PitchBook

EMERGING TECH RESEARCH

Medtech Report

VC trends and innovation spotlights

Q2
2024

Contents

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Analysis

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Published on August 19, 2024

For previous updates as well as our complete medtech research, please see the designated analyst workspace on the PitchBook Platform.

Vertical update

Medtech deal activity was slightly down in Q2 2024, with $3.3 billion of VC funding compared with $3.5 billion in Q1; though, with five deals, there was a rise in the number of deals above $100 million, indicating ongoing investor preference for quality and optimism around greater exit possibilities. Valuation trends have been a key consideration, and the 10 largest VC deals in medtech had a median valuation step-up of 1.13x, suggesting that high-quality medtech startups are still able to enjoy moderate valuation step-ups despite the tough investment conditions. Insightec's $150.0 million late-stage VC round was the largest deal in the quarter, and cardiovascular was the top VC investment subsegment with $539.4 million of deal value. Q2 was a strong quarter for VC exits, with a mix of public listings (Tempus, Autonomix) and acquisitions of several VC-backed startups including BELKIN Vision, Attune Medical, C2i Genomics, and Blackrock Neurotech.

After a strong start to 2024 for publicly traded medtech shares, the sector broadly underperformed major indexes in the second quarter. After market panic in 2023 about the impact of weight-loss drugs on the diabetes sector, shares of major diabetes companies, such as Insulet, rebounded as investors discounted the near-term impact of GLP-1s. However, diagnostics accounted for the sector's worst Q2 performers, with Illumina, Exact Sciences, and Eurofins all declining more than 20%. Illumina's shares remain under pressure from the forced divestiture of cancer-testing subsidiary GRAIL, and the GRAIL spin-out was finally completed in June at a near-$500 million valuation—a far cry from the $8.0 billion price Illumina paid for the business in 2021. Further, all major medtech sectors experienced market declines in Q2, in contrast to the S&P 500 and Nasdaq, which gained 3.9% and 8.3%, respectively—an indication that investors have been rotating away from medtech toward more cyclical sectors.

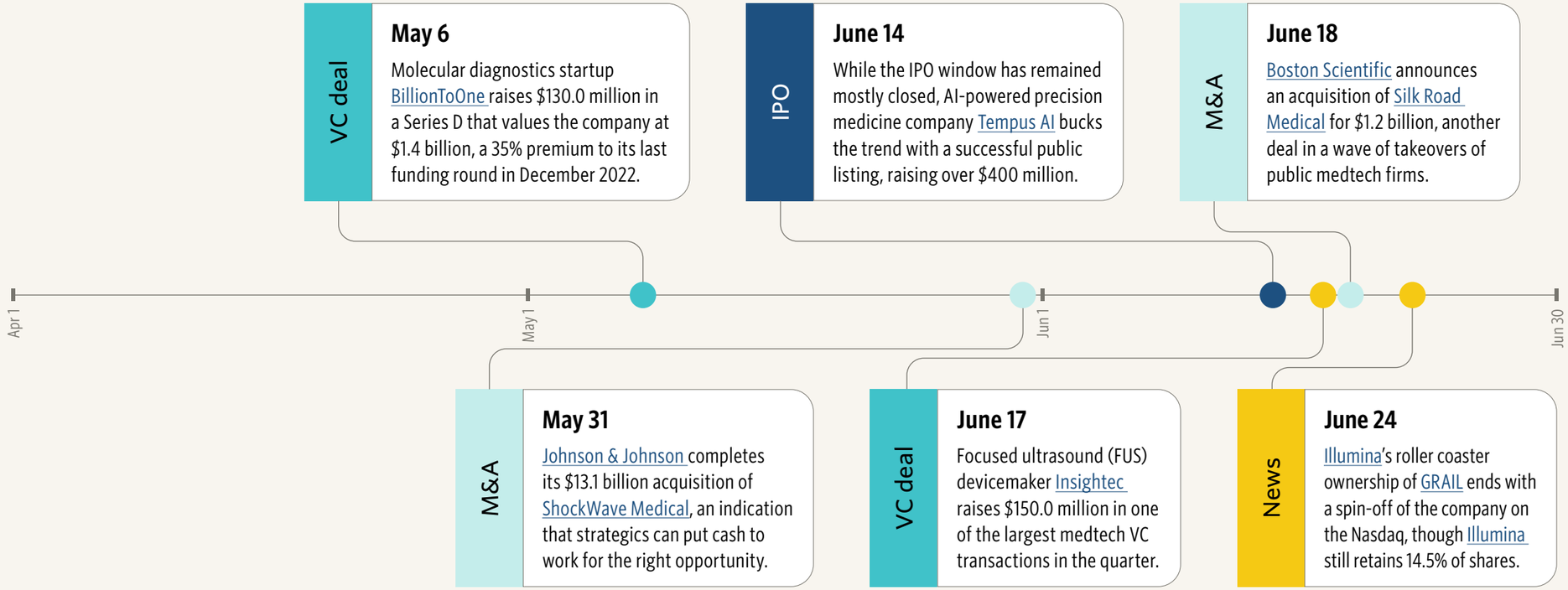
Although the past two years have been a quiet period for medtech M&A, there have been a few recent multibillion-dollar transactions. Public takeovers have been the main outlet for strategics seeking to deploy capital, and several moderate-sized companies were acquired this year, including ShockWave Medical, Axonics, Abiomed, and Silk Road Medical. At the Medtech MVP conference in June, we heard from industry panelists that corporates have meaningful cash available for M&A, and they will eventually get back into the market to make deals when valuations come down. Boston Scientific's acquisitions of both Axonics and Silk Road Medical played well with investors, and the firm's shares are up over 33% YTD, providing evidence that the market is receptive to M&A deals when a high-quality business can be purchased at a fair price. In contrast, there has not been the same level of deal activity for late-stage VC startups, which we attribute to ongoing price gaps between buyers and sellers. Still, if the IPO window remains closed, this could benefit strategics from an M&A standpoint, as startups may be more willing to be acquired at a reasonable multiple.

Another major medtech development in Q2 was the US Food and Drug Administration's (FDA's) finalization of its updated guidance over laboratory developed tests (LDTs). Historically, these tests have not been regulated by the FDA since they were considered in-house diagnostics and offered through a single laboratory. However, industry players have, over time, expanded the diagnostic scope of widely available LDTs, and there have been concerns around this lack of regulatory oversight. The FDA will now regulate LDTs as "devices," meaning the agency will implement a clearance process for new LDTs on the market. This is likely to create some friction in launching new LDTs to market but will also allow the FDA to take more formal enforcement action against

tests that do not meet quality standards. In response to this rule, The American Clinical Laboratory Association—including LabCorp, Quest Diagnostics, and other test-makers—initiated a lawsuit to overturn the decision. While legal action in this case was expected as a matter of course, the chance of the new rule being overturned increased following the Supreme Court's recent ruling on the Chevron Doctrine, which previously provided greater discretion to regulators.[1] Even if the rule goes through as proposed, the near-term impact will be minimal given the FDA's four-year enforcement phase-out period and grandfathering of current LDTs on the market. These new rules could provide some benefit for companies with LDTs on the market today, and while there could be an impact on new LDTs, marginal additional regulation should not be a major roadblock to innovators; in fact, oversight could also allow for more trust of LDTs by providers and payers, as greater enforcement could weed out tests that do not meet quality standards.

