TM CAPITAL INDUSTRY SPOTLIGHT SMARTER MEDICINE: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

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Case Study: Growth Equity Capital Raise

CorVista Health raised \$64.4 million through the sale of Series C Convertible Preferred Stock



CorVista Health (formerly Analytics 4 Life), a Torontobased developer of artificial intelligence-enabled medical imaging solutions, has raised \$64.4 million through the sale of Series C Convertible Preferred Stock. CorVista, led by former Sapheon, Inc. CEO, Don Crawford, is focused on using artificial intelligence and machine learning to improve, simplify and reduce the cost of diagnosing cardiovascular diseases, a \$10+billion global market opportunity. The Company's non-invasive medical device applies machine learned solutions to assess the presence of disease, using physiological signals naturally emitted by the body. CorVista has applied to the FDA for EUA authorization to market its diagnostic product for LVEDP, an earlystage indicator of Heart Failure (HF) and a co-morbidity of COVID 19. The company is also in the late stages of development of an AI-based product for the diagnosis of Coronary Artery Disease (CAD), which it expects to submit shortly to the FDA. In addition, CorVista is developing jointly with Actelion (Johnson & Johnson) a product for the diagnosis of Pulmonary Hypertension.

TM Capital served as financial advisor to Corvista in connection with this transaction. The Company plans to use the proceeds to complete the final stages of testing of its CAD diagnostic product and to build a commercialization infrastructure in anticipation of HF and CAD product launches in 2021.

SELECTED HEALTHCARE TRANSACTIONS



ATLANTA BOSTON NEW YORK



Introduction

We published our first Spotlight on Artificial Intelligence (AI) and Machine Learning (ML) in healthcare in late 2017. At that time, the commercial uses of AI were quite limited. Three years later AI is no longer an "emergent" and "nascent" technology in healthcare or in the broader economy. AI is well-positioned to revolutionize many industries, from automobiles to finance to healthcare. Beyond automating laborious processes traditionally executed by humans, AI will breed innovation and drive unforeseen levels of efficiency and production.

Healthcare is at the forefront of adopting the benefits of AI. AI revenues in healthcare in 2019 amounted to \$5.9 billion and are projected to reach \$31.3 billion by 2025 with a compounded annual growth rate of 41.5%.¹ Healthcare AI equity financing reached a record high of \$8.8 billion in 2020.² Participation in the commercialization of this technology has become a critical strategy both for corporations, as well as healthcare investors seeking new growth opportunities.

In this spotlight report, we will explore healthcare segments that have already attracted innovative AI investment and are likely to have a major impact on the industry in the next few years:

- 1. Al in Healthcare: Macro Trends
- 2. Cutting Edge Applications of AI to Healthcare
- 3. The FDA's Approach to AI-Powered Software/Devices
- 4. Growth in Financing and M&A Activity

1. Al In Healthcare: Macro Trends



Al refers to a branch of computer science that leverages algorithms, machine learning, neural networks, and other tools to make decisions based off analysis of large quantities of data. Though it was initially designed to simulate human intelligence, AI in some ways has far exceeded human capabilities in tasks requiring massive data sets and information difficult for a human to process.

Practical applications of artificial intelligence still require much algorithmic programming, although the algorithms exponentially improve and update with the help of machine learning. The true power in this technology is deep pattern recognition, which unlocks greater productivity, lower costs, and a reduction of human error. Healthcare, the largest sector of the

¹ Grand View Research, "Artificial Intelligence in Healthcare Market Size" (October 2019)

² PitchBook, "Healthcare VC and IPO Deals" (December 2020)

economy with, arguably, the greatest social benefit has been an early adopter of this new technology.

Healthcare AI revenues are growing at a 41.5% compounded annual growth rate.³ Key drivers of this rapid growth include the availability of large and complex healthcare datasets, the continuing need to optimize healthcare efficiencies by cutting costs, and the rising need for creative and supplementary services due to an increasing shortage of health professionals. A report from the Association of American Medical Colleges (AAMC) projects that the United States will face a shortage of as many as 139,000 physicians by 2033.⁴

The transfer of laborious tasks to machines and providing physicians and patients with the tools to remotely diagnose and treat their conditions with biometric wearables, home health technology, and other remote patient health solutions is at the heart of improving efficiency and reducing pressure on healthcare professionals. Al applications within the healthcare industry have the potential to create \$150 billion in savings annually for the US by 2026.⁵

³ Grand View Research, "Artificial Intelligence in Healthcare Market Size" (October 2019)

⁴ AAMC, "U.S. physician shortage growing" (June 2020)

⁵ Accenture, "Artificial Intelligence: Healthcare's Nervous System" (2016)

2. Cutting Edge Applications of AI to Healthcare

The uses of AI in healthcare are extensive. We have selected three areas to review in greater depth where this novel technology is already changing healthcare and pharmaceutical practice and where the ultimate impact could be significant.

a. Drug Discovery/Pharmaceutical Research

Pharmaceutical research paved the path for the discovery of many life-saving and lifeenhancing drugs. However, the discovery of new drugs has remained an arduous and expensive endeavor; the average time to bring a novel molecule to market is 10 to 12 years. A Deloitte report estimated that the average cost of R&D for the top 12 biopharma companies is \$2.168 billion per drug – double the \$1.188 billion calculated in 2010.⁶ At the same time, the average forecast peak sales has declined by more than 50%.⁷ As a result, new technologies such as AI and machine learning that can reduce the cost of bringing new drugs to market are critical to the future of the industry.



