



Healthcare Investments and Exits

Annual Report 2022

Biopharma | Healthtech | Dx/Tools | Device

Published on January 6, 2023

 [@SVB_Financial](https://twitter.com/SVB_Financial)

Engage [#SVBHealthcare](https://twitter.com/SVB_Financial)





Contents

3

Market Highlights

5

Healthcare Fundraising and Investments

26

Computational Biology Investments

29

Healthcare M&A and IPO Activity

38

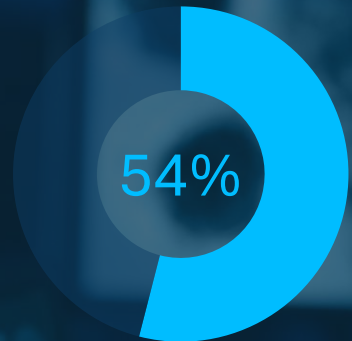
Healthcare Outlook: 2023 and Beyond

40

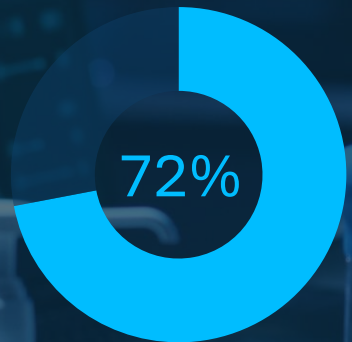
Glossary



SVB US Market Stats¹ 2021-2022



of all VC-backed US healthcare companies that raised rounds since 2021 have a banking relationship with SVB.



of all VC-backed US healthcare companies that raised rounds greater than \$40M since 2021 have a banking relationship with SVB.

Healthcare Investments: Market Highlights 2022

Venture Fundraises into Downturn, but Investment Declines from 2021's Record

Venture capital (VC) fundraising was unprecedented in H1 2022. Despite a slowdown in H2, funds closed out the year with nearly \$22B to invest into healthcare companies, second only to the record \$28B raised in 2021. With over \$50B fundraised in the past two years, venture healthcare has the largest war chest of investable capital ever.

Healthcare Investment declined in both deals and dollars each quarter after setting a record in 2021. Total healthcare investment for the year still exceeded 2020, making 2022 the second-largest year ever, though Q3 and Q4 fell below 2020's quarterly average. This decrease was likely because investors directed new money toward their existing portfolios instead of new investments, raising insider rounds to focus on hitting valuation inflections before the next outside financing. Additionally, the large crossover to initial public offering (IPO) rounds, common in 2020 and 2021, were down significantly in the face of a difficult IPO market.

Biopharma early-stage investment activity declined, but valuations appeared unaffected by public market turmoil. At the seed stage, companies raised more syndicated rounds, likely due to the uncertain private financing environment for the upcoming year. In later stages, the number of LIPO (likely to IPO)² crossover rounds dropped, down to single digits per quarter in H2 2022. Overall, we noted the most significant declines in oncology and neurology investment.

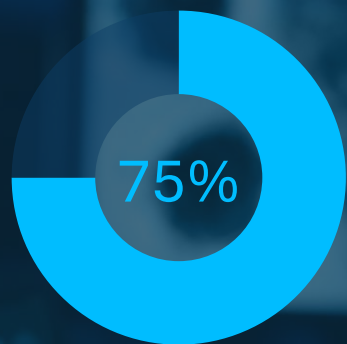
Healthtech shifted toward early-stage investment, where valuations were less impacted by public market comps. Investment exceeded the record seed/Series A activity from 2021. In late stages, investors shifted their focus toward companies that were closer to profitability and demonstrated the ability to improve health outcomes, access or affordability. Provider operations (PO) companies received the most investment, with many new financings focused on advancing and digitizing provider workflow and clinical decision support. While alternative care (AC) investment was down overall, mental health and primary care solutions continued to dominate this subsector.

Dx/Tools early-stage investment set a new dx/tools record in 2022 as dx tests dollars doubled and dx analytics activity increased. However, the overall sector suffered the largest drop in healthcare investment, specifically in H2, as investors struggled to reconcile frothy valuations with poor IPO performance over the past few years. R&D tools investment suffered the biggest decline while dx analytics excelled, closing financings with three of the top five largest post-money valuations.

Device was the only sector in 2022 to nearly match the record investment in 2021, dropping less than 10% overall, despite a sharp decline in Q4 '22. Companies in non-invasive monitoring raised big financings across deal stages. Overall, \$100M+ deals increased from 2021, as investors gravitated to the device sector's metric-driven revenue stories. Though valuations stayed steady, investors started to introduce more structured term sheets, including liquidation preferences, in later-stage deals toward the end of the year.

Note: 1) Market statistics represent SVB commercial bank clients as of 12/31/2022 with a VC-backed round of at least \$4M. 2) The LIPO (Likely to IPO) list tracks Top 15 Crossover-funded private mezzanine deals (\$40M+) as a proxy for IPO sentiment and pipeline. All investment data as of 12/16/2022. Source: PitchBook and SVB proprietary data.

SVB US IPO Market Stats¹ 2021-2022



of all VC-backed healthcare IPOs since 2021 have a banking relationship with SVB.

Healthcare Exits: Market Highlights 2022

VC-Backed Exits Plummet as Market Tries To Find Bottom

After a record number of healthcare mergers and acquisitions (M&A) and IPOs in 2021, IPOs² were down across all sectors as public market-cap erosion and poor performance of the 2020 and 2021 IPO classes largely blocked opportunities for companies to go public. Private M&A also suffered, as acquirers refocused on preserving cash and/or completing internal projects rather than acquiring new companies. The private M&A deals we did see were smaller in value for healthtech, device and dx/tools companies. Though we saw larger deals in biopharma, these companies raised large amounts of private funding, resulting in lower multiples for later-stage investors.

Biopharma

Off a record 92 IPOs in 2021, there were just 19 IPOs in 2022, with pre-money valuations falling to 2019 levels and mixed post-IPO performance for the 11 US and EU IPOs. Private M&A was muted, as acquirers focused on recently public companies, trading well off their highs, instead of private companies with static, high valuations. Of the nine M&A in 2022, five were preclinical stage. At the end of the year, Nimbus sold its phase II asset to Takeda for \$4B upfront, tied for the second largest upfront ever for a venture-backed biopharma company.

Healthtech

IPOs halted as public healthtech stock performance fell throughout 2022. However, M&A volume has remained strong, almost on pace with 2021's record. Deal sizes for M&A were down and will likely remain smaller as public market comps continue to fall. Public (and private) healthcare companies led healthtech M&A in 2022, but big tech companies also made notable acquisitions of public healthtech companies in 2022.

Dx/Tools

M&A and IPO activity rose to record levels from 2019 through H1 2021 and propelled dx tools exits to record activity. However, since H2 2021, large public companies in the dx/tools sector suffered from declining market caps, and recent IPOs have experienced even worse performance. In 2022, there were no US venture-backed IPOs and only five M&A deals, with a significantly lower median upfront value than the last two years. However, we did see two cross-sector acquisitions of dx/tools companies, with a healthtech company acquiring a dx test company to expand its platform and a biopharma company acquiring an R&D tools company to scale manufacturing.

Device

2021 set a record for the number of IPOs and M&A, with small- and mid-cap public companies joining big players to buy venture-backed device companies. However, poor performance in the public market forced many acquirers to revisit their cash spend and push acquisitions to the back burner. As a result, the US IPO market was effectively shut in 2022. Device M&A was also down, but orthopedics and vascular indications had three exits each.

Note: 1) IPO statistics represent SVB US commercial bank clients. 2) IPO defined as all private, venture-backed IPOs raising at least \$25M in proceeds. Public market performance metrics calculated as of 12/31/2022. See sector-specific definitions in the glossary on slide 40.

Source: PitchBook, S&P S&P Capital IQ and SVB proprietary data.



Healthcare Fundraising and Investments

US, EU & UK



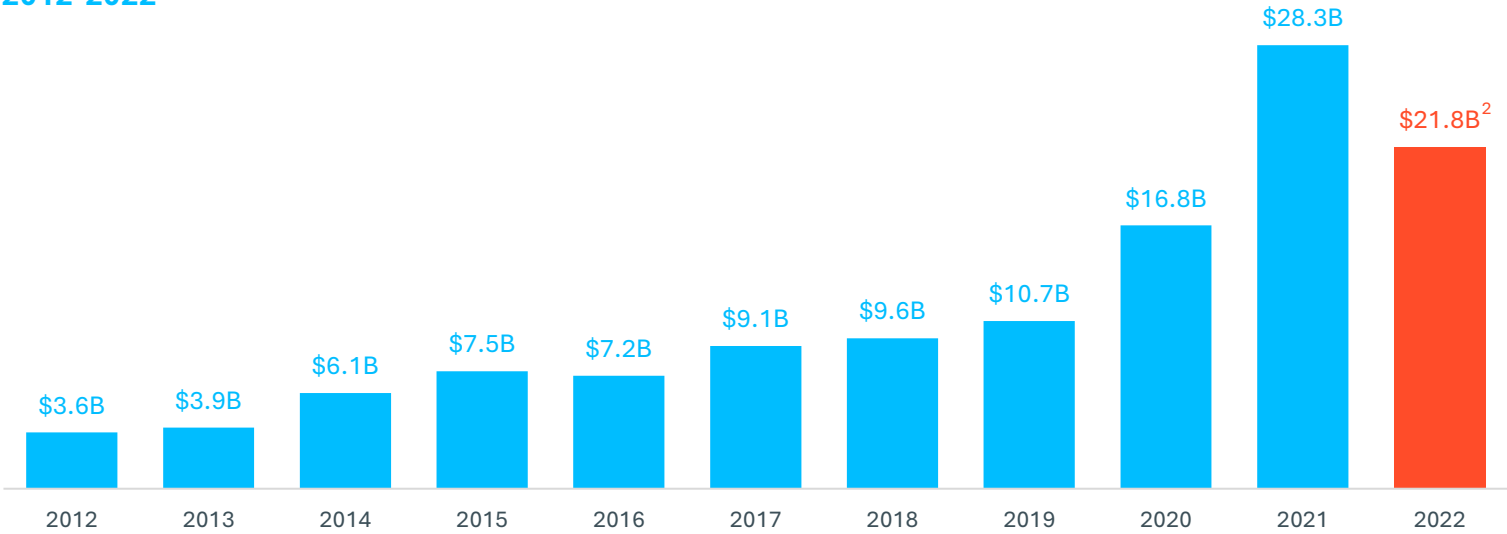
Investors Continue to Fundraise into Downturn

In the first half of 2022, venture capital (VC) investors accelerated their healthcare fundraising, beating the record pace of 2021. Despite a slowdown in the second half of 2022, venture funds raised nearly \$22B to invest into healthcare companies, marking the second-biggest fundraising year ever. With over \$50B raised over the last two years, investors now have a record amount of capital ready to deploy into new healthcare portfolio companies.

There were three main trends in healthcare fundraising that continued into 2022. First, growth/expansion firms raised large, private funds with a portion slated for healthcare investment. We estimate \$1B+ healthcare allocations for large players like Tiger Global (primarily investing in healthtech) and Alpha Wave (primarily investing in biopharma). Second, established biopharma-focused firms continued to raise larger funds led by groups like Arch, Third Rock, Frazier, The Column Group, 5AM and Atlas. Of the healthcare funds raised over the past two years, we estimate that 50%-60% is earmarked for biopharma investment. Third, traditional tech firms continued to allocate some capital to invest into healthcare, mostly focused on healthtech. There were 70 tech-focused funds that closed in 2022, like Bessemer and Union Square, with a 5%-15% allocation to healthcare, up from 54 in 2021.



US Healthcare Venture Capital Fundraising¹ 2012-2022



Notable Funds with Allocations to Healthcare³

THE COLUMN GROUP	ARCH VENTURE PARTNERS	ALPHA WAVE	OAK HC/FT	Lightspeed	FRAZIER LIFE SCIENCES
flare capital partners	5AM VENTURES	al6z	THIRD ROCK VENTURES	TIGERGLOBAL	M V M PARTNERS
CATALIO	HealthQuest CAPITAL	FOUNDERS FUND	GENERAL CATALYST	ATLAS VENTURE	

Note: 1) US Healthcare Venture Capital Fundraising defined as an approximation of healthcare investment dollars to be invested by firms that historically invest in +50% US companies. 2) Estimates based off of anecdotal conversations with investors and expert analysis of last fund deal pace and focus on healthtech. 3) Notable funds based on largest estimated allocation to venture healthcare. Data as of 12/16/2022. Source: PitchBook and SVB proprietary data.

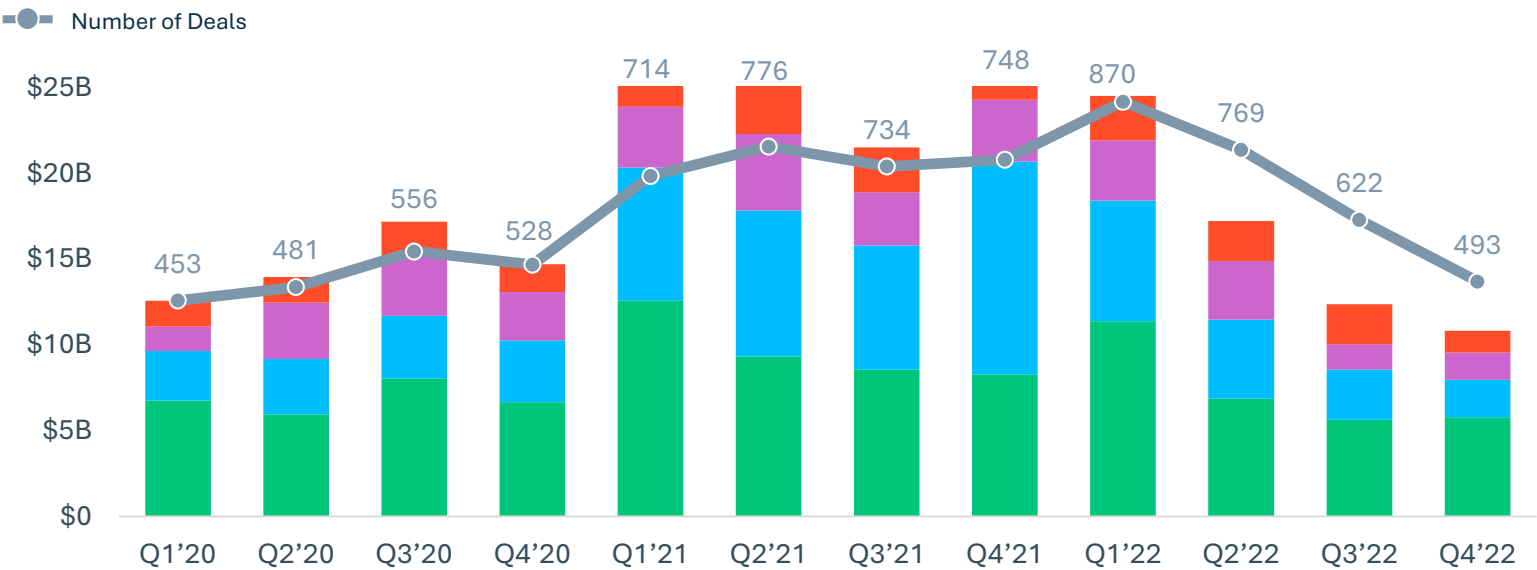
Investment Decreased from 2021 but Remains at Historically High Levels

It is important to note the unprecedented increase in venture healthcare investment over the past five years. In 2018 and 2019, total dollars jumped from previous highs of \$20B+ to a new record of \$33B in both years. 2020 increased that pace by 75% to reach \$58B, and 2021 set the highwater mark at \$98B.

Investment was strong in Q1 2022, buoyed by the \$3B financing by Altos Labs. As the public downturn worsened, investment dropped in Q2 and again in Q3, falling below average dollars raised per quarter in 2020. Q4 was down only slightly, buttressed by a bounce-back in biopharma and dx/tools.

There are two main reasons for 2022's drop-off in investment: First, to unlock the next round of financing, later-stage companies have found that they need to demonstrate more progress to new lead investors. As a result, investors dedicated more time and capital to supporting existing portfolio companies through smaller insider rounds, rather than funding new deals. Second, many later-stage investors have paused new deal activity as the public market continues to plummet, causing the number of larger crossover pre-IPO deals to decline significantly.

VC Dollars and Deals by Healthcare Sectors US, EU & UK



Sectors (\$B)	2020			2021			2022 ¹		
	US	EU & UK	Total	US	EU & UK	Total	US	EU & UK	Total
Biopharma	22,594	4,795	27,389	31,730	6,919	38,649	24,604	4,870	29,474
Healthtech ²	11,760	1,613	13,373	33,031	2,869	35,900	12,905	3,837	16,742
Dx/Tools	9,116	1,784	10,900	11,964	2,703	14,667	8,256	1,609	9,865
Device	5,769	821	6,590	6,774	2,429	9,203	6,882	1,617	8,499
Total	49,239	9,013	58,252	83,499	14,920	98,419	52,647	11,933	64,580

Note: 1) Investment data includes deals as of 12/16/2022. 2) Healthtech deals that overlap with other sectors are not included in healthtech totals on this slide but are included in healthtech-specific analyses on pages 13 -17. With overlap, healthtech investments for 2022 total \$22B. Financing data include private financings by venture-backed companies in the US, EU, and UK. Dates of financing rounds are subject to change based on add-on investments.
Source: PitchBook and SVB proprietary data.



Early-Stage Declines, Valuations Stable

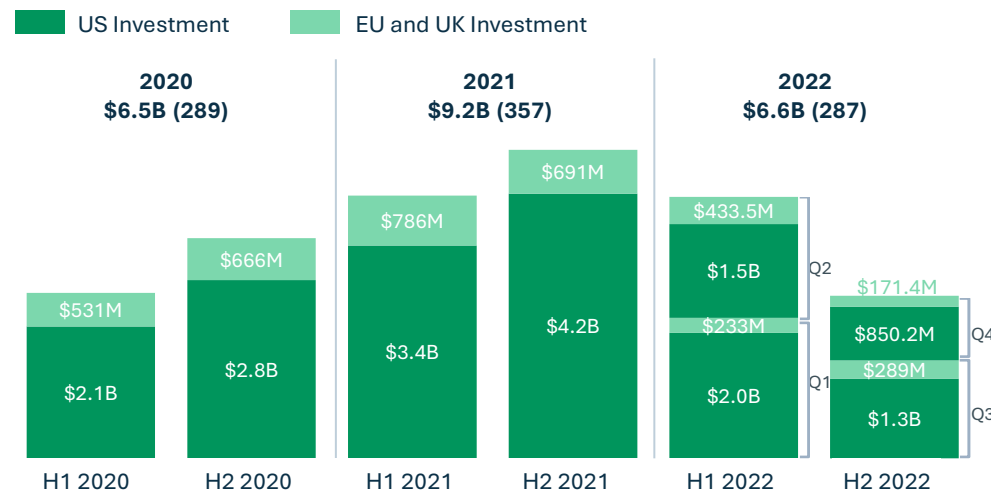
Early-stage investment remained consistent in H1 2022 but trailed off in H2, highlighted by a drop in larger \$50M+ deals (30 in H1, 17 in H2). However, seed/Series A valuations were similar to 2021 levels.

