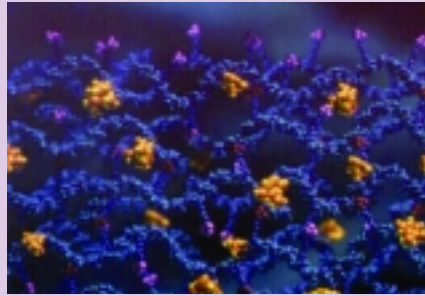


PhotoLink® coatings can reduce friction on medical devices by up to 90 percent (above left), while SurModics' technology can modify their surface to make it a reservoir for drugs (above right).



According to chairman and CEO Dale Olseth, **SurModics** (NASDAQ: SRDX) is "unique". "There's nothing traditional in what we do or how we do it," he says. Set up 20 years ago as an outgrowth of a hi-tech, hard-science think tank, SurModics stands for 'surface modifications', which is exactly what the company does – modifying the surface of a substance via a chemical reaction. This process does not change the object's size or shape, making it an ideal way for manufacturers to add value.

Less than 5 percent of the \$50 billion medical device market currently uses surface modification, according to SurModics, offering significant expansion potential. Anthony Green, senior research analyst at Craig-Hallum, adds: "We cannot think of a medical application where surface modification would not improve product performance. As the global leader of this technology, SurModics is in an enviable position to capitalize on this growing trend."

Seventy-five percent of the 120 or so products which use SurModics' technology do so to increase lubricity. Many are used in heart procedures, such as catheters and guide-wires, which can be made virtually friction-free. Chemical coatings can also contain slow-release

drugs, which can be applied in tiny quantities exactly where required.

Stent breakthrough

One of the most exciting applications of SurModics' technology is Johnson & Johnson's drug-eluting stent (a tiny framework used to prop open an artery). This releases a drug which could virtually eliminate the need for repeat surgery for blocked arteries since in 25-35 percent of patients the artery clogs again with scar tissue (restenosis).

Highly successful clinical trials found restenosis rates of 0-9 percent. Approved in Europe last April, the product is in use in more than 40 countries. U.S. approval is expected this spring, but unusually Medicare reimbursement was approved in advance. Craig-Hallum expects take-up to be rapid – 50 percent by the end of 2004 – as "physicians will be reluctant to use anything but the best technology, especially if it's reimbursed by insurance".

"It will change the practice of cardiology if it continues to perform as well as it has done," says Olseth. "The worldwide stent market is about \$2 billion, but it's believed this will increase to between \$4 billion and \$6 billion within three years thanks to drug-eluting stents."

SurModics' share of this will be small

but highly significant. Craig-Hallum estimates the company's revenues from the Johnson & Johnson stent will be around \$20 million in 2004; Olseth predicts \$10 million to \$30 million annually within four years. SurModics attributed most of its 30 percent revenue growth in 2002 (from \$22.7 million to \$29.5 million) to the Johnson & Johnson relationship. "Johnson & Johnson believes this is probably its largest-ever product opportunity," says Olseth. "If it's a big deal for Johnson & Johnson, think what it means for a small company such as SurModics."

The company is reluctant to talk about its pipeline, but promising research areas include haemocompatibility (reducing blood clots on catheters, stents, pacemakers etc.); anti-microbial treatments to prevent infection on inserts such as artificial joints; and genomics. "Now we can deliver a site-specific drug without putting it into the bloodstream," explains Olseth. "It's potentially the biggest thing we've ever gotten into. Over time, it could profoundly shift the way medicine is delivered."

SurModics is a very high margin business. Around 50 percent of revenue is derived from royalties and 3 percent from license fees, which drop straight to the bottom line. The remaining 20 percent comes from selling chemical reagents for binding the coatings, with gross margins of some 60 percent.

According to Craig-Hallum, just four customers – Medtronic, Amersham, Abbott Laboratories and Johnson & Johnson – account for the lion's share of revenues. "We like to get closer to our customers because what we're doing is so innovative," adds Olseth. ■

Paul Bray writes for U.K.-based newspapers the *Sunday Times* and *The Daily Telegraph*.

www.surmodics.com



SurModics makes surface change count

Dale Olseth, chairman and CEO of SurModics, sets out to Paul Bray how a new technique that changes the surface of substances could raise the success rate of cardiology.





