PitchBook

EMERGING TECH RESEARCH

Enterprise Health & Wellness Tech

Q4 2020

Contents

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This Emerging Technology Research report is updated on a quarterly basis to reflect changes in venture capital deal activity and other market-related updates deemed valuable by the research analyst. Clients can access the previous quarterly report **here.**

Q4 2020 news and highlights

VC ACTIVITY

- In Q4 2020, enterprise health & wellness tech companies raised $3.2 billion in VC funding, up from $2.0 billion in Q3.
- 310 VC deals closed in 2020 for a total of $8.3 billion, eclipsing 2019's total deal value, $4.9 billion, and deal count, 301.
- 38 exits closed in the sector in 2020, with 10 exits occurring in Q4.
- Through Q4, investors have concentrated the majority of VC funding in companies based in North America (74%) with most funding going towards operations & care management companies.

NEWS

- **October:** LabCorp's clinical research organization (CRO) unit Covance announced it will shift from a traditional site-based trial company to a siteless one, requiring it to increase adoption of virtual health tech.
- **November:** Amazon (NASDAQ: AMZN) launched Amazon Pharmacy, allowing US customers to order prescription medications for home delivery (with free delivery for Prime members).
- **December:** The US Department of Health and Human Services (HHS) launched its "Regulatory Sprint to Coordinated Care" initiative to promote care coordination and technology that enables better information exchange and safeguards the integrity of the healthcare ecosystem.

Q4 2020 NOTABLE EXITS

- **October 10:** HealthStream (NASDAQ: HSTM) acquired Hospital Management Platform **ShiftWizard** for $32 million.
- **December 12:** Centene (NYSE: CNC) acquired **Apixio**, a healthcare analytics and big data company, for an undisclosed amount.
- **December 22: General Healthy** (SHA: 605186), which provides software- and hardware-based pharmacy logistic automation solutions, achieved a post-money valuation of $294.3 million after completing an IPO.
- **October 29: Ontrak** (NASDAQ: OTRK) acquired **LifeDojo**, a behavioral health coaching startup which primarily sells to employers, for about $10 million in cash and equity.

Q4 2020 NOTABLE DEALS

- **December 29: DXY**, an operations care and management startup, raised a $500.0 million Series E.
- **October 27: Honor**, a customer acquisition technology startup, raised a $140.0 million Series D.
- **October 2: ScriptDrop**, a prescription technology startup, raised a $20.0 million Series A.
- **November 11:** Clinical trial technology provider **Medable** raised a $91.0 million Series C.

Executive summary

The era of patient-driven care is putting pressure on medical practices, pharmaceutical companies, pharmacies, and wellness providers such as gyms and spas to incorporate digital technologies. Emerging products responding to this demand include data collection and analysis software, practice automation tools, records and information management, and patient and customer engagement solutions. These offerings help organizations provide better care, reduce costs, reach new markets and customers, and comply with regulations.

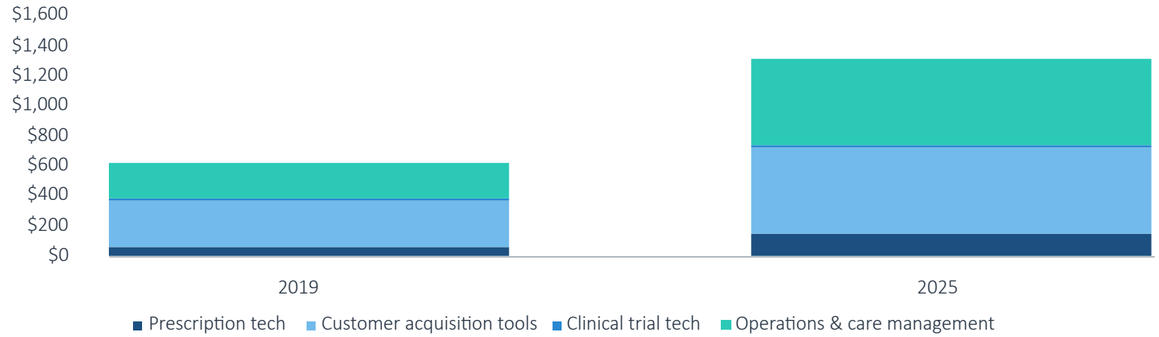
In this report, we focus on the enterprise side of the health & wellness tech industry, segmenting it into the following four categories: prescription tech, customer acquisition tools, clinical trial tech, and operations & care management. Information and analysis regarding consumer-focused startups can be found in the **Emerging Tech Research: Health & Wellness Tech: Retail** report.

We have determined that the enterprise health & wellness tech industry is valued at around $640 billion as of H1 2020 and have projected it to reach $1.3 trillion by 2025, growing at a 14% CAGR. VC deal activity within this space has spiked significantly as healthcare organizations, clinical trial organizations, employers, and policymakers adopt related initiatives. In the wake of the COVID-19 pandemic, we expect governments and NGOs will prioritize technologies that can help mitigate the health impacts of future pandemics. This will likely accelerate investment into technologies in the realm of disease tracking, public health tools, and pharmaceutical technology.

The venture ecosystem is a vital incubator for this space. In 2020, VC deal value for enterprise-oriented companies in the health & wellness tech industry totaled $8.3 billion across 310 deals, nearly doubling 2019's total deal value, but in line with deal count. We recorded 11 VC mega-deals ($100 million+) in Q4—nine of which were completed by operations care and management startups. While we forecast strong market growth, ongoing risks for new startups include competition from legacy providers, buyers' reluctance to adopt new technology, and the high cost of new product installation and integration. We outline industry growth drivers as follows:

Figure 1.

Enterprise health & wellness tech market size ($B) by segment



Source: PitchBook

- Government initiatives to improve healthcare infrastructure and safety measures
- Technological innovation, including Internet of Things (IoT) and artificial intelligence (AI), and the adoption of smartphones
- Proactive measures taken by healthcare organizations to improve patient care
- Rise in number of clinical trial research organizations and virtual clinic trials (a result of COVID-19)
- Increased focus on employee benefit programs and workplace wellness

Key takeaways

Core components necessary for startup success: As the health technology market grows, competition for consumers and VC funding increases. We believe startups aiming to fulfill the following criteria will have more success:

- **Personalized and integrated into existing clinical pathways and flows:** Technologies should be able to communicate with electronic medical records (EMRs). To do so they must be built with open APIs to ensure interoperability. Furthermore, the technology should create personalized data or utilize existing data to assist clinical decision support tools.
- **Focused on enhancing quality of care:** Organizations should connect social determinants to healthcare, improve patient engagement and experience, drive behavioral changes related to health and wellness, foster remote patient monitoring adoption, and promote medication adherence.
- **Cost-effective:** Technology should optimize clinical and operational workflows, create point solutions to reduce friction and waste, integrate real-world evidence into solutions using technology, and enhance clinical trial recruitment and monitoring.

COVID-19 has both negative and positive market effects: There are several ways in which the healthcare IT industry stands to benefit from ongoing efforts to combat the current pandemic and prevent future outbreaks. Governments are increasing their support of disease tracking and public health technologies, avoidance of in-person pharmacies is driving adoption of e-pharmacies, and the inability to conduct in-person clinical trials is driving demand for technology that lets researchers remotely communicate with and monitor patients. While the pandemic appears to be serving as a catalyst for partnerships between wellness providers and organizations seeking to offer mental and behavioral products and services to employees, members, or students, high unemployment and a weak economy is limiting investment in these programs.

Prescription tech growing at a 16% CAGR: Prescription tech is expanding the quickest of the enterprise health & wellness segments, growing at a 16% CAGR. Growth drivers for the prescription tech industry include improved digital infrastructure, a need to reduce medication error, COVID-19, and consumer and hospital demand.

VC activity

The enterprise health & wellness tech industry generated $8.3 billion in VC deal value in 2020. In Q4 2020, 49 deals closed for a total of $3.2 billion, marking the largest quarterly deal value over the past five years. The median VC pre-money valuation reached $36.5 million in 2020, up from $25.0 million in 2019 and $17.2 million in 2018, signaling industry maturity.

The operations & care management segment experienced the largest infusion of VC in 2020, bringing in $5.3 billion across 184 deals. The three largest VC deals to close in 2020 all occurred in Q4: **DXY's** $500.0 million Series E, **Tempus Lab's** $450.0 million Series G, and **LumiraDx's** $389.2 million late-stage round. A total of 26 VC mega-deals closed in 2020, eleven of which occurred in Q4. These large deal types only occurred within the operations care and management (nine deals) and clinical trial technology (two deals) segments in Q4.

Enterprise health & wellness tech VC ecosystem market map

Click to view interactive market map on the PitchBook Platform

Market map is a representative overview of venture-backed or growth-stage providers in each segment. Companies listed have received venture capital or other notable private investments.

Operations & care management

Patient management

丁香园 · ESSENCE HEALTHCARE · visby medical · CITYBLOCK · 芥仁 · PEAR THERAPEUTICS · Preventice SOLUTIONS · 妙手医生 · Carbon Health · ConcertoHealth · mindstrong · Quartet · AIRSTRIP · HotSpot Therapeutics · PATIENTPING · LifeImage

Healthcare analytics & Big Data

lumiraDx · 数坤科技 SHUKUN · biofourmis · 森亿智能 SYNYI.AI · Vineti · innovaccer · syapse · komodo · Clarify · AETION

Hospital management

VillageMD · 平安医保科技 · Olive · iorahealth · 医联 · LeanTaaS · kareo · HNIhealthcare · KlayaCare

Customer acquisition tools

Scheduling & marketing platforms

classpass · Doctolib · calendly · Zocdoc · Gympass · 好大夫在线 · dr. on demand · practo · heal · KYRUUS · ZnanyLekarz · PATIENTPOP · LetsGetChecked · AKTANA · SOLERA · trusted · JOBBER · schedulicity · Solv. · PULSEPOINT · HealthCare.com · 名医主刀 · sondermind

Corporate distribution

babylon · GESTO · Welltok · Modern Health · vida · Dialogue · cxagroup · flare · welldoc · peerfit · springbuk · centrical

Clinical trial technology

Patient recruitment & retention

TEMPUS · Science 37 · teckro · antidote · trialbee · DEEP6 AI · HealthMatch · SubjectWell · inato · Clara · CIRCUIT CLINICAL · CLINPAL · Citruslabs

Clinical trial management (CTM) & electronic data capture (EDC) systems

药研社 · Verana Health · DATAVANT · ReifyHEALTH · SIGNALPATH · medrio · MEDnet · castor · 4G CLINICAL · Complion · Florence · Cmed · CLINICAL MAESTRO · ClinOne · transparency life sciences

Electronic clinical outcome assessment (eCOA)

MEDABLE · UNLEARN · koneksa health · umotif · ClaritasRx · Datacubed Health

Prescription technology

E-pharmacy

ro · alto · 上药云健康 · 方康 · 1mg · MEDLY · netmeds.com India #1 Pharmacy · 泉源堂大药房 · Nimble · 快方 · NowRx · SPH 上海医药 SHANGHAI PHARMA · farmalisto · scriptdrop · honeybee · Jio Health · POCKETPILLS · DIGI-PREX · Bicycle Health · dawaai · many

Pharmacy automation technology

ASTERES · KITCHECK · mPharma · PerceptiMed · NEW ICON · orbitalRX · HighRes biosolutions

E-prescription

xealth · synapse · bravado health · memed · eazyScripts · EIRSYSTEMS

SEGMENT DEEP DIVE

Prescription tech

Overview

The prescription tech market is categorized into three subsegments: pharmacy automation technology, e-prescription, and e-pharmacy. Players in this space are working to revamp the value chain of prescription receipt (as shown in Figure 2 and 3). Industry growth is mainly driven by improved digital infrastructure, a need to reduce medication error, and consumer and hospital demand. We believe the market is growing at a 16% CAGR from $60.8 billion in 2019 to $150.7 billion in 2025.

Pharmacy automation technology: Pharmacy automation generally refers to a range of physical products that automate the dispensing, packaging, and labeling of medicines. Pharmacy automation tools include counting scales, table counting tools, cabinet dispensers, dispensing robots, and packaging robots. For example, **Asteres**' ScriptCenter system is a self-checkout kiosk that enables customers to pay for and pick up prescriptions without interacting with a pharmacist. Pharmacy automation technology tools increase efficiency and reliability in pharmacies and can prove less expensive, in the long term, than technicians or pharmacists. Chain pharmacies and health system pharmacies were early adopters of pharmacy robots, though hospitals and independent pharmacies have been expanding their use as well. Both hospitals and independent pharmacies seek to optimize shared service centers using central fill operations.

E-prescription: E-prescription providers enable medical practitioners to electronically generate and send prescriptions directly to pharmacies. E-prescription systems can be standalone or part of an integrated electronic health record system. Integrated e-prescription systems generally grant access to patient health data, while standalone systems do not.

E-pharmacy: E-pharmacies represent e-commerce sites that sell and deliver over-the-counter (OTC) and prescription medicines to consumers. E-pharmacies are gaining popularity for their convenience, a wider array of drug availability, and often lower prices.

Business model

Pharmacy automation technology: Companies in this space generate revenues from selling or leasing their devices. They can generate additional revenues from services related to maintenance and software upgrades.

E-prescription: E-prescription solutions are delivered through on-premise, web-based, and cloud-based systems to hospitals and office-based physicians. These solutions enable the prescriber to use a computer or handheld device to write and send a prescription. Companies in this space generate revenue through a SaaS business model. For example, **EazyScripts**' platform is sold to individual practitioners and small medical offices, their target customers, through a monthly to yearly subscription fee. E-prescription platforms are often integrated into patient management software. **Bravado Health** launched Avya Engage, a patient engagement solution, in June 2019. Treat is sold under Avya Engage as a standalone e-prescription app but may communicate and share data with other Avya products.

E-pharmacy: E-pharmacies sell both OTC and prescription drugs, with OTC representing the largest business. Revenue is generated via sponsored listing, advertisements, and sale commissions. Commission-based revenues are the most common model. Most e-pharmacies source medicine directly from manufacturers, which enables them to sell at a lower price while still earning a sizable commission. However, some e-pharmacies, such as **Yodawy**, source from partner pharmacies. E-pharmacies are generally able to offer lower prices

Figure 2.

Legacy value chain of prescription receipt

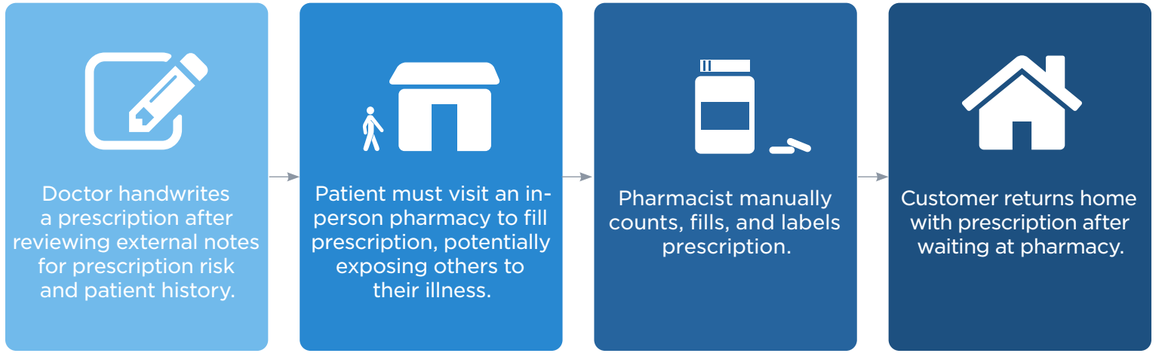


Figure 3.

Revamped value chain of prescription receipt

due to scale efficiencies, including higher sales volume, which results in drugs expiring less frequently; large, centralized locations, which reduces real estate costs; and broader automation of processes, which reduces staffing costs.

Market size

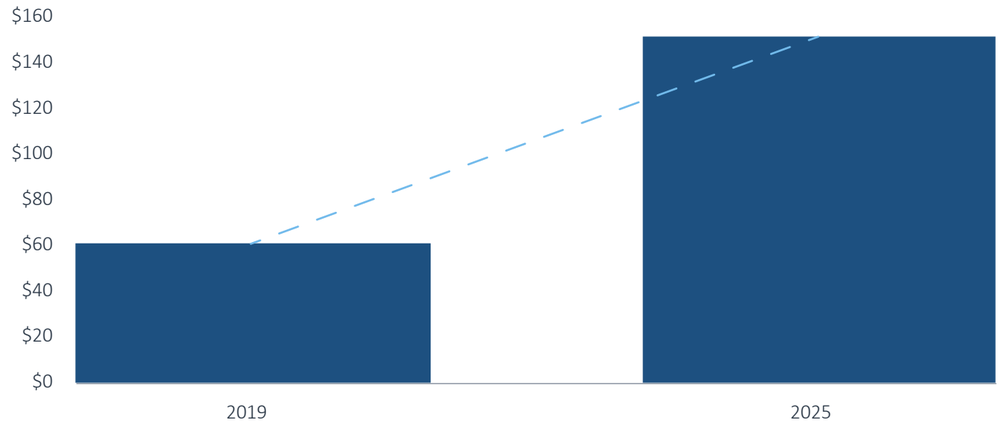
We estimate the global prescription tech market to be $60.8 billion as of 2019. We forecast this industry to grow at a 16% CAGR between 2019 and 2025, slightly faster than the pace of the overall global enterprise health & wellness tech market, which we project to grow at a CAGR of 14%% over the same timeframe. We anticipate e-prescription technology to grow at 21%, with e-pharmacies following behind at 15% and pharmacy automation tools growing at 9%.

Industry drivers

Improved digital infrastructure: Internet penetration, the rise of mobile applications, e-commerce, and improved healthcare IT has helped pave the way for the prescription tech market. Improved healthcare IT enables prescribers to send prescriptions directly to e-pharmacies, monitor when the prescription is filled, and ensure consumers are not receiving multiple prescriptions. Similarly, consumers have become increasingly comfortable with online purchases of prescriptions and prefer seamless payment, easy pick up, or quick delivery.

The shift toward decentralized pharmacies. In a decentralized pharmacy, a pharmacist positioned on a particular hospital ward performs both clinical and distribution services. As a

Figure 4. PRESCRIPTION TECH MARKET SIZE ($B)



Source: PitchBook | Geography: Global

COMMON INDUSTRY KPIS

- Revenue growth
- Customer acquisition cost
- Net promoter score
- Pharmacy automation technology hardware: per-unit manufacturing cost, gross profit margin, cogs/unit sales
- E-pharmacy: number of hospital, biopharma, and insurance partnerships
- Monthly recurring revenue
- Churn rate
- Viability ratio (LTV/CAC)
- Users under license
- Market penetration proportion

result, more medications are kept within the medication room than in a centralized pharmacy, which typically store only a few PRN (pro re nata, or as needed) drugs, requiring only a single half-size automatic medication dispenser and half-size refrigerator as nurses themselves dispense the medications. Hospitals are adopting decentralized pharmacies to increase patient safety and care, reduce costs, and optimize nursing workflow. However, studies show that automation tools are also required to decrease the amount of work for the pharmacy itself.[1]

Ongoing efforts and initiatives to reduce medication error: Medication and dispensing errors are recognized as leading causes of hospital readmissions across the globe.[2] E-prescribers decrease medical errors by eliminating handwritten prescriptions, providing decision support tools, and reducing fraud and abuse in the prescriptions of controlled substances. Historically, implementation of automated dispensing cabinets (ADCs) and automated dispensing machines (ADMs) in hospitals has led to a significant drop in the number of dispensing and medication errors in hospitals.[3]

The ability to reduce medication errors using these tools has driven support by governments and healthcare professionals globally. In the US, many states have passed or introduced e-prescription mandates to fight the opioid epidemic and comply with the SUPPORT for Patients and Communities Act, which requires e-prescriptions for all controlled substances and will be enacted under Medicare Part D by January 2021. Governments around the world are also pushing for the adoption of e-prescription systems. In 2018, the Australian Department of Health and Human Services sought co-investment to instate oncology e-prescription systems across the country, while the United Arab Emirates' Ministry of Health and Prevention banned handwritten medical prescriptions.

