

HSBC Venture Healthcare Report: 1H 2023

HSBC Innovation Banking Analysis

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I'm excited to unveil HSBC Innovation Banking's inaugural Venture Healthcare Report. This report, written by our Life Science & Healthcare team, covers the four main sectors in healthcare: biopharma, healthtech, med device and dx/tools. It provides an in-depth overview of investment activity, valuations and step-ups for venture-backed healthcare companies. We balanced the analytics with the team's deep sector expertise, our historical perspectives, and data-informed predictions.

This is part of our leadership role in partnership with the global innovation ecosystem - to provide industry perspectives and actionable insight to companies and investors. We hope you enjoy our inaugural report and leverage it as part of your own analysis of current healthcare trends. Think of us as your partner, your trusted advisor, and an extension of your team – now with the strength and stability of HSBC's global platform. //



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Jonathan Norris joined HSBC's Innovation Banking Division in April 2023. He manages healthcare venture relationships and works with investors and companies on commercial banking and debt products.

In addition, for more than a decade, Jonathan has written comprehensive reports on the venture healthcare ecosystem, covering venture fundraising, investment, valuations and exits. These reports have been widely cited in the ecosystem and he often speaks at major investor and industry conferences. He has more than 20 years of healthcare banking experience.

Jonathan earned a B.S. in business administration from the University of California, Riverside, and a J.D. from Santa Clara University.



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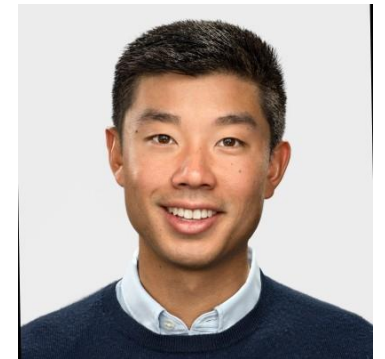
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HSBC Venture Healthcare Report: 1H 2023 Recap and Analysis



General Overview

In the first half of 2023, as valuations underwent a necessary reset, Venture Capitalists (“VCs”) emerged from their cautious stance and embarked on a fresh wave of investments. These VCs, buoyed by recently raised funds in 2021-2022, assumed the role of leading later-stage rounds, as crossover/hedge funds retreated. Despite this encouraging development, the pace of new investments remained measured, with approximately 50% of the deals in 2023 consisting of add-on or insider rounds¹. While top deals continue to secure valuation step-ups, the current landscape sets the stage for later-stage valuation re-sets and presents both management and investors with challenging decisions in the second half of 2023 and into 2024.

Healthtech

The strongest companies, who demonstrated smart growth and value creation (clinical and economic), found new investment, many at step-ups. However, funding dropped off significantly in Q2, and many companies extended runway with insider rounds in the face of a difficult financing environment.

Med Device

First financing activity in this sector was stronger than anticipated. Overall, neuro saw an uptick in investor activity, adding to the broader upswing in VC-led pivotal trial funding. However, development-stage PMA² companies seeking Series B were stymied. Valuations appear to have re-set. Secondary interest (investors selling portfolio ownership) was on the rise.

Biopharma

VCs returned to leading new Series B deals (at varying step-ups and downs), but 40-50% of early-stage deals will need more insider support, a BD deal with big pharma, or will seek consolidation or M&A. Later-stage deals received more VC-led financings, as crossover investors focused on public markets.

Dx/Tools

Overall investment in dx/tools continued its slump, however first financing investment was a bright spot. More than 50% of financings in 1H 2023 were insider-rounds, especially among highly valued companies that raised large rounds in 2020-2021. Strong new investor interest focused on R&D tools in gene therapy manufacturing and anti-infective dx tests.

¹Add On/Insider rounds defined as equity deals smaller than the prior round led by new investors (“add-on”), or equity/convertible financings where only insiders participate. ²Pre Market Approval (PMA) is a med device commercialization approval path that typically requires human clinical trial data. Data Sources: PitchBook, company websites, internal analysis

Venture Healthcare Investment

1H 2023



Venture Capital ("VC") Investment in Healthcare

1H 2023 Investment, US and Europe



Biopharma



Healthtech¹



Med Device



Dx/Tools

Q1

\$5.1B/175 Deals

\$3.3B/220 Deals

\$1.5B/136 Deals

\$1.7B/118 Deals

Q2

\$5.6B/145 Deals

\$2.4B/185 Deals

\$2.1B/140 Deals

\$1.6B/139 Deals

1H

\$10.7B/320 Deals

\$5.6B/405 Deals

\$3.8B/276 Deals

\$3.3B/257 Deals

1H 2023 Total Activity \$23.3B / 1,258 Deals

1H\$ Activity

1H 2023 (Annualized) vs
Previous Years²

2022  **35%**

2021  **60%**

2020  **20%**

2019  **30%**

In 1H 2023, investment (annualized) was significantly down versus the past three years. A key driver for this decrease was the prevalence of add-on/insider rounds³ ("insider rounds") versus new investor led financings, a continuation from 2H 2022.

Additionally, we noted a drop in large \$200M+ financings. From 2020-2022 big deals were done in bunches (50+ per year) led by crossover/hedge investors as a pre-IPO round. Now, with the public markets closed or significantly reduced, crossovers are more apt to invest in the public market than lock up capital in private deals. There were just 11 \$200M+ financings in 1H 2023. Instead, later-stage deal size was smaller, now led more often by traditional VCs.

Looking Forward:

Companies that raised insider rounds, a common occurrence in 2022, will need to come back to market.

While Q3 may be slow, we anticipate a deal/dollar upswing for all sectors in Q4 as a rush of companies compete for available new capital. Investors will increase deal pace as valuations settle and companies become focused on securing new money.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Healthtech deals that overlap with other healthcare sectors are not counted in the healthtech totals in this slide. Including overlap, healthtech total investment in the first half of 2023 was \$7.6B, and those financings are included in the healthtech sector analysis. ²Using specific PitchBook search functions to approximate sector specific funding. ³Add-on/Insider rounds defined as equity deals smaller than the prior round led by new investors ("add-on"), or equity/convertible financings where only insiders participate. Data Sources: PitchBook, company websites, internal analysis.



Biopharma Early-Stage: First Financing Analysis



1H 2023

Biopharma First Financing¹ Analysis

1H 2023, US and Europe



Early-Stage Investment and Deal Activity (\$s/Deals)

	JAN	FEB	MARCH
Q1 2023	US: \$140M 10 Europe: \$20M 3	US: \$321M 12 Europe: \$90M 4	US: \$246M 11 Europe: \$63M 5
	\$160M 13 Deals	\$411M 16 Deals	\$309M 16 Deals
	Q1 Activity \$880M 45 Deals		
	APRIL	MAY	JUNE
Q2 2023	US: \$50M 6 Europe: \$163M 6	US: \$310M 7 Europe: \$32M 2	US: \$308M 9 Europe: \$221M 6
	\$213M 12 Deals	\$343M 9 Deals	\$529M 15 Deals
	Q2 Activity \$1,084 36 Deals		
1H 2023 Total Activity \$2.0B 81 Deals			

1H \$ Activity

(Annualized 2023 Investment
vs Previous Years²)

2022  40%

2021  55%

2020  40%

2019  25%

Early-stage investment (annualized) suffered a significant drop versus the previous three years. This was a function of both investor time (focus on existing portfolio) and opportunity (VCs were still slow playing new investment) as new deals need to be “perfect”. In addition, early-stage investors were opportunistically looking at leading Series B deals. Crossover investor activity in private deals slowed for Series B and company expectations on valuation has reduced in 2023.

There were 18 \$50M+ first financing deals in 1H, mostly at the pre-clinical stage (13/18). However, the difference from previous years was these companies were either much closer to clinic or fundable to initial clinical data. Series B now means “B in the clinic” to attract new investors, however computational bio deals remained an exception to the push for clinical data.

In addition, we noted even more tranching in seed and series A to hold companies to milestone achievement.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+. ²Using specific PitchBook search functions to approximate sector specific funding. Data Sources: PitchBook, company websites, internal analysis.

Biopharma First Financing¹ by Indication:

1H 2023, US and Europe



Platform investment and deal count (annualized) were significantly behind the last three years, off 50%+ as some early-stage investors look for deals closer to the clinic with an identified lead asset or withdraw entirely from deals without clinical data. Pre-clinical deals with understood biology still gained investor interest but pre-clinical deals with new biology were harder to fund.

Oncology deal and dollars (annualized) were also down about half. In 2020-1H 2022 we saw an aggressive influx of pre-clinical oncology investment activity, many years away from the clinic. VCs appeared to have pulled back on new pre-clinical investment in 1H 2023, preferring to see which of those previous bets truly become first line opportunities.

Surprisingly, orphan/rare deals were up after reduced attention over the past few years. Three of six orphan rare deals were in neuro.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+. Data Sources: PitchBook, company websites, internal analysis.

Biopharma First Financing¹ Pre-Money Analysis:

1H 2023, US and Europe



First Financing Median Pre-Money Values

First Financing
Deal Size

\$1-10M
n=18

\$11- 25M
n=7

\$26M+
n=12

Median Pre-Money Valuations²

\$10M

\$20M

\$55M

First financing median pre-money valuations increased each year from 2020-2022, from low teens to mid teens. Pre-money values jumped again in 1H 2023. The median deal size was \$12M on a median pre-money valuation of \$19M.

The breakdown in this chart provides a better sense of pre-money values based on round size.

Two of the three top pre-money valuations in first financings (\$200M+ pre) were neuro-focused companies with assets in the clinic, either Phase I (Fibrobiologics) or Phase II (BrainRepair). The other, Alloplex, was pre-clinical, focused on cell therapy in oncology.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+.

²Valuation information, including pre-money valuations, based on PitchBook data. Data Sources: PitchBook, company websites, internal analysis.



Biopharma Investment: All Venture Deals



1H 2023

Biopharma VC Investment (All Deals)

1H 2023, US and Europe



Investment and Deal Activity (\$s/Deals)

	JAN	FEB	MARCH
Q1 2023	US: \$1,179M 41 Europe: \$260M 14	US: \$1,338M 44 Europe: \$343M 11	US: \$1,751M 49 Europe: \$273M 16
	\$1.4B 55 Deals	\$1.7B 55 Deals	\$2.0B 65 Deals
	Q1 Activity \$5.1B 175 Deals		
	APRIL	MAY	JUNE
Q2 2023	US: \$985M 27 Europe: \$520M 14	US: \$2,140M 41 Europe: \$247M 14	US: \$1,347M 36 Europe: \$361M 13
	\$1.5B 41 Deals	\$2.4B 55 Deals	\$1.7B 49 Deals
	Q2 Activity \$5.6B 145 Deals		
1H 2023 Total Activity \$10.6B 320 Deals			

1H \$ Activity (Annualized 2023 Investment vs Previous Years¹)

2022  30%

2021  45%

2020  20%

2019  30%

Biopharma investment was stable compared to 2H 2022, but annualized dollars were significantly lower versus the previous few years.

The highlight in 1H 2023 was VCs leading Series B deals. This was a significant difference from the softness in 2H 2022, where most Series A deals were forced to close insider financings. However, new Series B financings were smaller in both size and valuation versus Pre-IPO crossover deals in 2020-2021.

There were 34 \$100M+ financings in 1H. Crossover investors participated in the biggest deals (6 of the 10 largest) but traditional VCs (typically more than one) led or co-led 9 of the 10 largest deals. No matter the financing environment, later stage deals with strong clinical data will get funded.

New financings, even for the best deals, took longer. Six months to close from start to funding appeared to be the norm. "FOMO" on deals is now a rarity instead of a constant.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Using specific PitchBook search functions to approximate sector specific funding. Data Sources: PitchBook, company websites, internal analysis.

Biopharma VC Investment by Indication (All Deals)



1H 2023, US and Europe



Oncology investment was significantly down from 2021-2022, but at a similar pace to 2020. Most oncology financings were Series B or later. Twelve of the 20 largest deals were for companies already in the clinic. It was much harder to fund pre-clinical Seed and Series A oncology deals in 1H 2023.

In the second half of 2022 we noted investor push-back on leading Series B/late-stage platform deals, forcing these companies to secure insider rounds¹. That softened in 1H 2023, as later-stage platform deals secured new investors in 59% of equity rounds (29/49). Many of these were pre-clinical, bucking the trend of requiring clinical data to fund later-stage rounds. Pre-clinical activity was highlighted by gene and cell therapy and computational bio deals.

Neuro was the only indication to mirror 2022 activity at mid-year. 17/42 financings were later-stage assets (phase II and later). The largest five neuro financings were all in the clinic, led by Series B deals Cerevance (phase III) and Noema Pharma (phase II).

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Add-on/Insider rounds defined as equity deals smaller than the prior round led by new investors ("add-on"), or equity/convertible financings where only insiders participate. Data Sources: PitchBook, company websites, internal analysis.

Biopharma Most Active Investors¹ in New Financings

1H 2023, US and Europe



First Financing²

All Investors

4	
3	
3	
3	
2	
2	
2	
2 ⁴	

All Deals

VC

7	
5	
5	
4	
4	
4	
3	
3 ⁴	

Growth³

6	
4	
3	
3	
3	
3	

Corporate

9	
7	
6	
4	
4	
3	
3	
3	

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Most Active Investors only include first investment into a portfolio company, not follow-on financings. ²First financing defined as initial Seed or Series A financing of \$2M+. ³Growth Investors defined as investment firms that typically invest in later-stage companies that either are revenue scaling or the round is anticipated to be the last before an IPO. ⁴ Some categories had ties for number of deals, and list was curtailed due to space. Note that families of funds are combined for this slide, as are corporate and corporate venture with the same parent. Data Sources: PitchBook, company websites, internal analysis.

Biopharma VC Investment (All Deals)

1H 2023, US and Europe



Largest Venture Financings



The three largest deals in 1H 2023 were in cell and gene therapy.

The trend of \$150M+ first financing¹ deals emerging out of stealth in 2020-2022 seems to have stalled. All the deals on this list were post first financing – although three deals were labeled Series A (Renegade, Orbital and Cargo) but all had raised significant seed rounds. Even though the rounds were later, 8 of the 10 largest deals were pre-clinical at funding.

In previous years, crossover investors led these large later-stage rounds. While crossovers are still participating in some deals, we noted that traditional VCs are now pricing these financings, leading or co-leading 9 of these 12 largest deals. Many crossovers have moved back to the public market, as PIPEs appear to be the new mezz round.

