

Medical Device Incubators

Growing Companies—Part II

Incubators are hot and as their numbers multiply, so do the number of different models and approaches that these development partners take. The second of a two-part series.

by David Cassak

- Almost exclusively a device phenomenon, the growth of incubators is one of the few areas in early-stage company creation where medical devices are ahead of biotechnology.
- Offering a wide range of shared services, operational expertise and senior executive mentoring, incubators are catching on in the medical device industry, helping to jump-start what might otherwise be a sluggish new-company creation.
- As they mature, incubators are also increasingly forging formal ties with venture funds, to help ensure that their early-stage projects will get funding at least through Series A. Indeed, the connection between incubators and private financing has always been strong, though the current dismal financing climate for medical device firms offers only a partial explanation for the growth of incubators.
- Incubators are also finding a place because of the need on the part of big companies to replenish product pipelines, providing both a source of new technology and, at the same time, an alternative to big-company efforts to develop new products from external sources.
- Though they share some common characteristics, the range of models and approaches taken by different incubators actually varies quite broadly, as a closer look at several of them shows

As we noted last month in our introduction to the first part of this series, over the past couple of years, medical device incubators have sprung up almost as fast as the companies they're helping launch. In part, the growth of incubators can be explained by the difficult financing environment that medical device companies have gone through over the past several years—but only in part. Indeed, many incubators got their start prior to that period two or three years ago when investors, by and large, turned their backs on device start-ups in favor of dot-coms and IT plays.

Rather, the appeal of incubators is better explained by factors inherent in medical device development—factors which the difficult financing climate may have made worse, explaining the timing of the recent spate of incubators, and which also explain

why incubators are so much more prevalent in devices than biotechnology. Perhaps most important, medical device markets tend to be smaller than those in biopharmaceuticals, and thus the risk/reward ratio for investors is dicier. Many investors turned away from devices because they grew reluctant to put a lot of money into device start-ups early because the pay-off for even a successful company often didn't justify the risk. Indeed, for those venture funds that are jumping into incubators, such as Boston-based Oxford Life Sciences and Israel's Medica in their joint venture Accelerated Technologies (*see below*), the appeal of the incubator model is precisely that it provides an opportunity to invest in Series A valuations, but to do so in projects which have been tested and vetted so they carry a risk profile more similar to a Series B or C deal.

Incubators solve this risk/reward dilemma for companies and their potential investors by getting to proof of principle quickly, theoretically weeding out bad companies from good or identifying projects that are more likely to turn out good products, but not viable companies. (Some incubators, such as Incumed, focus specifically on smaller projects, avoiding the company-creation path, on the theory that a quick return from a small project represents a better return on investment than the long development cycles of growing a company, even when that company is targeting a billion dollar market.) They do so by providing extensive design and prototyping assistance and even early animal studies to show that the device works the way it's supposed to. Such a role suggests a second reason why incubators have been more successful in devices than in biotech: given the nature of product development in each segment, the kinds of services that incubators offer appear to be more real and have more value in devices than in biotech. Because of the mechanical nature of most devices, prototyping can quickly demonstrate whether a device works and whether it raises other issues or problems. Biotech drugs, on the other hand, by their more serendipitous nature defy that kind of simple prototyping.

Perhaps that's why the most common charge against incubators is that the services they offer simply don't deliver enough value—a charge that rings truer from a biotech perspective than a medical device perspective. Indeed, in devices, even where incubators shoot for very large targets—the \$500 million to \$1 billion markets represented by devices to treat congestive heart failure (CHF) or detect and treat vulnerable plaque, for example—such prototyping may soon become standard procedure. As such opportunities get more crowded, why waste an investor's time with device ideas that haven't, on some basic level, already been proven to work? But this demand for early proof leaves inventors in a dilemma: in the past, such proof was secured with monies raised in

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the first venture round. If VC firms now want to see proof before they invest, inventors will have to get it somehow—and that's where incubators come in.

Beyond the prototyping that gets to proof of principle quickly, incubators offer a wide range of other services, everything from office space and corporate infrastructure to guidance on intellectual property, reimbursement, and regulatory matters. Related to that and of no small value are the mentoring services that come from having experienced device industry executives overseeing the project at every step of the way, helping the small start-up and inventor/entrepreneur work through the rough patches that are inevitable in any device start-up.

