

# INNOVATION

A look at innovative organizations, concepts, products and people

## Company Turns Up Heat On Pain With New Medical Device

**MEDICINE:** Machine Warms Blood Providing Temporary Relief

■ By BRITTANY MEILING

Roughly one in five adults in the United States lives with arthritis, and patients spend \$15.6 billion per year on prescription drugs to treat the pain and inflammation associated with the joint disorder. **Avacen Inc.**, a San Diego-based medical device company, is hoping to claim a piece of that pie while eliminating patients' need for prescription medication.

While researching ways to treat his sister's persistent migraines, **Thomas Muehlbauer** stumbled upon an idea to treat inflammation through heat therapy. Muehlbauer founded the company and assumed the CEO role of Avacen in 2009 and spent the next several years — and nearly all of his investment capital of \$2.75 million — developing a heat therapy medical device.

The machine is relatively small with just enough room to place your hand through a balloon cuff and rest it inside. The cuff inflates and your hand tingles as a negative vacuum distends the vascular system in the palm of your hand. Without heating the skin, the device rapidly

infuses heat straight into the bloodstream and warmth spreads throughout the body, relieving inflammation.

### Approved as Temporary Relief

The machine is called the Avacen 100, and in August it received over-the-counter clearance from the U.S. Food and Drug Administration. This kind of regulatory clearance allows the device to be sold on the internet for: the temporary relief of minor muscle and joint pain and stiffness; the temporary relief of joint pain associated with arthritis, muscle spasms, minor strains and sprains; and muscle relaxation.

The length of pain relief varies for each person and depends on the specific type of pain. Temporary pain relief can last anywhere from a few hours to days, depending on the patient's condition and how often they use the device. The company recommends using the Avacen 100 twice a day for 20 minutes.

"That is the beauty of a safe and noninvasive device compared to pain medications," said **Ryan Jeffcoat**, director of communications and compliance at Avacen. "Some of our users will even use the Avacen for 30 minutes a few times a day or more without the worry about the potential side effects..."

Although the FDA applications are quite narrow, customers of Avacen have reported feeling relief from a variety of ailments.

In fact, the company conducted a successful Fibromyalgia pilot study with



Photo courtesy of Avacen Inc.

**The Avacen 100 infuses heat into the bloodstream providing temporary relief of inflammation and pain. The machine in August received over-the-counter clearance from the Food and Drug Administration.**

University of California, San Diego and the local chapter of Veterans Affairs.

"It makes sense — I'm infusing heat into the circulation system, getting circulation to the deep tissues, bringing oxygen and protein in and taking away waste," Muehlbauer said, adding that all of the positive customer feedback is warranting further research and perhaps future applications for FDA clearances.

The over-the-counter clearance prevents Avacen from receiving reimbursement through the government. However, Muehlbauer says the price is inexpensive enough to compete on its own.

"In most cases, we'll take a patient that an insurance company was paying \$7,300 to \$9,400 a year in medication and treatment, and offer our device instead, which is \$2,495," Muehlbauer said.

### AVACEN INC.

**CEO:** Thomas Muehlbauer

**Revenue:** \$500,000 expected by end of 2014

**Investors:** Self and private investors - \$2.75 million

**No. of local employees:** 17

**Headquarters:** Miramar

**Year founded:** 2009

**What makes this company innovative:** Using new technology to treat pain associated with arthritis without medication.

**Key factors for success:** Potential to be cleared for treatment of a wide variety of afflictions and illnesses.

The primary customers for the Avacen 100 are arthritic pain sufferers, Jeffcoat said. Initial internet marketing efforts will be aimed at people who would use the device at home. In the future, the company plans to expand marketing efforts to pain management specialists as well as clinics, hospitals, long-term care facilities, retirement communities and sports medicine and rehabilitation clinics.

Avacen primarily plans to use social media as its primary marketing and sales platform. "The results of our device are so dramatic that social media and word of mouth pretty much sell the device," Muehlbauer said.

The company said it has about 400 machines in its inventory which amounts to about \$1 million in suggested retail value.



Thomas Muehlbauer

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