1: "FDA's Lab Developed Test Rule Could Be First Check on Agency's Power Post-Chevron," MedTech Dive, Susan Kelly and Elise Reuter, July 11, 2024.

Q2 2024 timeline



Q2 VC deal activity summary

206
total deals

-3.3%
QoQ growth

-13.4%
YoY growth

$3.3B
total deal value

-7.0%
QoQ growth

3.2%
YoY growth

2024 PE growth deal activity summary

$0.4B
total deal value

19
total deal count

Medtech landscape

1. Remote monitoring & portable care
2. Diagnostics & life sciences
3. Surgical devices & tools
4. Nonsurgical medical treatments
5. Medical imaging

Medtech VC and PE ecosystem market map

This market map is an overview of venture-backed or growth-stage companies that have received venture capital or other notable private investments. Click to view the full map on the PitchBook Platform.

1 Remote monitoring & portable care

Glucose, insulin & diabetes

Lifescan, pogo Automatic, Beta Bionics

EEG & ECG

ALIVECOR, Preventice Solutions, BIOSERENITY

Home care

QUANTA, accuhealth., casana

Mobility & orthopedics

Lima Corporate, Bioness LivOn, podimetrics

Personalized care & remote monitoring

VitalConnect, BioIntelliSense, biolinq

Portable therapies

CeQur Simplicity, kestra MEDICAL TECHNOLOGIES, ELEMENT SCIENCE

2 Diagnostics & life sciences

Algorithm-based diagnostics

DIGITAL DIAGNOSTICS, AIM, anumana

Cancer diagnostics

freenome, Binding Site, DELFI

Diagnostics tech

miDIAGNOSTICS, Autonomous Medical Devices Incorporated, 卡尤迪生物 COYOTE BIO

Genomic health

Helix, PILLAR BIOSCIENCES

Precision medicine

GENETRON precision medicine, BostonGene, Invitata

Rapid & point-of-care testing

visby medical, truvian, binx

Neurodiagnostics

BRAINBOX SOLUTIONS, Optina, LVIS

Drug delivery

ondosis, FLOWONIX, ALLAY THERAPEUTICS

Genomic sequencing

Element Biosciences, ULTIMA GENOMICS, Singleron

Sample testing & preparation

Ortho Clinical Diagnostics, 英感生物, Genalyte

Other diagnostics

IMMUCOR, BILLION TO ONE, KARIUS

3 Surgical devices & tools

Bone grafts & supports

Cerapedics, Conventus Flower Orthopedics, CENTINEL SPINE

Brain-computer interface

Science, synchron

Cardiovascular

IMPULSE BIOMEDICAL, MicroPort CRM, JENAVALVE

Implant technology

canary, ONKOS, KAI MEDTECH

Neurostimulation

Mainstay Medical, SETPOINT MEDICAL

Spinal implants

restorgd, DECANS 德康医疗, carlsmed

Surgical implants

BARRIC, MISHA KNEE SYSTEM, NUsurface

Surgical robotics

CMR SURGICAL, EDGE MEDICAL 精锋医疗, Noah Medical

Surgical tools & equipment

KANGJI MEDICAL, relievant, ROUTE 92

Other surgical devices

ORTHOSENSOR, RejuvenAir METERED CRYOSPRAY

4 Nonsurgical medical treatments

Cancer care

APTD, HYGEA 海杰亚, NUSANO

Direct to consumer

elvie, innovo, WITHINGS

Inpatient & critical care

Lungpacer Reset From Within, ceribell, Hemanext

Medical aesthetics & dermatology

Olive Healthcare, REVELLE AESTHETICS, CYNOSURE LUTRONIC

Dental tech

CANDID, DentalMonitoring, Impress

Other medical treatments

INSIGHTEC, gynesonics, EndoGastric Solutions

Hearing tech

EARGO, earlens, Whisper

Sleep tech

Respicardia, INVICTA MEDICAL, onera

Vision tech

neurolens, NOORCAM, BioTissue

5 Medical imaging

Brain imaging

OSTI OMNISCIENT NEUROTECHNOLOGY, neurophet, NexEosBio

Cardiac & heart

HeartFlow, cleerly, circle CARDIOVASCULAR IMAGING

Imaging equipment & tools

SUPERSONIC imagine, EchoNous, CapsoVision

Radiology image processing & AI

数坤科技 SHUKUN, aidoc, harrison.ai

Surgical imaging & navigation

AURIS, proteus DIGITAL HEALTH, Synaptive

Other imaging tech

LUMICELL

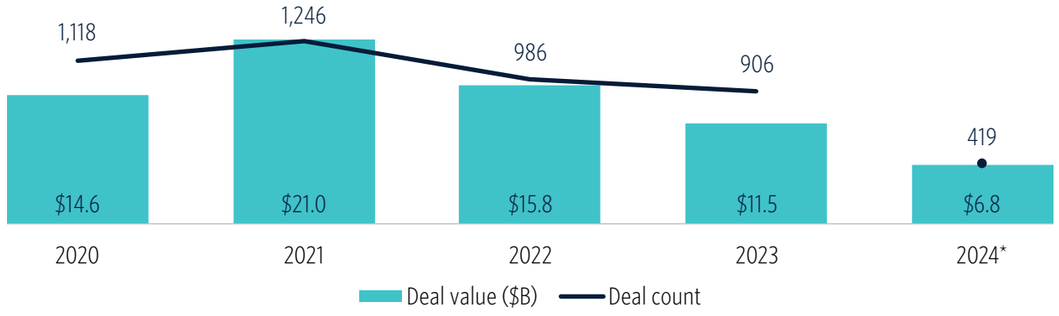
VC and PE activity

Medtech VC investment held steady in Q2 2024 with $3.3 billion of deal value, a slight decline from the $3.5 billion of activity in the first quarter. This marks the second straight quarter of higher deal activity compared with the prior year period, and through the first half of 2024, medtech VC investment for the full year is on track to be close to 20% higher compared with 2023. Despite quarterly variability, the current level of VC investment is a positive sign for the medtech VC landscape and lends credence to the view that the market has passed through the trough of investment activity. Funding in the quarter was led by Insightec's $150.0 million late-stage VC round and BillionToOne's $130.0 million Series D, and several other startups, including Kardium, Karius, and Delfi Diagnsotics, announced new VC deals above $100 million—Insightec and Karius are covered more in depth in the "Select company highlights" section. YTD, the European Innovation Council Fund, SOSV, Alumni Ventures, and Arboretum Ventures have been among the most active VC investors, with three medtech deals each. In Q2, top medtech VC investment subsegments included cardiovascular ($539.4 million), other diagnostics ($403.2 million), and surgical implants ($287.1 million).

After several quarters of minimal exit activity, the story shifted in Q2 with several VC-backed startups having an exit outcome. The headline-generating transaction in the quarter was Tempus' public listing in June. This IPO raised over $400 million for the company, and Tempus has recently been trading at a market cap around $7 billion, down from its last private valuation of roughly $10 billion in October 2022. The IPO was an important test of investor appetite for precision medicine, a sector that has seen a wide range of startups emerge over the past half-decade; many of these startups are likely looking to Tempus as an example of an aspirational exit outcome. Further, this IPO was notable given that Tempus is currently unprofitable, and profitability had been understood as a prerequisite for going public—we believe Tempus' successful IPO could shift investors willingness to support unprofitable companies if a public listing emerges as a realistic possibility. Other VC exits in the quarter included the acquisitions of BELKIN Vision, Attune Medical, and C2i Genomics, along with the somewhat surprising purchase of brain-computer interface startup Blackrock Neurotech by crypto firm Tether. In total, the $6.6 billion of VC exit value (driven mainly by Tempus' IPO) through the first six months of 2024 was higher than medtech exit value for all of 2023, though it remains well below the levels seen in 2021 and 2022. Given the unique market dynamics during the height of the COVID-19 pandemic, and considering current conditions, we view VC exit levels in medtech for 2024 so far as a solid win for the sector and a positive sign for deal value and exit momentum going forward.