Growing consumer demand in the face of the pandemic: Consumers are increasingly opting for e-pharmacies offering home delivery, discounts, and vast drug availability. E-pharmacies allow patients to avoid visiting a pharmacy in person, a valuable feature for the elderly and those seeking to minimize exposure to and prevent spread of infectious diseases, such as COVID-19. While consumers may have previously avoided transitioning to e-pharmacies due to habit, difficulties transferring prescriptions, and concerns regarding online drug purchase safety, we expect COVID-19 to drive e-pharmacy adoption. **PharmEasy**, an example of shifting consumer sentiments, reported a 100% increase in demand. Furthermore, the US Food and Drug Administration (FDA) is actively working to heighten awareness related to the safety of e-pharmacies and diminish fraudulent e-pharmacy activity.

Government initiatives to reduce online fraud drives adoption: Illegitimate websites offering counterfeit and unapproved drugs generally weaken consumer confidence and reduce adoption. The US Food and Drug Administration (FDA) is actively working to heighten awareness related to the safety of e-pharmacies and diminish fraudulent e-pharmacy activity.

Development of new specialty drugs: The development of new specialty drugs, such as biologics, can be expensive and often are not handled by retail pharmacies. E-pharmacies maintain large fulfillment centers capable of keeping less prescribed drugs in stock with lower expiration risk.

1: "Impact of Decentralized Pharmacy Technicians on Medication Delivery and Nursing Satisfaction," American Journal of Experimental and Clinical Research, Vol 5, No 1, Gwen Seamon, Megan Bereda, and Raoof Abdellatif, January 2018.
2: Global E-prescribing Market Size, Share & Industry Analysis, By Delivery Mode (Web-based, On-premise), By Prescription Type (Controlled substance, Non controlled Substances) By End User (Hospitals, Physician's offices, Pharmacies) and Regional Forecast, 2019-2026, Grand Review Research, September 2019.
3: "Safeguards for Using and Designing Automated Dispensing Cabinets," P & T: A Peer-Reviewed Journal for Formulary Management, Vol 37, No 9, Matthew Grissinger, September 2019.

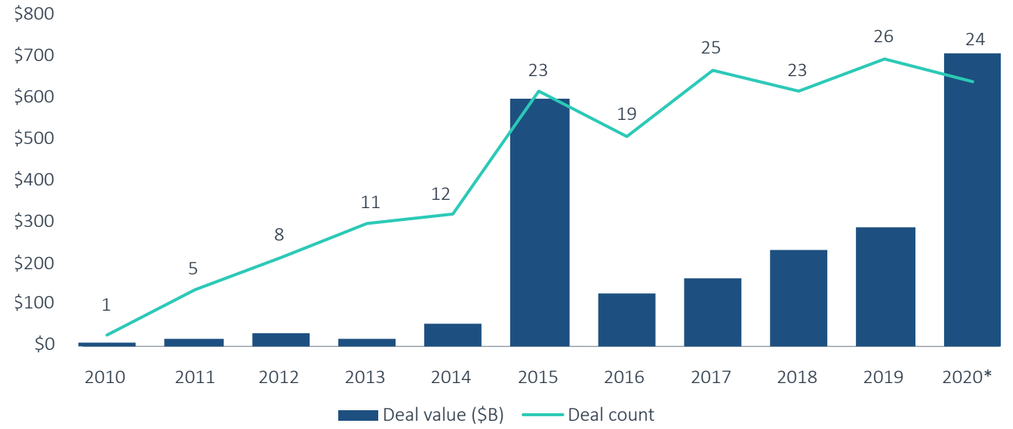
Pandemic driving more online retail: E-pharmacies allow patients to avoid visiting a pharmacy in person, a valuable feature for the elderly and those seeking to minimize exposure to and prevent the spread of COVID-19. While consumers may have previously avoided transitioning to e-pharmacies due to habit, difficulties transferring prescriptions, and concerns regarding online drug-purchase safety, the pandemic has caused them to make the transition. For example, **PharmEasy** has reported a 100% increase in demand over recent months. We anticipate consumers will grow accustomed to using e-pharmacies and keep using them even after the pandemic is over.

VC activity

In Q4 2020, we saw one VC deal in the prescription tech segment, substantially below the $353.9 million in Q3 2020 across seven deals. The single Q4 deal was a $20.0 million Series A for US-based **ScriptDrop** to support growth in its prescription delivery service platform. While **ScriptDrop** currently has few competitors, we are seeing more international startups focused on pharmacy delivery, including **Mediclix** and **Chefaa**.

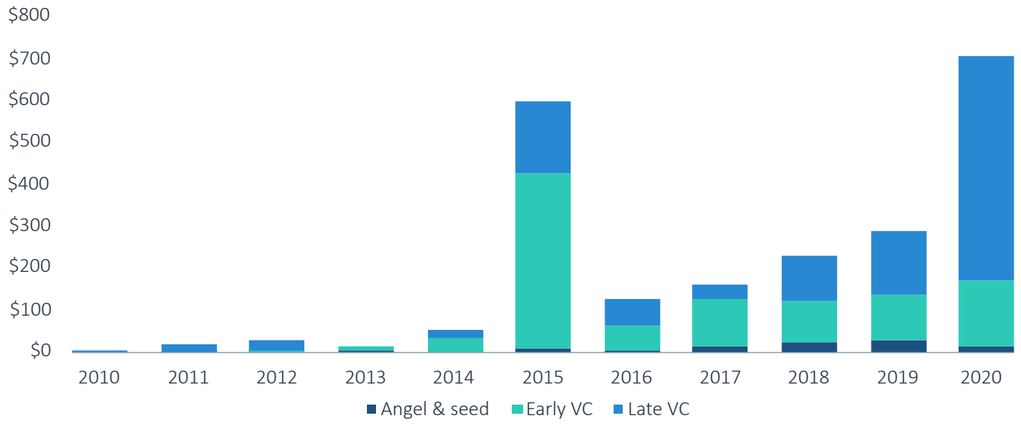
We believe the e-pharmacy space remains ripe for consolidation. Three acquisitions occurred in 2020: **MedLife** was acquired for $230.0 million, **Netmeds.com** was acquired for $82.6 million, and **Zipdrug** was acquired for an undisclosed amount. **General Healthy**, which provides software- and hardware-based pharmacy logistic automation solutions, completed an IPO on December 22, 2020 at a valuation of $294.3 million. Notable exits in recent years include **Netmeds.com's** 2016 acquisition of drug delivery app **Pluss**, Amazon's 2018 acquisition of **PillPack**, and **Pharmasimple's** 2019 acquisition of **1001Pharmacies**. We believe the e-pharmacy space remains ripe for consolidation.

Figure 5. PRESCRIPTION TECH VC DEAL ACTIVITY



Source: PitchBook | Geography: Global

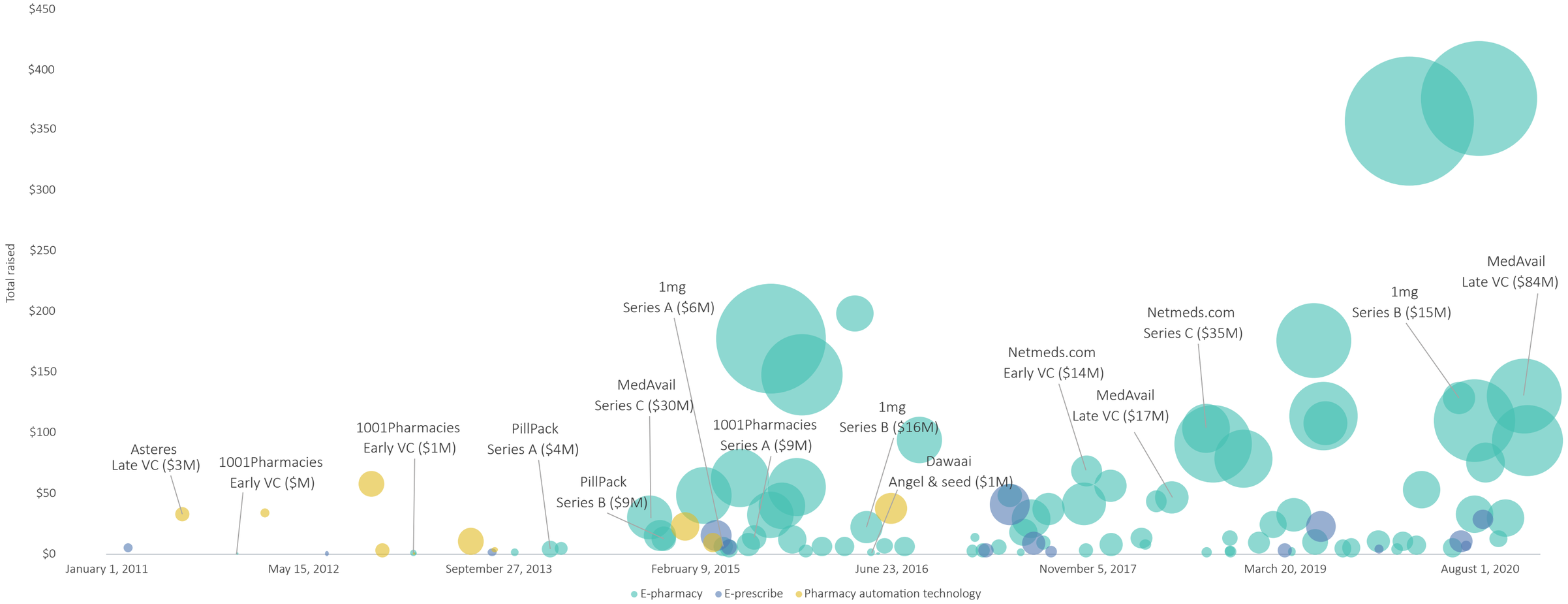
Figure 6. PRESCRIPTION TECH VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: Global

Figure 7.

Prescription tech VC landscape ($M)



Source: PitchBook | Geography: Global

Note: The left axis indicates total VC raised as of deal date. Bubbles indicate amount raised.

PRESCRIPTION TECH

Figure 8.

Notable prescription tech VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	POST-MONEY VALUATION ($M)*	DEAL TYPE	LEAD INVESTOR(S)	VALUATION STEP-UP
MedAvail	November 18, 2020	E-pharmacy	$84.0	N/A	Late-stage VC	Ally Bridge Group	N/A
qyt1902	November 27, 2020	E-pharmacy	$75.4	N/A	Series C	N/A	N/A
Medlife (Specialty Retail)	August 13, 2020	E-pharmacy	$22.4	N/A	Late-stage VC	N/A	N/A
ScriptDrop	October 2, 2020	E-pharmacy	$20.0	$135.0	Series A	Ohio Innovation Fund	N/A
Xealth	August 6, 2020	E-prescription	$6.0	$45.0	Series A	N/A	1.00x

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 9.

Notable prescription tech VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	POST-MONEY VALUATION ($M)*	EXIT TYPE	STOCK/ACQUIRER	VALUATION STEP-UP
PillPack	September 11, 2018	E-pharmacy	$753.0	$753.0	M&A	Amazon.com	N/A
Medlife (Specialty Retail)	September 23, 2020	E-pharmacy	$230.0	$230.0	M&A	PharmEasy	N/A
Netmeds.com	August 19, 2020	E-pharmacy	$82.6	N/A	M&A	Reliance Retail	N/A
Millennium Pharmacy Systems	September 26, 2014	Pharmacy automation tools	$42.0	$42.0	M&A	PharMerica	N/A
Cretem	November 26, 2015	Pharmacy automation tools	$28.3	$39.3	M&A	DIH Technologies	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 10.

Key VC-backed prescription tech companies

COMPANY	VC RAISED TO DATE ($M)*	SUBSEGMENT	KEY PRODUCTS/COMPANY DIFFERENTIATION
Ro	$376.1	E-pharmacy	Diagnosis to deliver; offers both telemedicine services and prescription delivery
Alto	$357.5	E-pharmacy	In-house fleet of couriers deliver prescriptions to consumer doorsteps
SPH Health Commerce	$198.6	E-pharmacy	Analyzes digital prescriptions and connect patients with appropriate pharmacists and hospitals in China
7LeKang	$148.0	E-pharmacy	Operates retail stores in addition to online pharmacies
1mg	$128.6	E-pharmacy	India's largest online pharmacy

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 11.

Key prescription tech incumbents

COMPANY	HOLDING STATUS	SUBSEGMENT	KEY PRODUCTS	LAST KNOWN VALUATION ($M)*
Baxter International	Public	Prescription automation tools	EXACTAMIX Automated Compounding Systems, ABACUS Calculation Software	$20,202
ExpressScripts	Public	E-pharmacy	Largest US pharmacy benefit management organization; mobile application enables individuals to find preferred pharmacy, refill prescriptions, and check order status	$52,800
AllScripts	Public	E-prescription	Veradigm ePrescribe	$303
Athenahealth	Public	E-prescription	EHR system with e-prescription abilities	$6,147
CVS Health	Public	E-pharmacy	Mobile app enables individuals to see script schedule, track refills, and order free delivery	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2020

Opportunities

Device optimized software: Handheld electronic devices, such as tablets, personal digital assistants, and smartphones are preferred in exam rooms for e-prescritions due to their lower cost and ease of use. We expect systems compatible with small screens to perform well as they are easy for physicians to carry around the hospital. **DrFirst** modified its Rcopia e-prescription system in 2019, making it compatible with mobile device screens.

Integrated prescription software that complies with government incentive programs: Standalone prescription software solutions assumed the majority of market share in 2018. However, research suggests integrated solutions will gradually take share owing to favorable government initiatives meant to increase their usage and standalone systems' failure to fully fulfill meaningful-use criteria.[4] Integrated prescription systems (that is, software connected to electronic health record systems) can gain access to historical patient data, helping doctors avoid dangerous mistakes such as prescribing a medicine to which the patient is allergic or over-prescribing opioids. We expect government incentives will help offset the cost of adopting integrated prescription technology. Key startups providing such platforms include **Kareo** and **EIRSystems**.

Startups focused on mitigating opioid misuse: The ongoing efforts by governments and healthcare professionals to manage the over-prescription and overuse of opioids has created opportunities for startups such as **EIRSystems** and **Ethilog**. **EIRSystems'** P.A.G.R. Prescriptions provides a secure and interoperable platform which allows doctors and pharmacists to issue and track opioid prescriptions and perform medicine reconciliation. **Ethilog's** storeON is an automated medication dispensing systems (AMD) which monitors drug patterns, tracks controlled substances, and eliminates manual end-of-shift narcotic counts in patient care units. These systems can improve patient safety by reducing medication errors, enhancing medical distribution efficiency, and minimizing under or overstocking.

Real-time prescription price transparency tools: Beginning January 2021, new Medicare and Medicaid regulations will require that Medicare Part D health plans include real-time benefit tools (RTBT) capable of integrating with at least one prescriber's ePrescribing or electronic health records (EHR) system. These RTBTs must offer price transparency to consumers and inform prescribers when lower-cost alternative therapies are available under the beneficiary's prescription drug benefit. This new legislation will create opportunities for tech providers that can supply RTBT capabilities. Startups that might be positively exposed to this opportunity include **QuickScripts** and **Rivet**, though SureScript is currently the market leader.

Considerations

Stringent regulatory procedures: The stringency of regulatory approvals depends on the class to which each system belongs and may vary by state. Manufacturers of automated systems for pharmacies must adhere to various regulations; ensuring such compliance is a tedious task and can delay product launch.

End-user reluctancy to adopt new technology, coupled with adoption cost: Selecting, creating, maintaining, and using electronic systems is a time-consuming feat, and many healthcare professionals are not equipped with the knowledge to operate advanced

4: "Differences Between Integrated and Standalone E-Prescribing Systems Have Implications for Future Use," Health Affairs, Vol 29, No 12, Catherine M. Descroches, Ritu Agarwhal, Corey M. Angst, and Michael A. Fischer, December 2010.

healthcare IT systems. End users may struggle to select the most effective combination of hardware and software components, and they often lack access to experts and trained IT professionals. Many pharmacists do not see a need for assistance and are reluctant to adopt automation systems. Until recently, only large-volume pharmacies and hospitals could justify the ROI. These issues are exacerbated in developing countries.

Growth of illegal online pharmacies and consumer hesitancy to trust new pharmacies: Illegitimate websites may offer counterfeit and unapproved drugs, making consumers increasingly skeptical of e-pharmacies. E-pharmacies must demonstrate to consumers that online pharmacies are just as safe and reliable as traditional pharmacies.

PBM agreements give incumbents the upper hand: In the US, there are fewer than 30 major pharmacy benefit managers (PBM), and the largest three—ExpresScripts, CVSHealth, and OptumRX—comprise 78% of the market.[5] Network agreements between PBMs and pharmacies may make it difficult for startups to offer competitive prices. PBMs reduce pharmaceutical costs by negotiating discounts and rebates with drug manufacturers, providing payment and claims processing, and aggregating consumer demand. Given the difficulty of developing of building or establishing partnerships with PBMs, we expect startups will likely favor M&A opportunities involving large incumbents.

Outlook

Government regulations will favor market growth: Asynchronous telemedicine, which saves patient messages and videos to be reviewed by physicians later, is not available in all states. As a result, e-pharmacies with telemedicine offerings need to adapt to individual states' legislation; failure to do so minimizes market size. For example, **Nurx** CEO Varsha Rao says her company, an e-pharmacy that offers asynchronous telemedicine—cannot operate in 20 states because of asynchronous telemedicine bans. She points out that while 90% of the population resides in the 30 states in which Nurx operates, uncovered states have the highest concentration of people without ready access to healthcare.[6] We believe states will decrease legislative barriers to asynchronous telemedicine in the coming years—as Maryland did earlier in 2020. If more states allow asynchronous medicine, burgeoning e-pharmacies such as Nurx will benefit.

Shift toward transparent pricing: Customers often do not know how much a medication will cost under their insurance until they purchase it. New technologies related to e-pharmacies will increase price transparency so that doctors and patients can see the cost of drugs at the time of prescribing. This would enable doctors to ensure medications are covered under patients' insurance and prescribe alternatives if not. E-pharmacies with telemedicine capabilities may be able to do this more quickly than traditional pharmacies.

E-pharmacies in Asia-Pacific region to experience highest CAGR: We anticipate the Asia-Pacific market to expand at the highest CAGR due to increasing penetration of high-speed internet with smartphones, soaring adoption of e-commerce platforms, and a growing population. In addition, regulatory authorities in some Asian countries are taking steps to promote healthcare infrastructure, while brick-and-mortar pharmacies are unable to meet rapidly rising demand. China, Japan, and India are becoming profitable markets for

5: Feldman, Brian S. "Big pharmacies are dismantling the industry that keeps US drug costs even sort-of under control". Quartz. Retrieved March 29,2016.

6: Varsha Rao, telephone interview by Kaia Colban, November 24, 2020.

this technology. Safe India Medicines has supported 60 new Indian e-pharmacy-focused startups. In 2019, **1MG** became the first e-pharmacy certified with LegitScript in India.

Web- and cloud-based e-prescription services to outperform on-premise solutions: Cloud platforms are an attractive option for independent practitioners, small clinics, physician offices, and community hospitals unable to afford on-premise storage and hardware systems. On-premise solutions are best suited for large hospitals that can pay high upfront costs and maintain servers on-premise to store sizable amounts of data. These larger institutions may also face regulatory barriers to using cloud systems given data safety requirements. **Bravado Health** offers a cloud-based e-prescription tool for controlled substances.

E-pharmacies to partner with telehealth providers: We have seen numerous partnerships between large pharmacies and telehealth providers. For example, **Teladoc** partnered with **CVS**, and **Walgreens** partnered with **MD Live**. We have yet to see many partnerships among VC-backed companies but anticipate many to form to increase customer bases.

Incumbents to expand their reach across the drug distribution ecosystem: We expect incumbent pharmacies to pursue a broad range of strategies to strengthen their position within the drug distribution ecosystem. These include partnering with, building, or acquiring telemedicine platforms, pharmacy automation tools (PAT), in-store pharmacies, PBMs, and mobile applications.