After early-stage oncology companies raised a record \$3.3B from 2020 to 2021, deals and dollars decreased sharply during the second half of 2022 (42 deals/\$1.2B in H1, 24 deals/\$502M in H2). Many investors stopped funding new seed/Series A oncology deals while waiting for existing investments to play out. In 2022, investors ramped up their activity in autoimmune, respiratory and even cardiovascular and metabolic companies. These indications traditionally struggled to attract venture investment, given the large dollar outlay needed for clinical trials, especially in cardiovascular and metabolic. We now see these areas gaining interest from traditional venture firms with the understanding that private equity (PE) firms, growth investors, sovereign wealth funds and asset managers are likely to write big checks to fund later-stage trials. The two largest early-stage deals in 2022 were in autoimmune and respiratory, funded by both venture and late-stage growth investors.

Seed activity remained strong. Most traditional biopharma funds have a dedicated seed program to drive ownership and provide a differentiated strategy for their limited partners (LPs). However, given the unpredictable financing landscape, we have noted more institutional seed deals syndicated by multiple large venture firms in 2022. Including multiple deep pocketed investors protects against financing risk while also pre raising Series A financings.



Seed/Series A¹ Dollars and (Deals) US, EU & UK



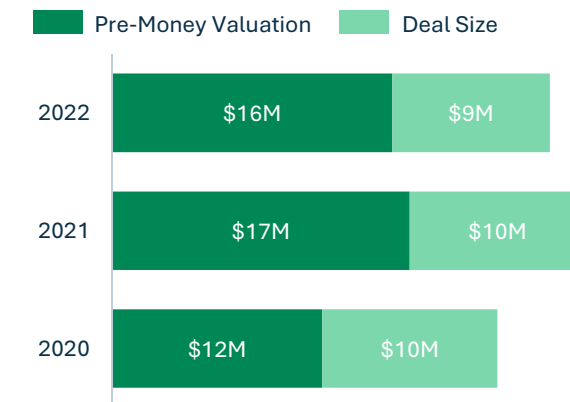
Seed/Series A Dollars and Deals by Top Indications

Indications	2020		2021		2022	
	Dollars	Deals	Dollars	Deals	Dollars	Deals
Platform	\$1.8B	74	\$3.5B	96	\$2.3B	79
Oncology	\$1.7B	79	\$1.6B	77	\$1.7B	73
Autoimmune	\$372M	9	\$347M	10	\$493M	15
Respiratory	\$81M	7	\$88M	7	\$422M	6
Anti-Infective	\$157M	11	\$439M	28	\$409M	17
Neurology	\$974M	38	\$1.6B	55	\$402M	28
Ophthalmology	\$94M	9	\$194M	9	\$202M	9

Note: 1) Seed/Series A includes first-time investments from institutional or corporate venture investment in the US, EU, and UK and any first-round investments equal to or greater than \$2M, regardless of investor. Dates of financing rounds are subject to change based on add-on investments. All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.

Median Seed/Series A Valuations US, EU & UK



Largest 2022 Seed/Series A Deals



Series A Funding Cliff in Biopharma

After robust Series A activity in H2 2020 and 2021, we expected a corresponding increase in Series B activity 18-24 months down the road. However, instead we noted a steady decline in Series B activity in 2022.

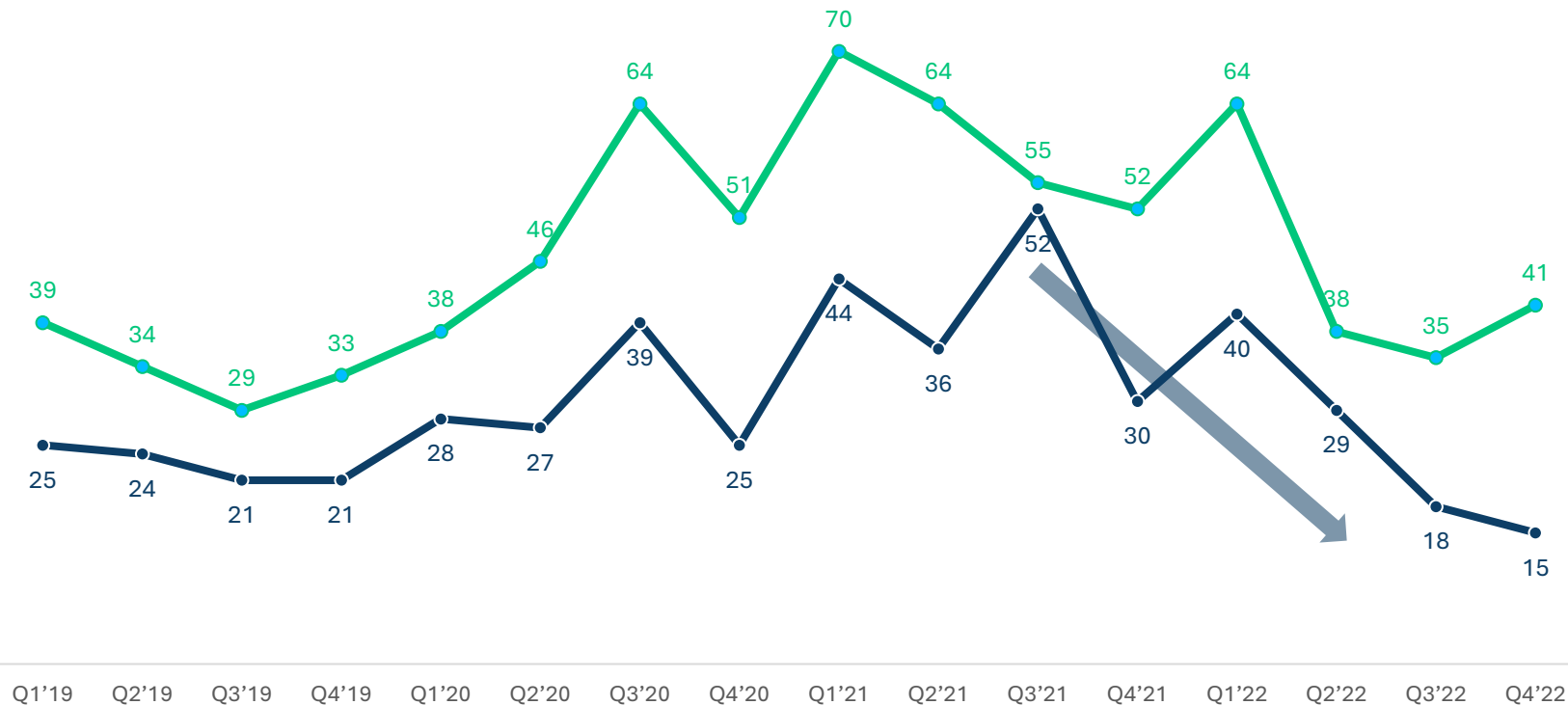
Our Thesis- Series A investment in 2020 and 2021 was dominated by early-stage platform companies, many of which were multiple years away from having an asset in clinical development. However, with the downturn in private financing and the slowdown in early-stage IPOs, many new investors want companies to get into the clinic and show initial data before leading the next round. This forced many companies to raise Series A extensions or insider bridges, providing more time and resources to meet these new milestone requirements and likely prepare to raise an outside-led financing in H2 2023.

The Concern- Inside rounds in 2022 deplete investor dry powder and lead to less inside investor support in the next round. Additionally, we forecast a very crowded and more difficult fundraising environment for the sector in H2 2023.

The Silver Lining- Over the past two years, healthcare venture firms raised a record amount of capital, including many opportunity funds, to provide support for top biopharma companies in 2023. Capital should be available for companies that are able to show positive clinical progress.

Series A & Series B¹: Biopharma Deal Counts US, EU & UK

Series A Series B



Note: 1) Series A and Series B data are based on series label Pitchbook assigns to each financing. Includes venture investment in US, EU, and UK equal to or greater than \$2M. Dates of financing rounds are subject to change based on add-on investments. All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.



Investments Fall in H2 as Crossover Activity Wanes

In 2022, biopharma investment steadily declined in each quarter but bounced back in Q4. Overall, we saw the most significant slowdown in oncology and neurology dollars, each down more than 40% from 2021, and even dropping below 2020 pace.

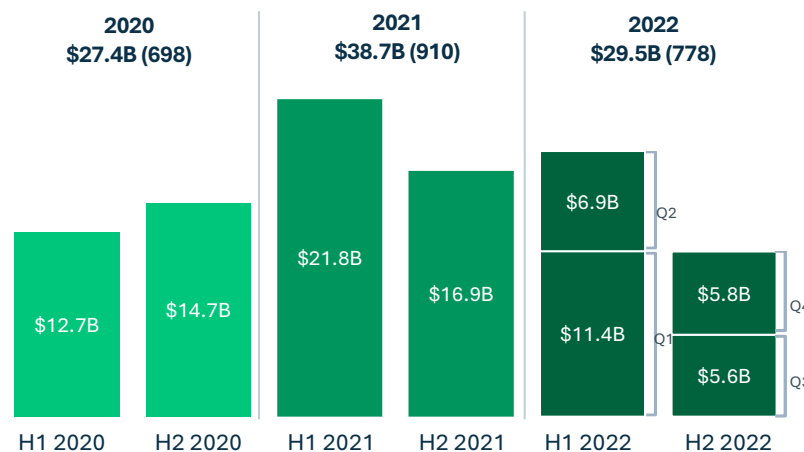
The shortfall in biopharma investment was driven by two main factors. First, crossovers funded fewer LIPO¹ rounds in 2022, causing \$100M+ financings to drop more than 25%. Second, new investors demanded more progress before funding the next round (mostly at Series B), forcing companies to close smaller extensions or insider rounds.

However, in late 2022 companies and investors became more open to new investors leading a slight down-round rather than closing an insider round. This helped reset previously inflated valuations and, more importantly, added new investors with substantial dry powder. Venture investors led many of these new deals, usually without crossover participation.

Computational biology (comp bio)³ deals posted some of the largest post-money valuations in 2022. As an exception to the overall trend in biopharma, investors were more willing to fund preclinical companies if they were applying computational approaches to discover and develop drugs over multiple indications. We saw platform comp bio companies, including Eikon, Tessera and Treeline, reach high valuations despite no assets in the clinic.



Total Dollars and (Deals) US, EU & UK



LIPO Deal Activity¹

Quarter	LIPO Deals	Median Pre-Money (\$M)	Median Deal Size (\$M)	IPO %
Q1 20	17	\$245	\$108	88%
Q2 20	21	\$150	\$86	62%
Q3 20	28	\$140	\$92	54%
Q4 20	15	\$140	\$87	53%
Q1 21	38	\$184	\$100	53%
Q2 21	31	\$200	\$105	10%
Q3 21	24	\$169	\$90	13%
Q4 21	16	\$172	\$102	0
Q1 22	17	\$160	\$100	5%
Q2 22	11	\$147	\$102	0
Q3 22	6	N/A	\$132	0
Q4 22	7	\$155	\$115	0

Note: 1) The LIPO (Likely to IPO) list tracks the top 15 crossover-funded private mezzanine deals (\$40M+) as a proxy for IPO sentiment and pipeline. 2) Only includes private post-money values from publicly disclosed 2022 financings in PitchBook. 3) See glossary on page 40 for computational biology definition. Financing data includes private financings by venture-backed companies in the US, EU, and UK. Dates of financing rounds are subject to change based on add-on investments. All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.

Dollars and Deals by Top Indications US, EU & UK

Indications	2020		2021		2022	
	Dollars	Deals	Dollars	Deals	Dollars	Deals
Platform	\$7.6B	148	\$12.2B	216	\$10.8B	176
Oncology	\$8.9B	208	\$11.3B	256	\$6.7B	196
Neurology	\$2.7B	89	\$4.5B	126	\$2.5B	93
Anti-Infective	\$1.2B	42	\$1.7B	56	\$1.3B	49
Autoimmune	\$747M	18	\$1.8B	34	\$1.5B	35
Ophthalmology	\$426M	20	\$965M	24	\$1.4B	35

Highest-Valued 2022 Financings²

indigo	AgBio	\$3.9B post
eikon therapeutics	Platform	\$3.0B post
Neumora	Neurology	\$1.8B post
TESSERA	Platform	\$1.7B post
INARI	AgBio	\$1.5B post
TREELINE BIOSCIENCES	Platform	\$1.3B post
ArsenalBio	Oncology	\$1.2B post
oceanbio	Neurology	\$1.1B post
KALLYOPE	Platform	\$1.1B post
NUTCRACKER	Oncology	\$967M post
aretea therapeutics	Respiratory	\$950M post

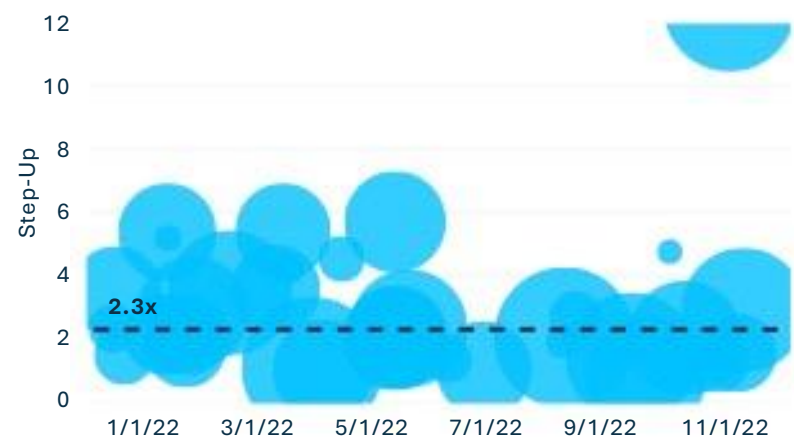
Biopharma Step-Ups: 2022

Out of the 778 US, EU and UK biopharma financings in 2022, we calculated 154 step-ups¹ and step-downs that were outside-led rounds with publicly disclosed valuation information in their previous and current rounds. From our anecdotal perspective, most of the outside-led financings in 2022 were reserved for the top 15%-20% of companies that hit significant development milestones. Many companies instead raised insider rounds or extensions with plans to come back to the market in late 2023. At that point, we expect to see a spike in step-downs as companies reset their valuations.

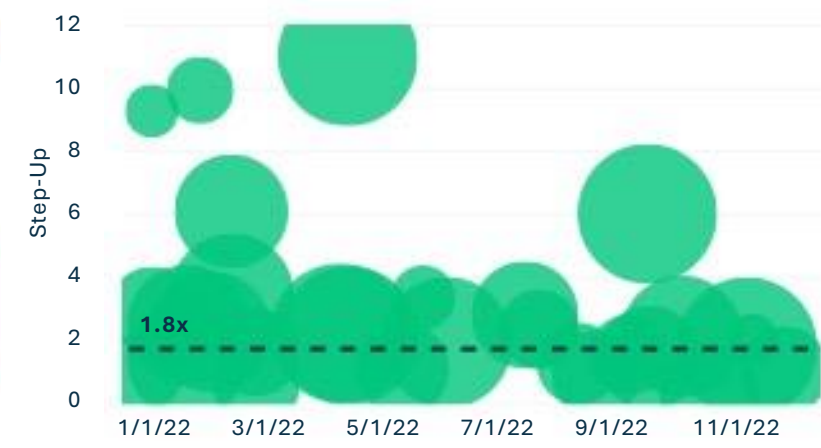
The median step-ups for early-stage deals (seed-A and A-B) were strong, showing that promising new biopharma companies can still be rewarded with up rounds, even in a down market. However, throughout the year, median step-ups shrank for both seed-A (2.7x in H1, 1.6x in H2) and A-B (2.0x in H1, 1.5x in H2). Despite this trend, we saw six early-stage step-ups over 3x in H2: Strand Therapeutics (12.6x), Rivus Pharmaceuticals (6.0x), ELEVAI Labs (4.7x), Bonum Therapeutics (3.6x), ArsenalBio (3.5x) and Neuraptive (3.1x).

Later-stage biopharma deals (B-C and C+) had fewer step-ups. Of the 32 later-stage companies from our 2022 dataset, six (19%) were down rounds. While many older companies struggled to hold onto their valuations, we continued to see growth for the highest-valued biopharma companies. In 2022, the 11 deals that financed with pre-money valuations of \$400M+ achieved a median step-up of 1.4x, with only one down round.

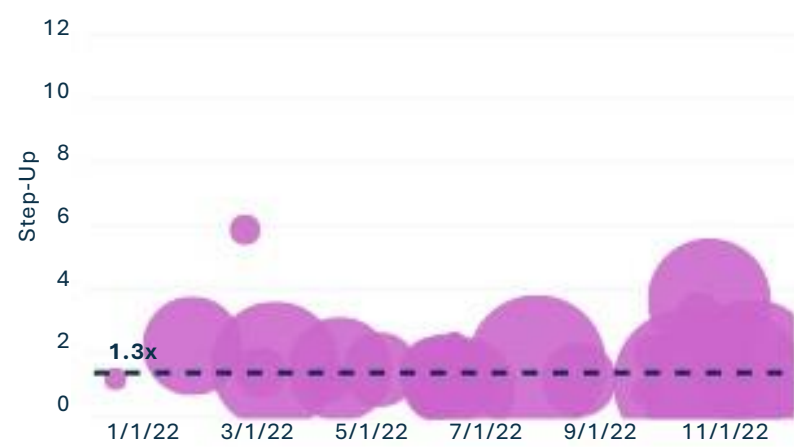
Seed-A Step-Up²



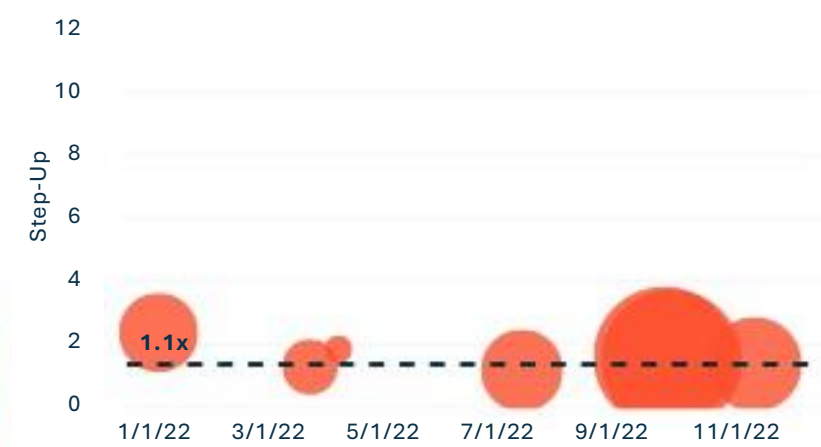
A-B Step-Up



B-C Step-Up



C+ Step-Up



Note: Size of bubble indicates size of 2022 financing.
 — Dotted line indicates median step-up.

Note: 1) Step-ups are calculated by dividing the company's 2022 financing pre-money valuation by its most recent financing post-money valuation if it occurred between 2019 and 2022. Only includes financing and valuation information from publicly disclosed financings in PitchBook. 2) Seed/Series A chart does not include an outlier of a 33x step-up for Genasense. Dates of financing rounds are subject to change based on add-on investments.

All data as of 12/16/2022.
 Source: PitchBook and SVB proprietary data.