Incubators have been around long enough to demonstrate the appeal and value that such services and guidance offer. Yet clearly not everyone is convinced. Incubator executives themselves concede that, for a variety of reasons, many entrepreneurs simply prefer to go it alone—whether out of their own self-confidence, their own driving vision, or, more basically, a reluctance to give up equity at the earliest stages of company creation.

Perhaps a bigger question is whether venture investors recognize the value, in dollar terms, of the in-kind services and benefits incubators provide. It's one thing to seek risk reduction, quite another, most incubator executives are finding, to see the value of that reduction reflected in the valuations of Series A or B

financings. Most incubators note that VC funding still comes down to a case-by-case scenario; yet clearly, some at least reflect a certain degree of frustration that VCs see risk reduction as valuable, but are reluctant to pay extra for it, seeing it instead as the *sine qua non* without which they won't do the deal.

As noted last month, the large number of incubators—or incubator-like entities—now being formed makes anything like a comprehensive overview impractical. Instead, what we've done over the past two months is to select half a dozen incubators to show, if nothing else, the different models, philosophies, and assumptions that lie behind this new phenomenon.

Neither the large numbers of incubators now being launched nor the number of companies they are creating are, by themselves, indicative of the success of incubators. As even the incubators themselves realize, success will only come with time, as the companies that come out of these new development entities prove themselves in the marketplace, both commercial and financial. To date, there simply hasn't been enough time to test the premise, one way or the other, that incubators make a meaningful contribution. Still, given the precariousness of company creation for entrepreneurs and the relatively high risk/low reward formula for device investors, it's hard to imagine that the value of incubators on some level won't become clear in the years to come.

SyneCor

Coming From All Sides

Most incubators try to address the different needs of the various constituencies in device company creation—entrepreneurs, physicians, venture capital firms, corporate partners—from the outside while essentially retaining a kind of bias toward one perspective, whether that of the inventor/entrepreneur, venture firm, or founding physician. But North Carolina- and Menlo Park, CA-based SyneCor LLC has been built from the start on the importance of incorporating all perspectives at once.

Founded in June of 2000, SyneCor was the brainchild of Richard Stack, MD, an interventional cardiologist at Duke University and a prolific inventor of cardiovascular devices—he holds one of the patents on drug-eluting stents—and William Starling, former co-founder of ICD pioneer Ventritex Inc., a division of St. Jude Medical Inc., and EP ablation company Cardiac Pathways, where he was co-founder as well as CEO. (The name, SyneCor, says Stack, suggests both the synergy that results from the relationship of the founders' backgrounds in medicine, industry, and finance, and the field of concentration, i.e., coronary or cardiovascular devices.)

For Stack, the launch of an incubator was the end result of more than 20 years experience crossing the line between the practice of medicine and product design, an experience that was, in equal measure positive and negative. An early adopter of interventional cardiology, Stack has played critical roles in the development of a wide range of technologies, from the early angioplasty balloons to stents and later bioabsorbable and drug-eluting stents. "Over the years, I developed a number of relationships with both physician thought leaders and also with leading executives in industry and the financial world," notes Stack. "And we all shared the same goal: we all wanted to create new devices to treat cardiovascular disease minimally invasively."

Much of Stack's early device development work had been done as a consultant for first Advanced Cardiovascular Systems (ACS) and later Guidant over the course of more than 20 years. Indeed, Stack realized early that while clinicians play a critical role in the successful launch of new technology at an early stage—a critical feature of SyneCor's strategy—simply leaving device development in the hands of academic physicians wouldn't work. "I found that in the university environment, there were significant challenges in terms of quickly and most effectively commercializing [new ideas about] technology," says Stack.

At the same time, Stack also saw the limitations that come

with working only within the structure of device companies. As large public companies, device giants for the most part, have to focus on R&D projects with relatively short pay-offs in order to answer investor demands for quarter-to-quarter results, Stack found himself increasingly more interested in research projects that had three, five, sometimes even seven-year horizons. Says Stack, "Any large manufacturer has to, of necessity, focus on earning and maintaining a leadership role in their main line of business."

Large companies may find fascinating a bit of technology with the long-term potential to transform interventional cardiology, Stack notes. "But at the end of the day, they have to protect their core business. If you try to go much beyond that in terms of novel technology or new platforms for medicine," big companies naturally resist. What Stack wanted to do, he realized, "is to combine the best of all of those worlds—to take physician thought leaders and bring them together with industry executives and leaders in the financial community and put them all to work on emerging technologies, testing them repeatedly in a large animal experiment laboratory to make certain they make sense." And to do so, most importantly, in areas that would represent true breakthroughs and practice-changing technologies rather than incremental enhancements of the current generation of devices.

