

## **Cardiology Is at the Heart Of Medical-Device Investing**

**By DANIEL ROSENBERG**  
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CHICAGO -- When it comes to medical-device investing, venture capitalists like to get to the heart of the matter.

Cardiology, in particular, is the focus of private-equity investors, who have been buoyed by past successes in the field with devices like stents and cardiac-rhythm equipment. There are no clear potential "next best things" in the pipeline, but there are a number of products under development that have the potential to change how physicians treat the heart.

Treating chronic heart failure, finding better ways to reconnect arteries after surgery and miniaturizing the heart-lung machine are all ideas either under development or recently introduced, and the venture-capital world still sees lots to get excited about in the field.

"I don't know what the next big thing will be," said George Choi, general partner with MedVenture Associates, a venture-capital firm in Emeryville, Calif. "But I have a lot of faith in human nature and in entrepreneurs, and we'll get new ideas constantly coming out. It's an exciting field to be in."

There are, of course, development efforts underway for areas outside the heart and vascular system, but venture capitalists like the cardiac sector because cardiologists tend to be more open and accepting of new technology than other physicians, said Dave Douglas, general partner with Delphi Ventures in Menlo Park, Calif. In addition, heart disease is an immense and growing problem in the U.S., with more than half a million coronary bypass operations a year.

Small companies making devices for heart surgery have a history of being gobbled up by big fish such as **Boston Scientific** Corp., **Guidant** Corp. and **Medtronic** Inc., offering venture capitalists the opportunity for a big payoff.

"These companies are ... attractive because large medical companies are constantly looking for new opportunities to fuel revenue growth," Mr. Douglas said.

Robin Bellas, a general partner with Morganthaler Ventures, also in Menlo Park, said two-thirds of the companies in which his firm gets involved end up being bought.

Mr. Bellas sees plenty of picks left for the venture-capital group in this field, and he has drawn up what he calls a "holy grail" of heart problems that aren't fully met by products now on the market. Companies he is involved with, he said, address needs like treating

chronic total occlusions, or totally blocked arteries; providing improved anastomosis, or tying together vessels after surgery, and keeping blood flowing at adequate levels to the body's organs during so-called "beating heart" surgery.

One company Mr. Bellas likes is LuMend ([www.lumend.com](http://www.lumend.com)<sup>2</sup>), which recently received U.S. Food and Drug Administration approval for a catheter that can be steered around total occlusions in an artery. Because of the difficulty in getting devices used for balloon angioplasty and stents through one of these occlusions, patients frequently must undergo coronary artery bypass surgery, which requires opening up the chest. That's not always the best option for a patient who's very sick.

Mr. Bellas noted that the founder of LuMend is Dr. John Simpson, a pioneer in interventional cardiology and founder of Perclose, a company that sells a surgical closure device and was bought by **Abbott Laboratories**.

Mr. Bellas also likes Coalescent Surgical ([www.coalsurg.com](http://www.coalsurg.com)<sup>3</sup>). Two years ago it launched a product called U-Clip, which has been used in more than 35,000 anastomoses to date. The device eliminates difficult knot-tying and suture management that heart surgeons must perform when linking arteries together after a bypass. The product has sales of about \$12 million a year in the U.S., and Mr. Bellas thinks the company could have an initial public offering by the second half of 2003.

Another company Mr. Bellas is involved with is A-Med ([www.amed.com](http://www.amed.com)<sup>4</sup>), which sells a device called the ParaFlow. Most open-heart surgery is still done by attaching the patient to a heart/lung machine and letting the machine pump the heart. About 20% of surgeries are now done with the heart beating and no connection to a machine, but one complication that's kept beating-heart surgery from growing more popular is the difficulty physicians have keeping adequate blood flow as they operate on hard-to-reach areas of the heart.

"Surgeons are starting to recognize that reduced flow is a problem during beating-heart surgery," Mr. Bellas said. "Patients can experience kidney problems and problems with memory."

ParaFlow, on the market for nearly two years now, gives the patient's heart an extra boost, sending blood straight from the right ventricle and into the pulmonary artery, skipping the left ventricle and allowing blood to flow quickly to the rest of the body. A Med is beginning to market ParaFlow in the U.S.

Mr. Douglas is working with a company called CardioVention ([www.cardiovention.com](http://www.cardiovention.com)<sup>5</sup>), which makes a system that provides circulatory support for patients undergoing cardiac surgery. Its CORx System is essentially a miniature heart-lung machine. The system is approved and launched in both the U.S. and Europe.

"It has significant advantages" over current technology, said Mr. Douglas, whose firm has financed more than 60 medical device companies.

Because the system is smaller, blood flows over far less foreign surface, meaning less exposure of the patient's blood to foreign surface area, an aspect of conventional heart-lung surgery that can be associated with physiological or neurological complications. Patients in studies had less post-operative bleeding and less time on breathing tubes compared with patients on conventional machines.

Patients on the device also have less of a chance of suffering the type of ministrokes that can occur with a regular heart/lung machine, Mr. Douglas said. Anecdotally, nurses in recovery suites said patients who underwent surgery with the device had better cognition after the operation.

Mr. Douglas thinks revenue for the company this year will be between \$2 million and \$3 million, and \$9 million to \$10 million next year. He noted that coronary surgery is a \$1 billion market.

Other companies Mr. Douglas likes in the cardiac field include Cameron Health ([www.cameronhealth.com](http://www.cameronhealth.com)<sup>6</sup>), which is working on a minimally invasive approach to inserting implantable cardiac defibrillators, or ICDs, and TriVascular Inc. ([www.trivascular.com](http://www.trivascular.com)<sup>7</sup>), which makes treatments for aortic aneurysms.

Some investors focus on disease states, rather than devices. Chronic heart failure is "the big one at this point" among heart problems that need to be addressed by device firms, said Mr. Choi. He didn't name any companies, but said he's working with outfits that are building devices to assist the heart in pumping -- something it doesn't do properly in patients with heart failure.

"We're early-stage," Mr. Choi said. "We look at the technologies and try to assess how easily it will be adopted by physicians and whether it will get reimbursement. A lot of things will work, but doctors have to be convinced. We talk to a lot of doctors and make sure they're comfortable with some of the products we're looking at.

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