Trends in Healthcare Investments and Exits

Innovations Spur Healthcare Investment and Fundraising

Mid-Year 2017

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Mid-Year 2017 Key Highlights

Fundraising and Investments Continue Strong as Exits Decline

- Led by biopharma, U.S. healthcare venture fundraising for full-year 2017 is certain to surpass $6B, and 2017 could set a full-year record.

- Biopharma and device deals, in terms of number and dollars invested, are expect to closely match 2016.

- An emerging trend to watch: Tech-focused investment firms are aggressively investing in healthcare companies that are developing artificial intelligence and machine learning (AI/ML) technologies designed for biopharma and Dx/Tools.

- Series A investments across all sectors are on pace to exceed the 2016 record. In 1H 2017, biopharma corporate investors participated in 31% of Series A deals – a record if participation holds through year end.

- Biopharma Series A investors are showing strong interest in Immuno-oncology: In the past 18 months, one-third of all Series A dollars have been invested in this subsector.

- Biopharma M&A activity is down, but IPOs are on pace to match 2016. Both M&A and IPOs are focused on later-stage companies.

- Orphan/Rare deals lead M&A activity, and Oncology dominates IPOs.

- Crossover investors have scaled back private investments in new biopharma companies. Instead, they are driving their existing portfolio companies to go public, achieving the highest level of IPO pre-money and dollars raised since the current IPO window opened in 2012.

- Device IPOs have all but disappeared, but M&A activity continues at a steady pace with healthy returns so far.

- Since 2015, innovative PMA/de novo 510(k) device acquisitions have shown larger returns and a quicker time to exit than iterative 510(k) pathway exits; these returns now are approaching what we see from biopharma M&A.
Healthcare Investments and Fundraising: Series A Biopharma Keeps Up Robust Pace
Biopharma Investment Stays Strong

U.S. Biopharma and Device Investment Dollars and Deals*

Venture healthcare investment overall continues to be strong. That said, the accompanying chart needs additional explanation. The National Venture Capital Association (NVCA) data includes Dx/Tools activity in both biopharma and device categories instead of its own distinct group. This year’s activity, as reflected in the chart, included some very large Dx/Tools investments.

For full-year 2017, we expect biopharma investments to closely match 2016 at about $8B. SVB’s data indicates slightly more deals and about the same dollars through 1H 2017.

As mentioned above, device dealmaking data is skewed due to inclusion of some large Dx/Tools deals. We think actual full-year 2017 investments may closely match or slightly decline from 2016, reaching $3.5-$3.8B.

*PitchBook data does not contain a separate Dx/Tools category. Most Dx/Tools deals appear to be contained within the biopharma and device categories.

Source: PitchBook, NVCA.
Healthy VC Fundraising Keeps Investment Humming

U.S. Healthcare Venture Fundraising*

For a fourth year, U.S. healthcare venture fundraising is certain to surpass $6B, and 2017 could set a full-year record. In 1H 2017 alone, $5B was raised. NEA was on top, raising an estimated $1B for healthcare in late 1H 2017.

Venture fund investments in the last few years have been primarily focused in biopharma and Dx/Tools. An example of this trend: Tech-focused investment firms are aggressively investing in companies that are developing artificial intelligence and machine learning technologies designed for Dx/Tools and biopharma.

Most traditional VCs have lost interest in device. The void is largely being filled by nontraditional investors such as crossover funds, private equity, family offices, angel groups and corporates.

