

technology



« Dr. Rafael Andrade with the InReach system.

InReach Exploring the business of cancer.

BY HOLLY DOLEZALEK

BIZBREIFING

SUPERDIMENSION

CEO and President:

Dan Sullivan

Headquarters:

Minneapolis

Inception: 1999

Description: A medical device company that develops minimally invasive devices for the diagnosis and treatment of lung disease.

Web:

superdimension.com

IMAGINE THAT YOU MIGHT HAVE a dangerous cancer that gets more incurable the longer you wait for treatment—and that you have to wait for three or six months to find out whether you have it. If you do, your chances of dying of it will be much higher by then. Good luck sleeping.

That was the situation for Roxanne Johnson, an Independence, Minn. mother of two girls aged 10 and 12, in the summer of 2008. After learning that she had a spot on her lung, she waited three months and had another inconclusive chest CT scan. She was told to wait another six months and have another.

“That felt like a very long time to wait and wonder,” Johnson says. It was, but patients hear that kind of advice all the time.

The problem is technology. When patients come in with spots on their lungs, there are a few methods to find out what those spots

are. One is bronchoscopy, where a tube with a light and camera is threaded down the patient’s airway to the first main branch of the lungs. But if a spot is farther down in the more branched parts of the airway, the bronchoscope will be too big to reach it.

There are more conclusive but more invasive methods; a surgeon can insert a needle into the patient’s chest, guided by a CT scan, or actually remove a wedge of the patient’s lung. Those surgeries are

more expensive and uncomfortable for the patient, and some patients are too ill to tolerate them at all.

Now superDimension, a privately owned medical device company in Minneapolis, has what CEO Dan Sullivan calls a game-changer. It’s the InReach

CANCER FACTS

In 2008, cancer cost \$228 billion, of which \$93 billion is direct medical costs. The rest is lost productivity due to illness (\$18.8 billion) and lost productivity due to death (\$116.1 billion).

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- Sara Criger, CEO, St. Joseph's Hospital
- Bonnie Holub, Founder and CEO, Adventium Labs
- Douglas A. Johnson, Executive Director, Center for Victims of Torture
- Mark Stutrud, CEO and Founder, Summit Brewing Company
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“Sometimes you discover a cancerous nodule in a patient who can't tolerate surgery. With InReach, you can deliver therapy and avoid surgery, and destroy the nodule as much as you can.”

—DR. RAFAEL ANDRADE, THORACIC SURGEON AT THE UNIVERSITY OF MINNESOTA

system, which uses electromagnetic navigation bronchoscopy to get a clear picture of even hard-to-reach lung spots, sample the spot for a biopsy, and even deliver targeted treatment to the spot. It starts where conventional bronchoscopy stops.

InReach consists of a long, narrow catheter—about 2.8 mm wide, as opposed to 6.8 mm for a bronchoscope—that can be inserted using a bronchoscope and then navigated to the spot, even if it's lower or farther out in the lung. The system's software uses a recent CT scan of the patient's chest to create a 3-D virtual map of every turn of the airways in the patient's lungs. The patient lies on an electromagnetic board, and sensors placed on the chest create a sort of GPS that synchronizes with the map of the lungs so that the surgeon knows where to go, and where the tip of the catheter is, in the lung. The path to the spot lights up in the map.

“Sometimes you discover a cancerous nodule in a patient who can't tolerate surgery,” says Dr. Rafael Andrade, a thoracic surgeon at the University of Minnesota who uses InReach. “With InReach, you can deliver therapy and avoid surgery, and destroy the nodule as much as you can.”

SuperDimension is 10 years old. Its 95 employ-

ees mostly work in the Minneapolis office, where superDimension also makes the catheters for the InReach system (about 4,000 this year). The company also has an office in Germany for European marketing, and an office near Tel Aviv, Israel where R&D employees develop the system software. Revenues were roughly \$13 million this year, and Sullivan expects a significant uptick in 2010 and to become profitable in 2011.

The first InReach systems shipped in 2005, and to date over 10,000 procedures have been done at the 200 hospitals in Europe and the U.S. that have the system.

Doctors come to superDimension for two days of training in the new system, where they hear about the procedure from experienced practitioners and try it out for themselves on a model. “They get a lot of hands-on training and one of our sales people will be there for their first live patient if they like,” Sullivan says.

Dr. Andrade says that he's performed about 14 of these procedures already, and he learns a bit more each time. “It's a steep learning curve, but you have to be patient and keep working on it,” he says. “Accuracy comes with experience, and like any diagnostic method, it's operator-dependent.”

The company's 18 salespeople call on pulmonologists, thoracic surgeons, radiation oncologists, and hospital CEOs to sell the system. In the long run, Sullivan says, the company is creating a distribution channel for products that investigate the lungs non-invasively and help with diagnosis and treatment. So in addition to selling InReach, the company will keep its eye out for other products and technologies that could be sold through that same channel.

Sullivan can't hide his enthusiasm for the system, nor would he want to. “This system is literally saving lives every day,” he says. “It's a good business to be in.”

CANCER SURVIVAL RATES AFTER FIVE YEARS

Breast (female)	88.7 %
Colon & rectum	64.4
Esophagus	15.8
Kidney	66.5
Larynx	62.5
Liver	11.7
Lung & bronchus	15.2
Melanoma of the skin	91.2
Oral cavity & pharynx	59.7

(SOURCE: AMERICAN CANCER SOCIETY)