PitchBook

EMERGING TECH RESEARCH

2021 Annual Retail Healthtech Report

VC trends and industry overview

Published Q1 2022

Contents

Institutional Research Group

ANALYSIS

Kaia Colban Analyst, Emerging Technology

pbinstitutionalresearch@pitchbook.com

DATA

Matthew Nacionales Data Analyst

Publishing

Designed by **Julia Midkiff** and **Megan Woodard**

Cover by **Julia Midkiff**

Published on March 8, 2022

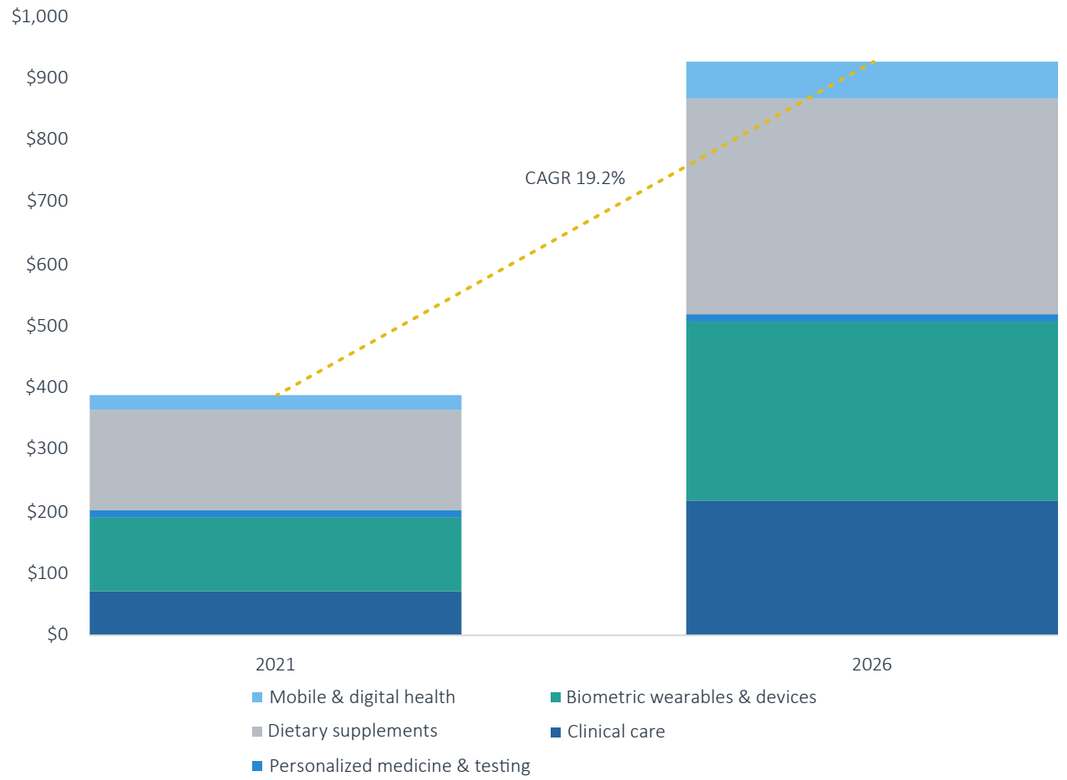
Vertical overview

The retail healthtech vertical encompasses primarily consumer-focused healthcare products and services designed to improve personal health and wellness at a lower cost and higher quality than traditional alternatives. Startup vendors in this industry largely rely on digital technologies that enable convenient at-home or mobile use, the ability to integrate with other services, and large-scale data collection and analysis to help drive personalized offerings.

While this burgeoning industry features new methods of obtaining traditional care, such as telehealth and digital therapeutics, it also includes a range of emerging and alternative health & wellness tech products, such as digital behavioral health tracking tools; fitness-related products including exercise equipment, fitness trackers, and nutrition-related services; digital therapeutics; and direct-to-consumer tests and analyses that enable personalized health recommendations. Vendors in this sector seek to address a broad range of health concerns, such as reducing epidemics related to chronic diseases, lowering healthcare costs, and improving overall well-being.

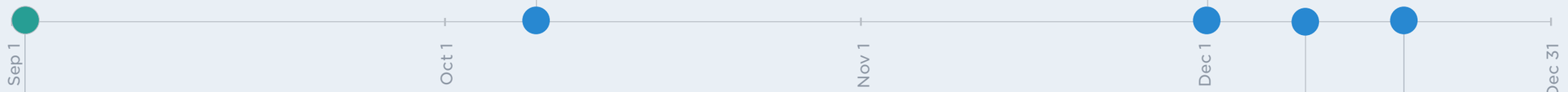
We bucket the retail healthtech landscape into the following segments: mobile & digital health, dietary supplements, biometric & wearable devices, personalized medicine & testing, and clinical care.

Figure 1. RETAIL HEALTHTECH MARKET SIZE ESTIMATE ($B)*



Source: PitchBook Emerging Tech Research | Geography: Global | *As of December 31, 2021

Q4 2021 timeline



VC EXIT

September 1
One Medical (NASDAQ: ONEM) acquires **Iora Health** for $1.4 billion.

VC DEAL

October 8
BetterUp, a business products & services coaching and wellness platform, raises a $339.0 million Series E.

VC DEAL

December 8
Medable, a decentralized clinical trial platform, raises a $304.0 million Series D.

VC DEAL

December 1
Cult.fit, an online fitness platform with live classes and sports telemedicine, raises a $150.0 million Series F.

VC DEAL

December 16
Found, a virtual weight loss program, raises a $100.0 million Series B.

Q4 VC DEAL COUNT SUMMARY

100
total deals

-14.5%
QoQ growth

0.4%
YoY growth

Q4 VC DEAL VALUE SUMMARY

$18.3B
total value

11.4%
QoQ growth

105.7%
YoY growth

Retail healthtech 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.

Clinical care

Telemedicine

Digital therapeutics

Concierge specialty & primary care clinics

Mobile & digital health

Behavior modification tools

Fitness applications

Personalized health tools & tracking

Personalized medicine & testing

Ad-hoc personalized testing

Bioinformatics

Genomic testing

Biometric wearables & devices

Biometric monitoring wearables

Remote patient monitoring (RPM) tools

Smart devices

Dietary supplements

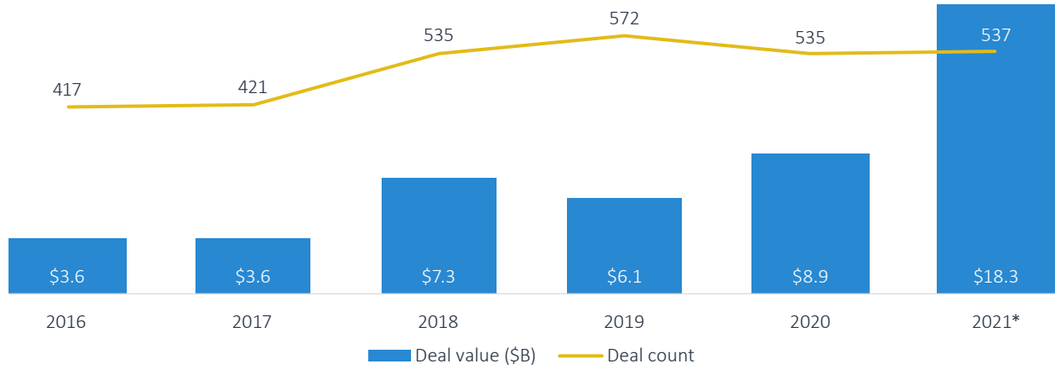
Vitamins & supplements

VC activity

The retail healthtech space generated $18.3 billion across 537 venture capital (VC) deals in 2021, compared with 2020's deal value of $8.9 billion across 535 deals. This more than twofold growth in cumulative deal value indicates industry maturity. Total deal value dropped to $6.1 billion in H2 2021 relative to H1's $12.2 billion. Among our segmented areas of the industry, we recorded the highest deal value activity in clinical care startups, with $8.8 billion, followed by mobile and digital health startups, with $3.7 billion, and personalized medicine and testing startups, with $3.0 billion.

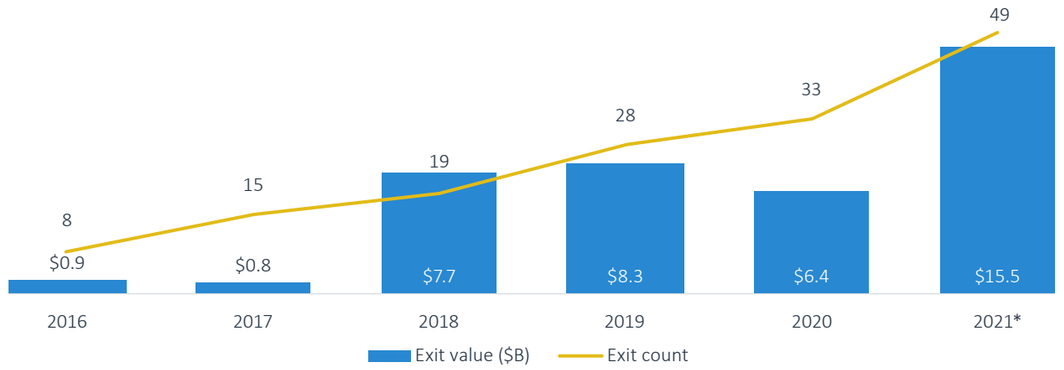
The clinical care segment continues to benefit from increased telemedicine adoption as ignited by the COVID-19 pandemic, government initiatives to approve digital therapeutics, and patient demand for customer-focused, ongoing preventative care. In 2021, the mobile and digital health segment took off as employers increased wellness benefits and as mental health became less stigmatized. Compared with the entire retail healthtech industry, dietary supplements startups experienced a relatively lower step-up, at 1.6x, despite a record-breaking median deal size during the year of $7.5 million. Though the dietary supplement industry is relatively mature, new startups that leverage at-home tests to develop personalized supplements are revamping the industry.

Figure 2. RETAIL HEALTHTECH VC DEAL ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

Figure 3. RETAIL HEALTHTECH VC EXIT ACTIVITY

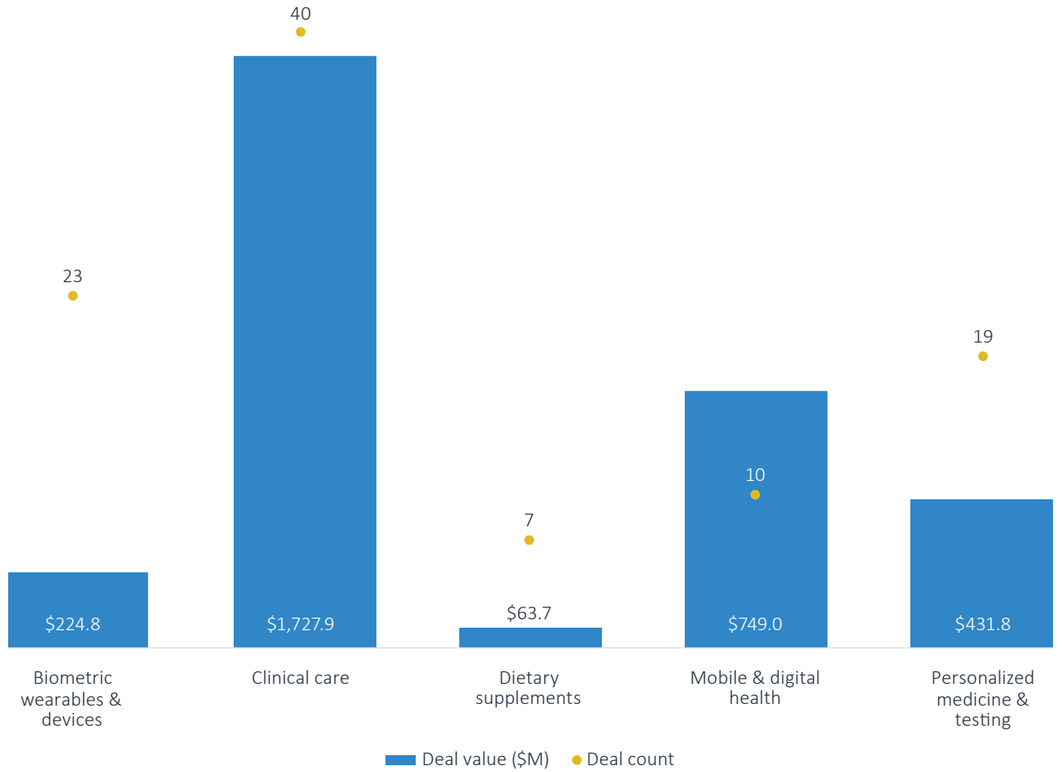


Source: PitchBook | Geography: Global | *As of December 31, 2021

VC ACTIVITY

Relative to 2020, the angel and early-stage VC deal counts were lower in 2021, while the late-stage VC deal count was higher. We believe this reflects the relative ease with which late-stage deals have been completed during the pandemic, whereas early-stage startups have found it comparatively more difficult to raise funds. Many late-stage startups in the clinical care industry likely benefited from increased consumer adoption of telemedicine and rising opportunities among the Medicare Advantage (MA) population.

Figure 4. RETAIL HEALTHTECH VC DEAL ACTIVITY BY SEGMENT IN 2021



Source: PitchBook | Geography: Global | *As of December 31, 2021

Segment overview

Clinical care

As the pandemic subsides, the ongoing use of telemedicine drives continued investment toward telemedicine startups.

Mobile & digital health

Employers increase investment toward workplace wellness initiatives, thereby boosting opportunity for mobile and digital health startups.

Biometric wearables & devices

Biometric device startups focus on interoperability and collecting data to enable personalized care.

Dietary supplements

Startups leverage at-home tests to develop personalized supplements and revamp the antiquated industry.

Personalized medicine & testing

Development of precision medicine leverages bioinformatic platforms, and telemedicine drives the at-home testing market.

Clinical care

Overview

The clinical care industry comprises companies involved in the distribution of health services via mobile and online telecommunication platforms, companies that provide in-person or online subscription-based care, and companies that provide therapeutic treatments through tech-enabled devices and platforms. Subsegments currently include:

- **Digital therapeutics (DTx):** The digital therapeutics industry designs software solutions to treat medical conditions and diseases. Digital therapeutics are tested for safety and efficacy in randomized clinical trials, evaluated by the Food and Drug Administration (FDA), and prescribed by healthcare providers and doctors. Startups in this industry have the potential to help close the gap in care with traditional therapeutics by providing scalable, easy-to-manage, data-driven treatments. DTx technologies can efficiently monitor and adjust these treatments in real time, thereby providing a more patient centric approach to healthcare. Some digital therapeutics provide standalone treatments, while others are used in tandem with traditional therapeutics. For example, **Akili Interactive**'s AKL-T01, a digital therapeutic, can replace or be used in tandem with traditional pharmaceutical therapies for ADHD.

- **Telehealth services:** Telehealth connects patients and healthcare providers via computers, mobile devices, and audio-visual systems to provide remote treatment. This category also includes artificial intelligence-powered chatbots that provide medical advice and cognitive therapy. Telehealth has the potential to provide benefits across the entire health ecosystem—not just for the end consumer. For example, hospitals deploying telehealth services reduce costs for consumers and insurers, increase convenience to users, and improve capacity constraints, as outlined in Figure 5.

Telehealth service providers can be segmented into two buckets:

  - **Direct-to-consumer (D2C) telehealth companies:** These companies contract directly with employers, insurers, or patients to provide on-demand telehealth services—typically urgent care or primary care. Players in this area either hire or contract their own physicians to provide consultation and/or create AI-powered chatbots to assist patients.
  - **Telehealth service platforms:** These companies supply information technology (IT) infrastructure to healthcare providers that wish to develop and offer their own telehealth services.