Most Active¹ Biopharma Investors

Deal Count, US, EU & UK (2021-2022)

Venture Activity Overall			Late-Stage/Crossover Activity Overall			Corporate Venture Activity Overall			Platform			Oncology		
38	27 2021 11 2022		65	46 2021 19 2022	RACAPITAL	47	33 2021 14 2022		14	6 2021 8 2022		26	20 2021 6 2022	RACAPITAL
29	22 2021 7 2022		43	38 2021 5 2022		22	14 2021 8 2022		13	11 2021 2 2022	RACAPITAL	20	19 2021 1 2022	
25	9 2021 16 2022		39	33 2021 6 2022		20	10 2021 10 2022		13	7 2021 6 2022		17	12 2021 5 2022	
22	10 2021 12 2022		38	28 2021 10 2022		19	8 2021 11 2022		12	9 2021 3 2022		17	16 2021 1 2022	
17	14 2021 5 2022		38	31 2021 7 2022		13	9 2021 4 2022		11	9 2021 2 2022		15	13 2021 2 2022	

Early-Stage Activity Hits New Record in 2022

While 2022 marked a necessary rightsizing in the healthtech investment landscape as a whole, early-stage investment flourished. Early-stage investment set a new record, as investment shifted to new deals that were not inflated by 2020 and 2021 valuations.

Provider operations (PO) companies received the most early-stage investment, with new companies forming to help implement efficiencies in provider workflows, reduce administrative burden and utilize technology to improve decision-making.

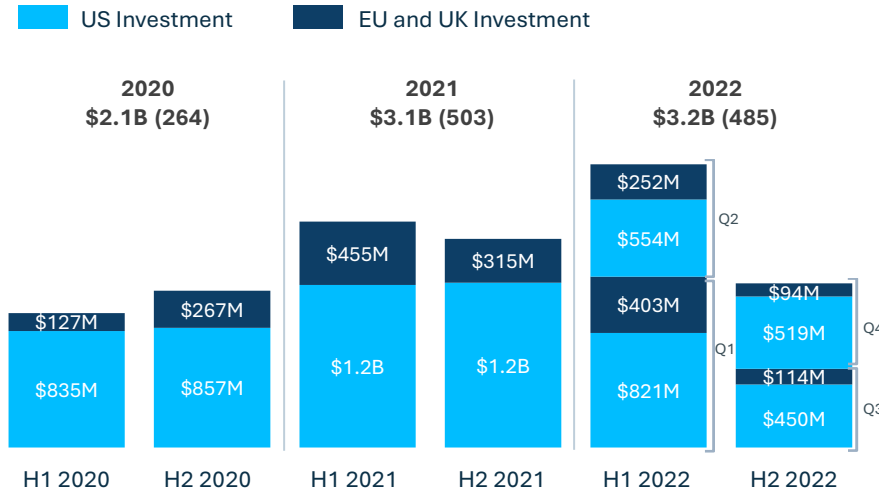
Alternative care (AC) investments experienced a dramatic shift to early-stage, but market saturation in this space will require companies to show improved outcomes, increased quality or reduced cost and proven ROI and unit economics to secure later-stage rounds.

Women's health (WH) companies hit \$245M in early-stage funding in 2022, the highest seed/Series A amount ever. Momentum was strong in WH in 2022, with the closing of the largest WH-only focused fund (SteelSky Ventures at \$72M) and rapidly expanding WH investment in menopause, pelvic floor therapy and sexual health.

The venture studio model has also increased in popularity in 2022, with firms like AlleyCorp and Redesign Health creating, incubating and supporting early-stage healthtech companies.



Seed/Series A¹ Dollars and (Deals) US, EU & UK



Seed/Series A Dollars and Deals by Top Subsectors

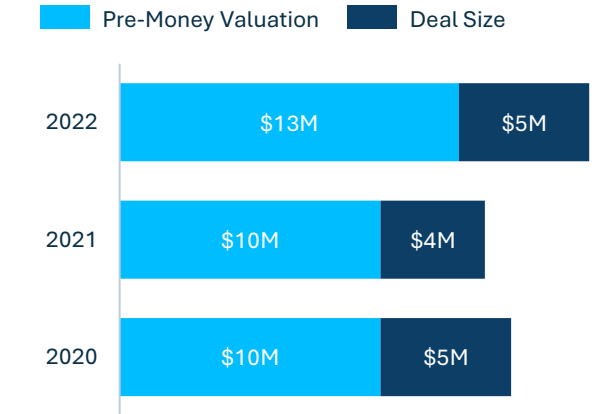
Subsectors	2020		2021		2022	
	Dollars	Deals	Dollars	Deals	Dollars	Deals
Provider Operations	\$733M	102	\$1.5B	215	\$1.6B	215
Alternative Care	\$608M	73	\$818M	141	\$923M	120
Wellness & Education	\$289M	45	\$303M	72	\$433M	103
Clinical Trial Enablement	\$232M	14	\$152M	33	\$123M	19
Medication Management	\$42M	8	\$53M	13	\$75M	18
Healthcare Navigation	\$144M	14	\$257M	23	\$11M	4

Note: 1) Seed/Series A includes first-time investments from institutional or corporate venture investment in the US, EU, and UK and any first-round investments equal to or greater than \$2M, regardless of investor. Dates of financing rounds are subject to change based on add-on investments. 2) These companies overlap with the dx/tools sector and are included in both sets of sector-specific analyses.

Biopharma drug discovery companies excluded from healthtech data. All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.

Median Seed/Series A Valuations US, EU & UK



Largest 2022 Seed/Series A Deals





Healthtech Companies Push Series B into 2023

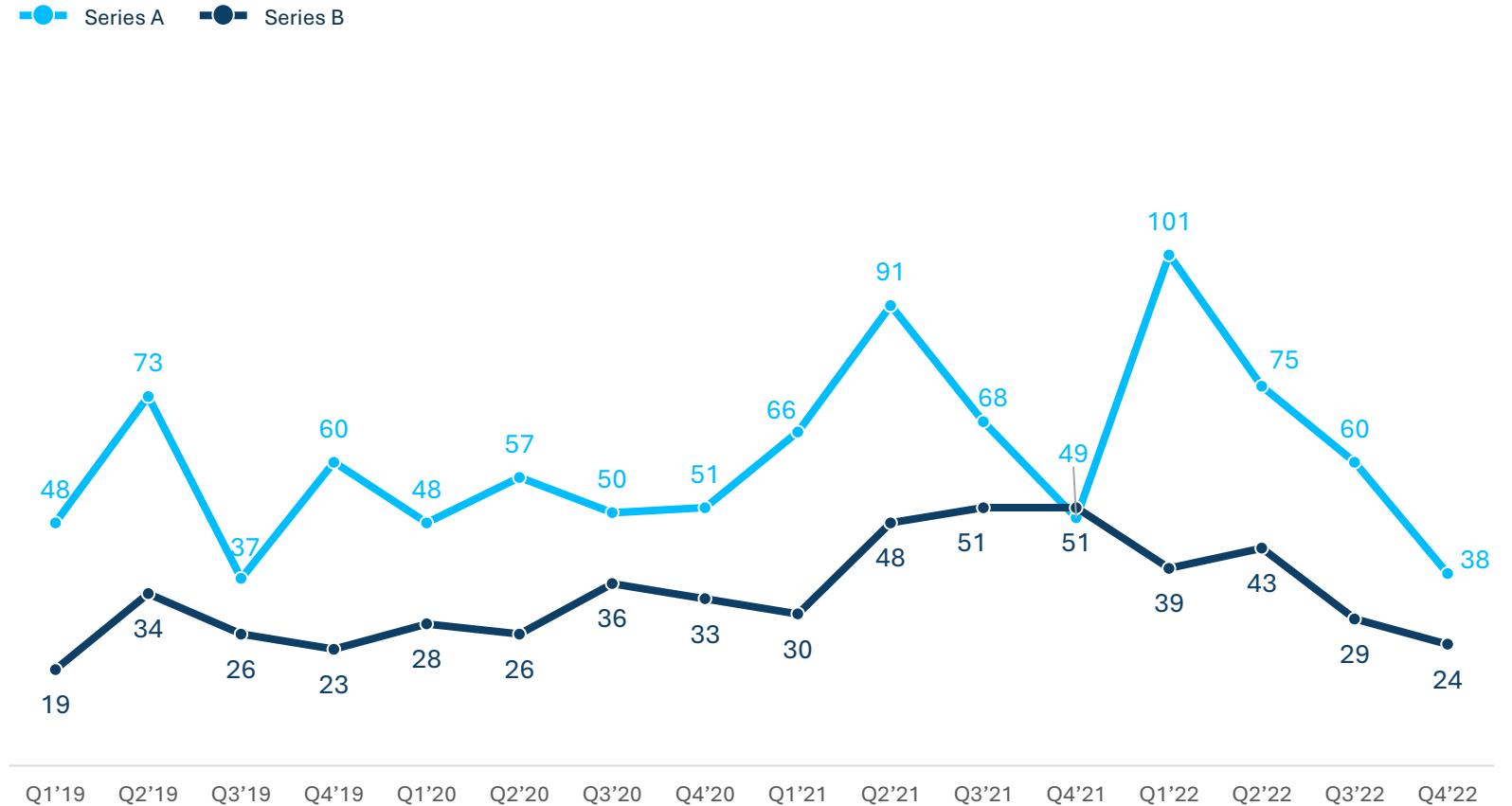
After robust Series A activity in 2020 and 2021, we noted a steady decline in Series B activity in 2022. Of the 206 healthtech companies that raised a Series A in 2020, 44% (92) raised a Series B through 2022, and of the 247 companies that raised a Series A in 2021, only 23% (58) raised a Series B through 2022.

Our thesis- For healthtech companies to raise Series B, new investors are putting increased pressure on companies to show conversion from pilots to commercial contracts. Investors are also pushing for proven or well-defined unit economics and backup plans for profitability, while customers push for tangible improvements in clinical outcomes or cost effectiveness. Companies have turned to Series A extensions or convertible insider bridges to secure more time to hit these milestones.

The Concern- Inside rounds deplete investor dry powder and likely mean less insider support for the upcoming round in 2023.

The Silver Lining- There was a record amount of healthcare VC funds raised over the past two years. We think there will be abundant capital to support strong stories in 2023.

Series A & Series B¹: Healthtech Deal Counts US, EU & UK



Note: 1) Series A and Series B data are based on series label Pitchbook assigns to each financing. Includes venture investment in US, EU, and UK equal to or greater than \$2M. Dates of financing rounds are subject to change based on add-on investments. All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.

Investors Shift Focus to Provider Efficiencies

Investors shifted focus from AC to PO to address workflow efficiencies and implement new virtual care models in provider practices.

Later-stage deal sizes were also significantly down in 2022, with \$200M+ financings dropping by 65% from 2021 and unicorn formation down by more than half, from 44 in 2021 to 18 in 2022.

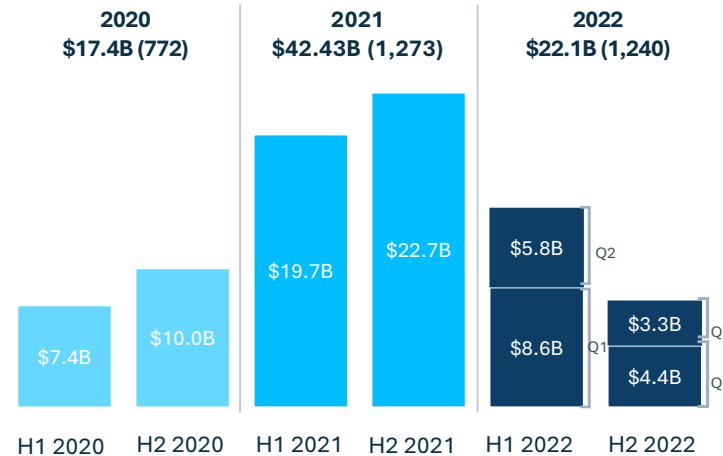
Notably, later-stage mental health (MH) companies defied this downward AC trend, with the acceptance that MH is a huge intractable problem that is only getting worse. We saw later-stage AC financings for companies that provided tangible value creation for patients, especially through employer-sponsored benefits.

PO led all healthtech investment in 2022, with an unprecedented number of companies raising new rounds with solutions to improve workflow, reduce burnout and adopt managed care models. There is a healthy dose of caution with so many start-ups in this subsector, as provider adoption of new tech has historically been slow. However, acquirer interest has been strong, as almost half of all 2022 healthtech M&A were acquisitions of PO companies.

Over the past few years, we saw an influx of venture-backed AC companies that were focused initially on point solutions. We noted a trend of these private companies merging in order to offer whole-person platform care, providing more touchpoints along the continuum of care to improve quality and management of chronic conditions.



Total Dollars and (Deals) US, EU & UK



Notable 2022 Deals



Note: 1) These companies overlap with the biopharma, dx/tools or device sectors and are included in both sets of sector-specific analyses. 2) Only includes private post-money values from publicly disclosed 2022 financings in PitchBook. 3) Biopharma drug discovery companies excluded from healthtech data. Financing data include private financings by venture-backed companies in the US, EU, and UK. Dates of financing rounds are subject to change based on add-on investments. Data as of 12/16/2022.
Source: PitchBook and SVB proprietary data.

Dollars and Deals by Top Subsectors US, EU & UK

Subsectors	2020		2021		2022	
	Dollars	Deals	Dollars	Deals	Dollars	Deals
Provider Operations	\$5.9B	326	\$10.9B	519	\$9.3B	565
Alternative Care	\$5.8B	214	\$20.3B	369	\$6.9B	307
Clinical Trial Enablement ³	\$1.2B	48	\$3.2B	98	\$1.7B	64
Wellness & Education	\$1.4B	103	\$2.9B	164	\$1.6B	206
Medication Management	\$646M	28	\$1.2B	37	\$895M	48
Healthcare Navigation	\$843M	33	\$2.2B	68	\$1.4B	32

Highest-Valued 2022 Financings²

TEMPUS ¹	Provider Operations	\$10.3B post
ro	Alternative Care	\$6.6B post
Doctolib	Alternative Care	\$6.5B post
Lyra	Alternative Care	\$5.9B post
Reify ^{HEALTH}	Clinical Trial Enablement	\$4.8B post
commure	Provider Operations	\$3.5B post
Aledade	Provider Operations	\$3.1B post
alan	Alternative Care	\$2.9B post



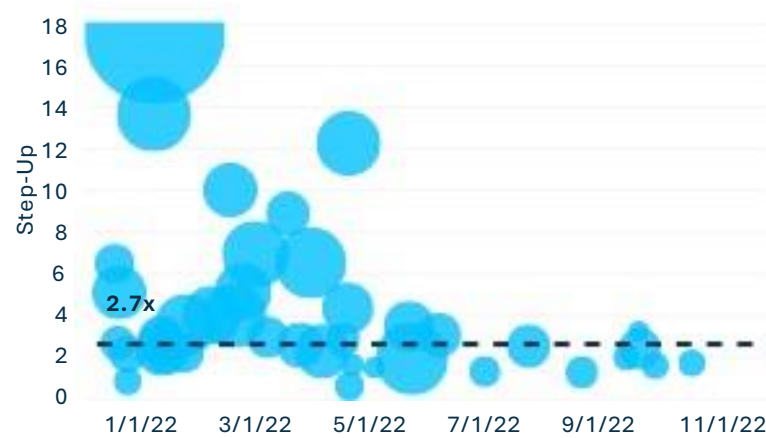
Healthtech Step-Ups: 2022

Out of the 1,240 healthtech US, EU and UK financings in 2022, we calculated 525 step-ups¹ and step-downs that were outside-led rounds with publicly disclosed valuation information in their previous and current rounds. From our anecdotal perspective, most of the outside-led financings in 2022 were reserved for the top third of companies that hit significant development milestones. Many companies instead raised insider rounds or extensions with plans to come back to the market in late 2023. At that point, we expect to see a spike in step-downs as companies reset their valuations.

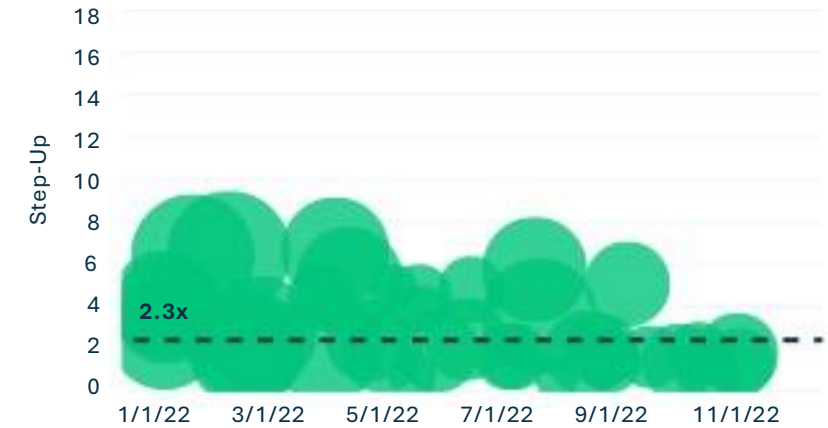
When compared to all other sectors, healthtech had the largest step-up multiples in early-stage deals. However, the highest step-ups for seed-A and A-B were mostly in H1 (median step-up of 2.9x in seed-A and 2.4x in A-B) vs. H2 (median step-up of 2.0x in seed-A and 1.5x in A-B). The biggest valuations in early-stage also were in H1. There were 13 Series B step-ups in our analysis where the post money was \$200M+, all closed in H1 except PurpleLab, which closed in July 2022.

Despite a tough financing environment and low overall step-ups for later-stage healthcare deals, there were attractive step-ups for the very largest healthtech financings. We noted 12 companies in our analysis that completed a 2022 financing where the pre-money value was \$1B+. The median step-up in these deals was 2.3x from the last round, producing six new unicorns.

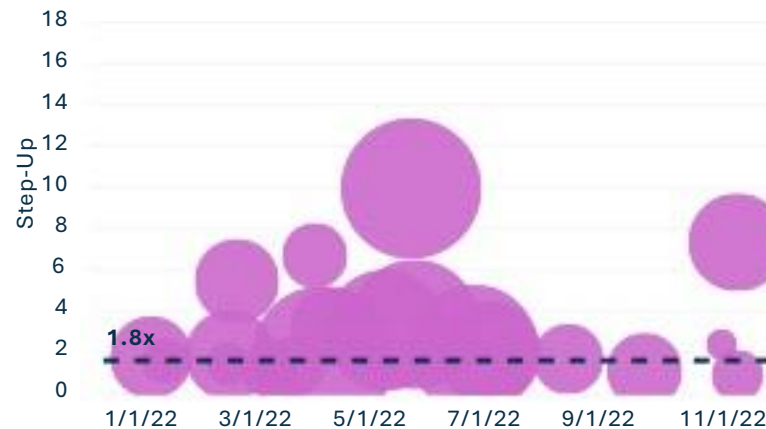
Seed-A Step-Up



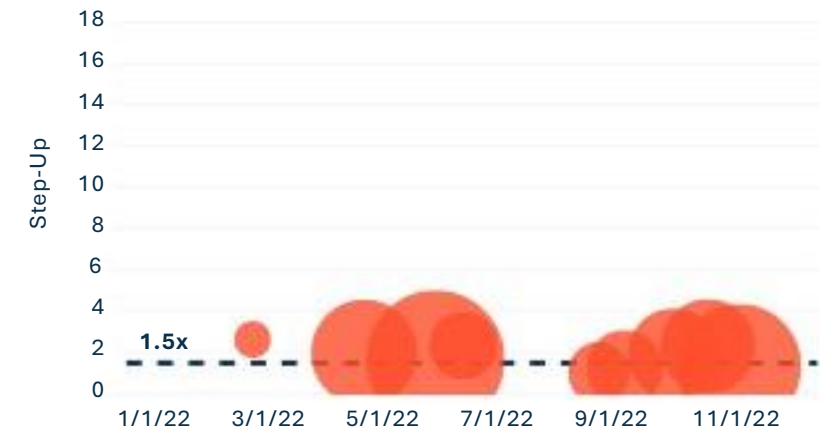
A-B Step-Up



B-C Step-Up



C+ Step-Up



Note: Size of bubble indicates size of 2022 financing.