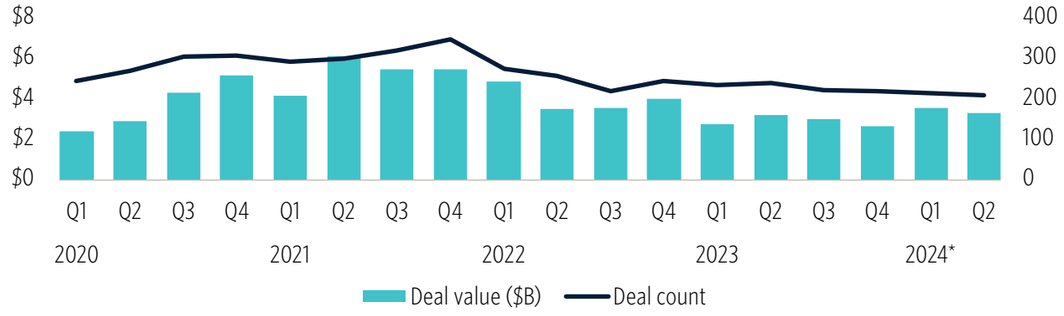
PE deal activity is tracking slightly below the prior year's levels, though 2023 was an especially strong year for PE activity in medtech. YTD, there have been 28 PE buyouts in the sector and 19 PE growth deals. Top PE deals in the second quarter were Peak Rock Capital's $787.5 million buyout of Steris dental subsidiary Hu Friedy and Edwards Lifesciences acquisition of PE-backed JenaValve Technology for $100.4 million. Similar to current dynamics in the VC-backed landscape, there have been very few public listings of PE-backed medtech firms. Our recent Pharma Services Launch Report further explores the PE deal landscape in the adjacent pharma services vertical, which includes medtech contract manufacturing.

Medtech VC deal activity



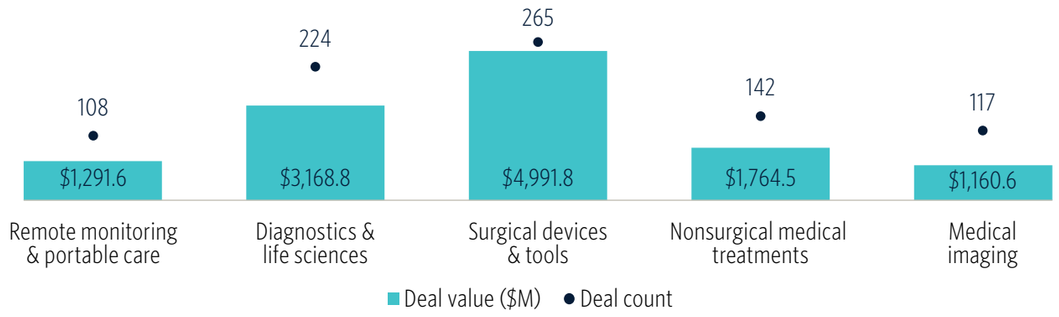
Source: PitchBook • Geography: Global • *As of June 30, 2024

Medtech VC deal activity by quarter



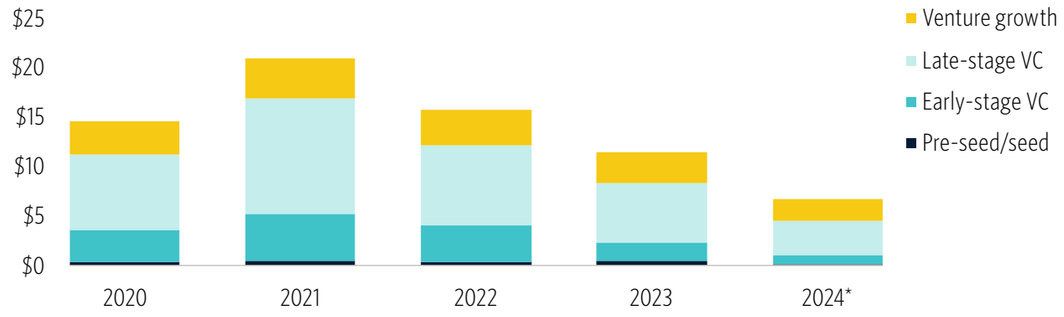
Source: PitchBook • Geography: Global • *As of June 30, 2024

Trailing 12-month medtech VC deal activity by segment*



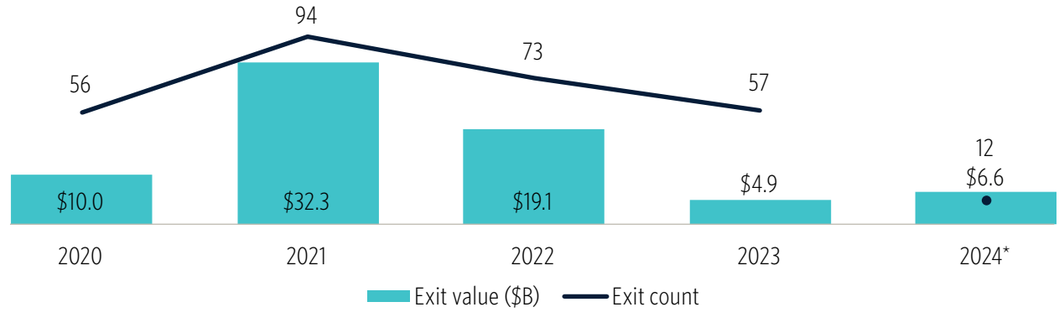
Source: PitchBook • Geography: Global • *As of June 30, 2024

Medtech VC deal value ($B) by stage



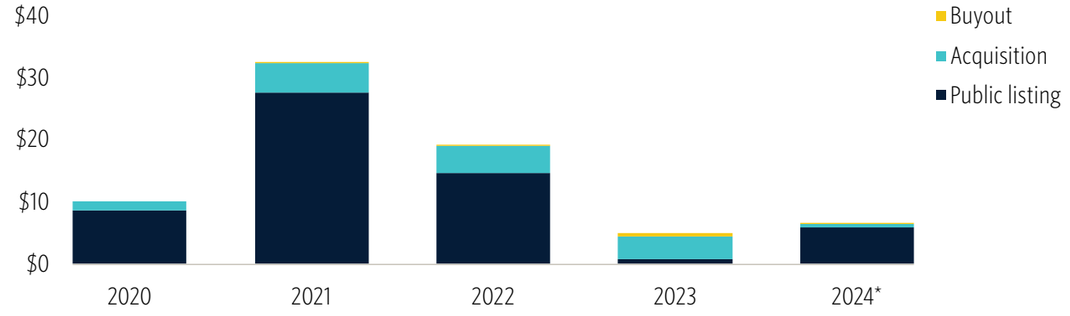
Source: PitchBook • Geography: Global • *As of June 30, 2024