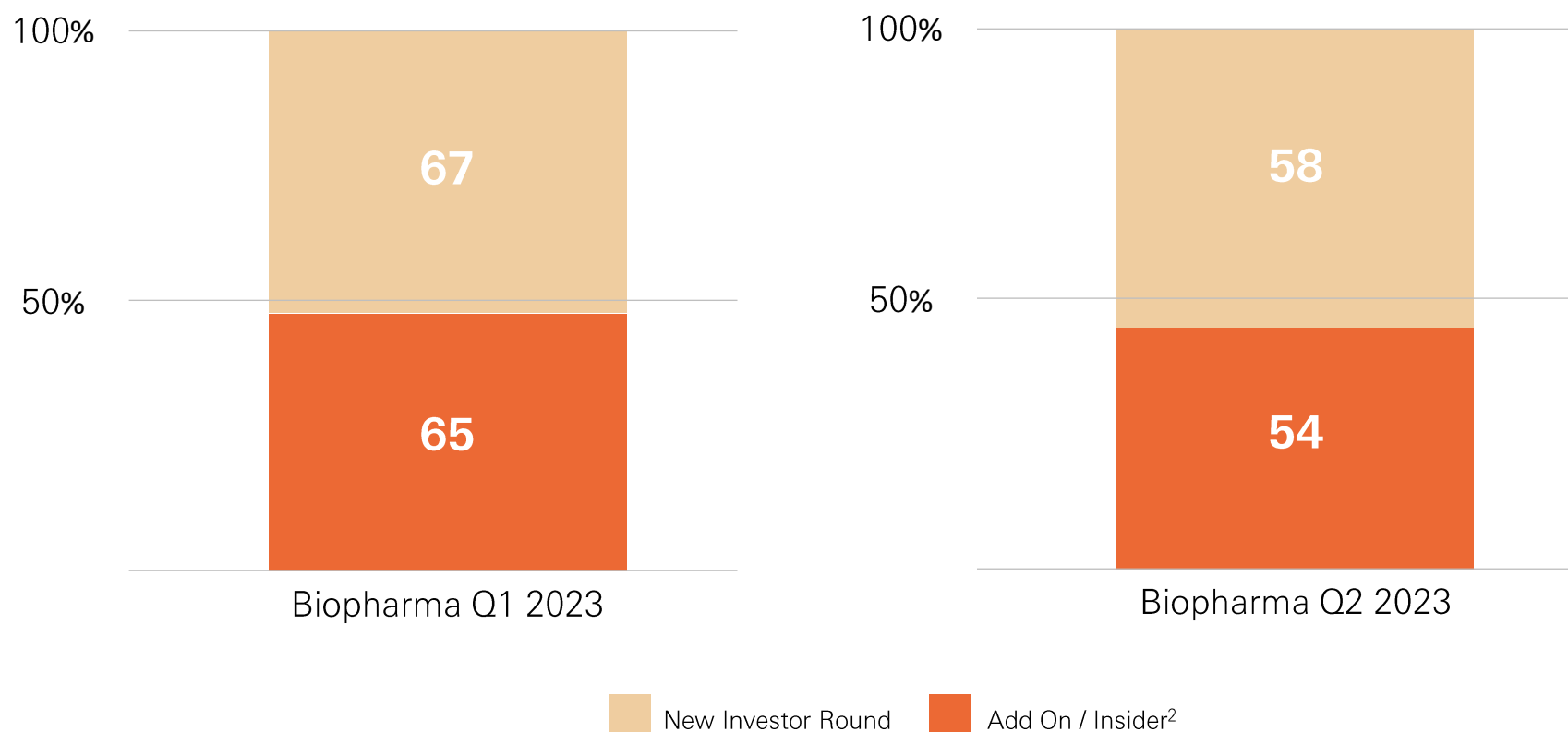
Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+. Data Sources: PitchBook, company websites, internal analysis.

Biopharma New Investor Deal Analysis

1H 2023, US and Europe



Deal Breakdown by Equity Rounds (Post First Financing¹)



In 2022, with the public market pull-back and IPOs stymied, add-on/Insider rounds² (“insider rounds”) dominated investment activity, as valuations and exits were uncertain. New investors demanded more clinical data/milestones in order to lead a round. In 1H 2023, new investor-led deals became more prevalent as valuations slowly reset. Licensing deals, a form of non-dilutive capital, also increased in 2023.

Platform and oncology deals each had more new investor rounds than insider rounds in 1H 2023. However, neuro, anti-infective and metabolic all had more insider round activity. Clinical stage investors want to manage risk – mechanism novelty and competition risk likely equal a pass in this market. A major concern: are insider rounds in this tough market providing “bridges to nowhere”?

Looking Forward:

In 2H 2023, new investor led rounds increase as companies either raise a new investor round or explore strategic options like BD, M&A or consolidation.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Post First Financing defined as the round following the first equity financing of \$2M+. ²Add On/Insider rounds defined as equity deals smaller than the prior round led by new investors (“add-on”), or equity/convertible financings where only insiders participate. Data Sources: PitchBook, company websites, internal analysis.

Biopharma Step-Up Analysis¹

1H 2023, US and Europe



Overall Step-Up Activity in New Investor Led Biopharma Deals

Rounds Covered ²	New Investor Led Deals	Median Deal Size	Median Step-Ups	# of Down Rounds	Biggest Step-Ups by Round
Seed to A	17	\$35M	1.6x	2	  
A to B	31	\$73M	1.3x	2	  
B to C	10	\$46M	1.4x	1	  
Post Series C	6	\$43M	1.2x	2	 

For this analysis, we reviewed new investor-led deals³ with a financing equal to or greater than the last round. 64/123 deals (52%) had valuation info available to calculate 1H 2023 step-ups for this slide. This dataset represented the top of the spectrum regarding new financings in 2023, and “flat is the new up” was likely a fair overall assessment of venture healthcare in this market.

The Seed to Series A step-up median, while still positive, was off 30% from 2022, and Series A to B step-up median was also down 25% from last year. That could be a function of crossover retreat, as traditional VC-led deals tend to be more valuation sensitive.

In later-stage financings (Series B to C and Post Series C) median step-ups were actually up slightly versus 2022. The uptick was propelled by companies with later-stage assets – nine of 16 deals were Phase II or later.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Step-Ups calculated using Pitchbook valuation data for previous and new 1H 2023 financing. Calculated as follows: Divide new 1H 2023 Pre-money Valuation by previous round post-money valuation. ²Rounds classified based on best efforts of author after review of PitchBook data. ³Deals refer to companies that had a new investor in its 1H 2023 financing, the financing was equal to or greater than the last round and had valuation information available for the new and last financing. Data Sources: PitchBook, company websites, internal analysis.

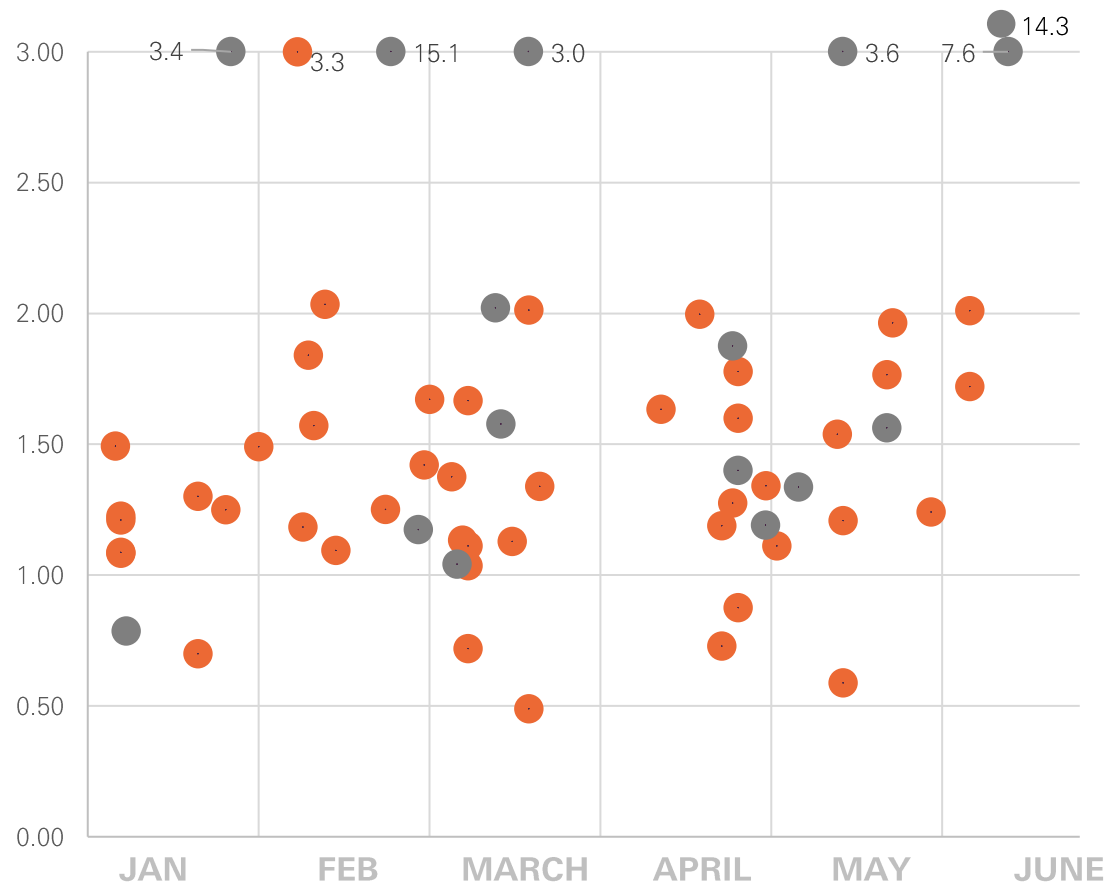
Biopharma New Investor Deal¹ Analysis

1H 2023, US and Europe



Step-Ups² in New Investor Rounds

- Seed to Series A step-ups
- Series B and later step-ups



This is a scatterplot from the previous slide. We noted most deals congregated between 1-2x in 1H 2023. There were a strong group of 1.5x+ step-ups in Q2 2023, especially in Seed to Series A financings.

By indication, neuro (6 deals) and platform (16 deals) had the strongest median step-ups, both at 1.6x. Three of the top four neuro step-ups were for companies with assets in Phase II (Noema Pharma and Transcend Therapeutics) or Phase III (Neumentum). The top four platform step-ups were deals raising Series A (GC Therapeutics, EG 427, Atomic AI and Repair Biotechnologies).

Only four Series B or later financings achieved a 1.6x or better. Two, Empirico and Cullgen, were platform pre-clinical deals. The other two were late stage clinical deals, Phase II metabolic company Carmot Therapeutics and phase III neuro deal Neumentum.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Deals refer to companies that had a new investor in its 1H 2023 financing, the financing was equal to or greater than the last round and had valuation information available for the new and last financing. ² Step-Ups calculated using Pitchbook valuation data for previous and new 1H 2023 financing. Calculated as follows: Divide new 1H 2023 Pre-money Valuation by previous round post-money valuation. Data Sources: PitchBook, company websites, internal analysis.

Biopharma Largest Post-Money Values¹ (All Deals)

1H 2023, US and Europe



Largest Post-Money Valuations by Biopharma Subsector

Indication	Company	Date	Deal Size (\$M)	Round	Post \$ (\$M)	Stage	Lead Investor(s)
Platform	 eikon therapeutics	6/1/23	\$141	C	\$3,640	Pre-Clinical	Unknown
Metabolic	 CARMOT THERAPEUTICS	5/25/23	\$150	E	\$1,250	Phase 2	PE
Auto-Immune	 SONOMA BIOTHERAPEUTICS	3/28/23	\$30	B1	\$715	Pre-Clinical	Corporate
Platform	 ORBITAL THERAPEUTICS	4/26/23	\$450	A	\$702	Pre-Clinical	Venture
Auto-Immune	 Upstream BIO	6/8/23	\$200	B	\$680	Pre-Clinical	Venture
Platform	 Ring THERAPEUTICS	3/9/23	\$87	C	\$602	Pre-Clinical	Corporate
Anti-Infective	 VEDANTA BIOSCIENCES	3/1/23	\$107	D	\$525	Phase II	Venture + Family Office
Orphan/Rare	 ADARx PHARMACEUTICALS	1/19/23	\$46	B1	\$491	Phase I	Venture
Platform	 CHROMA MEDICINE	2/22/23	\$135	B	\$455	Pre-Clinical	Corporate

New investors demanding clinical data was widespread in 2023, but great early-stage stories continued to find capital. Pre-clinical platform deals received five of the top six highest post-money valuations in 1H 2023.

Overall top post-money valuation medians were down substantially (about 50%) versus top deals from 2021 and 2022. This is related to revised comps and the heightened valuation of VC and corporate leads. To that point, VC and corporate investors led seven of the top nine highest valued deals in 1H 2023.

Oncology was missing from the top post-money list, while there were multiple entries for platform (four) and auto-immune (two) indications. Anecdotally, we heard that metabolic is an emerging hot area (long shunned by venture) and may see some more large financings at big valuations by year-end in addition to the Carmot financing in May.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Valuation data, including post-money values, from PitchBook. Data Sources: PitchBook, company websites, internal analysis.

Healthtech Early-Stage: First Financing Analysis



1H 2023

Healthtech First Financing¹ Analysis

1H 2023, US and Europe

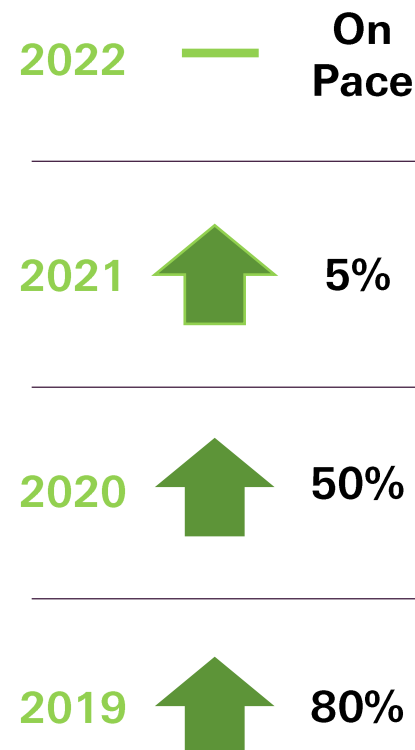


Early-Stage Investment and Deal Activity (\$s/Deals)

	JAN	FEB	MARCH
Q1 2023	US: \$489M 33 Europe: \$27M 8	US: \$140M 17 Europe: \$11M 4	US: \$315M 23 Europe: \$91M 6
	\$487M 41 Deals	\$151M 21 Deals	\$406M 29 Deals
	Q1 Activity \$1.0B 91 Deals		
	APRIL	MAY	JUNE
Q2 2023	US: \$133M 10 Europe: \$10M 3	US: \$112M 16 Europe: \$42M 17	US: \$254M 26 Europe: \$25M 7
	\$143M 13 Deals	\$154M 33 Deals	\$279M 33 Deals
	Q2 Activity \$576M 79 Deals		
1H 2023 Total Activity \$1.6B 170 Deals			

1H \$ Activity

(Annualized 2023 Investment vs Previous Years²)



First financing in Q1 posted the second highest investment quarter in the past two years, but then investment declined 40% in Q2. Part of the disparity between quarters was that seven of the nine \$50M+ financings were closed in Q1.

