

JUST WHAT THE DOCTOR ORDERED

Medical device investing has surged, as VCs see a burgeoning market and solid returns from recent exits.

By Tom Stein and Tim Devaney

Asked to name the hottest investment category in Silicon Valley, most people would reasonably guess it was Web 2.0, cleantech or open source software.

In fact, medical device and equipment companies pulled in more money than any other kind of company in the first quarter of this year in the San Francisco Bay Area, the epicenter of the technology universe. They raised \$447 million, or 21% of the total investment in the region, eclipsing the software segment, which traditionally holds the top spot, according to the MoneyTree Survey.

What's happening in the Valley mirrors a national trend. Medical device investments hit their highest point in the past five years in Q1 and Q2 of this year based on the total amount invested as

well as the number of companies backed (*see chart*).

"There is more money in medical devices than maybe at any time before," says **Ross Jaffe**, managing partner at **Versant Ventures** and one of the most experienced investors in the sector.

Why? Part of the reason is that more money is flowing into the health sector. "The Internet was a distraction," says **John Maroney**, general partner at **Delphi Ventures**. "It pulled a lot of attention away from health care. But now we're seeing a rebirth of the health care market—and we're seeing attractive outcomes. That, more than anything, attracts investors to this space—the visibility of exits, either via IPO or M&A."

Of the 54 venture-backed companies

that have gone public this year, six are medical device makers (*see table*). Of that group, five are trading higher than their offering prices, with an average gain of 16% from their IPO price to Aug. 13.

Another reason why devices are popular now is recent difficulties in the biotech and pharmaceuticals sectors. A few high-profile drug disasters, such as the Vioxx litigation, have spurred a tougher review process at the Food and Drug Administration.

"Medical device businesses are more solid in their plotting of progress and achievement," says **Robin Bellas**, a partner at **Morgenthaler Ventures**. "You know how the FDA will react at each stage so you have a pretty methodical business plan that you can count on."



Ross Jaffe of Versant Ventures holds a device used to perform minimally invasive sinus surgery made by Acclarent, a Versant portfolio company.

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Devices are also easier to test than drugs because they tend to work in animals much the same as they do in humans.

“Once the animal trials are done, you have a very good idea of how successful a device can be,” says Bellas. Among the companies he has backed are **Thermage** (Nasdaq: THRM), which makes a radio-frequency device that administers a nonsurgical facelift, and **Satiety**, which makes a scope to perform a minimally-invasive alternative to bariatric surgery that avoids cutting open the stomach. (Thermage went public at \$7 per share in November 2006 and its stock was trading at \$8.35 in mid-August.)

High tech Rx

Medical device investors note that recent advances in technology are powering startups in the area.

So much more

is possible now. There are technology solutions to problems that are lighter, stronger and smaller than anything in the past, whether it’s a robotic knee brace or an RF-controlled catheter that treats precancerous cells in the esophagus.

“In the first decade of the 2000s, we’re seeing a stream of implantable medical devices and external medical devices that are smart devices and have a huge amount of computing power and intelligence built in,” says **John Stuart**, managing director at **Claremont Creek Ventures**, which invests in device startups that have an IT focus—“a computational component,” as he puts it.

Claremont Creek in 2006 led a \$3.5 Series A round in **Tibion**, which makes a motorized knee brace prescribed for patients recuperating from total knee replacement, a procedure that’s growing 15% a year.

Tibion is indicative of another trend that is drawing VCs to the device field. Teams at

device startups tend to be older entrepreneurs, people who have put in years in IT before moving to med tech.

The Tibion management team “isn’t a bunch of kids,” says Claremont Creek’s **Ted Driscoll**, who observes that Web 2.0 entrepreneurs tend to be in their early 20s. In the medical device business, he says, it’s a more mature group of managers that doesn’t need to be taught how to run a company.