Medtech VC exit activity



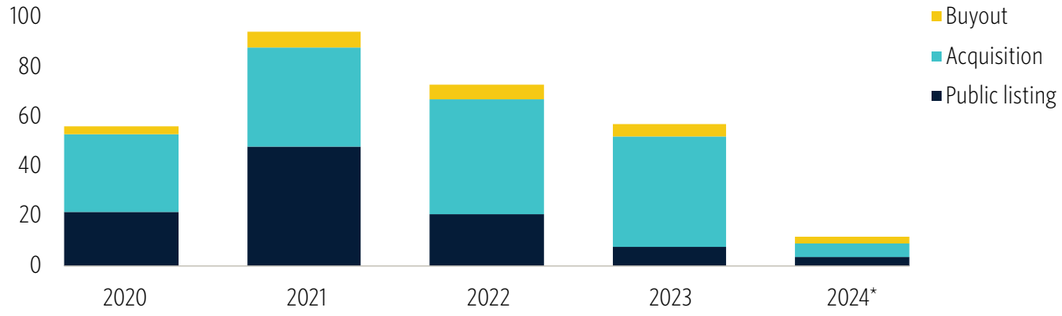
Source: PitchBook • Geography: Global • *As of June 30, 2024

Medtech VC exit value ($B) by type



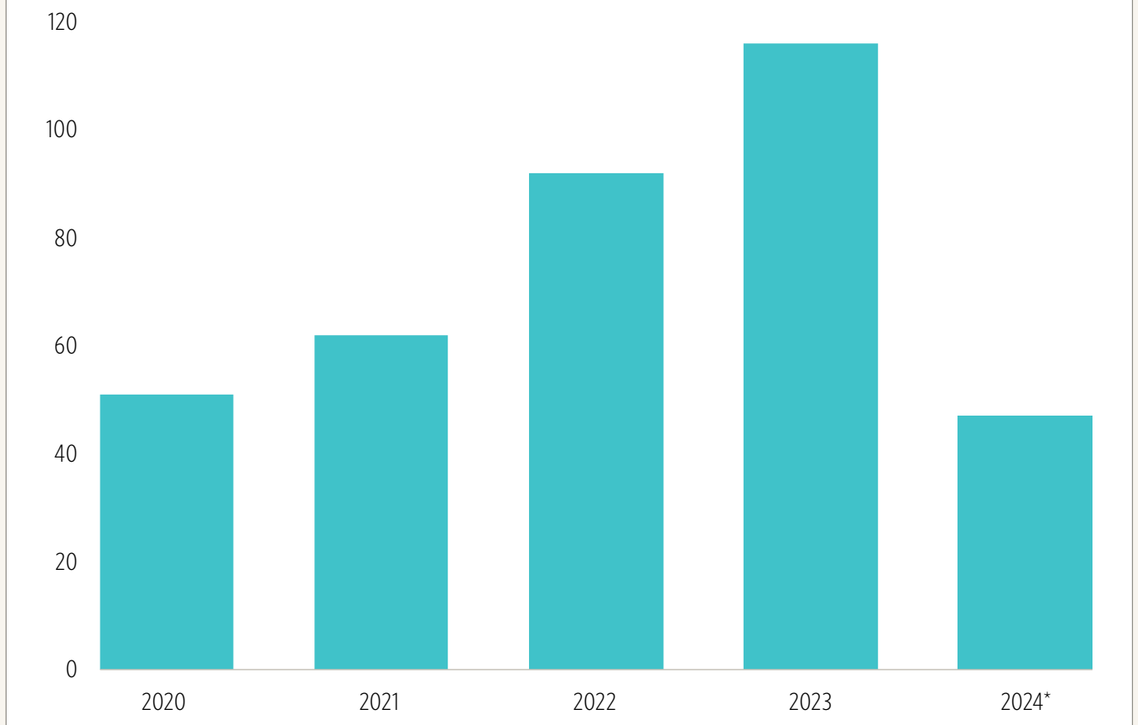
Source: PitchBook • Geography: Global • *As of June 30, 2024

Medtech VC exit count by type



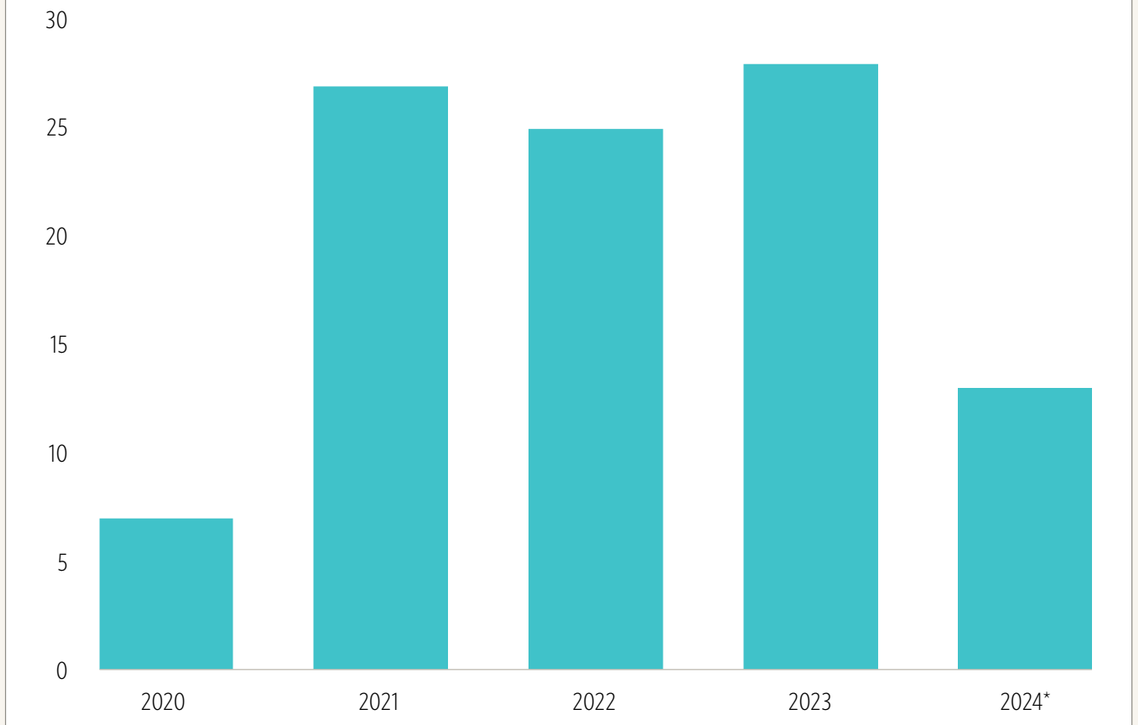
Source: PitchBook • Geography: Global • *As of June 30, 2024

Medtech PE deal count



Source: PitchBook • Geography: Global • *As of June 30, 2024
Note: Due to the limited availability of PE deal sizes, we show only deal count for PE deals. PE deals include both announced and closed deals.

Medtech PE exit count



Source: PitchBook • Geography: Global • *As of June 30, 2024
Note: Due to the limited availability of PE exit sizes, we show only exit count for PE exits. PE exits include both announced and closed exits.

Innovation spotlights

Sepsis testing

New innovations along with government policy aim to overcome the clinical challenges from a lack of reliable sepsis diagnostics.

Pulsed field ablation

Pulsed field ablation (PFA) is emerging as a treatment alternative for an irregular heartbeat, or atrial fibrillation (AFib).