*TWB calculates only the dollars allocated to healthcare by U.S. venture funds. Source: PitchBook and NVCA.
# Torrid Series A Investment Continues in Biopharma

## U.S. Company Formation: Deals and Investments in Series A

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biopharma</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of Deals</td>
<td>126</td>
<td>64</td>
</tr>
<tr>
<td>Total Series A ($M)</td>
<td>$2,354</td>
<td>$1,120</td>
</tr>
<tr>
<td>CVC Deals % / #</td>
<td>23% / 29</td>
<td>31% / 20</td>
</tr>
<tr>
<td>Top 5 Indications</td>
<td>Orphan/Rare Disease, Oncology, Neuro, Platform, Anti-Infective</td>
<td>Oncology, Platform, Orphan/Rare Disease, Neuro, Anti-Infective</td>
</tr>
<tr>
<td><strong>Device</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of Deals</td>
<td>58</td>
<td>31</td>
</tr>
<tr>
<td>Total Series A ($M)</td>
<td>$240</td>
<td>$128</td>
</tr>
<tr>
<td>CVC Deals % / #</td>
<td>7% / 4</td>
<td>13% / 4</td>
</tr>
<tr>
<td>Top 5 Indications</td>
<td>Ophthalmology, Respiratory, Neuro, Cardiovascular, Orthopedic</td>
<td>Neuro, Non-Invasive Monitoring, Orthopedic, Imaging</td>
</tr>
<tr>
<td><strong>Dx/Tools</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of Deals</td>
<td>51</td>
<td>30</td>
</tr>
<tr>
<td>Total Series A ($M)</td>
<td>$487</td>
<td>$223</td>
</tr>
<tr>
<td>CVC Deals % / #</td>
<td>24% / 12</td>
<td>13% / 4</td>
</tr>
</tbody>
</table>

Biopharma Series A investments are on pace to exceed the 2016 record, reflecting the overall strong interest in biopharma and increased activity from corporate venture funds. In 1H 2017, corporate investors participated in 31% of Series A deals; if that holds through year-end, this would be a record.

Device also appears likely to match 2016 in deals and dollars. Cardiovascular declined significantly in 1H 2017.

Dx/Tools Series A has been strong through 1H 2017. Almost 40% of the deals did not disclose investors, which suggests significant angel investment.

Median deal value for Dx/Tools is about $6M, double the device median but behind biopharma at $9M.

Source: PitchBook and SVB proprietary data.
**Immuno-oncology Dominates Biopharma Series A**

**2016 – 1H 2017 Series A Oncology Financings**

Amazingly, since 2016, $1.3B has been invested in Immuno-oncology. This represents about a third of all biopharma Series A investment but only 18% of total deals.

The median deal size of $30M signals that larger VC syndicates of institutional investors are putting money in new Immuno-oncology startups.

From a geographic perspective, Massachusetts had the most deals with 10, followed by Northern California (8) and Southern California and Texas (3 each).

Corporates have the highest Series A interest in Oncology deals compared to other indications. Interestingly, there is a lower percentage of corporate investment in Immuno-oncology (48%) than “Other Oncology” (61%).

<table>
<thead>
<tr>
<th>Number of Financings</th>
<th>Invested Capital ($ Millions)</th>
<th>Median Round Size ($ Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Immuno-oncology</strong></td>
<td>$1,268</td>
<td>$30</td>
</tr>
<tr>
<td><strong>Other Oncology</strong></td>
<td>$467</td>
<td>$18</td>
</tr>
</tbody>
</table>

Source: PitchBook and SVB proprietary data.
Corporate Investors Step Up Dealmaking

Most Active New Investors* in Biopharma 2016 – 1H 2017

Top venture and corporate investors are about evenly split in terms of deals, signaling robust corporate activity in the biopharma ecosystem.

A large number of investors tied with five new investments in 1H 2017, so we only included investors on the chart that also had appeared on last year’s active list. Unlisted active funds to watch that each had five new investments 2016 - 1H 2017: SV Health Investors, Life Science Partners, Aisling Capital and Sofinnova Partners.