“Fifty to 60% of deals coming through the door are repeat entrepreneurs,” echoes **Wende Hutton**, a general partner at **Canaan Partners**. That is a major shift from earlier in the decade, when medical device entrepreneurs were in hibernation. “That’s when venture funding dried up for medical devices and many medical device entrepreneurs got discouraged and were uninspired to do anything,” Hutton says. “But we’re now seeing lots of talented folks who are

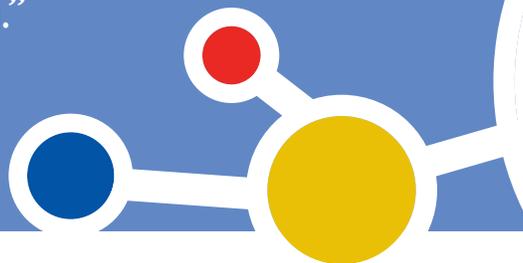


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reinvigorated. They're leaving big companies and jumping back into the market because they can see a clear pathway.”

A way to exit

The clear pathway that everyone wants to see is one that leads to an exit, and opportunities for IPOs or trade sales have jumped significantly in the past few years for med tech companies.

“The ratio used to be about 90:10, M&A vs. IPO,” says **Nathan Every**, a cardiologist and general partner at **Frazier Healthcare Ventures**. “It's about 50:50 now. The public markets are more open, clearly.”

EnteroMedics, a company that's developing implant systems to treat obesity and other gastrointestinal disorders, registered for an IPO to raise up to \$86 million in May.

That same month, VC-funded **Insulet**, which develops a disposable insulin pump for the treatment of diabetes, went public. The previous month, VC-backed **TomoTherapy** went public and its shares of have continued to rise since the profitable medical device maker debuted. The company sells a machine called the Hi-Art System that combines a CT scanner with radiation therapy for cancer patients.

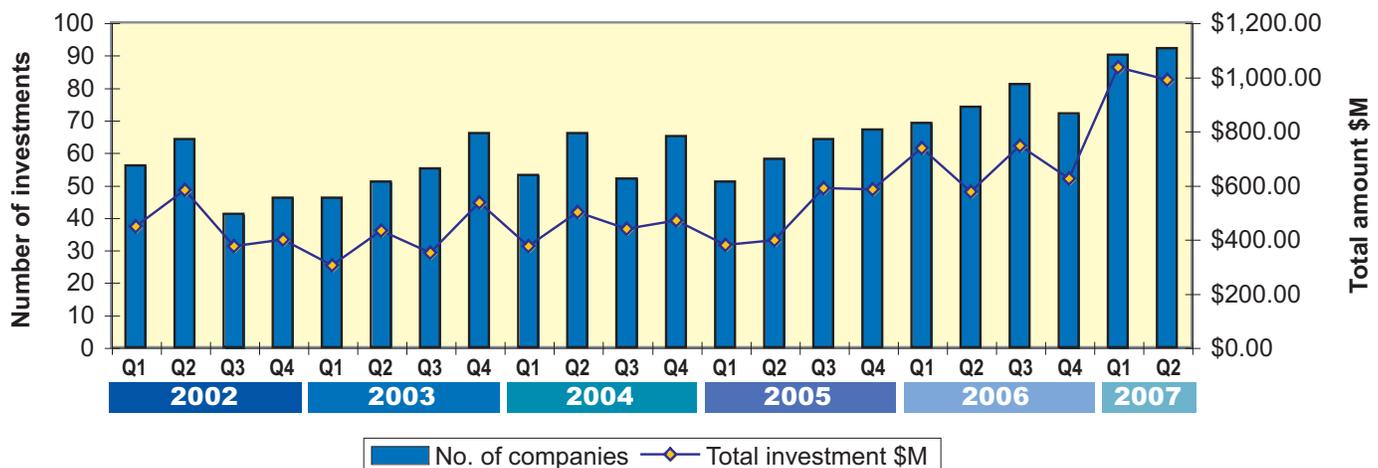
Other device companies that have gone public recently include **Restore Medical**, which sells a snoring treatment, and **Northstar Neuroscience**, a pioneer of neurostimulation treatments. All told, dozens of device companies have gone public in the last two years. This activity is in stark contrast to the early part of the decade,

when just three device companies went public in 2002 and none in 2003.

What has caused the IPO market to perk up? **Nick Simon**, managing director at **Clarus Ventures**, says the biggest factor has been the reluctance of large corporations such as **Boston Scientific**, **Johnson & Johnson** and **Abbott Laboratories** to buy startups in their early stages.

“Typically you'd have five or six of these big players vying to acquire an innovative device maker,” he explains. “But because of recent consolidation in the industry, there are now fewer buyers and even some of the most aggressive companies are beginning to get

Investment surges in medical devices





“There is a big movement among 20- and 30-somethings to pursue these cosmetic options. We’ve had a very robust economy, so people can afford to pay for these procedures out of pocket.”