— Dotted line indicates median step-up.

Note: 1) Step-ups are calculated by dividing the company's 2022 financing pre-money valuation by its most recent financing post-money valuation if it occurred between 2019 and 2022. Only includes financing and valuation information from publicly disclosed financings in PitchBook.

Dates of financing rounds are subject to change based on add-on investments. All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.

Most Active¹ Healthtech Investors

Deal Count, US, EU & UK (2021-2022)

Venture Activity Overall			Later-Stage/Crossover Activity Overall			Corporate Venture Activity Overall			Alternative Care			Provider Operations		
52	28 2021 24 2022	Gaingels 	31	21 2021 10 2022	TIGERGLOBAL	22	12 2021 10 2022	G/	16	12 2021 4 2022	Gaingels 	17	9 2021 8 2022	Gaingels 
40	20 2021 20 2022	GENERAL  CATALYST	22	14 2021 8 2022	SoftBank 	17	13 2021 4 2022	OPTUM™ 	15	6 2021 9 2022	GENERAL  CATALYST	11	7 2021 4 2022	GENERAL  CATALYST
33	18 2021 15 2022	ALUMNI VENTURES GROUP 	16	10 2021 6 2022	CASDIN CAPITAL LIFE SCIENCE INVESTMENTS 	15	5 2021 10 2022	ALEXANDRIA. 	13	10 2021 3 2022	TIGERGLOBAL	9	5 2021 4 2022	TIGERGLOBAL
22	17 2021 5 2022	andreessen. horowitz	11	5 2021 6 2022	Fidelity INVESTMENTS 	11	6 2021 5 2022	MERCK 	9	7 2021 2 2022	G/	9	6 2021 3 2022	INSIGHT PARTNERS
22	13 2021 9 2022	INSIGHT PARTNERS	10	7 2021 3 2022	T.RowePrice™	9	3 2021 6 2022	leaps 	9	3 2021 6 2022	7wire Ventures 	9	4 2021 5 2022	DEERFIELD™ Advancing Healthcare™

Liquid Biopsy Leads Strong Early-Stage Activity

Strong early-stage dx/tools investment in Q1 and Q4 bookended a slower middle of the year, pushing the total dollars for 2022 slightly past 2021. At the same time, later-stage investment dropped dramatically. Three of the four largest early-stage dx/tools deals closed in Q4 2022, spurring our hypothesis that many active dx/tools investors will wait out the downturn by putting new dollars to work in seed/Series A deals.

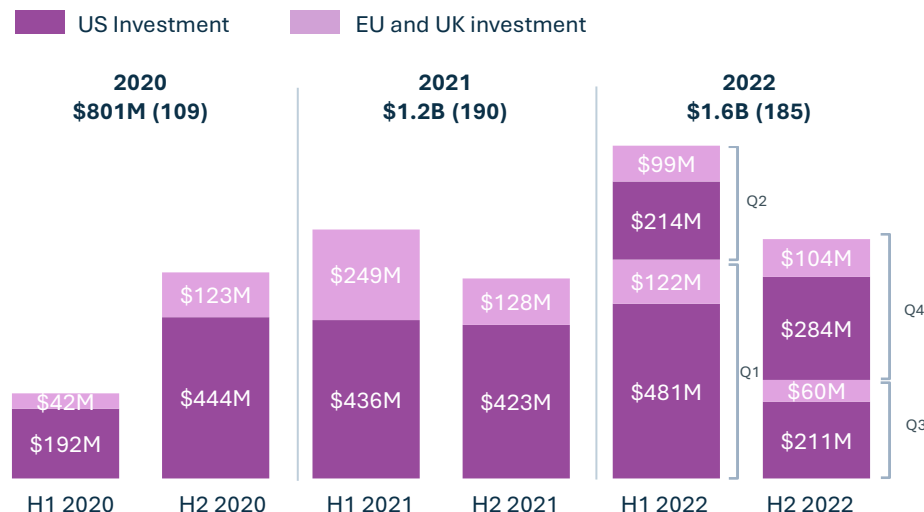
Dx Tests investment increased for the second straight year, despite the subsector's historically difficult reimbursement and revenue ramp. The top dx test indication was platform (13 deals), as these companies explore multiple applications for their technology. This was followed by anti-infective (10 deals, including four focused on COVID-19), neurology (seven deals), and oncology (six deals). The four largest dx test financings focused on liquid biopsy for cancer diagnosis, led by Exai Bio and Haystack Oncology. Despite operating in a crowded space, both companies leveraged deeply experienced teams to raise \$60M+ rounds with \$100M+ post-money valuations.

Early-stage dx analytics investment also continued to grow. Aside from platform technologies (19 deals), the most popular sub indications were oncology (11 deals) and neurology (10 deals). There were three \$50M+ deals in 2022, led by Artera, on oncology dx analytics company, that reached a \$400M post-money valuation.

Recent R&D tools IPOs have been battered in the public market, and this likely factored into R&D tools' decline in deals and dollars.



Seed/Series A¹ Dollars and (Deals) US, EU & UK



Seed/Series A Dollars and Deals by Subsectors US, EU & UK

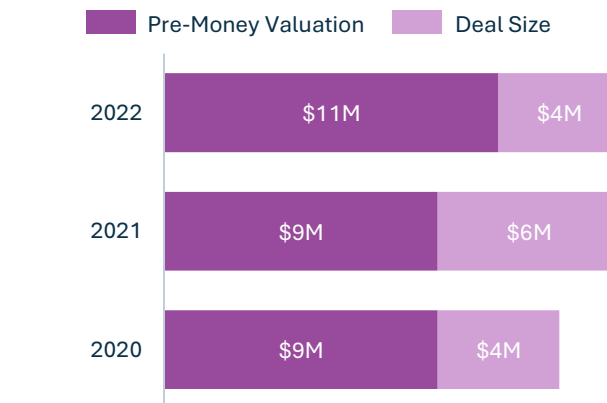
Subsectors	2020		2021		2022	
	Dollars	Deals	Dollars	Deals	Dollars	Deals
R&D Tools	\$372M	53	\$600M	85	\$496M	59
Dx Analytics	\$246M	26	\$413M	54	\$503M	65
Dx Tests	\$201M	33	\$222M	51	\$558M	55

Note: 1) Seed/Series A includes first-time investments from institutional or corporate venture investment in the US, EU, and UK and any first-round investments equal to or greater than \$2M, regardless of investor. 2) These companies overlap with the healthcare sector and are included in both sets of sector-specific analyses. Dates of financing rounds are subject to change based on add-on investments.

All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.

Median Seed/Series A Valuations US, EU & UK



Largest 2022 Seed/Series A Deals



Investment Shortfall in H2, Led by R&D Tools

We noted strong dx/tools investment in H1 2022. However, this activity plummeted in H2, with only three \$100M+ deals (vs. 16 in H1), pushing deals and dollars for the year down to 2019 levels. This slowdown may either be temporary or signal that later-stage investors are shifting their new investment focus toward other sectors. Given the shrinking public market, there are limited near-term opportunities to match the huge dx/tools exits from 2020 and 2021 (including three \$1B+ private M&A and 13 US/UK IPOs with \$1B+ market caps), which likely caused investors to reduce later-stage activity. Despite reduced activity, some of the more active investors in 2022 include Catalio and Section 32, corporate Bristol Myers Squibb, and crossovers Casdin and SoftBank.

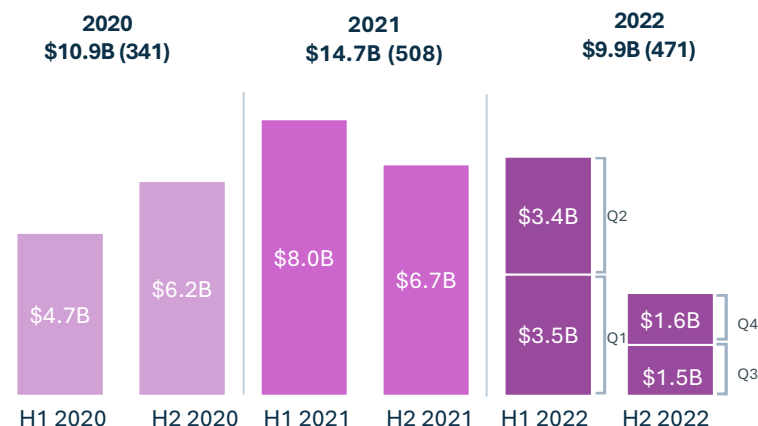
In R&D tools, Ultima Genomics and Resilience each raised \$600M in H1 2022. However, R&D tools investment dropped 85% in 2H. Closing new outsider-led rounds has become more difficult, as investors balance a difficult CapEx environment and incumbent competition with revenue growth and exit opportunities new investments can bring.

Later-stage investors continue to focus on dx analytics companies. Four of the five largest deals in this subsector (Tempus, Cleerly, Verana Health and Scipher) were led by crossover/growth players. These deals also included biopharma corporates, which are advancing data-driven precision medicine through investments and collaborations.

Substantial oncology liquid biopsy investments have created an increasingly crowded space. We expect some private consolidation in 2023.



Total Dollars and (Deals) US, EU & UK



Notable 2022 Deals

2020 2021 2022

\$100M to \$199M



19 29 11

\$200M+



10 13 7

Note: 1) These companies overlap with the healthtech sector and are included in both sets of sector-specific analyses. 2) Only includes private post-money values from publicly disclosed 2022 financings in PitchBook. Financing data include private financings by venture-backed companies in the US, EU, and UK. Dates of financing rounds are subject to change based on add-on investments. All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.

Dollars and Deals by Subsectors US, EU & UK

Subsectors	2020		2021		2022	
	Dollars	Deals	Dollars	Deals	Dollars	Deals
R&D Tools	\$5.0B	148	\$7.5B	222	\$4.8B	181
Dx Tests	\$3.3B	92	\$3.8B	149	\$1.9B	118
Dx Analytics	\$2.5B	101	\$3.3B	137	\$3.2B	172

2022 Highest-Valued Private Companies²

TEMPUS ¹	Dx Analytics	\$10.3B post
RESILIENCE	R&D Tools	\$9.0 post
BostonGene ¹	Dx Analytics	\$2.2B post
SYNTHIGO ¹	R&D Tools	\$1.2B post
iz.ai ¹	Dx Analytics	\$1.2B post
BillionToOne	Dx Tests	\$950M post
Alloy Therapeutics	R&D Tools	\$792M post
DELFI	Dx Tests	\$625M post



Dx/Tools Step-Ups: 2022

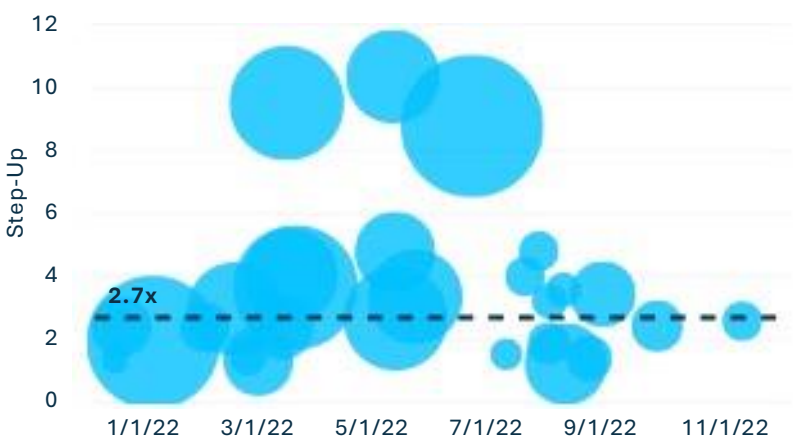
Of the 471 US, EU and UK dx/tools financings in 2022, we calculated 92 step-ups¹ and step-downs that were outside-led rounds with publicly disclosed valuation information in their previous and current rounds. From our anecdotal perspective, most of the outside-led financings in 2022 were reserved for the top 15%-20% of companies that hit significant development milestones. Many companies instead raised insider rounds or extensions with plans to come back to the market in late 2023. At that point, we expect to see a spike in step-downs as companies reset their valuations.

Dx/Tools tied with healthtech as the healthcare sector with the top median seed-A step-up of 2.7x. Ten of the 12 largest step-ups were R&D tools companies, led by Watchmaker (10.4x) and Enable Medicine (9.6x). The two other deals were completed by dx analytics company Xilis (8.8x) and dx tests company Oova (4.8x).

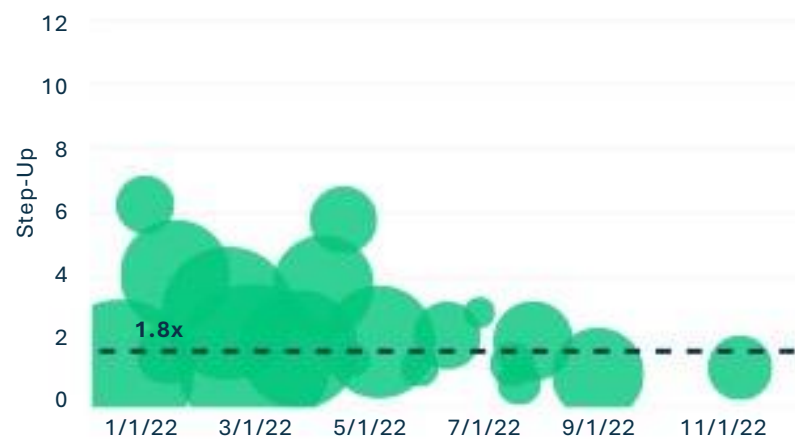
In dx/tools, the Series A-B step-ups were primarily in H1 2022 with a strong median of 1.8x. There were three A-B deals with 5x+ step-ups: one R&D tools deal from Preomics (6.3x) and two dx analytics deals from Genome Insight (5.8x) and BostonGene (5.0x).

By contrast, later-stage dx/tools step-ups were smaller, but still impressive given the large deal sizes. In 2022, 10 \$100M+ later-stage financings closed with a median step-up of 1.6x and no down rounds, while also creating two new unicorns, BillionToOne and Visby.

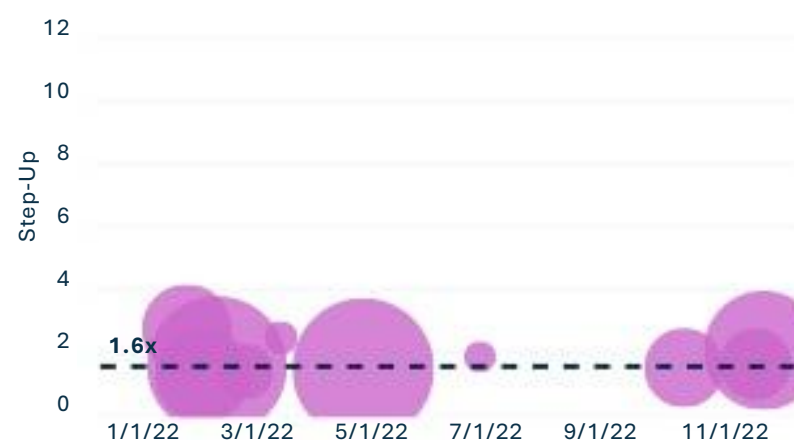
Seed-A Step-Up



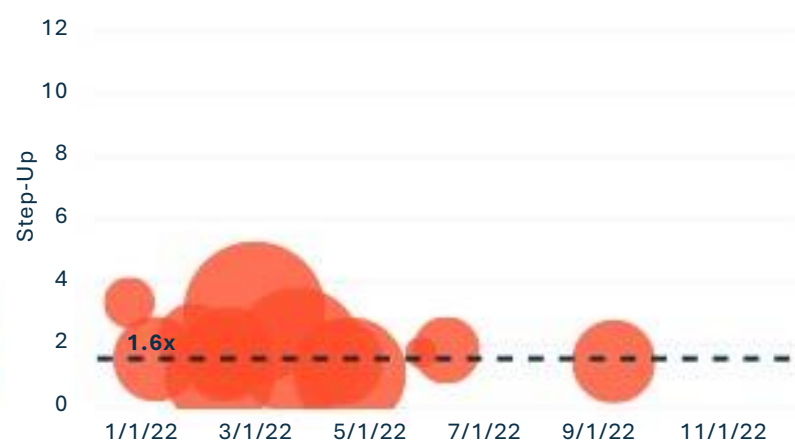
A-B Step-Up



B-C Step-Up



C+ Step-Up



Note: Size of bubble indicates size of 2022 financing.

— Dotted line indicates median step-up.

Note: 1) Step-ups are calculated by dividing the company's 2022 financing pre-money valuation by its most recent financing post-money valuation if it occurred between 2019 and 2022. Only includes financing and valuation information from publicly disclosed financings in PitchBook.

Dates of financing rounds are subject to change based on add-on investments. All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.





Most Active¹ Dx/Tools Investors

Deal Count, US, EU & UK (2021-2022)

Venture Activity Overall			Late-Stage/Crossover Activity Overall			Corporate Venture Activity Overall			R&D Tools			Dx Analytics		
16	12 2021 4 2022		14	6 2021 8 2022		17	12 2021 5 2022		11	9 2021 2 2022		6	5 2021 1 2022	
10	7 2021 3 2022		9	7 2021 2 2022		6	2 2021 4 2022		10	6 2021 4 2022		4	2 2021 2 2022	
10	6 2021 4 2022		7	6 2021 1 2022		5	2 2021 3 2022		8	3 2021 5 2022		4	4 2021 0 2022	
9	4 2021 5 2022		7	6 2021 1 2022		4	3 2021 1 2022		6	4 2021 2 2022		4	2 2021 2 2022	
8	4 2021 4 2022		7	4 2021 3 2022		3	2 2021 1 2022		7	5 2021 2 2022		4	3 2021 1 2022	

Device Decline in H2; Retreat by Strategics

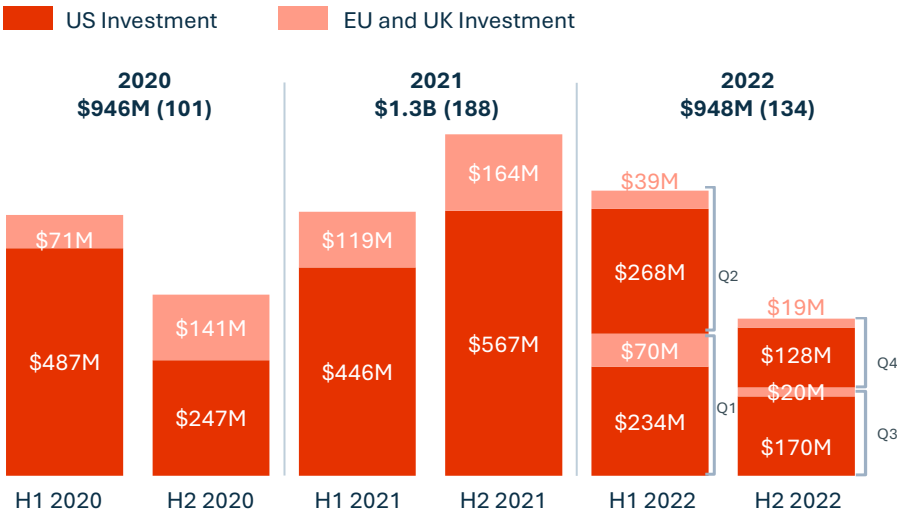
In 2022, early-stage investment into device companies started off strong but declined significantly in H2. We saw the biggest drop in non-invasive monitoring deals, possibly a correction after exceptional investment activity in this indication over the past two years. Overall, it appears that many device investors shifted their focus from portfolio expansion to portfolio preservation in H2, scaling back on early-stage deals to help mid- to late-stage portfolio companies extend their cash runways. Additionally, investors focused more on early-stage 510(k)³ stories rather than their premarket approval (PMA³) counterparts, given concerns over pivotal trial funding support.