*Most Active New Investors in biopharma defined as Top 60 venture and corporate investors based on new investments in 2016–2017.
Source: PitchBook and SVB proprietary data.
Oncology and Orphan/Rare Attract Most Investments

Most Active New Investments* in Biopharma by Indication 2016 – 1H 2017

<table>
<thead>
<tr>
<th>Indication</th>
<th>Early Stage</th>
<th>Late Stage</th>
<th>Undesignated</th>
<th>Total Deals</th>
<th>Total Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oncology</td>
<td>44</td>
<td>3</td>
<td>3</td>
<td></td>
<td>$1,788M</td>
</tr>
<tr>
<td>Platform</td>
<td>15</td>
<td>2</td>
<td></td>
<td></td>
<td>$821M</td>
</tr>
<tr>
<td>Orphan/Rare Disease</td>
<td>12</td>
<td>1</td>
<td>4</td>
<td></td>
<td>$633M</td>
</tr>
<tr>
<td>Neuro</td>
<td>9</td>
<td>3</td>
<td>1</td>
<td></td>
<td>$412M</td>
</tr>
<tr>
<td>Anti-Infective</td>
<td>7</td>
<td>2</td>
<td></td>
<td></td>
<td>$482M</td>
</tr>
<tr>
<td>Auto-Immune</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td>$200M</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>$172M</td>
</tr>
</tbody>
</table>

**Trends:**
- Oncology, Orphan/Rare
- Cardiovascular

A continuing trend since 2013: Active investors are funding Oncology deals at double the rate of the next most popular indication. Orphan/Rare’s ranking by deal volume has moved from #5 in 2015 and #4 in 2016 to #2 (along with Platform) in 1H 2017.

Already, Platform has more deals in 1H 2017 than in full-year 2016. Platform refers to drug discovery technologies that have yet to choose a lead indication. We see fewer deals in Anti-Infective.

In 1H 2017, 28 deals raised more than $50M. Of these companies, the leaders are: Oncology (11), Anti-Infective (4), Platform (4) and Neuro (3).

*Most Active New Investments in biopharma defined as Top 60 venture and corporate investors based on new investments in 2016–2017.
Source: PitchBook and SVB proprietary data.
**Investors See Promise in Device Sector Across Stages**

**Most Active New Investors* in Device 2016 – 1H 2017**

<table>
<thead>
<tr>
<th># of Deals</th>
<th>Investors</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Johnson &amp; Johnson Innovation</td>
</tr>
<tr>
<td>4</td>
<td>Boston Scientific, gsk FORUM, LSP, MVM</td>
</tr>
<tr>
<td>3</td>
<td>KCK Group, Correlation Ventures, DEERFIELD, Gimv, KKR, Green Park &amp; Golf, OSF Healthcare, Innovation Capital, Wellington Partners, SV TECH Ventures</td>
</tr>
</tbody>
</table>

Johnson & Johnson Innovation led with seven new investments since 2016, three of which focused on Orthopedic. Interestingly, J&J also leads acquirers in M&A activity.

Both KCK (family office) and Kohlberg Kravis Roberts (private equity fund) are focused on later-stage device companies, although each firm had a Series A deal. KKR has specifically raised a healthcare fund to invest in VC-backed companies in commercial stage.

Deerfield Management, a crossover investor, raised a new venture-focused fund for therapeutics and disruptive early-stage devices. NEA did not make the list, however the firm has $300M allocated to invest in medical devices from its newly closed fund.

Worrisome trend: We see strong investment activity in company creation and funding commercialization, however less new capital is available for later-stage development and clinical trials.

Source: PitchBook and SVB proprietary data.
Non-Invasive Monitoring Continues to See Steady Investment; Cardiovascular Declines

Most Active New Investments* in Device by Indication 2016 – 1H 2017

<table>
<thead>
<tr>
<th>Indication</th>
<th>Early Stage</th>
<th>Late Stage</th>
<th>Undesignated</th>
<th>Total Deals</th>
<th>Total Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>10</td>
<td>$157M</td>
</tr>
<tr>
<td>Neuro</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>$160M</td>
</tr>
<tr>
<td>Non-Invasive Monitoring</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>7</td>
<td>$89M</td>
</tr>
<tr>
<td>Orthopedic</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>6</td>
<td>$110M</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>$239M</td>
</tr>
<tr>
<td>ENT</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>$235M</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>$153M</td>
</tr>
<tr>
<td>Metabolic</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>$113M</td>
</tr>
<tr>
<td>Vascular Access</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>$33M</td>
</tr>
</tbody>
</table>