- **Telehealth:** We see natural synergies between the telehealth and e-pharmacy industries. 72% of patient-doctor interactions include prescribing medication, providing an opportunity to give patients an end-to-end health experience by integrating prescription delivery with treatment. In December 2020, Ro acquired Workpath, an in-home healthcare diagnostics platform.
- **PAT:** E-pharmacies are partnering with PAT providers and developing their own devices to cut cost. E-pharmacies are better suited to implement PAT than traditional pharmacies as they pool demand from large geographical areas into individual fulfillment centers, which justifies high implementation costs. **NowRX's** management believes the company's edge is derived from its focus on using technology to automate processes and drive efficiencies that can reduce costs, speed up insurance claims, and provide a better experience for stakeholders, including customers and prescribers.
- **Mobile applications:** Mobile application acquisition targets could include digital pill identifiers that provide comprehensive drug information, including dosing instructions, side effects, interactions, and warnings.

Market growth of India-based e-pharmacies hinges on future legislation: E-pharmacies currently hold 2%-3% of the market in India but are expected to account for 10% by year end.[5] This is due to the pandemic and big companies such as **Amazon** and **Reliance** entering the market either organically or via acquisitions. However, while pharmacies are permitted to sell directly to consumers online, legislation for third-party intermediaries that connect consumers to existing pharmacies is less certain and may cause regulatory obstacles that limit growth for new entrants.

SEGMENT DEEP DIVE

Customer acquisition tools

Overview

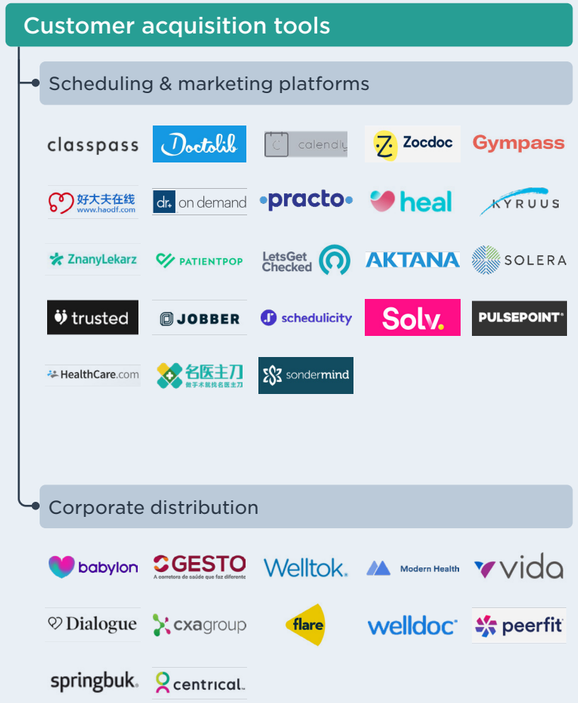
The customer acquisition tools market is categorized into two segments: scheduling & marketing platforms and corporate distribution. Industry growth is mainly driven by the corporate distribution category and the growth of technological innovations, the shift in consumer behaviors, and cost-saving opportunities. We believe the market is growing at a 10% CAGR from $324.5 billion in 2019 to $588.9 billion in 2025.

Scheduling & marketing platforms: Scheduling platforms enable individuals to search, schedule, and cancel appointments online, helping healthcare providers decrease customer service workload and minimize no-shows. This subsegment also includes marketing and marketplace platforms, which provide patient acquisition opportunities and drive provider discovery.

Corporate distribution: This subsegment includes corporate-focused providers and platforms that enable distribution via corporate channels. Startups in this arena typically focus on workplace wellness initiatives that include products related to physical and mental health.

Business model

Scheduling & marketing platforms: Appointment scheduling software market players typically offer various plans customized to suit the individual business' needs. These platforms charge monthly or annual fees based on number of employees or bookings in addition to add-on services, such as client text reminders. Platforms that offer payment solutions can also charge a payment processing fee.



Marketing platforms enable customers to discover and engage with wellness providers. These businesses generate revenue by selling ads and data and by charging wellness providers a commission.

Corporate distribution: Corporate distribution and wellness companies generate revenue by selling software and devices to employers (B2B2C), which in turn provides these services and products to their employees free of charge or at discounted rates in hopes of preventing work-related injuries and improving physical, behavioral, and mental health.

Market size

We estimate the global customer acquisition tools market to be worth $324.5 billion in 2019, with corporate distribution solutions valued at $55.0 billion and scheduling & marketing platforms valued at $270.0 billion. We forecast the industry to grow at a 10% CAGR between 2019 and 2025, below the pace of the overall global enterprise health & wellness tech market. We anticipate scheduling & marketing platforms to grow at an 11% CAGR and corporate distribution solutions to grow at a 7% CAGR.

Scheduling & marketing software represent nearly two-thirds of the total customer acquisition tools market. We expect this subsegment to continue to dominate the industry and anticipate SMB-focused providers to expand at a relatively faster CAGR of 14%. However, this market is highly competitive and includes several enterprise-focused companies including **Appointy**, **Acuity Scheduling**, **MyTime**, **Schedulicity**, **MindBody**, Square, **TimeTrade**, and **10to8**. We expect the cloud-deployment model to hold 75% of the appointment scheduling markets due to advantages including subscription pricing and automatic software updating.

Figure 12.

Schedulicity pricing per month

	Sole proprietor	11+
10 bookings/month	Free	Free
Unlimited bookings	$20.00	$50.00
Automated billing	$5.00	$10.00
Client text reminders	$5.00	$10.00
Multiple locations	$5.00	$10.00
Automated marketing	$25.00	$50.00
Package management	$5.00	$10.00
Integration: payment partners	$5.00	$10.00

Source: Schedulocity

CUSTOMER ACQUISITION TOOLS

The corporate distribution market includes several health & wellness tools for employees related to weight management, fitness, smoking, nutrition, diet, and stress management as well as health screening & assessment tools. Health screening & assessment contributed about 25% of the subsegment in 2019. These services are usually conducted by outside vendors. For example, PE-backed **Virgin Pulse** helps coordinate screening events between employers and service vendors. There has been a steep decline in companies offering preventative programs for employees with chronic health conditions, which we believe reflects the complexity of treating these conditions. We anticipate corporate offerings related to weight management & fitness services will experience the highest growth.[7] Large organizations represent the most substantial buying group, and we expect them to continue to dominate moving forward.

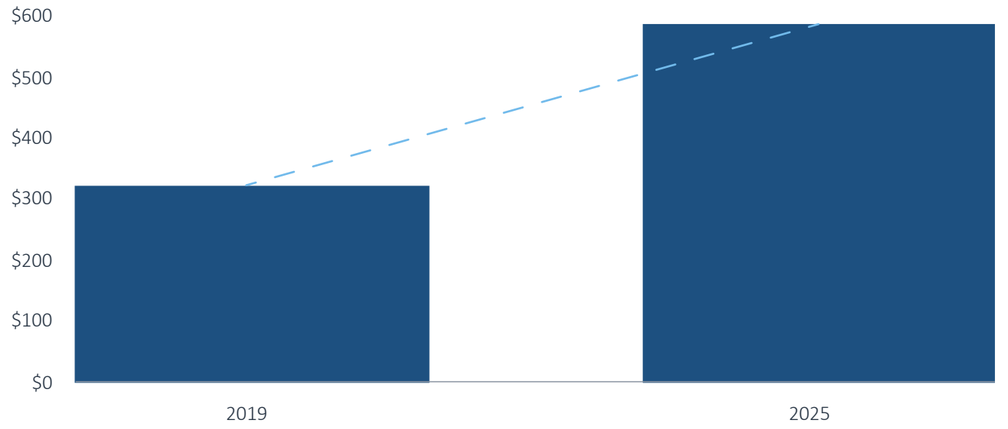
Industry drivers

Expanding datasets and AI helping create personalized services: AI is transforming the corporate wellness industry by creating personalized employee experiences and giving employees access to relevant and timely information. By leveraging data, wellness programs will be able to create a better user experience based on the employee's preferences and wellness goals.

Consumers using online search and scheduling tools to find providers and self-diagnose: Healthcare search engines have become common, which has driven demand for services that

7: "Workplace Wellness Market by Type (Weight Management & Fitness Services, Smoking Cessation Nutrition and Dietary Plan, Stress Management Services, and Health Screening), End User (Small-Size Private Organizations, Mid-Size Private Organizations, Large-Size Private Organizations, Public Sector, and Non-Governmental Organizations): Global Opportunity Analysis and Industry Forecast, 2019–2026," Allied Market Research, January 2020.

Figure 13. CUSTOMER ACQUISITION TOOLS MARKET SIZE ($B)



Source: PitchBook | Geography: Global

COMMON INDUSTRY KPIS

Both subsegments

- Revenue growth
- Net promoter score
- Conversion score (free/freemium to paid)
- Add-on utilization
- Customer retention
- Customer penetration
- Monthly recurring revenue
- Churn rate
- Viability ratio (LTV/CAC)

Corporate distribution

- Percent of employees using platform
- Change in employer's healthcare costs and employee productivity
- Abstinence rates post implementation

CUSTOMER ACQUISITION TOOLS

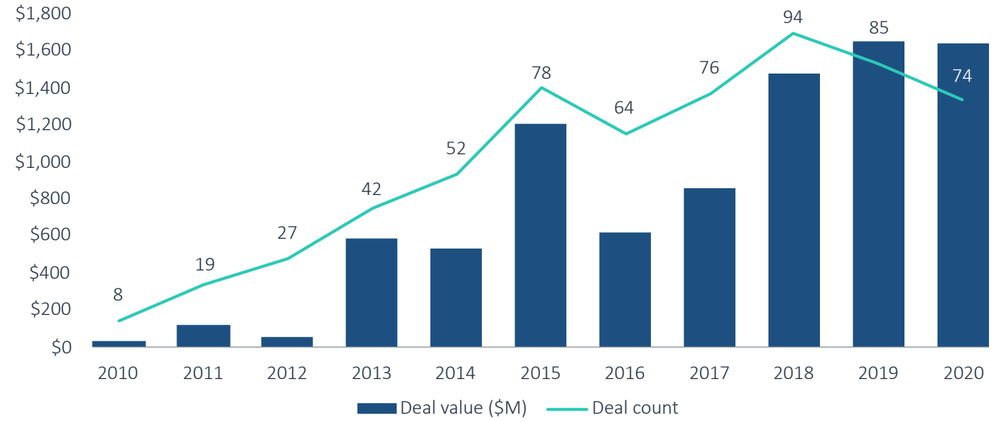
can help healthcare providers optimize their online presence through SEO and other digital marketing strategies. As consumers take control of their health and rely more on digital health channels, demand for scheduling & marketing software solutions has increased. Prior to the pandemic, consumer demand for health club memberships expanded the business opportunity to sell scheduling & marketing platforms for fitness centers, salons, spas, studios, and other boutiques, though this demand may take some time to return.[8]

Ongoing corporate strategies to reduce healthcare costs: Corporate wellness initiatives have the potential to reduce health-related costs, a powerful incentive to provide preventative health and wellness services. According to a study conducted by Harvard economists, absenteeism costs fall by $2.73 for every dollar spent on wellness programs.[9] However, the corporate wellness market remains small in comparison to the massive economic burden and productivity losses (10% to 15% of global economic output) associated with an unwell, disengaged workforce.[10] In addition, healthy employees cost less to insure, creating incentive for employers to find ways to encourage healthy lifestyles. Scheduling platforms enable businesses to decrease costs by reducing missed appointments, improving staff management, and increasing business efficiencies.

Evolving IT and increasing reliance on digitalization drives demand for scheduling software: Increased reliance on cloud computing has enabled providers to integrate services with existing platform more easily, while facilitating the use of both physical and virtual workplaces. AI and ML applications designed to improve the customer experience are finding more use-cases in the healthcare industry.

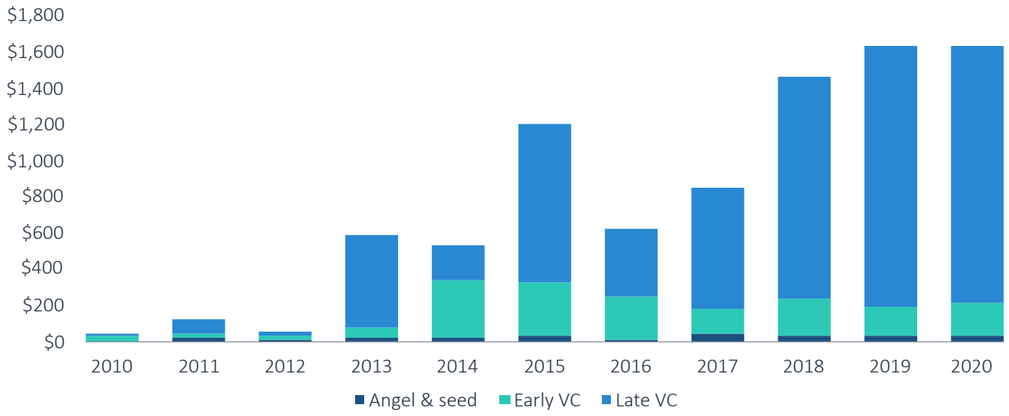
8: "2018 Shows Continuing Uptrend of U.S. Health Club Industry," IHRSA, April 12, 2019.
9: "Workplace Wellness Programs Can Generate Savings," Health Affairs, Vol 29, No 2, Katherine Baicker, David Cutler, and Zirui Song, February 2010.
10: "2018 Global Wellness Economy Monitor," Global Wellness Institute, Ophelia Yeung and Katherine Johnston, October 2018.

Figure 14. CUSTOMER ACQUISITION TOOLS VC DEAL ACTIVITY



Source: PitchBook | Geography: Global

Figure 15. CUSTOMER ACQUISITION TOOLS VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: Global

COVID-19 creates shifts corporate wellness startup opportunity: We anticipate providers focused on in-office wellness initiatives may struggle due to pandemic-induced layoffs and remote employment. However, heightened employee stress due to COVID-19 has incentivized corporates to invest in mental health and telemedicine initiatives.

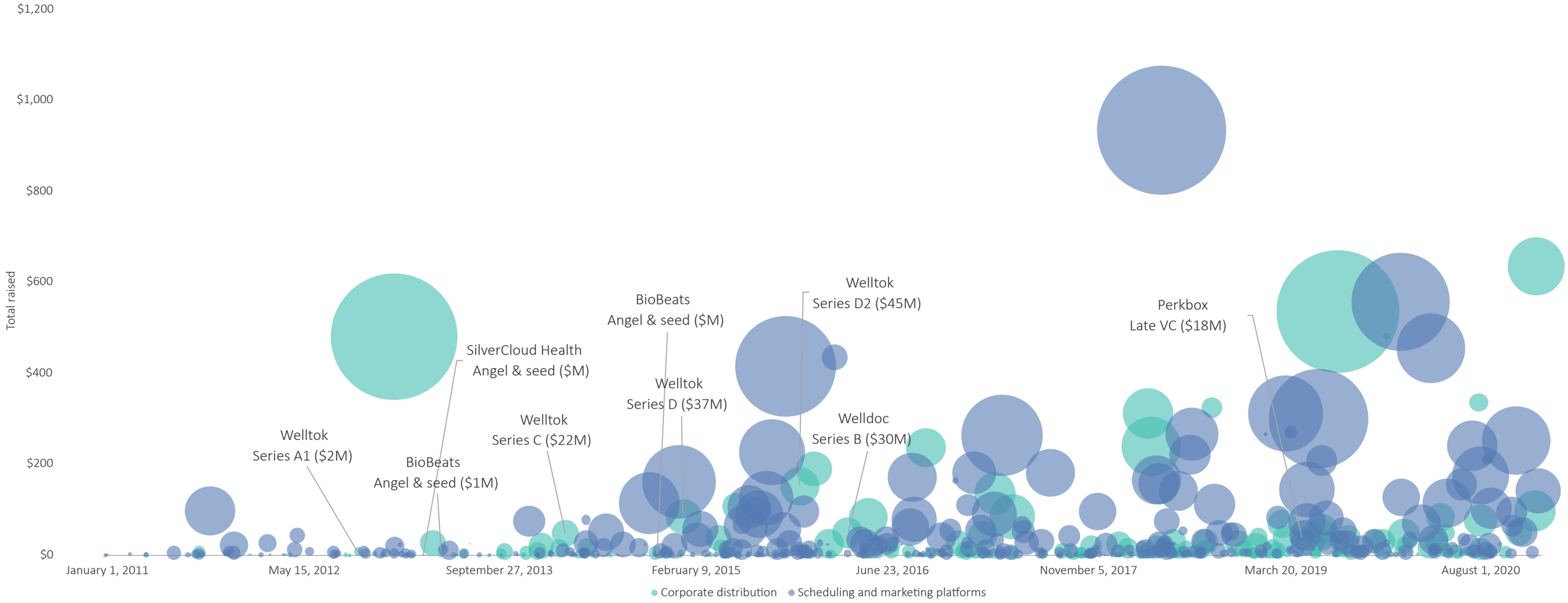
VC activity

The companies we track in the customer acquisition tool segment raised roughly $454.5 million in venture funding in Q4 2020, up from $337.9 million in Q3 2020. Startup **Honor's** $140.0 million late-stage deal was the largest in the quarter. The company helps elderly patients find in-home caregivers and allows care providers to manage scheduling, marketing, and payroll. Telehealth startup **Babylon Health** raised the second-largest deal, pulling in a $100.0 million late-stage round. **Babylon Health** partners with employers to reduce absenteeism and increase productivity by offering employees 24/7 virtual appointments.

In Q4, **Ontrak** acquired **LifeDojo**, a behavioral health coaching startup that primarily sells to employers, for about $10 million in cash and equity. **Ontrak** uses analytics to predict how behavioral changes could affect chronic health conditions, then connects users to coaching and treatment options.

Figure 16.

Customer acquisition tools VC landscape ($M)



Source: PitchBook | Geography: Global

Note: The left axis indicates total VC raised as of deal date. Bubbles indicate amount raised.

CUSTOMER ACQUISITION TOOLS

Figure 17.

Notable customer acquisition tools VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	POST-MONEY VALUATION ($M)*	DEAL TYPE	LEAD INVESTOR(S)	VALUATION STEP-UP
Honor (US)	October 27, 2020	Scheduling and marketing platforms	$140.0	N/A	Series D	Baillie Gifford	N/A
Babylon Health	December 17, 2020	Corporate distribution	$100.0	N/A	Late-stage VC	N/A	N/A
Solv Health	November 12, 2020	Scheduling and marketing platforms	$27.0	$147.0	Series B	Acrew Capital	1.80x
Modern Health	December 15, 2020	Corporate distribution	$51.0	$750.0	Series C	Battery Ventures	N/A
Aktana	October 16, 2020	Scheduling and marketing platforms	$30.0	$150.0	Series D	N/A	0.78x

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 18.

Notable customer acquisition tools VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	POST-MONEY VALUATION ($M)*	EXIT TYPE	STOCK/ACQUIRER	VALUATION STEP-UP
Livongo	July 25, 2019	Corporate distribution	$2,190.5	$2,545.8	IPO	NASDAQ	2.72x
Circle Medical	September 9, 2020	Scheduling and marketing platforms	$14.3	$14.3	M&A	WELL Health Technologies	0.61x
Accolade	July 2, 2020	Scheduling and marketing platforms	$819.8	$1,040.3	IPO	NASDAQ	1.32x
Rundeck	October 2, 2020	Scheduling and marketing platforms	$100.0	$100.0	M&A	PagerDuty	5.00x
ShiftWizard	October 12, 2020	Hospital management	$32.0	$32.0	M&A	HealthStream	2.46x

Source: PitchBook | Geography: Global | *As of December 31, 2020

CUSTOMER ACQUISITION TOOLS

Figure 19.

Key VC-backed customer acquisition tools companies

COMPANY	VC RAISED TO DATE ($M)*	SUBSEGMENT	KEY PRODUCTS/COMPANY DIFFERENTIATION
Babylon Health	$635.0	Corporate distribution	Offers 24/7 virtual appointments to support employee health and wellbeing
ClassPass	$555.7	Scheduling and marketing platforms	Subscription-based fitness network platform with corporate subscription options
Gesto Saúde e Tecnologia	$481.7	Corporate distribution	Provides a health brokerage platform designed to give affordable and responsible health plans to employees and manage healthcare services and packages, enabling corporates to manage employee health claims
Doctolib	$455.2	Scheduling and marketing platforms	Online booking healthcare booking platform with telemedicine capabilities
Welltok	$334.8	Corporate distribution	Consumer activation solution platform; uses proprietary data and advanced analytics to engage employees and motivate them to take actions

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 20.