Sepsis testing

Overview

Sepsis—excess immune response to infection—is a common health issue affecting hospital patients that can amplify the negative impact of serious infections. Sepsis is often more severe for older patients and those with weaker immune systems, and it is estimated that 1.7 million adults in the US alone develop sepsis every year, with the condition linked to about one-third of all deaths in US hospitals.[2] Globally, sepsis is responsible for over 11 million deaths each year.[3] Given these statistics, there is a clear need for innovations that more effectively predict, detect, monitor, and treat sepsis, particularly in acute care, inpatient settings. Recent VC deals in this space include Biocogniv's $10.7 million seed round in October 2023, CytoVale's $84.0 million Series C in December 2023, and an undisclosed late-stage VC round by Inflammatix in March 2024.

Innovations in this space span a few different categories, including point-of-care diagnostics, blood tests for identifying sepsis risk, and tests to identify sepsis as a cause of an abnormal patient inflammatory response. While VC-backed startups are leading the innovation front, this space has not been completely ignored by incumbents, as public diagnostics firm DiaSorin expects to launch a new test in the US in the second half of 2024 to diagnose a range of conditions including sepsis, as well as septic shock and lower respiratory infection. Further, electronic health records software leader Epic has a predictive model for sepsis currently available, an offering that is a logical extension of Epic's data on patient history and risk factors. However, this test has faced criticism on its efficacy. One research team concluded that Epic's test was only 63% effective at detecting sepsis early, compared with Epic's expectations of above 77%.[4] While some detection of sepsis risk is undoubtedly beneficial, these results further support the need for the next generation of sepsis tests to emerge.

Market direction

A meaningful challenge in diagnosing sepsis is that it is commonly identified by ruling out other causes, such as viral infections and noninfectious health conditions, which may require several diagnostic tests and a qualification determination by a provider. This strategy, even when it leads to the right outcome, can take time and involve numerous rounds of testing that can be expensive, and in some cases, unnecessary. New technologies could increase the prevalence and accuracy of diagnosing sepsis and lead to earlier lifesaving interventions, and recent advances in AI are likely to further advance the sepsis diagnostics market. Detection of sepsis as it occurs can be a crucial data point for care decisions, however, there are also benefits to identifying sepsis before it develops. AI-powered solutions that consider a patient's age and medical history, along with biometrics, could be used to predict and detect the presence of sepsis more accurately. For example, in April, Chicago-based startup Prenosis (over $20 million raised)[5] received marketing authorization from the FDA for an AI-driven diagnostic test to predict the risk of sepsis on a scale,

2: "Prevalence, Underlying Causes, and Preventability of Sepsis-Associated Mortality in US Acute Care Hospitals," JAMA Network, Chanu Rhee, MD, MPH, et al., February 15, 2019.
3: "WHO Calls for Global Action on Sepsis - Cause of 1 in 5 Deaths Worldwide," World Health Organization, September 8, 2020.
4: "Widely Used Sepsis Prediction Tool is Less Effective Than Michigan Doctors Thought," National Heart, Lung, and Blood Institute, June 29, 2021.
5: "Prenosis Announces Investment From PACE Healthcare Capital, Bringing Total Funding to Over $20 million," PR Newswire, March 9, 2022.

and Prenosis' test is the first AI diagnostic test for sepsis to receive such approval. Currently, sepsis tests are generally covered by both commercial payers and Medicare, but there have been reported issues around reimbursement given the varying degrees of sepsis that can be diagnosed and their different test requirements.[6] As part of efforts to resolve this, the Centers for Medicare & Medicaid Services (CMS) proposed a new rule in 2023 that established specific required treatment pathways for suspected sepsis patients by linking Medicare payments to sepsis treatment metrics.[7] These new guidelines, however, are not without controversy, as the American Hospital Association opposed the rule on the grounds that it could lead to unnecessary care and potentially increase antibiotic resistance. Our perspective is that the availability of reliable testing and awareness will be core levers to improving sepsis diagnosis and treatment. This CMS ruling could help on those fronts, but it remains a challenge to incentivize sepsis outcomes given the prevalence of sepsis and the current exclusion-based approach to diagnostics.

6: "Sepsis-2.5: Resolving Conflicts Between Payers and Providers," National Library of Medicine, Critical Care Explorations, September 2023.

7: "Feds Hope To Cut Sepsis Deaths by Hitching Medicare Payments to Treatment Stats," Fierce Healthcare, Julie Appleby, October 11, 2023.

Select sepsis testing startups*

Company	HQ location	Total VC ($M) raised	Most recent post-money valuation ($M)	Last financing date	Lead investor(s)
Inflammatix	Sunnyvale, US	$156.5	$302.4	March 2024	D1 Capital Partners
CytoVale	San Francisco, US	$123.3	$169.0	December 19, 2023	Norwest Venture Partners
Immunexpress	Seattle, US	$41.5	N/A	October 3, 2019	Debiopharm Innovation Fund
Biocogniv	Burlington, US	$10.9	$30.7	October 3, 2023	Breyer Capital
Path Ex	Nashville, US	$3.4	$4.7	September 23, 2021	Innova Memphis, Texas Halo Fund, Sage Business Advisors
Prenosis	Chicago, US	$1.5	N/A	July 12, 2023	Foxconn Technology, Roche Diagnostics, PACE Healthcare Capital

Source: PitchBook • Geography: Global • *As of July 29, 2024

Pulsed field ablation

Overview

AFib affects over 50 million people globally.[8] Pulsed field ablation therapy, a catheter-based method to treat AFib, is one of the most anticipated novel innovations in medtech to emerge over the past couple of years. Several large public medtech companies have already launched or are preparing to enter the space soon, including Abbott, Boston Scientific, Medtronic, and Johnson & Johnson. In comparison with traditional treatment alternatives like radiofrequency and cryoablation, PFA—based on preliminary data—provides similar efficacy with a stronger safety profile; in May, the Heart Rhythm Society published a study showing the beneficial safety and efficacy features of PFA technology.[9]

The FDA has approved just two PFA devices to date: Boston Scientific's Farapulse and Medtronic's PulseSelect PFA systems. Both devices were originally developed by startups and acquired by the larger corporates in recent years. The Farapulse system was developed by startup Farapulse and acquired by Boston Scientific in 2021; Boston had been an investor since 2014, and this was a clear win for a long-term strategic investment leading to an exit. In August 2022, Medtronic acquired PFA devicemaker Affera for $925.0 million in another success story for tuck-in medtech M&A. While large medtech companies have distribution and network advantages, more nimble startups can also be a key source of innovation for next-generation devices. While the first wave of PFA devices is still in the early stages of commercialization, startups are already maneuvering to launch the next generation of systems. Steven Mickelsen, one of Farapulse's original founders, is now co-founder and CEO of a new PFA startup, Field Medical, which raised $14 million of seed funding in September 2023. Other PFA VC-backed startups include AccuPulse (Suzhou, China), Cortex (Menlo Park, US), and Mirai Medical (Galway, Ireland).

Market direction

We anticipate that the recent launch of several PFA devices will drive market growth and further investment in the space. Globally, the AFib ablation market can be estimated at around $5 billion, and it is expected to more than double over the next five years.[10] Given that only 2% of eligible patients with AFib are treated with an ablation globally (15% are treated in the US), rising adoption will further drive growth over the coming decade.[11] Looking ahead, PFA could emerge as a core element of the standard of care for AFib, and improved outcomes for patients are likely to incentivize both new entrants and exit opportunities for VC-backed startups in the space. At present, the near-term market opportunity will be primarily dominated by the large medtech companies, as they wisely anticipated growth in the space and pursued several acquisitions in recent years. More broadly, cardiovascular disease has consistently been a top VC investment sector, as marginal improvements in treatment from novel innovations can lead to rapid adoption and associated sales growth given robust distribution models and large patient populations. Our 2023 Cardiovascular Disease & Heart Health VC Market Snapshot provides a deeper overview into investment trends and market opportunities in the sector.