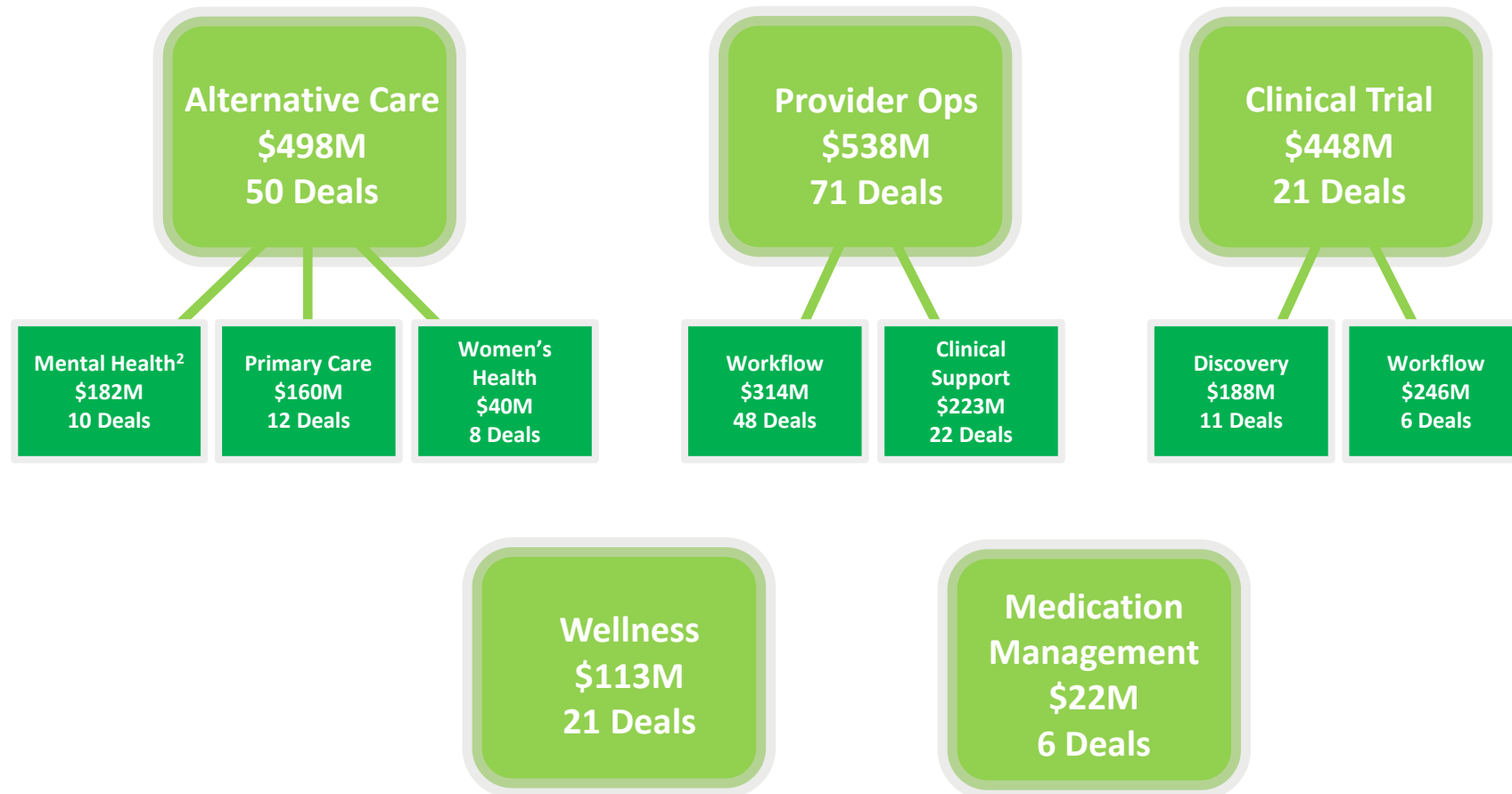
In 1H 2023, early-stage VCs were hyper focused on quality. They are more selective and disciplined, searching for quality fundamentals at normalized valuations.

However, for the very top deals, first financings still showed strong pre-money valuations, with four deals at \$100M+ pre-money, including Paradigm (clinical trial, patient recruitment deal), and Hippocratic.ai, Amalgram and Prompt (provider ops, workflow companies). Amalgram and Prompt secured their large pre-money valuations on small round sizes, \$17M and \$6M respectively.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+. ²Using specific PitchBook search functions to approximate sector specific funding. Data Sources: PitchBook, company websites, internal analysis.

Healthtech First Financing¹ by Subsector:

1H 2023, US and Europe



Continued traction in alternative care and provider ops (deals and dollars) has been a consistent theme over the past few years. As we continue to digitize and apply technology to the healthcare system, we anticipate these subsectors will attract the lions share of capital over the next few years.

Clinical trial activity was already ahead of full year investment pace from the past two years. This activity highlights the unmet need to digitize the pharma/drug development arena – there is a lot of green space here, and significant interest by deep-pocketed pharma.

Alternative care continued to see new investment into specialty areas like mental/behavioral health and senior care. Women's health remained a strong area, focused on whole-person health and differentiated either by demographics (e.g. age, geography) or by type of patient engagement.

First financing companies shifted from consumer models in wellness to enterprise models – we expect that to continue.

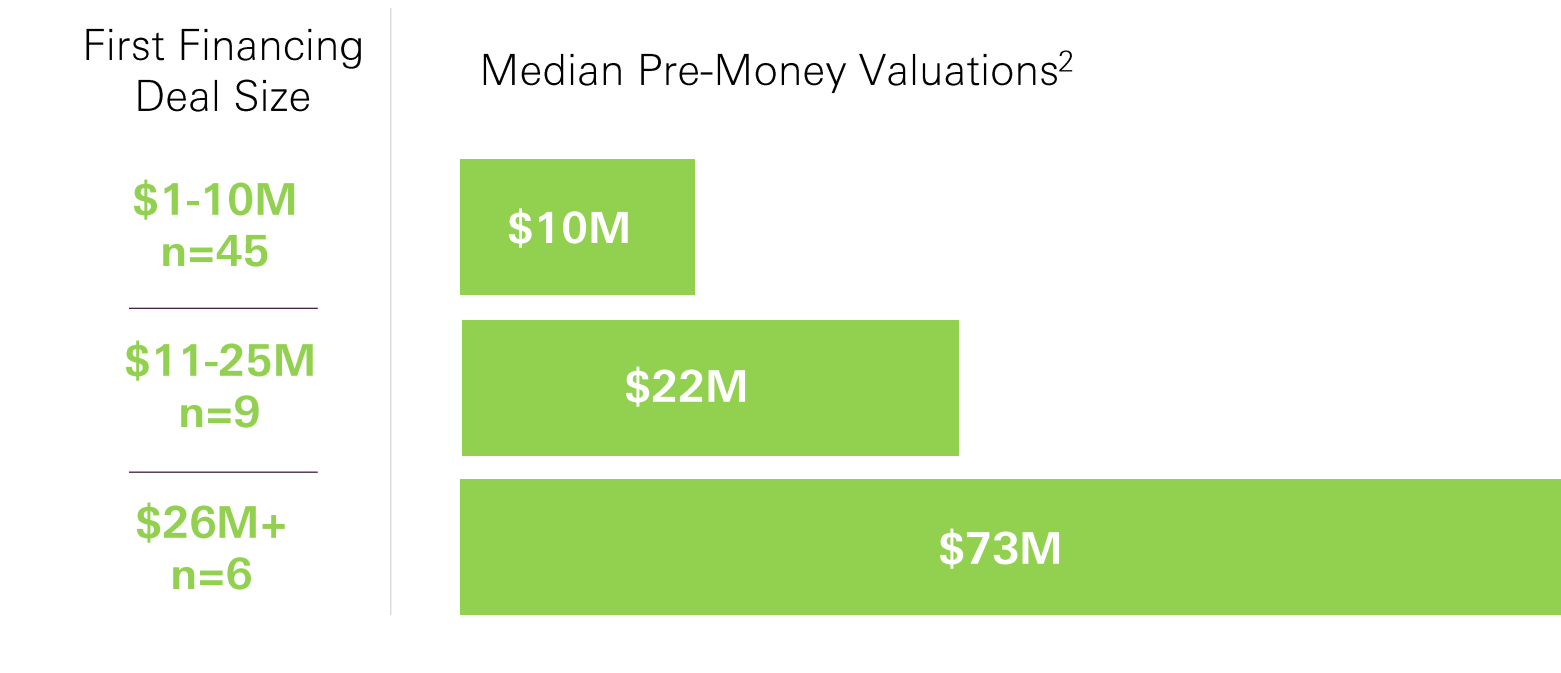
Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+. Healthtech sector analysis contains companies that overlap with other healthcare sectors. ²Dark green boxes highlight top areas within the subsectors. Data Sources: PitchBook, company websites, internal analysis.

Healthtech First Financing¹ Pre-Money Analysis:

1H 2023, US and Europe



First Financing Median Pre-Money Values



First financing pre-money valuations largely remained stable since 2021. In 1H 2023, the median deal size was \$5M on a median pre-money valuation of \$12M. Anecdotally, we heard that first financing valuations continue to come down and round sizes have become smaller. Boards are scrutinizing spend, with the intention that less capital will be needed to achieve milestones for the next round.

This chart provides a more detailed analysis of pre-money medians by round size. Bigger first financing rounds did see median pre-money valuations surge.

Paradigm (clinical trial) had the largest pre-money valuation in 1H 2023 (\$162M) for its \$203M round, led by VCs ARCH and General Catalyst.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+.

²Valuation information, including pre-money valuations, based on PitchBook data. Data Sources: PitchBook, company websites, internal analysis.

Healthtech Investment: All Venture Deals



1H 2023

Healthtech VC Investment (All Deals)

1H 2023, US and Europe



Investment and Deal Activity (\$s/Deals)

	JAN	FEB	MARCH
Q1 2023	US: \$1,685M 93 Europe: \$240M 27	US: \$1.1B 56 Europe: \$84M 14	US: \$1,199M 72 Europe: \$204M 19
	\$1.9B 119 Deals	\$1.2B 70 Deals	\$1.4B 91 Deals
	Q1 Activity \$4.4B 281 Deals		
	APRIL	MAY	JUNE
Q2 2023	US: \$725M 41 Europe: \$129M 15	US: \$744M 55 Europe: \$202M 28	US: \$956M 65 Europe: \$112M 13
	\$854M 56 Deals	\$945M 83 Deals	\$1.1B 78 Deals
	Q2 Activity \$2.8B 217 Deals		
1H 2023 Total Activity \$7.2B 496 Deals			

1H \$ Activity

(Annualized 2023 Investment vs Previous Years¹)

2022  35%

2021  65%

2020  15%

2019  30%

Strong Q1 investment (larger than Q3 and Q4 2022) then dropped 40% in Q2. Overall 1H investment (annualized) was substantially behind investment over the past two years. A main difference between Q1 and Q2 was that four of the five \$200M+ deals in 1H 2023 closed in Q1 (totaling \$1B+).

Digging deeper, the number of deals are down more than dollars, pointing to the narrative that the top healthtech deals raised capital but fewer overall deals got funded.

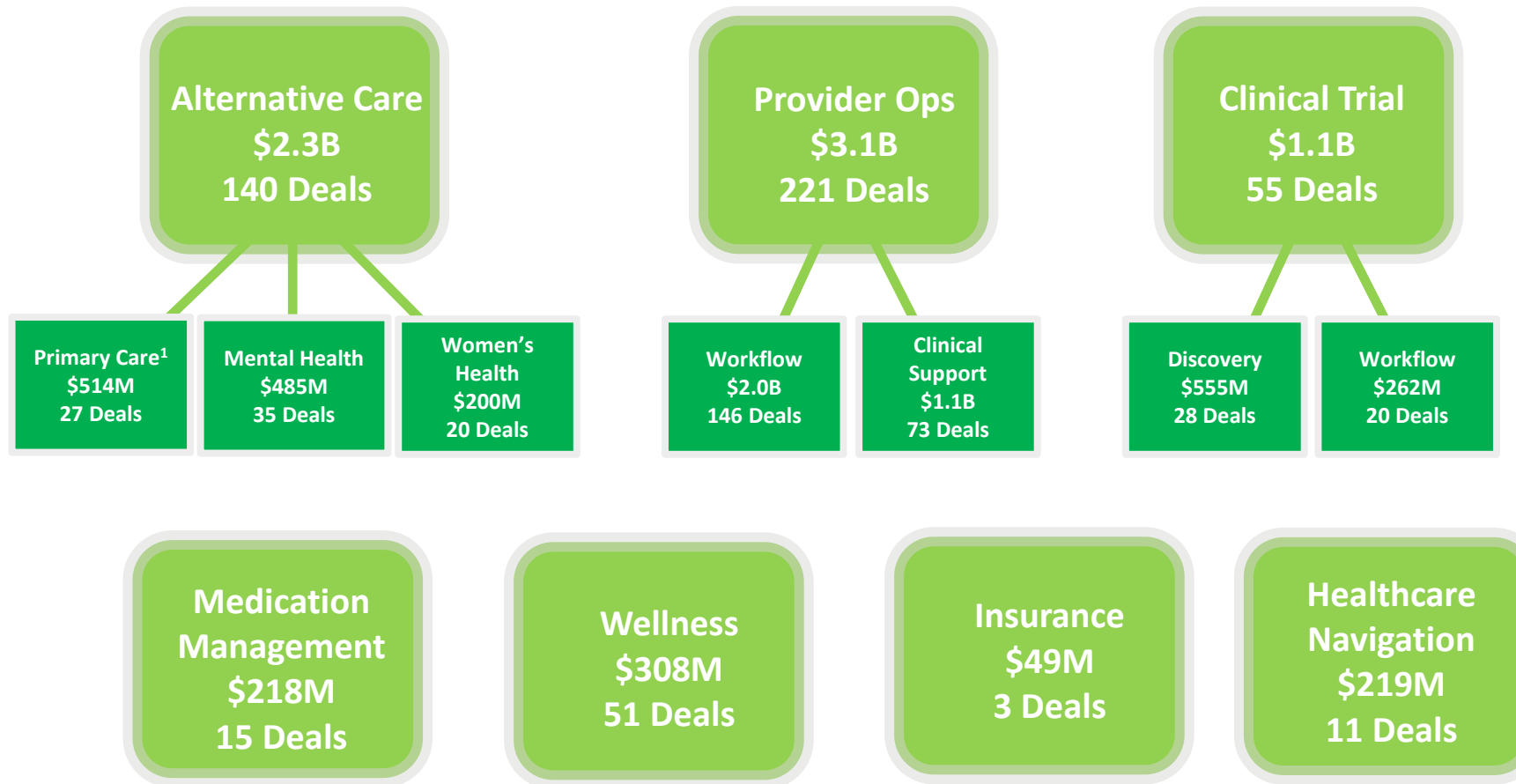
Investment slowdown should not be a surprise. The difficult exit environment and valuation mismatch from rounds closed in 2020-2022 have led to a tentative investment pace and the ability to search for the “perfect” deal.

While California, New York and Massachusetts attracted the majority of healthtech deals, other strong investment geographies included Texas, Florida, Illinois and Minnesota.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. Healthtech sector analysis contains companies that overlap with other healthcare sectors. ¹Using specific PitchBook search functions to approximate sector specific funding. Data Sources: PitchBook, company websites, internal analysis.

Healthtech VC Investment by Subsector (All Deals)

1H 2023, US and Europe



Strong provider ops (“PO”) activity spoke to the broader comment that despite better service/delivery models, there are still gaps in data, communication and workflow. The requirement of strong data and efficiency in process and workflow to deliver the right care at the right time drove sustained investment in this subsector.

Care delivery still starts and ends with great primary care. However, we expect a growing focus on specialty care treating high risk/cost populations, as we already saw in elderly care and home care delivery models. With the shift to a value-based care model as well as in-home care, payers are looking to optimize health outcomes by attributing lives to specialty care versus the historical default of primary care.

Investor interest in medication management has fizzled based on some bigger company failures (Medley) and increased legal concerns (Truepill). It's hard to compete in a low margin business against big folks like CVS.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. Healthtech sector analysis contains companies that overlap with other healthcare sectors. ¹Dark green boxes highlight top areas within the subsectors. Data Sources: PitchBook, company websites, internal analysis.