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Clarus Ventures

very conservative in terms of acquisitions.”

Whereas in the past these corporations would gladly step in once the device startup was close to receiving regulatory approval for its product, now they’re waiting until the device maker has brought its product to market and is actually turning a profit. A recent example is Johnson & Johnson’s acquisition of **Conor Medsystems**, a developer of drug delivery technologies, for approximately \$1.4 billion.

At the same time, the public markets have stepped in to fill the void. “About two years ago we started to see real interest from the public markets and a willingness to pay more for these companies than an acquirer would,” Simon says.

While this has proven to be a rewarding turn of events for some VCs, it has also introduced a whole new set of challenges.

In the past, getting a medical device startup from start to acquisition required a total investment of about \$25 million. However, getting the company from start to IPO typically requires about \$40 million to \$60 million, according to Simon, which is more than he or his firm (Clarus) is willing to commitment.

This dilemma has caused some venture firms, such as Clarus, to shy away from early stage medical device opportunities and focus instead on later stage investments. By taking this approach, Clarus believes it can eliminate any technical risk from the equation and instead just concern itself with the execution risks and market adoption.

“Our priorities have clearly changed in terms of our risk arbitrage,” Simon admits.

“In early stage investing you have to get comfortable with the technical risks, such as getting the product to work and then getting regulatory approval. With late stage investing you come in once those issues have been resolved. Instead you concern yourself with other risks, like building the right team and getting acceptance in the marketplace.”

Of course, this does not bode well for early stage medical device companies, which are finding it harder to attract funding. **Alex Tilson**, founder of **Loma Vista Medical**, spent several months looking for VC funding. The company, which is 18 years old, is working on a next-generation device that can reduce the expense and discomfort associated with a colonoscopy.

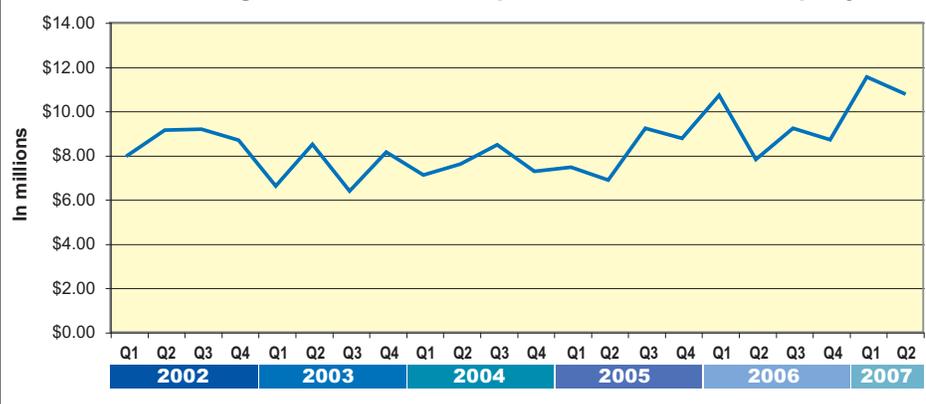
“The threshold for investment is quite high these days,” says Tilson. “Many VCs are reluctant to take on the technical and clinical risks.” Instead Tilson has set his sights on finding a corporate partner that can assume many of his business responsibilities, such as taking the product to market once it’s ready, while Tilson and his team of contractors work on the technical issues.

“There is a long maturation period for device companies,” says Morgenthaler’s Bellas. But once they’ve matured, they are solid investments. “We now have medical device companies that have achieved reimbursement from both the private insurance companies and Medicare and that have cleared regulatory hurdles at the FDA,” Bellas says. “They have data on the marketplace that indicate their devices really do well.”

Number of VC firms investing in medical devices



Average amount invested per medical device company



Investment in later rounds has never been higher, and valuations are soaring. “Recently we’ve seen a number of device companies in our portfolio get later stage rounds done north of \$125 million pre-money,” Jaffe says. “That’s something I’ve never witnessed before.”

He cites **Acclarent**, which is pioneering a novel approach to sinus surgery. The company raised \$35 million in third round founding, led by **Meritech Capital Partners**. “Another thing we’re seeing for the first time is nontraditional players like hedge funds and crossover investors coming into the market,” Jaffe adds.