Will This Change the Practice of Medicine?

Stack began to discuss his idea with Guidant CEO Ron Dollens and group president Ginger Graham, both of whom were very receptive. But it wasn't until Stack connected with Bill Starling that SyneCor became real. Starling and Stack had met in the mid 1980s when Starling was director of marketing at ACS and the two worked closely for a couple of years. Stack and Starling stayed in touch over the next 15 years while Starling ran a number of device start-ups.

In May of 2000, Starling was looking for his next project and heard about what Stack was trying to do. Starling had been intrigued by the notion of an incubator and was an early investor in The Foundry. (See "Growing Companies," START-UP, December 2001.) Now back in North Carolina, Starling got in touch with Stack. "I've always thought the world of Richard; he's about as astute a businessman as you'll find in a physician," recalls Starling. Meanwhile, some of the investors Stack was talking to about his idea had told him that he needed to team up with an industry veteran, someone who would bring the business skills to complement the creative, clinical side that Stack brought.

SyneCor was launched in mid-2000, though it didn't officially open its doors until January of the next year. Its initial launch and \$1.5 million funding came from Stack, Starling, and a distinguished group of physicians, from both academia and large private practice groups, all of whom own equity in SyneCor. (Equity ownership in the companies SyneCor creates will come as a result of and be determined by each physician's equity stake in the incubator.) SyneCor's physician/owners include, in addition to Stack, Judy Swain, MD, of Stanford;

Harry Phillips, MD, of Duke; Donald Baim, MD, of Brigham and Women's Hospital; Pascal Goldschmidt, MD, of Duke; Tom Ryan, MD, of the Duke Heart Center; Lee Sweeney, PhD, of the University of Pennsylvania; Joseph Greenfield, Jr., MD, of Duke; James Hermiller of St. Vincent's Hospital; William O'Neill, MD, of Michigan's William Beaumont Medical Center; William Knopf, MD, of the Atlanta Cardiology Group; and Gary Rubin, MD, of Lenox Hill Hospital in New York.

For Stack, the commitment of these physician thought leaders is critical to what SyneCor wants to do: identify early technology that is truly innovative. "When ideas are brought to this group, we review them with one question in mind," he says. "Are these things that are going to change the way medicine is practiced?"

But, as noted, Stack recognized that simply having clinicians assess new opportunities wasn't enough. SyneCor would also need the input of sophisticated business executives and financial experts who would lend their views on things such as market potential of a given technology and business and financing models that make sense. "Doctors can get infatuated with a device and not really pay any attention to the fact that it's really only a device and won't be enough to build a company," he notes. "It may meet a need, but it could be a really small unmet need." Thus Starling was part of SyneCor from the beginning and the group has, in the past couple of months, added two more general partners, Richard Kouri, a founder of several biotech companies, including Genaissance Pharmaceuticals Inc., Gene Logic Inc., and Paradigm Genetics Inc., among others, who will help guide the incubator in biotech and pharmaceutical areas, and, most recently, Michael Williams, most recently VP of science and technology at Medtronic AVE, who joins SyneCor as chief technology officer. In addition, two long-time device industry executives, Ray Larkin, former CEO of Nellcor Inc., now a division of Tyco International Ltd., and Louis Lange, MD, PhD., CEO of CV Therapeutics Inc., serve as advisers on the Executive Committee.

SyneCor early on also recruited corporate partners in Guidant, **Becton Dickinson & Co.**, and **GE Medical Systems**, a division of **General Electric Co.** (In addition to giving them insight into breakthrough technologies, the long-term nature of the projects means that any investment Guidant, BD, or GE makes won't affect earnings, notes Bill Starling.) Because of their cardiology orientation, Guidant and GE were obvious choices. The one non-cardiology player, BD, was selected both because of its own interest in getting an early glimpse at new technology and also because of its geographical presence in the Research Triangle Park in North Carolina; in fact, SyneCor rents some office space in RTP from BD. In addition, SyneCor has lined up three financial backers, venture firms Delphi and Frazier & Co. and investment bank Deutsche Bank Alex Brown. These corporate and financial partners, who collectively made an additional \$10.5 million investment in SyneCor, bring not only a different perspective on technology and deals, particularly when it comes to due diligence efforts, but also, as with other incubators, provide a potential source for additional funding of

companies as they're launched from the incubator. Finally, **Duke University** received an equity stake in exchange for licenses of several key technologies to SyneCor.

