. CAGR-Compound annual growth rate.

[]Company included in the S&P 500. †Company included in the S&P MidCap 400. \$Company included in the S&P SmallCap 600. #Of the following calendar year.

Source: S&P Capital IQ.

Ticker	Company	Yr. End	Earnings per Share (\$)							Tangible Book Value per Share (\$)							Share Price (High-Low, \$)						
			2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017	2022	2021	2020	2019	2018	2017			
HEALTH CARE TECHNOLOGY																							
MDRX	\$ VERADIGM INC.	#	JAN	0.0	0.0	1.0	4.4	-1.1	2.1	0.0	0.0	0.2	1.5	-1.7	-2.7	23.3 - 13.6	19.0 - 13.0	14.9 - 4.6	12.4 - 8.8	16.1 - 8.5	15.2 - 10.2		
CPSI	\$ COMPUTER PROGRAMS AND SYSTEMS, INC.		DEC	1.1	1.3	1.0	1.4	1.3	-1.3	-6.7	-4.3	-1.8	-3.5	-4.9	-7.5	35.5 - 25.3	37.6 - 26.2	35.8 - 16.9	34.0 - 20.7	34.7 - 23.8	36.2 - 21.6		
HSTM	\$ HEALTHSTREAM, INC.		DEC	0.4	0.2	0.4	0.5	1.0	0.3	0.8	1.1	0.9	4.8	4.8	4.1	26.8 - 18.5	31.1 - 21.5	28.0 - 18.0	30.0 - 23.6	31.9 - 21.2	31.5 - 20.6		
NXGN	\$ NEXTGEN HEALTHCARE, INC.		MAR	0.0	0.0	0.1	0.1	0.4	0.0	0.0	1.3	1.3	0.6	1.0	0.1	22.0 - 16.1	23.8 - 13.6	19.4 - 5.1	21.1 - 13.6	23.7 - 12.2	17.7 - 12.6		
OMCL	† OMNICELL, INC.		DEC	0.1	1.6	0.7	1.4	0.9	0.8	1.6	0.8	4.8	7.1	3.6	0.3	182.8 - 46.1	187.3 - 115.8	125.0 - 54.2	92.6 - 57.8	79.5 - 39.8	55.4 - 31.9		
SLP	\$ SIMULATIONS PLUS, INC.		AUG	0.6	0.5	0.5	0.5	0.5	0.3	6.9	6.4	5.9	0.8	0.4	0.0	67.6 - 35.2	90.9 - 36.9	77.9 - 26.0	42.0 - 18.2	24.0 - 14.3	17.5 - 8.8		
TRHC	TABULA RASA HEALTHCARE, INC.		DEC	-6.1	-3.4	-3.7	-1.6	-2.5	0.7	-9.8	-13.4	-9.4	-8.2	-2.7	-1.0	16.4 - 2.1	69.3 - 10.1	69.7 - 30.1	69.0 - 37.4	91.2 - 28.1	36.8 - 11.6		
AMWL	AMERICAN WELL CORPORATION		DEC	-1.0	-0.7	-2.3	-2.1	-1.3	0.0	1.8	2.5	4.1	-13.3	-10.2	0.0	6.3 - 2.5	43.8 - 5.7	41.8 - 21.3	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0		
GDRX	GOODRX HOLDINGS, INC.		DEC	-0.1	-0.1	-1.1	0.2	0.1	0.0	0.5	0.9	1.0	-5.9	-12.5	0.0	33.2 - 3.8	59.7 - 26.7	64.2 - 33.5	0.0 - 0.0	0.0 - 0.0	0.0 - 0.0		
INSP	INSPIRE MEDICAL SYSTEMS, INC.		DEC	-1.6	-1.5	-2.2	-1.4	-1.5	-14.9	17.1	8.4	8.5	5.8	7.0	-92.6	272.0 - 142.7	286.3 - 159.2	204.7 - 40.5	75.9 - 38.7	57.9 - 22.5	0.0 - 0.0		
TDOC	TELADOC HEALTH, INC.		DEC	-84.6	-2.7	-5.4	-1.4	-1.5	-1.9	-3.7	-2.3	-4.8	0.6	0.4	-1.6	95.7 - 22.4	308.0 - 87.3	253.0 - 81.3	86.3 - 46.0	89.0 - 30.9	37.9 - 15.7		
VEEV	VEEVA SYSTEMS INC.	#	JAN	3.0	2.6	2.4	1.9	1.5	1.0	20.4	15.4	11.3	7.3	7.6	5.5	257.7 - 151.0	344.0 - 235.7	314.0 - 118.1	176.9 - 82.4	109.1 - 52.2	68.1 - 40.7		

Note: Data as originally reported. CAGR-Compound annual growth rate.

[]Company included in the S&P 500. †Company included in the S&P MidCap 400. \$Company included in the S&P SmallCap 600. #Of the following calendar year.

Source: S&P Capital IQ.

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