Trends:
- Surgical, Neuro and Non-Invasive Monitoring increasing
- Cardiovascular declining

Non-Invasive Monitoring, which uses sensor-based data gathering technology, is sparking investor interest. Surgical leads device investment. Most of these deals are closure-based technologies. Orthopedic rises from #7 to #3 (tied with Neuro). Four of the six neuro deals raised at least $25M.

Source: PitchBook and SVB proprietary data.
Tech-focused firms continue to invest heavily in Dx/Tools. AME Cloud Ventures, Data Collective, Innovation Endeavors, Felicis Ventures and Khosla Ventures have been among the top investors.

Viking Global Investors, a large hedge fund, has partnered with Illumina Accelerator to back early-stage Dx/Tools companies with promising technology. Crossover investor Cormorant Asset Management had two later-stage deals.

There was significant investment from a wide range of corporates, including biotech (Lilly Ventures), tools (Illumina), general healthcare (GE Ventures) and tech (Google’s venture arm, GV).

*Most Active New Investors in Dx/Tools defined as Top 20 investors based on new investments in 2016–2017.

Source: PitchBook and SVB proprietary data.
Since 2015, $2.2B has been invested in 44 deals involving Dx/Tools companies that use AI/ML as part of their underlying technology. Median deal size in this subsector was $12M.

Grail, Guardant Health and Human Longevity have raised multiple $100M rounds, and 11 individual companies raised more than $30M.

Most of the top investors are tech-focused funds, including Data Collective (7), Khosla Ventures (6), AME Cloud Ventures (5) and Y Combinator (3).

SVB prediction: We expect aggressive fundraising in 2H 2017 and in 2018, led by corporates (biotech and also potentially large tech companies) and traditional healthcare VCs.
Healthcare Big Exit M&A and IPOs: Exits Slow but Activity Set to Pick Up in 2H 2017
M&A activity has been slow in 1H 2017, but there is significant chatter about future deals.

Biopharma recorded 15 IPOs in 1H 2017, which is on pace to meet our projected full-year forecast of 28 to 32. There were 28 IPOs in 2016.

1H 2017 saw only one Oncology M&A deal, but the indication accounted for 10 of 15 IPOs. Orphan/Rare led M&A with three exits.
Rare/Orphan Deals Drive Down Time to Exit

VC-backed Biopharma Big Exit M&A by Stage* 2013 – 1H 2017

### Median Upfront ($M)

<table>
<thead>
<tr>
<th>Year</th>
<th>Pre-Clinical</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>213</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>2014</td>
<td>225</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2015</td>
<td>200</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2016</td>
<td>200</td>
<td>8</td>
<td>9</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>1H 2017</td>
<td>290</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Median Total Deal ($M)

<table>
<thead>
<tr>
<th>Year</th>
<th>Pre-Clinical</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>452</td>
<td>2</td>
<td>9</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2014</td>
<td>413</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2015</td>
<td>570</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2016</td>
<td>600</td>
<td>4</td>
<td>9</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>1H 2017</td>
<td>290</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Median Years to Exit

<table>
<thead>
<tr>
<th>Year</th>
<th>Pre-Clinical</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>5.6</td>
<td>4.0</td>
<td>4.2</td>
<td>6.1</td>
<td>4.3</td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1H 2017</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

*Stage defined as last completed clinical trial in most advanced asset. Source: PitchBook, press releases and SVB proprietary data.