Key customer acquisition tools incumbents

COMPANY	HOLDING STATUS	SUBSEGMENT	KEY PRODUCTS	LAST KNOWN VALUATION ($B)*
MindBody	PE-backed	Scheduling & marketing platforms	Business management software connecting individuals to gyms, spas, and salons	$1.9
Wellness Corporate Solutions	PE-backed	Workplace wellness	Offers wellness programs emphasizing health education and behavior change	N/A
Accolade	Public	Workplace wellness	Employee health platform that enables employees to better navigate and understand their workplace benefits.	$2.9
Acuity Scheduling	PE-backed	Scheduling & marketing platforms	Online scheduling appointments assistant; features real-time availability, automatic time zone adjustment, automatic sending of reminders, etc.	N/A
Virgin Pulse	PE-backed	Workplace wellness	Employee health engagement platform, utilizes gamification to engage members	$2.0

Source: PitchBook | Geography: Global | *As of December 31, 2020

Opportunities

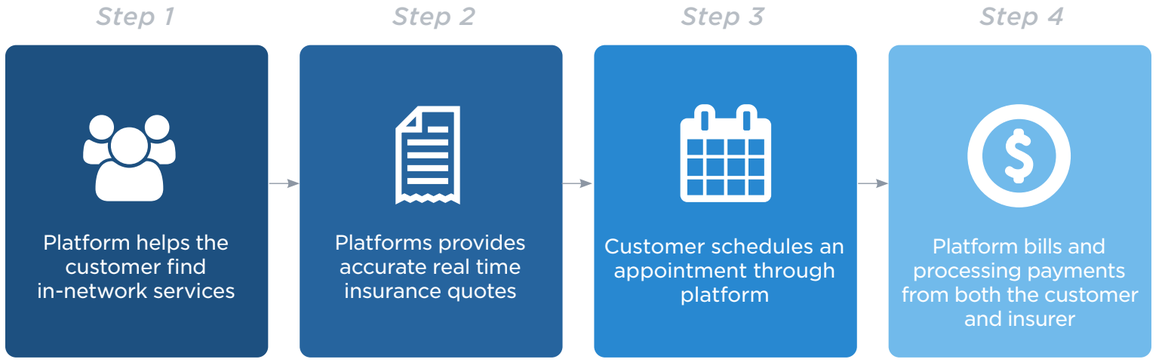
Integrating payment processing functions: Small clinics and studios often use scheduling software for clients to book appointments. While many of these providers use third-party payment processors, such as Square or Stripe, some have begun launching their own payment processing tools. **Schedulicity** Pay allows clients to turn payments into a revenue stream by integrating payment functionality directly into their business apps rather than relying on third parties that charge a fee for each transaction. At the same time, payment service providers such as Square are building scheduling apps on top of existing payment infrastructure. Startups are also finding ways to integrate billing and insurance functions (see our latest **Emerging Tech Research: Insurtech** report here), and more convergence among providers of insurance billing, scheduling, and hospital marketing software will likely occur. End-to-end systems could streamline the customer lifecycle, as shown in Figure 21.

Marketplaces for boutiques and small studios: Boutique studios often struggle to acquire new customers as they are niche-focused, tend to be more expensive than gyms, and may have only one or a few locations. Digital marketplaces can help boutiques expand their online presence, providing a place to advertise broadly and sell monthly memberships, class packages, and/or individual classes. Marketplaces allow studios to market more easily to attract consumers who may be interested only in single classes, helping to fill classes during odd times that would otherwise be left empty. Startups targeting solutions for boutiques include **ClassPass**, **MoveGB**, and **FitReserve**.

Unified business management platforms: Wellness providers that sell directly to consumers and through various marketplaces struggle to integrate numerous systems

Figure 21.

Customer lifecycle



into a single manageable dashboard. Providers, such as market leader **MindBody**, offer consumer-facing applications and back-end CRM-solutions that link all bookings in one place. Startup **Zenoti** provides a similar product, focused on the spa and salon industry, that enables reporting and analytics, inventory management, marketing and employee management, omnichannel booking, and contactless payments for seamless check-outs. We see natural overlaps between the business needs of the spa and salon industry and the fitness industry.

Intelligent online appointment scheduling with customer relationship management capabilities: Several startups are focused on integrating machine learning and AI into appointment scheduling software. AI can track client usage data and evaluate patterns to improve future interactions based on individual needs. For example, AI can determine when client interactions are appropriate and prompt customer relationship managers to schedule meetings. Startups pursuing this opportunity include **TimeTrade** and **Agendize**.

AI-based scheduling tools could open the door to more partnerships and M&A with legacy customer relationship management providers.

Gym management software for boutiques and small studios: As boutique fitness studios that were once fully in-person have moved online in the wake of the pandemic, they require new tools and services to help manage digital distribution channels. Digital marketplaces such as **ClassPass**, **FitReserve**, and **MoveGB** provide tools and services to help boutiques expand their online presence via advertising, livestreaming workouts, processing payments, and managing memberships. **Zype** enables fitness studios to distribute paid content directly to clients and monetize. **GloFox** provides a gym-focused customer management platform that integrates with Zoom and YouTube Live.

Startups aimed at helping offices reopen: Employers are exploring how contact-tracing technologies can help reopen offices and protect workers from future pandemics. Startups originally focused on office occupancy technology, employee monitoring, or other healthcare-monitoring solutions are recognizing that an adjacent opportunity exists in helping companies ensure a healthy workplace, thus entering the workplace wellness market. Several factors are driving this opportunity, including legislation in some states that holds employers responsible for mitigating the spread of COVID-19, employer difficulty ensuring adherence to safety protocols, and the desire to implement a health response infrastructure to safeguard against potential future pandemics.

Considerations

Limitations of online scheduling software: Some of the drawbacks to booking treatments online include the inability to adjust appointment time, which might be necessary for more complex cases; triage cases digitally; and ensure patients do not miscategorize the purpose of their appointment (for example, calling something urgent when it is not). For this reason, human monitoring remains necessary, reducing the opportunity to fully automate the scheduling process.

Universal healthcare could reduce need for employer involvement: The US is currently the world's largest marketplace for corporate wellness expenditures, partially owing to the absence of universal healthcare and the presence of large employer-sponsored health programs. While wellness initiatives currently affect less than 10% of workers globally,[11] penetrating markets may be difficult in countries with universal healthcare that do not require employers to pay for medical costs. This shifts the value proposition from driving better health outcomes to driving better employee productivity, a potentially higher bar to meet. Similarly, should the US introduce universal healthcare, it could reduce the wellness market opportunity.

High initial setup cost could be prohibitive for smaller businesses: While larger organizations can afford to implement wellness initiatives, the cost may be more prohibitive for smaller and medium-sized businesses (SMBs). Furthermore, the availability of open-source appointment scheduling software may limit the opportunity for startups with paid products.

Partner risk as high-quality gyms avoid joining marketplaces: If high-quality, in-demand gyms avoid joining marketplaces, this may lessen the value of the marketplace to consumers. Marketplace platforms pay studios a relatively low rate for each customer that registers for a class via the platform. For example, **ClassPass** pays gyms roughly half

11: 2018 Global Wellness Economy Monitor, Global Wellness Institute, Ophelia Yeung and Katherine Johnston, October 2018.

of what a customer would pay directly. Additionally, discount-based booking platforms attract price-sensitive consumers that are less likely to become recurring customers. **Groupon** provides a cautionary tale. Around 2010, the discounting platform helped drive traffic to fitness studios, leading to overcrowded classes, which had a negative impact on class quality. **Groupon** also proved to be an ineffective marketing tool as the conversion rate of **Groupon** users to regular paying customers was low.

Internal corporate wellness programs could reduce need for external providers: Companies can offer wellness initiatives in myriad ways, such as by increasing PTO days, offering work-from-home flexibility, or giving fitness stipends. These initiatives may benefit overall employee health and reduce the opportunity for third-party vendors.

Studies show mixed results on effectiveness of corporate wellness programs: Many studies indicate that wellness programs do not lead to healthier employees or reduce healthcare costs. They argue that, in many cases, employees who opt into wellness programs are often already quite healthy, whereas those most in need of the service may not participate. One study illustrated that, on average, employees who chose to participate in wellness programs incurred $1,373 less in medical expenses the year prior to participating compared to employees who were given the option but did not participate.[12]

COVID-19 shrinks scheduling software and corporate wellness market: The appointment scheduling software sector is expected to face substantial challenges in the coming months as consumers stay home and refrain from scheduling health and wellness appointments, mitigating business need for scheduling platforms. Furthermore, workplace wellness initiatives may decrease due to businesses trying to cut costs and not having the capital to invest in new employee benefits or remotely implement new programs. Fitness marketplace platforms that connect individuals to fitness facilities face demand challenges as gyms remain shut down. However, given digital business models and lack of physical infrastructure, they have been able to quickly scale down costs and pivot to digital-based models. For example, after reportedly seeing close to 90% of its national gym network close, **ClassPass** has relaunched **ClassPass** Live, a program initially launched in 2018, which allows partner studios to offer live-streamed classes through its app.

Outlook

Scheduling software targeted at large enterprises: We foresee large enterprises will drive industry revenue, as high implementation cost and availability of free services affects growth among SMBs. Furthermore, the introduction of improved technology will entice hospitals to integrate appointment scheduling with their enterprise resource planning systems, further driving the market for large enterprises.

Contact tracing and other point solutions focused on returning to the office represent short-term bets: We do not foresee a long-term market for contact tracing and return-to-work solutions as it is likely a COVID-19 vaccine will be created before employees return to the office. While contact tracing could apply to common illnesses, such as influenza, we are doubtful of the revenue opportunity as influenza is too widespread to provide a large benefit and not grave enough to outweigh consumer privacy concerns. However, the pandemic could provide a unique go-to-market opportunity regarding customer acquisition and retention. For example, startup **Envoy**, which provides work meeting and office visitation software, is designing product

12: "What Do Workplace Wellness Programs Do? Evidence From the Illinois Workplace Wellness Study," The Quarterly Journal of Economics, Volume 134, Issue 4, Damon Jones, David Molitor and Julian Reif, November 2019.

features that help its clients manage office personnel. While these tools can alleviate near-term return-to-office challenges, management does not view them as long-term revenue drivers.[13]

More corporates to offer data-backed behavior-based incentives: We expect traditional health benefits providers to increasingly utilize health monitors and trackers to incentivize healthy employee behavior. **Kazoo**, an employee engagement platform, features a behavior bonus feature that integrates wellness incentives with other employee engagement activities. The behavior bonus feature encourages healthy activity and awards points that are redeemable for prizes. **Garmin** partnered with **Blue365**, a health & wellness program available to Blue Cross Blue Shield subscribers, to provide discounted **Garmin** devices.

Consumer-led care to drive shift in how hospitals market themselves: The rise of consumer-driven nontraditional care will require care providers to think differently about how they engage with patients and other potential customers. This is likely to necessitate greater investment into web-based search services, booking platforms, and communications & engagement tools that empower customers to make more informed decisions about their care and communicate in real time with potential healthcare providers.

Providers to focus on corporate partnerships to drive growth: We expect customer acquisition tool startups will more aggressively pursue corporate partnerships to help drive growth. For example, HR software platform **Zenefits** announced a partnership with well-being platform **Thrive Global** in 2018 to offer its wellness-tracking app. In 2019, payroll and HR provider **Justworks** teamed up with **ClassPass** to offer exclusive rates to **ClassPass**' partner studios. In addition, we see many employers bypassing external corporate distribution providers and partnering directly with consumer-focused health & wellness providers. Companies such as **HealthifyMe**, **Calm**, and **HeadSpace** provide both corporate and retail offerings, with generally lower price points offered via corporate distribution. The COVID-19 pandemic may also serve as a catalyst for partnerships as more corporates or other organizations seek to offer mental and behavioral health products and services to employees, members, or students. For example, as a result of the pandemic, RVIVE has established several new partnerships with educational entities to use its white-label application to provide health & wellness initiatives to remote students and employees. Other startups, including **HeadSpace**, have offered free corporate memberships. Genetic testing providers, such as **Genome Medical**, are also likely to pursue the corporate channel.

13: Larry Gadea and Alex Haefner, video interview conducted by Kaia Colban, September 29, 2020.

SEGMENT DEEP DIVE

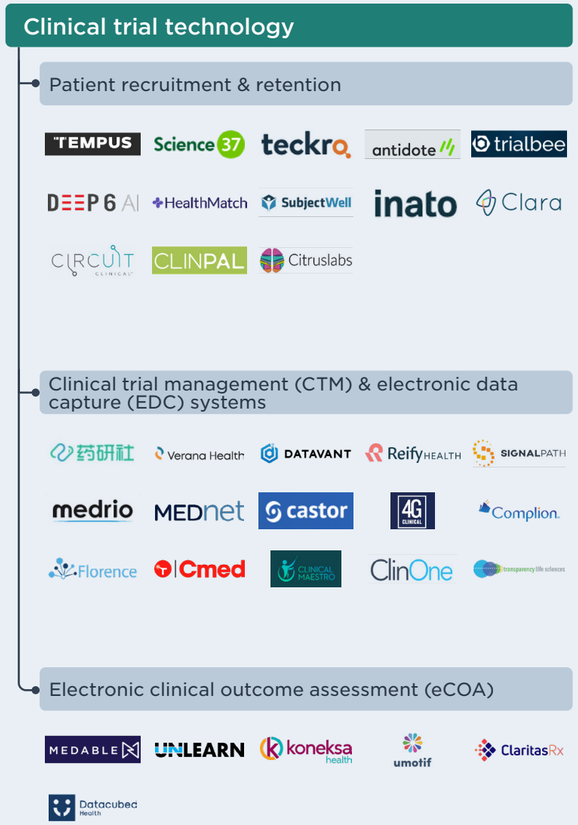
Clinical trial tech

Overview

The clinical trial tech market is categorized into three subsegments: clinical trial management (CTM) & electronic data capture (EDC) systems, patient recruitment & retention software, and electronic clinical outcome assessment (eCOA) software. Industry growth is mainly driven by rising complexity and quantity of trials, growth of clinical research organizations (CROs), technological innovation, difficulty recruiting trial participants, and strict government regulations. We believe the market is growing at a 13% CAGR from $5.5 billion in 2019 to $11.3 billion in 2025.

CTM & EDC systems: Clinical trial management systems address inefficiencies in research management and operations. These tools focus on the many processes involved in conducting trials, including site selection and monitoring, randomization and trial supply management (RTSM), contact management, financial management, and regulatory document tracking. EDC systems improve the way data is indexed and stored, making it easier for trials to conduct research more quickly.

Patient recruitment & retention software: Patient recruitment & retention software automates the recruitment, screening, and management of clinical trial patients. Patient recruitment software can provide several different capabilities along the trial lifecycle, including recruitment, data exchange, and post-enrollment tracking. Other tools, such as **Antidote Base**, give researchers access to candidate health data points before inviting patients to a trial. Some players manage all aspects of recruitment and post-enrollment tracking in addition to recruitment. **Ripple** helps clinical trial sites enroll more patients, increase retention, simplify reporting, and automate tasks.



CLINICAL TRIAL TECH

eCOA software: eCOAs allow patients, clinicians, and caregivers to directly report granular data using handheld devices, tablets, or websites. Real-time trial connectivity improves adherence to protocol execution, ensures patient safety and engagement, and reduces trial risks. eCOA measures include electronic patient-reported outcome (ePROs), performance-reported outcomes (PROs), clinical-reported outcomes (eClinRO), and observation-reported outcomes (eObsRO).

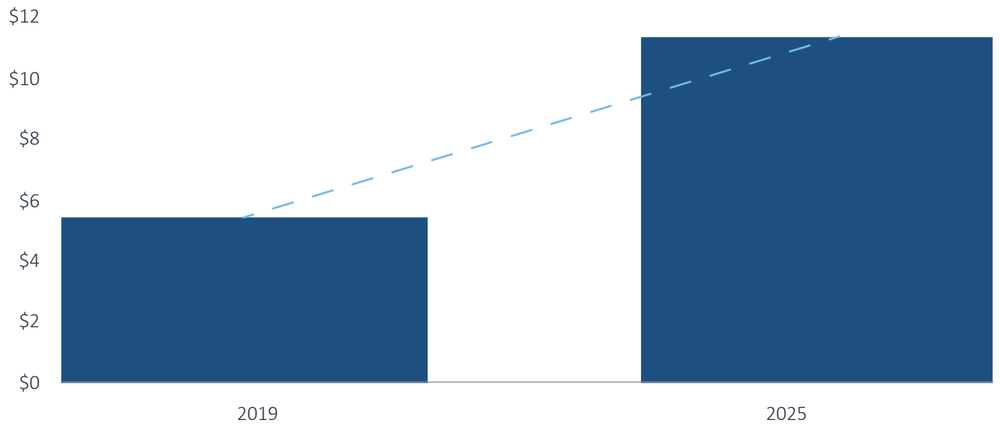
Business model

Key customers include pharmaceutical and biopharmaceutical companies, CROs, medical device companies, and others. Providers generate revenues via installation, subscription, consulting, and support fees. Patient recruitment & retention providers may offer pay-per-performance options, where payments occur when candidates accept a trial invitation.

Market size

We estimate the global clinical trial tech market to be $5.5 billion in 2019. We forecast clinical trial tech to grow at a 13% CAGR between 2019 and 2024, almost on pace with the overall global enterprise health & wellness tech market, which is projected to grow at a CAGR of 14%% over the same timeframe.

Figure 22. CLINICAL TRIAL TECH MARKET SIZE ($B)



Source: PitchBook | Geography: Global

COMMON INDUSTRY KPIS

- Revenue growth and profit/customer
- Customer acquisition cost
- Patient recruitment & retention: Number of patients reviewed or engaged on platform, number of patients referred, % of patients who complete trial
- Net promoter score
- LTV
- Size of dataset per customer
- Churn rate
- Records managed
- Users under license
- Market penetration proportion

Industry drivers

Rise in quantity and complexity of clinical trials: The life sciences industry is witnessing a global increase in the number of clinical trials each year.[14] This growth can be attributed to factors such as the aging population, high prevalence of chronic diseases, expiry of blockbuster drugs, availability of government funds for clinical trials, and fierce competition in the pharmaceutical industry.

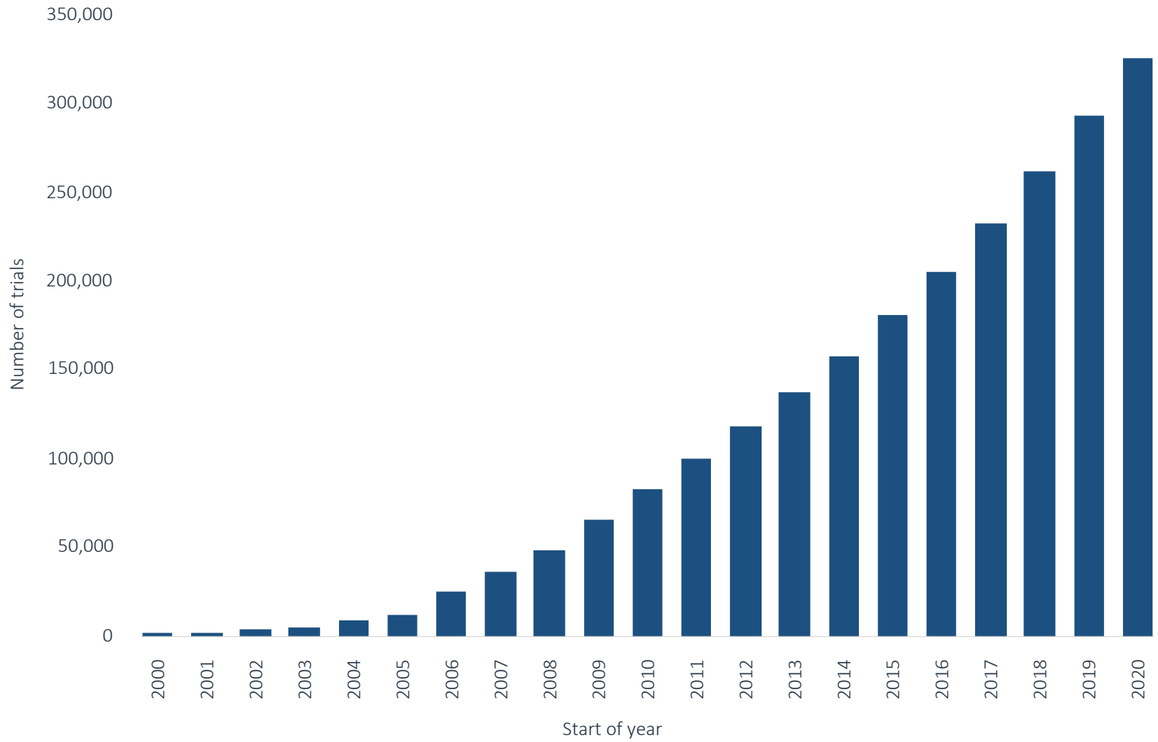
Growing customer base of CROs: Trials are increasingly being outsourced to CROs (contract research organizations), which represent an increasingly important buyer of clinical trial tools. COVID-19 has further accelerated the use of advanced technologies that can help improve the quality of studies, streamline processes, and improve information sharing capabilities. One survey shows that 83% of sponsors and CROs plan to integrate clinical applications.[15]

Technological innovation and adoption of smartphones: The growth of biometric trackers and smartphones has enabled the development of eCOA systems as trackers and mobile applications that help collect patient data.