There are other discouraging trends that could slow investment in the medical device market. For one, it’s getting harder for patients who opt for new medical devices to get reimbursed by their insurers, Jaffe says. “By far the biggest challenge is getting reimbursement for new products,”

he notes. “It’s also a question of whether insurers will recognize your device or procedure. And then is it something they’ll cover at an adequate enough level so that patients will actually adopt it? As our health care system approaches the crisis point, there is increasing scrutiny on new technologies. This makes things difficult for everyone.”

Purely cosmetic

Some VCs are avoiding the problem by investing in devices that they know people will pay for out of pocket, such as those designed for cosmetic applications. One recent investment that fits this model is **Sientra**, a maker of silicon breast implants that raised \$85 million from a consortium of investors that included Clarus. The company’s product is selling well in countries such as Brazil. The

goal is eventually to introduce the product to the United States, which is the world’s largest market for breast implants at roughly \$1 billion annually.

“We will be the third entrant in the U.S. market, but there are some advantages to this product in terms of aesthetics and safety,” Simon says. “From our perspective, this is a pure commercialization and execution play.”

In some cases, companies that make devices with cosmetic applications require less capital. **Juniper Medical**, for example, makes a liposuction product that is noninvasive, so it is expected to get to market faster than it would if its device were invasive. “With Juniper, we envision a relatively short development period so we’re going to fund it through commercialization,” says Every. “We actually have several companies within that model. I think a lot of health care VCs are thinking about this. Either you need to invest later or you need to think about accelerating.”

Another plus for cosmetic medical devices: a growing market of consumer with deep pockets. “Baby boomers are aging to the point where they feel a lot better about themselves if they can access these kinds of procedures,” Simon says. “Plus there is a big movement among 20- and 30-somethings to pursue these cosmetic options. We’ve had a very robust economy, so people can afford to pay for these procedures out of pocket.”

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This year's IPOs for VC-backed medical device companies

Name	Description	IPO price	Close on 8/13	Change	Backers	Total VC (\$M)	Value of VCs' shares on 8/13/07 (\$M)*
Accuray Inc.	Makes image-guided radiosurgery devices to treat solid cancers by precise delivery of high doses of radiation.	\$18.00	\$20.23	12.39%	Marubeni Corp., PK Venture Capital, President International Investment	\$28.39	\$421.79
Insulet Corp	Develops disposable insulin delivery systems for the treatment of diabetes.	\$15.00	\$15.19	1.27%	Alta Partners, Diamond Capital, Kaufmann Fund, MedVenture Associates, Oakwood Medical Investors, OrbiMed Advisors, Pequot Capital, Permira Advisors, Prism Venture Partners, Red Abbey Venture Partners, SV Life Sciences, SightLine Partners, TIAA-CREF, Versant Ventures.	\$120.20	\$192.40
Masimo Corp.	Makes oximetry technology to noninvasively monitor patients at risk of respiratory and cardiac complications, carbon monoxide poisoning and other life threatening diseases.	\$17.00	\$21.00	23.53%	Camden Partners, Cardinal Partners (DSV Partners), Delfco, Eos Partners, Feibusch & Co., GE Marquette Medical, Henry L. Hillman Trust, INVESCO Private Capital, J.P. Morgan Partners, Kingdon Capital, Moore Capital, Northport Private Equity, Opus Capital, Tamalpais Associates, Vertical Group.	\$88.10	\$186.96
SenoRx Inc.	Makes minimally invasive medical devices for the diagnosis of breast cancer.	\$8.00	\$9.02	12.75%	De Novo Ventures, Domain Associates, MPM Capital, Mayfield Fund, Medicus Venture Partners, Protostar Partners, RB Webber & Co., SunAmerica Ventures, Tyco Capital.	\$54.57	\$60.25
TomoTherapy Inc.	Develops precise radiation technology that allows physicians to treat cancerous growths with less damage to healthy tissues around them.	\$19.00	\$23.88	25.68%	Advantage Capital, Ascension Health, Avalon Investments, Baird Venture Partners, Endeavor Capital, Mayo Medical Ventures, Open Prairie Ventures, State of Wisconsin, SunShine Summit, Venture Investors.	\$79.00	\$428.20
Xtent Inc.	Makes medical devices for stent delivery system for treatment of Coronary Artery Disease.	\$16.00	\$9.25	-42.19%	Adams Street Partners, Advanced Technology Ventures, Latterell Venture Partners, Morgenthaler Ventures, Split Rock Partners, St. Paul Venture Capital.	\$75.98	\$124.89

Source: Thomson Financial

* Amount is based on stock holdings in most recent prospectus.