- **Concierge specialty & primary care clinics:** This category includes providers that use technology to offer ongoing care both in-person or virtually. Many of these companies use a DTC membership-based-care business model, sell to employers as a workplace benefit, or partner with MA insurers.

Figure 5.

Benefits of telehealth to providers, patients, payers, and employers

BENEFIT	PROVIDER/HOSPITAL	PATIENT	INSURER/PAYER	EMPLOYER
Reduces readmissions and avoids penalties	X	X	X	
Reduces length of hospital stay	X	X	X	
Increases patient satisfaction	X	X	X	X
Reduces overuse	X			
Reduces no-shows	X			
Improves medication management	X	X	X	X
Improves complex condition management	X	X	X	X
Increases quality of care	X	X	X	X
Increases provider efficiency	X			
Provides goodwill opportunities	X			
Increases market access	X			
Provides better medical access		X		
Increases retention rates	X		X	
Lowers total cost of care		X	X	X

Source: PitchBook

Industry drivers

Concierge specialty & primary care clinics drivers include rising opportunities among the MA population, the dissatisfaction among primary care providers PCPs and patients, increased focus on value-based care (VBC), and strong potential for promising outcomes.

- **Rising opportunities among the MA population:** The older adult population in the US is expected to reach 80.8 million by 2040—up from 39.6 million in 2020. Enrollment in MA plans doubled from 2010 to 2020, with 39% of all Medicare beneficiaries on MA in 2020.[1] Chronic disease has grown to account for 96% of Medicare spending.

- **Patients and PCPs alike are dissatisfied:** The average PCP has a net promoter score of three.[2] Family medicine and pediatric PCPs are the lowest-paid doctors. In large cities, the average patient waits 29 days to see a PCP in large cities.[3] When compared with their specialist peers, PCPs are the least satisfied in their work.[4]

- **The current system not designed to offer VBC:** 45% of recommended preventative services are not delivered. There is limited care between visits. The fee-for-service business model is problematic.

- **Early-stage outcomes are promising:** **Oak Street Health** (NYSE: OSH) reports a 51% reduction in hospital admissions, a 42% reduction in 30-day re-admission rates, and a 51% reduction in emergency department visits versus Medicare fee-for-service.[5] **Privia Health's** (NASDAQ: PRVA) Privia Quality Network has delivered total shared savings of more than $519 million across government programs and commercial payers since 2014.[6]

Telemedicine drivers include the pandemic, the push for VBC, technological advancements, and demand for healthcare in rural areas.

- **COVID-19 as an adoption catalyst:** The pandemic has driven a surge in demand for telehealth capabilities to help in diagnosing and treating patients. Telehealth can help extend treatment to rural locations, scale treatment in densely populated cities, and protect front-line healthcare workers from highly contagious diseases. To facilitate the use of telehealth during the pandemic, regulators eased restrictions, as they had previously restricted telehealth access and Medicare reimbursement. Payers also extended insurance coverage and partnered with telehealth providers. We believe the pandemic served as a catalyst for the industry and will have long-term ramifications as patients, providers, and insurers grow accustomed to telemedicine and as the technology itself improves. According to a McKinsey study, telehealth usage surged in April 2020 but has since stabilized at a rate 38x higher than the pre-pandemic level.[7]

- **Technological advancements facilitate telehealth deployment:** Greater clinician access to electronic health information, along with telecommunications and mobile technology advancements, has facilitated the deployment of telehealth services.

1: "A Dozen Facts About Medicare Advantage in 2020," KFF, Meredith Freed et al., January 13, 2021.
2: "Corporate Presentation," Oak Street Health, May 2021.
3: "PCP and Family Physician Wait Times increasing 50% in Many Markets," Lab Soft News, January 28, 2019.
4: "What's the Biggest Source of Job Dissatisfaction for Primary Care Physicians?" Medical Economics, March 28, 2013.
5: "Corporate Presentation," Oak Street Health, May 2021.
6: "Privia Health Reports Results in CMSs Medicare Shared Savings Program (MSSP)," Privia Health, August 25, 2021.
7: "Telehealth: A Quarter-Trillion-Dollar Post-COVID-19 Reality?" McKinsey & Co., Oleg Bestsennyy, et al, July 9, 2021.

CLINICAL CARE

- **Rising healthcare costs and the push for VBC:** Telemedicine is often less expensive to provide relative to facility care because remote treatment requires fewer resources. As studies continue to validate the efficacy and cost-efficiency of telemedicine, both private and public health insurers are more likely to cover telehealth services. For example, at the University of Pittsburgh Medical Center, a video-based home monitoring program helped drop hospital readmissions among patients with congestive heart failure to just 5% from 28%.[8] Additionally, D2C clear aligners—alternatives to braces—cost approximately 50% less than doctor-directed aligners and are conveniently delivered.

- **Demand for healthcare in rural areas:** The patient to PCP ratio in US rural areas is only 39.8 physicians per 100,000 people, compared with 53.3 physicians per 100,000 in urban areas. About 20% of US residents live in rural areas without suitable access to dentists and orthodontists.[9] Telehealth gives rural residents better access to specialists and high-quality care.

Digital therapeutic drivers include government initiatives to develop frameworks for DTx and technological advancements.

- **Governments globally have developed frameworks to adopt DTx products and expedite regulatory approval:** In the US, the Digital Health Software Precertification Program allows the FDA to approve developers of digital therapeutics without having to approve each subsequent software release. The FDA also finalized guidance for a voluntary review process known as the Safer Technologies Program (STeP). In Europe, multiple frameworks have emerged to increase digital therapeutics product adoption, including initiatives by Germany's Federal Institute for Drugs and Medical Devices and France's Haute Autorité de Santé. In Asia, Singapore's Health Science Authority recently approved a prescription-based digital therapeutic for the first time. The following products from startups have recently gained FDA clearance: **AppliedVR**'s virtual reality portal designed to treat chronic lower back pain; **AliveCor**'s interpretive electrocardiography (ECG) algorithms (Kardia AI V2), which capture sinus rhythm with cardiac conditions; and **NightWare**'s **Apple** (NYSE: AAPL) Watch app, which tracks heart rate and movement during sleep to identify if a user is having a nightmare and then disrupts the nightmare without waking the user. In November 2021, **Pear Therapeutics** (NASDAQ: PEAR) received FDA Breakthrough Device Designation for its reSET-A DTx. Shortly thereafter, on December 6, Pear went public via a SPAC, raising its valuation to $1.6 billion.

- **New technology enables DTx advancements:** New technologies—such as smart sensor innovation, artificial intelligence & machine learning (AI & ML), and Internet of Things (IoT)—enable the widespread use of low-cost sensors with reduced hardware requirements, the expansion of connected devices, and real-time progress measurement. DTx can leverage these technologies to develop platforms and devices that provide personalized insights, track patient behaviors, and update treatments as needed.

8: "Telehealth: A Quarter-Trillion-Dollar Post-COVID-19 Reality?" McKinsey & Co., Oleg Bestsennyy, et al, July 9, 2021.
9: "Use of Telemedicine Surges at UPMC," Biz Journals, Kris B. Mamula, May 23, 2014.

Market size

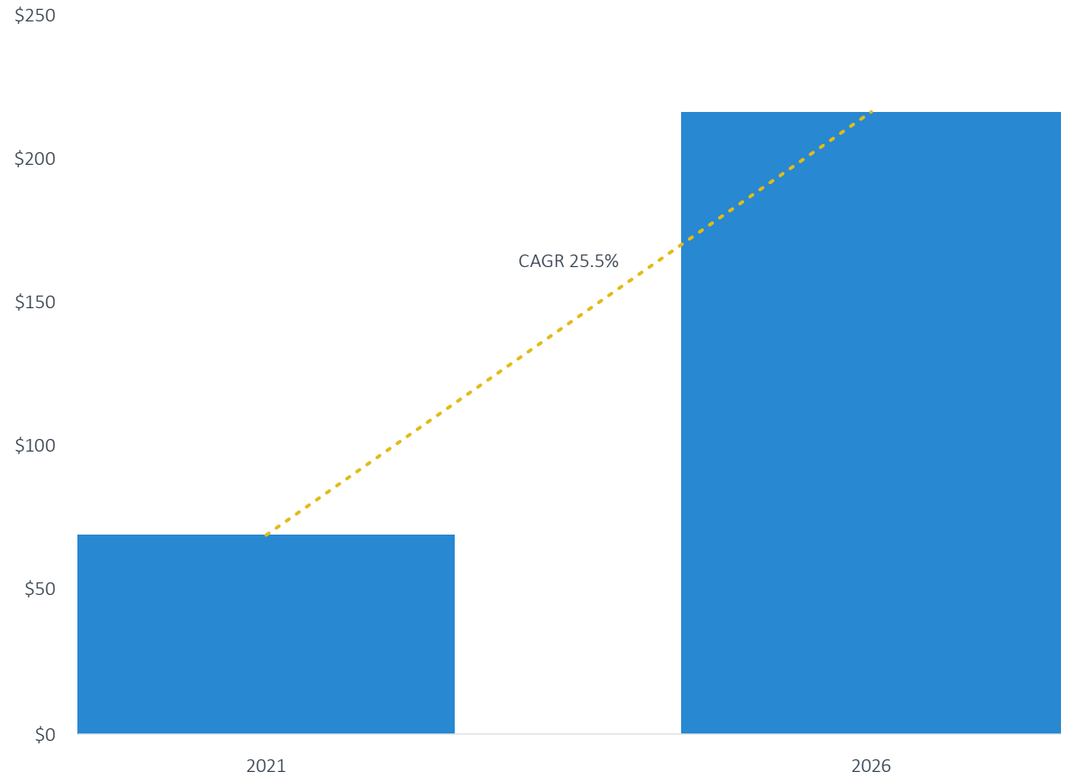
We estimate that the clinical care market was worth $70.0 billion in 2021. We forecast the market to grow at a 25.5% CAGR to $217.0 billion between 2021 and 2026—above the pace of the global retail healthtech market, which is projected to grow at a CAGR of 19.1% over the same timeframe.

Business model

Concierge specialty & primary care clinics: Startups in this space use a membership-based payment structure rather than the traditional fee-for-service-based billing method. Membership-based relationships may occur through employer sponsorships, partnerships with MA insurers, or directly with consumers. MA insurers receive a monthly per-patient fee from Medicare to manage the risk and health of their consumers. Relationship-based care providers such as **Oak Street Health** partner with MA insurers, which relay a share of the stipend received from Medicare back to these providers when patients sign up with a relationship-based care provider. **Oak Street** believes it can provide better health outcomes at a lower cost, thus enabling profits.

Telehealth: Telehealth companies sell to healthcare providers through D2C, business products & services, or B2B2C models and offer either software or hardware such as video devices for hospital exam rooms and remote patient monitoring (RPM) devices. Revenue is generated via unit sales, software-as-a-service (SaaS) subscriptions, and digital visits. Business products & services and B2B2C telehealth service platforms sell strictly to healthcare providers that offer telehealth services to patients. These patients are often unaware of which telehealth platform they are using because the platforms are on the back end and may be white labeled. D2C providers attract consumers to their platform and connect them with either their own or third-party medical providers.

Figure 6. CLINICAL CARE MARKET SIZE ESTIMATE ($B)*



Source: PitchBook Emerging Tech Research | Geography: Global | *As of December 31, 2021

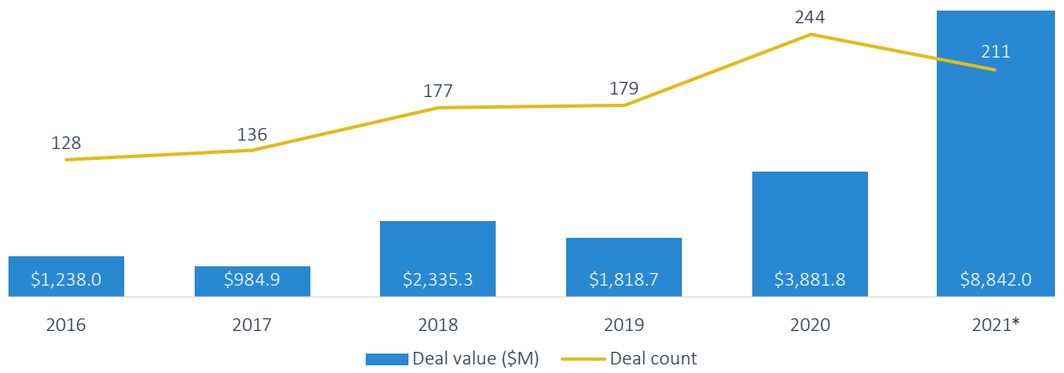
CLINICAL CARE

- **Business products & services:** Providers sell their platforms and services to hospitals, employers, and/or insurers through a SaaS business model. Prices vary based on physician and employee usage, session volumes, and additional features. RPM devices are often sold directly to hospitals for patient distribution and are sometimes covered by insurance.

- **D2C:** D2C telehealth providers directly target individuals. In the US, D2C providers partner with insurers and employers to guarantee coverage. However, in countries with universal healthcare, providers receive government funding and may bypass that step. Consumer prices vary based on insurance levels and whether employers offer telehealth benefits. Telehealth services that use only chatbots, text messaging, and/or online risk assessments typically have standard prices and do not partner with insurers, though they may partner with employers. For example, **98point6**, which diagnoses patients through text messaging, charges individuals a $120 annual fee, and $1 per "visit."[10] Employee-sponsored plans cover the annual fee, but users may still have to pay the visitation fee. Primary customer acquisition channels include physician referral and direct marketing.

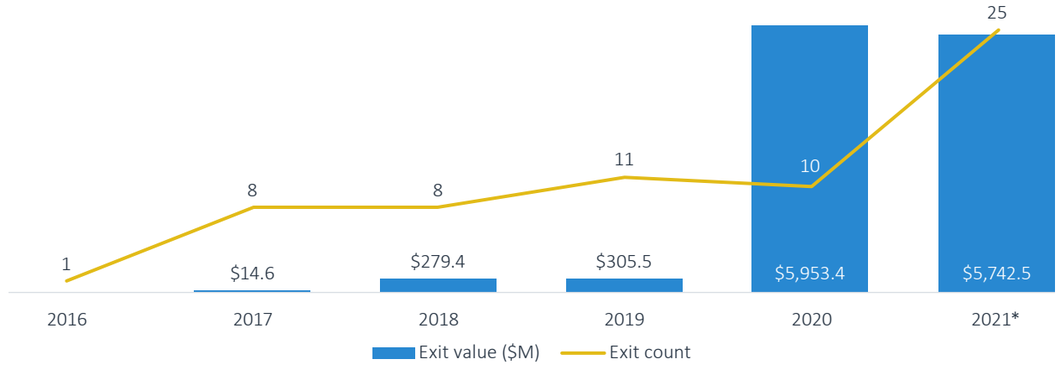
Digital therapeutics: Physicians prescribe digital therapeutics to patients. These DTx could be sold through a one-time purchase or via a SaaS subscription model. Providers of digital therapeutics sell products and services primarily to healthcare providers and payers that then supply the equipment to their patients—through a B2B2C model.

Figure 7. CLINICAL CARE VC DEAL ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

Figure 8. CLINICAL CARE VC EXIT ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

10: "98point6," 98point6, 2022, n.d.

VC activity

In 2021, the clinical care segment generated $8.8 billion in VC financing across 211 deals, a significant deal value increase from $3.9 billion in 2020 across 244 deals. Several large deals drove this growth, including a $600.0 million Series E for **Hinge Health**, a $300.0 million Series C for **Cerebral**, a $189.0 million Series D for **SWORD Health**, and a $142.0 million Series D for **Truepill**. In addition to these VC mega-deals (deals sized $100 million+), 2021 saw several early-stage deals, as the market for telemedicine benefited from pandemic-related demand and as the growth of data and technology enabled the development of digital therapeutics.