Inability to recruit and retain patients: 80% of clinical trials do not meet designated patient enrollment deadlines,[16] and the clinical trial dropout rate is around 30%.[17]

Figure 23.

Number of registered studies over time and some significant events



Source: ClinicalTrials.gov

14: "Number of Registered Studies Over Time," ClinicalTrials.gov, as of July 16, 2020.
15: Veeva 2020 Unified Clinical Operations Survey Report, Veeva Systems, 2020.
16: Patient Recruitment and Retention Services Market, 2019-2030, Roots Analysis, February 2019.
17: Retention in Clinical Trials: Keeping Patients on Protocols, Forte Research, 2020.

Need to adhere to strict government regulations: Most drugs fail owing to an inability to follow the US Food & Drug Administration's feedback, file correct paperwork on time, or correctly provide data validation.[18] eCOAs help digitalize many trial processes, enhancing regulatory compliance and therefore bolstering trial success rates.

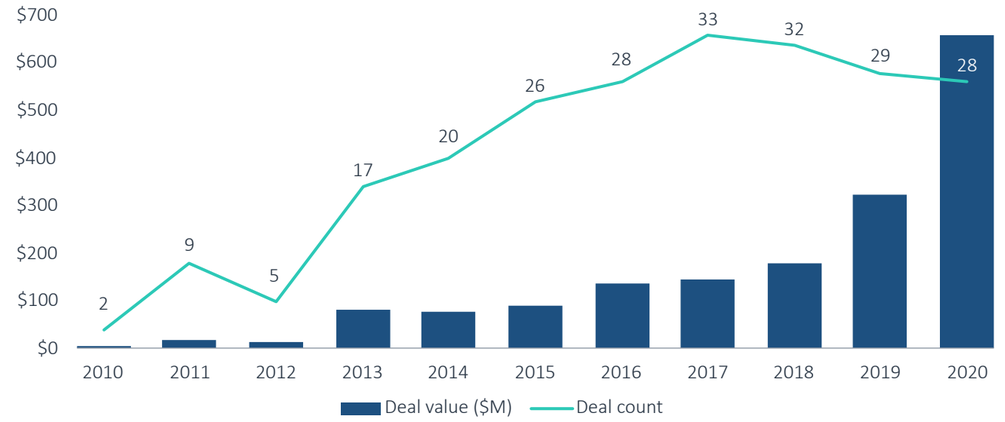
VC activity

The companies we track in the clinical trial tech segment raised $132.6 million in venture funding in Q4 2020 across six deals, down from $256.1 million in Q3 2020. Startup **Medable** closed the largest deal with a $210.0 million Series C2. **Medable's** decentralized clinical trial platform provides researchers with TeleConsent, TeleCOA, and TeleVistis modules. **HealthMatch** raised the second-largest deal this quarter, an $18.0 million Series A. **HealthMatch** helps sick patients find clinical trial opportunities.

We tracked two VC exits in Q4. **Longboat** was acquired by PE-backed **Advarra,** and **TriNetX** was bought out by The Carlyle Group through an LBO. **Longboat's** clinical study management platform provides an integrated suite of tools to help manage the clinical study lifecycle. **TriNetX** aims to accelerate study design and operations by providing on-demand de-identified data from EHRs, registries, and claims to researchers.

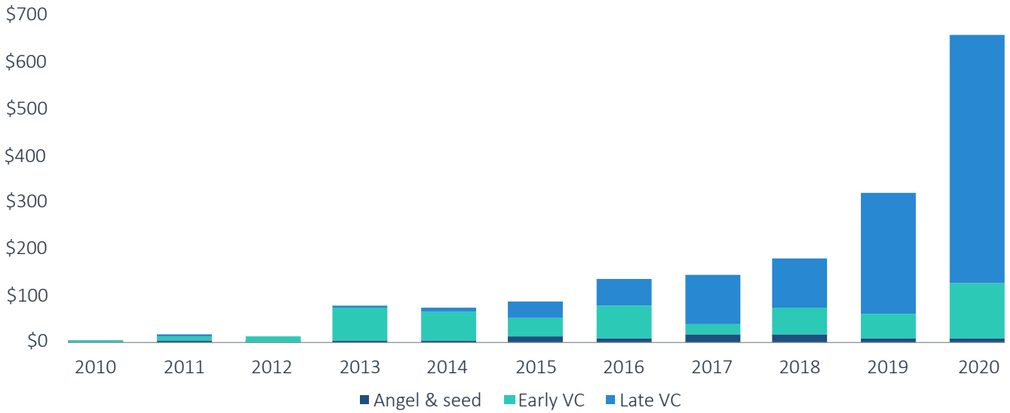
18: Clinical Development Success Rates 2006-2015, BIO, Biomedtracker, Amplion, June 2016

Figure 24. CLINICAL TRIAL TECH VC DEAL ACTIVITY



Source: PitchBook | Geography: Global

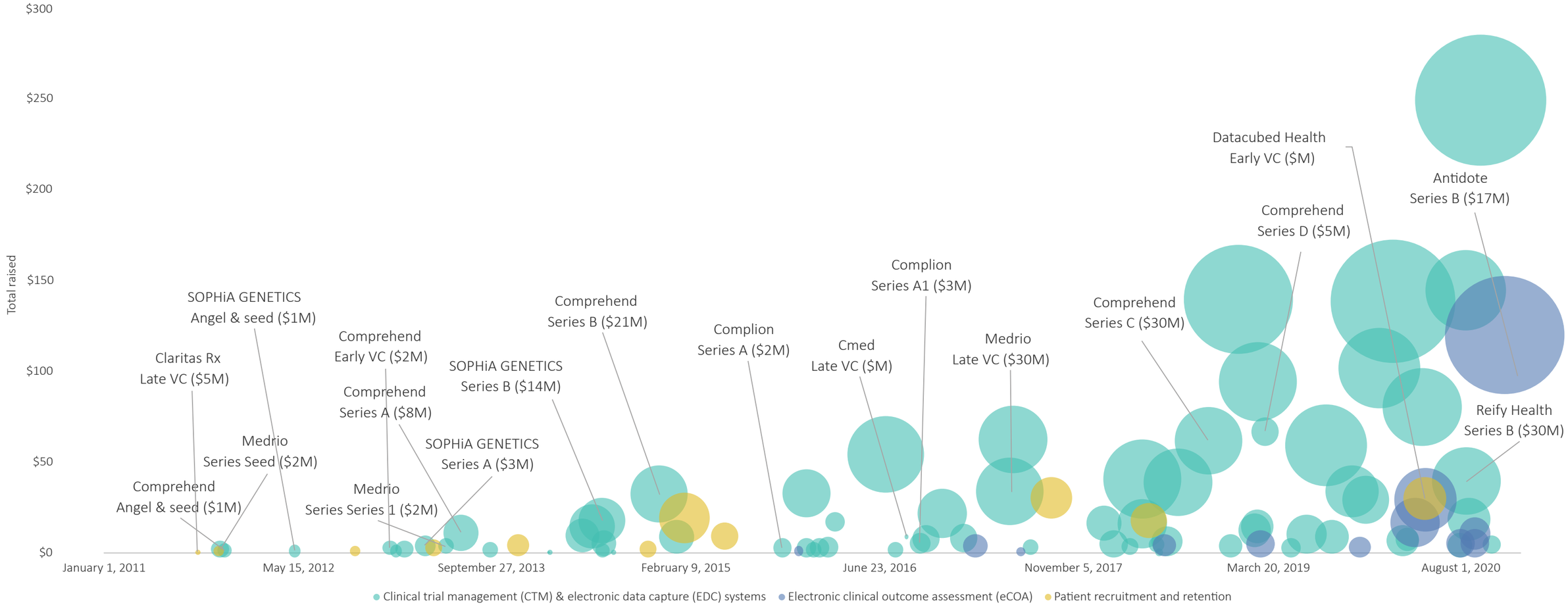
Figure 25. CLINICAL TRIAL TECH VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: Global

Figure 26.

Clinical trial tech VC landscape ($M)



Source: PitchBook | Geography: Global

Note: The left axis indicates total VC raised as of deal date. Bubbles indicate amount raised.

Figure 27.

Notable clinical trial tech VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	POST-MONEY VALUATION ($M)*	DEAL TYPE	LEAD INVESTOR(S)	VALUATION STEP-UP
QbDVision	October 15, 2020	Clinical trial management & electronic data capture systems	$2.1	$10.7	Seed	N/A	1.23x
Medable	November 19, 2020	Electronic clinical outcome assessment	$91.0	$301.0	Series C2	Sapphire Ventures	2.09x
HealthMatch	December 8, 2020	Patient recruitment and retention	$18.0	N/A	Series A	Tempus Partners, Square Peg Capital	N/A
Unlearn	November 5, 2020	Electronic clinical outcome assessment	$15.0	N/A	Series A	8VC	N/A
Circuit Clinical	December 4, 2020	Patient recruitment and retention	$4.7	N/A	Late-stage VC	N/A	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 28.

Notable clinical trial tech VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	POST-MONEY VALUATION ($M)*	EXIT TYPE	STOCK/ACQUIRER	VALUATION STEP-UP
ePatientFinder	May 24, 2018	Patient recruitment and retention	N/A	N/A	M&A	Elligo Health Research	N/A
DrugDev	July 1, 2017	Electronic clinical outcome assessment	N/A	N/A	M&A	IQVIA	N/A
Comprehend	August 14, 2019	Clinical trial management & electronic data capture systems	N/A	N/A	M&A	Saama	N/A
TriNetX	September 21, 2020	Patient recruitment and retention	N/A	N/A	Buyout/LBO	The Carlyle Group	N/A
Longboat	November 23, 2020	Clinical trial management & electronic data capture systems	N/A	N/A	Buyout/LBO	Genstar Capital, Ares Capital, Advarra, Audax Group, Linden Capital Partners	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2020

CLINICAL TRIAL TECH

Figure 29.

Key VC-backed clinical trial tech companies

COMPANY	VC RAISED TO DATE ($M)*	SUBSEGMENT	KEY PRODUCTS/COMPANY DIFFERENTIATION
Tempus Labs	$1,020.0	Healthcare analytics & big data	Uses a precision medicine approach to support providers in identifying clinical trials for their patients, facilitates pre-screening processes
SOPHiA GENETICS	$249.6	Clinical trial management & electronic data capture systems	Uses statistical inference, pattern recognition, and machine learning to drive medical research
Yaoyanshe	$144.7	Clinical trial management & electronic data capture systems	Leverages data technology to shorten development time and cost for drug manufacturers; connects patients with hospitals and trials
Science 37	$141.5	Patient recruitment and retention	Comprehensive integrated platform purpose-built to support the systems, workflows, and processes of virtual trials
Verana Health	$138.8	Clinical trial management & electronic data capture systems	Aims to assemble the largest clinical databases in medicine to accelerate research; applies analytics to real-world data to enhance evidence generation

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 30.

Key clinical trial tech incumbents

COMPANY	HOLDING STATUS	SUBSEGMENT	KEY PRODUCTS	LAST KNOWN VALUATION ($M)*
Forte Research	PE-backed	Clinical trial management & electronic data capture systems	Suite of trial and data management tools	N/A
Medidata	Formerly VC-backed	Clinical trial management & electronic data capture systems	Suite of cloud-based solutions for the clinical development programs	$5,582
Linical	Public	Clinical trial management & electronic data capture systems, eCOA, patient recruitment & retention	Suite of services designed for CROs (CTM, EDC, recruiting, and engagement software)	$32,609
Acurian	PE-backed	Patient recruitment and retention	Suite of services engineered to deliver enrollment certainty and study completion	N/A
Oracle Corporation	Formerly VC-backed	Clinical trial management & electronic data capture systems, eCOA	Oracle Health Sciences Clinical One Data Collection Cloud Service (Clinical One Data Collection)	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2020

Opportunities

Integrated CTM and EDC system: As more clinical trials are conducted at a global level, data generation, collection, and management has become increasingly difficult. The need to eliminate data incongruities, minimize data reconciliation activities, and ensure accurate information led to CTM adoption. In conjunction with CTMs, trial providers generally use EDC systems that help index large datasets and allow for faster data retrieval and processing. However, utilizing standalone CTM and EDC systems can cause significant inefficiencies due to maintaining several systems with overlapping data and functionality. Integrated CTM and EDC sytems decrease data duplication and process redundancy, resulting in more organized workflows and enhanced usability. **Medrio** offers an integrated EDC platform that provides API integrations with CTMs and numerous other databases such as serious adverse event and risk-based monitoring.

ePROs: Clinical trials often require participants to keep diaries of their daily behaviors and experiences. Written diaries require site personnel to manually transcribe data into the trial management system, leaving a greater opportunity for errors and other inconsistencies. ePRO systems offer electronic diaries with reminders and alerts, animated compliance feedback, and dynamic, context-sensitive messaging to capture and report data in real time to document patient experiences and responses. Furthermore, electronic diaries automatically timestamp entries and remind patients when entries are due, improving compliance and regulatory documentation. 94% of patients using ePRO during trial periods complied with trial protocols compared to those that rely on paper documentation, which showed 11% protocol compliance.[19] ePRO system providers include **Koneksa Health** and **Umotif**. **Koneksa Health**, which raised a $10 million seed round in April 2020, offers a mobile responsive ePRO software that allows researchers to reach patients more frequently on any internet-enabled devices. **Umotif** developed a patient-centric data capture platform that enables researchers to capture eCOA, ePRO, eDiaries, eConsent, symptoms, and wearables data.

Patient enrollment software: Determining if potential participants meet trial criteria is often time-consuming and expensive. There are several patient recruitment startups that match clinical trials with potential patients, but few that assist in the enrollment process. **Deep 6 AI**, **PatientWing**, and **SubjectWell** help determine if patients meet inclusion criteria and facilitate patient engagement throughout the enrollment process. **Verified Clinical Trials** prevents patients from enrolling in multiple trials and determines if a patient has violated protocols. Historically, Google AdWords helped clinical trials recruit but not screen potential patients. In December 2020, Google launched a health app that will recruit and screen patients. While a large opportunity for patient enrollment software exists, startup opportunity may be hindered by Google's entrance into the space.

Medication adherence software: High nonadherence and dropout rates require researchers to recruit more people to maintain the right statistical power. Finding these extra patients is costly and time-intensive. Startups including **Towerview Health**, **Wellth**, **MedMinder**, **AdhereTech**, and **Medisafe** focus on improving medication adherence by developing smart pillboxes and pill bottles, virtual pillboxes, or behavioral incentives. Solutions from **emocha Mobile Health** and **AiCure** provide digital forms of directly observed therapy (DOT), which involve an AI application watching patients take their

19: "Patient Non-Compliance With Paper Diaries," British Medical Journal, 324, Arthur A. Stone, Saul Shiffman, Joseph E. Schwartz, Joan E. Broderick, and Michael R. Hufford, May 18, 2002.

medication. Research indicates that patients who receive DOT complete treatment 90% of the time versus 61% of the time for self-administered therapies.[20] Medication adherence solutions can be used for regular medical prescriptions as well as clinical trials.

Considerations

Electronic health records provide competition for patient recruitment startups: The adoption of electronic health records has facilitated clinical trial recruitment by allowing researchers to search and screen patients digitally based on trial-specific criteria. This feature poses a threat to startups focused on the recruitment piece of clinical trials. However, we do not view current electronic health record technology as a competitive threat to patient sign-up and retention functions. Furthermore, recruitment-focused startups, such as **Trialbee**, are using electronic health record data to enhance their product. After using this data, claims, and the public domain to match and recruit patients for a clinical trial, **Trialbee** continually tracks and analyzes referred patient flow throughout the entire trial to mitigate dropout rates.

High implementation costs: Implementing clinical trial technologies may exceed budget constraints, which could hinder adoption, especially for small-scale and emerging companies. However, the COVID-19 pandemic has driven government and non-profit investment into clinical research, which could minimize some of this financial restraint. The Commission on a Global Health Risk Framework for the Future recommends a committee focused on pandemic response, offering to commit $1 billion per year to this unit for the development of pandemic-related innovative drugs, in addition to new and existing expenditures by public and private markets.[21]

Digitalization increases risk of ransom cyberattacks: The most recent high-profile cyberattack was carried out against **eResearchTechnology** (ERT) in September and caused a delay in COVID-19 trials as trial researchers had to revert to pen and paper. We expect ransom and cyberattacks to become a permanent fixture of the healthtech landscape given the valuable personal data held by providers.

Outlook

Cloud- and web-based software to outperform on-premise solutions: We anticipate higher demand for SaaS-based software relative to on-premise solutions, owing to lower implementation cost and relative ease of deployment. Furthermore, SaaS-based software that supports the entire spectrum of clinical trials enables interoperability, real-time storage, and provides remote data access. However, growing security concerns and the need for customization may drive companies, especially those focusing on patenting products, to adopt on-premise solutions.

Strongest growth in Asia-Pacific market. We expect the Asia-Pacific market to grow at the highest CAGR over the forecast period due to increased government funding to support clinical trials, less stringent regulatory guidelines compared to developed nations, larger patient databases which eases patient recruitment, and a rising number of Asia-Pacific-based CROs.

20: "Treatment of Tuberculosis, American Thoracic Society," American Journal of Respiratory and Critical Care Medicine, Vol 167, CDC and Infectious Diseases Society of America, J B Bass Jr, 2003.

21: The Neglected Dimension of Global Security: A Framework to Counter Infectious Disease Crises, Commission on a Global Health Risk Framework for the Future, May 16, 2016.

CLINICAL TRIAL TECH

AI & ML to enhance clinical trial tech: We foresee AI & ML technology enabling target identification and drug repurposing in clinical trials. ML-based predictive analytics can help expedite patient recruitment and monitor data generation to proactively identify issues and trial inconsistencies. AI can support data management by automatically detecting erroneous data.

Decentralized trials to grow along with demand for remote source data verification (RSDV) software: COVID-19 forced the clinical trial industry to adopt virtual, or decentralized, trials, necessitating remote source document verification and clinical research associate (CRA) monitoring. As a result, the FDA and the Emergency Medicines Agency (EMA) allowed changes to rules which increased clinical trial ability to employ RSDV software. We believe the opportunity to permanently reduce trial costs will drive sustained demand for RSDV and CRA monitoring tools even after the pandemic has passed. This will benefit startups focused on the RSDV opportunity and tools that can provide remote consent review forms.

SEGMENT DEEP DIVE

Operations & care management

Overview

The operations & care management market is categorized into two subsegments: healthcare analytics & big data and patient & hospital management systems. Industry growth is mainly driven by the persistence of outdated and inefficient administrative processes and tools, the opportunity to improve patient care, and outcomes and the implementation of favorable government initiatives. Attractive characteristics of this industry include high demand, high switching costs, and government regulations requiring or incentivizing digitization of medical data. We believe the market is growing at a 13% CAGR from $250.0 billion in 2019 to $589.5 billion by 2024. Large players include **Epic Health**, **Cerner**, **IBM**, **AthenaHealth**, and **McKesson Corporation**. These corporations offer several software services that enhance operations and care management. **Epic Health** holds a substantial share of the US electronic health records market and offers services aimed at patient experience and care, population health, AI & analytics, revenue cycle management, and more.