Al enables researchers and developers to home in on drug candidates with greater efficiency, predictability, and accuracy. Of the 10,000 molecules initially screened, only 10 make it to clinical trials.⁸ Of this small percentage of compounds entering the first phase of clinical testing – phase I testing – less than

10% demonstrate sufficient safety and efficacy to receive regulatory approval and reach the market.⁹ This low efficiency rate, which has not increased in a decade, accounts for a third of overall costs.¹⁰ Even small improvements in efficiencies could save billions of dollars in the drug development process.

⁶ Deloitte, "Intelligent Drug Discovery Powered by AI" (November 2019)

¹⁰ Ibid.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

By leveraging large datasets of experimental data, AI technology proves far more effective than humans when it comes to identifying subtle and complex characteristics to advance compound design and improve retrosynthesis. The immense data fed through the AI algorithms take potency, selectivity, and pharmacokinetic criteria into consideration to single out potential drug candidates.



The automation that accompanies AI and ML-based drug discovery allows researchers to test more hypotheses and simulate clinical trials. Combined with up-and-coming technologies such as microfluidics, which models systems in organisms by manipulating minute quantities of fluids, AI can better miniaturize assays and increase experimental throughput. Organ-on-a-chip, a physiological organ biomimetic system built on a microfluidic chip, empowers AI with the capacity to test more variations of potential drug candidates much more efficiently and cost effectively. ¹¹

On top of identifying biological targets, AI can help form legitimate hypotheses and drug candidates and identify biomarkers predictive of disease. Big data comes into play when AI parses through the dataset to link genes to diseases along with proteins to fight said diseases, repurpose known drugs for newly identified disease targets, and predict potential side effects of drug candidates.

Companies that do not invest in new AI technology to aid in drug discovery will likely suffer the consequences of high R&D costs of the current ineffective process. A study by Janssen Research & Development (Johnson & Johnson) concludes that the "AI method to be up to 250 times more efficient than the traditional method of drug discovery."¹²

¹¹ Technology Networks, "Transforming Drug Discovery Using AI and Automation" (September 2020)

¹² Johnson & Johnson, "Can Artificial Intelligence Change How We Discover Drugs?" (May 2018)

| Ca | se Study: Al-powered Drug Development Startups |
|--------------------------------|---|
| Exscientia | One of the most recent successes of pharmaceutical companies capitalizing on AI for drug discovery is Sumitomo Pharma and Exscientia . Sumitomo leveraged Exscientia's AI expertise to identify a drug candidate for obsessive compulsive disorder, which claims to be the first AI-developed medicine to enter human testing. The companies estimate that the integration of AI and ML into development processes can trim years off the approximately decade-long drug development cycle. For example, Sumitomo's OCD candidate fast tracked from discovery to clinical testing in just 12 months. ¹³ |
| NOVARTIS Microsoft | Other examples of companies foraying into the AI-powered drug discovery field are Novartis partnering with Microsoft to set up an AI Innovation lab for drug discovery, Bayer and Exscientia utilizing AI in early-stage research for cardiovascular and oncology drug discovery, and Pfizer & Insilico creating GENTRL, an AI system used to explore potential therapeutic targets in a variety of diseases. |
| Exscientic | Novartis x Microsoft AI Innovation Lab |
| | In the current Covid pandemic, Benevolent employed AI to identify |
| Benevolent ^A | baricitinib as a potential treatment to inhibit viral infection. A randomized-control trial sponsored by the NIH validated the hypothesis, and baricitinib used in tandem with remdesivir yielded reduced recovery times in hospitalized COVID-19 infected patients |
| | and received Emergency Use Authorization from the FDA. ¹⁴ |

 ¹³ Exscientia, "Sumitomo Dainippon Pharma and Exscientia Joint Development New Drug" (January 2020)
¹⁴ Benevolent AI, "Our research in response to the global pandemic" (2020)

b. Medical Imaging & Disease Diagnostics



Al is already shown significant benefits to medical practitioners in areas such as radiology, pathology, and cardiology. Every minute of reduced time-to-treatment for strokes equates to saving 1.9 million patient brain cells.¹⁵ In 2015, Academic Radiology published a survey which found that radiologists need to review one image every 3-4 seconds to keep pace with their heavy workloads.¹⁶ Al can deliver significant value

by helping provide diagnostic results with much greater speed and accuracy. Similarly, the precision of AI in detecting small radiographic abnormalities allows radiologists better ways of mapping images, more advanced image segmentation/interpretation, automated real-time triaging of radiographs, and more accurate prognoses.