Healthtech Most Active Investors¹ in New Financings

1H 2023, US and Europe



First Financing ²		All Deals			
All Investors		VC	Growth ³	Corporate	
5	 High-Tech Gründerfonds	7	GENERAL  CATALYST	NO GROWTH INVESTORS WITH >1 NEW INVESTMENT	
4	GENERAL  CATALYST	5	 High-Tech Gründerfonds	7	
4	PLUGANDPLAY	5	 Alumni Ventures	4	 inflect health
3	8VC	5	octopusventures	4	 CVS Health. Ventures
3	andreessen.horowitz	5	8VC	3	 KOCH. DISRUPTIVE TECHNOLOGIES
3	 inflect health	4	andreessen.horowitz	3	UPMC Enterprises
3	VILLAGE GLOBAL	4	VILLAGE GLOBAL	3	 OPTUM
3	AtentoCapital	3	HEALTHX VENTURES	3	 SIMPLYHEALTH VENTURES

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. Healthtech sector analysis contains companies that overlap with other healthcare sectors. ¹Most Active Investors only include first investment into a portfolio company, not follow-on financings. ²First financing defined as initial Seed or Series A financing of \$2M+. ³Growth Investors defined as investment firms that typically invest in later-stage companies that either are revenue scaling or the round is anticipated to be the last before an IPO. ⁴ Some categories had ties for number of deals, and list was curtailed due to space. Note that families of funds are combined for this slide, as are corporate and corporate venture with the same parent. Data Sources: PitchBook, company websites, internal analysis.

Healthtech VC Investment (All Deals)

1H 2023, US and Europe



Largest Venture Financings, 1H 2023



Monogram Health, a provider of in-home chronic kidney disease management, represented the largest AC deal. This was followed by Strive (renal care), Author Health (mental health) and then Patient 21 and Carbon Health (both primary care). This activity pointed to companies continuing to push from fee-for-service to value-based care. While value based care and full at-risk structure were still in the early innings, we anticipate a greater shift to value-based care as more delivery models put the patient/consumer experience at the forefront

The largest PO deals focused on workforce solutions (Aledade and Shiftmed) and clinical decision support (Heartflow).

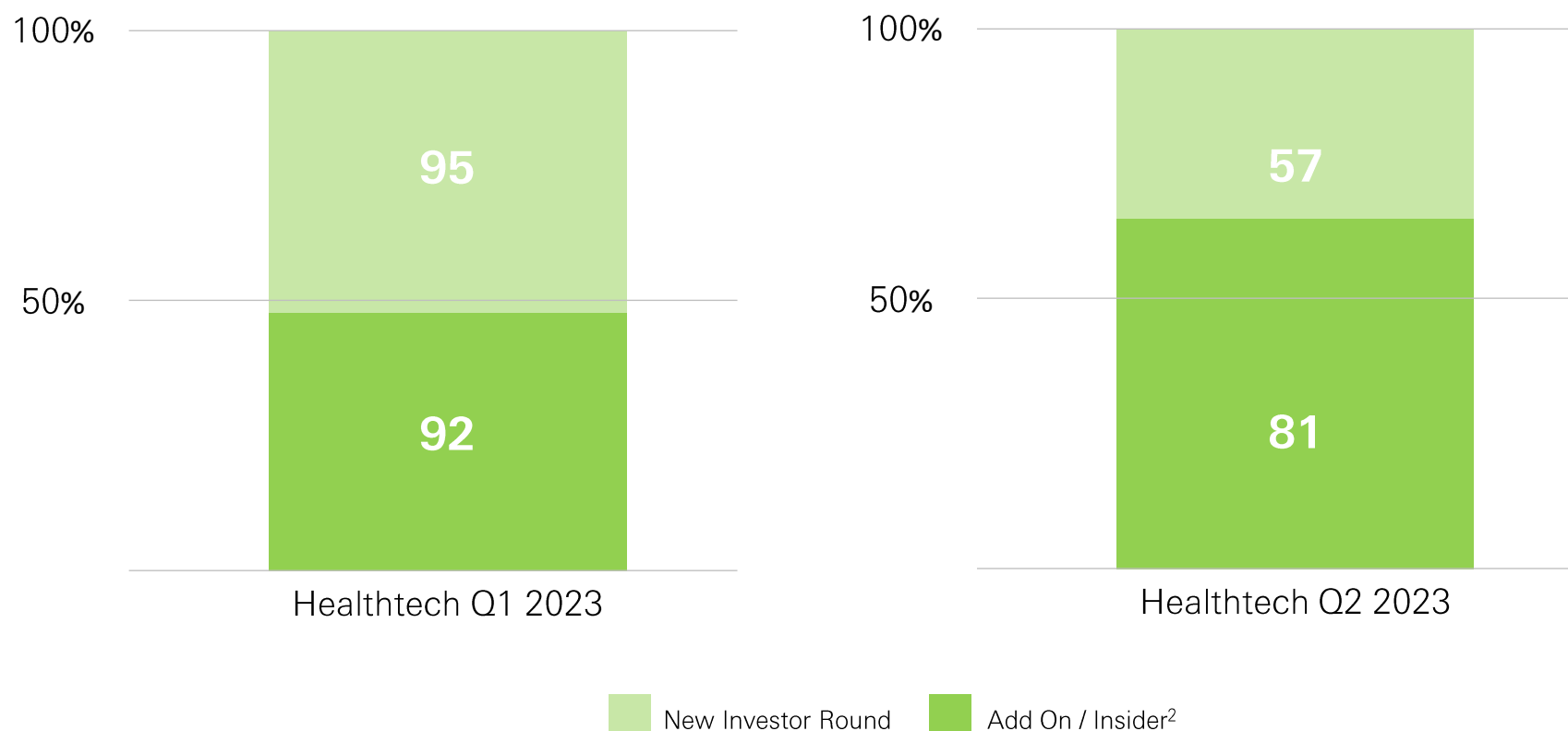
Corporates funded some of the largest 1H 2023 deals, with CVS (Monogram, Strive, Carbon) investing in three of these deals.

Healthtech New Investor Deal Analysis

1H 2023, US and Europe



Deal Breakdown by Equity Rounds (Post First Financing¹)



Later-stage activity in healthtech shifted to add-on/insider rounds² (“insider rounds”) in 2022 as a result of a mismatch between heady valuations and a return to the specific performance-based metrics that naturally occur in a downturn. The push for more time to hit valuation creation events (or enable a new investor to lead a round at any valuation) continued in Q1 2023, and grew in Q2 to 59% insider rounds, the highest percentage of insider rounds among the four healthcare sectors in 1H 2023.

We believe there are even more insider rounds that have yet to be announced, as this is a natural part of a down cycle. However, new investor rounds will see at least a small upswing later in 2H 2023. Insider deals completed in 2022 will need to largely capitulate to the current valuation environment in order to find new investors.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. Healthtech sector analysis contains companies that overlap with other healthcare sectors. ¹Post First Financing defined as the round following the first equity financing of \$2M+. ²Add On/Insider rounds defined as equity deals smaller than the prior round led new investors (“add-on”), or equity/convertible financings where only insiders participate. Data Sources: PitchBook, company websites, internal analysis.

Healthtech Step-Up Analysis¹

1H 2023, US and Europe



Overall Step-Up Activity in New Investor Led Healthtech Deals

Rounds Covered ²	New Investor Led Deals	Median Deal Size	Median Step-Ups	# of Down Rounds	Biggest Step-Ups by Round
Seed to A	18	\$14M	2.5x	-	 SEVARO  
A to B	20	\$20M	1.7x	2	  
B to C	6	\$37M	1.6x	-	  
Post Series C	6	\$73M	1.0x	1	 

For this analysis, we reviewed new investor-led deals³ with a financing equal to or greater than the last round. 50/153 (33%) had valuation info available to calculate 1H 2023 step-ups for this slide. These deals represented the top of the spectrum regarding new financings in 2023. “Flat is the new up” was likely a fair overall assessment of venture healthcare in this market.

The bright spot in Healthtech continued to be Seed-A deals, with a very strong 2.5x median over 18 deals, slightly down from 2022’s median. There were seven deals with step-ups over 3x. The largest was Sevaro, a provider ops company focused on clinical decision support, at 10x. Three of the next four were alternative care, focused on specialty care.

For later-stage (post series C), investors are pushing back on valuation, with four of six deals flat or at down rounds.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. Healthtech sector analysis contains companies that overlap with other healthcare sectors. ¹Step-Ups calculated using Pitchbook valuation data for previous and new 1H 2023 financing. Calculated as follows: Divide new 1H 2023 Pre-money Valuation by previous round post-money valuation. ²Rounds classified based on best efforts after review of PitchBook data. ³Deals refer to companies that had a new investor in its 1H 2023 financing, the financing was equal to or greater than the last round and had valuation information available for the new and last financing. Data Sources: PitchBook, company websites, internal analysis.

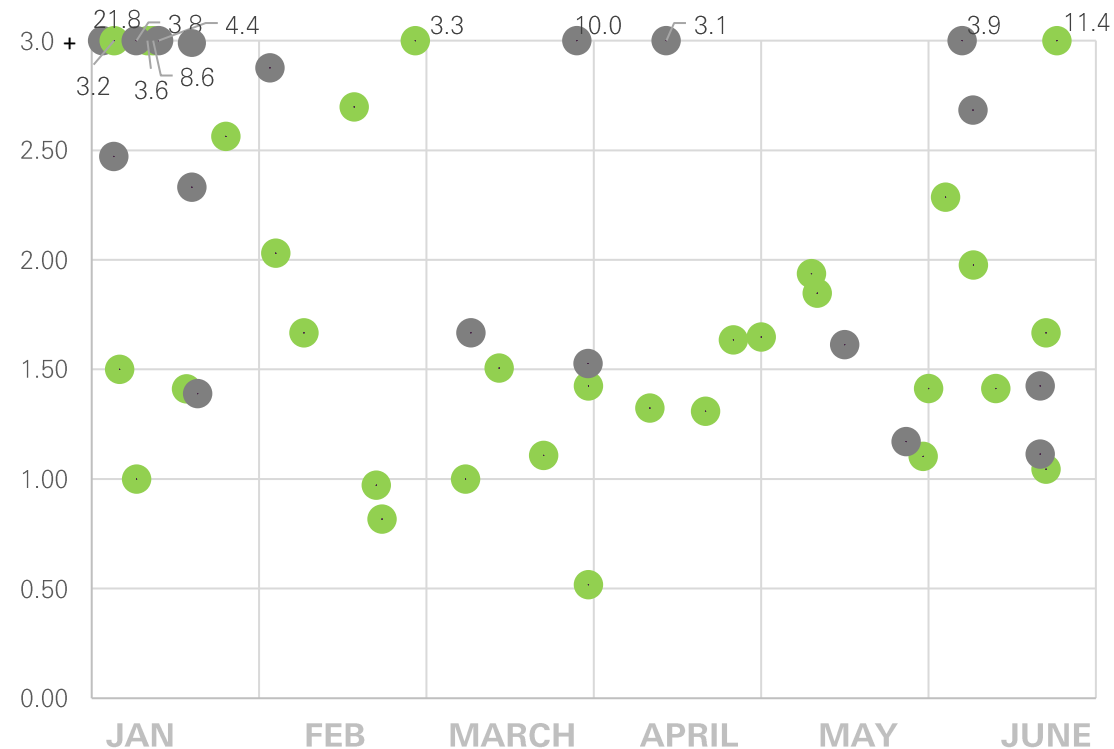
Healthtech New Investor Deal Analysis

1H 2023, US and Europe



Step-Ups¹ in New Investor Rounds

- Seed to Series A step-ups
- Series B and later step-ups



This is the scatterplot from the previous slide. In Q1, eight deals² (six of which were Seed to Series A) secured large 3x+ step-ups.

Time-based analysis showed a drop in the overall number of companies in Q2 (i.e. less new rounds with valuation information to complete the analysis), which matched the upswing in insider rounds we noted. However, the step-ups that did close in Q2 were strong. 13/22 deals in Q2 had a step-up of 1.5x or greater, led mostly by Seed to A and Series A to B step-ups.

Looking forward:

Step-ups continue to temper as companies run short of capital and raise at new valuations reflective of the current environment.

Valuations feel too high in this sector, regardless of if you are running out of cash or have three years of cash on hand. Either way, companies will need to preserve runway while at the same time grow into their valuations.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. Healthtech sector analysis contains companies that overlap with other healthcare sectors. ¹Step-Ups calculated using Pitchbook valuation data for previous and new 1H 2023 financing. Calculated as follows: Divide new 1H 2023 Pre-money Valuation by previous round post-money valuation. ²Deals refer to companies that had a new investor in its 1H 2023 financing, the financing was equal to or greater than the last round and had valuation information available for the new and last financing. Data Sources: PitchBook, company websites, internal analysis.

Healthtech Largest Post-Money Values¹ (All Deals)