Median total deal size is down, although that is based on limited 1H 2017 M&A data. The lack of biopharma M&A activity may be related to the significant venture funding we have seen in this sector over the last few years. These companies still have a) significant cash and b) IPO optionality, which allows them to be more selective about exiting.

The potential for repatriation and other tax code changes could help incite acquirers to spend more on M&A in 2H 2017 – we think M&A will increase in the second half.

Quick-to-exit M&A deals in Orphan/Rare pushed down overall time to exit to 4.3 years in 1H 2017. This is likely because Orphan/Rare drugs typically have faster and smaller clinical trials, leading to earlier clinical data and accelerated exit discussions.
Biopharma IPOs Move Later Stage

VC-backed Biopharma IPOs by Stage* 2015 – 1H 2017

# of IPOs

<table>
<thead>
<tr>
<th>Year</th>
<th>Pre-Clinical</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>9</td>
<td>9</td>
<td>6</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>2016</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>1H 2017</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

% Early Stage** IPOs

<table>
<thead>
<tr>
<th>Year</th>
<th>% Early Stage**</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>44%</td>
</tr>
<tr>
<td>2016</td>
<td>46%</td>
</tr>
<tr>
<td>1H 2017</td>
<td>13%</td>
</tr>
</tbody>
</table>

Focus on Orphan/Rare:

# Orphan/Rare venture-backed IPOs since 2015: 14
IPOs backed by Top 15 Crossover Investors: 10 of 14
Stage: 3 Pre-Clinical, 3 Ph I, 4 Ph II, 4 Ph III
Median Pre-Money IPO: $280M
Median dollars raised: $75M
Median time to exit: 2.6 years

With a surge of eight IPOs in May and June 2017, biopharma IPO activity is on pace to meet our original projection of 28 to 32 for the full year.

A new trend: Companies are going public at a later stage. In the past three years, more than 40% of IPOs had been pre-clinical or Phase I. In 1H 2017, just two of the 15 were early stage.

Despite the later-stage IPOs, the median time from close of Series A to IPO is just four years -- the quickest since the IPO window opened in 2012.

Deeper Insight: Top 15 Crossover Investors***

More than 50% of IPOs (eight of 15) had Top 15 Crossover participation, similar to full-year 2016 (16/28).

Of those eight deals, median time to IPO from last private crossover round was 14 months. The investment thesis of mezzanine round to IPO in about a year continues to hold.

Three of the eight IPO companies were trading above IPO price, as of June 30, 2017.


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*Stage defined as current clinical trial in most advanced asset.

**Early Stage defined as Pre-Clinical and Phase I companies

Source: PitchBook, press releases and SVB proprietary data.
Crossover Investors Lead Strong IPO Class

VC-backed Biopharma IPOs by Pre-Money Valuation and Dollars Raised 2012 – 1H 2017

Median Amount ($ Millions)

In 1H 2017, IPOs achieved the highest level of IPO pre-money and dollars raised since the current IPO window opened in 2012.

The biggest IPOs (including the three raising more than $100M) were driven by Top 15 Crossovers* that invested in the last private round. Only one VC-only backed IPO had a pre-money valuation as large as any of the Top 15 Crossover deals.

Crossover-backed IPOs showed median pre-money of $300M, which is 2.3x higher than non-crossover IPOs.

*Trends in Healthcare Investments and Exits Mid-Year 2017


Source: PitchBook, press releases and SVB proprietary data.
Device M&A Is Stable; Johnson & Johnson Leads Dealmaking

VC-backed Device Exits 2013 – 1H 2017

Johnson & Johnson has become the top acquirer, with two deals each in 2016 and 2017. Previous top dealmaker Medtronic did seven VC-backed device acquisitions in 2015 alone but has had no venture-backed deals since.

Of the five 1H 2017 big exit M&A deals, we saw new interest in Drug Delivery and Non-Invasive Monitoring. The other deals were for Cardiovascular, Vascular and Gastrointestinal.

Underscoring the slow IPO market, there was just one device IPO in 1H 2017.