Healthcare analytics & big data: This category includes software that enables healthcare data analysis and assists with public health tracking and individual diagnoses. Startups in this space provide decision-support tools, population health management, and disease-tracking-focused software. **Health Catalyst**, one of the largest players in this subsegment, provides data-and-analytics technology and services.

Hospital management systems: This category includes software that facilitates hospital management. Key tools include scheduling, bill pay, compliance, and workforce and revenue management.

OPERATIONS & CARE MANAGEMENT

Patient management systems: This category includes hardware and software that facilitate patient management and treatment, with a focus on patient engagement, monitoring, and communication, as well as digital patient records management. The electronic health records opportunity has persisted as a primary focus of investors for many years and represents a fragmented space with significant challenges regarding data integration capabilities.

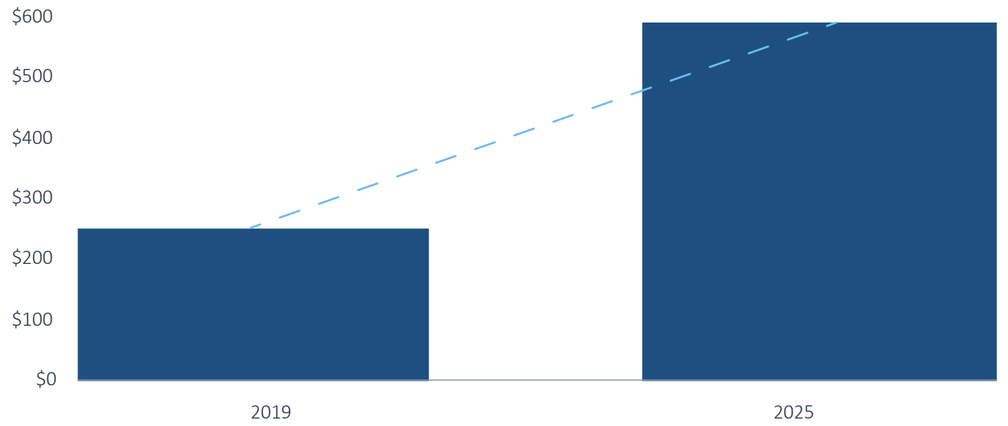
Business model

Providers in this space are largely software vendors that generate revenues primarily from subscription, time-based license arrangements and from maintenance and support fees. Some may also offer analytics, training, implementation, strategic advisory, outsourcing, and improvement services. These services deliver expertise to customers, enabling them to fully configure and utilize the technology's benefits. Some companies include services in the price of their software, while others charge additional fees. Cloud-based software companies generally charge monthly fees based off the number of patients or physicians using the software.

Market size

We estimated the operations & care management technology market to have been worth $250.0 billion in 2019. We forecast the market to grow at a 15% CAGR to $589.5 billion between 2019 and 2025, slightly above the pace of the overall global enterprise health & wellness tech market, which is projected to grow at a CAGR of 14%% over the same timeframe.

Figure 31. OPERATIONS & CARE TECHNOLOGY MARKET SIZE ($B)



Source: PitchBook | Geography: Global

COMMON INDUSTRY KPIS

- Revenue growth & profit/customer
- Customer acquisition cost
- Net promoter score
- Size of dataset per customer
- Customer retention
- Monthly recurring revenue
- Viability ratio (LTV/CAC)
- Records managed
- Users under license
- Market penetration proportion

Industry drivers

Chipping away at outdated and inefficient administrative processes and tools: Hospital and care centers utilize numerous processes and systems to collect, maintain, and store patient records. These systems are often not well integrated and require distinct processes and workflows to maintain. Modern electronic health records promise to create a relatively easier way to exchange records while improving communication among various stakeholders within healthcare systems. Potential benefits include accelerating care delivery processes by allowing easy and streamlined access to patient records, reducing administrative processes, decreasing the costs associated with paper records storage, and speeding up bill-pay and reimbursement.

Opportunity to improve patient care and outcomes: Clinical solutions such as decision-support tools, patient management, and healthcare analytics can enhance physicians' ability to provide personalized care based on the best available data. These services can also facilitate communication among doctors and patients, decreasing readmissions and lessening the number of clinical visits. The steady growth of patient data has the potential to help optimize personalized treatment plans.

Government initiatives: Many government initiatives intend to promote the adoption of electronic health record solutions. In 2014, the UK government announced an additional healthcare IT investment of $5.4 billion over a five-year period. In 2009, the US government passed the Health Information Technology for Economic and Clinical Health (HITECH) Act, providing funds worth $27.0 billion for setting up electronic health records. Both Japan and China are also advancing implementation initiatives.

Need for pandemic response systems: The COVID-19 pandemic has increased government funding for creation and adoption of outbreak monitoring systems. Increased awareness of pandemics will likely sustain investment in such systems.

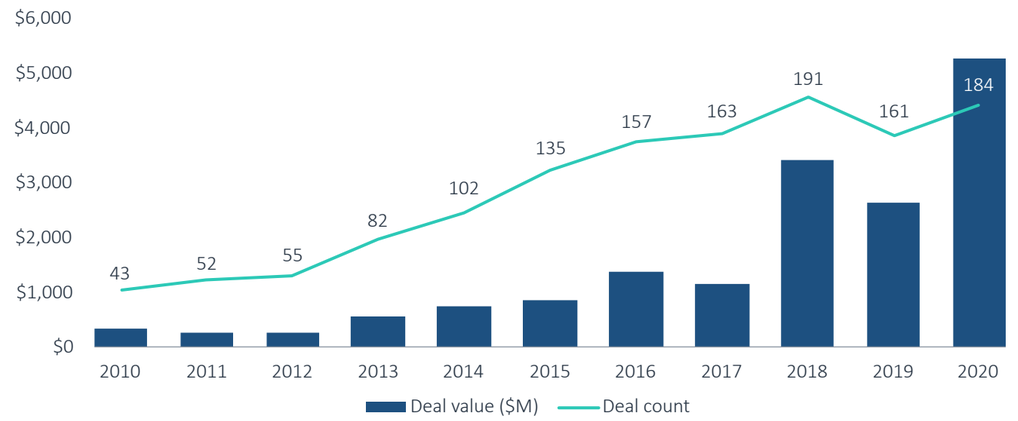
New technology enables SaaS-based enterprise tools: Cloud-based deployment offers many advantages to the end users. Modern SaaS software generally makes it easier for data, images, and comments to be shared by pharmaceutical companies, laboratories, hospitals, care providers, and academic and research institutes, facilitating global collaboration. End users benefit from automated access to updated versions without needing to manually update or install new software. In addition, cloud-based electronic health record and electronic medical record solutions are faster to implement and require less upfront investment because they are usually billed on a subscription basis and do not require local system infrastructure. **CareCloud**, which was acquired by **Medical Transcription Billing** (NASDAQ: MTBC) for $39.0 million on January 8, 2020, offers a suite of cloud-based healthcare IT solutions such as electronic health record, patient engagement, mobile administration application, and revenue cycle management software.

VC activity

Operations & care management startups raised $2.6 billion in venture funding in Q4 2020, over double Q3's deal value. However, deal value decreased from 51 deals in Q3 to 30 deals in Q4. The large deal value was driven by nine VC mega-deals. The largest deals this quarter were **DXY's** $500.0 million Series E, **Tempus Lab's** $450.0 million Series G, and **LumiraDX's** $389.2 million late-stage deal. **DXY** developed and hosts a knowledge-sharing platform for physicians, consumer-facing medical consultation service offerings, and an advertising channel for healthcare organizations. When COVID-19 hit, **DXY** was one of the first companies to introduce a real-time COVID-19 tracker in China.

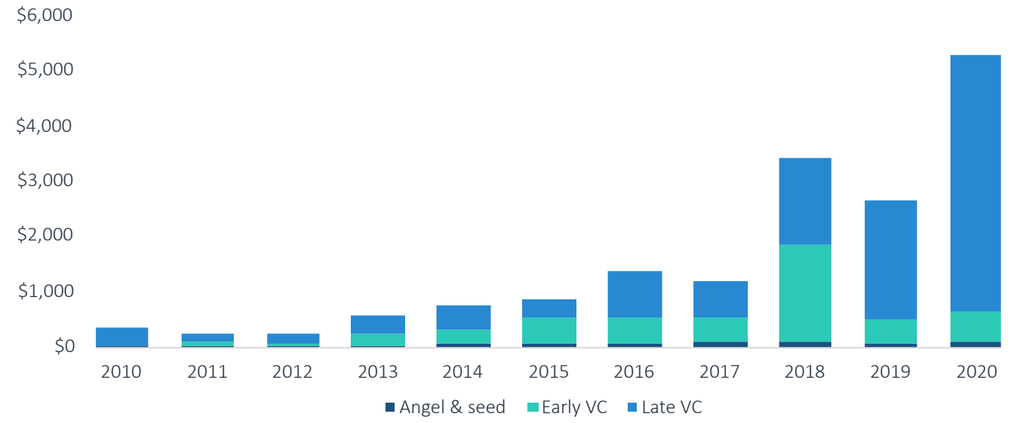
We tracked 23 exits this year within the operations and care segment, seven of which occurred in Q4: four mergers, two buyouts, and one reverse merger. HealthStream (NASDAQ: HSTM) acquired hospital management platform **ShiftWizard** for $32.0 million. **ShiftWizard** helps healthcare organizations maximize staff availability, minimize cost, and ensure that caregivers are properly matched to patient needs.

Figure 32. OPERATIONS & CARE MANAGEMENT VC DEAL ACTIVITY



Source: PitchBook | Geography: Global

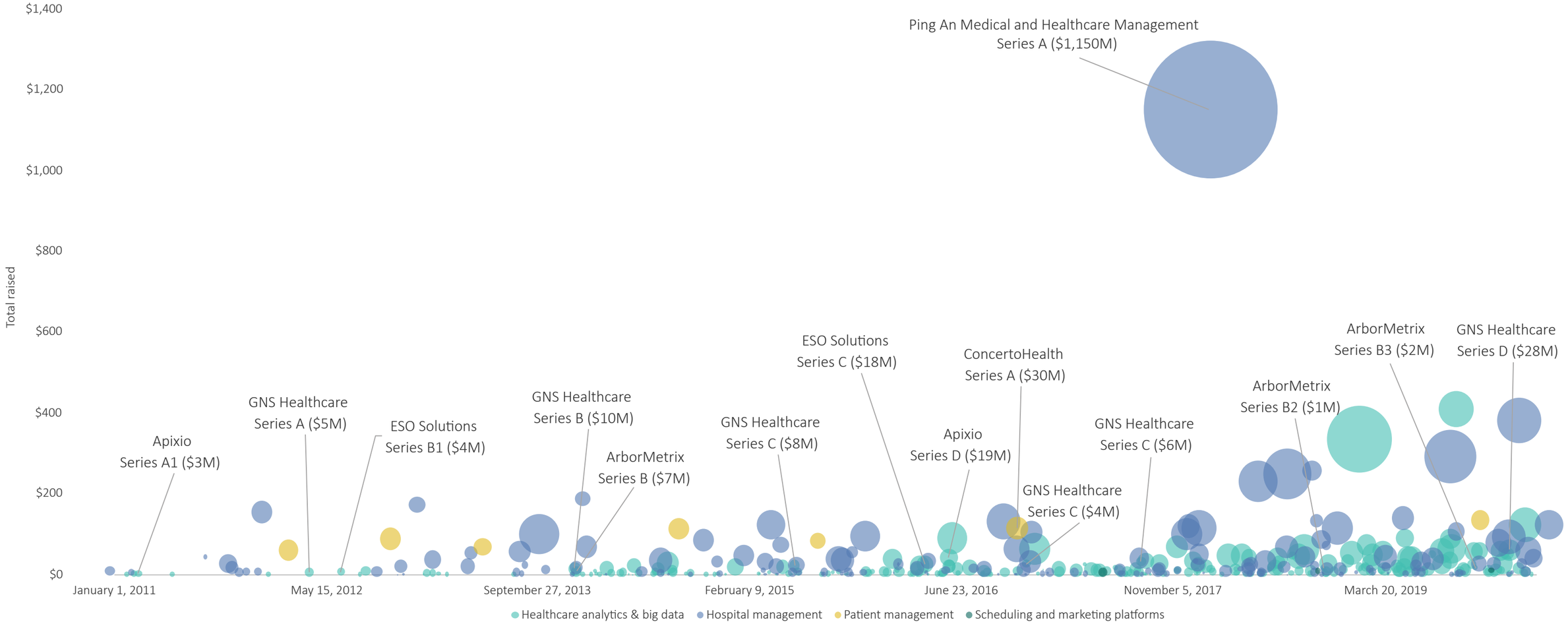
Figure 33. OPERATIONS & CARE MANAGEMENT VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: Global

Figure 34.

Operations & care management VC landscape ($M)



Source: PitchBook | Geography: Global

Note: The left axis indicates total VC raised as of deal date. Bubbles indicate amount raised.

OPERATIONS & CARE MANAGEMENT

Figure 35.

Notable operations & care management VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	POST-MONEY VALUATION ($M)*	DEAL TYPE	LEAD INVESTOR(S)	VALUATION STEP-UP
DXY	December 28, 2020	Patient management	$500.0	N/A	Series E	TrustBridge Partners	N/A
LumiraDx	December 15, 2020	Healthcare analytics & big data	$389.2	N/A	Late-stage VC	N/A	1.9x
Olive	December 1, 2020	Hospital management	$225.5	$1,500.0	Late-stage VC	Tiger Global Management	N/A
Cityblock Health	December 10, 2020	Patient management	$160.0	$1,000.0	Series C	General Catalyst	N/A
LeanTaaS	December 10, 2020	Patient management	$130.0	N/A	Series D	N/A	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 36.

Notable operations & care management VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	POST-MONEY VALUATION ($M)*	EXIT TYPE	STOCK/ACQUIRER	VALUATION STEP-UP
Flatiron	April 6, 2018	Patient management	$1,900.0	$2,100.0	M&A	Roche Holding	1.84x
InTouch Health	July 1, 2020	Patient management	$1,078.5	$1,078.5	M&A	Teladoc Health	N/A
Evolent Health	June 5, 2015	Hospital management	$791.5	$973.3	IPO	NYSE	3.96x
Vocera Communications	March 28, 2012	Hospital management	$267.8	$347.8	IPO	NYSE	N/A
SCI Solutions	April 1, 2020	Hospital management	$190.0	$190.0	M&A	R1 RCM	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2020

OPERATIONS & CARE MANAGEMENT

Figure 37.

Key VC-backed operations & care management companies

COMPANY	VC RAISED TO DATE ($M)*	SUBSEGMENT	KEY PRODUCTS/COMPANY DIFFERENTIATION
Ping An Medical and Healthcare Management	$1,150.0	Hospital management	Tech-enabled managed care platform for individuals and providers of insurance and medical services
LumiraDx	$799.8	Healthcare analytics & big data	Customer-focused connected diagnostics and diagnostic-led care solutions
DXY	$682.0	Patient management	Hosts a knowledge-sharing platform for physicians, consumer-facing medical consultation service offerings, and an advertising channel for healthcare organizations.
VillageMD	$566.0	Hospital management	Data and patient insight resources designed to support primary care physicians
Essence Group Holdings	$556.0	Patient management	Cloud-based application software offers comprehensive and affordable health insurance

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 38.

Key operations & care management incumbents

COMPANY	HOLDING STATUS	SUBSEGMENT	KEY PRODUCTS	LAST KNOWN VALUATION ($M)*
AllScripts	Public	Patient & hospital management, healthcare analytics & big data	Practice management and electronic health record technology	$303
Epic Systems Corporation	Corporation	Patient & hospital management, healthcare analytics & big data	Epic EMR, a proprietary EMR software application centered on its chronicles database management system	N/A
eClinicalWorks	Corporation	Patient & hospital management	Largest cloud EHR in US; practice management solutions	N/A
GE Healthcare	Corporation	Patient & hospital management, healthcare analytics & big data	Data analytic solutions, EMR, MyGEHealthcare App	N/A
Optum Health	Corporate backed or acquired	Patient & hospital management, healthcare analytics & big data	Population health management solutions; healthcare data and analytics software	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2020

Opportunities

Clinical decision support (CDS) systems: We see tremendous opportunity in improving the ability of healthcare organizations to make data more accessible and useful. CDS systems help sift through enormous amounts of data to suggest treatments, alert providers to information they may not have seen, and spot potential problems such as dangerous medication interactions. Startup **Health Catalyst** focuses on complex and data-intensive care initiatives such as population health management and value-based care that require sophisticated data management tools. These companies integrate data from electronic health records, wearables, genomics, and other sources to develop insights and support decision making.

Population-health-management and disease-tracking solutions: Population health management software uses data and predictive analytics to detect and monitor the most at-risk populations and communities to help inform how research organizations and physicians make public health recommendations to governments. Tracking and monitoring solutions alert key stakeholders, such as governments and research organizations, of potential disease outbreaks and provide critical information related to how infection might be spreading. For example, **BlueDot**'s early-warning system flagged the COVID-19 outbreak in Wuhan approximately nine days before the WHO announced the discovery of the virus. In addition to pandemic awareness, the rising senior population is viewed as a key area of innovation within population health management. Elderly-focused applications can improve our understanding of chronic diseases such as diabetes and cancer. Startup **Syapse** focuses on oncology and aids in care, prevention, and treatment.

Post-care systems: Lack of adherence to treatment is a major cause of hospital readmittance and adds significant costs to providers and payers. While it is easy to monitor in-patient care, post-care treatment is more difficult, and hospitals generally lack the kinds of seamless systems needed to make this easier. Remote care-management software systems, such as preventative-care communication platforms and patient monitoring devices (see the **Retail Health & Wellness Tech** report), improve providers' ability to care for and monitor patients both in and out of the hospital. Directly observed therapy (DOT) is an emerging area of focus for startups. DOT confirms that patients have taken their medication by watching the patient do so, as opposed to relying on derivative measures such as pill counts, electronic pill bottles, or other methods that imply but do not confirm medication is taken. A leading startup in this space is **AiCure**.

Considerations

Need for significant investments into infrastructure development and high deployment cost: Implementing enterprise software can be a complex and expensive endeavor. It can also be disruptive, which can have an immediate impact on care outcomes. While cloud-based services can improve the implementation process, shifting to cloud infrastructure can also be challenging and costly, requiring hospitals to add IT staff, train existing staff, and configure new systems. These headwinds can lead some hospitals to avoid upgrading to new systems altogether. These barriers may be more burdensome for small healthcare organizations or those with controlled budgets, primarily in developing countries. However, smaller organizations with ample funding and limited red tape may have an easier time adopting new tech than large organizations. Lastly, the benefits of electronic health record solutions are often intangible and take time to realize.

Finding the right solution: Given the multitude of providers in the space, finding the right system that both meets the strategic needs of the provider and is viable in the market can be complicated. Many small providers focus on niche markets, and it is often difficult to determine the best fit.

Competition from startups and large providers: Startups in this space face a competitive market with minimal differentiation opportunities. While legacy enterprise software companies, including **Microsoft** and **Oracle**, may not focus primarily on healthcare, they nonetheless are often capable of meeting the needs of providers. Further challenges for startups include high upfront costs to develop compliant care-management software, which incumbents can more easily cover, and the lengthy time it takes to build significant scale, while incumbents have established customer bases.

Interoperability issues: There is no singular system that addresses all the administrative, clinical, technical, and laboratory requirements of large healthcare providers. Many countries lack data storage and exchange standards. Although various data storage, transportation, and safety standards exist, implementing them has been a challenge for healthcare providers and electronic health record vendors. Most vendors follow different data formats and standards, creating issues in terms of sharing real-time data with partner systems.