1H 2023, US and Europe



Largest Post-Money Valuations by Healthtech Subsector

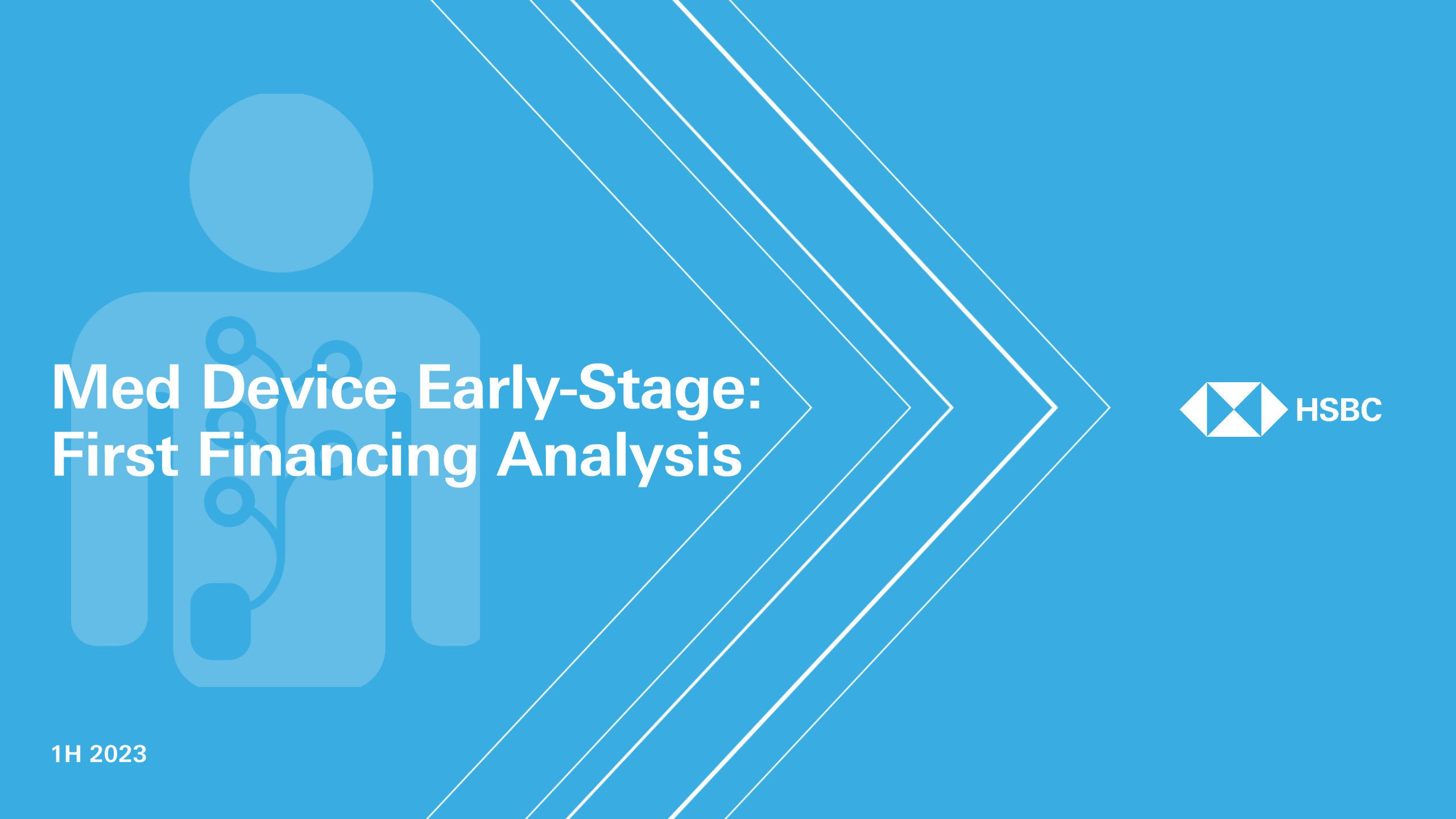
Indication	Company	Date	Deal Size (\$M)	Round	Post \$ (\$M)	Focus	Lead Investor(s)
Provider Ops	 Aledade	6/21/23	\$260	F	\$3,500	Workflow	Venture
Alternative Care	 spring health	4/12/23	\$64	C	\$2,500	Mental Health	Undisclosed
Alternative Care	 Carbon Health	1/10/23	\$100	D2	\$1,400	Primary Care	Corporate
Provider Ops	 Paige	3/16/23	\$20	C1	\$650	Clinical Decision Support	Undisclosed
Clinical Trial	 RingTx	3/09/23	\$87	C	\$602	Discovery Platform	Corporate
Provider Ops	 APPRENTICE	3/09/23	\$65	C1	\$590	Workflow	Growth
Provider Ops	 dexcare	6/21/23	\$75	C	\$425	Workflow	Growth
Clinical Trial	 Paradigm	1/27/23	\$203	A	\$365	Workflow	Venture

The largest post-money valuations in 1H 2023 have come down significantly compared to 2022. The median post-money valuation in the eight largest financings for 2022 was 8x greater than the eight largest valuations in 1H 2023.

The three \$1B+ valued companies in this chart all kept or added value from their previous equity round, even in this tougher financing environment. Aledade and Spring Health each had slight step-ups and Carbon Health's value stayed flat.

Growth and corporate investors remain involved in large, high valuation investments. However, no growth investor closed more than one new deal in 1H 2023.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. Healthtech sector analysis contains companies that overlap with other healthcare sectors. ¹Valuation data, including post-money values, from PitchBook. Data Sources: PitchBook, company websites, internal analysis.



Med Device Early-Stage: First Financing Analysis



1H 2023

Med Device First Financing¹ Analysis

1H 2023, US and Europe



Early-Stage Investment and Deal Activity (\$s/Deals)

	JAN	FEB	MARCH
Q1 2023	US: \$67M 6 Europe: \$14M 6	US: \$55M 10 Europe: \$14M 6	US: \$27M 5 Europe: \$80M 5
	\$82M 12 Deals	\$69M 16 Deals	\$107M 10 Deals
	Q1 Activity \$258M 38 Deals		
	APRIL	MAY	JUNE
Q2 2023	US: \$31M 3 Europe: \$18M 6	US: \$52M 7 Europe: \$35M 7	US: \$56M 8 Europe: \$30M 3
	\$49M 9 Deals	\$87M 14 Deals	\$86M 11 Deals
	Q2 Activity \$222M 34 Deals		
1H 2023 Total Activity \$479M 72 Deals			

1H \$ Activity

(Annualized 2023 Investment vs Previous Years²)

2022  5%

2021  20%

2020  5%

2019  20%

1H 2023 investment (annualized) was on track to surpass 2022. First financings in device have been remarkably consistently over the last three years. However, the investor landscape was very stratified, with very few VCs funding more than one first financing deal in 1H 2023.

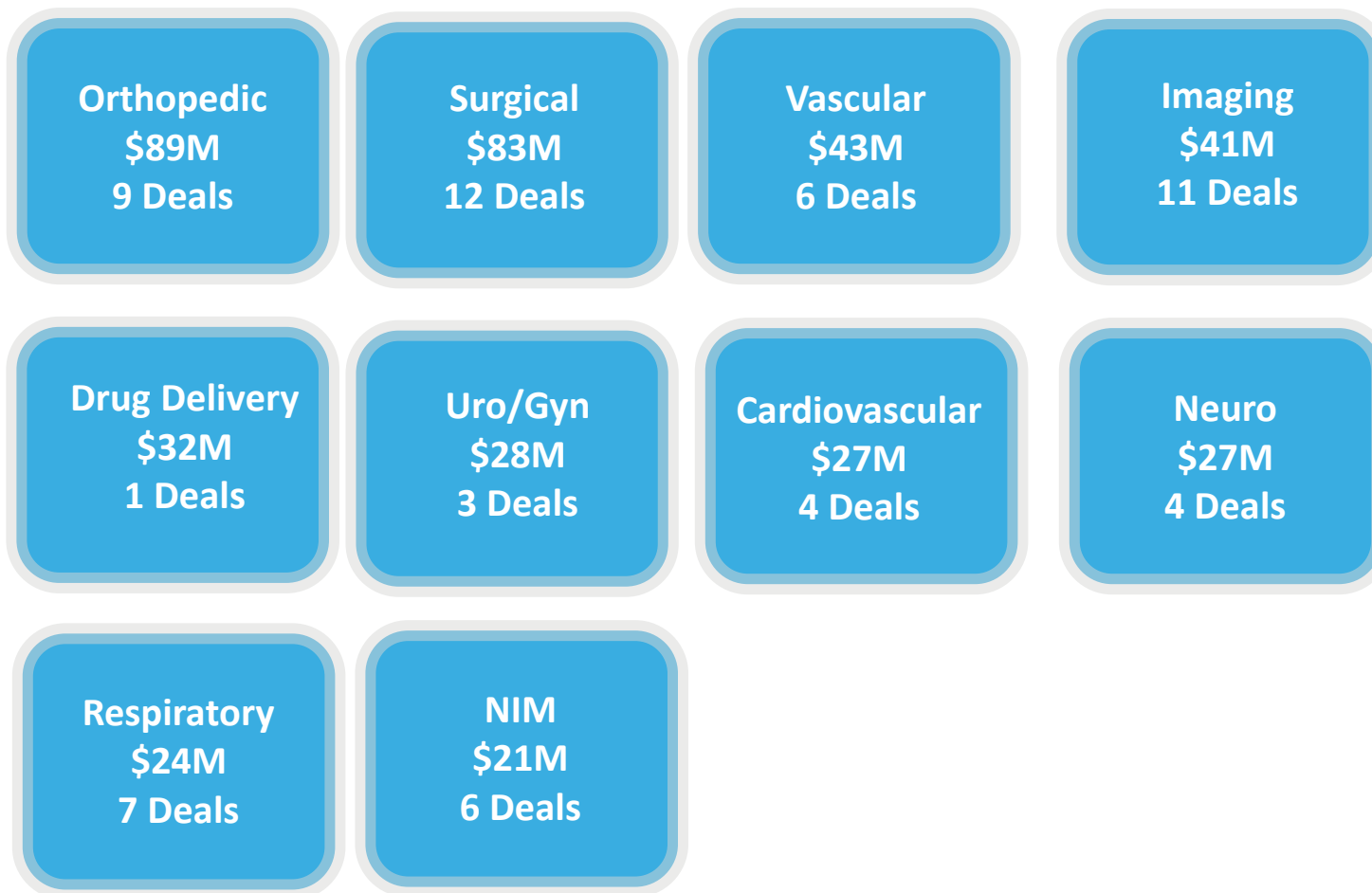
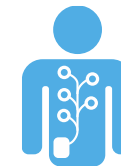
There were seven first financings of \$20M+ in 1H 2023 in seven different indications. The two largest deals were Companion Spine³, focused on orthopedic implants, and Theradaptive, developing a proprietary coating for drug delivery.

We saw more corporate investment in 1H 2023 than in previous years, although no corporate did more than one first financing deal. We anticipate more VC/corporate “build to buy” collaborations going forward, which tend to be more common in down-cycles.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+. ²Using specific PitchBook search functions to approximate sector specific funding. ³This deal was announced in 2022 but closed in 2023 per PitchBook. Data Sources: PitchBook, company websites, internal analysis.

Med Device First Financing¹ by Indication:

1H 2023, US and Europe



Orthopedic deal activity was up, with dollars already exceeding 2022 full year investment. This may be the byproduct of increased M&A activity for “toolbox” add-ons. Since 2021, there were seven orthopedic M&A over \$50M up-front, five of which were 510(k)² cleared.

We also saw increased first financings in vascular (split between mechanical-only/ablation technologies) and imaging.

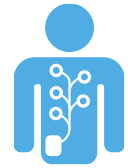
Cardiovascular and neuro continued their downward trend in first financings, as investors remain very choosy about early-stage PMA³ interest. The challenge here: many PMA Series A deals seem to lack new investor interest until the company gets to its pivotal trial.

Non-invasive monitoring (NIM) also continued its 2-year decline in first financings. This was likely a result of formidable competition from the large number of later-stage NIM companies with large stockpiles of cash, albeit at heady valuations.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+. ²510(k) is medical device clearance to commercialize that typically does not include clinical trials. ³Pre Market Approval (PMA) is a commercialization approval path that typically requires human clinical trial data. Data Sources: PitchBook, company websites, internal analysis.

Med Device First Financing¹ Pre-Money Analysis:

1H 2023, US and Europe



First Financing Median Pre-Money Valuations

First Financing Deal Size	Median Pre-Money Valuations ²
\$1-10M n=20	\$11M
\$11-25M n=3	N/A
\$26M+ n=4	N/A

Over the past three years, med device first financing valuations were slightly lower (read less frothy) than other healthcare sectors. We think this may mean less significant/painful valuation re-sets (re-caps/consolidation) for next round financings in 2H 2023-2024.

In 1H 2023 the median pre-money valuation for all first financings was \$12M, 20% lower than 2022 but ahead of 2020-2021. This median pre-money valuation mirrored dx/tools and healthtech first financing medians, with biopharma (\$19M) the only exception.

The top three pre-money valuations were Theradaptive (drug delivery), Sealonix (surgical sealant) and GT Metabolic (gastric bypass).

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+.

²Valuation information, including pre-money valuations, based on PitchBook data. Data Sources: PitchBook, company websites, internal analysis.



Med Device Investment: All Venture Deals



1H 2023

Med Device VC Investment (All Deals)

1H 2023, US and Europe



Investment and Deal Activity (\$s/Deals)

	JAN	FEB	MARCH
Q1 2023	US: \$527M 33 Europe: \$130M 15	US: \$351M 32 Europe: \$82M 13	US: \$294M 32 Europe: \$157M 11
	\$658M 48 Deals	\$433M 45 Deals	\$452M 43 Deals
	Q1 Activity \$1.5B 136 Deals		
	APRIL	MAY	JUNE
Q2 2023	US: \$829M 39 Europe: \$71M 14	US: \$283M 29 Europe: \$153M 11	US: \$572M 35 Europe: \$193M 12
	\$900M 53 Deals	\$436M 40 Deals	\$765M 47 Deals
	Q2 Activity \$2.1B 140 Deals		
1H 2023 Total Activity \$3.6B 276 Deals			

1H \$ Activity

(Annualized 2023 Investment vs Previous Years¹)

2022  15%

2021  20%

2020  10%

2019  50%

1H 2023 Investment (annualized) was slightly down, off 20% from 2021-2022 while deal numbers remained stable. The main reason for the investment decrease was the absence of \$100M+ investments by growth/hedge players. There were 10+ \$100M+ deals in 2021-22, but in 1H 2023 there were just three.

Another reason for the decline: Smaller dd-on/insider rounds² represented 50% of all later-stage financings in Q1 2023 (versus new investor led deals). Q2 rebounded with more new investor led deals (57% of all post first financing activity) but was still behind the norm of 70% new lead investor deals.

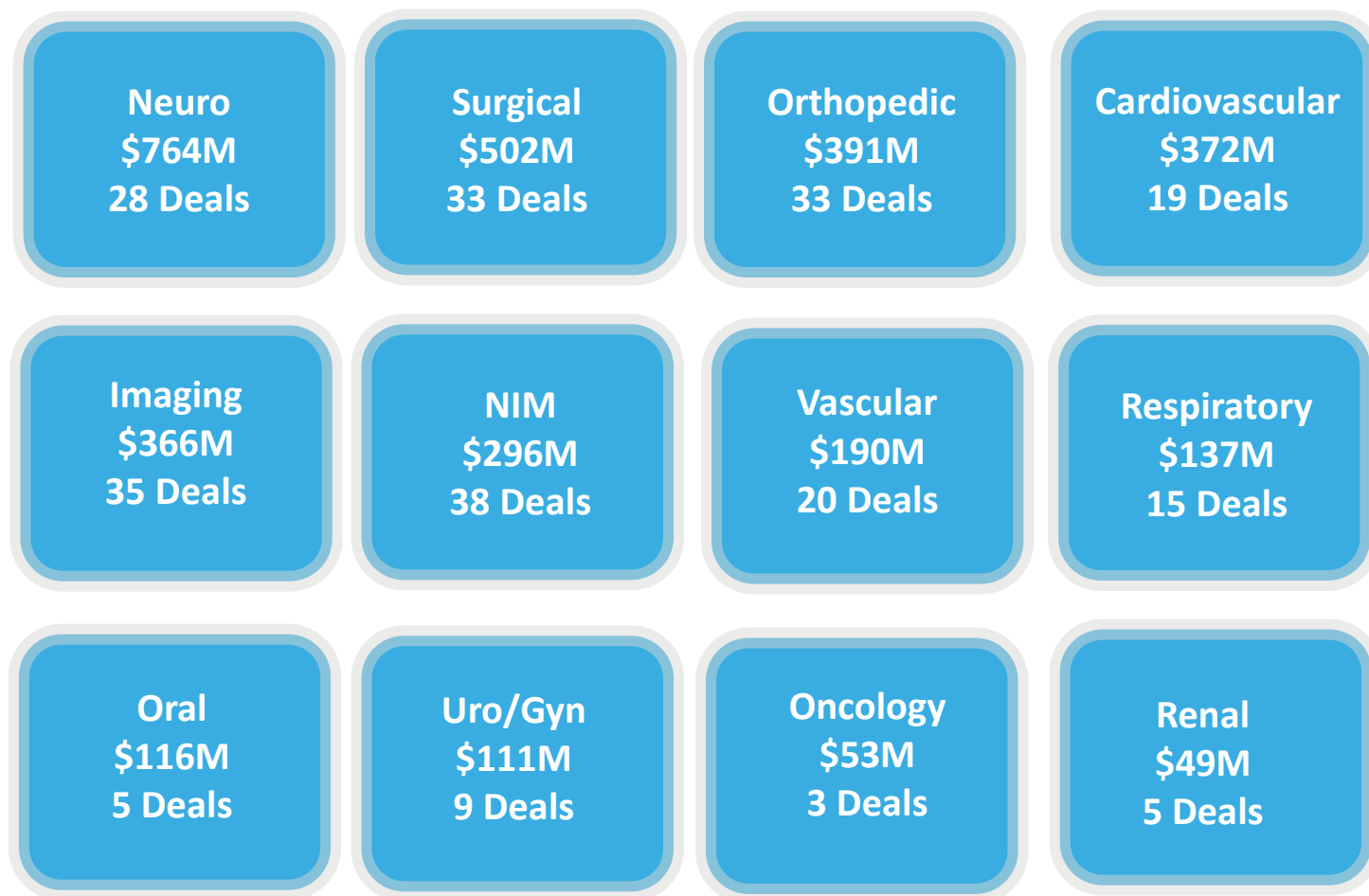
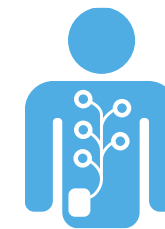
We saw strong pivotal trial funding in 1H 2023, but earlier clinical stage deals (typically series A to B) continued to be difficult to land new investors.