Source: PitchBook, press releases and SVB proprietary data.
Innovative Devices Drive Up M&A Deal Values

VC-backed Device Big Exit M&A by Stage* 2013 – 1H 2017

The 1H 2017 median M&A deal value is double that of the previous peak of the current cycle, reached in 2014.

The time to exit also hit a cycle high, driven primarily by 510(k) pathway companies that have finally reached the maturity demanded by acquirers.

There were three PMA/de novo 510(k) pathway exits. These deals generated large returns, with a median upfront value of $300M and median multiple of 4.8x.

Three of five deals were earlier stage (pre-FDA approval), a continuing two-year trend.

*Stage defined as current stage in most advanced product.
Source: PitchBook, press releases and SVB proprietary data.
# PMA/De Novo 510(k) Exits Approaching Biopharma Up-Front Multiples

## VC-backed Device M&A by Pathway 2015 – 1H 2017

<table>
<thead>
<tr>
<th>Stage at Exit</th>
<th>2015 – 1H 2017</th>
<th>Median $ Invested ($M)</th>
<th>Median $ Up-Front ($M)</th>
<th>Median $ Up-Front Multiple on VC$</th>
<th>Median $ Total Deal ($M)</th>
<th>Median Total Deal Multiple on VC$</th>
<th>Median Time to Exit (Years)</th>
</tr>
</thead>
</table>
| **510(k) Path**
| 20 Exits     |               |                        |                        |                                   |                          |                                 |                             |
| 18            | 1             | $48                    | $100                   | 3.0x                              | $110                      | 3.0x                             | 9.3                         |
| 1             |               |                        |                        |                                   |                          |                                 |                             |
| **PMA / De Novo 510(k) Path**
| 17 Exits     |               |                        |                        |                                   |                          |                                 |                             |
| 1            | 10            | $57                    | $240                   | 3.8x                              | $380                      | 5.8x                             | 5.5                         |
| 6            |               |                        |                        |                                   |                          |                                 |                             |
| **Biopharma M&A**
| 47 Exits     |               |                        |                        |                                   |                          |                                 |                             |
| 23 Early Stage (≤ Phase I) | | $37 | $200 | 4.5x | $580 | 11.1x | 4.4 |
| 24 Later Stage (≥ Phase II) | | | | | | | |

Since 2015, PMA/de novo 510(k) device acquisitions have generated larger upfront multiples and a quicker time to exit than iterative 510(k) pathway exits; these returns now are approaching what we see from biopharma M&A. This makes a case for more investment in innovative early-stage device companies, and potentially a reallocation by traditional venture funds to device.

What is driving this trend: Iterative 510(k) pathway companies often require FDA clearance, followed by an equity raise for commercialization and revenue ramp prior to generating acquirer interest. In contrast, nearly all innovative PMA/de novo 510(k) acquisitions occur pre-FDA approval.

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Source: PitchBook and SVB proprietary data.
No Dx/Tools Exits in 1H 2017, but Opportunities Lie Ahead

VC-backed Dx/Tools Exits 2013 – 1H 2017

Despite no tools exits in 1H 2017, there are significant Dx/Tools investments, including big bets on NGS, liquid biopsy, AI/ML and activities around the “cancer moonshot.”

We expect to see some exceptional exit opportunities in the next two to five years, and possibly a $1B-plus M&A exit in 2017. We predict these acquirers more likely will be large pharma/biotech and tech companies instead of the established Dx/Tools companies.

Source: PitchBook, press releases and SVB proprietary data.
Second Half 2017 Outlook

• Healthcare venture fundraising for full-year 2017 is certain to exceed $6B — and possibly could surpass the 2015 record of $7.5B.

• For full-year 2017, biopharma investments will closely match 2016 at about $8B.

• Series A biopharma investments could drop slightly in 2H 2017 as funds turn their attention to later-stage companies that seek capital.