We still saw strong early-stage investment from firms like Santé, Broadview, Vensana, Lightstone, and ShangBay. Other larger venture funds also sought out earlier investment opportunities in the device sector as the later-stage space became crowded with new PE, growth equity, hedge fund and crossover investors.

In the last two years, corporate venture retreated from seed/Series A device investments, participating in fewer than 10% of deals, compared with over 30% in both 2020 and 2019. This could be related to the general market downturn, as public device companies keep a critical focus on cash outlay and earnings per share (EPS). However, late in Q4 we heard about multiple strategic early-stage collaborations and build-to-buy deals in the works, suggesting that early-stage strategic support may pick up for device companies in 2023.



Seed/Series A¹ Dollars and (Deals) US, EU & UK



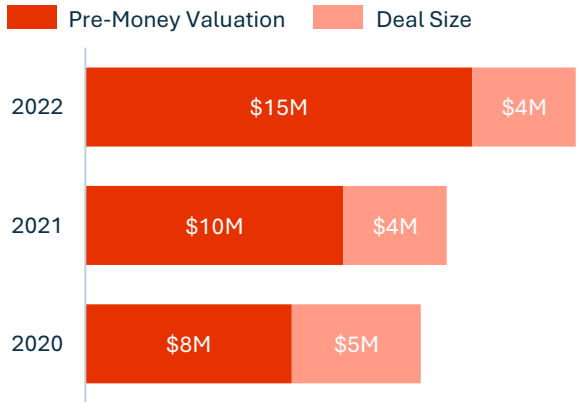
Seed/Series A Dollars and Deals by Top Indications US, EU & UK

	2020		2021		2022	
Indications	Dollars	Deals	Dollars	Deals	Dollars	Deals
Non-Invasive Monitoring	\$139M	18	\$280M	50	\$160M	21
Drug Delivery	\$35M	8	\$63M	9	\$166M	7
Surgical	\$180M	12	\$50M	11	\$106M	21
Neurology	\$137M	7	\$83M	13	\$54M	11
Platform	\$13M	3	\$129M	12	\$45M	8
Orthopedic	\$46M	7	\$47M	13	\$50M	13
Ophthalmology	\$19M	5	\$86M	9	\$88M	7

Note: 1) Seed/Series A includes first-time investments from institutional or corporate venture investment in the US, EU, and UK and any first-round investments equal to or greater than \$2M, regardless of investor. 2) This company overlaps with the healthtech sector and is included in both sets of sector-specific analyses. 3) Definitions for PMA and 510(k) can be found in the glossary on page 40 of this report. Dates of financing rounds are subject to change based on add-on investments.

All data as of 12/16/2022.
Source: PitchBook and SVB proprietary data.

Median Seed/Series A Valuations US, EU & UK



Largest 2022 Seed/ Series A Deals



Late Stage Remains Sanguine, but for How Much Longer?

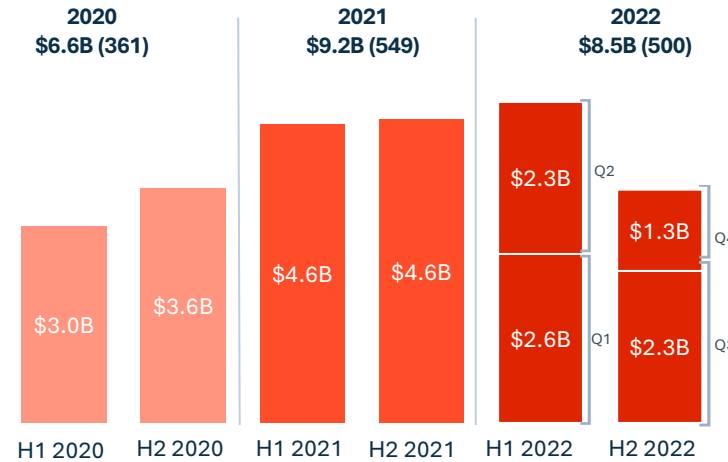
A stellar H1 2022 was followed by a lackluster H2 in which device investment dropped to \$3.6B, equaling H2 2020 when the COVID-19 pandemic was limiting surgical procedures and device company access to hospitals. In the next six months, we will see whether this was merely a blip before a return to strong investment, a reversion to pandemic activity or a midway point toward a greater decline. Regardless, strong activity in the first three quarters was surprising in the face of a tough public market and fewer M&A deals.

Device ran countercyclical to the pullback in the other three healthcare sectors in 2022. PE, large institutional venture and growth cap investors shifted their focus toward later-stage revenue-driven device companies with good margins, which have the potential to create sustainable business models at reasonable valuations. For the same reason, these investors were joined by hedge fund and crossover investors that traditionally focused on biopharma. With a growing set of later-stage device investors, 2022 had more \$100M+ financings than each of the two prior years. The largest financings and valuations were for companies in non-invasive monitoring, which typically has a quicker timeline to profitability than other device indications.

In 2022, the investment data painted a rose-tinted picture of the device industry. However, beneath the surface, investors started to rely on term sheets with liquidation preferences greater than 1x, pay-to-play provisions, and even full ratchets, which sweetens the deal for new investors while protecting the company from the optics of a down round. It's only a matter of time before later-stage down rounds become more prevalent, especially as companies that raised insider rounds and extensions in 2022 come back to the market in H2 2023.



Total Dollars and (Deals) US, EU & UK



Notable 2022 Deals

2020 2021 2022

\$50M+ to \$99M



\$100M+



Note: 1) These companies overlap with the healthtech sector and are included in both sets of sector-specific analyses. 2) Only includes private post-money values from publicly disclosed 2022 financings in PitchBook. Financing data include private financings by venture-backed companies in the US, EU, and UK. Dates of financing rounds are subject to change based on add-on investments.

All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.

Dollars and Deals by Subsectors US, EU & UK

	2020		2021		2022	
Indications	Dollars	Deals	Dollars	Deals	Dollars	Deals
Non-Invasive Monitoring	\$1.0B	52	\$1.0B	104	\$1.8B	84
Imaging	\$674M	40	\$1.2B	59	\$537M	42
Drug Delivery	\$231M	23	\$623M	41	\$690M	28
Surgical	\$389M	28	\$1.1B	34	\$797M	51
Neurology	\$620M	26	\$871M	39	\$650M	38
Cardiovascular	\$776M	34	\$638M	38	\$814M	37
Vascular	\$407M	27	\$547M	31	\$421M	33

2022 Highest-Valued Private Companies² US, EU & UK

Athelas ¹	Non-Invasive Monitoring	\$1.6B post
biofourmis ¹	Non-Invasive Monitoring	\$1.3B post
AliveCor ¹	Non-Invasive Monitoring	\$980M post
Distalmotion	Surgical	\$756M post
Noah Medical	Surgical	\$750M post
reflexion	Oncology	\$750M post
CERAPEDICS	Orthopedic	\$700M post
kerecis	Dermatology	\$620M post

Device Step-Ups: 2022

Of the 501 US, EU, and UK device financings in 2022, we calculated 99 step-ups¹ and step-downs that were outside-led rounds with publicly disclosed valuation information in their previous and current rounds. From our anecdotal perspective, most of the outside led financings in 2022 were reserved for the top 15%-20% of companies that hit significant development milestones. Many companies instead raised insider rounds with plans to come back to the market in late 2023. At that point, we expect to see some later-stage step-downs as companies reset their valuations.

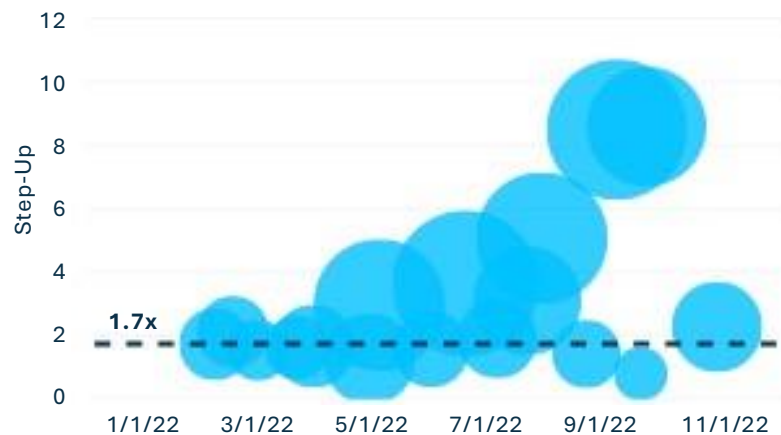
When compared to other sectors, device had the lowest median multiples for seed-A and A-B step-ups. Device valuations tend to be more resilient to broad market fluctuations than other sectors. Next round step-ups historically have been more measured, so we expect a smaller number of significant down rounds.

For early-stage deals in H2 2022, the top step-up was Invicta Medical (8.6x), a neurostimulation company to treat sleep apnea. Other notable step-ups in H2 included: Qnovia (8.5x), a drug delivery company developing a nebulizer for smoking cessation, AVS Pulse (8.3x), an intravascular lithotripsy company, and Medivis (5.0x), using augmented reality for surgeries.

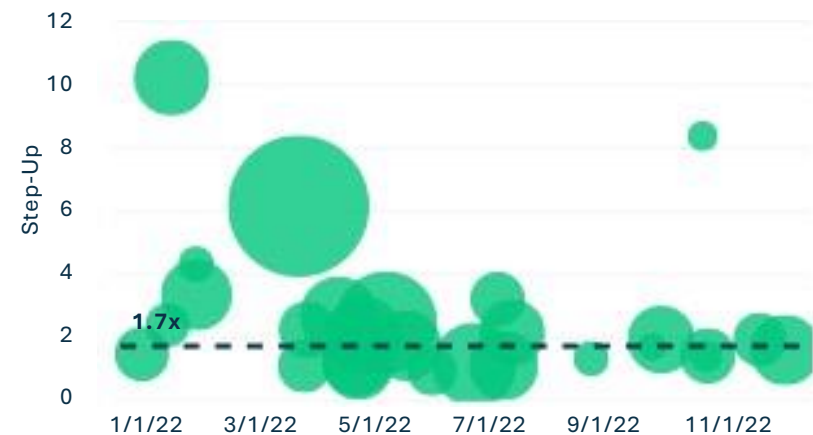
Only one late-stage deal yielded a step-up over 3x in H2 2022: Delphinus Medical Technologies (3.1x), which develops an ultrasound transducer for dense breast mammography. However, of the Series B and C+ device deals in 2022, the seven highest-valued companies (with \$200M+ pre-money valuations) were able to finance with a median multiple of 1.4x and no down rounds. Non-invasive monitoring companies were three of the seven deals, with Indigo (1.0x), VitalConnect (1.1x) and AliveCor (1.6x).



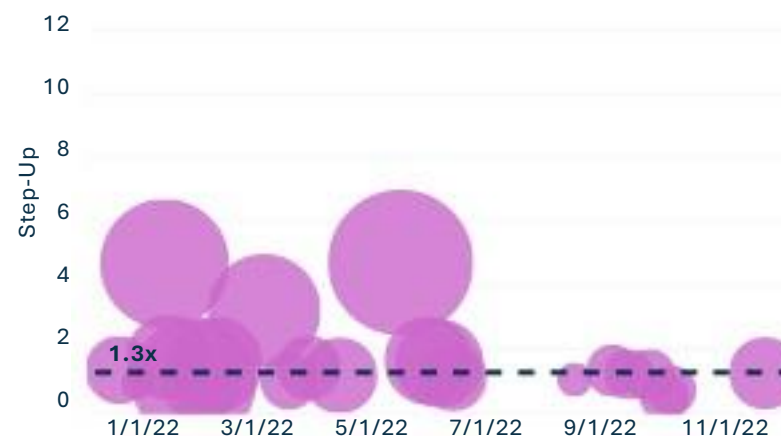
Seed-A Step-Up



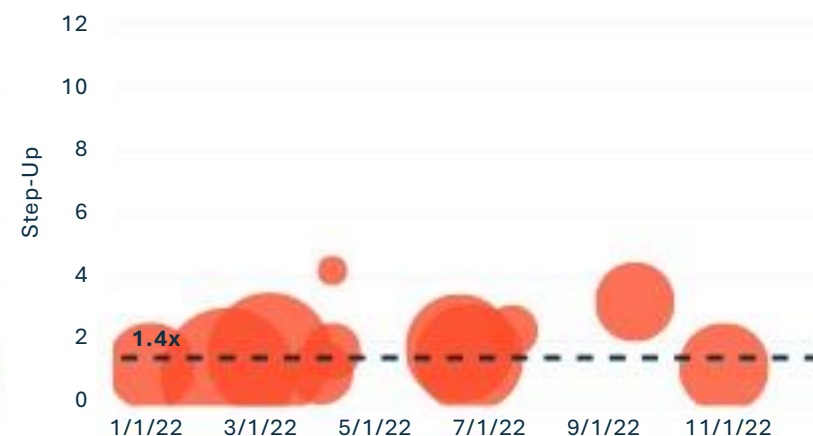
A-B Step-Up



B-C Step-Up



C+ Step-Up



Note: Size of bubble indicates size of 2022 financing.
 — Dotted line indicates median step-up.

Note: 1) Step-ups are calculated by dividing the company's 2022 financing pre-money valuation by its most recent financing post-money valuation if it occurred between 2019 and 2022. Only includes financing and valuation information from publicly disclosed financings in PitchBook.

Dates of financing rounds are subject to change based on add-on investments. All data as of 12/16/2022.
 Source: PitchBook and SVB proprietary data.



Most Active¹ Device Investors

Deal Count, US, EU & UK (2021-2022)

Venture Activity Overall			Late-Stage/Crossover Activity Overall			Corporate Venture Activity Overall			Non-Invasive Monitoring			Neurology		
10	5 2021 5 2022		6	5 2021 1 2022	BlackRock	6	4 2021 2 2022		4	2 2021 2 2022		2	2 2021 0 2022	
10	5 2021 5 2022		5	2 2021 3 2022	RACAPITAL	4	1 2021 3 2022	INTUITIVE Ventures	3	3 2021 0 2022		2	0 2021 2 2022	
8	6 2021 2 2022	Gaingels 	4	3 2021 1 2022	KCK medtech	4	4 2021 0 2022	MAYO CLINIC 	3	2 2021 1 2022		2	2 2021 0 2022	
6	4 2021 2 2022		4	3 2021 1 2022		4	2 2021 2 2022		3	1 2021 2 2022		2	2 2021 0 2022	
5	3 2021 2 2022		4	3 2021 1 2022		3	3 2021 0 2022	ZEPPE HEALTH	3	3 2021 0 2022		2	1 2021 1 2022	



Computational Biology Investments

US, EU & UK



Traditional Biopharma Funds Early Comp Bio¹

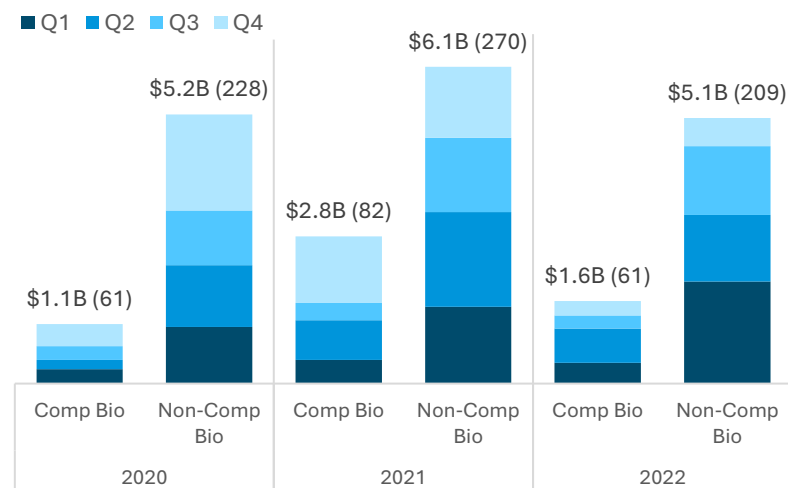
In 2022, seed/Series A investment in biopharma and R&D tools companies dropped from 2021, with deals down 23% and dollars down 25%. Despite this overall decline, computational biology (comp bio) companies made up the same proportion of early-stage activity (23% of deals), with a slightly larger median deal size (\$10M) than their non-comp bio counterparts (\$9M). Though many investors scaled back new investments to refocus on existing portfolio companies, they continued to dedicate a significant portion of their available funds to companies that are leveraging computational approaches.

These companies fall into two major categories, applying novel computational tools to either (1) drive drug discovery and development for others (R&D tools) or (2) advance their own drug pipeline (biopharma). In 2022, early-stage comp bio investment remained relatively consistent for R&D tools but dropped significantly in biopharma after a record high in Q4'21. Despite this fluctuation, biopharma continues to attract the majority of early-stage comp bio deals (68%) and dollars (89%). Within comp bio, biopharma had a 2.3x greater median deal size than R&D tools, as these companies need more capital to bring their own drug assets through clinical development.

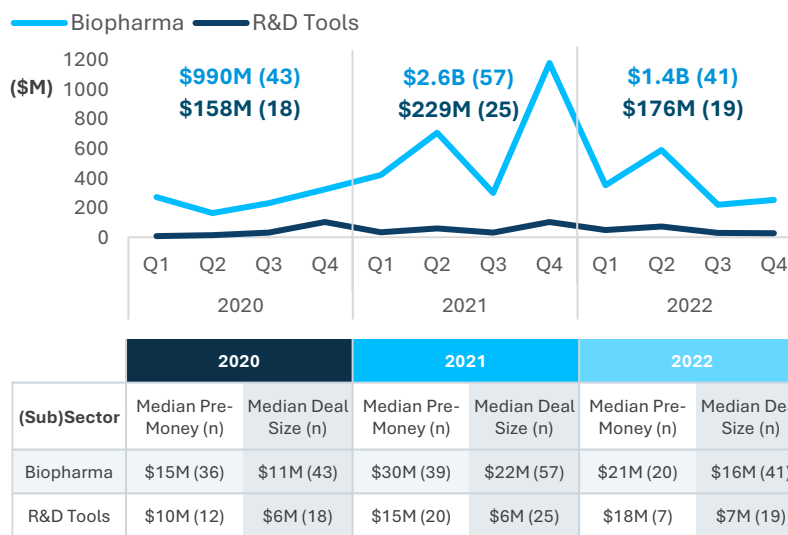
We continued to see more traditional biopharma investors in the early-stage comp bio space, led by Flagship, OrbiMed, Polaris and Versant. These investors directed investment to biopharma deals with platform technologies. No R&D tools companies made it onto the list of 10 biggest seed/Series A comp bio deals in 2022.



Seed/Series A² Dollars and (Deals) US, EU & UK³



Comp Bio Seed/Series A by (Sub)Sector



Note: 1) To qualify as a comp bio company in this analysis, per review of their website, the company must (1) focus on drug discovery or development (biopharma/R&D tools), (2) apply novel computational tools to gain biological or chemical insights, (3) have the ability or potential for platform creation and (4) have a team with computational experience. 2) For this comp bio analysis, seed/Series A includes first-time investments in biopharma/R&D tools equal to or greater than \$2.5M, regardless of investor. Dates of financing rounds are subject to change based on add-on investments. 3) All data as of 12/16/2022.
Source: PitchBook and SVB proprietary data.