We tracked 22 exits in 2021—14 M&As, five public listings, and three leveraged buyouts (LBOs)—compared with 10 in 2020 and 11 in 2019. Notable M&As included health insurer **Cigna**'s (NYSE: CI) acquisition of **MDLive** for $2.0 billion and **One Medical**'s acquisition of **Iora Health** for $1.4 billion. **DocGo** (NASDAQ: DCGO), a mobile medical service provider, went public via a SPAC for $827.0 million. We believe this segment could experience more M&A in the coming year.

CLINICAL CARE

Figure 9.

Key clinical care VC deals in 2021*

COMPANY	CLOSE DATE	SUBSEGMENT	STAGE	DEAL SIZE ($M)	LEAD INVESTOR(S)	VALUATION STEP-UP
Hinge Health	October 28, 2021	Digital therapeutics	Late-stage VC	$600.0	Coatue Management, Tiger Global Management	1.9x
Cerebral	December 8, 2021	Telemedicine	Late-stage VC	$300.0	SoftBank Investment Advisers	4.0x
SWORD Health	November 22, 2021	Digital therapeutics	Late-stage VC	$189.0	Sapphire Ventures	N/A
Truepill	October 27, 2021	Telemedicine	Late-stage VC	$142.5	Initialized Capital Management, TI Platform Management, Liquid 2 Ventures	N/A
Click Therapeutics	October 22, 2021	Digital therapeutics	Late-stage VC	$52.0	Accelmed, H.I.G. BioHealth Partners	1.9x
Ophelia	December 14, 2021	Telemedicine	Early-stage VC	$50.0	Tiger Global Management	4.1x
AppliedVR	November 11, 2021	Digital therapeutics	Late-stage VC	$36.0	Sway Ventures, F-Prime Capital, JAZZ Venture Partners	1.3x
Sollis Health	November 24, 2021	Concierge specialty & primary care clinics	Late-stage VC	$35.1	Torch Capital, Denali Growth	6.5x
FORMEL Skin	December 20, 2021	Telemedicine	Early-stage VC	$33.9	Singular Capital Partners	N/A
Medallion	November 3, 2021	Telemedicine	Early-stage VC	$30.0	Sequoia Capital	2.4x

Source: PitchBook | Geography: Global | *As of December 31, 2021

CLINICAL CARE

Figure 10.

Key clinical care VC exits in 2021*

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	EXIT TYPE	ACQUIRER(S)/INDEX	VALUATION STEP-UP
MDLive	April 19, 2021	Telemedicine	$2,028.0	Acquisition	Cigna	2.1x
Iora Health	September 1, 2021	Concierge specialty & primary care clinics	$1,400.0	Acquisition	One Medical	N/A
DocGo	November 5, 2021	Telemedicine	$827.0	Public listing	Motion Acquisition/ NASDAQ	N/A
PlushCare	June 9, 2021	Telemedicine	$478.2	Acquisition	Accolade	N/A
Lemonaid Health	November 1, 2021	Telemedicine	$400.0	Acquisition	23andMe	2.7x
Access Physicians	March 26, 2021	Telemedicine	$234.0	Acquisition	SOC Telemed	N/A
Pulsenmore	June 15, 2021	Telemedicine	$190.0	Public listing	Tel Aviv Stock Exchange	7.0x
Apostroph	July 2, 2021	Telemedicine	$181.6	Acquisition	Hims & Hers Health	5.0x
Adracare	January 4, 2021	Telemedicine	$3.7	Acquisition	WELL Health Technologies	N/A
Aetonix	February 24, 2021	Telemedicine	$0.0	Acquisition	Trudell Medical International	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2021

Opportunities

Digital therapeutics: While still in the early stages, we have seen increased VC funding activity in the DTx space, and we expect this trend to continue during 2022. DTx can represent entirely new approaches to treatment, as well as supplement existing approaches. It may help close the gap with traditional therapeutics by providing data-driven treatments that are scalable, easy to manage and monitor, and adjustable in real time, thus providing more patient-centric approaches to healthcare.

Telemedicine and concierge care for the LGBTQ community: When it comes to obtaining care for their physical and mental health needs, the LGBTQ community represents a largely underserved segment of the US population. Startups are providing membership-based clinical care for transgender and gender nonconforming (TGNC) individuals and are helping LGBTQ individuals virtually connect with affirming care providers. Some LGBTQ-oriented care providers, such as **Plume**, focus on providing gender-affirming-related healthcare for TGNC individuals, while others, such as **Ayana Therapy**, offer mental healthcare for the broader LGBTQ population. While startups currently sell primarily D2C, we foresee startups developing partnerships with insurers.

Use-based reimbursement: The FDA approved the first prescription digital therapeutic (PDT) in 2017. This area has since been an increasing area of opportunity for startups. PDT opportunity and growth is driven largely by the increased prevalence of smartphones and the 571 and counting published studies proving the efficacy of digital health as a medical intervention.[11] Emerging products, such as **Akili**'s Endeavor and **Pear Therapeutics**' reSET, take advantage of technology breakthroughs to help consumers improve health outcomes without using internal medicine. Typically, insurance providers rely on medical diagnoses and prescriptions to cover and reimburse PDTs. However, as the market for PDTs expands, insurers are starting to consider use-based reimbursement models that can more accurately determine whether products are being used. This method would enable insurers to cover only PDTs that are actively being used by the medical professional or patient, which would effectively decrease spending. As more PDTs enter the market, we believe standardized regulations, coupled with increased data integration ability, will likely increase use-based reimbursement for high-cost PDT products.

Membership-based care providers will integrate external health data and increase patient touchpoint frequency: By aggregating data from RPM devices, patient surveys, claims, and more, care providers will be able to diagnose patient conditions and develop condition management plans to monitor conditions and engage patients in proactive care. Furthermore, to increase the level of holistic and preventative care, we expect startups will focus on boosting the frequency of clinically significant, low-touch interactions between patients and providers. These interactions often occur virtually but may also occur in-person. New technologies and the proliferation of mobile devices have enhanced providers' ability to virtually provide care via video chats and chatbots.

Risks & considerations

Regulatory and coverage pathway for DTx still nascent: Companies in the DTx space do not have clear criteria for receiving FDA approval or obtaining insurance coverage. To

11: "The Growing Value of Digital Health," IQVIA Institute, November 7, 2017

date, DTx have been granted or cleared by the FDA Center for Devices and Radiological Health via either the de novo or the 510(k) pathways for medical devices, respectively, or received Breakthrough Therapy designation for expedited regulatory review. The current FDA regulatory framework for medical devices was developed in 1976; a modernized version capable of overseeing the iterative, autonomous, and adaptive nature DTx products has yet to be developed. DTx targeted toward treating chronic conditions may need to conduct lengthy longitudinal studies to gain regulatory approval and insurance coverage. Pharmacies and payers, as well as some state public insurance programs, typically rely on FDA National Drug Code (NDC) and National Health Related Items Code (NHRIC) numbers to reimburse medical devices. Early DTx, such as **Welldoc**'s BlueStar DiabetesManager System, received an NDC code for inclusion in drug compendia and reimbursement.[12] However, in 2016, the FDA ruled that starting September 2021, DTx will be ineligible for NDC codes. Instead, they must apply for a unique device identification (UDI) number from the FDA. Pharmacies and payers may not be prepared for this transition. Furthermore, the Centers for Medicaid and Medicaid Services (CMS) has not yet issued clear guidance for reimbursement of DTx.

Insurers developing in-house primary care services: Some innovative health insurance startups are developing their own care maintenance and coordination programs. For example, **Firefly Health** provides health plans for self-insured employers and uses its own team of physicians, nurse practitioners, behavioral health specialists, and health guides to provide virtual advanced primary care. **Firefly** believes its virtual primary care platform, which engages with the average patient 48 times yearly, will replace the need for annual, in-person primary care checkups. **Oscar Health** (NYSE: OSCR) provides every member with a dedicated care team to help members find doctors, understand their plans, and prepare for appointments.

Limited access to high-speed internet and smartphones hinders adoption in rural areas: According to one report, in 2016, only 77.7% of US rural areas and 72.3% of tribal lands had access to high-speed broadband internet that met the minimum benchmark set by the Federal Communications Commission (FCC).[13] Many digital therapeutic systems require access to smartphone applications. However, rural populations are less likely to own smartphones when compared with urbanites. In 2018, 71% of rural US residents reported owning a smartphone, versus 83% for both suburban and urban residents.[14]

12: "Welldoc Bluestar or Welldoc DiabetesManager System and DiabetesManager Rx System," DailyMed, March 26, 2014.

13: "New FCC Report Shows Digital Divide Continuing to Close," FCC, April 24, 2020.
14: "Mobile Fact Sheet," Pew Research Center, April 7, 2021.

Mobile & digital health

Overview

Mobile & digital health startups are developing tools and apps to help consumers monitor and improve personal health. Health providers may recommend these tools in conjunction with traditional care. These products differ from digital therapeutics as they can help prevent illnesses but are mostly not approved by the FDA to treat illnesses. Subsegments include:

- **Personal health tools & tracking:** Consumer applications for monitoring and managing health concerns such as menstruation cycles, nutrition, and sleep.
- **Fitness applications:** Applications that enable users to work out anywhere by providing on-demand audio and/or video classes. Includes "on-demand gyms" that allow consumers to gain access to a network of gyms and pay per minute, as opposed to monthly memberships.
- **Behavior modification tools:** Applications aimed at helping users improve critical brain functions, such as memory, attention, communication, and ability to learn. This group also includes applications intended to help reduce stress through practices such as meditation, as well as encourage healthy behaviors.

Industry drivers

- **Enabling technologies accelerate adoption:** The digital economy has paved the way for convenient, customizable consumer health tools accessible via smartphone apps. Improved connectivity speeds enable consumers to gain access to solutions on-demand, instantly share information, and stream high-quality videos. Augmented reality and virtual reality (AR/VR) technologies have the potential to create powerful new experiences—particularly AR, as it applies to brain activity analysis. Human movement tracking technology is actively being developed, and simple forms are now readily available on open-source platforms. This technology can be leveraged to provide real-time feedback for fitness training and physical therapy.

- **Corporate-sponsored health & wellness benefits:** A PricewaterhouseCoopers survey indicates that 44% of US employers added or augmented wellness programs during COVID-19,[15] thereby indicating a growing market opportunity. However, office closures and increased remote work will likely drive demand for virtual offerings, thus creating an opportunity for digital wellness platforms. For example, **Welldoc** is expanding its digital health platform to include behavioral health offerings that complement existing products that target diabetes prevention, hypertension, and heart failure. Startups in the mobile & digital health space are pursuing a variety of pricing models to lure corporate customers. **Headspace** offers starter, premium, and enterprise versions of its meditation- and stress-relief-focused digital health app. **Noom**'s personalized nutrition and exercise apps tie pricing to user outcomes. During 2021, employer benefit providers **Spring Health** and **Modern Health** raised VC rounds.

- **Diminishing stigma surrounding mental illness:** Declining stigma linked to mental illness will likely boost consumer willingness to seek treatment and technological solutions to deliver or supplement that treatment. Additionally, consumers may be drawn to the lower cost and privacy of using app-based services that do not require in-person doctor visits.

15: "2021 Health and Well-Being Touchstone Survey," PricewaterhouseCoopers, April 9, 2021.

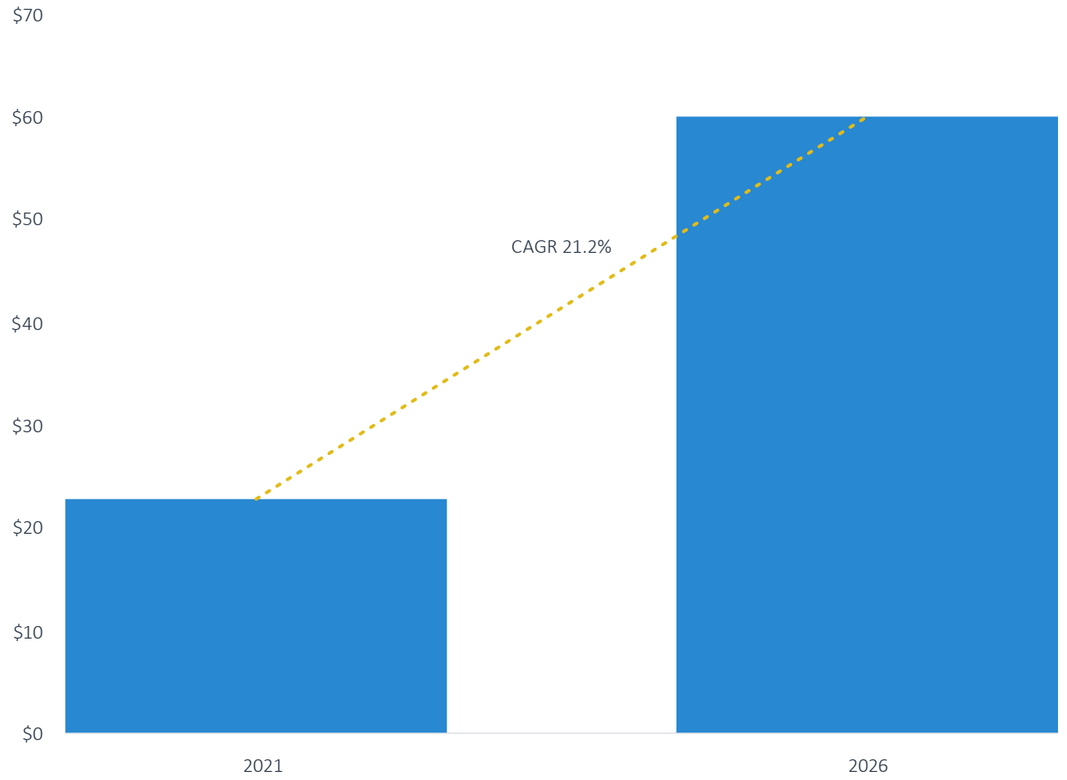
MOBILE & DIGITAL HEALTH

- **Digital alternatives help fill traditional care gaps:** As more studies indicate that digital health apps can result in similar outcomes where traditional care may be unavailable, we expect the market for digital alternatives to remain robust. Physicians can recommend digital weight loss apps for patients who cannot obtain personal trainers. Expensive psychotherapy otherwise inaccessible to low-income demographics or rural populations can be obtained at lower cost via digital apps. Sleep disorders can also be diagnosed and treated digitally.

Market size

We estimate the global mobile health market will reach $60.2 billion by 2026, propelled by a 21.2% CAGR from a market size of approximately $23 billion in 2021.

Figure 11. MOBILE & DIGITAL HEALTH MARKET SIZE ESTIMATE ($B)*



Source: PitchBook | Geography: Global | *As of December 31, 2021

MOBILE & DIGITAL HEALTH

Business model

Mobile & digital health products are generally sold D2C and may be accessible through desktops and/or mobile applications. Providers generate revenue via subscriptions such as “freemium” and premium, ads, and the sale of user data. Some products are covered under insurance plans or paid for by employers as a workplace wellness benefit.