With an input of a medical image, radiologists can conduct automatic segmentations of specific organs. Although this image-based analysis can be performed manually by a radiologist, the task can become time-consuming. This advanced technology acts as an extra team member, processing thousands of images without sacrificing accuracy due to exhaustion. For advanced tasks that AI does not yet have the power to solve, it can utilize algorithms to flag complex cases that require special attention from radiologists.

Additionally, AI can support teleradiology, helping reduce ER patients' waiting times in hospitals with insufficient on-site radiological specialization. AI-powered teleradiology's remote, realtime support arms these hospitals with the capability to prioritize patients in critical status and provides additional expertise for complex cases. This triaging leads to a more efficient allocation of medical resources and better patient outcomes.

Intelligent medical imaging applies to all sub-specialties and diseases from fractures to Alzheimer's to prostate to mammography. In cases of acute and nonacute pediatric elbow abnormalities on radiographs in a trauma setting, deep learning and AI can be applied to improve patient care in ER triage with quicker analysis.

Quicker MRI scans using AI can also result in a better MRI experience for patients who may have trouble keeping still, such as children and those with an acute illness. Less time equates to less movement, improved image quality, and a more accurate prognosis. This also reduces the waiting time for patients in the queue, where every second matters.

¹⁵ Forbes, "3 Ways Artificial Intelligence Will Change Healthcare" (August 2020)

¹⁶ Aidoc, "Artificial Intelligence in Radiology" (January 2020)

| | Case Study: Intelligent Diagnostics with AI |
|----------------|--|
| Y iz.ai | Viz.ai is an intelligent platform that empowers radiologists with better image scans and diagnoses. By utilizing a database of stroke cases and analyzing the scan, the platform can save critical time to treatment and a significant reduction in patient disability. Viz-ai is the first AI-supported stroke care package approved by the FDA. ¹⁷ |
| 💥 Quantib | Quantib Prostate is the first MRI analytics tool to provide a comprehensive AI-aided prostate diagnosis, ¹⁸ which helps radiologists with real time MRI scan analysis and an integrated workflow solution. Already Quantib's sixth FDA clearance, this smart imaging analytics software addresses The American College of Radiology recommendation in 2017 that MRIs become the norm before biopsies. ¹⁹ Quantib Prostate capitalizes on AI and ML to calculate a PSA density, which is seamlessly integrated into the final radiology report, and a bi-parametric heat map representation to highlight segments of the scan of interest with potential sites of lesions. Additionally, the solution assesses the ROIs, determines the PIRADs score, and provides prostate gland analysis to produce a comprehensive and standardized report to PACs, complete with marked visual images. Radiologists can leverage the intuitive workflow solution to augment their ability to make more accurate clinical decisions and reduce misdiagnoses. |
| Caption Health | Cardiovascular diseases account for over 75% of patient care; ²⁰ AI in cardiovascular radiology is at the forefront of innovation. Caption Health has gained FDA clearance of its AI-guided ultrasound and its fully automated AI-based analytics of left ventricle ejection fraction (EF), the single most widely used metric of cardiac function. ²¹ Caption Health's AI-based EchoMD and AutoEF algorithms analyze patients' echocardiograms and select the best digital video clips for calculating EF, significantly improving the accuracy of the results. While the average variability of cardiologists in estimating EF using the standard Simpson's biplane method is 9.2%, the observed variability of EchoMD and AutoEF yielded a superior figure of 8.29%. ²² Much of the accuracy of these rapid image analysis tools can be attributed to the enormous dataset, which is comprised of over 4 million images from 9000 patients. |

¹⁷ Forbes, "3 Ways Artificial Intelligence Will Change Healthcare" (August 2020)

¹⁸ Imaging Technology News, "Quantib Receives FDA Clearance for First-to-Market Prostate Solution" (October 2020)

¹⁹ Quantib, "Read prostate MRI at expert level supported by AI" (2020)

²⁰ Healthcare Weekly, "Artificial Intelligence in Healthcare: the future is amazing" (September 2020)

²¹ Business Wire, "Bay Labs' EchoMD AutoEF Software Receives FDA Clearance for Fully Automated AI Echocardiogram Analysis" (June 2018)

²² Business Wire, "New Study Demonstrates Accuracy of Fully-Automated Ejection Fraction Calculation Using Bay Labs' EchoMD AutoEF Software" (June 2018)

Case Study: Intelligent Diagnostics with AI (cont'd)



Heart disease, the leading cause of death globally, accounts for 630,000 deaths per year and is projected to cost \$1 trillion by 2035 in the United States.²³

CorVista Health has developed AI and cloud-based solutions to provide a non-invasive test to detect Coronary Artery Disease (CAD), Heart Failure and Pulmonary Hypertension.

The digital health company's cardiac imaging technology uses intrinsic signals from the body to identify a potential presence of disease in a non-invasive 10-minute procedure.²⁴ CorVista obtains signals naturally emitted by the body on the company's proprietary medical device with a synchronous array of seven sensors. The signals are delivered to the cloud, where the ML and AI powered algorithm will generate a disease score and a unique image highlighting the areas of potential disease. The results are available to the physician in the same patient visit and together with the patient's medical history as well as risk factors and symptoms, provide data that facilitate the physician's recommendations for further treatment.