2022 Comp Bio: Top Seed/Series A US, EU & UK³

	Indication	Deal Date	Deal Size
Retro BIOSCIENCES	Platform	4/6/22	\$180M
ORBITAL	Platform	9/2/22	\$103M
SEISMIC	Autoimmune	2/9/22	\$101M
Cajal Neuroscience	Neurology	11/29/22	\$96M
TRexBio	Platform	3/8/22	\$85M
REZO	Oncology	11/17/22	\$78M
PROFOUND THERAPEUTICS	Platform	5/26/22	\$75M
TERREMOTO	Platform	5/25/22	\$75M
Vesalius	Platform	3/1/22	\$75M
Apertura GENE THERAPY	Platform	4/26/22	\$67M

Comp Bio Seed/Series A Investors

Most Active Investor (**Biopharma Deals**/R&D Tools Deals)

2020	2021	2022
A T P (4)	ARCH VENTURE PARTNERS (4/1)	AXIAL (4/1)
ALEXANDRIA Venture Investments (2)	ALEXANDRIA Venture Investments (1/3)	ALEXANDRIA Venture Investments (2)
FoundersX (2)	CASDIN CAPITAL (2/2)	CIVILIZATION VENTURES (2)
NF (2)	LU+ (3/1)	Flagship Pioneering (2)
PARTNERS RESEARCH VENTURES & LICENSING (2)	FORESITE CAPITAL (3)	G/ (2)
M VENTURES (1/1)	THE COLUMN GROUP (3)	OrbiMed (2)
playground (2)	KdT Ventures (2/1)	polarispartners (2)
	AME CLOUD VENTURES (3)	VERSANT (2)
		HAWKTAIL (1/1)
		khosla ventures (1/1)

Computational Biology¹

Step-Ups: 2022

In 2022 we calculated 78 comp bio and 117 non-comp bio companies with step-ups² and step-downs that were outside-led rounds with publicly disclosed valuation information in their previous and current rounds.

In 2022, the largest comp bio step-ups were all early-stage and concentrated in H1. These fast-growing companies were split evenly between biopharma (all still preclinical) and R&D tools. Though comp bio companies demonstrated bigger seed-A and A-B step-up multiples, later-stage step-ups were more similar across both comp bio and non-comp bio companies, partly due to the overall valuation reset we saw in 2022.

Toward the end of 2022, comp bio companies raised smaller step-ups but continued to reach impressive valuations. Of the biopharma/R&D tools rounds with disclosed \$1B+ post-money valuations in 2022, a striking majority (8/10) were from comp bio companies, with half in Q1'22 and the other half in Q4'22. All but one of these deals were raised by biopharma companies, led by Eikon Therapeutics, which raised a huge 10.1x A-B step-up to become the highest-valued comp bio company to raise a round in 2022.

Step-Up	Comp Bio Median Multiple	Non-Comp Bio Median Multiple
Seed-A	2.9x	2.3x
A-B	2.0x	1.7x
B-C	1.3x	1.4x
C-D+	1.0x	1.4x

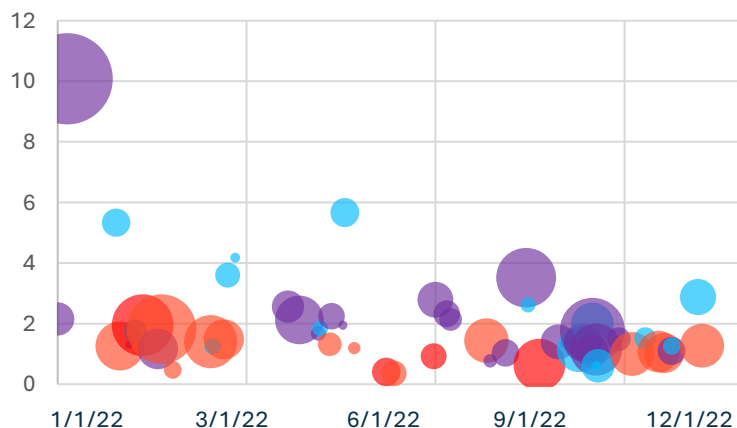


2022 Comp Bio (All Deals³)

US, EU & UK⁴

Biopharma Step-Ups

Size of bubble indicates size of 2022 financing.



2022 Comp Bio: Top Step-Ups

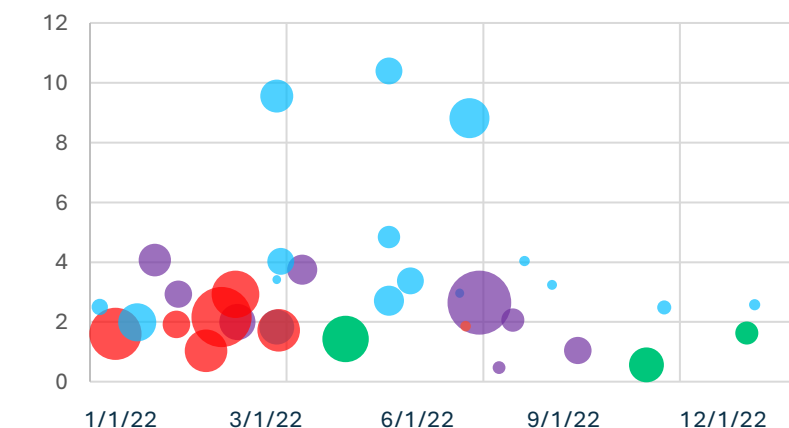
	(Sub) Sector	Multiple	Deal Date	Deal Size	Post-Money
	R&D Tools	10.4x	6/2/22	\$40M	\$230M
	Biopharma	10.1x	1/6/22	\$518M	\$3.0B
	R&D Tools	9.6x	4/6/22	\$60M	\$190M
	Biopharma	5.7x	6/2/22	\$52M	\$222M
	Biopharma	5.3x	7/19/22	\$50M	\$130M
	R&D Tools	4.8x	6/2/22	\$28M	\$148M
	Biopharma	4.2x	4/5/22	\$6M	\$29M
	R&D Tools	4.1x	2/3/22	\$58M	\$154M

Note: 1) To qualify as a comp bio company in this analysis, per review of their website, the company must (1) focus on drug discovery or development (biopharma/R&D tools), (2) apply novel computational tools to gain biological or chemical insights, (3) have the ability or potential for platform creation and (4) have a team with computational experience. 2) Step-ups calculated as pre-money of most recent deal divided by post-money of last deal. 3) Step-ups included for companies with valuations in PitchBook. Dates of financing rounds are subject to change based on add-on investments. 4) All data as of 12/16/2022.

Source: PitchBook and SVB proprietary data.

R&D Tools Step-Ups

Size of bubble indicates size of 2022 financing.



2022 Comp Bio: Top Post-Money Values

	(Sub) Sector	Multiple	Deal Date	Deal Size	Post-Money
	Biopharma	10.1x	1/6/22	\$518M	\$3.0B
	Biopharma	2.0x	10/11/22	\$112M	\$1.8B
	Biopharma	1.8x	2/25/22	\$300M	\$1.7B
	Biopharma	1.1x	10/4/22	\$124M	\$1.5B
	Biopharma	1.8x	10/11/22	\$261M	\$1.3B
	R&D Tools	2.4x	2/17/22	\$200M	\$1.3B
	Biopharma	1.0x	11/18/22	\$100M	\$1.2B
	Biopharma	2.0x	2/15/22	\$236M	\$1.1B

Step-Up: Seed-A A-B B-C C-D+



Healthcare M&A and IPO Activity

Global



Tougher IPO Market; M&A Favors Publics

After four successive years with 50+ venture-backed biopharma IPOs, there were just 19 IPOs in 2022. A common theme for the 11 US/EU IPOs was significant crossover and top venture investors in the private syndicate, who then participated heavily in the IPO. Another common theme was the focus on neurology (four of 11 deals) and less on oncology (one of 11). Finally, these deals also had an early-stage focus; five of the US/EU IPOs were phase I and one was preclinical. The median pre-money valuation for US/EU IPOs in 2022 reverted to the same size as 2019, with a flat median step-up from the last private round to IPO pre-money.

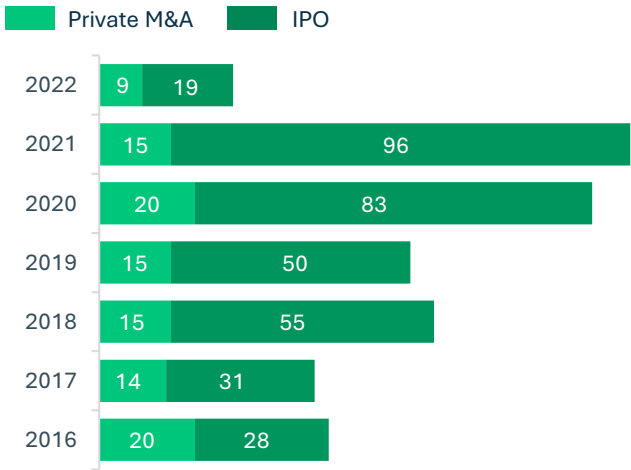
IPO performance for the classes of 2020 and 2021 dropped further in 2022, now with firmly entrenched negative performance. However, several promising early-stage clinical results in the second half of 2022 redirected some 2021 IPOs upward (Dice, Ventyx and Nuvalent). We hope this trend will continue, as positive news like this could help to reinvigorate the public market.

We predicted that 2022 M&A would be robust but dominated by large acquirers targeting recent IPOs. We noted that these public companies would be more open to M&A than private deals that were stuck with inflated valuations.

While private M&A declined to nine deals in 2022, our hypothesis largely played out, as public acquirers hunted for companies that recently went public. We noted eight major public acquisitions of recent IPOs for more than \$20B, including six \$1B+ deals.



Biopharma Private M&A Deals and IPOs by Year, Global¹

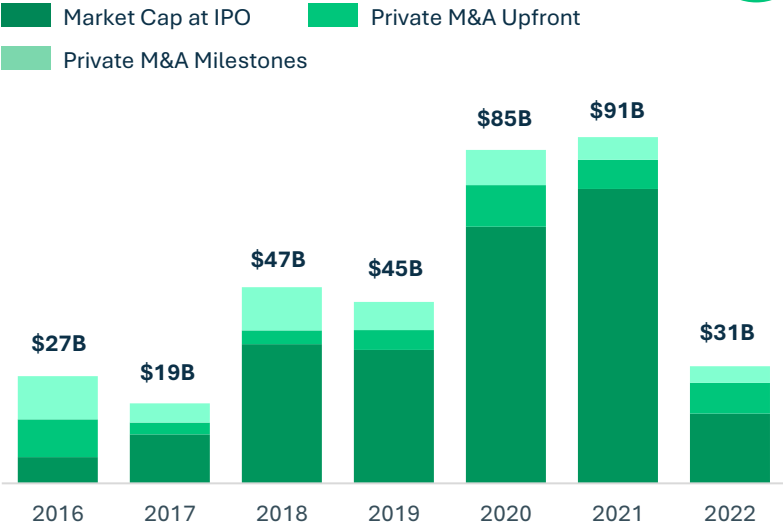


2022 Largest US IPOs by IPO Market Cap

SVB Indication	Platform	Neurology	Dermatology	
IPO Price (Date)	\$17 (10/20/22)	\$19 (1/7/22)	\$17 (9/14/22)	
Market Cap at IPO	\$1.5B	\$1.1B	\$658M	
Price 12/31/2022	\$18.58	\$36.95	\$4.30	
Price +/-	9%	94%	-75%	
Market Cap 12/31/2022	\$1.6B	\$2.4B	\$174M	

Note: 1) All exit data is global. M&A defined as all private, global, venture-backed M&A deals with upfront payments of at least \$75M. IPO defined as all private, global, venture-backed IPOs raising at least \$25M in proceeds. Market cap at IPO used to estimate value of public companies. Public market performance metrics calculated as of 12/31/2022.
Source: PitchBook, S&P Capital IQ and SVB proprietary data.

Biopharma Exit Values by Year



IPO Performance by IPO Year

	IPO Cohort Year			
	2019	2020	2021	2022
Number of IPOs	50	83	96	19
Median Pre-\$/Median Dollars Raised	\$337M/\$85M	\$495M/\$200M	\$428M/\$133M	\$501M/\$155M
Median/Average 2019 Performance	20% / 52%			
Median/Average 2020 Performance	31% / 89%	74% / 89%		
Median/Average 2021 Performance	-6% / 76%	-12% / 12%	-27% / -18%	
Median/Average 2022 Performance	-51% / 27%	-63% / -36%	-71% / -47%	-2% / 21%





Healthtech IPOs Halt; Uncertain M&A Pricing

There were no new venture-backed US, EU or UK healthtech IPOs in 2022, marking an end to the robust IPO activity over the last three years. The two IPOs in 2022, both in Q3, were international provider operations companies ClouDr (Hong Kong) and Lunit (South Korea).

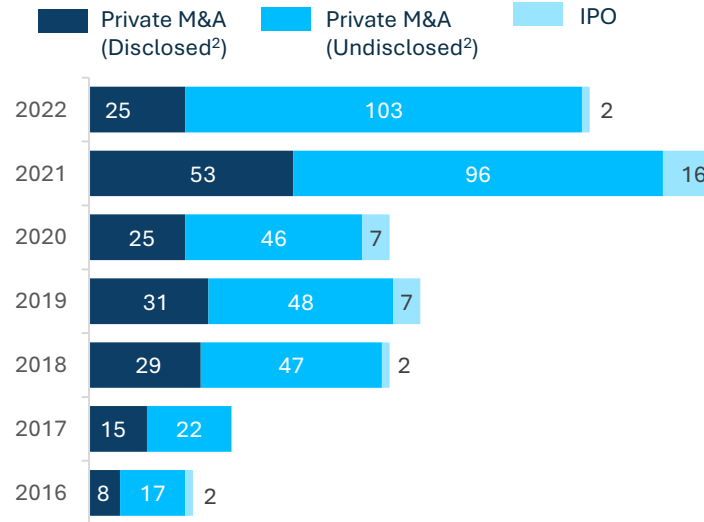
Macroeconomic factors affecting market volatility hit healthtech stocks harder than other sectors, as median performance fell to -67% at the end of 2022. There is no enthusiasm for tech-enabled healthcare growth stories, especially for unicorn companies that expected to trade up post-IPO.

Private M&A in healthtech continues to see extremely high deal volume, up 76% from 2020 levels and approaching 2021's record year. Although deal volume is high, acquisition prices are down as acquirers struggled with the valuation disconnect at the later-stage.

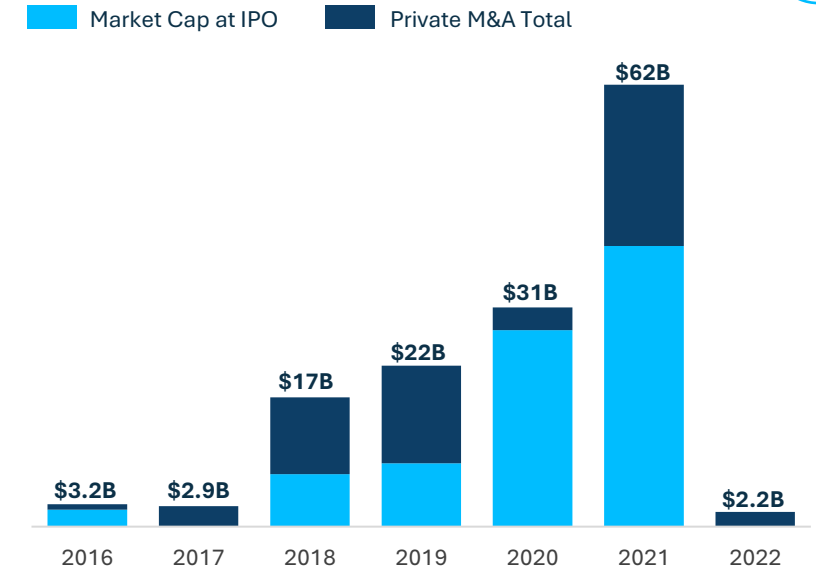
Special purpose acquisition companies (SPACs), which gained popularity in 2021, have fallen out of favor for healthtech companies. Median de-SPAC performance since merger close (for de-SPACs since 2021) reached a record low in Q4'22 (-90%), down significantly from 2021 (-35%).

As uncertain market conditions continue, we expect healthtech companies to remain private and delay IPO plans until at least late 2023, considering M&A opportunities instead.

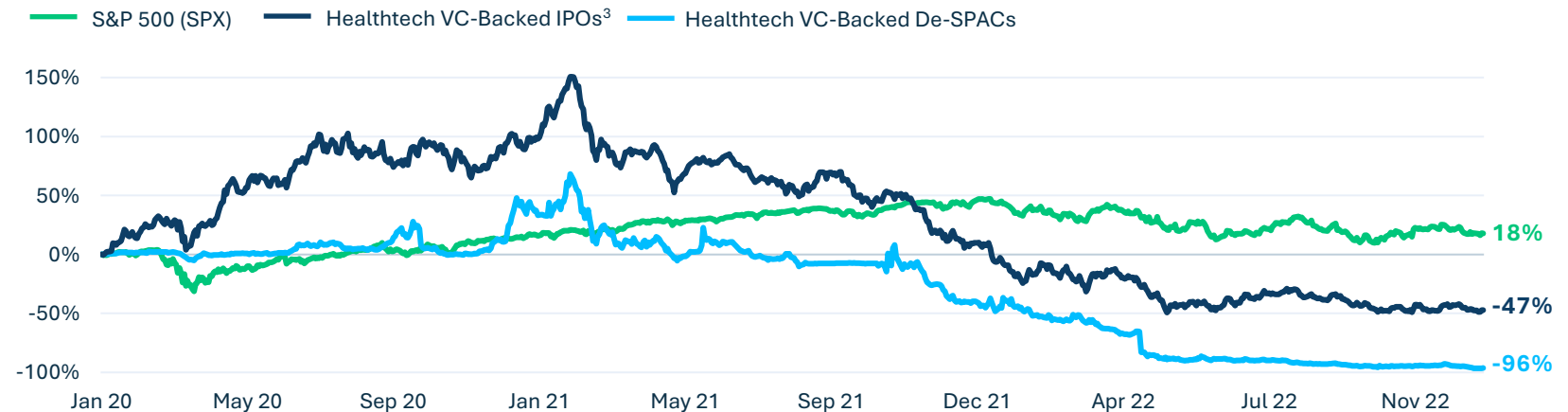
Healthtech Private M&A Deals and IPOs by Year, Global¹



Healthtech Exit Values by Year



Healthtech Average Post-Exit Performance



Note: 1) All exits are global. 2) Disclosed/undisclosed refers to a disclosed/undisclosed acquisition price for the M&A deal. 3) Healthtech VC-backed IPOs from 1/1/15 to 12/31/2022. Index performance is weighted equally. Public market performance metrics calculated as of 12/31/2022. M&A defined as all private, venture-backed M&A deals with no upfront limitations, globally. IPO defined as all private, venture-backed IPOs raising at least \$25M in proceeds, globally.

Source: PitchBook, S&P Capital IQ, SVB proprietary data and SVB Future of Healthtech 2022 Report.

Acquisition Prices Down; Healthtech Acquirers Active

Although activity was high, median M&A deal prices were down significantly in 2022 as acquirers struggled with the lofty post-money valuations from large venture-backed deals over the past few years. Big exits dipped from four \$1B+ M&A in 2021 to none in 2022. While we expect M&A to continue, deal pricing will likely remain unsettled as valuations for later-stage companies continue to correct.