Figure 12. MOBILE & DIGITAL HEALTH KPIS

- Customer retention
- Customer penetration
- Monthly recurring revenue (MRR)
- Churn rate
- Customer acquisition costs (CAC)
- Viability ratio (LTV/CAC)
- Seasonal retention
- Mobile apps: app downloads, app store ranking, active users, number of users who grant location permission, advertising partners
- User engagement metrics: number of users who improve sleep quality, allow push notifications, or log in daily/weekly

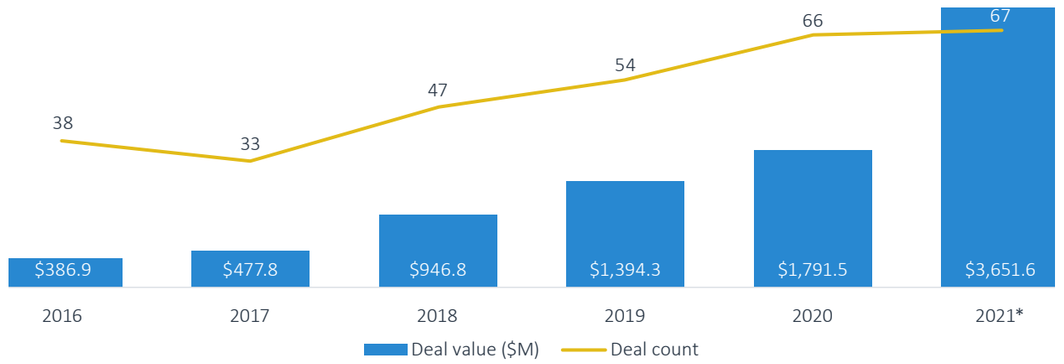
MOBILE & DIGITAL HEALTH

VC activity

Companies tracked in the mobile & digital health segment raised $3.7 billion across 67 deals in 2021, well above 2020's $1.8 billion across 66 deals. The decline in deal count was due to fewer angel and early-stage deals. With 11 mega-deals completed in 2021 compared with five in 2020, late-stage deal activity remained robust, thus mirroring broader VC trends. On a quarterly basis, aggregate VC deal count declined throughout the year, with only 10 deals closed in Q4. However, median deal value rose, hitting $1.1 billion in Q4 compared with $255.5 million in Q3 and $1.1 billion in Q1. Q2 experienced a slightly higher median deal size, with $1.6 billion raised across 20 deals. Mega-deals raised in Q4 include **BetterUp**'s $339.0 million Series E, **Cult.fit**'s $150.0 million Series F, and **Found**'s $100.0 million Series B.

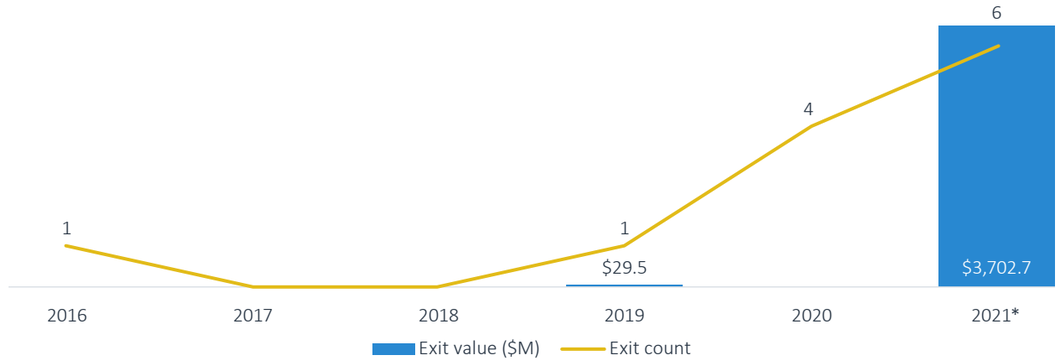
In 2021, we tracked two mergers, one reverse merger, and two LBOs among mobile and digital health companies, resulting in $3.7 billion in aggregate disclosed exit value—a substantial amount after 2020's dearth of exits. This surge in exit activity was driven by **Headspace**'s acquisition of on-demand mental health service **Ginger** for $3.0 billion, which marks the first-ever mental health mega-merger. Mental health startups have received an influx of funding, with $543.0 million invested in H1 2021—nearly equal to the $548.8 million invested in all of 2020. Opportunities stemming from COVID-19 drove this investment increase: Employers have increased mental health benefits, and consumers have turned toward digital mental health applications. Together, **Ginger** and **Headspace** will reach 100 million consumers and receive a valuation of $3 billion. In June 2021, **K Health**, a telehealth PCP, announced its acquisition of **Trusst**, a messaging-based mental health platform. **Headspace** acquired **Ginger** in a vertical integration play, while **K Health** acquired **Trusst** in a horizontal integration play. We expect

Figure 13. MOBILE & DIGITAL HEALTH VC DEAL ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

Figure 14. MOBILE & DIGITAL HEALTH VC EXIT ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

consolidation to continue as providers target the same employers and vie for the limited supply of mental health practitioners. In October 2021, **Mindbody** acquired **ClassPass** through an LBO via its financial sponsors Vista Equity Partners, Sixth Street Partners, and Hinge Capital. The acquisition supports **Mindbody**'s commitment to driving growth for wellness businesses while offering consumers the world's largest fitness and wellness experience marketplace. In June 2021, **TalkSpace** (NASDAQ: TALK) went public via a SPAC, with a pre-money valuation of $986.0 million.

MOBILE & DIGITAL HEALTH

Figure 15.

Key mobile & digital health VC deals in 2021*

COMPANY	CLOSE DATE	SUBSEGMENT	STAGE	DEAL SIZE ($M)	LEAD INVESTOR(S)	VALUATION STEP-UP
BetterUp	October 8, 2021	Behavior modification tools	Late-stage VC	$339.0	ICONIQ Capital, Lightspeed Venture Partners, Wellington Management	2.5x
Cult.fit	December 1, 2021	Fitness apps	Late-stage VC	$150.0	South Park Commons, Zomato	N/A
Found	December 16, 2021	Personalized health tools & tracking	Early-stage VC	$100.0	WestCap Group	4.0x
Quartet	December 2, 2021	Behavior modification tools	Late-stage VC	$60.0	Independence Health Group	1.8x
Brightside	December 8, 2021	Behavior modification tools	Early-stage VC	$46.0	N/A	2.4x
FORTË	November 12, 2021	Fitness apps	Seed round	$20.0	Cito Ventures, SeventySix Capital, Mindshift Capital	5.5x
FitOn	October 12, 2021	Fitness apps	Early-stage VC	$18.0	Delta-v Capital	N/A
Tava Health	November 22, 2021	Behavior modification tools	Early-stage VC	$10.0	Rose Park Advisors	2.8x
Mindhouse	November 18, 2021	Behavior modification tools	Early-stage VC	$6.0	Three State Capital	N/A
Vivante Health	October 13, 2021	Corporate distribution	Late-stage VC	$13.5	Undisclosed	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2021

MOBILE & DIGITAL HEALTH

Figure 16.

Key mobile & digital health VC exits in 2021*

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	EXIT TYPE	ACQUIRER(S)/INDEX	VALUATION STEP-UP
Ginger	October 14, 2021	Behavior modification tools	$3,000.0	Merger of equals	Headspace	2.5x
Talkspace	June 23, 2021	Behavior modification tools	$686.0	Public listing	Hudson Executive Investment/ NASDAQ	2.2x
WellteQ Digital Health	March 23, 2021	Personalized health tools & tracking	$16.7	Public listing	Terra Nova Resources/ Canadian Securities Exchange	N/A
ClassPass	October 15, 2021	Fitness apps	Undisclosed	Buyout	Sixth Street Partners, Vista Equity Partners, Mindbody, Hinge Capital	N/A
Vitafy	December 17, 2021	Personalized health tools & tracking	Undisclosed	Buyout	Capiton, Euro Vital Pharma	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2021

Opportunities

Mental health-focused startups: With more than 50 million adults living with mental illness in the US,[16] the service provider market is sprawling, with an estimated 20,000 mental health apps available and no clear winners in the space. We believe several providers will seek to differentiate by pursuing FDA approval—a likely reason to raise VC, as this lengthy, costly process includes completing clinical trials to prove efficacy. While analyzing mental health startups, we observe two strategies: therapy first and self-management. Therapy-first providers increase access to trained mental health professionals. Startups in this area include **Lyra**, **Spring Health**, and **Modern Health**. Self-management providers enable individuals to better independently manage their mental health. Startups in this space include **Calm** and **Headspace**. These companies initially started DTC but have begun selling to enterprises as well.

Sleep-tech-focused startups: Sleep tech providers seek to improve behavioral-, environmental-, and genetic-based insomnia, as well as sleep apnea and other sleep disorders. With the increasing prevalence of sleep disorders and the growing focus on preventive health, coupled with technological advancements, we expect the market size for sleep aids to increase from $80.0 billion in 2020 to $150.0 billion in 2030. Sleep trackers will likely shift from recording sleep activity to providing more insights and recommendations. **Whoop** provides personalized sleep-related insights, including hours of sleep needed and ideal times to both awaken and go to bed. **SleepSpace** tracks sleep cycles and plays cycle-correlated music to optimize sleep quality and block out noise pollution. The app also provides sleep coaching services via one-on-one virtual coaching.

Community-based fitness: When lockdowns first began in March 2020, health and fitness app downloads surged 27%, while apps with a community component saw four times as many downloads.[17] Fitness app that create communities and enable socialization are likely to outperform those that do not. Live virtual classes may be able to partly replicate the sense of community people get from in-person classes.

AI integration via chatbots to become more prominent: AI has the potential to enable unique solutions in the digital health industry. For example, chatbot nutritionists can provide personalized recommendations based on an individual's health and exercise habits. AI could also open the door for chatbots and robots to provide emotional and mental support tools with broad applicability across both consumer and corporate channels. Companies focused on AI-based solutions include **Babylon** (NYSE: BBLN), **Woebot**, **Buoy Health**, and **Ada**.

Risks & considerations

Mental health application consumer retention rate: A meta-analysis of clinical trials of smartphone apps intended to diagnose depressive symptoms showed dropout rates approaching 50%.[18] High dropout rates reduce business performance and may dissuade payers and employers from covering behavioral health applications.

16: "Mental Illness," National Institute of Mental Health, January 2022.

17: "Sweating for the Fitness Consumer," McKinsey & Co., Eric Falardeau, John Glynn, and Olga Ostromecka, June 21, 2021.
18. "Dropout Rates in Clinical Trials of Smartphone Apps for Depressive Symptoms: A Systematic Review and Meta-Analysis," Journal of Affective Disorders, John Torous, December 2019.

MOBILE & DIGITAL HEALTH

Growing competitive threat from tech incumbents: Legacy tech companies including **Apple** and **Amazon** (NASDAQ: AMZN) are increasingly focusing on the healthcare opportunity. In 2021, **Apple** created Fitness+, an at-home fitness streaming service for $10/month. Fitness+ streams directly from iPhones, iPads, or Apple TVs and displays biometrics on **Apple** Watches.

Biometric wearables & devices

Overview

Biometric wearables & devices companies integrate biometric technology into both wearable and nonwearable devices that can monitor and/or improve user health. Subsegments include:

- **Biometric monitoring wearables:** Hardware worn by users that continuously monitors a multitude of data points, such as biometrics, physical activity, and location, or performs a specific function, such as improving circulation. Wearables gained mainstream popularity in the mid-2000s with the launch of **Fitbit** and other fitness trackers. Since then, wearable technology has evolved to measure more sophisticated health and wellness indicators such as heart rate, fertility, blood sugar, and more. The biometric monitoring wearables category includes commercial wearables that are sold D2C and do not automatically transmit information to the consumer's physician. However, consumers may choose to share their data with their physicians, employers, and/or insurance providers. Employers and insurance providers may offer incentives to encourage individuals to share their data. Physicians may ask patients to share their data to better understand their patients' habits.

- **Remote patient monitoring tools:** RPM tools use at-home diagnostic technology to electronically collect and transmit information between patients and physicians. This technology can be deployed in healthcare settings and at home via mobile devices, robots, and other digital tools. They also transmit and collect medical imaging information and data.

- **Smart devices:** This subsegment includes external hardware devices that track biometrics that are not worn by the consumer. This category includes adaptive exercise equipment designed to enable a customized workout by dynamically adjusting to the user and/or providing tracking information. Other smart devices include sleep monitors that provide sleep quality feedback.

Industry drivers

- **Smart sensor innovation and IoT:** Sensor technology continues to advance, thus enabling the widespread use of low-cost sensors with reduced power and hardware requirements. The expansion of connected devices and IoT permits real-time progress measurement and continual updating. For example, heart-rate monitors were once single-purpose devices that were strapped to the body. Today, they can be embedded in smart wearables that continually transmit data to the cloud. Biometric sensors in earbuds and posture-monitoring clothing represent ongoing innovation. Furthermore, technological advances have led to innovation in remote patient- and self-monitoring devices, including at-home diagnostics that measure heart and respiratory rates, insulin levels, and skin pH levels; mobile communications and high-speed networks that enable real-time communication between patients and providers; and online triage bots that can assist with routing patients to the appropriate clinical teams. Breakthroughs in telecommunication technology have inspired vendors to focus investments into integrating hardware and software so as to contrive remote healthcare services to end users.

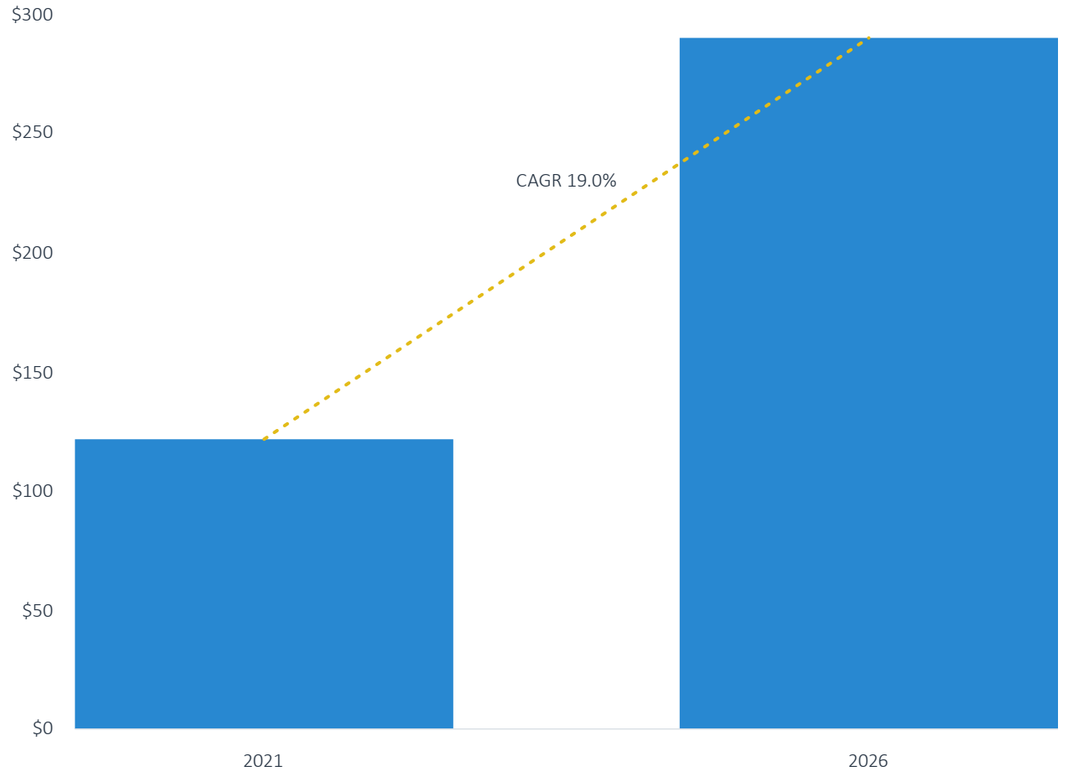
BIOMETRIC WEARABLES & DEVICES

- **More patients requiring ongoing monitoring:** The growing older adult population and an increasing number of patients with chronic conditions, such as diabetes, cancer, and obesity, have expanded the use of RPM tools that allow patients to reduce hospital trips and recuperate at home. Chronic and mental illnesses account for 90% of annual healthcare costs in the US,[19] with chronic heart diseases, diabetes, and strokes named leading global causes of mortality by the World Health Organization.[20] Technology will be critical in improving care for older adults. Next-generation sensors, such as **CarePredict**'s AI bracelet, can support home living, and robots, such as **Embodied**, can help provide physical care. Improved data analysis services will combine personal genetic and wellness data with population data to design individual care plans.