8: "Atrial Fibrillation: Epidemiology, Screening and Digital Health," The Lancet Regional Health – Europe, Dominik Linz, et al., February 2024.
9: "Heart Rhythm 2024 Features Recent Developments and Future Directions in Pulsed Field Ablation," Heart Rhythm Society, May 18, 2024.
10: "PFA – A Potential Paradigm Shift in Atrial Fibrillation Ablation Landscape," EOS Intelligence, November 4, 2024.
11: Ibid.

Select company highlights

INSIGHTEC

Overview

Insightec is a focused ultrasound devicemaker with primary offices in Tirat Carmel, Israel, and Miami. In June 2024, the startup raised a $150.0 million late-stage VC round, taking the company's total VC raised above $600 million. Insightec was founded in 1999 by Kobi Vortman, Ph.D., and Oded Tamir. While Tamir has since moved on to new ventures, Vortman remains involved at the company as vice chairman of the board. Notable investors include Bailie Gifford, Fidelity Management & Research, Peregrine Ventures, and GE Healthcare. While the company was last valued at $1.3 billion in April 2021, this most recent funding round did not have a disclosed valuation, following a larger trend of new deals announced without disclosed valuation figures.

Insightec's most recent product launch is the next-generation Exablate Prime, which iterated on the previous Exablate Neuro with automated calculations and an improved user interface. This device is used to treat essential tremor and tremor-dominant Parkinson's disease with therapeutic FUS guided by real-time MRI. In the US alone, there are 1 million people living with Parkinson's disease, and about 10 million people (50 million globally)[12] have essential tremor,[13] which refers to uncontrollable tremor symptoms without Parkinson's. The Exablate is available across the US in treatment centers located in 30 states and the District of Columbia. In 2020, Insightec received

12: "Insightec Receives CE Mark Approval To Treat Essential Tremor Patients' Second Side, Expanding Treatment Options for People Living With Essential Tremor," Insightec, September 12, 2023.
13: "Parkinson's Disease vs. Essential Tremor: What's the Difference?" Mass General Brigham, Rees Cosgrove, MD, FRCSC, March 26, 2024.

Key company information

Founded
1999

Employees
410

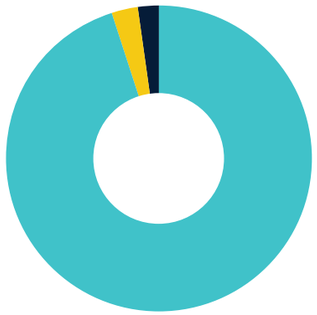
Total raised
$600.9M

Last financing valuation
$1.3B

Last financing
Raised $150.0M in a late-stage VC round

Lead investors
Ally Bridge Group, Nexus Neurotech, Fidelity Management & Research

Exit Predictor



IPO: 95% probability **M&A:** 3% probability **No exit:** 2% probability

Success: 98% probability

Note: Probability data is based on PitchBook VC Exit Predictor methodology.

nationwide Medicare coverage for treating essential tremor, and in 2021, it received its first national payer coverage determination from Aetna. Insightec has a global reach, and the company has also received regulatory approvals in China, Brazil, and Japan, and in September 2023, the startup received CE marking for treatment of essential tremor in European markets. The company also benefits from strong partner relationships with the makers of leading magnetic resonance systems used alongside FUS, including Royal Philips, Siemens Healthineers, and GE Healthcare—GE has also participated in several of Insightec's funding rounds as an investor.

Outlook

In the announcement of its recent financing round, Insightec cited ongoing efforts to expand its reach and strategic investments in new potential indications as the main use of this new capital. Currently, Insightec has over 160 systems installed globally, and while this represents decent reach in a relatively niche market, there is certainly scope for installed base growth in its core movement disorder indication as there are thousands of neurosurgery treatment centers worldwide. Insightec also intends to target additional indications to expand its total addressable market and ultimately grow the company's long-term sales and profit potential. In January 2024, Insightec announced the results of a proof-of-concept clinical study to explore the treatment of Alzheimer's disease using FUS technology. While these initial results were promising, the startup's clinical research in this area is still in the early stages, and it will likely be years until Insightec could apply for regulatory review for Alzheimer's treatment.

Further, FUS is also emerging as a treatment method for other indications such as cancer, heart conditions, and obesity, and expanding into these areas is another potential path forward for the company. Insightec is a mature private company with a multidecade history, global regulatory clearances, and over $600 million of VC funding raised—a large amount compared with its startup peer group in medtech. Given these factors, an IPO is a realistic possibility for the startup in the next few years; however, with a recent VC round in June, we do not expect the company to seek out a public listing in the near term, as other milestones are likely to be achieved before the startup becomes "IPO ready." Considering its partnerships with other large global MRI manufacturers, it is unlikely that one of these larger firms would pursue an acquisition of Insightec given the potential impact on distribution lines for other MRI suppliers.

Financing history

Series C	Series D	Series E	Series F	Late-stage VC
October 11, 2012	**December 15, 2014**	**February 21, 2018**	**April 7, 2021**	**June 18, 2024**
Total raised $31.4M	**Total raised** $59.0M	**Total raised** $150.0M	**Total raised** $136.0M	**Total raised** $150.0M
Pre-money valuation $70.3M	**Pre-money valuation** $208.0M	**Pre-money valuation** $368.8M	**Pre-money valuation** $1.2B	**Pre-money valuation** N/A
Investor GE Healthcare	**Investor** York Capital Management	**Investor** Koch Disruptive Technologies	**Investors** SternAegis Ventures, Leumi Partners, Koch Disruptive Technologies	**Investors** Ally Bridge Group, Nexus Neurotech, Fidelity Management & Research

KARIUS™

Overview

Karius Inc., based in Redwood City, California, is a diagnostic company with a liquid biopsy blood test for infectious diseases, primarily for use in immunocompromised populations. The company was founded in 2014 by Mickey Kertesz, Ph.D., and Tim Blauwkamp, and current CEO Alec Ford has helmed the company since October 2020. The company has raised over $300 million of VC funding since its founding. The Karius Test is a novel diagnostic that offers a way for providers to identify pathogens causing infectious diseases including bacteria, viruses, fungi, and known parasites; the test's main applications include pneumonia, endocarditis, invasive fungal infections, febrile neutropenia, and fever of unknown origin. The Karius Test is intended to be a noninvasive alternative to other diagnostic methods used to identify a patient's unknown cause of infection, including bronchoscopy and invasive tissue biopsies. Identification of the causative pathogen is a crucial data point in determining the proper course of care. Another benefit of this test compared with the current standard of care is the rapid result, with an approximate 24-hour turnaround time from sample receipt to provider reporting. By comparison, competing tests may take several days to weeks to produce results. Karius has recently enjoyed strong top-line growth over 40% and currently has over 400 hospital and provider partners with annual test volume over 20,000.