Looking for Breakthrough Technologies

Bill Starling calls SyneCor's corporate relationships "arm's length," offering little more than the opportunity to make a small investment early on, what Starling calls "a small preference to do a preferred Series A investment." Similarly, Delphi and Frazier will, preferentially, have a 30-day window to negotiate terms for the Series A Preferred financing for SyneCor spin-out companies. After that, SyneCor will, if need be, talk to other venture funds. "We aren't dependent on their making an investment," says Richard Stack, speaking of both the corporate and venture partners. "But they do have an opportunity to put more money in, on a pro rata basis, in future rounds, if they choose." (In addition, as early



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investors in SyneCor *per se*, both the corporate and venture partners will receive a share of the founders' equity that SyneCor gets in every company it starts, proportionate to the partners' stakes in SyneCor.)

Still, SyneCor's founders clearly see the influence and role of their corporate and financial partners as central to what SyneCor is trying to do. In fact, Bill Starling argues that the money isn't the primary value that Guidant, BD, and GE bring to SyneCor; rather, as with the financial partners, it's the broad perspective on the industry that they offer. "Let me give you a real example," he says. "Earlier this year we got very excited about a company that was in a diagnostic deal. But it wasn't in our sweet spot at all. Diagnostics is BD's sweet spot and they helped us conduct due diligence and prepare a joint term sheet in which both SyneCor and BD participated in the deal. We ultimately decided not to do the deal for a variety of reasons, but the fact is, BD got ten people in a room with us and spent hours putting together a game plan that everyone felt was a good one." Guidant, too, has funneled deals to SyneCor and GE has helped with technical expertise. "One of the things we're interested in is vulnerable plaque, and it's something GE has spent a lot of time on," says Starling. "They invited us to spend a day with their top scientists to talk about ways we can work together."

For SyneCor's corporate and venture partners, perhaps the most valuable benefit from their involvement in the incubator lay in the early peek at new technology and the ability to form relationships down the road that could result either in a potential deal, in the case of a corporate partner, or perhaps an investment banking relationship

for Alex Brown. But, says Starling, "they all support our broader goal of creating valuable assets that can stand alone." That means that, for the most part, SyneCor will be targeting devices with market potentials of \$500 million to \$1 billion. "I remember when a \$100 million market in medical devices was considered huge," he goes on. "Today, VCs won't look at something like that. I just don't think there are attractive enough opportunities in the \$250-500 million range."

Richard Stack agrees. "Because we're selecting only those technology ideas that will be major technology platforms, our general plan is for each of our companies to go all the way to a public offering," though he does acknowledge that "M&A in this business environment is the most common exit strategy," and one SyneCor will have to consider. But SyneCor officials are betting that their ability to pull together important physician thought leaders to assess promising new technology early on will give them an edge in identifying the new, potentially radical technologies that are the focus of SyneCor's development efforts. Indeed, Stack isn't entirely comfortable with SyneCor's designation as an incubator because, he says, so many early incubators were designed to do little more than bring together entrepreneurs and venture backers at an early stage of a company's development. "Where we're unique is in the nature of our shareholders, who are physician thought leaders, as well as leaders in industry and finance," he notes.

Having said that, many of the services SyneCor provides are those of a typical incubator, including early testing and prototyping and senior management through Series A financing. In a typical SyneCor deal, the incubator invests \$250,000 in an idea for a new technology concept, more often than not, brought in from the outside, splitting equity in a new company formed with the technology's inventor. Over the next six to twelve months, SyneCor puts in approximately \$1 million more in development services, says Bill Starling. "That should get us to the point where we have a fundable company, and then it's time to get them off on their own."

Among the services SyneCor provides: assessing or vetting the opportunity with its physician founders; creating an IP portfolio; doing some quick prototyping by engineers out of the incubator's North Carolina lab; and performing some initial animal studies to see how the device performs. Says Stack, "We'll test the concepts in our own lab and develop the data to prove the device works before we ever launch the company." SyneCor also has teams of experts in reimbursement and regulatory approvals to help fledgling companies.

Choosing Technologies

Having offices in both North Carolina and Menlo Park, CA is also an advantage, say SyneCor officials. Though its labs are, for the most part on the East Coast, being on the West Coast is important for contacts and credibility. "If you do a cardiovascular deal, by and large, it's better to do it [on the West Coast]," says Starling. "It's expensive to set up companies [in the San Francisco Bay area], but there's so much infrastructure and VC money here, it's easier to get things done quickly."