• With 15 IPOs in 1H 2017, and driven by a strong private company backlog, biopharma IPOs should end the year with 28 to 32 deals. There were 28 IPOs in 2016.

• Based on a slow 1H 2017, it will be difficult to beat 2016 biopharma M&A activity, but we expect about 15 deals by the close of 2017.

• Device investment activity may closely match or slightly decline from 2016, ending 2017 at between $3.5-$3.8B. Device M&A deal values should remain stable, but IPOs remain elusive.

• Tech-focused investment firms will continue to invest heavily in early-stage companies that are developing artificial intelligence and machine learning technologies designed for biopharma and Dx/Tools. We will closely monitor their ability to raise the next round of financing to gauge the appetite of healthcare investors to join these deals.

• The lack of Dx/Tools big exit M&A deals in 1H 2017 is troubling. Continued investment, however, will lead to future exit opportunities, including possibly a $1 billion-plus deal in 2H 2017.
Glossary

**Big Exit**

**Big Exits** are defined as private, venture-backed merger and acquisition transactions in which the upfront payment is $75 million or more for biopharma deals and $50 million or more for device and Dx/Tools deals.

**Initial Public Offering**

*IPO* is defined as a venture-backed company raising IPO proceeds more than $25 million.

**Deal Descriptions**

**Structured Deal**
This is a pay-for-performance system that pays some of the consideration upfront but sets milestones in development that must be achieved before the full value of the transaction will be realized.

**All-in Deal**
All consideration for the deal is paid when the deal closes.

**Big Exit Upfront Payments**
The upfront payment refers to payments in a structured deal that are made at the close of the deal; it does not include milestones.

**Big Exit Milestones to be Earned**
The milestones to be earned refer to payments in a structured deal that are made after the predetermined goals are met.

**Total Deal Value**
The total deal value of a structured deal includes both the upfront payment and the milestones to be earned.

**Time to Exit**
Company time to exit, measured from the close of its first institutional round of financing.

**Regulatory**

**Non-approved**
Non-approved refers to a device company that has no regulatory approval for its product.

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

**U.S. Commercial**
Commercial refers to a device company that has an FDA-approved product and typically is in commercial stage.

**Series A**
Series A companies are defined as U.S. companies raising their first round greater than $2 million in equity or backed by institutional or corporate venture capital.

**Corporate Investor**
Corporate investor is defined as both venture and parent company investment into venture-backed companies.

**Indication Definitions**

**Neurology**
CNS, pain and psychology comprise neurology.

**Non-Invasive Monitoring**
Defined as medical data collection through sensors and other technology.
As a Managing Director, Jonathan Norris oversees business development efforts for banking and lending opportunities and also spearheads strategic relationships with many healthcare venture capital firms. In addition, he helps SVB Capital through sourcing and advising on limited partnership allocations.

Norris speaks at major investor and industry conferences and authors widely cited analyses of healthcare venture capital trends. He has more than 16 years of banking experience working with healthcare companies and venture capital firms. Norris earned a bachelor’s degree in business administration from the University of California, Riverside, and a juris doctorate from Santa Clara University.

As a Senior Associate with SVB Analytics, Paul Schuber leads strategic advisory and valuation engagements, specializing in the life sciences. Prior to joining SVB Analytics, Schuber facilitated clinical trials on behalf of pharmaceutical sponsors and pre-clinical trials to advance medical school research, which included writing and implementing IRB and IACUC protocols. Schuber’s healthcare experience also includes working as an emergency medical technician and an electrocardiogram technician. He has a background in technology as well, working in many roles, including chief technology officer of an e-commerce company.

Schuber earned a master’s degree in the business of bioscience from Keck Graduate Institute of Applied Life Sciences while also studying at Claremont McKenna College at the Robert Day School of Economics and Finance. Schuber earned a bachelor’s degree in biology, emphasis in physiology and minor in chemistry, from California State University, Long Beach.

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