In 2021, healthtech M&A saw strong return multiples for many of the disclosed deals, but public market corrections have lowered multiples in 2022, with a few companies' last post-money valuation higher than M&A exit value.¹

Public healthcare companies led acquisitions in healthtech, while PE acquisition activity declined over the last few years. We also expect private venture-backed healthcare companies to be well-positioned to be acquirers, given the current market climate and their strong cash position from mammoth 2021 rounds.

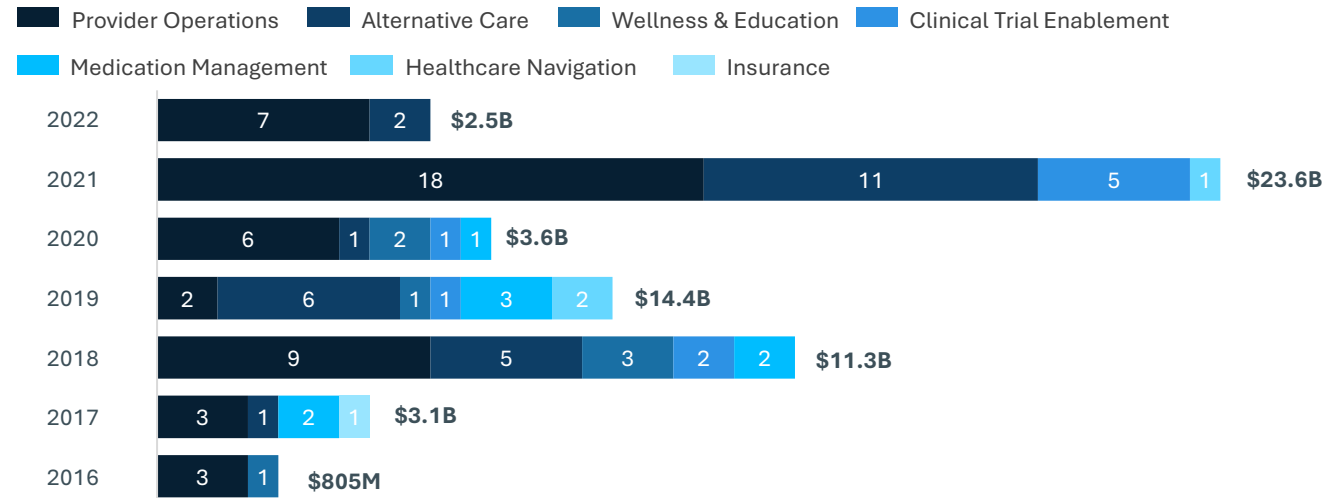
Big tech companies were opportunistic acquirers for public healthtech companies in 2022, with Amazon's acquisition of One Medical and Microsoft's acquisition of Nuance Communications. We think big tech companies will continue to be acquisitive, possibly in the venture healthtech space.

We believe late-stage M&A activity will continue as public access continues to be muted. Acquirers will look to private M&A to increase digital efficiencies and provide better patient navigation.



Healthtech Private M&A Deals by Subsector

Global, \$50M+ Deal Value



Healthtech M&A Activity by Subsector²

2017-2022

Subsector	# M&A	Total Deal	\$B+ Exits	Years to Exit
Provider Operations	45	\$180M	5	7
Alternative Care	26	\$258M	6	4
Medication Management	13	\$403M	1	7

Private M&A Deals 2022

\$50M+ Deal Value

cleared.	dadi ³	Alternative Care
CATHWORKS™	IPG INTEGRATED SURGICAL SOLUTIONS	Provider Operations
CARAVANHEALTH.	SYFT	
Odin Vision	ANALYTICAL WIZARDS	
PlusDental ³		

Note: 1) Return multiple defined as the acquisition price divided by the post-money valuation from the last private round. 2) Deals include healthtech M&A greater than \$50M. 3) These companies overlap with the biopharma, dx/tools or device sectors. M&A defined as all private, venture-backed M&A deals with no upfront limitations, globally. Does not include acquisitions of public targets. Data as of 12/31/2022.

Source: PitchBook, S&P Capital IQ, SVB proprietary data and SVB Future of Healthtech 2022 Report.

IPOs Return Gains; US IPOs Closed; M&A Down

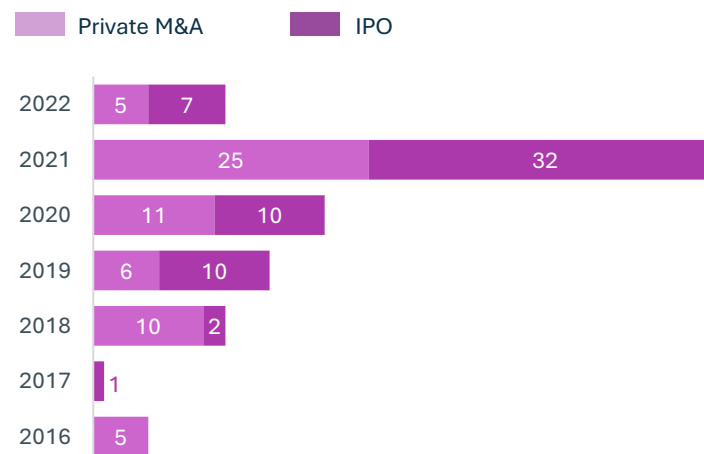
The rapidly growing M&A and IPO activity from 2019 through H1 2021 propelled dx/tools exits to record levels. However, since H2 2021, the dx/tools sector experienced significant drops in market caps of large public players and an even greater decrease in small and mid-cap recent IPOs. In 2022, there were no US venture-backed IPOs for the first time since 2016.

Specifically, the IPO classes of 2020 and 2021 suffered deep performance declines. By the end of 2022, Schrodinger was the only 2020 IPO in positive territory. The majority (21/32) of the IPOs from 2021 are down 70%+ from their IPO price, including all the US-listed companies except Akoya and Cytex, which are down 52% and 40%, respectively.

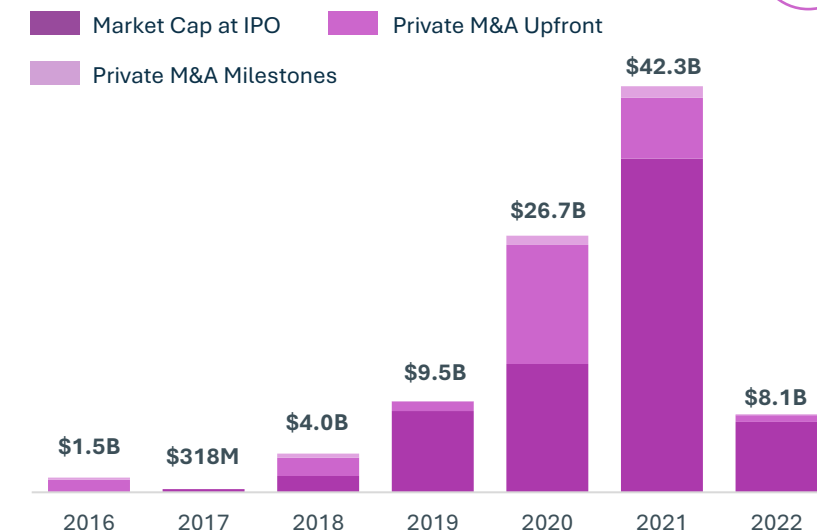
In 2022, acquirers had little appetite for M&A deals, with just five venture-backed acquisitions. Historically, during these difficult down cycles, acquirers usually directed their deal focus to companies with significant revenues (\$30M+) that could quickly break even with synergies from the deal. However, we hold out hope that acquirers will instead use the tough private financing environment to shop for early-stage companies that offer complementary or next-gen technologies.

To secure attractive exits down the road, the highly valued private companies that raised large rounds in 2020 and 2021 may adapt by collaborating with big players to raise non-dilutive capital and reduce expenses to extend runway.

Dx/Tools Private M&A Deals & IPOs by Year, Global¹



Dx/Tools Exit Values by Year



2022 Largest IPOs by IPO Market Cap

				
Exchange	SHSE	SHG	SHSE	SHG
SVB Subsector	R&D Tools	R&D Tools	R&D Tools	R&D Tools
IPO Price (Date)	\$5.48 (1/18/22)	\$3.36 (4/25/22)	\$2.08 (3/22/22)	\$11.32 (9/2/22)
Market Cap at IPO	\$2.1B	\$1.5B	\$1.0B	\$965M
Price 12/31/2022	\$2.10	\$3.49	\$2.76	\$14.96
Price +/-	-62%	4%	33%	32%
Market Cap 12/31/2022	\$837M	\$1.4B	\$1.4B	\$1.2B

IPO Performance by IPO Year

	IPO Cohort Year			
	2019	2020	2021	2022
Number of IPOs	10	10	32	7
Median Pre-\$/Median Dollars Raised	\$247M / \$69M	\$888M / \$177M	\$641M / \$156M	\$724M / \$202M
Median/Average 2019 Performance	46% / 66%			
Median/Average 2020 Performance	153% / 211%	80% / 119%		
Median/Average 2021 Performance	144% / 274%	-23% / -13%	-28% / -2%	
Median/Average 2022 Performance	-13% / 99%	-78% / -66%	-82% / -58%	0% / -6%

Note: 1) All exit data is global. M&A defined as all private, venture-backed M&A deals with at least \$50M upfront, globally. IPO defined as all private, venture-backed IPOs raising at least \$25M in proceeds, globally. Market cap at IPO used to estimate value of public companies. Public market performance metrics calculated as of 12/31/2022.

Source: PitchBook, S&P Capital IQ and SVB proprietary data.

Exits Drop; Other Sectors Add Dx/Tools M&A

Private venture-backed dx/tools companies experienced strong M&A activity in 2020 and 2021, with 25 M&A deals, including 11 sold for more than \$400M upfront. M&A slowed to just five deals in 2022, with only one in H2. The median upfront deal value in 2022 (\$100M) was down significantly from 2020 (\$350M) and 2021 (\$225M).

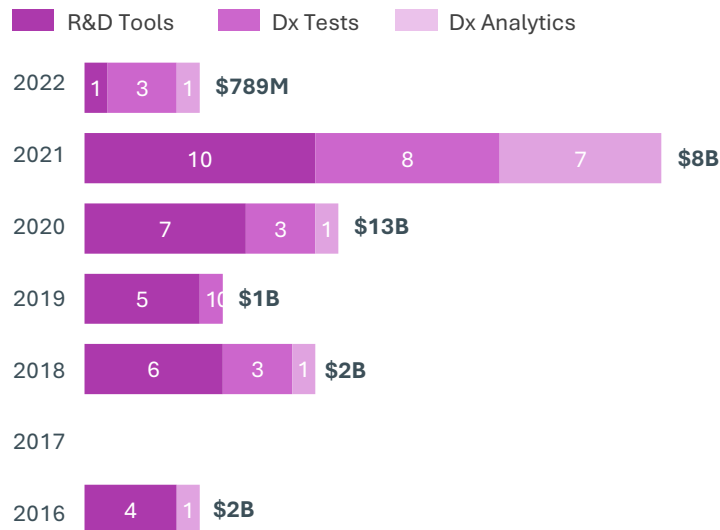
We noted two cross-sector acquisitions in 2022, which is unusual but fits with current trends in platform expansion and bringing service technologies in-house. First, Ro (a private healthtech company) acquired Dadi (a male fertility test company) to continue building out their suite of direct-to-consumer reproductive health products. Second, Galapagos (a public biopharma small molecule/cell therapy company) acquired CellPoint (an R&D tools company with an automated cell therapy manufacturing platform) to help streamline their manufacturing processes.

The other 2022 acquisitions included Castle Biosciences, expanding its reach beyond oncology by acquiring AltheaDx; BioMerieux, adding to its infectious disease franchise by acquiring Specific Diagnostics; Bruker, deepening its brain imaging franchise by acquiring Inscopix.

Private M&A Since 2017

Over the past few years, dx analytics exits have emerged as healthcare providers continue to prioritize precision medicine throughout the treatment process. Oncology-focused companies accounted for half of the dx analytics exits.

Dx/Tools Private M&A Deals by Indications¹

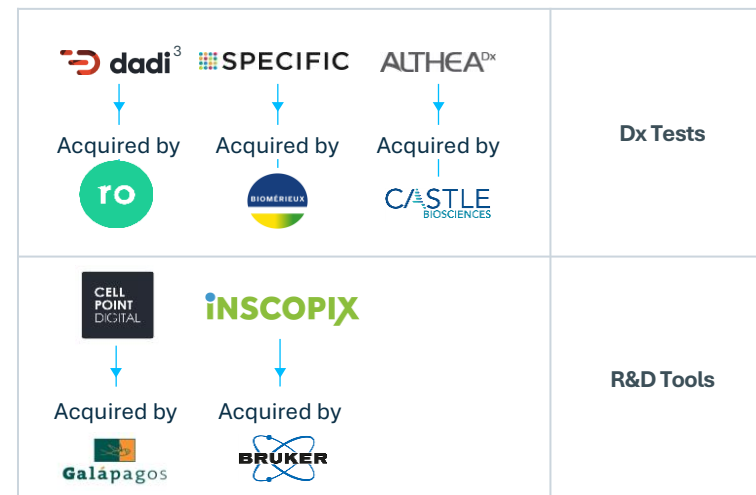


Dx/Tools M&A by Indication

2017-2022

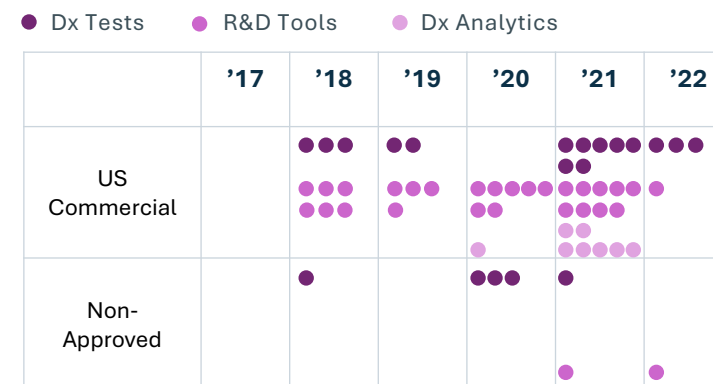
Indication	# M&A	Upfront (\$M)	Total Deal (\$M)	\$B+ Exits	Years to Exit
Dx Tests	20	\$313	\$380	2	6.2
R&D Tools	29	\$150	\$250	1	5.7
Dx Analytics	6	\$83	\$87	0	6.1

Private M&A Deals 2022



M&A by Life Stage and Top Indications²

2017-2022



Note: 1) All exit data is global. 2) Each dot represents an M&A deal. 3) This company overlaps with the healthtech sector. M&A defined as all private, venture-backed M&A deals with at least \$50M upfront, globally. Public market performance metrics calculated as of 12/31/2022. Source: PitchBook and SVB proprietary data.

As US IPO Performance Wanes, Window Shuts

2021 set a record for the number of venture-backed IPOs and M&A. M&A came from both large-cap med device stalwarts and small-to mid-cap companies. However, public market volatility caught up with the device sector, effectively closing the US IPO market in 2022.

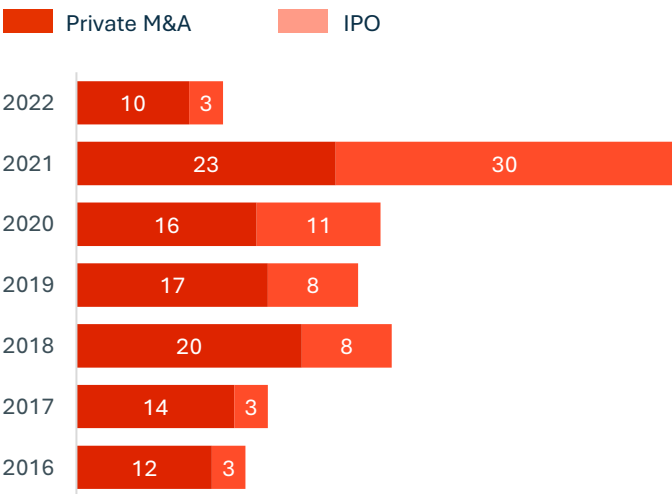
The eight US-listed IPOs from 2020 are all trading in negative territory, except for Inari Medical, which is up over 200% from its IPO price. The class of 2021 had 13 US-listed IPOs with negative median and average performance but still have four deals, PROCEPT BioRobotics, Treace Medical, Paragon 28 and CVRX, trading in positive territory.

In 2022, acquirers appeared to be internally focused on existing revenue lines and meeting earnings per share (EPS) expectations rather than exploring venture-backed acquisitions. On a positive note, we continue to see spin-outs from the big device players like Medtronic, which creates more acquirers down the road. As the market recovers, these new acquirers can help spur M&A.

In previous down cycles, device later-stage financing dried up. However, in 2022, later-stage device companies continued to fundraise through the tough financing environment, creating a runway to continue growing revenues. With more time and capital to progress, these companies may be very strong candidates for future IPOs (or big acquisitions) when the market bounces back.



Device Private M&A Deals & IPOs by Year, Global¹



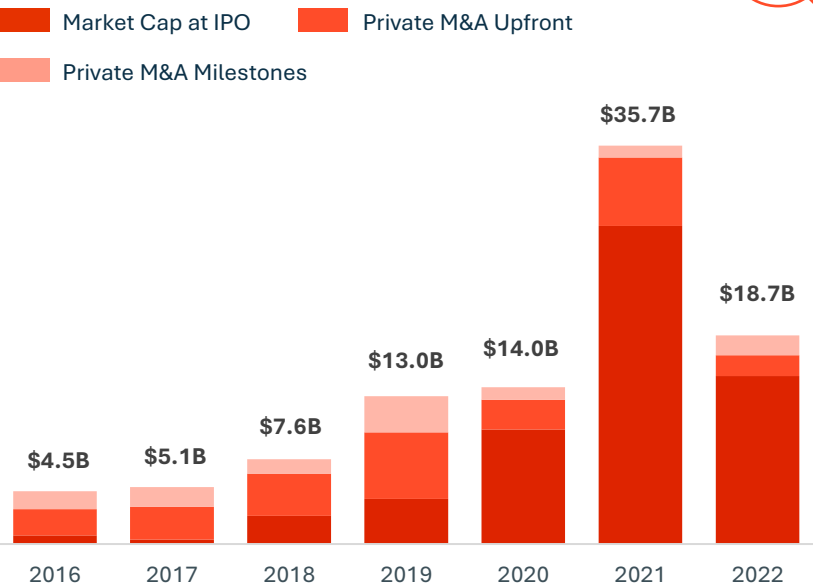
2022 IPOs by IPO Market Cap

			
Exchange	SHG	SHE	SHG
SVB Subsector	Imaging	Respiratory	Uro/Gyn
IPO Price (Date)	\$15.51 (8/22/22)	\$16.92 (1/1/22)	\$5.69 (8/11/22)
Market Cap at IPO	\$13.4B	\$1.1B	\$596M
Price 12/31/2022	\$25.66	\$31.83	\$4.73
Price +/-	65%	88%	-17%
Market Cap 12/31/2022	\$21.1B	\$2.0B	\$473M

Note: 1) All exit data is global. M&A defined as all private, venture-backed M&A deals with at least \$50M upfront, globally. IPO defined as all private, venture-backed IPOs raising at least \$25M in proceeds, globally. Market cap at IPO used to estimate value of public companies. Public market performance metrics calculated as of 12/31/2022.

Source: PitchBook, S&P Capital IQ and SVB proprietary data.