CorVista's initial results showed high efficacy in predicting elevated left ventricular end-diastolic pressure (LVEDP), a major indicator of heart disease.²⁵ This data was presented at the American College of Cardiology conference in 2020. The company anticipates that its technology will be similarly effective in predicting CAD as a more patient-friendly alternative to a nuclear stress test.

CorVista has partnered with **Actelion**, a subsidiary of Johnson & Johnson, to develop an AI-based test to assist in the diagnosis of pulmonary hypertension.²⁶



Radiation-Free Point-Of-Cardiac Stress-Free Care Results



Truly Digital



a janssen pharmaceutical company of **Johnson Johnson**

²³ Analytics 4 Life, "About Us" (2020)

²⁴ Diagnostic and Interventional Cardiology, "Analytics 4 Life Raises \$25 Million for AI-Backed Cardiac Imaging Technology" (October 2017)

²⁵ Business Wire, "Analytics 4 Life Presents Early Data..." (March 2020)

²⁶ Analytics 4 Life, "Analytics 4 Life and Actelion... New Diagnostics for Pulmonary Hypertension" (December 2018)

Predictive Care, Home Health & Wearables



In 2030, healthcare does not reside solely in the hospital. A hospital may focus solely on acute illness and highly complex procedures, while less urgent cases are tended to in smaller hubs or even at home. In the U.S., the number of Americans over the age of 65 is expected to double from 50 million today to nearly 100 million by 2060.²⁷ Elder care and chronic

condition management will continue to put a strain on healthcare but provide more opportunities for home health AI to expand. Thanks to AI-powered predictive care, remote patient monitoring with wearables, and advanced home health, hospitals will focus on more severe patients and will operate more cost-efficiently.

Al will play a huge part in predictive and preventative healthcare. By tracking data such as our diet, workplace, local pollution levels, and other related details – deemed the social determinants of health (SDOH) – AI will develop the ability to anticipate when individuals are at risk of developing a chronic disease and suggest prophylactic measures. Google worked with the University of California, Stanford University, and the University of Chicago to develop an AI system that



predicts the outcomes of hospital visits.²⁸ This AI model helps prevent readmissions and shortens the amount of time patients are kept in hospitals.

Wearables, remote patient monitoring, and solutions, as well as home health chatbots will ultimately reduce the strain put on hospitals, use AI to enhance data for better clinically supported decisions, reduce hospital readmissions, improve patient health, and reduce costs.

Wearable healthcare technology is extremely useful in tracking much of the biometric data which serves as the keystone of predictive healthcare. AI-powered wearables, such as FitBits and Apple Watches, track and analyze data, alerting users and their healthcare professionals in the case of potential health issues.

²⁷ Population Reference Bureau, "Fact Sheet: Aging in the United States" (July 2019)

²⁸ Business Insider, "Artificial Intelligence in Healthcare: Examples, Pros/Cons & Future" (July 2019)

| Case Study: Integrated AI in Wearables and Home Health | | | | |
|---|---|--|--|--|
| | The Apple Watch became the first FDA-approved device to use AI to take an electrocardiogram (ECG) directly from the wrist. The AI in the software of the watch detects anomalies such as rapid or skipped heartbeats, and users receive a notification if a more severe irregular heart rhythm (arterial fibrillation) is identified. ²⁹ | | | |
| Image: state stat | Fitbit' s Charge 3 wristband similarly harnesses the power of AI to analyze anomalies in sleeping patterns to detect sleep apnea. ³⁰ | | | |
| | Legacy monitoring companies such as Omron Healthcare have ventured into AI-powered wearables. The Omron Heartguide smartwatch can take a user's blood pressure, provide real time analytics, and suggest actionable steps to return users to a healthy blood pressure level. ³¹ The versatile wearable increases access to high quality data for the patient and the provider while reducing costs associated with expensive hospital-operated equipment. | | | |
| O Athelas | Remote patient monitoring and health solutions provide another channel that tracks important data that AI can process to improve health and bolster the healthcare system. Athelas capitalizes on machine learning and computer vision to identify morphology and cell types from a tiny finger prick of blood within minutes. ³² This technology serves a wide array of patients, including those on chemotherapy and immunosuppressive anti-psychotics. ³³ The power of Athelas lies not just in the cost-cutting benefits but also in the convenience as chemotherapy patients can obtain these important analytics from home. | | | |

²⁹ Healthcare Weekly, "Artificial Intelligence in Healthcare: the future is amazing" (September 2020)

³⁰ Ibid.

³¹ Ibid.