Outlook

Karius' market opportunity could reach above $20 billion when including long-term opportunities for outpatient settings and pharmaceutical development, though we estimate a realistic serviceable

Key company information

Founded
2014

Employees
179

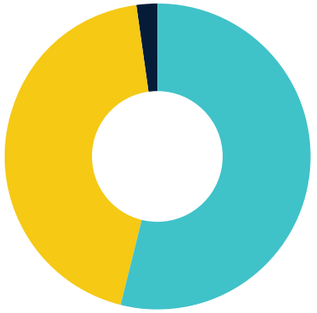
Total raised
$409.3M

Last financing valuation
$185.0M

Last financing
Raised $100.0M in a Series C

Lead investors
Khosla Ventures, 5AM Ventures, Gilde Healthcare

Exit Predictor



IPO: 54% probability **M&A:** 44% probability **No exit:** 2% probability

Success: 98% probability

Note: Probability data is based on PitchBook VC Exit Predictor methodology.

addressable market in the mid-single billions. Karius' current focus is via the inpatient test distribution channel, and market penetration remains relatively low, as Karius' annual test volume in the 20,000 range is far from the number of relevant inpatient cases of over 7 million. Reimbursement coverage for novel diagnostics is typically a major hurdle for growth acceleration, and Karius offers no exception. The Karius Test is currently priced at about $2,000 and is offered on a direct-bill basis and not generally covered by insurance. We expect much of Karius' future growth to be driven by commercial coverage, and as such, the company will be seeking a positive coverage decision by CMS over the coming years. Efforts on this front will also be supported by in-progress clinical studies and other publications that evaluate the cost-benefit of using Karius versus the current standard of care.

Though Karius has been operating for about a decade, the company has generally taken a slow-and-steady approach to growth and fundraising, only just recently raising its Series C. This funding round valued the company at a $185.0 million post-money valuation. While this is materially down from its last private valuation of $575.0 million in 2022, we attribute the step-down to both a more difficult funding environment and Karius' prioritization of raising capital over anchoring to an old valuation figure. In our view, there are many startups holding on to outdated valuations or simply not publicizing valuation declines when they occur. While a valuation decline is not ideal, we see this recent round as a positive overall, given the notably large raise amount. An IPO is a realistic longer-term possibility for Karius, but we expect the company will need to reach additional milestones to be IPO ready: a more favorable reimbursement status, greater provider adoption, and an initial foothold in expansion markets such as outpatient, biomarker discovery, and clinical development. We believe Karius is likely to raise one or more additional VC funding rounds to meet these goals, which could push an IPO timeline later into the current decade.

Financing history

Seed

October 20, 2014

Total raised
$5.3M

Pre-money valuation
$15.0M

Investors
S28 Capital, Innovation Endeavors, DCVC

Series A

August 7, 2017

Total raised
$59.0M

Pre-money valuation
$75.0M

Investors
DCVC, Lightspeed Venture Partners

Series B

March 7, 2022

Total raised
$175.0M

Pre-money valuation
$400.0M

Investor
SoftBank Investment Advisers

Series C

May 2, 2024

Total raised
$100.0M

Pre-money valuation
$85.0M

Investors
Khosla Ventures, 5AM Ventures, Gilde Healthcare

Appendix

Top VC-backed medtech companies by VC raised to date*

Company	VC ($M) raised to date	Segment	Category	IPO probability	M&A probability	No exit probability	HQ location
Freenome	$1,352.4	Diagnostics & life sciences	Cancer diagnostics	96%	2%	2%	San Francisco, US
CMR Surgical	$1,182.6	Surgical devices & tools	Surgical robotics	83%	15%	2%	Cambridge, UK
HeartFlow	$828.6	Medical imaging	Cardiac & heart	94%	4%	2%	Mountain View, US
Neuralink	$687.1	Surgical devices & tools	Brain-computer interface	94%	4%	2%	Fremont, US
Insightec	$600.9	Nonsurgical medical treatments	Other medical treatments	95%	3%	2%	Tirat Carmel, Israel
Impulse Dynamics	$583.6	Surgical devices & tools	Cardiovascular	94%	4%	2%	Marlton, US
MicroPort CRM	$568.6	Surgical devices & tools	Cardiovascular	28%	65%	7%	Clamart, France
Visby Medical	$431.6	Diagnostics & life sciences	Rapid & point-of-care testing	73%	14%	13%	San Jose, US
Delfi Diagnostics	$431.6	Diagnostics & life sciences	Cancer diagnostics	62%	36%	2%	Baltimore, US
Ultima Genomics	$423.0	Diagnostics & life sciences	Genomic sequencing	93%	5%	2%	Newark, US

Source: PitchBook • Geography: Global • *As of June 30, 2024

Note: Probability data is based on PitchBook VC Exit Predictor methodology.

Top medtech M&A and buyout deals by deal value*

Company	Deal date	Deal value ($M)	Deal type	HQ country
Ortho-Clinical Diagnostics	December 23, 2021	$6,000.0	M&A	US
The Binding Site	October 30, 2022	$2,704.0	M&A	UK
ArcherDX	June 21, 2020	$2,331.5	M&A	US
Immucor	November 3, 2022	$2,000.0	M&A	US
Medit	December 29, 2022	$1,862.5	Buyout/LBO	South Korea
Heska	April 3, 2023	$1,500.0	M&A	US
BK Medical Holding	September 22, 2021	$1,450.0	M&A	US
Natus Medical	April 18, 2022	$1,213.5	Buyout/LBO	N/A
Dutch Ophthalmic Research Center	April 3, 2024	$1,112.5	M&A	Netherlands
Relievant	September 19, 2023	$1,067.0	M&A	US

Source: PitchBook • Geography: Global • *As of June 30, 2024

Top medtech VC investors since 2021*

Investor	Total deal count	Pre-seed/ seed	Early-stage VC	Late-stage VC	Venture growth	Investor type
SOSV	60	26	9	24	1	VC
European Innovation Council Fund	46	1	9	30	6	VC
Qiming Venture Partners	37	0	19	15	3	VC
HongShan	34	0	12	17	5	VC
Gaingels	34	10	8	13	3	VC
Alumni Ventures	27	3	7	17	0	VC
Khosla Ventures	26	2	3	15	6	VC
Enterprise Ireland	26	2	5	12	7	VC
YuanBio Venture Capital	25	0	14	9	2	VC
BioTrack Capital	22	0	14	7	1	VC