Market size

We expect the biometric wearable & device technology market to grow at an estimated CAGR of 19% from $121.0 billion in 2021 to $289.3 billion in 2026, with RPM devices dominating the market for the foreseeable future.

Figure 17. BIOMETRIC WEARABLES & DEVICES MARKET SIZE ESTIMATE ($B)*



Source: PitchBook | Geography: Global | *As of December 31, 2021

19: "Health and Economic Costs of Chronic Diseases," CDC, January 18, 2022.
20: "The Top 10 Causes of Death," World Health Organization, December 9, 2020.

BIOMETRIC WEARABLES & DEVICES

Business model

Biometric wearables & devices startups sell products and services to healthcare providers and payers either through B2B2C or D2C models. Both hardware and software can be sold via one-time purchase or through a software-as-a-service subscription model. RPM devices are often sold directly to hospitals for patient distribution and are sometimes covered by insurance.

Figure 18. COMMON BIOMETRIC WEARABLES & DEVICES KPIS

- Customer acquisition cost
- Volume: size of dataset per customer, such as 5GB
- Variety: quantity of data sources
- Velocity: data volume analyzed/generated per period
- Gross profit margin
- Per unit manufacture cost
- COGS/unit sales
- Lifetime value of customer
- Customer retention/renewal rate

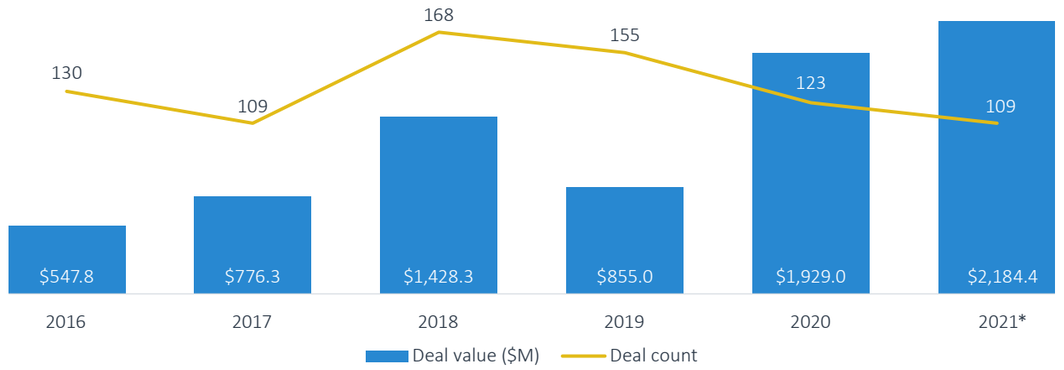
BIOMETRIC WEARABLES & DEVICES

VC activity

Companies tracked in the biometric devices segment raised $2.2 billion in venture funding across 109 deals in 2021, above 2020's $1.9 billion across 123 deals. Relative to 2020, total deal activity has skewed more heavily toward the late stage, with 65 deals, as opposed to the angel & seed and early stages, with 19 and 25 deals, respectively—a trend consistent across the retail healthtech industry. Driven by an overall heightened deal count and several midsized deals, invested capital was significantly higher in Q3 2021 than during the other quarters of the year, with $733.6 million raised. We tracked $224.8 million raised in Q4 across 23 deals, with human sensor device developer **Novelda** raising the largest deal tracked during the quarter, with its December $44.7 million late-stage deal. Despite being the largest deal in Q4, **Novelda**'s raise is small in comparison with the five mega-deals raised by **Tonal**, **Tempo**, **Whoop**, **Hydrow**, and **Ōura Health** earlier in 2021. Four of these five startups develop at-home connected fitness devices—a market that benefited from the pandemic. However, we expect these companies will now struggle to sell new devices as demand was pulled forward and the segment is now lacking new demand.

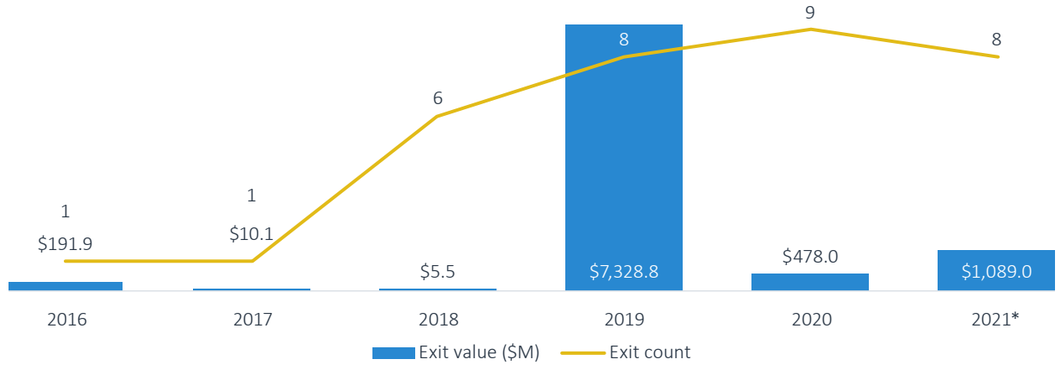
In terms of disclosed exit value, exit activity increased during 2021, with $1.1 billion across eight deals, compared with $478.0 million across 9 deals in 2020. **Owlet**'s $1.0 billion SPAC in July 2021, which put the company's pre-money valuation at $1.2 billion, drove these figures. From 2016 to 2020, we tracked 10 biometric wearables & devices exits, although none disclosed exit value.

Figure 19. BIOMETRIC WEARABLES & DEVICES VC DEAL ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

Figure 20. BIOMETRIC WEARABLES & DEVICES VC EXIT ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

BIOMETRIC WEARABLES & DEVICES

Figure 21.

Key biometric wearables & devices VC deals in 2021*

COMPANY	CLOSE DATE	SUBSEGMENT	STAGE	DEAL SIZE ($M)	LEAD INVESTOR(S)	VALUATION STEP-UP
Novelda	December 9, 2021	Biometric monitoring wearables	Late-stage VC	$44.7	Undisclosed	N/A
Huinno	December 7, 2021	Remote patient monitoring	Late-stage VC	$36.7	Yuhan, KTB Network, Meritz Securities	N/A
BeBop Sensors	October 22, 2021	Smart devices	Late-stage VC	$24.4	Bullpen Capital	N/A
GraphWear	October 4, 2021	Remote patient monitoring	Late-stage VC	$20.5	Mayfield	1.6x
Aktiia	November 2, 2021	Remote patient monitoring	Early-stage VC	$17.3	Molten Ventures	2.1x
Valera Health	November 4, 2021	Remote patient monitoring	Late-stage VC	$15.0	Windham Venture Partners	3.5x
Somatix	December 17, 2021	Remote patient monitoring	Late-stage VC	$9.4	East Post Road Ventures, Digitalis Ventures	N/A
Marani	November 16, 2021	Biometric monitoring wearables	Seed round	$7.6	SWL Healthcare Ventures	N/A
Embr Labs	October 7, 2021	Smart devices	Late-stage VC	$7.4	Joy Ventures, Esplanade Healthtech Ventures	1.3x
HidrateSpark	December 21, 2021	Smart devices	Seed round	$6.5	Undisclosed	3.0x

Source: PitchBook | Geography: Global | *As of December 31, 2021

BIOMETRIC WEARABLES & DEVICES

Figure 22.

Key biometric wearables & devices VC exits in 2021*

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	EXIT TYPE	ACQUIRER(S)/INDEX	VALUATION STEP-UP
Owlet Baby Care	July 15, 2021	Biometric monitoring wearables	$1,024.0	Public listing	Sandbridge Acquisition	6.7x
HealthBeacon	December 15, 2021	Smart devices	$82.9	Public listing	Irish Stock Exchange	N/A
PowerDot	April 15, 2021	Smart devices	$34.0	Acquisition	Therabody	1.8x
Upright	February 1, 2021	Biometric monitoring wearables	$31.0	Acquisition	DarioHealth	N/A
Halo	February 5, 2021	Smart devices	Undisclosed	Acquisition	Flow	N/A
CareSignal	November 15, 2021	Remote patient monitoring	Undisclosed	Buyout	Lightbeam Health Solutions, Primus Capital	N/A
Aaptiv	October 13, 2021	Smart devices	Undisclosed	Acquisition	Pear Sports	N/A
VAY	September 17, 2021	Smart devices	Undisclosed	Acquisition	Nautilus	N/A
Phasya	August 5, 2021	Smart devices	Undisclosed	Acquisition	Tobii	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2021

Opportunities

Biometric sensor providers: Wearable device suppliers purchase biometric sensor technology and hardware from third parties. Startup **Valencell**'s technology measures biometric and physiological data in real time and can be integrated with any wearable device. As technology improves, singular devices will be able to monitor many biometrics, including blood pressure, heart rate, and velocity, among others. For this reason, we believe companies that manufacture devices that track only one biometric will find it harder to succeed on their own, though these companies may be attractive acquisition targets.

Sleep tech: Sleep tech providers seek to improve behavioral-, environmental-, and genetic-based insomnia, as well as sleep apnea and other sleep disorders. With the increasing prevalence of sleep disorders and the growing focus on preventive health, coupled with technological advancements, we expect the market size for sleep aids to increase from $80.0 billion in 2020 to $150.0 billion in 2030. Within that market, we estimate the sleep tech aid market to be worth $12 billion, slightly under the current mattress market size of $17 billion.[21]

Employer/insurer partnership programs will integrate wellness incentives: Wearables, health applications, and other data sources will increasingly be used in partnership with insurance companies to help employers incentivize healthy behaviors. For example, a company could challenge its employees to stand up every hour and then reward them with a reduction in their insurance premiums. **Kazoo**, an employee engagement platform, features a behavior bonus feature that integrates wellness incentives with other employee engagement activities and awards points redeemable for prizes. **Garmin** (NYSE: GRMN) recently partnered with Blue365, a health & wellness program available to Blue Cross Blue Shield subscribers, to provide **Garmin** devices at up to a 35% discount.

Wearable tech to enter wider healthcare market: While consumers tend to purchase biometric tracking devices for the many instant habit- and activity-tracking features they provide, biometric data can create longer-term risk profiles. These profiles could ultimately be used to help determine the likelihood of developing medical conditions. Both physicians and insurance providers could develop use cases for biometric data that integrates with patient management platforms such as electronic health records.

Risks & considerations

Market growth for at-home connected devices to dwindle: According to a McKinsey study, the pandemic catalyzed 68% of consumers to prioritize their health more than they had previously. Though the pandemic disrupted the $97 billion global health club industry, we believe the market for traditional gyms and studios will return. 70% of fitness consumers report missing their gym as much as they miss family and friends, and 35% of fully vaccinated individuals have visited a gym—an improvement over the pre-pandemic US market penetration of about 25%.[22] The at-home fitness market is highly competitive, as the pandemic resulted in entrepreneurs and investors flocking to the pandemic-stimulated market. Looking forward, the at-home workout market

21: "The Mattress Industry Is Evolving for the Future: Statistics and Trends," Mattress Clarity, Laura Newcomer, January 4, 2022.

22: "Sweating for the Fitness Consumer," McKinsey & Co., Eric Falardeau, John Glynn, and Olga Ostromecka, June 21, 2021.

growth may slow or even decline as consumers begin returning to gyms. In January 2022, **Peloton** (NASDAQ: PTON) announced it was halting production due to falling demand.[23] To prepare, connected-fitness device providers should begin targeting commercial businesses. **Echelon**, which sold mostly DTC during the pandemic, has developed a line of commercial-grade bikes designed for gyms.

Complicated implementation process in hospitals: Healthcare providers face significant RPM deployment challenges due to limited budgets and resources. Health systems and hospitals embarking on the virtual care journey often face obstacles when training physicians and nurses to become virtual care providers. Successful deployments are more likely for vendors that can establish a partnership with clinical teams rather than a more traditional vendor-client relationship. Over time, virtual health training could become more standardized. For example, medical students at Weill Cornell Medicine can take a two-week telemedicine and digital health elective, during which they virtually interview patients, participate in telehealth visits, and learn the legal and regulatory issues around telemedicine.

23: "Peloton Will Reportedly Halt Making...Basically Everything," Mashable, Tim Marcin, January 21, 2022.

Dietary supplements

Overview

Consumer dietary supplements are intended to support the immune system and enable individuals to enhance fitness performance, improve cognitive functions, and maintain or achieve a healthy weight. Products in this space include multivitamins, sports nutrition products, herbal supplements, and other medicinal goods that can be purchased over the counter. Dietary supplements—which can contain minerals, herbs or other botanicals, amino acids, enzymes, and many other ingredients—come in a variety of forms, including tablets, powder, liquids, capsules, and gummies. Many of these products are developed primarily for athletes and bodybuilders to improve their overall health, performance, and muscle growth. In our analysis, we do not include the sale of natural and organic food products, granola bars, beauty products, and personal care products, which are often sold alongside dietary supplements.

While the dietary supplements market is large, we believe the startup opportunity is relatively limited for dietary supplements providers aiming to use technology. While some innovation has occurred, it has been primarily within supply chains. Food suppliers are integrating more supplements into traditional food as the "food as medicine" trend has shifted consumer demand from vitamins and supplements to more generic healthy food options. An opportunity may exist for startups leveraging genetic, blood, and gut microbiome tests. However, we classify startups that provide these tests in addition to vitamins under personalized medicine & testing.

Industry drivers

Rising interest in nutrition to improve health: Increases in chronic illnesses, coupled with rising healthcare expenses, particularly pharmaceutical drug prices, are stimulating demand for dietary supplements to help prevent or alleviate common health complications. According to a 2019 poll sponsored by the Council for Responsible Nutrition, 71% of dietary supplement users exercise regularly, 86% try to eat a balanced diet, and 80% visit the doctors regularly.[24]

Technology-driven supplement research: Vitamins and supplements manufacturers rely on technology to discover new ways to extract nutrients from natural ingredients and create new synergistic combinations.

Internet and e-commerce advent: Digital commerce has created multiple sales channels for providers, relative to traditional methods. These channels increase the opportunity for providers to develop targeted marketing and content campaigns along with personalized offerings that appeal directly to consumers, as opposed to selling through traditional nutritionist or doctor channels.

Growing sports participation: As more people exercise and play sports, demand for sports nutritionals and meal replacements will likely increase in tandem.

Rapid pace of urbanization: The global demand for sports nutrition products is fueled by urbanization, which is characterized by changes in lifestyle, the growing pool of working

24: "2019 CRN Consumer Survey on Dietary Supplements," Council for Responsible Nutrition, 2019.