Secondary became more prevalent, as investors looked for additional access to capital to support portfolio stars.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Using specific PitchBook search functions to approximate sector specific funding. ²Add On/Insider rounds defined as equity deals smaller than the prior round led new investors ("add-on"), or equity/convertible financings where only insiders participate. Data Sources: PitchBook, company websites, internal analysis.

Med Device VC Investment by Indication (All Deals)

1H 2023, US and Europe



Neuro deals, mostly related to neurostim technology, were on pace for record investment, already surpassing 2022 investment dollars. Four of the six largest neuro fundraises went to support pivotal clinical trials.

We also noted more investment in orthopedics (mostly implants and robotic surgery), often in Series B rounds (5 of the largest 8 financings). The majority of those deals were commercialization rounds. Imaging investment also bounced back from an anemic 2022.

Non Invasive Monitoring (“NIM”), missing the \$100M, \$1B post-money financings from 2020-22, still led med device deal volume.

Cardiovascular investment remained strong, though most were Series C and later. The five largest deals secured funding for pivotal trials, with the top three in heart failure (Alleviant, Corwave and BioVentrix).

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. Data Sources: PitchBook, company websites, internal analysis.

Med Device Most Active Investors¹ in New Financings

1H 2023, US and Europe



First Financing²

All Investors

3	
2	
2	
2	
2	
2	
2	
2 ⁴	

All Deals

VC

4	
3	
2	
2	
2	
2	
2	
2 ⁴	

Growth³

2	
2	

Corporate

3	
---	---

**NO OTHER CORPORATES
WITH >1 NEW INVESTMENT**

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Most Active Investors only include first investment into a portfolio company, not follow-on financings. ²First financing defined as initial Seed or Series A financing of \$2M+. ³Growth Investors defined as investment firms that typically invest in later-stage companies that either are revenue scaling or the round is anticipated to be the last before an IPO. ⁴ Some categories had ties for number of deals, and list was curtailed due to space. Note that families of funds are combined for this slide, as are corporate and corporate venture with the same parent. Data Sources: PitchBook, company websites, internal analysis.

Med Device Largest Deals (All Deals)

1H 2023, US and Europe



Largest Med Device Venture Deals



\$100M+ commercialization rounds dominated 2022 (19 deals), mostly led by growth/hedge fund investors. In 1H 2023 there were just three \$100M+ rounds. Two of the three, Distalmotion and Setpoint, raised funds for pivotal clinical trials.

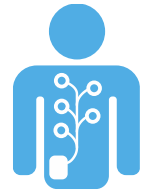
Funding pivotal clinical trials was a welcome trend. Six of the nine largest financings were for late-stage trials. Historically, it has been hard to find new investors to fund these deals, so it was great to see more activity led or co-led by traditional VC. Later-stage growth investors were active in big deals, with new investment from Viking, Wellington, Ally Bridge, CPMG, Deerfield, Evidity, and Cormorant. However, none of these investors completed more than one new med device deal in 1H 2023.

Looking Forward:

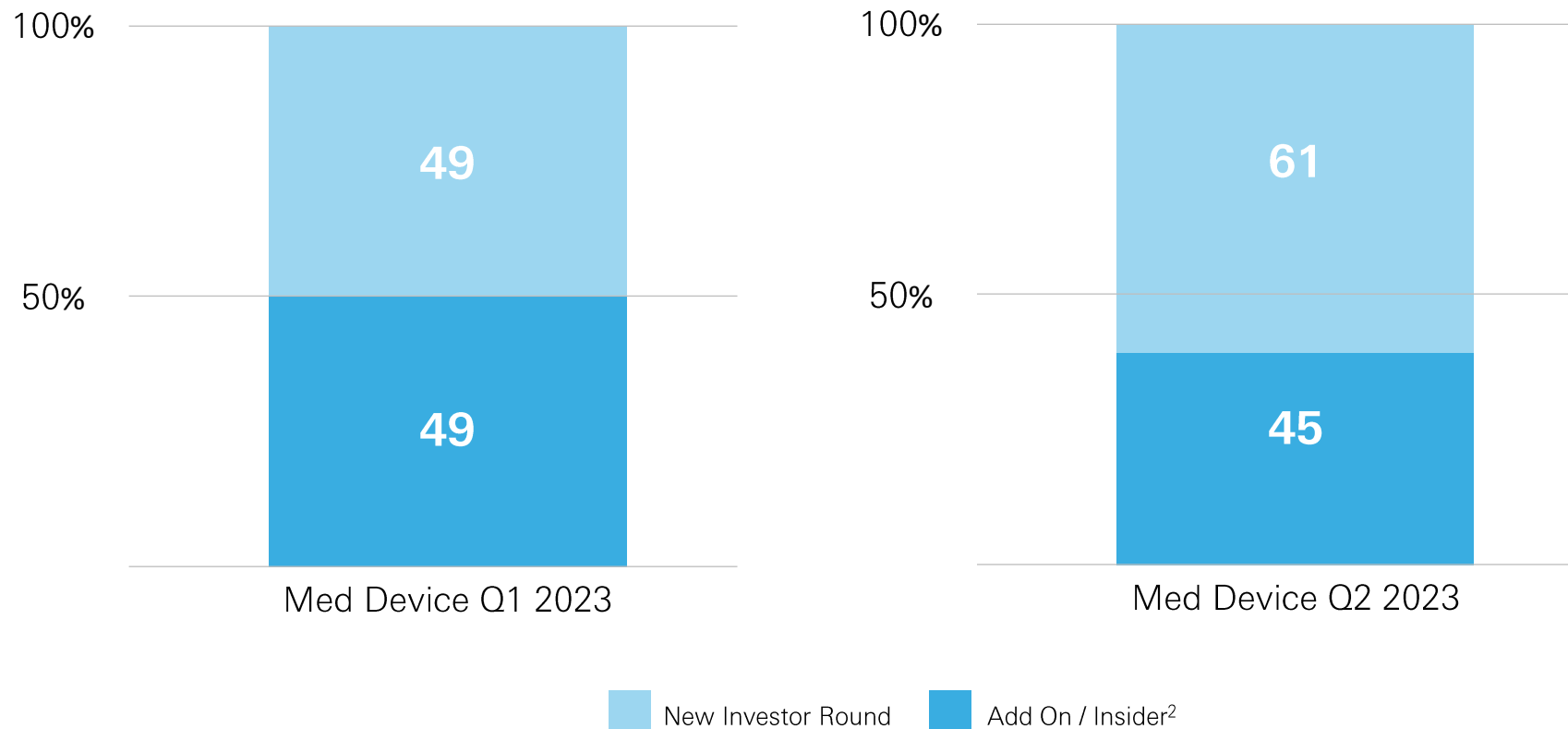
Later-stage funding of pivotal trial companies continues (with some new investor push-back on valuations) as newly raised venture funds increase deal pace. These deals, plus commercial stage financings from 2022, set the stage for a strong crop of later-stage companies to pursue M&A (or IPO for commercial \$50M+ revenue deals) in 2024.

Med Device New Investor Deal Analysis

1H 2023, US and Europe



Deal Breakdown by Equity Rounds (Post First Financing¹)



In 2022, there was a surge in add-on/insider rounds² ("insider rounds") as companies contended with mismatched next round valuations. This continued in Q1 2023, but in Q2, it appeared investors returned to funding more new investments.

Vascular, imaging and orthopedics led insider round activity in 1H 2023. These deals are mostly 510(k) focused, and the insider activity may be related to extending runway (and building revenue ramp) while waiting out the general M&A slowdown we saw in 2022 – 1H 2023.

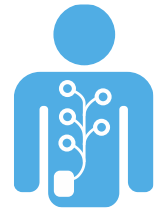
Looking Forward:

Insider rounds slow in 2H 2023 as companies either raise a new investor round or explore strategic options. Secondary interest (selling investor positions) will continue to increase in med device, especially in commercial stage assets.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Post First Financing defined as the round following the first equity financing of \$2M+. ²Add-on/Insider rounds defined as a combination of smaller, new investor led deals ("add-on") and financings where only insiders participate. Data Sources: PitchBook, company websites, internal analysis.

Med Device Step-Up¹ Analysis

1H 2023, US and Europe



Overall Step-Up Activity in New Investor Led Med Device Deals

Rounds Covered ²	New Investor Lead Deals	Median Deal Size	Median Step-Ups	# of Down Rounds	Biggest Step-Ups by Round
Seed to A	5	\$16M	1.8x	-	INVICTA MEDICAL  
A to B	17	\$20M	1.3x	5	  
B to C	6	\$45M	1.3x	-	  
Post Series C	8	\$38M	1.1x	4	  

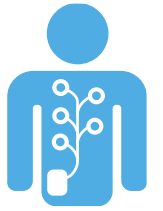
For this analysis, we reviewed new investor-led deals³ with a financing equal to or greater than the last round. 36/110 deals (33%) had valuation info available to calculate 1H 2023 step-ups for this slide. This dataset represented the top of the spectrum regarding new financings in 2023, and “flat is the new up” was likely a fair overall assessment of venture healthcare in this market.

Series A to B median step-ups had the biggest decrease versus 2022, off 25%. Four of eight Post Series C deals in this dataset were below 1x, with a median step-up decrease of 25% versus last year.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Step-Up(s) calculated using Pitchbook valuation data for previous and new 1H 2023 financings. Step-ups calculated as follows: Divide new 1H 2023 pre-money valuation by previous round post-money valuation. ²Rounds classified based on best efforts after review of PitchBook data. ³Deals refer to companies that had a new investor in its 1H 2023 financing, the financing was equal to or greater than the last round and had valuation information available for the new and last financing. Data Sources: PitchBook, company websites, internal analysis.

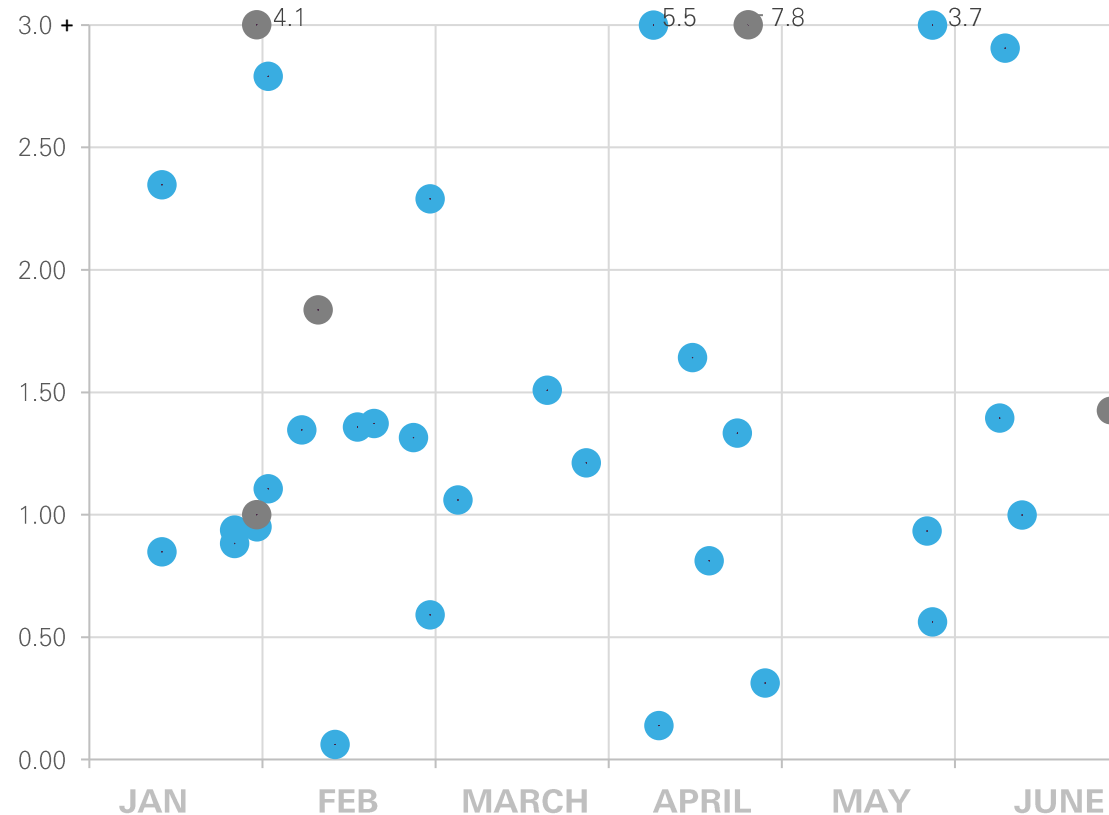
Med Device New Investor Deal Analysis

1H 2023, US and Europe



Step-Ups¹ in New Investor Rounds

- Seed to Series A step-ups
- Series B and later step-ups



This is a scatterplot from the previous slide. There were eight deals² above 2.0x in 1H 2023, equally distributed between Q1 and Q2. Down rounds were split evenly by quarter as well.

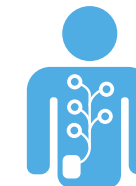
In Series B financings, the two brain/computer interface deals approached the top end of med device step-ups (Paradromics at 5.5x and Precision Neuroscience at 2.8x). The three imaging deals also scored strong step-ups (Alume at 2.4x, View Point at 2.3x and SentiAR at 1.6x).

Of the eleven step-downs in 1H 2023, three were later-stage neuro deals. Four of the step-downs were series B deals. The silver lining to these down rounds being that at the very least there was new investor interest to support those companies with fresh capital, albeit at a revised valuation.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Step-Ups calculated using Pitchbook valuation data for previous and new 1H 2023 financings. Step-ups calculated as follows: Divide new 1H 2023 pre-money valuation by previous round post-money valuation. ² Deals refer to companies that had a new investor in its 1H 2023 financing, the financing was equal to or greater than the last round and had valuation information available for the new and last financing. Data Sources: PitchBook, company websites, internal analysis.