Outlook

Despite high penetration rates, electronic health record systems will transform significantly: Thanks to a significant push from lawmakers, roughly 86% of US office-based physicians utilized an electronic health record system as of 2017.[22] Despite the encouraging adoption rates, only 10% of physicians said they were happy with their software according to a 2018 Deloitte survey.[23] For this reason, we believe the industry will continue to transform as providers seek to provide better platforms. Companies such as **Syapse** are working toward allowing consumers to manage their own health records, while Redox is solving for data standardization and interoperability.

Companies to monetize on data: We believe health IT and the application of AI are promising solutions to help prevent and combat future outbreaks, including the current COVID-19 pandemic. The deployment of new devices and platforms combined with the dissemination of a 5G infrastructure and surging uptake will lead to an enormous dataset. We expect companies gathering this data to experience demand—for the data rather than their primary product—from precision medicine, public health, and disease tracking startups.

22: Office-based Physician Electronic Health Record Adoption," Office of the National Coordinator for Health Information Technology, January 2019
23: "Deloitte 2018 Survey of US Physicians," Deloitte, Ken Abrams, Steve Burrill & Natasha Elsner, 2018

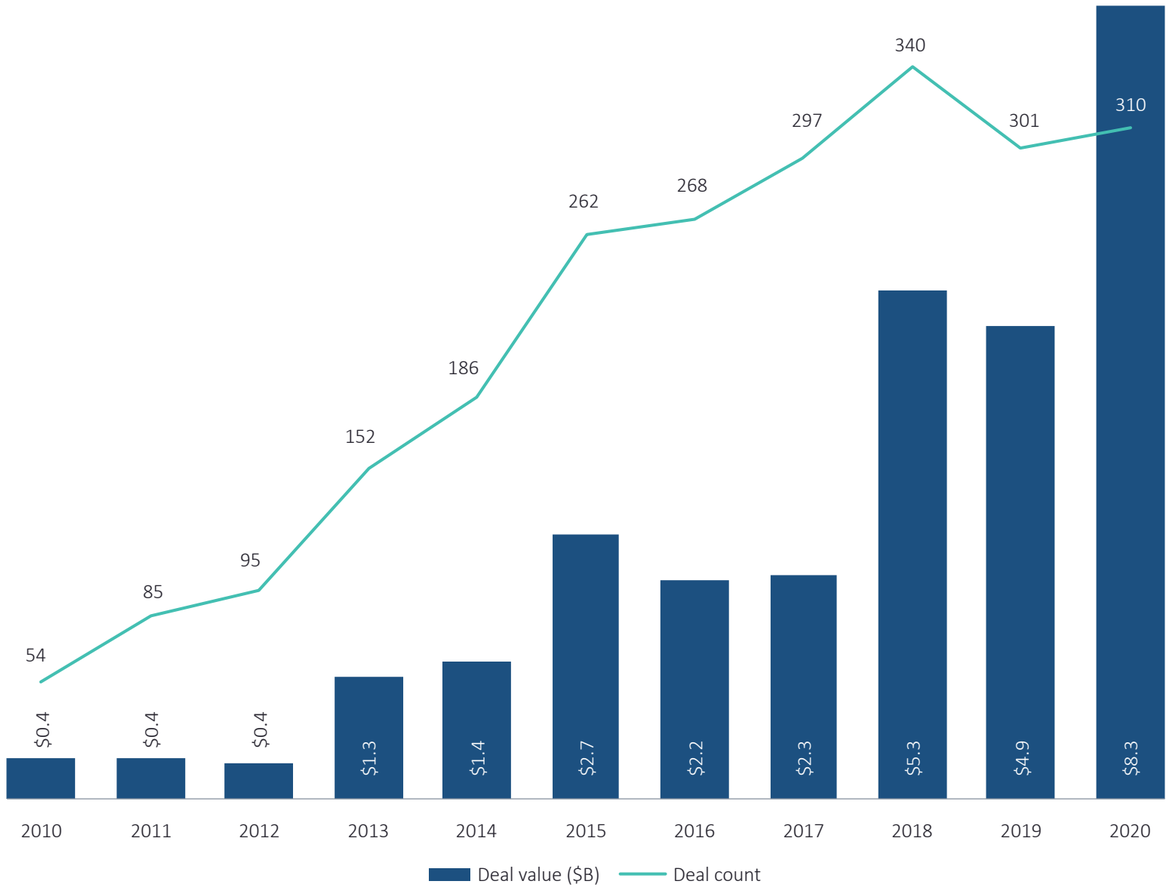
Supplemental materials

SUPPLEMENTAL MATERIALS

Additional VC data

Figure 39.

Enterprise health & wellness tech VC deal activity



Source: PitchBook | Geography: Global

Figure 40.

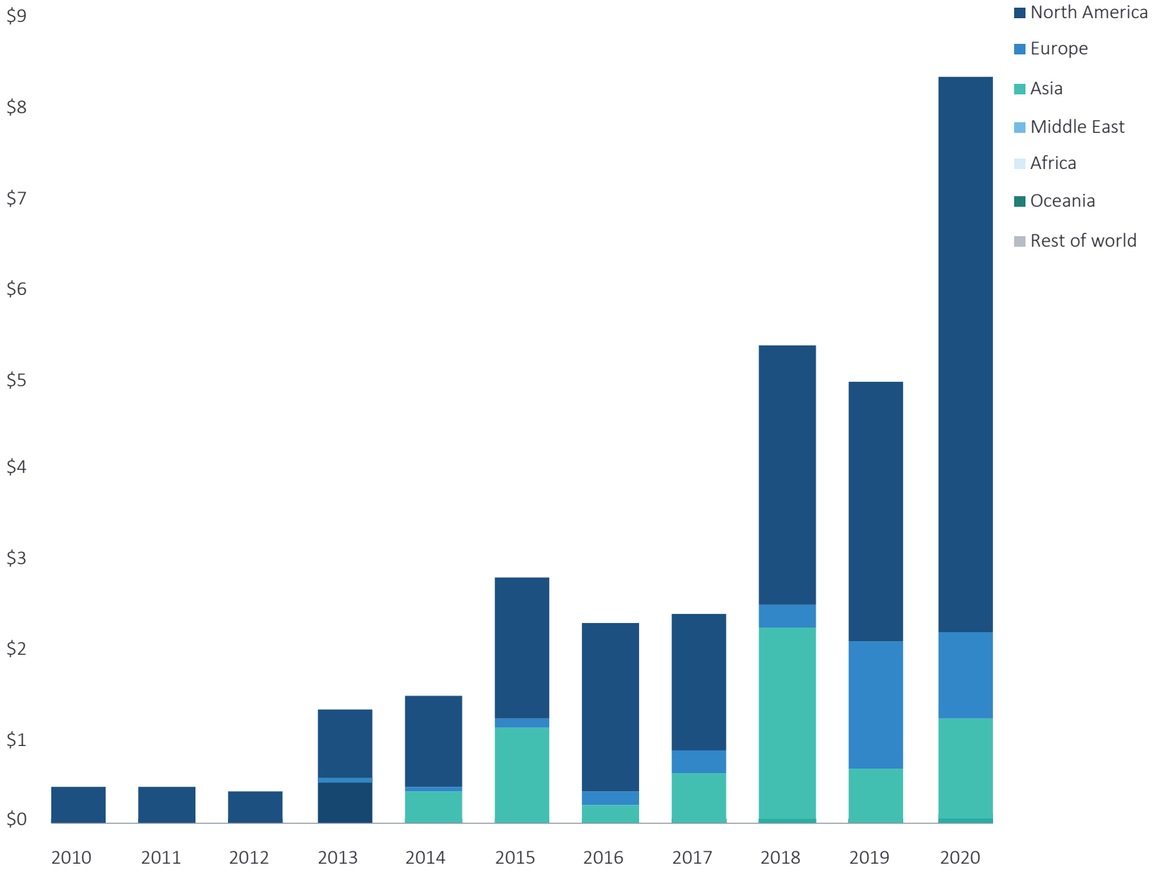
Notable enterprise health & wellness tech VC deals

COMPANY	CLOSE DATE	DEAL SIZE ($M)	POST-MONEY VALUATION ($M)*
DXY	December 28, 2020	$500.0	N/A
Tempus Labs	December 10, 2020	$450.0	$8,100.0
LumiraDx	December 15, 2020	$389.2	N/A
ClassPass	January 8, 2020	$285.0	$1,035.0
VillageMD	July 8, 2020	$275.0	N/A
Alto	January 30, 2020	$250.0	$600.0
Olive	December 1, 2020	$225.5	$1,500.0
Ro	July 27, 2020	$200.0	$1,500.0
Visby Medical	May 31, 2020	$166.0	$886.0
Cityblock Health	December 10, 2020	$160.0	$1,000.0

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 41.

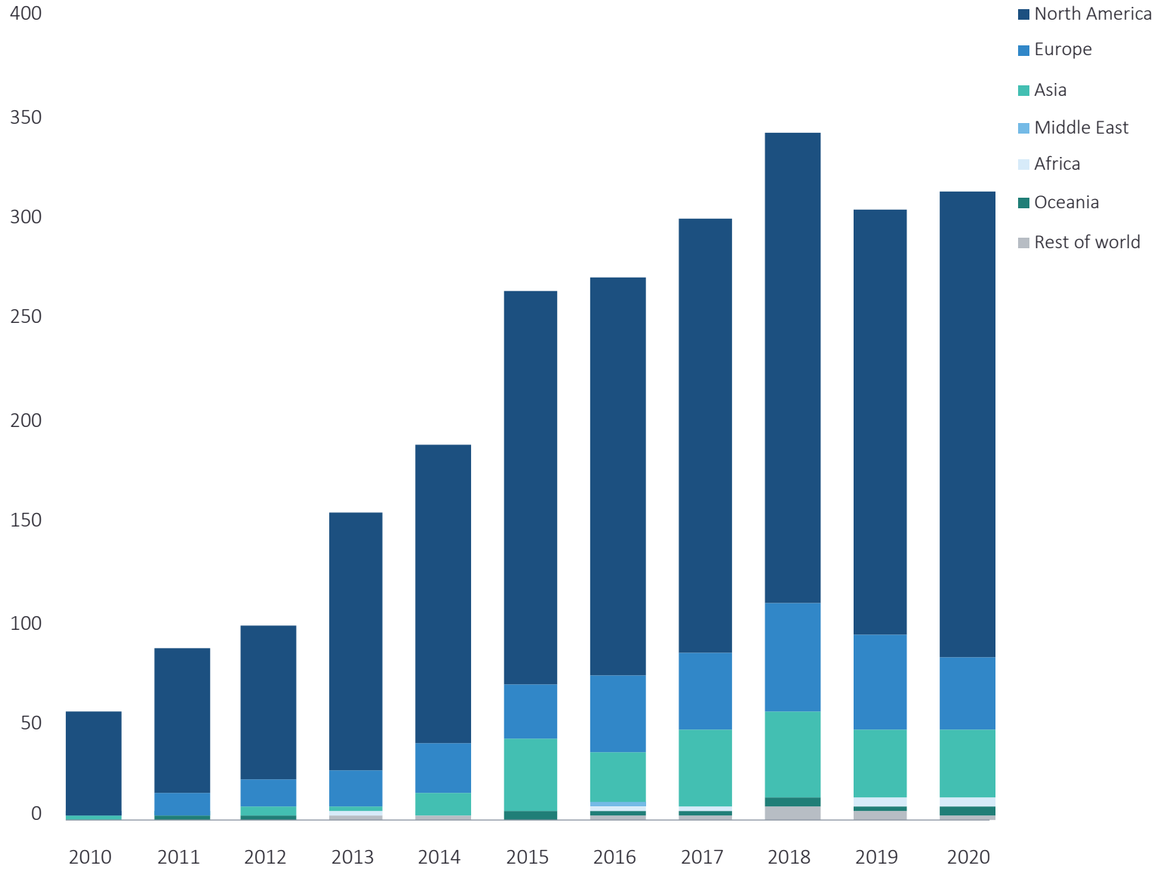
Enterprise health & wellness tech VC deals ($B) by region



Source: PitchBook | Geography: Global

Figure 42.

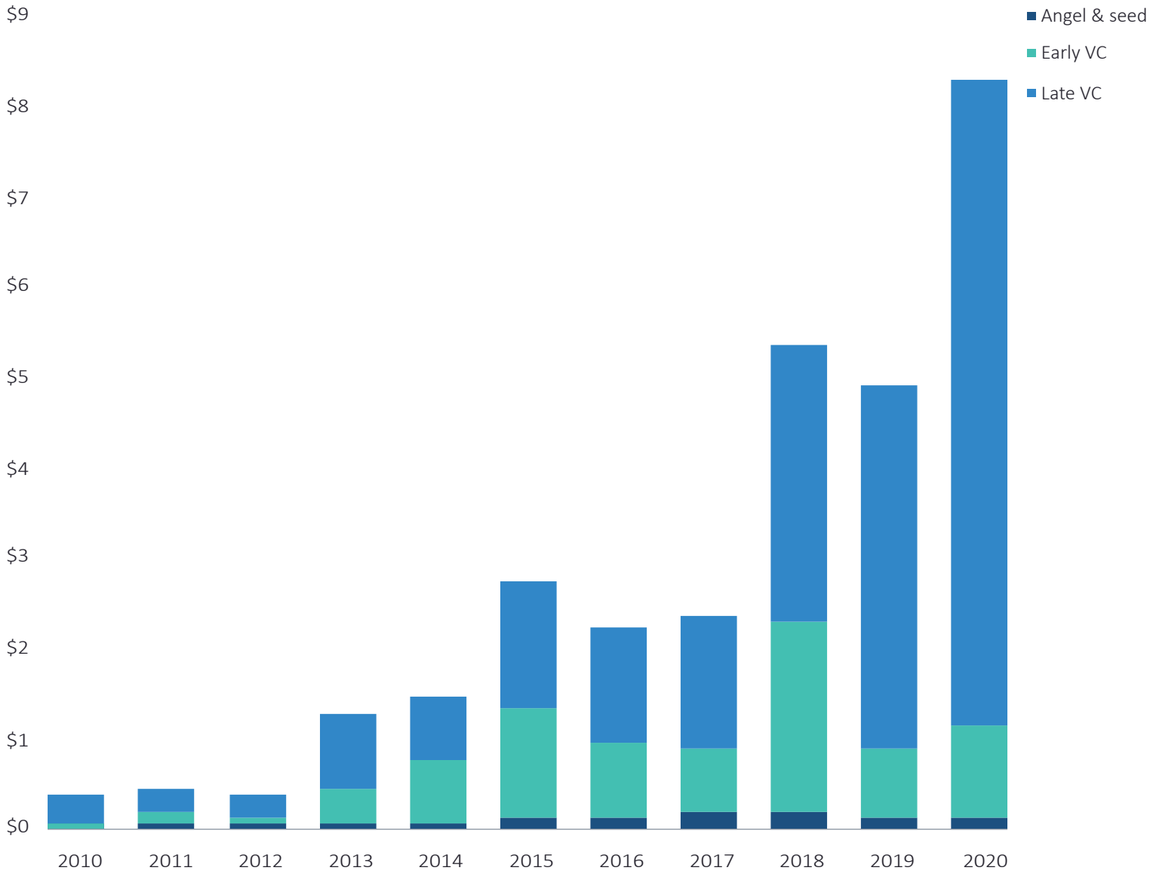
Enterprise health & wellness tech VC deals (#) by region



Source: PitchBook | Geography: Global

Figure 43.

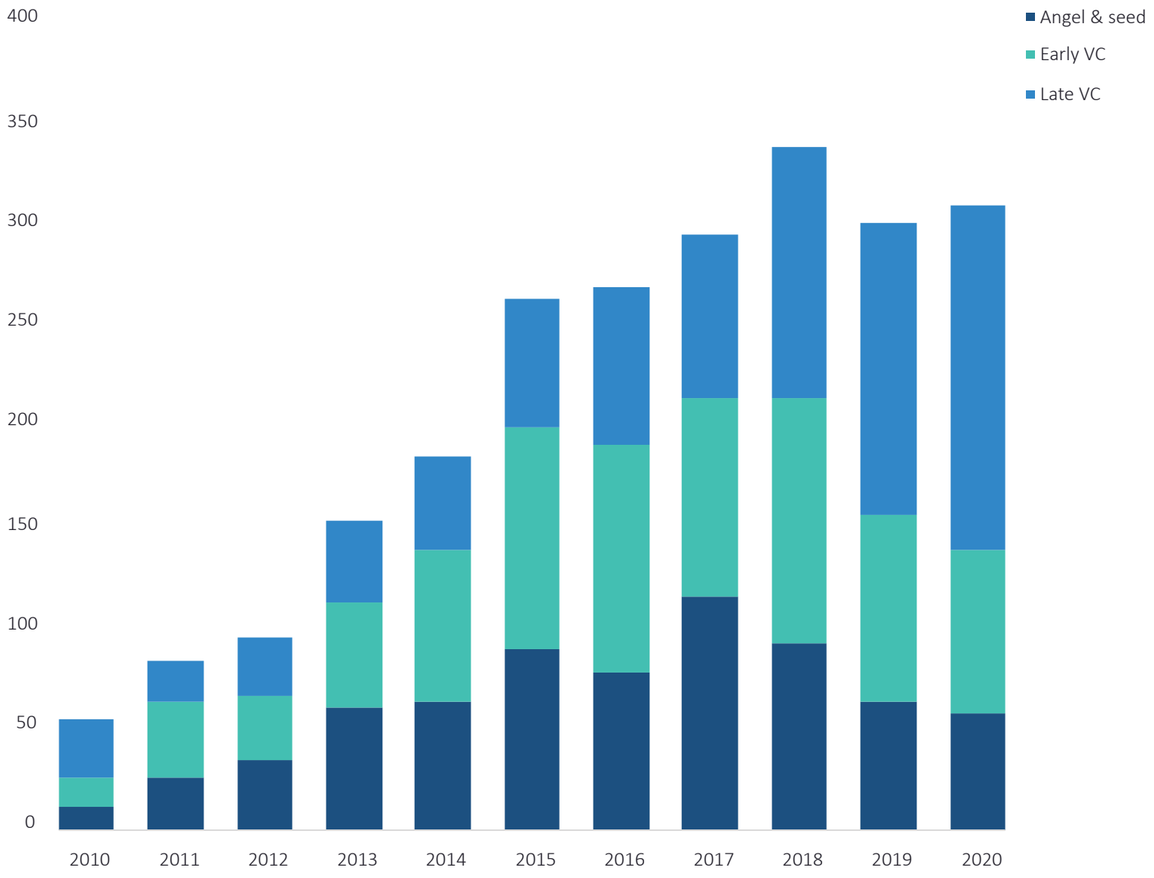
Enterprise health & wellness tech VC deals ($B) by stage



Source: PitchBook | Geography: Global

Figure 44.