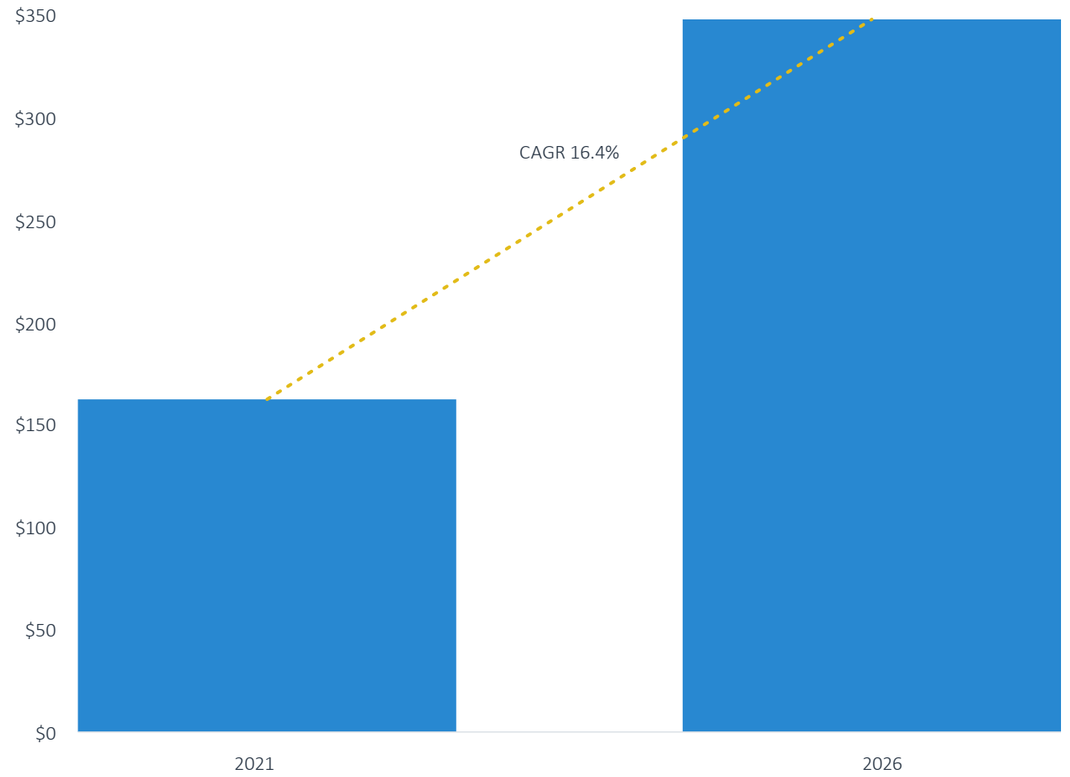
women, and the heightened consumption of ready-made and fast food. These factors result in increased consumption of foods with low nutritional value, which may lead to health disorders such as obesity, thus compelling some individuals to turn to supplements. At the same time, these factors also lead to increased health awareness, which further drives the market.

COVID-19: The threat of COVID-19 has increased demand for immunity-boosting supplements, as consumers seek to strengthen immunity against the virus.[25]

Market size

We estimate the global dietary supplements market will grow from $163.0 billion in 2021 at a 16.4% CAGR to reach $348.2 billion by 2026.

Figure 23. DIETARY SUPPLEMENTS MARKET SIZE ESTIMATE ($B)*



Source: PitchBook Emerging Tech Research | Geography: Global | *As of December 31, 2021

25: "Will Vitamin C's Drastic Growth in 2020 Continue This Year? 2021 Ingredient Trends To Watch for Food, Drinks, and Dietary Supplements," Nutritional Outlook, Vol. 24, No. 1, Jennifer Grebow, February 8, 2021.

DIETARY SUPPLEMENTS

Business model

Startups in this space either manufacture unfinished products that are used to increase the nutritional value of other foods, or produce finished products that are then sold to third-party marketplaces or D2C. Revenue is acquired through subscription-based memberships and direct one-time sales.

Figure 24. COMMON DIETARY SUPPLEMENTS KPIS

- CAC & CAC per lifetime value
- Return on research capital
- E-commerce conversion rate
  - Average order value
  - Customer lifetime value
  - Gross merchandise volume
- Churn—revenue & client
  - Gross merchandise volume
  - Payback period/sales efficiency
- CAC recovery time (months to recover CAC)
- Upsell potential (ARPU)
  - Food cost percentage
  - Monthly active users

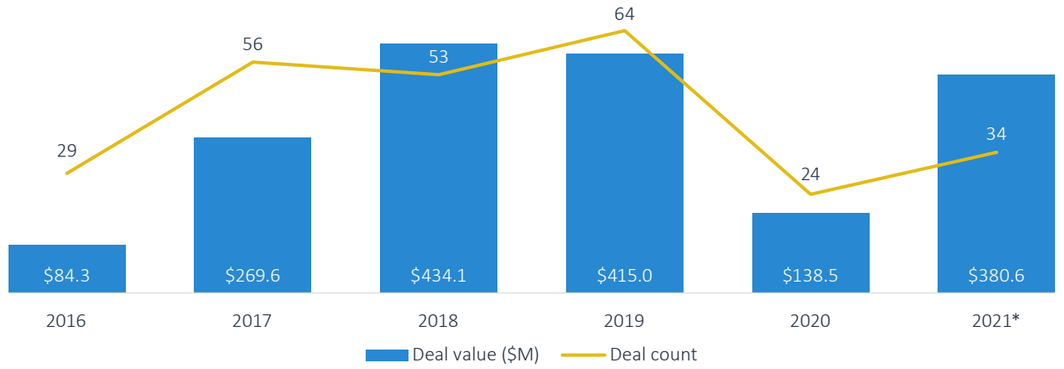
DIETARY SUPPLEMENTS

VC activity

In 2021, the dietary supplements segment generated $380.6 million in VC financing across 34 deals, a deal value increase from 2020's $138.5 million across 24 deals. Median deal size more than doubled, from $3.2 million in 2020 to $7.5 million in 2021, resulting from a rising number of early- and late-stage deals. Median pre-money valuation increased nearly 50% to $23.0 million. The largest deals tracked this year include **Kate Farms**' $60.0 billion Series B and **Seed Health**'s $40.0 million Series A. **Kate Farms** produces insurance-covered formulas for tube-fed adults and children, as well as plant-based shakes made to support specific health diseases and conditions such as allergies, GI conditions, and kidney failure.

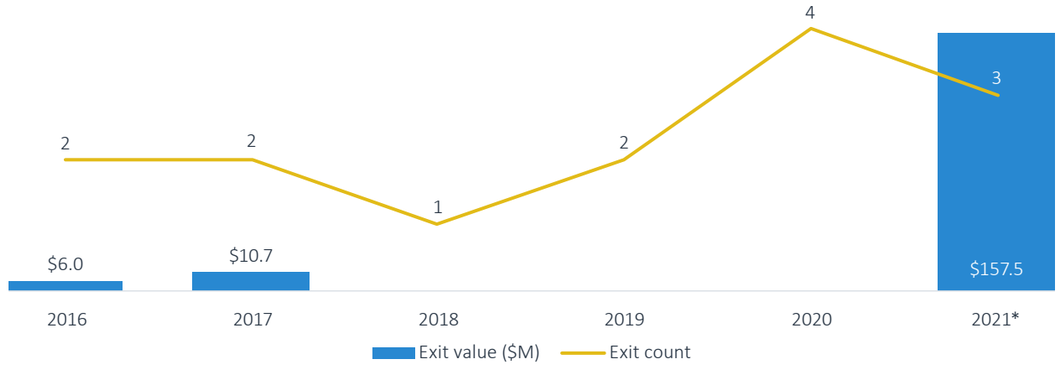
Exit activity within this segment rose. We tracked three M&As, compared with zero in 2018 to 2020. **Bayer** (ETR: BAYN) acquired **Care/of** for $157.5 million. The other two deals had undisclosed values.

Figure 25. DIETARY SUPPLEMENTS VC DEAL ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

Figure 26. DIETARY SUPPLEMENTS VC EXIT ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

DIETARY SUPPLEMENTS

Figure 27.

Key dietary supplements VC deals in 2021*

COMPANY	CLOSE DATE	SUBSEGMENT	STAGE	DEAL SIZE ($M)	LEAD INVESTOR(S)	VALUATION STEP-UP
Fast&Up	December 13, 2021	Vitamins & supplements	Late-stage VC	$22.0	Morgan Stanley Private Equity Asia	N/A
LemonBox	October 29, 2021	Vitamins & supplements	Late-stage VC	$10.0	Scrum Ventures, Partech, Panda Capital Asia, SCM Advisors	N/A
More Labs	October 1, 2021	Vitamins & supplements	Early-stage VC	$10.0	Btomorrow Ventures, Faktory Ventures	N/A
Koia	December 14, 2021	Vitamins & supplements	Late-stage VC	$8.2	Clover Vitality, Spacestation Investments	N/A
A-Mansia Biotech	December 3, 2021	Vitamins & supplements	Late-stage VC	$7.4	Undisclosed	1.0x
Amai Proteins	November 1, 2021	Vitamins & supplements	Seed	$6.0	The Chartered Group, iAngels, WellTech Ventures	N/A
Fast&Up	December 24, 2021	Vitamins & supplements	Angel	Undisclosed	Varun Dhawan	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2021

DIETARY SUPPLEMENTS

Figure 28.

Key dietary supplements VC exits in 2021*

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	EXIT TYPE	ACQUIRER(S)/INDEX	VALUATION STEP-UP
Care/of	February 1, 2021	Vitamins & supplements	$157.5	Acquisition	Bayer	1.1x
Neat	August 27, 2021	Vitamins & supplements	Undisclosed	Acquisition	W B Marketing	N/A
Ocean Hugger Foods	July 2, 2021	Vitamins & supplements	Undisclosed	Acquisition	NR Instant Produce	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2021

Opportunities

Personalized probiotic supplements providers: According to Grand View Research, the global probiotics market, which includes food and supplements, is expected to grow at 6.9% to $77.1 billion in 2025.[26] Probiotic supplements providers stand to benefit from increased consumer awareness and research related to the microbiome's impact on health. Startups are leveraging microbiome research and trends to develop over-the-counter and therapeutic products. For example, **FitBiomics** decodes the microbiome of elite athletes to develop performance-enhancing probiotics. **ISOThrive** develops prebiotics to modulate the gut microbiome and promote digestive health. **Pendulum**, **Seed Health**, and **Jetson** formulate various probiotics aimed at lowering glucose, boosting immunity, and maintaining cardiovascular health.

D2C at-home gut health test providers to sell supplements: At-home gut health test providers inform consumers which bacteria inhabit their gut. These kits can also recommend dietary changes and predict future health disorders. Founded in 2016, **Viome** sells a $199 "Health Intelligence Kit" and a $199 per month subscription plan that includes vitamins, probiotics, and two Health Intelligence tests per year. It has over 200,000 customers and expects to hit $100 million in revenue in 2022.[27] Another at-home gut health test company, **ZOE**, released its first test kit in 2022. The kit analyzes gut health, blood fat, and blood sugar reactions to food to provide ongoing personalized nutritional advice. Interim clinical trial results reveal participants lost an average of 11 pounds after three months following their personalized plans.[28] D2C gut health test providers can increase revenue by selling targeted supplements to users. **Floré** tests its consumers' gut microflora and uses the results to formulate a personalized probiotic. **Viome** and **Thryve** sell gut testing kits, which provide supplement and health recommendations. Consumers may use these insights to purchase supplements from their platforms or third-party retailers.

We also anticipate D2C gut health test providers to develop subscription plans that offer recurring tests and personalized health tracking solutions. For example, nutrition tracking apps could integrate gut health test results to build nutrition plans and provide ongoing diet tracking. Some companies have taken this route, including **Viome**.[29]

At-home testing drives supplements market: At-home tests that enable individuals to better understand their nutritional needs are emerging. **Vivoo** provides an at-home urine test that track 11 wellness parameters, such as vitamin C, magnesium, salinity, calcium, ketones, and more. Users that are low in critical elements or vitamins are likely to purchase supplements to improve their health.

26: "Probiotics Market Worth $111.21 Billion by 2030," Grand View Research, January 2022.
27: "Marc Benioff-Backed Microbiome Startup Viome Says It Expects $100M in Revenue Next Year," TechCratic, Taylor Soper, April 15, 2021.
28: "Gut Health Company ZOE Lands $20M To Speed up Program Rollout," MobiHealthNews, Mallory Hackett, May 5, 2021.
29: "How Much Does Viome Cost?" Viome Team, Viome, n.d.

Risks & considerations

Faddish nature of industry drives volatility: Widely recognized media celebrities and influencers such as Dr. Oz, Deepak Chopra, and Jillian Michaels can have a significant impact on vitamin and supplements sales via promotions. While we expect aggregate industry revenues will remain stable, single-product providers will likely experience more volatility driven by the ebbs and flows of short-term consumer fads. These companies must also consider how to run an effective social strategy as they compete with influencers and other celebrities for consumer attention.

Highly competitive industry with low entry barriers: The dietary supplements industry is characterized as highly competitive with low entry barriers. Incumbents are developing new sales channels to reach a broader consumer base. Leading players include Nature Made, **GNC**, **Herbalife** (NYSE: HLF), and more.

Increasing regulatory scrutiny: Between 2004 and 2012, over 50% of all Class 1 recalls by the FDA were dietary supplements. Sexual enhancement, bodybuilding, and weight loss products were the top three problem categories.[30] As a result, FDA enforcement actions pertaining to violations in labeling food and dietary supplements have increased notably. Focus has intensified on potential FDA bans of certain vitamins and supplements that may be harmful, such as a form of vitamin B6 and certain energy supplements. An increasing number of clinical research trials are testing the efficacy and long-term health benefits of taking vitamins. Some have suggested that large doses of certain vitamins may increase the risk of cardiac events in older adults or those with heart disease.

While tighter regulations add complexity for manufacturers, they can also help improve business for providers that meet stricter requirements. In November 2020, The Australian Therapeutic Goods Administration began classifying supplements with therapeutic claims—such as increasing metabolism—as medication, thus subjecting them to higher regulations.

Increasing price of supplements: The increasing price of supplements may restrain market growth.[31] However, technological advancements designed to decrease production costs may increase product availability at affordable prices.

30: "Prohibited Contaminants in Dietary Supplements," Sports Health, Vol 10, No 1, Neilson M. Matthews, August 29, 2017.

31: "Producer Price Index by Commodity: Chemicals and Allied Products: Vitamin, Nutrient, and Hematinic Preparations," US Bureau of Labor Statistics, Retrieved from Federal Reserve Bank of St. Louis, February 17, 2022.

Personalized medicine & testing

Overview

Personalized medicine is an approach to patient care that allows doctors to select treatments that are most likely to help patients, based on a genetic understanding of their diseases. Companies in this segment provide personalized recommendations or treatments based on genomics, microbiomics, or other biomarkers and vital indicators, using proprietary biological data analysis platforms to devise new diagnostic and medication methodologies. In addition, companies may offer mail-in lab testing or at-home tests for infectious diseases such as COVID-19 and STIs. Subsegments include:

- **Genomic testing:** The collection and interpretation of DNA samples to determine health implications.

- **Bioinformatics:** The analysis of biological information in order to devise new diagnostic and medication methodologies for patients. Companies in this space focus on analyzing genotypic and phenotypic data to determine the potential efficacy of medications and prevent adverse drug reactions. Biotechnology companies focused on using genetic data to create new medicines, primarily for cancer, are also included in this category.

- **Ad-hoc personalized testing:** Personalized health recommendations through testing and analyzing biomarkers, the microbiome, and vital indicators, such as blood sugar levels. Microbiome samples can be collected from an individual's gut, skin, blood, and more. This subsegment also includes companies that offer mail-in and/or at-home infectious disease tests. We believe this category will shortly surpass the genomic testing category in terms of market size.

Industry drivers

Viruses and future pandemics drive need for quick testing solutions: Major testing delays and shortages of testing supplies initially hindered the US' ability to track the COVID-19 pandemic. Startups focused on testing services, such as DNA and HIV testing, pivoted to offer mail-in COVID-19 tests. In the long term, at-home testing could emerge as a more regular consumer activity, especially for the uninsured, thus causing significant market expansion.

Expansion of telemedicine: 70% of healthcare decisions are based on diagnostic tests, according to the Centers for Disease Control and Prevention.[32] Additionally, the rise of telemedicine has expedited growth for at-home testing. **Quest Diagnostics** (NYSE: DGX) claims the emerging marketplace of consumer-initiated lab testing may be worth over $2 billion by 2025.[33]

Ongoing emergence of rare disease: Globally, over 300 million people live with a rare disease.[34] To motivate pharmaceutical development, several US federal incentives such as tax exemptions, grants for accelerating and testing potential therapies, and an exclusivity period of seven years to enhance marketing have been deployed. Bioinformatics can help process the vast data analytics required for diagnosis and medication creation.

Precision medicine relies on omics: COVID-19 magnified the need for rapid sequencing and personalized treatments, thereby driving the omics market. Omics innovations improve the ability to analyze and use biological information for early cancer detection and genetic risk screening.

