The MedTech STRATEGIST

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MARKET TRACK

Global Spine Market
2015-2019E ($M)

US Sales   Worldwide Sales

	2015	2016	2017E	2018E	2019E
Worldwide Sales	8,651	8,744	8,904	9,189	9,502
US Sales	6,437	6,588	6,696	6,893	7,110

MURJ

MURJ:
BUILDING THE PLATFORM TO MANAGE A DELUGE OF DATA FROM REMOTELY MONITORED CARDIAC DEVICES

Interpreting the data from implantable cardiac devices such as pacemakers, heart monitors, and defibrillators involves a cumbersome workflow that takes time away from clinicians' principal job of patient care. Aware that remote monitoring for a growing number of conditions is on the rise, Murj designed a highly efficient platform to help clinicians quickly gain the insights they need from device-recorded data.

by
COLIN MILLER, CONTRIBUTOR

One wouldn't necessarily expect the ocean to be the birthplace of an idea for a cloud-based solution to an issue that has plagued cardiologists for decades. Yet, three years ago, it was the allure of the waves that brought together **Murj** co-founder Todd Butka and Reed Gaither, an experienced capital manager and president of a company whose major offering was a highly innovative soft tissue bone anchoring system, to discuss a new venture. Butka had been working with co-founder and web expert Chris Irving on an integrated cardiac data management system. When Butka and Gaither first met for coffee in the company's hometown of Santa Cruz, California, three things about Butka resonated with Gaither and led him to join the company as COO: Butka's passion for the streamlined way he had designed things at Apple, his expertise stemming from ten years as a top sales rep in the industry, and the resulting intimate understanding of the product space. Nine months and one round of investment later, Murj as it exists today came into being.

In his years as a cardiac device rep for Medtronic and Guidant, Butka became intimately acquainted with the burden physicians experience when caring for patients with implanted devices. Says Butka, "Once the device is implanted, the physician is left with the responsibility of care for that patient over the life of the device. Pacemakers and defibrillators are now lasting anywhere between 7 and 10 years." Physicians have to monitor these devices periodically, forever. Gaither recalls one of the first things Butka said to him during their initial sit-down: "Look, in over 25 years there's really been no fundamental innovation in tools to manage the data from these implantable devices."

The need for the startup's sleek, user-friendly application is glaringly apparent when observing a typical cardiology practice. Currently four major device manufacturers dominate the implantable space, which means cardiologists' offices manage four different data streams with unique formats. Specialized nurses or technicians extract data into PDF files that could be anywhere between two and 20 pages long. It's arduous to derive meaningful information from these reports, because PDF text is not searchable by keywords; if a device records a certain event, a defibrillator shock for example, it might take a clinician 25 minutes to track down prior reports to determine if it's the first time or if it's part of a discernable pattern. To further complicate matters, reports from different manufacturers appear in different visual formats, despite the fact that they convey the same core data points. As chief design officer Chris Irving puts it, "when you go into some clinics, the paper-based systems feel like 1985."

That's not an exaggeration. Irving explains that roughly half of the clinics still record pacemaker and other implant data manually, collating readings from the relevant programmer, scanning it, and attaching it to the electronic medical record as a PDF. Some hospitals have created their own systems for consolidating and managing this data, but these are costly to build and maintain.

The founders of Murj believe they can offer a dramatic improvement in terms of efficiency. Butka recounts a research-gathering trip took during the development process. "We went to a large US hospital, and they needed more than 10 different applications and over 40 clicks to process a

device check. It took between 15 and 20 minutes." Such interfaces amount to a great deal of labor when a clinician is trying to find unusual or worrisome events among myriad normal readings, and it's simply not a good use of their time.

Patients, too, bear the impact of outdated, inefficient device management tools. Butka explains that, though remote patient care is the current recommended standard, the lack of effective tools for data analysis results in just 40% of patients being treated to that standard. The non-remotely managed patients may be forced to take hours out of their day (as will any care provider or family member assisting with the patient's transportation) to visit their doctor's office. As the Murj team sees it, device checks can be done from the comfort of patients' own homes with no effort on their part, which also lowers the cost of managing devices and translates to increased patient compliance.

Butka continues with a hypothetical but completely plausible scenario to illustrate how confounding factors can bring a clinic's workflow to a grind. "Device clinics, like any doctor's office, can get behind schedule for many reasons. All of a sudden the waiting room is full of patients needing to be seen. There's nowhere to park, there's nowhere to sit, it becomes a ripple effect. It's something that really doesn't have to happen with remote monitoring." Patients pile up along with costs, and those patients are inconvenienced when they don't even need to set foot in the office in the first place.

Keeping in step with the latest standards of care, the Murj team hopes to do away with the cumbersome methods of the past by enabling cardiologists to document a device interrogation, or doctor-initiated reading, or a transmission from any device in two or three

minutes versus present practices that can take up to ten times longer.

This dramatic improvement in efficiency is accomplished by compiling data from all four manufacturers' servers into a simple, intuitive display. Irving makes the additional point that cutting down on data processing time gives doctors and nurses more time to focus on patients. "It's astonishing," he laments, "to see people that are so highly trained spend so much time moving data back and forth."

When it comes to Murj's business model, the startup has many supportive circumstances on its side. First, the Murj software application is a Class I medical device, requiring no costly FDA approval. Second, the market for cardiac implantable electronic device (CIED) data management is expanding rapidly. As Gaither notes, "In terms of how many patients have devices, including heart monitors, the estimates range from 15 to 20 million worldwide, and that's growing at roughly a million-plus a year." Third, CIED device care has proven reimbursement codes tied to checking the device, with technical and professional components, with decades of utilization. And fourth, Murj's pricing structure is designed to work for clinics of any size, from a two-person private practice to the largest cardiac treatment facilities in the country. "We have a nice pricing model that works for clinics of any size and reflects the efficiencies and insight Murj can provide," says Gaither.

Several key features of the platform distinguish it in a medical device industry that lags in terms of the user-friendliness of software. The most practical, as cardiologists worldwide would likely agree, is the rapid workflow management functionality. Drawing from his Apple alma mater, Butka implemented a "two click philosophy," an adaptation of Steve Jobs' three-click

dogma of usability which dictated that one should be able to find the music they want on their iPod in three clicks or less. There's also the versatility and security of a cloud-based SaaS (software as a service) delivery model. Providing Murj on the cloud allows clinics to get started quickly, and access updates instantly with no software to install or databases to maintain, all while remaining HIPAA-compliant. From the perspective of the IT department, not needing to purchase additional databases, download enormous files, or customize security protocols to implement the platform all facilitate the adoption of Murj.

After years of planning and development and 18 months in clinical validation, Murj's software became available in May of this year, and the team has hit the ground running. "We have spoken to hundreds of clinics who want to learn more," says Butka. "We are signing on new clinics at a healthy clip and I couldn't be more excited." During the platform's official launch at the annual conference of the Heart Rhythm Society, Butka skipped lunch each day to run product demonstrations, a testament to the interest Murj generated among cardiologists and electrophysiologists. This should come as no surprise considering the clinician-first mentality with which the software was designed.

Overall, Murj is in a promising position for the future. Murj benefits from a strong team including top tier physician advisors, and a Chairman of the Board, Mark Bartell, who is a seasoned industry veteran, having held executive positions at Guidant and Boston Scientific. With a growing cardiac device population and a clinic marketplace longing for new productivity tools, Murj's solution seems well-positioned to make a meaningful improvement in patient management.