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Coating for medical devices can limit infections

**Innovation
of the Year**
FINALIST

Health Care &
Biotechnology

BioIntraface

BY KIMBERLEY DONOGHUE

DONOGHUE@PBN.COM

BioIntraface is one of those companies that you may never understand exactly what it is they do, but its work may one day positively impact your medical care.

Based in East Providence, BioIntraface boasts the proprietary platform technology for metal oxide and polymer coatings, which add anti-bacterial, anti-inflammatory and anti-fibrotic activity to existing medical devices.

The idea, as typical of many medical innovations, came from a need to better treat soldiers at war suffering from combat injuries and using external fixation pins in their treatment. External fixation pins are used in patients with contaminated or open fractures and those who have sustained multiple injuries and cannot undergo an inter-

nal fixation procedure.

The BioIntraface coating is designed to prevent biofilm formation and minimize caregiver intervention and, additionally, is the only treatment that will not promote bacterial resistance or inhibit healing.

And the technology can be applied to improve civilian patient care as well.

Benefits of the coating technology include patients with fewer infections, lowered complication rates and fewer trips to the operating room. Insurers should see cost savings and nurses will have to spend less time caring for pins to prevent tract infections.

“Ultimately, we foresee our coatings being used to treat active infections at the implantation site,” said John Jarrell, president of BioIntraface. Catheters and vascular grafts have been slated as candidates for the coatings.

Over the past six years, Jarrell has helped develop the technology through a joint-research collaboration between the Department of

Veteran’s Affairs, Brown University and Rhode Island Hospital. The coating technology platform was tested and utilized to create improved bioactive and anti-bacterial hybrid medical coatings suitable for permanent bone and soft-tissue implants.

BioIntraface was created in February 2009 and expects the U.S. market for external-fixation pins will grow to more than \$150 million by 2013 – the first year their product is scheduled to be available – and an annual growth rate of 8 to 10 percent.

The components used in external fixation – pins, rods and clamps – have not changed greatly since the 1950s. Adding threads to the tip so that pins are self-tapping and spray-coating the proximal end with ceramic to encourage boney integration have been the main evolutionary stepping stones of the field.

“BioIntraface sees an opportunity to impact this market by introducing a ‘disruptive technology,’ a bioactive and



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PIN UP? John Jarrell, president of BioIntraface. The company says the U.S. market for external-fixation pins should grow to more than \$150 million by 2013.

anti-bacterial coating that will resist pin-tract infections without the danger of inducing drug resistant strains of bacteria,” said Jarrell.

BioIntraface has filed eight global patents and recently received acceptance for its claim in the first of three U.S. patent applications in August. Last year, the company won the Rhode Island Business Plan Competition, competing against 36 other companies. ■