32: "The At-Home Testing Industry, From Covid to Cancer, May Be Worth Over $2 Billion by 2025," *CNBC*, Andrea Miller, February 3, 2022.
33: Ibid.
34: "Estimating Cumulative Point Prevalence of Rare Diseases: Analysis of the Orphanet Database," European Journal of Human Genetics, Stéphanie Nguengang, et al, September 16, 2019.

PERSONALIZED MEDICINE & TESTING

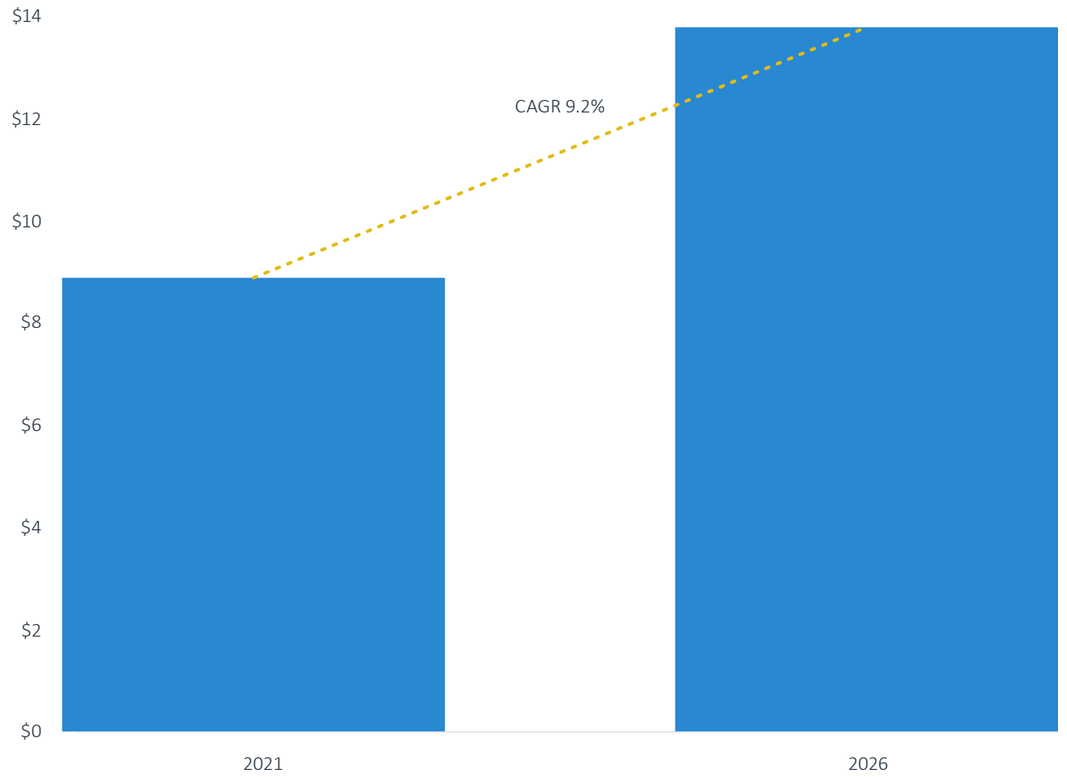
Market size

We estimate the personalized medicine & testing market will grow from $8.9 billion in 2021 at a 9.2% CAGR to $13.8 billion by 2026.

Business model

Providers in this space seek to obtain the molecular data of customers or other individuals to derive health solutions. Some providers offer individual analysis for consumers, and others maintain data platforms intended to provide genomic data insights for therapeutic discovery and treatment. Revenue is derived through the sale of analysis services to consumers or insurance providers and the sale of aggregated data to third parties such as pharmaceutical companies, healthcare providers, and consumer-packaged goods providers that use the data to develop personalized products and holistic health planning services.

Figure 29. PERSONALIZED MEDICINE & TESTING MARKET SIZE ESTIMATE ($B)*



Source: PitchBook Emerging Tech Research | Geography: Global | *As of December 31, 2021

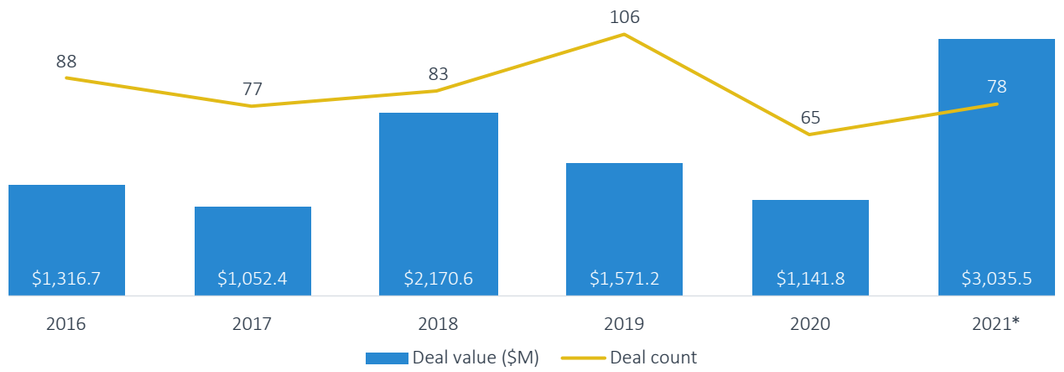
PERSONALIZED MEDICINE & TESTING

VC activity

In 2021, the personalized medicine & testing supplement segment generated $3.0 billion in VC financing across 78 deals, a significant increase in terms of deal value from $1.1 billion across 65 deals in 2020. A rise in late-stage deals drove this growth, with 49 late-stage deals tracked compared with 30 in 2020. The largest deals included a $300.0 million Series B for **Valo**, a $276.0 million Series C for **Element Biosciences**, and a $200.0 million Series E for **Everly Health**. In Q4 2021, deal activity began to increase after a steep decline in Q3. However, deal value and count remained low relative to Q1 and Q2. We believe deal activity will rise in 2022 as innovative technology and scientific research enables the development of new at-home tests and clinical researchers increasingly leverage bioinformatics platforms.

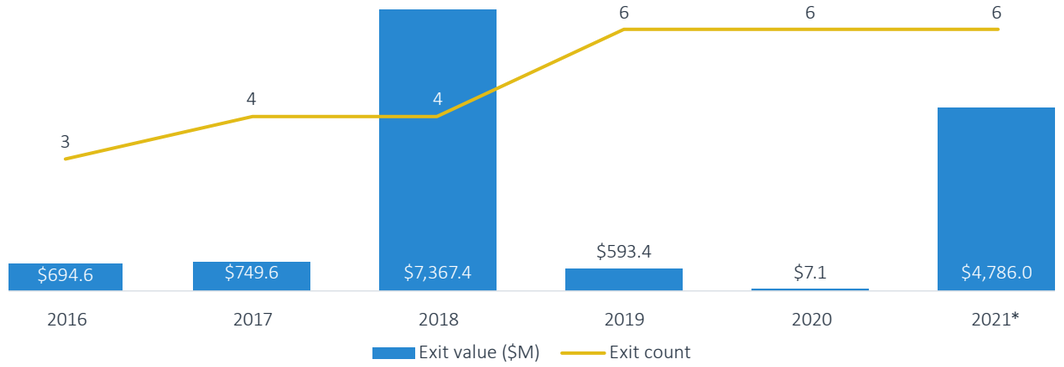
Exit count within this segment aligns with prior years; we tracked six exits in 2021. Exit value spiked to $4.8 billion from $7.1 million in 2020 and $593.4 million in 2019. This increase was driven by **23andMe**'s (NASDAQ: ME) $3.0 billion SPAC, **Singular Genomics**' (NASDAQ: OMIC) $1.3 billion IPO, and **Nightingale**'s (HEL HEALTH) $358.7 million IPO.

Figure 30. PERSONALIZED MEDICINE & TESTING VC DEAL ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

Figure 31. PERSONALIZED MEDICINE & TESTING VC EXIT ACTIVITY



Source: PitchBook | Geography: Global | *As of December 31, 2021

PERSONALIZED MEDICINE & TESTING

Figure 32.

Key personalized medicine & testing VC deals in 2021*

COMPANY	CLOSE DATE	SUBSEGMENT	STAGE	DEAL SIZE ($M)	LEAD INVESTOR(S)	VALUATION STEP-UP
Color	November 9, 2021	Genomic testing	Late-stage VC	$100.0	Kindred Ventures	2.5x
Verge Genomics	December 15, 2021	Bioinformatics	Late-stage VC	$98.0	BlackRock	N/A
Viome Life Sciences	October 31, 2021	Ad-hoc personalized testing	Late-stage VC	$54.0	Physician Partners, Ezaki Glico Co., Ocgrow Ventures	N/A
Genomics	October 12, 2021	Bioinformatics	Late-stage VC	$35.8	Foresite Capital Management	0.7x
PierianDx	November 2, 2021	Genomic testing	Late-stage VC	$30.0	OrbiMed	N/A
Variantyx	November 15, 2021	Bioinformatics	Late-stage VC	$26.0	Quark Venture	1.8x
Recuro Health	December 2, 2021	Ad-hoc personalized testing	Early-stage VC	$17.0	ARCH Venture Partners	3.4x
YuCe Bio	November 11, 2021	Bioinformatics	Late-stage VC	$15.6	Tzitzit Asset	N/A
GloriousMed	November 1, 2021	Bioinformatics	Early-stage VC	$15.6	Fuzhou Investment, Wuzhong Biomedical Industry Park Investment	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2021

PERSONALIZED MEDICINE & TESTING

Figure 33.

Key personalized medicine & testing VC exits in 2021*

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	EXIT TYPE	ACQUIRER(S)/INDEX	VALUATION STEP-UP
23andMe	June 10, 2021	Genomic testing	$2,991.0	Public listing	NASDAQ	1.0x
Singular Genomics	May 27, 2021	Genomic testing	$1,302.0	Public listing	NASDAQ	N/A
Nightingale	March 19, 2021	Ad-hoc personalized testing	$358.7	Public listing	Nasdaq OMX Nordic Exchange	0.7x
Trapelo Health	April 7, 2021	Bioinformatics	$64.8	Acquisition	NeoGenomics Laboratories	6.8x
Kit	June 30, 2021	Ad-hoc personalized testing	$55.0	Acquisition	Roman Health Ventures, Expa	N/A
Nebula Genomics	August 11, 2021	Genomic testing	$14.6	Acquisition	Prophase Labs	N/A

Source: PitchBook | Geography: Global | *As of December 31, 2021

PERSONALIZED MEDICINE & TESTING

Opportunities

Genomic medicine could drive improved health outcomes: Genomic testing and personalized medicine have the potential to revolutionize healthcare by providing patients with detailed information about health and risk factors. For this reason, we expect genetics to become an integral component of medical diagnostics and therapeutics, driving growth opportunities among ancillary service providers. While there are many questions related to the value of genomic analysis, science could unlock new ways to treat illness and improve wellness.

Traditional D2C testing providers to conduct research and develop drugs: Many companies traditionally focused on selling omics and vital tests D2C are expected to increase their research and drug development efforts. D2C testing providers had accumulated a large repository of genetic information. Furthermore, many testing providers ask their customers to answer a health questionnaire. Analyzing genetics alongside data on an individual's overall health provides clues on the interplay between genetics and ailments, creating advantageous routes to drug discovery. **Nightingale**'s blood test and app provide a three-tier view of customers' health, which helps them find a lifestyle that promotes lifelong health. **Nightingale** shares this data with research companies, as it can be used to discover novel associations between areas of health, as well as evaluate the effects of drug and lifestyle interventions.

Risks & considerations

Limited validity of predictive genetic tests: Many healthcare providers do not recommend using genetic tests to detect potential diseases, as the validity rates of these tests are often too low to provide real insights. Genetic tests look for single nucleotide polymorphisms (SNPs) to detect an individual's risk of disease. However, having a disease-associated SNP is not a diagnosis, and certain SNP variants could lead to false positives. Furthermore, DNA information on several populations is limited.

Bioinformatics data management is complicated: Bioinformatics research derives genetic information, which results in massive data quantities. Bioinformatics data management providers efficiently store this data in ways that allow for quick access and analysis, when necessary. This extends processing time and results in lengthy research times that have a negative impact on the business case.

Appendix

Figure 34.

Top VC-backed retail healthtech companies by total VC raised to date*

COMPANY	SUBSEGMENT	VC RAISED TO DATE ($M)
VillageMD	Concierge specialty & primary care clinics	$1,346.0
Hinge Health	Digital therapeutics	$1,027.1
Roman Health Ventures	Telemedicine	$876.1
Lyra	Behavior modification tools	$671.8
Noom	Personalized health tools & tracking	$668.8
BetterUp	Behavior modification tools	$631.6
Zwift	Smart devices	$629.0
Cult.fit	Fitness apps	$625.9
Gympass	Fitness apps	$621.0
Keep	Fitness apps	$617.8

Source: PitchBook | Geography: Global | *As of December 31, 2021

APPENDIX

Figure 35.

Top strategic acquirers of retail healthtech companies since 2016*

NAME	DEAL COUNT
Invitae	3
HealthHero	3
Teladoc Health	3

Source: PitchBook | Geography: Global | *As of December 31, 2021

Figure 36.

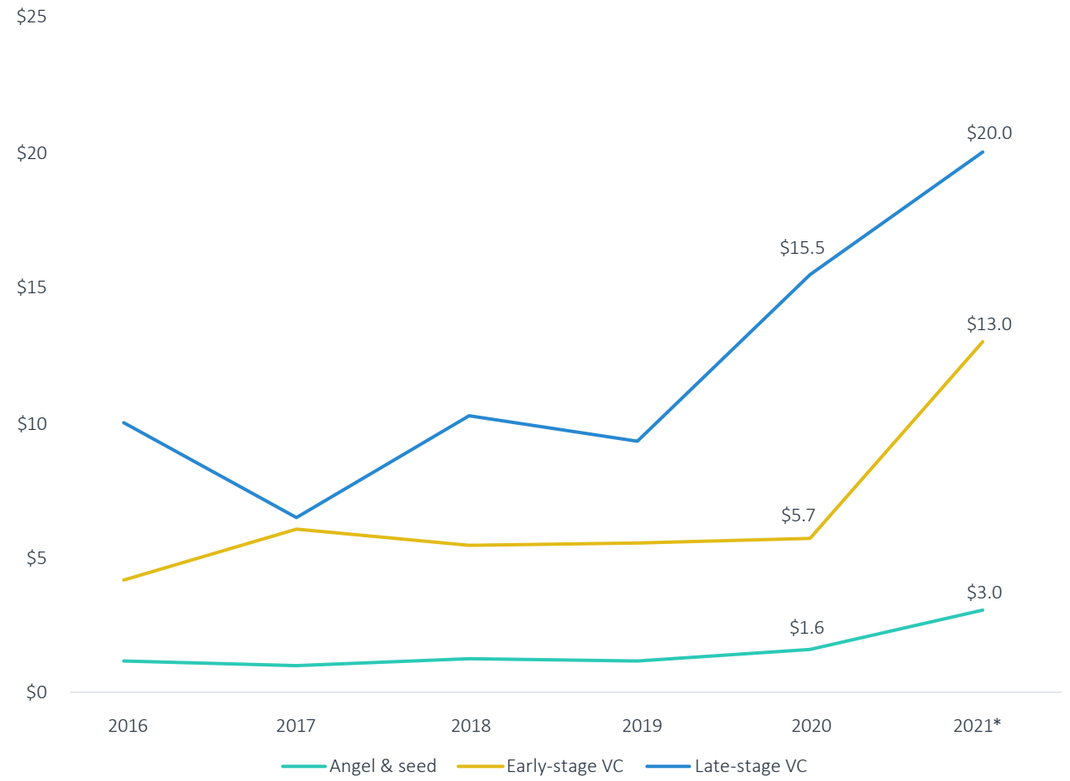
Top VC investors in retail healthtech companies since 2016*