³² Athelas, "Classifying White Blood Cells with Deep Learning (Code and data included!)" (March 2017)

³³ Forbes, "3 Ways Artificial Intelligence Will Change Healthcare" (August 2020)

3. The FDA's Approach to AI-Powered Software

Without FDA approval, these promising technologies would never be able to make a true impact. Fortunately, the FDA has developed and is continuing to improve a framework for regulating AI-based medical software and devices, which do not fit under the historical FDA regulation paradigm. The modified framework derives practices from "current premarket programs, the International Medical Device Regulators Forum (IMDRF), the benefit-risk framework, risk management principles described in the software modifications guidance, and the organization-based total product lifecycle approach based on the Digital Health Software Pre-Cert Program."³⁴

FDA's Approach to AI-based Software

- 1. Further developing the proposed regulatory framework, including through issuance of draft guidance on a predetermined change control plan (for software's learning over time)
- 2. Supporting the development of good machine learning practices to evaluate and improve machine learning algorithms
 - 3. Fostering a patient-centered approach, including device transparency to users

4. Developing methods to evaluate and improve machine learning algorithms

5. Advancing real-world performance monitoring pilots

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The "predetermined change control plan" for premarket submissions includes the "Software as a Medical Device Pre-Specifications" and associated methodologies designed to implement modifications with patient risk management taken into consideration – referred to as the "Algorithm Change Protocol." Manufacturers who hope to receive FDA approval are expected to commit to transparent polices, frequently update the FDA on changes based on the prespecifications and algorithm change protocols and allow real-world performance monitoring.

Given the ability for AI and ML algorithms to adapt and improve, the framework enables the FDA to regulate the healthcare technology from premarket development to postmarket performance. FDA has established precedents in regulation that have allowed for new technologies to grow, receive approval, and realize their potentials while keeping patient safety in mind.

³⁴ FDA, "Artificial Intelligence and Machine Learning in Software as a Medical Device" (October 2020)

³⁵ FDA, "FDA Releases Artificial Intelligence/Machine Learning Action Plan" (January 2021)

4. Growth in Financing and M&A Activity

a. Healthcare Equity Financing

In spite of the damage to the economy from the COVID-19 pandemic, global healthcare funding reached a record \$188 billion in 2020, a significant increase from prior years.³⁶



b. Healthcare AI Financing and M&A Activity

Similar to the overall healthcare market, equity financings in the AI healthcare sub-sector rose to a record level of \$8.8 billion in 2020, a 50% increase over the prior year, which was itself a record.³⁷ An increasing proportion of financing has become later stage as the industry and companies mature. In 2020 only 14.2% of deal value was for early-stage companies (Seed Round and Series A) compared to 32.3% in 2016.³⁸



³⁶ PitchBook, "Healthcare VC and IPO Deals" (December 2020)

³⁷ Ibid.

³⁸ Ibid.

M&A activity for healthcare AI companies remains relatively modest. In 2020, the sector witnessed M&A transactions with a total value of \$516 million, excluding a single merger transaction between Teladoc Health and Livongo which valued Livongo at \$18.5 billion.³⁹ The disparity between financing and M&A activity demonstrates the sector's relatively early stage of development. By contrast, M&A transactions in the overall healthcare industry aggregated \$475 billion compared to equity financings totaling \$185 billion.⁴⁰ We anticipate that this will change in the next several years.

5. Conclusion

Al has already demonstrated its potential to benefit healthcare by increasing effectiveness, affordability, and access. From streamlining and automating administrative workflows to improving drug development, home health, and intelligent diagnostics, AI will contribute important improvements in efficiency as well as help to save lives and aid in the growth of the burgeoning healthcare sector. The FDA has already established protocols for approving and regulating appropriate AI-powered technologies in wearables, medical devices, diagnostics and software solutions.

Winners in this space will include both legacy healthcare companies who see AI-related opportunities in their core businesses and disruptive start-ups that can successfully develop new treatments using AI-based technologies. Significant consolidation of participants can be expected in the next five years. The healthcare sector will employ AI and machine learning to enhance medical professionals' expertise and increase the efficiency of the healthcare system. Businesses will need to demonstrate a clear understanding of clinical workflows regulatory and reimbursement requirements for their products to achieve success. Meaningful progress and exciting growth in the sector lie in businesses channeling the power of AI to improve patient outcomes while collaborating with all stakeholders to accomplish mutual goals and drive increased profitability.

³⁹ Pitchbook, "Healthcare AI M&A and PE Deals" (December 2020)

⁴⁰ Pitchbook, "Healthcare VC & IPO Deals" (December 2020)