Bringing the heart back to LIFE

If you have a suspect heart, head for the roulette wheel. It seems unlikely advice, but U.S. casinos monitor all customers for signs of ill-health and trained first-aiders respond immediately if someone collapses. The first minutes following a heart attack are vital (after ten to 12 minutes, the prognosis is poor), so the survival rate in casinos is 70 percent, 11.5 times higher than the U.S. national average, notes **ZOLL Medical** (NASDAQ: ZOLL).

The first-aider's chief weapon against heart attacks is the public-access defibrillator (PAD), which can detect whether the patient needs defibrillation and administers the appropriate shock to restart the heart. Already mandatory on U.S. airlines and in some schools, PADs can reduce insurance liabilities and are recommended in the workplace by the U.S. Occupational Safety and Health Administration.

ZOLL claims its PAD, the AED Plus, launched last March, had captured 7 percent of the world market by the end of 2002, with sales of \$6.6 million. In the first quarter of 2003, PAD sales were up more than 30 percent on the previous period. "We think the world PAD market will grow smartly," says president and

Resuscitation will remain a key focus for ZOLL Medical, its president and CEO **Rick Packer** explains to Paul Bray.

ZOLL

CEO Rick Packer. "Some estimates put it at \$1 billion by 2006. Our view is \$500 million, but even that represents a huge opportunity. We already have 20-30 percent of the professional defibrillator market, so we'd like to capture 20-30 percent of the PAD market, too."

Analysts are bullish. "We believe much of [ZOLL's] top-line growth will stem from the PAD market and feel that greater salesforce focus will leave our \$20 million PAD estimate for fiscal year 2003 conservative," says analyst Ryan Rauch at Adams, Harkness & Hill.

The rest of ZOLL's \$150 million revenues last fiscal year (up 26 percent on 2001) were split equally between hospitals and pre-hospital (such as ambulances as well as other emergency services), plus around \$27 million from disposable electrodes and \$10 million from its software.

It claims to be the U.S. number two in the cardiac resuscitation market, after Medtronic subsidiary

Physio-Control, and the world number three after Physio-Control and Philips.

Resuscitation is a conservative market which favors the incumbents. A defibrillator can last for ten years, and until the advent of biphasic technology, the replacement market was sluggish. Medical professionals don't use the kit often, and when they do seconds count, so familiarity is important. So is portability, since patients seldom have a heart attack next to the defib. ZOLL therefore focuses on mobility and ease of use.

The company's biphasic devices, introduced in 2000 and now accounting for 95 percent of sales, use a rectilinear waveform which requires even less peak current, making it the only waveform clinically proven to work better (i.e. at lower current) than monophasic devices, says the company.

As noted by Rauch, the company has been beefing up its salesforce to compete with the likes of Physio-Control. "Our weakness has been in distribution; we don't have the maturity and depth of coverage of our competitors," adds Packer.

Global growth

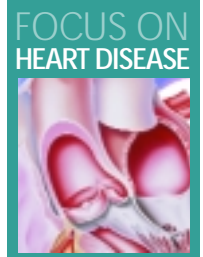
International prospects are good. Direct operations in France, Germany and the U.K. caused sales to double in the first quarter of this fiscal year, and grow 60 percent in Australia. "Internationally, we've had a compound annual growth rate of more than 30 percent in the last four years in a market that's been growing at 10 percent," says Packer. "We'd like to continue that for the next three years, which would give us nearly 20 percent of the market."

ZOLL, however, is wary of expansion. "We don't believe size is necessarily the way to win, and we don't want to miss the chance to be number one in resuscitation by spreading ourselves too thin," says Packer.

Instead, last year the company invested \$1.5 million and \$1.2 million in Lifecor and ResQSystems. ZOLL will help develop the market for Lifecor's LifeVest wearable defibrillator and the ResQPOD, a valve which increases blood flow during resuscitation.

"In three-to-four years, when we may need some incremental growth, these products could be ready for larger sales," adds Packer. ■

www.zoll.com



Above left: CEO Packer: "Some estimates put the world PAD market at \$1 billion by 2006. Our view is \$500 million, but even that represents a huge opportunity."

Above: This portable automated external defibrillator is about the size of a laptop.

Below left: ZOLL's M Series provides total diagnostic and therapeutic capabilities in a small, lightweight unit.



the total cost of CVD and strokes this year in the U.S. will be \$351.8 billion.