NAME	DEAL COUNT
Khosla Ventures	57
SOSV	48
Founders Fund	47
True Ventures	37
General Catalyst	34
GV	33
Gaingels	31
BoxGroup	31
New Enterprise Associates	30

Source: PitchBook | Geography: Global | *As of December 31, 2021

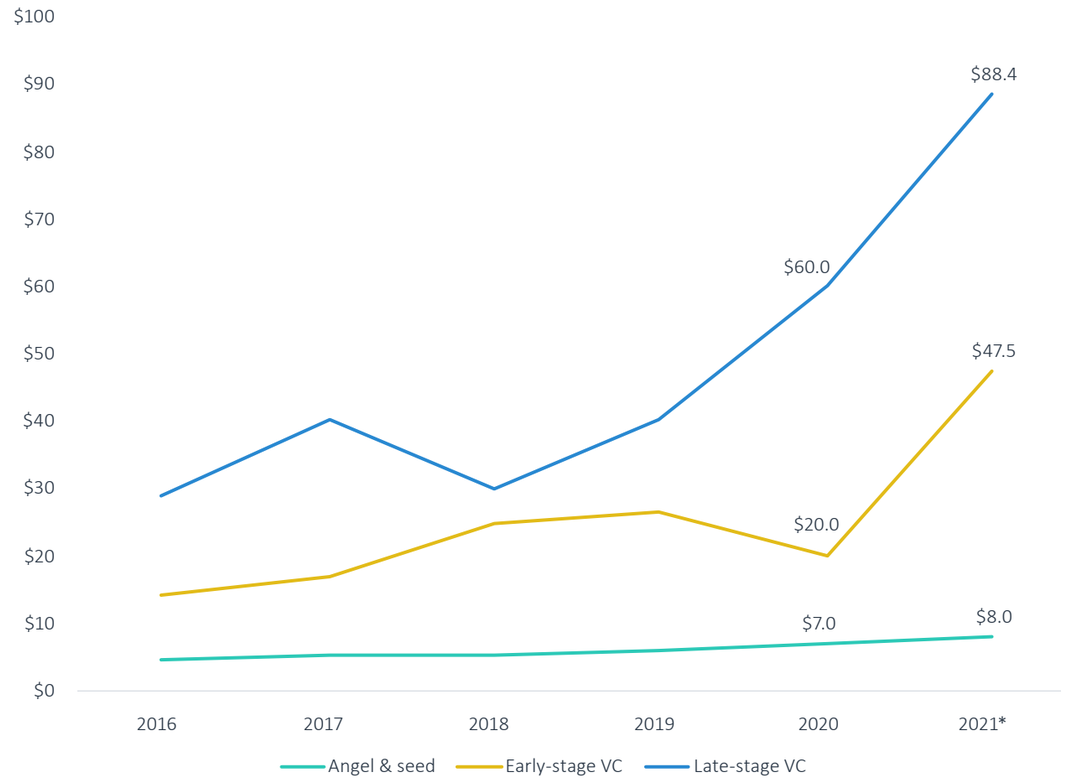
APPENDIX

Figure 37. MEDIAN RETAIL HEALTHTECH VC DEAL SIZE ($M) BY STAGE



Source: PitchBook | Geography: Global | *As of December 31, 2021

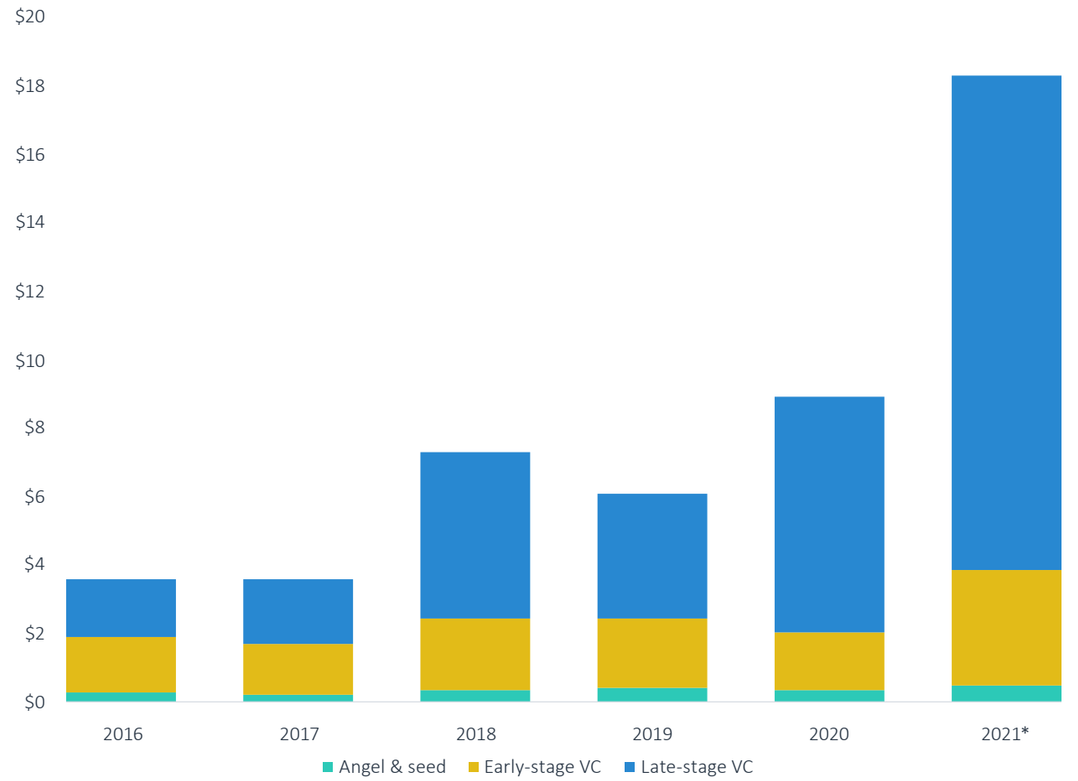
Figure 38. MEDIAN RETAIL HEALTHTECH PRE-MONEY VALUATION ($M) BY STAGE



Source: PitchBook | Geography: Global | *As of December 31, 2021

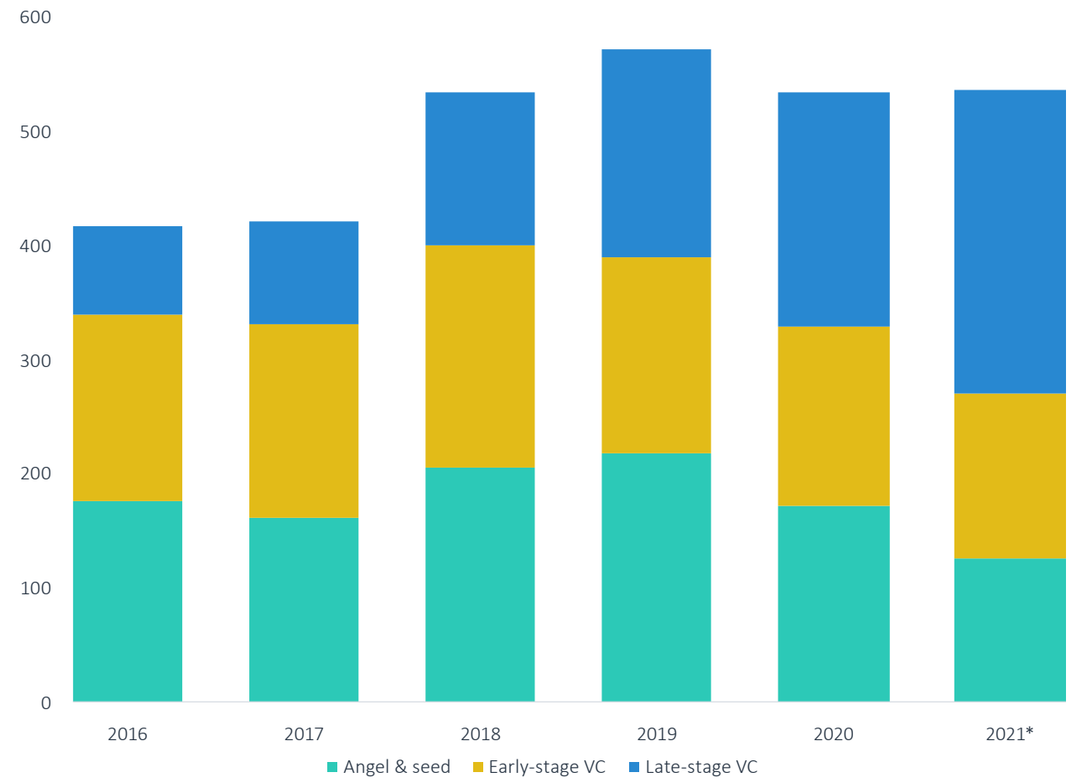
APPENDIX

Figure 39. RETAIL HEALTHTECH VC DEAL VALUE ($B) BY STAGE



Source: PitchBook | Geography: Global | *As of December 31, 2021

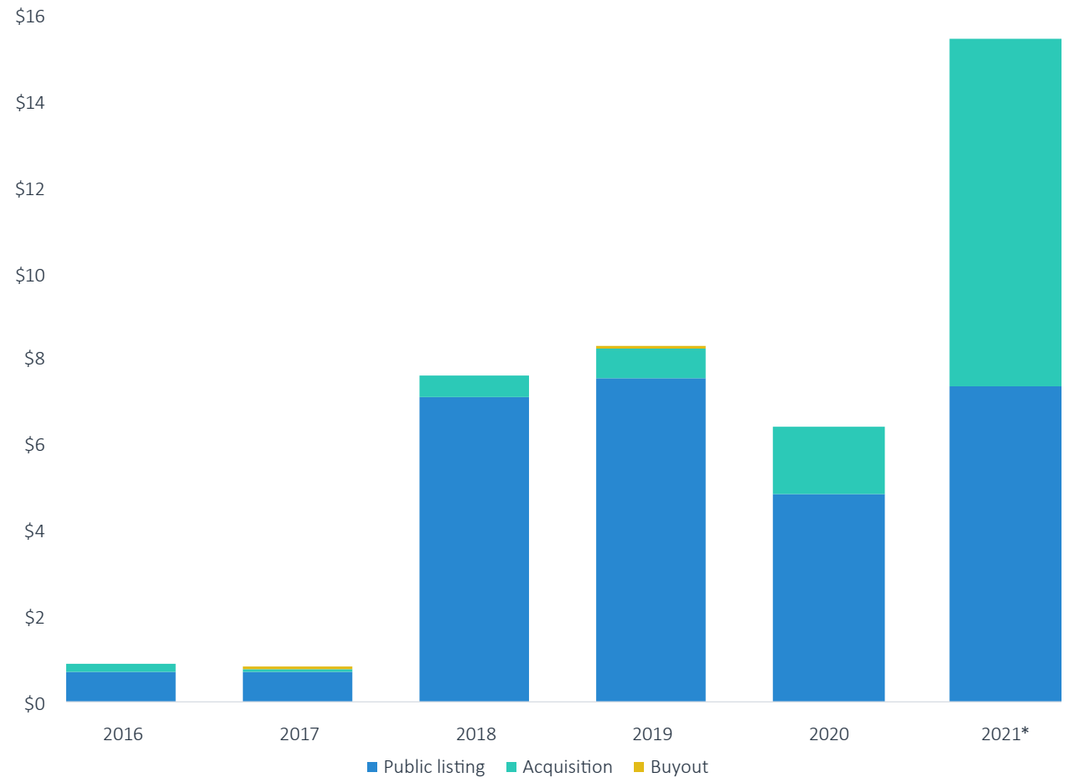
Figure 40. RETAIL HEALTHTECH VC DEAL COUNT BY STAGE



Source: PitchBook | Geography: Global | *As of December 31, 2021

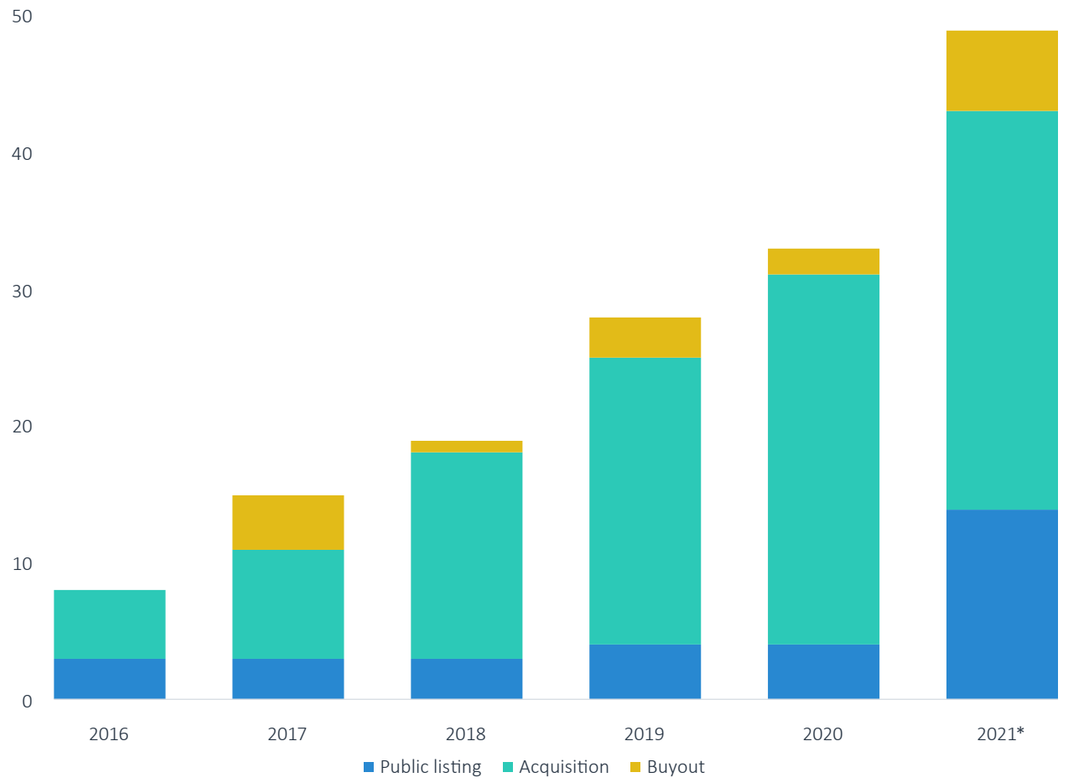
APPENDIX

Figure 41. RETAIL HEALTHTECH VC EXIT VALUE ($B) BY TYPE



Source: PitchBook | Geography: Global | *As of December 31, 2021

Figure 42. RETAIL HEALTHTECH VC EXIT COUNT BY TYPE



Source: PitchBook | Geography: Global | *As of December 31, 2021

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.

PitchBook Data, Inc.

John Gabbert Founder, CEO

Nizar Tarhuni Senior Director, Institutional Research & Editorial

Paul Condra Head of Emerging Technology Research

Additional research

Agtech
Alex Frederick
alex.frederick@pitchbook.com

Artificial Intelligence & Machine Learning
Brendan Burke
brendan.burke@pitchbook.com

Fintech
Robert Le
robert.le@pitchbook.com

Foodtech
Alex Frederick
alex.frederick@pitchbook.com

Information Security
Brendan Burke
brendan.burke@pitchbook.com

Insurtech
Robert Le
robert.le@pitchbook.com

Internet of Things (IoT)
Brendan Burke
brendan.burke@pitchbook.com

Mobility Tech
Jonathan Geurkink
jonathan.geurkink@pitchbook.com

Emerging Spaces and Vertical Snapshots
Ryan Vaswani
ryan.vaswani@pitchbook.com