Appendix A

Healthcare AI Equity Financings 2020

| Total 2020 Deal Count by Size | | | | |
|-------------------------------|-----------|-----------|----------|--|
| \$50mm+ | \$25-50mm | \$10-25mm | \$0-10mm | |
| 46 | 33 | 75 | 398 | |

| \$50mm+ Healthcare Artificial Intelligence Company Equity Financing Activity | | | | | |
|--|--------------|----------------|--|--|-------------------------|
| Company Name | Deal Date | Deal Type | Key Investors/Underwriters | Description | Deal Size (\$MMs) |
| CorVista Health | 12/31/20 | Series C | | AI-based diagnosis of cardiovascular disease | 64.4 |
| Newlink Technology | 12/21/20 | IPO | | Big data and artificial intelligence related field solutions and software products in the financial and medical industries | 112.5 |
| Synyi | 12/21/20 | Series D | CICC, Sunshine Insurance, Tencent | Artificial intelligence-powered medical data platform intended to develop big data-driven application for medical research, healthcare, and patient services | 61.0 |
| Babylon (Information Services) | 12/17/20 | Later Stage VC | Vostok New Ventures | Digital healthcare application designed to make healthcare accessible for everyone | 100.0 |
| Neuron23 | 12/15/20 | Series B | Acorn Bioventures, Citadel, Cowen Healthcare, HBM, Kleiner Perkins, Redmile Group | Biotechnology company focused on developing precision medicines for genetically defined neurological and immunological diseases | 80.0 |
| nference | 12/15/20 | Series C | Matrix Partners, Mayo Clinic, NTTVC | Holistic software platform intended to synthesize the exponentially growing biomedical knowledge | 60.0 |
| LeanTaaS | 12/10/20 | Series D | Goldman Sachs Growth Equity, Insight Partners | Software designed to increase patient access to medical care | 130.0 |
| Tempus Labs | 12/10/20 | Series G | Baillie Gifford, Franklin Templeton, Novo Holdings, T. Rowe Price | Health care data analytics platform designed to improve patient outcomes | 450.0 |
| Olive | 12/1/20 | Later Stage VC | General Catalyst, Sequoia Capital, Silicon Valley Bank, Tiger Global | Process automation software designed to build meaningful artificial intelligence that empowers and scales humans | 225.5 |
| Spring Health | 11/18/20 | Series B | Northzone Ventures, Rethink Capital, Tiger Global Management, True Capital Management | Digital platform designed for employers to integrate all mental health benefits and fill gaps to deliver digital programs, coaching, therapy, psychiatry, and referrals-all in one place | 76.0 |
| Recursion Pharmaceuticals | 11/11/20 | Series D | Baillie Gifford, Casdin Capital, EPIC Ventures, Intermountain Ventures, Lux | Drug-discovery company intended to discover potential drugs for rare genetic diseases, inflammatory and infectious diseases and immuno-oncology | 245.9 |
| Eko (Monitoring Equipment) | 11/9/20 | Series C | 3M Ventures, ARTIS Ventures, Highland Capital | Unified heart disease monitoring system intended to provide all-in-one cardiac screening services | 65.0 |
| Olive | 11/4/20 | Series F | Ascension Ventures, Drive Capital, SVB | Process automation software designed to build meaningful artificial intelligence that empowers and scales humans | 106.0 |
| nVoq | 10/29/20 | Series A1 | | Cloud-based speech recognition platform intended to support voice-enabled workflow automation | 55.8 |