Device Exit Values by Year



IPO Performance by IPO Year

	IPO Cohort Year			
	2019	2020	2021	2022
Number of IPOs	8	11	30	3
Median Pre-\$/Median Dollars Raised	\$203M / \$97M	\$469M / \$156M	\$368M / \$110M	\$803M / \$267M
Median/Average 2019 Performance	54% / 128%			
Median/Average 2020 Performance	116% / 192%	111% / 148%		
Median/Average 2021 Performance	55% / 206%	-14% / 72%	-20% / 2%	
Median/Average 2022 Performance	127% / 233%	-56% / 29%	-66% / -35%	65% / 46%

Eroding Public Market Values Put M&A on Backburner

M&A in 2021 set records for both the number of deals and median upfront payments. Small- and mid-cap public companies actively bought venture-backed device companies, joining traditional players to create a very robust set of acquirers.

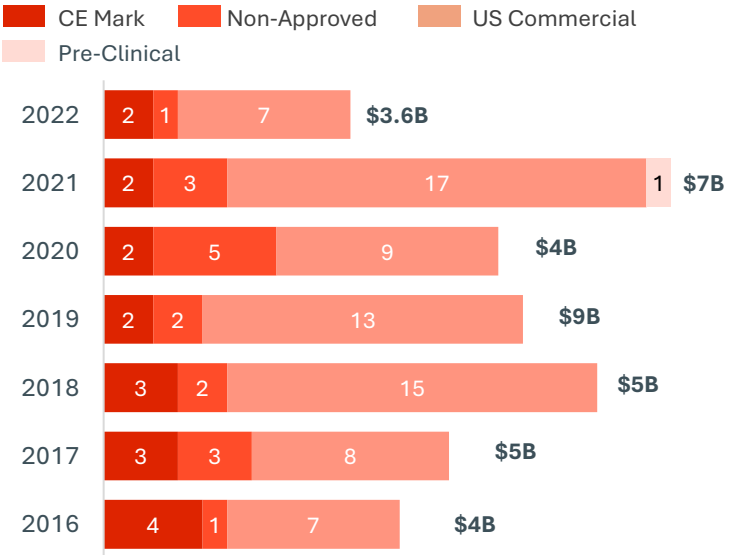
However, poor performance in the public market forced many companies to revisit cash spend and push acquisitions to the back burner. As a result, device M&A declined substantially. The median upfront deal value was \$135M, down 41% from \$230M in 2021.

The biggest exit in 2022 was Medtronic’s acquisition of Affera, a development-stage cardiac ablation company. The \$625M upfront was the second biggest deal value since 2020, and the fourth largest since 2017. CONMED acquired two orthopedics companies, making their first venture-backed device acquisition since 2016. Two of the three vascular acquisitions in 2022 were CE mark approved, PMA pathway deals that exited prior to US approval (Perflow, MedAlliance).

Private M&A Since 2017

In device, orthopedic companies had the most exits, mostly pursuing a 510(k) pathway (10/15 deals). However, orthopedic deals also had the smallest median deal sizes and took the most years to exit, due to the expense in raising a large commercialization round (14/15 deals obtained FDA clearance) and the time required to ramp revenue before acquisition. Cardiovascular companies had a shorter time to exit since most pursued a PMA pathway, and the promise of new technologies in big markets pushed acquisition prior to FDA approval.

Device Private M&A Deals by Stage^{1,2}



Device M&A by Indication

2017-2022

Indication	# M&A	Upfront (\$M)	Total Deal (\$M)	\$B+ Exits	Years to Exit
Surgical	10	\$148	\$190	1	8.5
Cardiovascular	15	\$210	\$300	0	4.8
Vascular	14	\$225	\$298	1	5.2
Orthopedic	16	\$105	\$180	0	8.2
NIM	7	\$225	\$230	1	7.9
Neurology	5	\$120	\$220	0	7.05

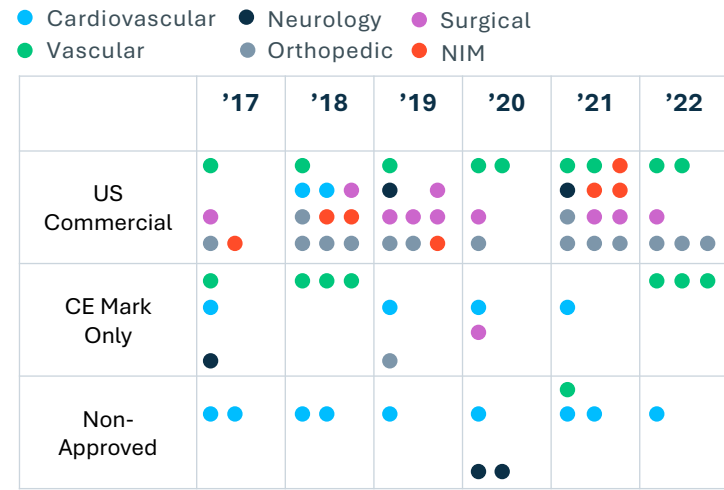
Note: 1) CE Mark defined as achieving a CE Mark but not FDA approval. US Commercial defined as achieving FDA clearance or approval, with or without CE Mark. 510(k), De Novo 510(k) and PMA defined in appendix. 2) All exit data is global. 3) Each dot represents an M&A deal. 4) This company overlaps with the healthtech sector. M&A defined as all private, venture-backed M&A deals with at least \$50M upfront, globally. Source: PitchBook and SVB proprietary data.

Notable 2022 Private M&A Deals

	PMA Pathway	510(k) Pathway
AFFERA		
ARAN BIOMEDICAL		
In Bones		
CartiHeal		
BIO REZ		
PERFLOW MEDICAL		
BSIDIO		
MedAlliance		
PlusDental ⁴		
STANDARD BARIATRICS		

M&A by Life Stage and Top Indications³

2017-2022



Healthcare Outlook: 2023 and Beyond

While there is still uncertainty in the private investment landscape, the strongest companies will receive funding in 2023.

Fundraising and Investments:

Venture healthcare fundraising will likely decline to about \$15B in 2023, as LPs may be dealing with over-allocation into venture healthcare after two record years of funding into this sector. We expect the slower investment pace to continue in 2023, allowing investors to extend the time frame between fundraises. We think investment dollars will revert to 2020's pace. There will likely be an increase in larger, outsider-led rounds in H2 2023. We anticipate many of these rounds will be down rounds or flat "engineered" rounds with sweeteners for new investors, correcting inflated company valuations. There is still an unprecedented amount of dedicated venture healthcare capital to be deployed, so the top companies will continue to climb to high valuations and foster intense competition among new investors.

Biopharma:

Biopharma investment in 2023 should remain at 2020 levels, although with increased dollars in autoimmune and respiratory. We will continue to see large pre-IPO rounds, but likely at a single digit pace per quarter. Many of the highly valued companies that raised their

most recent financings in 2020 and 2021 but cannot go public will either close down rounds or possibly merge with another private company to augment pipeline or technology. We estimate 25-30 IPOs for 2023 and 15-20 M&A, including increased comp bio acquisitions.

Healthtech:

We expect late-stage investment to continue to slow in 2023, with lower valuations and fewer mega-deals, as public markets continue to put pressure on private valuations. While we expect top healthtech companies to continue raising capital through more insider and bridge rounds, we will likely start to see more down rounds. We anticipate that many healthtech companies will delay IPO plans until at least late 2023. Instead, we expect a wave of consolidations, especially in alternative care. We also anticipate more tech and healthtech acquirers entering the space.

Dx/Tools:

Investment in dx/tools should rebound from H2 2022 to finish 2023 at \$8B-\$9B — just shy of 2020's pace — led by early-stage activity. There will likely be selective

larger financings (\$100M+) with participation from growth/PE investors and sovereign wealth funds, likely in liquid biopsy and precision-medicine dx analytics companies. We expect IPOs to continue to be muted in 2023. Private companies with unicorn valuations will likely need to wait until 2024 for big M&A exits and may continue to build value by acquiring other venture-backed technologies. M&A deals will likely rise to hit double-digits in 2023, led by dx tests and analytics deals.

Device:

Device investment should hit \$6B-\$8B in 2023, closely mirroring 2020's pace. We expect to see fewer \$100M+ deals in 2023, as many top companies raised rounds in 2022, and it is uncertain how many later-stage opportunistic device investors will continue to be active. The IPO window will likely stay closed in 2023. However, there will be a strong group of IPO candidates for 2024, with growing revenues and high gross margins, some of which may spur large-dollar acquisition interest in 2023. Overall, we expect M&A deals to increase to the mid-teens in 2023.

The material contained in this document, including without limitation the statistical information herein, is provided for informational purposes only and is not intended to forecast or predict future performance or events, including in relation to the performance and outlook of SVB Financial Group and its subsidiaries. All predictions made are based on previous data trends, which have been quoted accordingly. Any predictions are based on subjective assessments and assumptions. Accordingly, any predictions, projections or analysis should not be viewed as factual and should not be relied upon as an accurate prediction of future results. The views expressed in this report are solely those of the authors and do not necessarily reflect the views of SVB.

Source: SVB proprietary data.

Authors



Jonathan Norris

Managing Director
Healthcare

jnorris@svb.com
[@jonnysvb](https://twitter.com/jonnysvb)

Jonathan Norris spearheads strategic relationships with many healthcare VC firms and serial entrepreneurs. In addition, he helps SVB Capital through sourcing and advising on limited partnership allocations and direct investments.

Jonathan speaks at major investor and industry conferences about healthcare VC trends. He has 20+ years of banking experience working with healthcare companies and VC firms.

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



Raysa Bousleiman

Senior Associate
Healthcare Insights

rbousleiman@svb.com

Raysa Bousleiman is responsible for conducting data-driven analyses on the global innovation economy that SVB serves. In this role, she supports global research efforts that explore investment, fundraising and exit dynamics in the venture ecosystem.

Prior to SVB, Raysa worked as a healthcare consultant focusing on health systems revenue cycle management and operations.

Raysa graduated from the University of Southern California with honors, receiving a B.S. in human biology.



Annie Scolamieri

Associate
Healthcare Insights

ascolamieri@svb.com

Annie Scolamieri supports the life science healthcare team at SVB with data-driven analyses. She contributes to research and content focused on investment, fundraising and exit dynamics in the venture ecosystem. Annie has a particular interest in healthtech and women's health.

Prior to SVB, Annie worked as a hospital program manager in operations, finance and strategy.

Annie graduated from George Washington University with a B.S. in public health and a Master of Health Administration.



Beatriz Atsavapranee

Healthcare
Consultant

beatriz@stanford.edu

Beatriz Atsavapranee analyzes data on healthcare venture investments and exits to identify emerging trends and synthesize key takeaways. She also produces deep dives into specific technical areas across a range of subsectors.

Outside of SVB, Beatriz is a Ph.D. candidate at Stanford University. She has more than seven years of experience developing new biomedical technologies, from peptide-based therapeutics to microfluidic and bioinformatics tools.

Beatriz earned a B.S. in bioengineering from the California Institute of Technology.

Glossary

Descriptions

All-In Deal defined as an acquisition where the full deal value is paid at deal close.

Series A defined as all first-round institutional or corporate venture investment, and all first-round investments equal to or greater than \$2M, regardless of investor.

Upfront Payments defined as initial proceeds from an acquisition paid upon the close of a structured deal; they do not include milestones.

Milestones to be Earned defined as proceeds from an acquisition that are paid once predetermined milestones are met.

Total Deal Value defined as the full value of the acquisition, including milestones to be earned.

Time to Exit defined as the time from the close of a company's first institutional round of financing to the exit.

Step-Up defined as the valuation change from the last round post-money value to the next round pre-money value.

Corporate Investor defined as a corporate venture and parent company investment into venture-backed companies.

Computational Biology: To qualify as a computational biology company in this analysis, per review of their website, the company must (1) focus on drug discovery and/or development (biopharma/R&D tools), (2) apply novel computational tools to gain biological and/or chemical insights, (3) have the ability or potential for platform creation and (4) have a team with computational experience.

European Data: All European data and statistics include data from the European Union and the United Kingdom.

Device Regulatory Definitions

Non-approved defined as a device product that has not obtained regulatory clearance or approval for its product.

CE Mark defined as a device company that has CE Mark approval but has not received FDA approval. CE Mark is a European Union designation that is typically less difficult to obtain than FDA approval, and the approval process often has a faster timeline.

US Commercial defined as a device company that has received FDA approval or clearance of its product and is usually in a commercial stage.

510(k): FDA process of scientific and regulatory review to evaluate the safety and effectiveness of Class II medical devices. Typically there are little to no human clinical trials required for 510(k) clearance.

PMA: Premarket approval (PMA) is the FDA process of scientific and regulatory review to evaluate the safety and effectiveness of Class III medical devices. Typically there are extensive human clinical trials involved for PMA approval.

Indication Definitions

Neurology defined as CNS, pain and psychology companies, as well as neurology implant technologies.

Non-Invasive Monitoring (NIM) defined as medical data collection through sensors and other technology worn outside the body.

Dx Tests defined as proprietary yes/no diagnostic tests.

Dx Analytics defined as actionable data analytics to help determine treatment.

R&D Tools defined as research equipment/services for biopharma and academia.

Healthtech Subsector Definitions

Provider Operations defined as companies that provide solutions to increase the efficiency and accuracy of provider-provider and provider-patient interactions.

Alternative Care defined as companies that provide primary or specialty care outside a hospital or private practice.

Clinical Trial Enablement defined as companies that develop solutions to accelerate drug discovery and the digitization of clinical trials.

Healthcare Navigation defined as companies that guide users to relevant providers and/or payers based on their needs.

Medication Management defined as companies that aid users in access and adherence to their prescribed medication.

Wellness & Education defined as companies that inform users of healthy lifestyle and medical best practices, as well as medical education companies.

Biopharma Top 15 Crossover Investors

Biopharma Top 15 Crossover Investor defined as a public-minded investor who strategically invests in private companies. The Top 15 list includes: RA Capital, Perceptive Advisors, Deerfield Management, Redmile Group, Cormorant Asset Management, The Invus Group, Fidelity (et al.), EcoR1, Casdin Capital, Janus, Logos, Viking, Citadel, Rock Springs Capital and Wellington Management.



Disclaimers

The material contained in this document, including without limitation the statistical information herein, is provided for informational purposes only and is not intended to forecast or predict future performance or events, including in relation to the performance and outlook of SVB Financial Group and its subsidiaries. The material is based in part on information from third-party sources that we believe to be reliable but which have not been independently verified by us, and for this reason, we do not represent that the information is accurate or complete. The information should not be viewed as tax, investment, legal or other advice, nor is it to be relied on in making an investment or other decision. You should obtain relevant and specific professional advice before making any investment decision. Nothing relating to the material should be construed as a solicitation, offer or recommendation to acquire or dispose of any investment or to engage in any other transaction.

All non-SVB named companies listed throughout this document, as represented with the various statistical, thoughts, analysis and insights shared in this document, are independent third parties and are not affiliated with SVB Financial Group. Any predictions are based on subjective assessments and assumptions. Accordingly, any predictions, projections or analysis should not be viewed as factual and should not be relied upon as an accurate prediction of future results.

The views expressed in this report are solely those of the authors and do not necessarily reflect the views of SVB.

Silicon Valley Bank is an authorized foreign bank branch under the Bank Act (Canada).

SPD, SHANGHAI PUDONG DEVELOPMENT BANK, and 浦发银行有限公司 are trademarks, separately and in combination, of Shanghai Pudong Development Bank, Ltd. in China, and are used under license. SPD Silicon Valley Bank is a Sino-U.S. joint-venture bank of Silicon Valley Bank, the California bank subsidiary and commercial banking operation of SVB Financial Group, and Shanghai Pudong Development Bank.

Silicon Valley Bank UK Limited is registered in England and Wales at Alphabeta, 14-18 Finsbury Square, London EC2A 1BR, UK (Company Number 12546585). Silicon Valley Bank UK Limited is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and Prudential Regulation Authority (Firm Reference Number 543146).

Silicon Valley Bank UK Limited is not licensed to undertake banking business in Denmark or to undertake any other regulated activity in Denmark.

Silicon Valley Bank UK Limited is not licensed to undertake banking business in Sweden or to undertake any other regulated activity in Sweden.

Silicon Valley Bank Germany Branch is a branch of Silicon Valley Bank.

Silicon Valley Bank, a public corporation with limited liability (Aktiengesellschaft) under the laws of the U.S. federal state of California, with registered office in Santa Clara, California, U.S.A. is registered with the California Secretary of State under No. C1175907, Chief Executive Officer (Vorstand): Gregory W Becker, Chairman of the Board of Directors (Aufsichtsratsvorsitzender): Beverley Kay Matthews.

Silicon Valley Bank Germany Branch with registered office in Frankfurt am Main is registered with the local court of Frankfurt am Main under No. HRB 112038, Branch Directors (Geschäftsleiter): Phillip Lovett, Dayanara Heisig.

Silicon Valley Bank and SVB Financial Group UK Limited are not licensed in Ireland to undertake banking business in Ireland or to undertake any other regulated activity in Ireland. SVB Financial Group UK Limited is registered in England and Wales at Alphabeta, 14-18 Finsbury Square, London EC2A 1BR, UK under No. 5572575.

SVB Israel Advisors Ltd. is a subsidiary of SVB Financial Group. Neither SVB Israel Advisors nor SVB Financial Group is licensed to conduct banking business or provide other financial services in Israel and neither engages in unlicensed banking activities. Banking services are provided by Silicon Valley Bank, a member of FDIC. Silicon Valley Bank is not supervised by the Supervisor of Banks in the Bank of Israel but by the US Federal Reserve Bank and the California Department of Financial Protection and Innovation (DFPI).

If you no longer wish to receive marketing communications from SVB Financial Group or Silicon Valley Bank, you may [unsubscribe](#). Read about our [Privacy Policy](#). Please contact us by email at PrivacyOffice@svb.com. Also read about our [cookie policy](#).

© 2023 SVB Financial Group. All rights reserved. SVB Financial Group (SVB) is the holding company for all business units and groups. SVB, SVB FINANCIAL GROUP, SILICON VALLEY BANK, SVB SECURITIES, SVB PRIVATE, SVB CAPITAL and the chevron device are trademarks of SVB Financial Group, used under license. Silicon Valley Bank is a member of the FDIC and the Federal Reserve System. Silicon Valley Bank is the California bank subsidiary of SVB Financial Group (Nasdaq: SIVB).



About SVB

SVB is the financial partner of the innovation economy, helping individuals, investors and the world's most innovative companies achieve their ambitious goals. SVB's businesses — Silicon Valley Bank, SVB Capital, SVB Private and SVB Securities — together offer the services that dynamic and fast-growing clients require as they grow, including commercial banking, venture investing, wealth planning and investment banking. Headquartered in Santa Clara, California, SVB operates in centers of innovation around the world. Learn more at svb.com/global.

See complete disclaimers on previous page.

© 2023 SVB Financial Group. All rights reserved. SVB Financial Group (SVB) is the holding company for all business units and groups. SVB, SVB FINANCIAL GROUP, SILICON VALLEY BANK, SVB SECURITIES, SVB PRIVATE, SVB CAPITAL and the chevron device are trademarks of SVB Financial Group, used under license. Silicon Valley Bank is a member of the FDIC and the Federal Reserve System. Silicon Valley Bank is the California bank subsidiary of SVB Financial Group (Nasdaq: SIVB).

#SVBHealthcare

 www.svb.com

 @SVB_Financial

 Silicon Valley Bank

 @SVBFinancialGroup