Med Device Largest Post-Money¹ Values (All Deals)

1H 2023, US and Europe



Indication	Company	Date	Deal Size (M)	Round	Post \$ (M)	Stage	Lead Investor(s)
Neuro	 Paradromics	4/04/23	\$33	A3	\$408	Development Stage	Venture
Oral	LIGHTFORCE	6/16/23	\$83	D	\$400	Commercial	Venture + Growth
Neuro	 relievant	4/14/23	\$50	G	\$350	Commercial	Growth
Orthopedic	 AgNovos™ BIOSCIENCE	6/09/23	\$31	B	\$331	Pivotal Trial	Undisclosed
Orthopedic	 Vertos MEDICAL	6/06/23	\$45	C	\$295	Commercial	Venture + Growth
Cardiovascular	 conformal™ THE SHAPE OF STROKE PREVENTION	6/05/23	\$35	D	\$275	Pivotal Trial	Growth
Surgical	TISSIUM	5/23/23	\$55	D	\$264	Clinical Trial	Growth
Neuro	 SETPOINT® MEDICAL	1/19/23	\$145	C	\$260	Pivotal Trial	Venture

Most of the largest post-money deals funded early and pivotal clinical trials, different than the commercial focus of top valuations in 2022.

Another change: four of the top eight valuations had traditional VCs lead or co-lead the syndicate. This was a strong indication that VCs have returned to funding new deals. Also intriguing, most of the VC led deals were step-ups in valuation.

However, overall private valuations have come down. The median valuation of the largest post money deals in 1H 2023 were only 1/2 the size of top eight valued deals in 2021-22. However, even at these lower valuations, deal values still look high compared to historic private M&A transactions.

1H 2023 top valuations were missing large post-money NIM deals, which typically took the top spots in 2021-2022.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Valuation data from PitchBook, including post-money values. Data Sources: PitchBook, company websites, internal analysis.



Dx/Tools Early-Stage: First Financing Analysis



1H 2023

Dx/Tools First Financing¹ Analysis

1H 2023, US and Europe

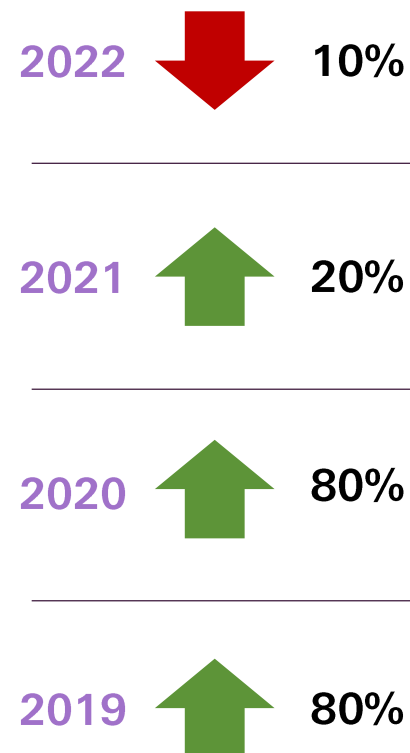


Early-Stage Investment and Deal Activity (\$s/Deals)

	JAN	FEB	MARCH
Q1 2023	US: \$117M 9 Europe: \$12M 4 \$129M 13 Deals	US: \$35M 7 Europe: \$14M 3 \$49M 10 Deals	US: \$228M 14 Europe: \$44M 5 \$273M 19 Deals
Q1 Activity \$450M 42 Deals			
	APRIL	MAY	JUNE
Q2 2023	US: \$99M 10 Europe: \$12M 4 \$111M 14 Deals	US: \$50M 11 Europe: \$85M 13 \$135M 24 Deals	US: \$33M 8 Europe: \$13M 4 \$46M 12 Deals
Q2 Activity \$292M 50 Deals			
1H 2023 Total Activity \$742M 92 Deals			

1H \$ Activity

(Annualized 2023 Investment vs Previous Years²)



1H 2023 first financing investment (annualized) was off slightly from 2022, but up significantly versus 2019-2021

First quarter investment was the second strongest quarter in the last three years. Bigger deals were led by dx analytics companies, with three of the four largest first financing deals in 1H 2023.

Despite later-stage valuation woes, first financing pre-money valuations remained strong. Four of the top seven deals (with valuation info available) yielded a median pre-money valuation of \$37M on a \$29M raise. Three of these four deals were dx analytics companies Delve Bio, OnvoVerity, and InnerPlant, while the other was dx test company Renegade.bio.

European first financings were led by R&D Tools, capturing the top four investment spots (NewBiologix, Cocoon Bioscience, Mbiomics and Reshape Biotech). High-Tech Grunderfonds led European activity with three new deals.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+. ²Using specific PitchBook search functions to approximate sector specific funding. Data Sources: PitchBook, company websites, internal analysis.

Dx/Tools First Financing¹ by Subsector

1H 2023, US and Europe



R&D Tools
\$358M
51 Deals

Dx Analytics
\$243M
20 Deals

Dx Test
\$142M
21 Deals

R&D Tools first financing staged a comeback, approaching 2022 full year investment (72%) and deal pace (86%) at midyear. The top two R&D Tools deals, VintaBio and NewBiologix, focused on gene therapy production and manufacturing. Other gene therapy first financings in 1H 2023 included Vector Biomed and Vecprobio (both gene manufacturing) and Nanite (gene delivery).

Dx analytics, defined as SAAS²-based companies that help clinicians determine a course of treatment, yielded bigger deals but lower deal volume.

Dx test investment (annualized) was down 50% compared to 2022. While oncology (liquid biopsy) continued to be the dominant indication for dx test activity, different subsectors logged the top three financings in 1H 2023: C2N Diagnostics (neuro), Renegade.bio (anti-infective) and Hakaiwei Life Sciences (uro/gyn).

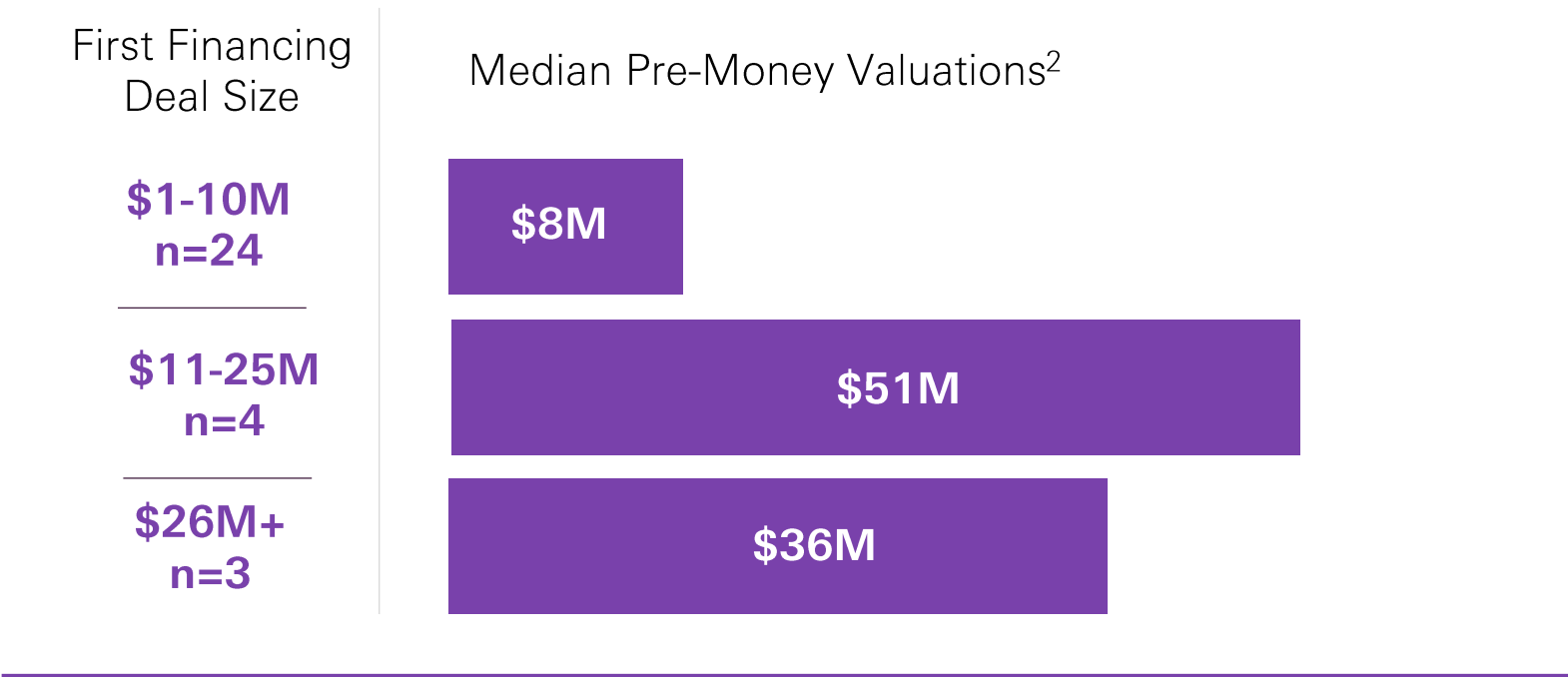
Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+. ² SAAS defined as software as a service. Data Sources: PitchBook, company websites, internal analysis.

Dx/Tools First Financing¹ Pre-Money Analysis:

1H 2023, US and Europe



First Financing Median Pre-Money Values



First financing median valuations increased slightly from 2020 to 2022, and remained steady in 1H 2023. The median deal size was \$5M on a median pre-money median valuation of \$12M.

The breakdown in the chart provides a better sense of valuation based on size of the first financing.

While round sizes typically factor into pre-money valuation calculations, two of the three top pre-money valuations were R&D tools companies that raised smaller rounds, Xsphere Biosciences (\$70M pre-money on a \$13M round) and Shennon Biotechnologies (\$53M pre-money on a \$13M round).

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹First financing defined as initial Seed or Series A financing of \$2M+. ²Valuation information, including pre-money valuations, based on PitchBook data. Data Sources: PitchBook, company websites, internal analysis.



Dx/Tools Investment: All Venture Deals



1H 2023



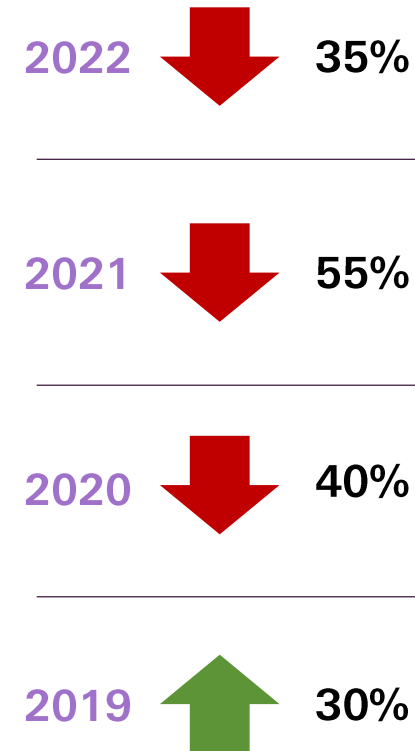
Dx/Tools VC Investment (All Deals)

1H 2023, US and Europe

Investment and Deal Activity (\$s/Deals)

	JAN	FEB	MARCH
Q1 2023	US: \$608M 25 Europe: \$116M 11	US: \$298M 19 Europe: \$72M 11	US: \$585M 40 Europe: \$116M 12
	\$724M 36 Deals	\$270M 30 Deals	\$701M 52 Deals
	Q1 Activity \$1.7B 118 Deals		
	APRIL	MAY	JUNE
Q2 2023	US: \$650M 37 Europe: \$209M 20	US: \$259M 32 Europe: \$243M 20	US: \$157M 20 Europe: \$98M 10
	\$859M 57 Deals	\$501M 52 Deals	\$256M 30 Deals
	Q2 Activity \$1.6B 139 Deals		
1H 2023 Total Activity \$3.3B 257 Deals			

1H \$ Activity (Annualized 2023 Investment vs Previous Years¹)



Overall investment continued the malaise of 2H 2022, with 1H 2023 down 50%+ versus the previous six quarters (2021 – 1H 2022). VC consensus for new investments in 1H 2023 was somewhere between extreme pickiness and “pencils down”. Recent IPOs that are performing well were still down 50% from highs, which did not help install confidence for later-stage investment.

Fewer big deals was one reason for the decline. There were only four \$100m+ rounds in 1H 2023, on pace for significantly less than half of 2022’s activity. In addition, later-stage deals at 2020-2021 valuations closed smaller insider-rounds² in the first half to buy time to hit milestones and possibly wait out the tougher market. Growth investor new deal activity slowed as well.

We also heard secondary opportunities picked up from corporate, VC and family offices that are trying to extract some value from their still private portfolios. We expect that activity will only increase in 2H 2023.

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Using specific PitchBook search functions to approximate sector specific funding. ²Add On/Insider rounds defined as equity deals smaller than the prior round led new investors (“add-on”), or equity/convertible financings where only insiders participate. Data Sources: PitchBook, company websites, internal analysis.

Dx/Tools VC Investment by Subsector (All Deals)



1H 2023, US and Europe

R&D Tools
\$1.7B/116 Deals

Dx Analytics
\$1.0B/69 Deals

Dx Test
\$682M/72 Deals

R&D Tools deal count is up but investment are sharply down, with annualized numbers off 30% from 2022 and down more than 50% from 2021. The bright spot in 1H 2023 were three \$100M+ deals. The top two (Asimov and Colossal) were Series B rounds with massive step-ups in valuation led by later-stage growth investors. The third, Ascend, raised its Series A led by growth and venture investors after a \$15M first financing in 2021.

Dx Analytics investment (annualized) is down 35% from the last two years. While most of the dx analytics deals are platform plays, two of the top five deals in 1H 2023 focused on cardiovascular (Heartflow and Viz.ai).

Dx Test investment (annualized) was down slightly from last year but off 60% from 2021. Oncology liquid biopsy deals dominated large dx test investments over the previous few years and still had the largest 1H 2023 deal (Foresight). However, anti-infective test companies led deals in 1H 2023 (18), one more than oncology.

Dx/Tools Most Active Investors¹ in New Financings

1H 2023, US and Europe



First Financing²

All Investors

3	
3	
3	
3	
3	
3	
2	
2 ⁴	

All Deals

VC

4	
4	
4	
3	
3	
3	
2	
2 ⁴	

Growth³

2	
NO OTHER GROWTH INVESTORS WITH >1 NEW INVESTMENT	

Corporate

4	
3	
2	
2	
2	
2	

Data from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Most Active Investors only include first investment into a portfolio company, not follow-on financings. ²First financing defined as initial Seed or Series A financing of \$2M+. ³Growth Investors defined as investment firms that typically invest in later-stage companies that either are revenue scaling or the round is anticipated to be the last before an IPO. ⁴ Some categories had ties for number of deals, and list was curtailed due to space. Note that families of funds are combined for this slide, as are corporate and corporate venture with the same parent. Data Sources: PitchBook, company websites, internal analysis.

Dx/Tools VC Investment (All Deals)

1H 2023, US and Europe



Largest Venture Financings, First Quarter 2023



R&D Tools and dx analytics dominated the largest financings (four each), while Foresight Diagnostics was the sole dx test deal.

There were two first financing¹ deals on this list, Artera (dx analytics, oncology) and VintaBio (R&D tool, gene therapy manufacturing)

Well-funded dx/tools deals from the past few years closed financings in 1H 2023, but many were absent from the largest deal list. Instead, they closed smaller insider rounds as they contend with discerning new investors and a constrained valuation environment. Of the 1H 2023 deals with the most capital raised to date (prior to new financing), six of the top 12 closed insider rounds², including three of the four well-funded dx analytics deals.