| | | | | - | |
|---------------------------|----------|-----------------------------------|--|--|-------|
| | 10/20/00 | | Bank of America, Credit Suisse, Morgan Stanley, | Technology-enabled solutions that help people better understand, navigate, and utilize the healthcare system and their workplace | 100 5 |
| Accolade | 10/22/20 | | Goldman Sachs | benefits | 192.5 |
| 3DMed Diagnostics | 10/19/20 | Growth/Expansion | Jemincare | on tumor diagnostics and treatments | 221.2 |
| XtalPi | 9/28/20 | Series C | Sequoia, SoftBank, Susquehanna, Tencent | Pharmaceutical technology company intended to integrate quantum physics, artificial intelligence, and high-performance cloud computing algorithms for drug discovery and development | 318.8 |
| Taysha Gene Therapies | 9/24/20 | IPO | Chardan, Jefferies, Morgan Stanley, Goldman Sachs | AAV-based gene therapies for the treatment of monogenic diseases of the CNS in both rare and large patient populations | 157.4 |
| Lark | 9/22/20 | Series C | Asset Management, Franklin Templeton, Lightspeed, Outcomes Fund | Chronic disease prevention and management platform intended to help manage and prevent chronic conditions | 70.0 |
| SOPHIA GENETICS | 9/18/20 | Series F | Credit Suisse, Endeavour Vision, Hitachi Ventures, Swisscom Ventures | Health tech platform intended to support healthcare professionals to maximize the power of Data-Driven Medicine | 110.0 |
| Finch (Drug Discovery) | 9/15/20 | Series D | OCV Partners, OMX, Shumway, Trans-Pacific | Microbiome-based therapies designed to treat serious and unmet medical needs | 90.0 |
| Biofourmis | 9/3/20 | Series C | MassMutual, Openspace, Seguoia, SoftBank | Health analytics platform intended to analyze physiology data from clinical-grade wearables | 100.0 |
| Synthego | 8/26/20 | Series D | Founders Fund, Intel Capital, Menlo Ventures, Wellington | Precision tool designed to automate genome | 100.0 |
| iRhythm | 8/19/20 | Public Investment | Citigroup, J.P. Morgan, Morgan Stanley, Truist, William Blair | Diagnoses cardiac arrhythmias by combining wearable biosensing technology with cloud- based data analytics and machine-learning canabilities | 191.3 |
| Atomwise | 8/11/20 | Series B | B Capital, Baidu Ventures, Sanabil, Tencent Holdings | Helps invent new potential medicines for more than 50 disease targets | 123.0 |
| Taysha Gene Therapies | 8/5/20 | Series B | BlackRock, Casdin Capital, Fidelity, Franklin Templeton, Perceptive Advisors, Venrock | AAV-based gene therapies for the treatment of monogenic diseases of the CNS | 95.0 |
| Zymergen | 7/29/20 | Series D | Baillie Gifford, Baron Funds, Perceptive Advisors, SoftBank | Molecular technology intended to discover and deliver novel products and materials | 350.0 |
| Sight | 7/26/20 | Series D | BridgeOne Capital, Koch Disruptive, Longliv Ventures | Automated microscopy device designed to improve healthcare for everyone through smarter blood testing | 71.0 |
| Renalytix Al | 7/17/20 | Public Investment 2nd Offering | | Artificial intelligence-enabled clinical decision support solutions for kidney disease and costly chronic medical conditions | 85.1 |
| Caption Health | 7/15/20 | Series B | Edwards Lifesciences, Gopher, Khosla, LDV Partners | Medical imaging software designed to help in the diagnosis and management of heart disease | 53.0 |
| Paige | 7/13/20 | Series B | Goldman Sachs, HealthCare Ventures | Computational pathology module platform intended for rapid diagnostic stratification and cancer detection | 70.0 |
| | ., 10,20 | | Ally Bridge, CICC, Long Hill New Enterprise | SaaS based oncology big data platform | |
| LinkDoc | 7/8/20 | Series D1 | Associates | data | 98.9 |
| Nine Square | | | | Small-molecule therapeutics intended to provide a cure for degenerative movement | |
| Therapeutics | 7/7/20 | Series A | Apple Tree Partners | disorders | 50.0 |
| Accolada | 7/2/20 | IPO | Bank of America, Credit Suisse, Morgan Stanley, Goldman Sachs | people better understand, navigate, and utilize the healthcare system and their workplace | 220 5 |
| | 112/20 | | General Catalyst, Khosla Ventures, Manta Rav | Neuroscience as a service intended to | 220.0 |
| Kernel | 6/29/20 | Series C | Ventures | augment human intelligence | 53.0 |

| | | | Abbott Ventures, Janus | Medical device company intended to simplify and optimize insulin delivery and dosing decisions for people living with insulin- | |
|--------------------|---------|-----------|---|--|-------|
| Bigfoot Biomedical | 6/2/20 | Series C | Henderson, Quadrant | requiring diabetes | 55.0 |
| Exscientia | 5/26/20 | Series C | Bristol-Myers, Evotec (Werner Lanthaler), GT Healthcare, Novo Holdings | Automated drug discovery technologies intended to improve the medicine development process | 60.4 |
| insitro | 5/26/20 | Series B | Andreessen Horowitz, ARCH, BlackRock, Canada Pension Plan, T. Rowe Price, Third Rock | Data-driven drug discovery and development company intended to transform the way that drugs are discovered and delivered to patients | 143.2 |
| Mindstrong | 5/21/20 | Series C | ARCH Venture Partners, Foresite, Optum Ventures | Digital therapeutic platform intended to address personal, societal, and economic problems | 100.0 |
| Dascena | 4/30/20 | Series B | Euclidean, Frazier Healthcare, Longitude | Algorithms as a new category of diagnostics to catch patients earlier when they can be effectively treated | 50.0 |
| Yiducloud | 4/30/20 | Series C | Government of Singapore Investment Corporation | Clinical data artificial intelligence platform | 57.6 |
| Mojo Vision | 4/29/20 | Series B1 | Gradient Ventures, Khosla Ventures, Motorola, New Enterprise | Augmented reality products and platforms intended to invent the future of computing | 51.0 |
| Olive | 4/10/20 | Series E | Ascension Ventures, Drive Capital, Oak | Process automation software designed to build meaningful artificial intelligence that empowers and scales humans | 52.0 |
| Tempus Labs | 3/13/20 | Series G | Baillie Gifford, Franklin Templeton, New Enterprise, Novo Holdings | Health care data analytics platform designed to improve patient outcomes | 100.0 |
| Element Science | 3/3/20 | Series C | Deerfield, Qiming Venture, Third Rock | Medical devices designed to focus on the life of a patient | 145.6 |
| Innovaccer | 2/13/20 | Series C | Dragoneer, Tiger Global Management, WestBridge | Data activation platform designed to assist healthcare organizations to activate their data silos | 70.0 |
| nference | 1/8/20 | Series B | Mayo Clinic, NTTVC | Holistic software platform intended to synthesize the exponentially growing biomedical knowledge | 60.0 |