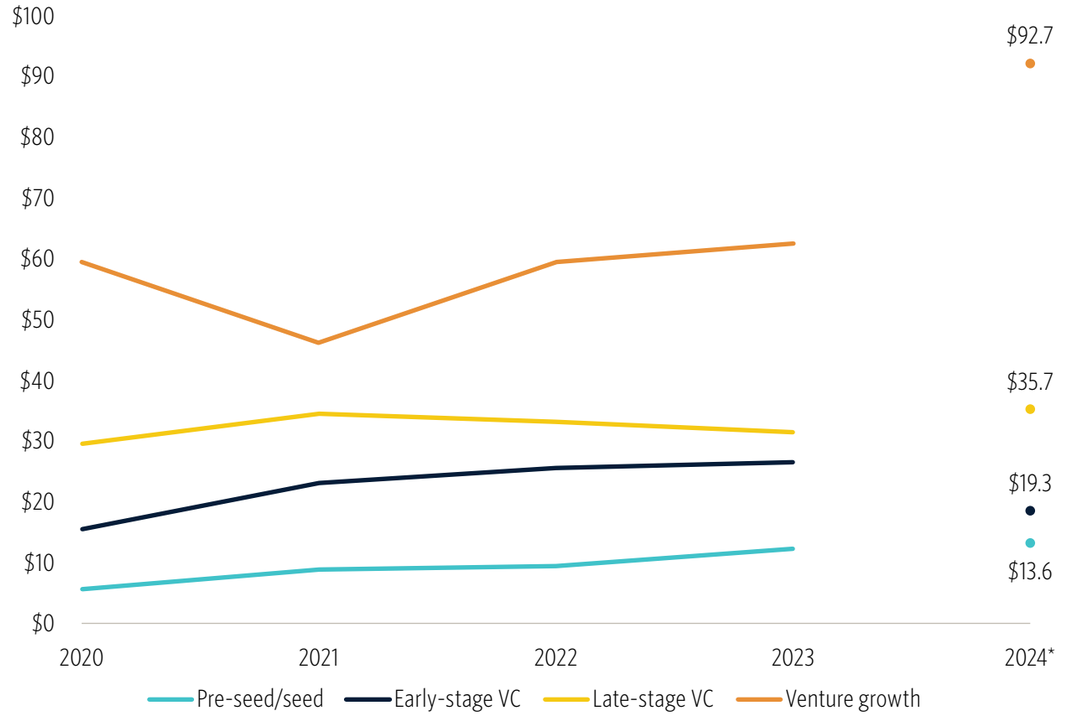
Source: PitchBook • Geography: Global • *As of June 30, 2024

Top medtech strategic acquirers since 2021*

Investor	Deal count	Investor type
Hologic	4	Corporation
Eqwal Group	4	PE-backed company
Boston Scientific	4	Corporation
Veracyte	3	Corporation
Laborie Medical Technologies	3	PE-backed company
ALS Dental	3	PE-backed company
Zimmer Biomet Holdings	3	Corporation
Thermo Fisher Scientific	3	Corporation
GE Healthcare	3	Corporation
Ottobock	3	Corporation

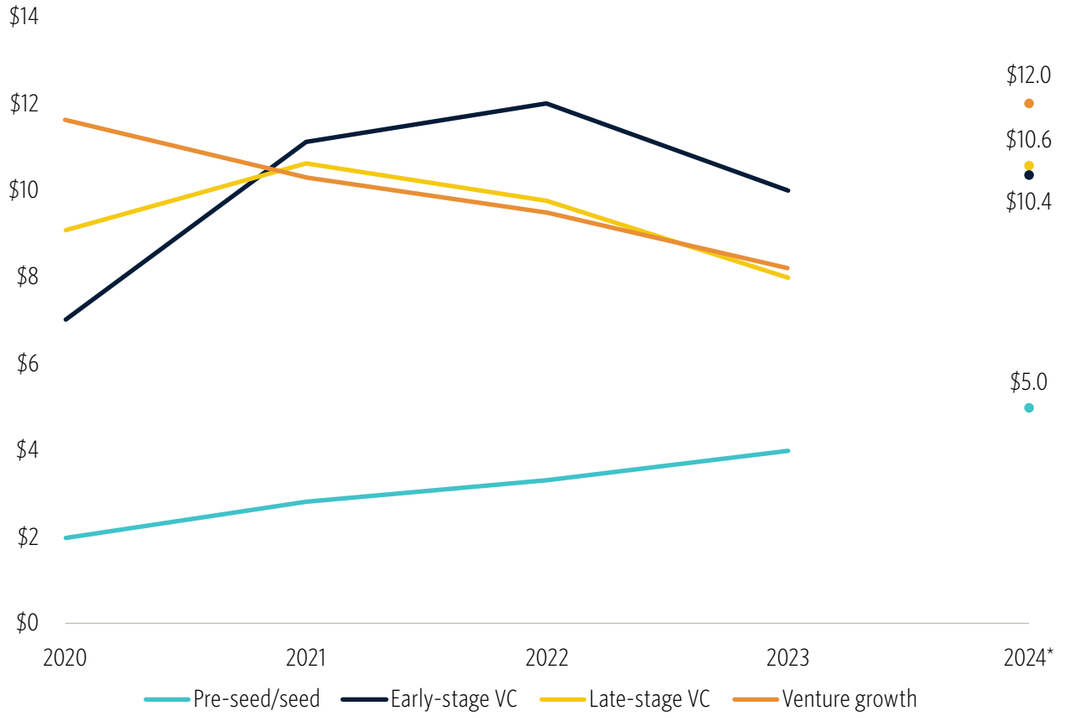
Source: PitchBook • Geography: Global • *As of June 30, 2024

Median medtech VC pre-money valuation ($M) by stage



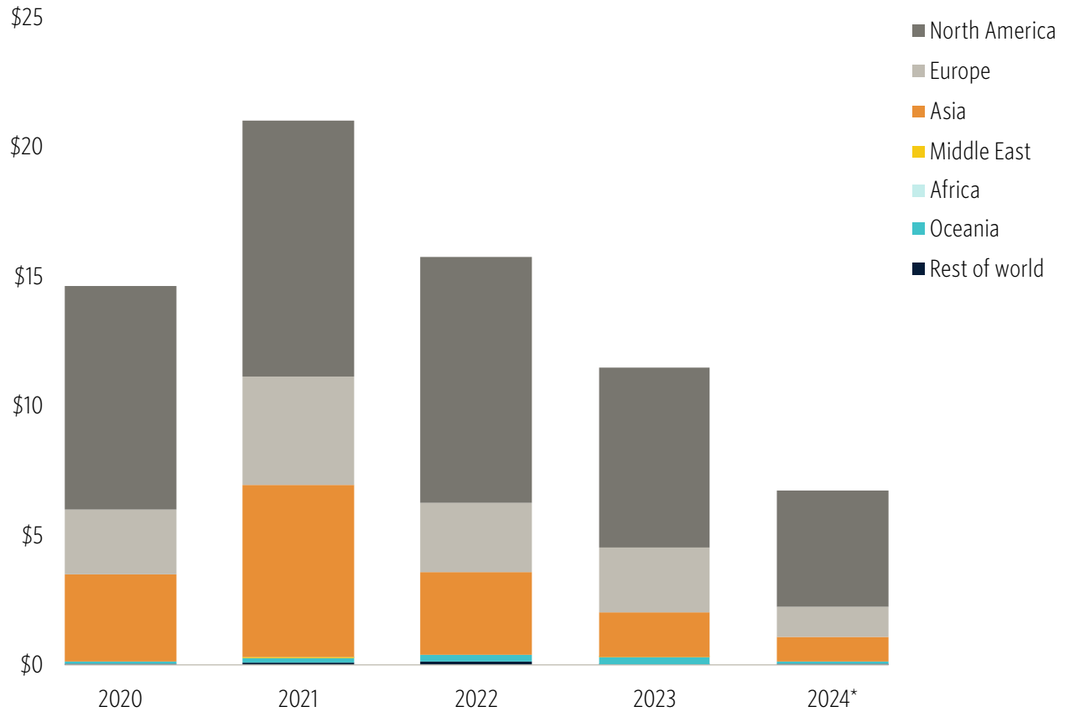
Source: PitchBook • Geography: Global • *As of June 30, 2024

Median medtech VC deal value ($M) by stage



Source: PitchBook • Geography: Global • *As of June 30, 2024

Medtech VC deal value ($B) by region



Source: PitchBook • Geography: Global • *As of June 30, 2024

About PitchBook Industry and Technology Research

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

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