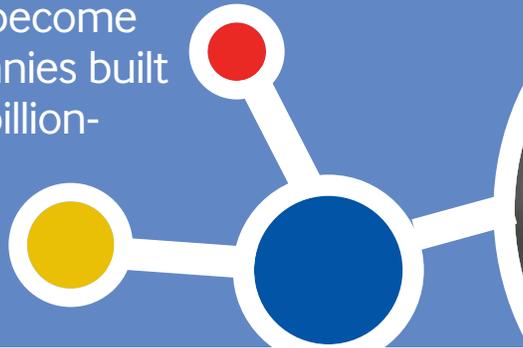


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And then there are those companies that cover two bases: the medically necessary and the cosmetically attractive. There is, understandably, some buzz among mostly male, middle-aged VCs about one such startup, called **AirXpanders**, which makes a tissue-expansion product used to treat patients with burns, amputation or other trauma.

“The market for that is relatively small—about \$250 million,” says Driscoll of Claremont Creek Ventures, which has not invested in the company. “But the home run that they’re thinking of would be using their product for expanding the scalps of hair-challenged men for full hair restoration. That would be a big deal if they could achieve that.”

Swinging for the fences

Many medical device investors are now adopting a “go big or go home” attitude. **Ashley Dombkowski**, a general partner at **MPM Capital**, says she’s not interested in me-too devices. “Recently we’ve seen the emergence of true blockbuster opportunities that have the potential to become fully integrated companies built around half-billion or billion-dollar products,” she says. Dombkowski points to areas such as macular degeneration, obesity, gastro esophageal reflux and neural modulation as holding out the brightest hope. MPM participated in a \$41 million series C round last year for **NeoVista**, which offers unique treatments for age-related macular degeneration, which causes failing eyesight.

Today elderly patients with macular degeneration have to visit their physicians

on a monthly basis to receive a series of painful and expensive injections. NeoVista is pioneering a device that delivers radiation to the back of the eye, substantially reducing the number of injections needed to treat the ailment.

Another promising startup in MPM’s portfolio is year-old **Nevro**, which treats chronic pain through neural stimulation. “Today there are billions of people who have need of chronic-pain alleviation and yet the market is only about 5% penetrated,” Dombkowski says. MPM and the Mayo Clinic seeded the company to the tune of \$5 million. Nevro is developing an energy-delivery system that promises a greater degree of effectiveness than any other neural stimulation device.

Some health care VCs are also tapping opportunities around the convergence of drug therapy and diagnostic devices. These are medical devices that either help deliver a particular drug or allow patients and physicians to gain a better understanding of their therapy needs.

A leading company in this field is Apieron, which just raised a Series E round of \$17 million in June from **Alliance Technology Ventures**, Canaan Partners, **Draper Fisher Jurvetson** and **Onset Ventures**. The company is developing a device that will let serious asthma sufferers monitor lung inflammation and use that information to administer appropriate drug therapy.

“Treatments will be transferred from office delivery to home delivery and patients will be better able to tune their drug delivery,” says Hutton of Canaan.

Booming market

The big-picture incentive for medical device investment is the aging population of America and, a critical corollary, that population’s refusal to relent to old age. Simply put, people want to feel as young as they can for as long as they can and they will buy what it takes to do so. If they can’t buy it, they’ll advocate for reimbursement.

“Demographics drive our business,” says Delphi’s Maroney. “Baby boomers like me tend to be active and we don’t want to suffer in silence. We’re going to get stuff fixed.”

Having invested in medical devices since the early 1990s, Morgenthaler has discovered that there are three areas that consistently pay off: devices that improve vision, are less invasive or help people to age gracefully. “We are all aging and certainly we’d like to age gracefully and that means we invest in devices and drugs that allow us to look good and feel better as we age,” Bellas says. “The theory here is that if you sustain a high level of activity until you drop dead, you’ve had a great life.”

A worthy goal for any investor.

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