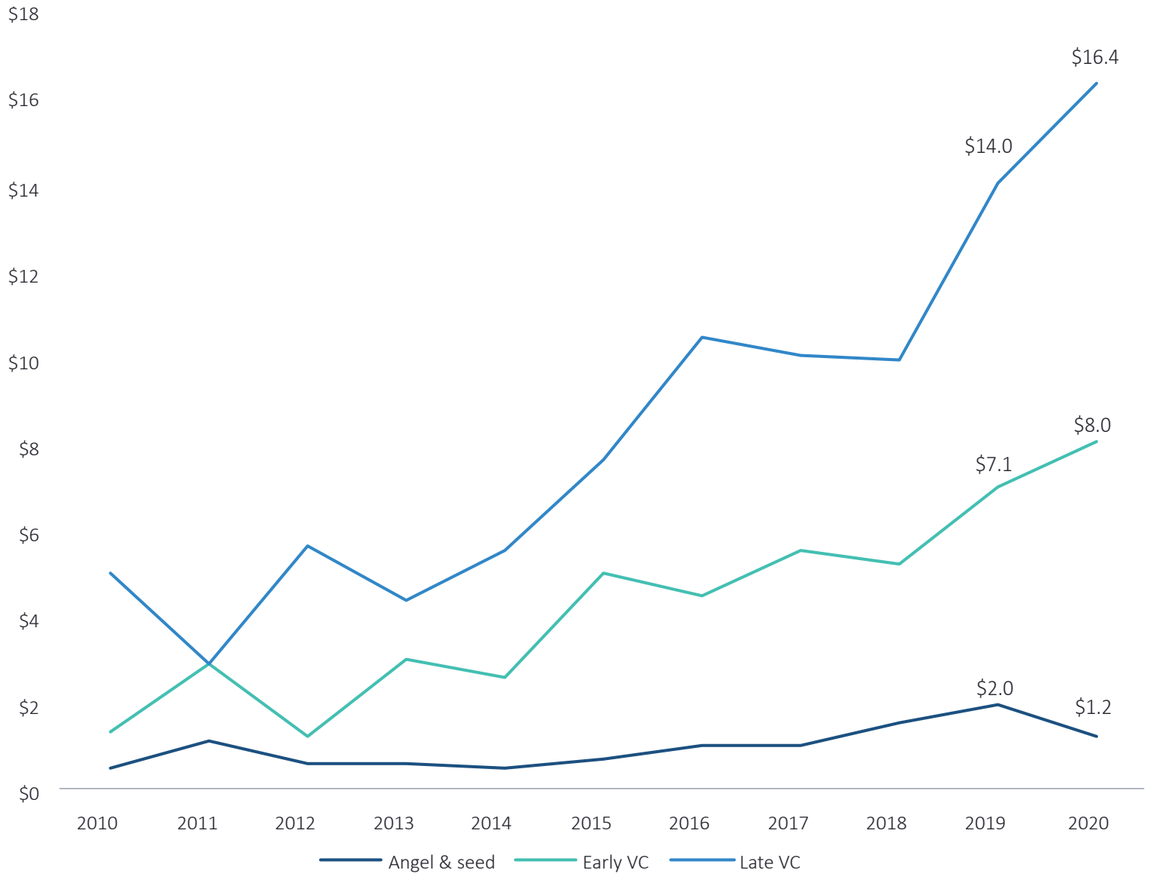
Enterprise health & wellness tech VC deals (#) by stage



Source: PitchBook | Geography: Global

Figure 45.

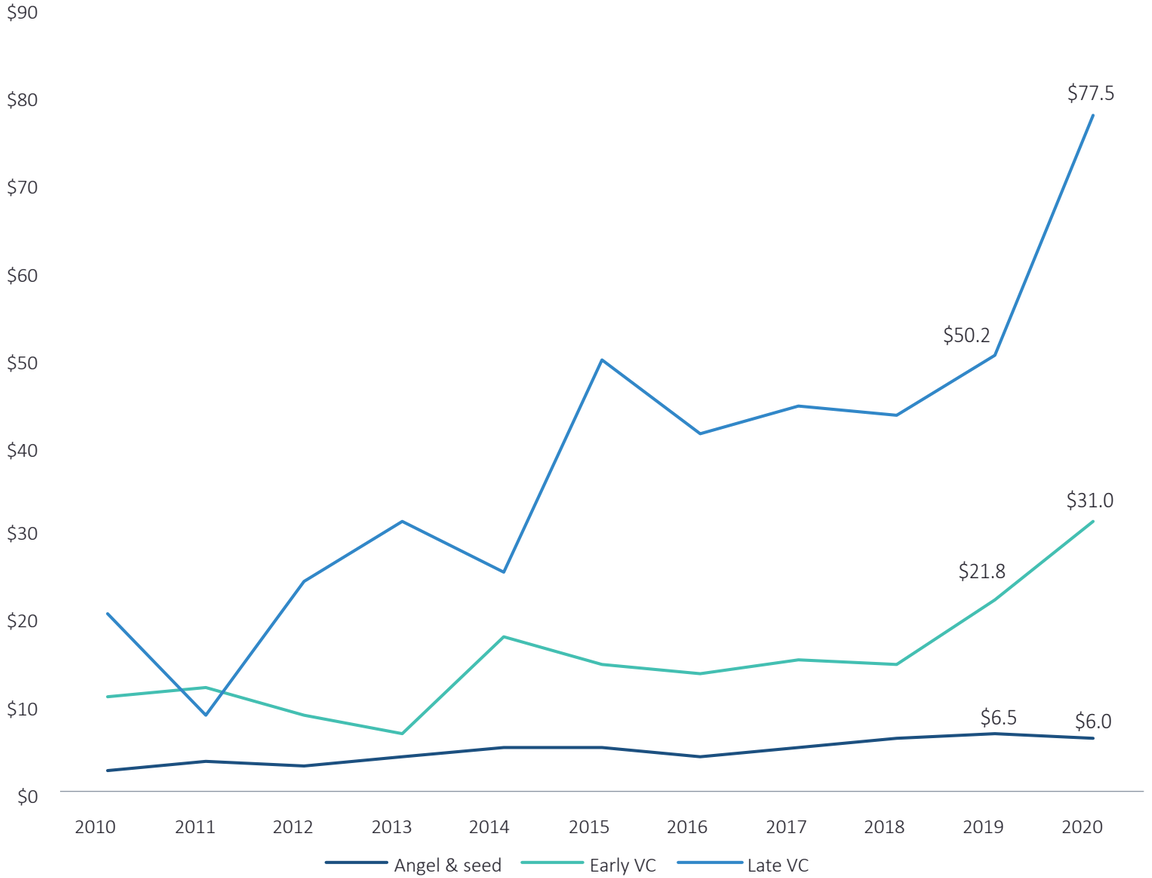
Median enterprise health & wellness tech VC deal size ($M) by stage



Source: PitchBook | Geography: Global

Figure 46.

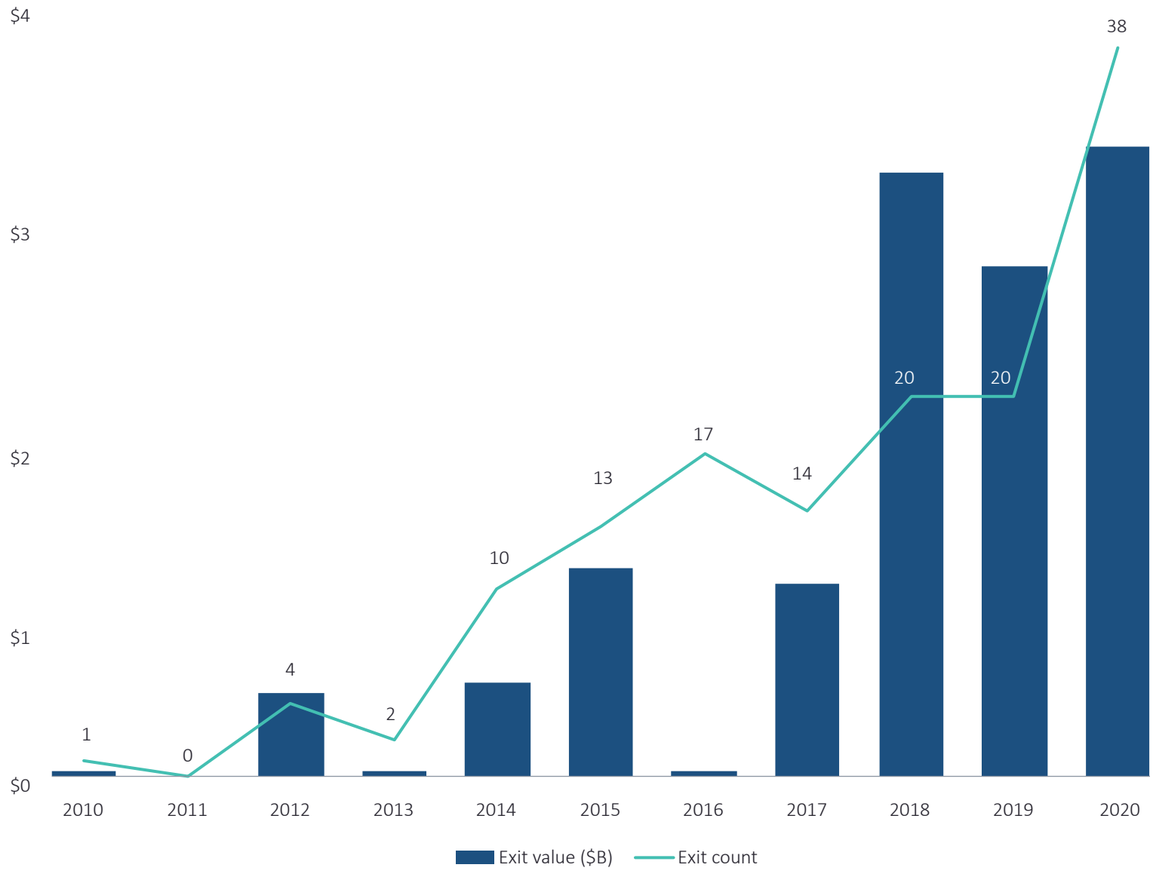
Median enterprise health & wellness tech VC pre-money valuation ($M) by stage



Source: PitchBook | Geography: Global

Figure 47.

Enterprise health & wellness tech VC exit activity



Source: PitchBook | Geography: Global

Figure 48.

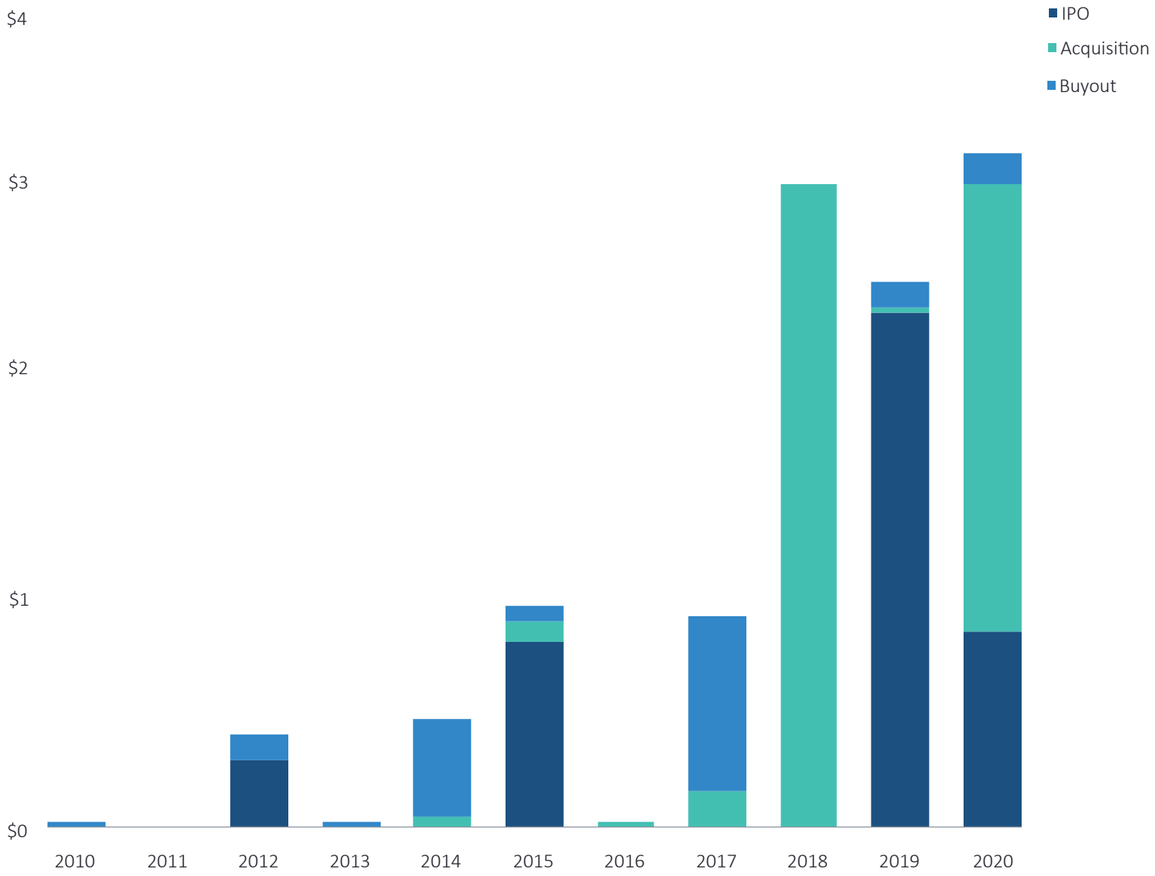
Notable enterprise health & wellness VC exits

COMPANY	CLOSE DATE	EXIT SIZE ($M)	POST-MONEY VALUE ($M)*
InTouch Health	July 1, 2020	$1,078.5	$1,078.5
Zesty	June 8, 2020	$19.0	$19.0
Evariant	January 7, 2020	N/A	N/A
Level Ex	May 26, 2020	N/A	N/A
Coubic	August 4, 2020	N/A	N/A
One Medical	January 10, 2020	$1,688.5	$1,970.3
Accolade	July 2, 2020	$819.8	$1,040.3
SCI Solutions	April 1, 2020	$190.0	$190.0
Lumere	January 13, 2020	$135.0	$135.0
VitalWare	September 1, 2020	$120.0	$120.0

Source: PitchBook | Geography: Global | *As of December 31, 2020

Figure 49.

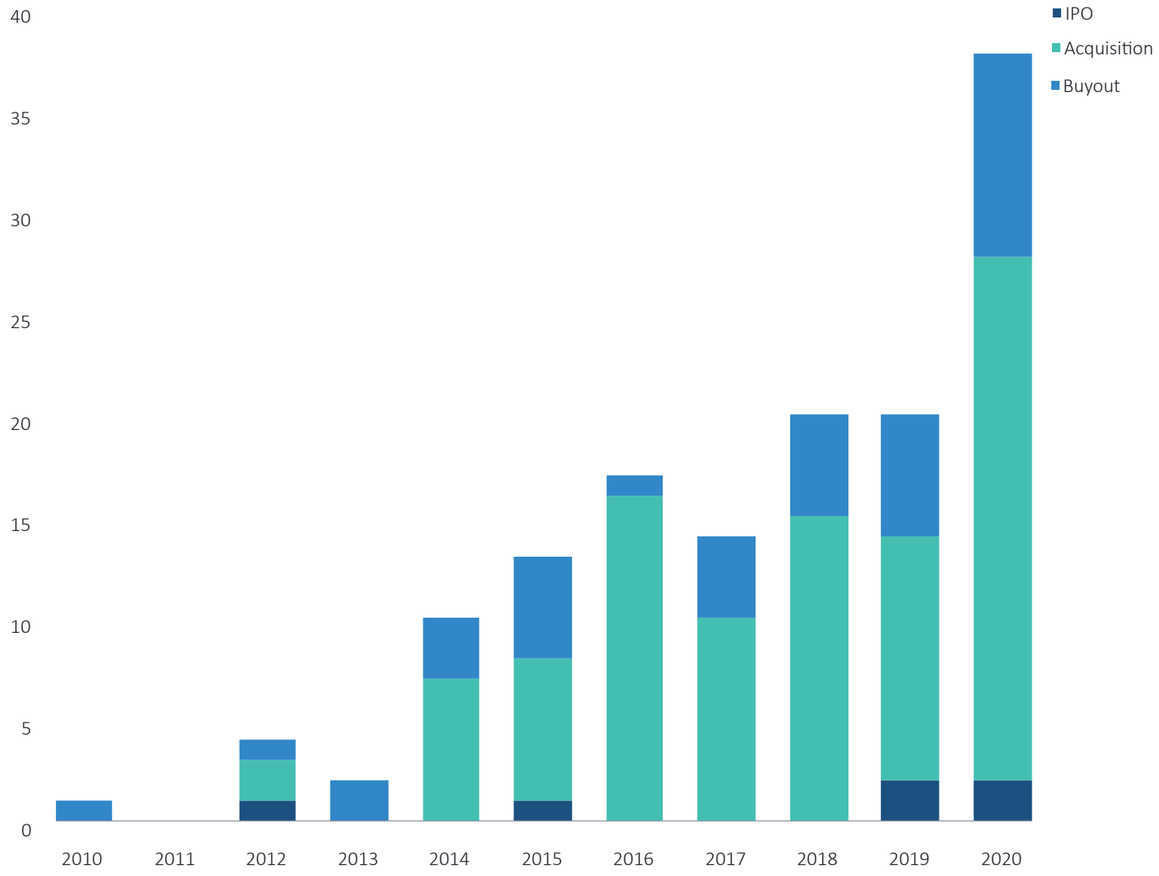
Enterprise health & wellness tech VC exits ($B) by type



Source: PitchBook | Geography: Global

Figure 50.

Enterprise health & wellness tech VC exits (#) by type



Source: PitchBook | Geography: Global

Figure 51.

Top 10 VC investors in enterprise health & wellness tech since 2018

INVESTOR NAME	DEAL COUNT*
Oak HC/FT	15
F-Prime Capital	14
Echo Health Ventures	14
Alumni Ventures Group	14
Qiming Venture Partners	13
LRVHealth	11
HealthX Ventures	11
500 Startups	11
Optum Ventures	11
Blue Venture Fund	10

Source: PitchBook | Geography: Global
*As of December 31, 2020

Figure 52.

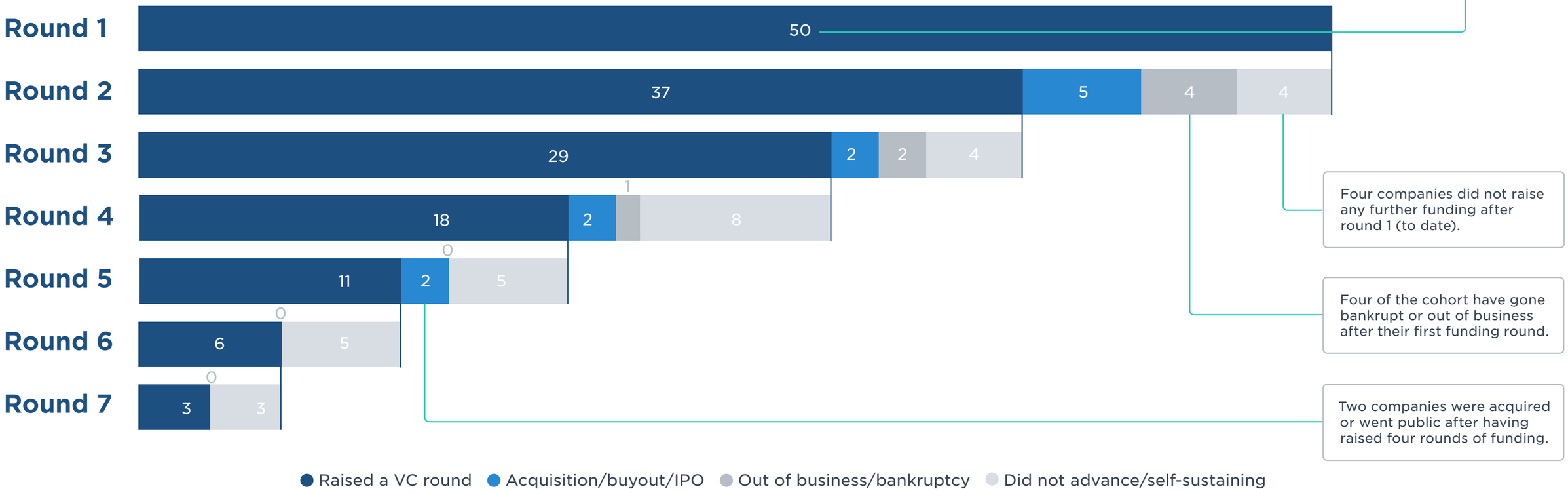
Top PE investors in enterprise health & wellness tech since 2008

INVESTOR NAME	DEAL COUNT*
Warburg Pincus	6
Francisco Partners	4
The Blackstone Group	3
Silver Lake Management	3
Marlin Equity Partners	3
Vista Equity Partners	3
K1 Investment Management	3
Genstar Capital	3

Source: PitchBook | Geography: Global
*As of December 31, 2020

VC funnel

This VC funnel uses PitchBook data to analyze the VC funding life cycle by highlighting, by round, the number of firms that successfully raised a subsequent round, exited (through acquisition or IPO), went out of business or did not have a further liquidity event.



About PitchBook Emerging Tech Research

Independent, objective and timely market intel

As the private markets continue to grow in complexity and competition, it's essential for investors to understand the industries, sectors and companies driving the asset class.

Our Emerging Tech Research provides detailed analysis of nascent tech sectors so you can better navigate the changing markets you operate in—and pursue new opportunities with confidence.

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