SyneCor's biggest challenge may lie in identifying appropriate

opportunities, given its self-defined mission to focus on breakthrough technologies. Richard Stack rejects the notion that, with the advent of drug-eluting stents, interventional cardiology has reached its technological endgame. "There are still huge unmet needs," he argues, citing, for example, bioabsorbable drug-eluting stents and vulnerable plaque. Indeed, he argues, interventional cardiology's next major challenge will lie not in treating what Stack calls "the flow limiting lesions" (arteries more than 75% occluded that have been at the core of angioplasty and stenting procedures) but rather things like unstable plaque. "The artery isn't necessarily 75% occluded; it may be 50% or even 25%," he says. "What's important is whether the plaque is prone to rupture."

But just as significant are the kinds of things SyneCor isn't interested in. Despite the fact that embolic protection devices have yet to make major in-roads into everyday practice, Stack, who worked on embolic protection with Guidant, says SyneCor wouldn't be interested in a new embolic protection device. "It's an important technology," he says. "But we would consider that already an old technology."

Despite the strong cardiovascular orientation of its founders, SyneCor won't restrict itself in terms of the type of opportunities it pursues. Stack argues that interventional cardiologists in general and SyneCor's founding physicians have been at the forefront of a broader technology revolution in medicine. "When you think about balloon angioplasty, stents, drug-eluting stents—these are all things that interventional cardiology has brought forth to treat difficult unmet needs," he says. "We feel that interventional cardiologists are among the most aggressive of all physicians in trying to develop new technology solutions, and it's relatively easy to look at other areas of medicine and apply there what we've learned in interventional cardiology."

Thus, says Bill Starling, the company is "applying our know-how in the cardiology space to a variety of areas inside and outside of cardiology; including oncology, orthopedics, diagnostics, and even to biotechnology and genomics, adding, "We feel most comfortable when we can parlay our unique knowledge of certain materials, designs, and processes." And in fact, SyneCor's first company is in GI: **Barrosense**, which is developing a device to treat obesity using some technology adapted from interventional cardiology. Barrosense expects to close its Series A round in January of 2002.

Richard Stack says SyneCor would like to launch two to four companies a year, keeping the companies in-house at the incubator for about a year, either in North Carolina as Barrosense is, or in SyneCor's Menlo Park facilities. After about a year, SyneCor executives expect, they will have done some preliminary animal studies, filed key patents, figured out the regulatory pathway and reimbursement issues, and have developed a business plan and five-year financial projection that, as Bill Starling puts it, "makes enough sense that we can present it to our VCs."

By the end of the year, the incubator will also have begun to hire key management for each company, though SyneCor executives will largely fund and run the company until it's ready to leave the nest. SyneCor's second company will likely be built

around a congestive heart failure (CHF) technology it is currently working on, and there's a third project in the works, the nature of which SyneCor officials won't disclose. "It's in a very, very exciting area," says Starling.

Like many incubators, SyneCor sees its role growing out of the



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more difficult financing environment that device companies have faced in recent years. Bill Starling notes that with the number of life science venture firms shrinking and the funds getting larger, entrepreneurs, acting on their own, find themselves at a disadvantage in funding discussions. "Look at the deals that get shopped on Sand Hill Road," notes Starling. "Everyone sees the same deals, and the deals are taking longer and longer to get done. No one feels a need to jump on a deal anymore the way they did five or six years ago. As a result, even experienced entrepreneurs can get beat up pretty bad."

But SyneCor plays a special role, not just one of mentoring inventors through a difficult funding environment, but by bringing physicians into the process early, helping to reduce the risk inherent in company creation. Notes Bill Starling, "VCs today want better developed, less risky deals. They don't mind high valuations if there's significant risk reduction because the last thing they want to do is to invest in a company at Series A and discover that they face a B or C round that can't get done. And we think the deals they see out of SyneCor will be less risky than the average deal they see on the street."

For SyneCor, the key to reducing risk lies in the physician involvement and rigorous in-house testing: in "stacking the deck" as Richard Stack puts it, making certain that the ideas they bring forth have been thoroughly tested and carefully scrutinized. "It's so competitive out there," says Stack, about the effort to launch companies, "that to go out with a half-baked idea and run up and down Sand Hill Road trying to get your company funded won't work in today's environment." At the same time, taking that idea to a large device company that is looking for new ideas but has to focus on its core product lines is also difficult. He goes on, "We think, in order to be most successful, a team approach with leaders from medicine, industry, and finance makes the most sense."

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