Appendix B

Healthcare AI M&A Transactions

| Selected Healthcare Artificial Intelligence Company M&A Activity | | | | | |
|--|-----------------|------------------------------|--|----------------------|--|
| Company Name | Closing Date | Acquirer | Description | Deal Size (\$MMs) | |
| Deep Longevity | 12/14/20 | Regent Pacific Group | Aging-related biomarkers intended to track the rate of aging | 3.8 | |
| Apixio | 12/8/20 | Centene | Al technology platform designed to transform actionable information from healthcare data | | |
| Verata Health | 12/3/20 | Olive | Artificial intelligence platform designed to improve prior authorization process | | |
| RenewSenses | 11/24/20 | TechFinancials | Wearable device designed to provide blind individuals with a radically new opportunity to see through sound and touch | 0.2 | |
| Insig Health / Tia Health | 11/6/20 | WELL Health Technologies | Virtual healthcare platform designed to provide a diagnosis based on their current medical state, symptoms and past medical history | 37.9 | |
| Livongo | 11/4/20 | Teladoc Health | Data science and technology enabled platform for detection of diabetes | 18,500.0 | |
| Biolink.Tech | 9/11/20 | Gorodskoy Supermarket | Private AI tools intended to help people reverse obesity and type 2 diabetes | 0.4 | |
| Circle Medical | 9/9/20 | WELL Health Technologies | Tech-enabled primary care practice clinic intended to provide primary care without a membership fee | 14.3 | |
| BeoGenomics | 9/3/20 | APIS Assay Technologies | Bioinformatics and artificial intelligence software | | |
| Synchronous Health | 8/28/20 | Adventist Health | Artificial intelligence platform designed to reinvent behavioral health care | | |
| Soundwise Healthcare | 8/26/20 | Meinian Onehealth | Ultrasound medical imaging technology | | |
| InfiniteMD | 8/25/20 | ConsumerMedical | Al software designed to make medical recommendations and records management to increase access to care and medical knowledge | | |
| Vium | 7/28/20 | Recursion Pharmaceuticals | Digital biomarkers intended to assist in pre-clinical drug research | | |
| Dana Solutions | 7/23/20 | Curi Bio | AI products for drug screening, toxicity testing and quality control | | |
| Perimeter Medical Imaging | 6/30/20 | New World Resource | Advanced in-procedural medical imaging tools | | |
| Claritas HealthTech | 6/29/20 | Labrador Technologies | Healthcare software company focused on image enhancement | | |
| PharmaTher | 6/3/20 | Newscope Capital | Psychedelic-derived drugs with artificial intelligence | 3.3 | |
| RYAH | 6/1/20 | | Artificial intelligence based data aggregation and technology platform designed to bolster the cannabis industry to higher medical standards | | |
| Kaiku Health | 5/15/20 | Elekta | Intelligent patient monitoring software designed to improve the quality of life through health data science | | |
| VisualDx | 5/15/20 | Coverys | Web-based clinical decision support system designed to enhance diagnostic accuracy, aid therapeutic decisions and improve patient safety | 12.8 | |

| Gaido | 4/16/20 | Biofourmis | Remote monitoring platform intended to improve the quality of care and outcome of the patient | |
|------------------------------|---------|-----------------------------|--|-------|
| Spectral Insights | 4/1/20 | nference | Diagnosis software aimed to boost a pathologist's efficiency in enabling a diagnosis | 4.0 |
| MicroPredictome | 4/1/20 | Phyla | Al algorithm platform intended to offer a clinically relevant simple-to- use at-home test for gastrointestinal diseases | |
| Insig Health / Tia Health | 3/26/20 | WELL Health Technologies | Virtual healthcare platform designed to provide a diagnosis based on their current medical state, symptoms and past medical history | 5.9 |
| Diploid | 3/10/20 | Invitae | Clinical genome interpretation software designed to diagnose and tackle rare diseases | 82.3 |
| Spring Rain Doctor | 3/6/20 | Sogou | Health application platform intended to help people better understand their own needs and grasp the health information | |
| TeraRecon | 3/4/20 | SymphonyAl | 3D medical image processing systems intended toimpact clinical care across health systems | |
| Telemynd | 3/1/20 | SB Investment Holdco | Technology platform designed to serve behavioral health services | |
| Palabra Apps | 2/21/20 | Elekta | Diction based clinical workflow software designed to transform the oncology information management landscape | |
| Touch Surgery | 2/13/20 | Medtronic | Cloud-based data analytics systems designed to codify surgical procedures and improve global surgical care | 350.0 |
| Nectarine Health | 1/31/20 | Brighter One | Remote care monitoring device intended to assist senior living and independent living facilities to deliver more efficient and higher quality care | 1.4 |
| Triggr Health | 1/13/20 | SonarMD | Predictive system of care designed to help in addiction recovery | |
| InfiniteMD | 1/9/20 | ConsumerMedical | Al software designed to make medical recommendations and records management to increase access to care and medical knowledge | |

TM CAPITAL'S HEALTHCARE TEAM

Our healthcare team architects market-defining outcomes for some of the world's most innovative medical device, life science, diagnostics, healthcare services and pharmaceutical companies. Please touch base to see how we can orchestrate an extraordinary outcome for you in these sectors, or other healthcare sectors.



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