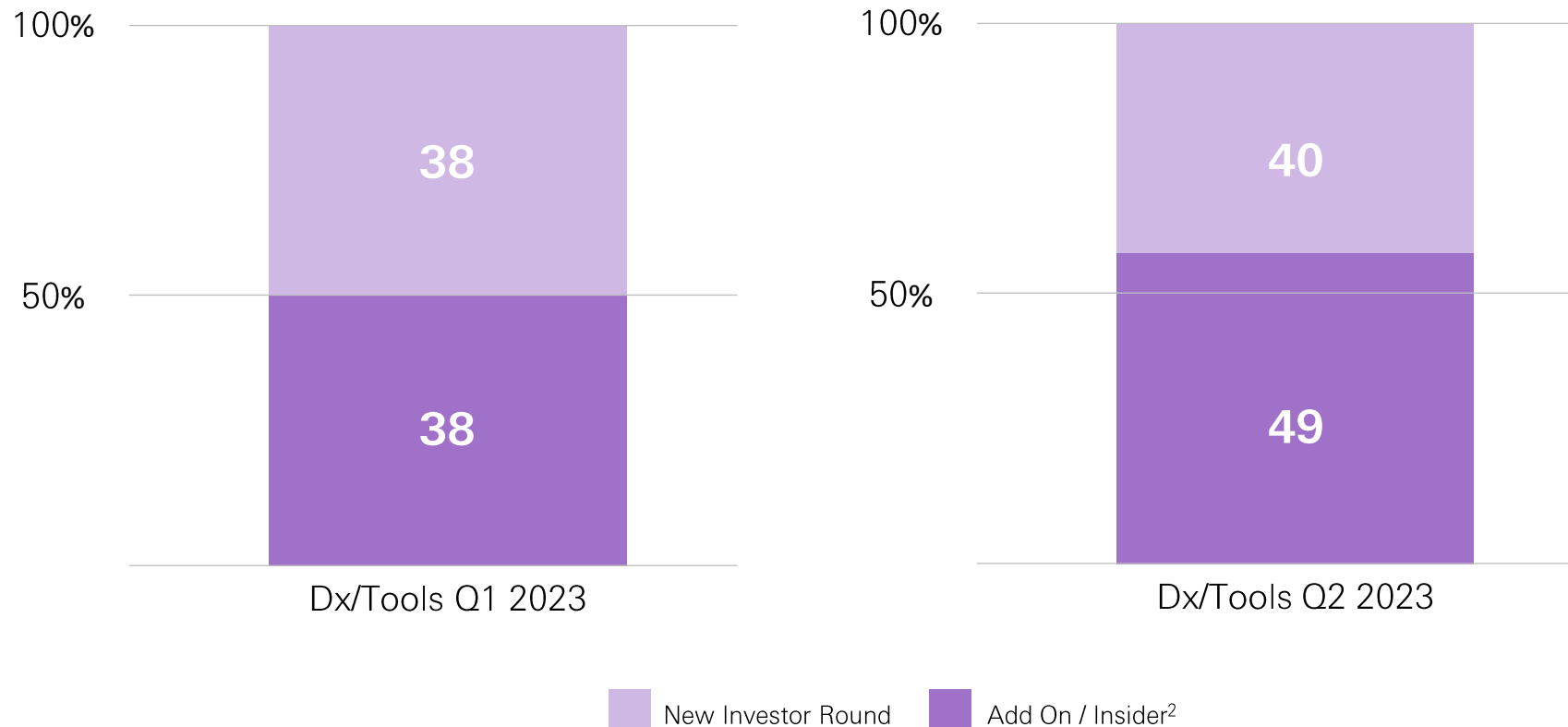
Data pulled PitchBook as of 7/1/23. Covers private, venture-backed investment. Dx/Tools sector analysis contains companies that overlap with healthtech. ¹First financing defined as initial Seed or Series A financing of \$2M+. ²Add On/Insider rounds defined as equity deals smaller than the prior round led new investors ("add-on"), or equity/convertible financings where only insiders participate. Data Sources: Data Sources: PitchBook, company websites, internal analysis.

Dx/Tools New Investor Deal Analysis

1H 2023, US and Europe



Deal Breakdown by Equity Rounds (Post First Financing¹)



Add-on/Insider rounds² (“insider rounds”) dominated 2022, as existing investors provided runway for their portfolio companies while VCs and growth investors slowed new investments. While Q1 showed equal deal activity between these two categories, Q2 reverted to more insider rounds.

The dx analytics subsector had the highest percentage of insider rounds (57%). This subsector had significant valuation hype in 2020-2021 as a diverse investor set looked for SAAS based healthcare opportunities. This drove valuations higher, making the next financing even more challenging.

Looking Forward:

In 2H 2023, we think insider rounds will decline as companies and insiders either raise a new investor round or explore strategic options like M&A or consolidation. Step-down rounds for companies that raised large rounds in 2020-2021 will be more prevalent as insider rounds are used up, forcing some companies to acquiesce to significant valuation re-sets.

Data pulled from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Post First Financing defined as the round following the first equity financing of \$2M+. ²Add On/Insider rounds defined as equity deals smaller than the prior round led new investors (“add-on”), or equity/convertible financings where only insiders participate. Data Sources: PitchBook, company websites, internal analysis.

Dx/Tools Step-Up Analysis¹

1H 2023, US and Europe



Overall Step-Up Activity in New Investor Led Dx/Tools Deals

Rounds Covered ²	New Investor Led Deals	Median Deal Size	Median Step-Ups	# of Down Rounds	Biggest Step-Ups by Round
Seed to A	8	\$17M	2.1x	-	  
A to B	12	\$18M	1.5x	2	  
B to C	2	\$17M	1.1x	-	
Post Series C	3	\$24M	1.3x	1	 

For this analysis, we reviewed new investor-led deals³ with a financing equal to or greater than the last round. 25/85 deals (29%) had valuation info available to calculate 1H 2023 step-ups for this slide. These medians represented the top of the spectrum regarding new financings in 2023, and “flat is the new up” was likely a fair overall assessment of venture healthcare in this market.

For this dataset, the median step-ups in each round were down from 2022 activity, with the biggest decline in Seed to A (down 25%) and Series B to C (down 30%).

The top three step-ups were Asimov (R&D tool, 9.6x), InnerPlant (dx analytics, 8.4x) and Colossal Labs (R&D tool 5.3x).

Data pulled from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Step-Ups calculated using Pitchbook valuation data for previous and new 1H 2023 financing. Calculated as follows: Divide new 1H 2023 Pre-money Valuation by previous round post-money valuation. ²Rounds classified based on best efforts after review of PitchBook data. ³Deals refer to companies that had a new investor in its 1H 2023 financing, the financing was equal to or greater than the last round and had valuation information available for the new and last financing. Data Sources: PitchBook, company websites, internal analysis.

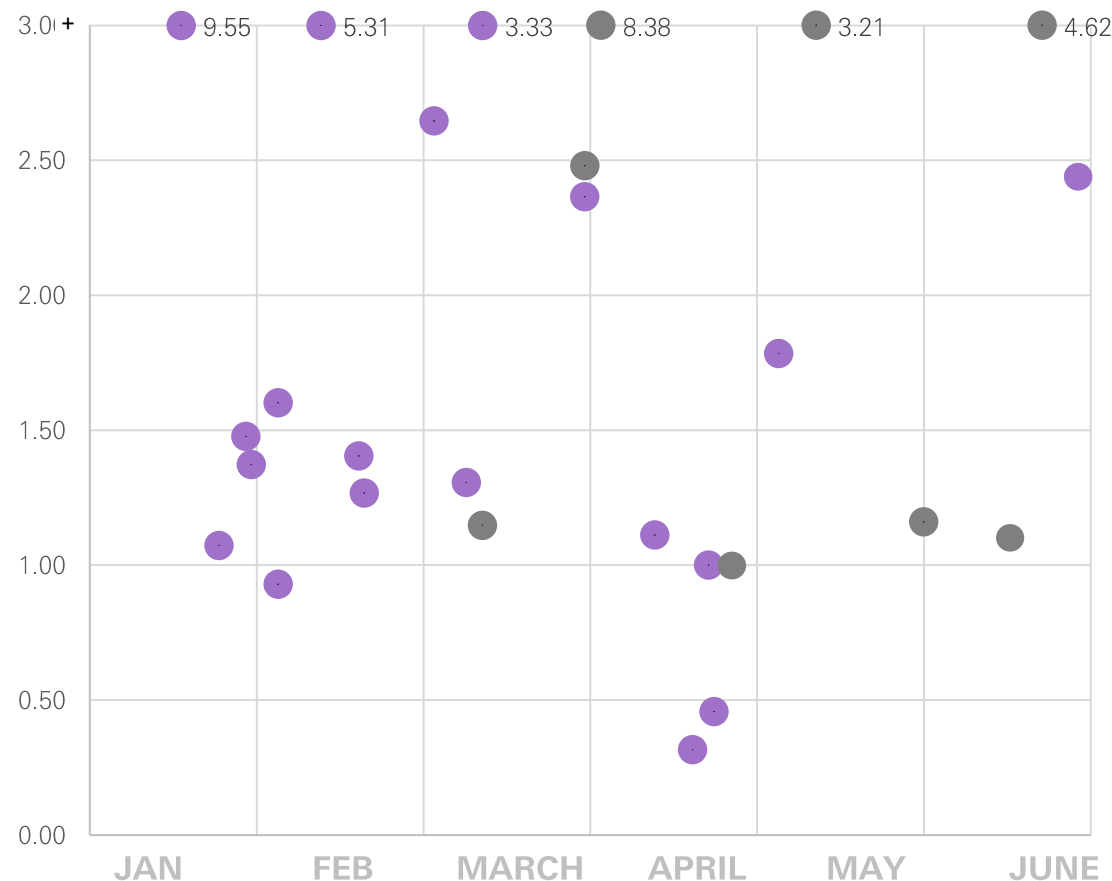
Dx/Tools New Investor Deal Analysis

1H 2023, US and Europe



Step-Ups¹ in New Investor Rounds

- Seed to Series A step-ups
- Series B and later step-ups



This is the scatterplot from the previous slide. Despite the serious headwinds for private financing and public market access, strong step-ups in valuations were still available for dx/tools companies. We noted most deals² in this subset congregated between 1-1.5x in 1H 2023.

However, there were ten deals in 1H 2023 with a step up of 2.0x+ and four with a 4.0x+ step-up. All but one of those ten step-ups (Proxim Diagnostics, a Series D raise at 2.4x) were early rounds – either Seed to Series A or Series A to B. Five of these were R&D Tools companies.

The top step-ups in 1H 2023 were Asimov (9.6x) and Innerplant (8.4x). In 2H 2023 we noted just three deals with step-ups greater than 2X.

Two of three down-rounds were dx test companies. Median dx test step-up was the lowest of the three subsectors, at 1.2x over 10 deals.

Data pulled from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Step-Ups calculated using Pitchbook valuation data for previous and new 1H 2023 financing. Calculated as follows: Divide new 1H 2023 Pre-money Valuation by previous round post-money valuation. ²Deals included are ones where it is a new investor raising a round that is equal to or larger than the previous round, and valuation information for the current and previous round are available. Data Sources: PitchBook, company websites, internal analysis.

Dx/Tools Largest Post-Money Values¹ (All Deals)

1H 2023, US and Europe



Largest Post-Money Valuations by Dx/Tools Subsector

Subsector	Company	Date	Deal Size (\$M)	Round	Post \$ (\$M)	Type of Round	New/Lead Investor(s)
R&D Tool	 colossal	1/31/23	\$150	B	\$1,450	New Investor	Growth
R&D Tool	 ASIMOV	1/5/23	\$175	B	\$1,225	New Investor	Growth
Dx Analytics	 Paige	3/16/23	\$20	C1	\$650	Add-on/Insider Round	Undisclosed
R&D Tool	 cellanome	3/21/23	\$41	A2	\$341	New Investor	Venture
Dx Analytics	 Lunaphore technologies	3/23/23	\$43	D1	\$313	Add-on/Insider Round	Growth
R&D Tool	 UNLEARN	3/21/23	\$15	B1	\$265	Add-on/Insider Round	Venture
R&D Tool	 CLARAPATH	4/04/23	\$11	B1	\$191	Add-on/Insider Round	Venture
Dx Test	 ChromaCode	2/27/23	\$38	D	\$153	Add-on/Insider Round	VC + Corporate

Valuations from 2022 came down significantly. The median for the eight highest-valued companies of 2022 had post money valuation 4x the median value of the top eight 1H 2023 deals.

Traditional VCs re-emerged as lead investors in later-stage deals (4 of 8). This will be critically important for the ecosystem over the next 12 months as we expect previously active non-venture investors to remain wary of leading new deals – only one growth investor did more than one new deal in 1H 2023.

The critical question will be next round risk for the many companies with exciting technologies, limited revenues but heady \$1B+ post money valuations from the past few years. Will these companies be able to find new capital?

Data pulled from PitchBook as of 7/1/23. Covers private, venture-backed investment. ¹Valuation data, including post-money values, from PitchBook. ²Four of the five add-on/insider rounds had valuation information available to calculate step-ups. Data Sources: PitchBook, company websites, internal analysis.

Venture Healthcare: Predictions for 2H 2023



1H 2023

Healthcare Predictions: Moving Forward in 2023



General

Deal and dollar upswing anticipated in 2H 2023 as companies that closed 2022 insider rounds flood the market alongside regular scheduled fundraises. While there is a record amount of dedicated venture capital in the market, and VCs are investing again, there will be significant number of companies that are unable to raise new capital and must contemplate consolidation/M&A.

Healthtech

We will see fewer generalist and growth investors participate in new healthtech financings, and there will be significant down-rounds in 2H 2023. Another trend to watch: continued consolidation partially driven by investors' pushing for more M&A. Returning capital in this market (not valuation step-ups) will be a critical determinant of a fund's next successful raise.

Med Device

Series B remains a difficult "tweener" funding area (prior to pivotal funding or 510(k)² clearance), but later-stage deals continue to get investor interest, notably by traditional VCs. We are hopeful for an uptick in larger private M&A deals (\$300M+) in 2H 2023 from big PMA opportunities with great clinical data and commercial stage revenue-ramp stories.

Biopharma

First financings increase as VCs pick up early-stage deal pace. We will see more VCs lead or co-lead later-stage deals previously funded by crossovers. There will be significant valuation resets for mezz funded deals forced to raise private rounds. We expect opportunistic IPOs and believe private M&A¹ will bounce back, approaching double digit deals in 2H 2023.

Dx/Tools

Early-stage AI/ML³ dx analytics, along with gene therapy manufacturing plays, continue to see strong investment. Later-stage deals with 2020-2021 valuations must find non-dilutive capital or come to terms with current valuations. Buying opportunities in this sector exist for private and public biopharma and healthtech companies looking for technology and/or platform expansion.

¹Private venture-backed M&A with upfront payments of \$75M+. ²510(k) is medical device clearance to commercialize that typically does not include clinical trials. ³AI/ML stands for artificial intelligence/machine learning. Data Sources: PitchBook, company websites, internal analysis.



Thank You

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