Volume 6, Number 2

IN SYNCH

Updates in Interventional Pain Treatments

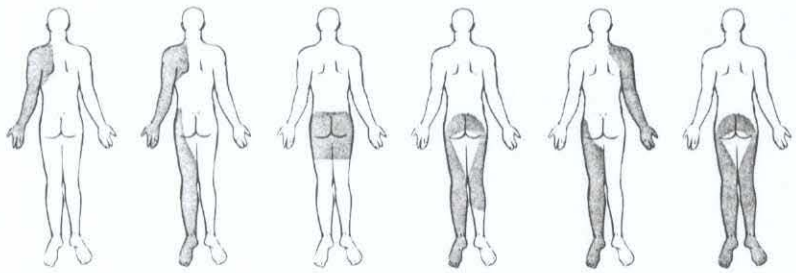
A New Treatment Alternative for Bilateral and Axial Pain Patterns

Unprecedented versatility is now available for the treatment of difficult patterns of chronic, bilateral pain of the trunk and limbs. Medtronic's Mattrix® system, with its Single Stim™ and Dual Stim™ modes and two quadripolar stimulation leads, offers treatment options which are a major innovation in neurostimulation therapy.

Patients with multiple or difficult bilateral chronic pain sites or complex pain patterns may benefit from the Mattrix system's Dual Stim mode. The easy-to-use independent amplitude and pulse width controls for each lead in Dual Stim Mode provide exceptional power to steer paresthesias. Patients can easily control the stimulation of each lead independently, within physician-set parameters, to optimize pain relief as their needs change. The Single Stim mode delivers the same stimulation parameters on two separate leads.

"The Mattrix system represents a significant advance for Medtronic, placing the tools for successful treatment of these difficult pain patterns within the reach of more implanters."
— C.M. Schade, M.D., Ph.D.

Pain Patterns



Single Stim™ Mode

- Simple, non-changing bilateral patterns

Dual Stim™ Mode

- Changing pain patterns, including minor lead migration
- Complex, uneven bilateral pain patterns
- Multifocal stimulation, including: (a) Cervical and thoracic patterns, (b) Spinal Cord Stimulation (SCS) and Peripheral Nerve Stimulation (PNS)

In Synch discussed the Mattrix system with two physicians who participated in the U.S. clinical study prior to market release. **C.M. Schade, M.D., Ph.D.,** an anesthesiologist with the Center for Pain Control, Dallas, TX, was the first U.S. implanter of the Mattrix system. He holds doctoral degrees in electrical engineering and computer science and has considerable experience implanting dual lead neurostimulation systems. **R. Lee Irvin, M.D.**, Medical Director of Anesthesia and Pain Management in Mobile, AL, also has prior experience with other dual lead systems.

In Synch Doctors, there are other dual lead systems on the market. What makes the Mattrix system special?

Irvin The Dual Stim Mode allows the clinician to program different amplitude and pulse widths for the two leads. This is an important advance because patients with bilateral pain rarely experience the same intensity of pain on both sides. Prior to the Mattrix system, clinicians treating bilateral pain with a dual lead system had the unpleasant options of over-stimulating the less painful side or under-stimulating the more painful side. The two stimulation modes allow the clinician to tailor the therapy to meet the patient's pain pattern. I am pleased to have a Medtronic alternative for my patients who need a dual lead system because I have found Medtronic equipment to be more reliable.

(Continued on page 2)

(A New Treatment Alternative for Bilateral and Axial Pain Patterns

Continued from page 1)

Schade The treatment of axial and bilateral pain is on the cutting edge of neurostimulation therapy. The Mattrix system represents a significant advance for Medtronic, placing the tools for successful treatment of these difficult pain patterns within the reach of more implanters. One of the reasons I am impressed with the Mattrix system is Medtronic's commitment to quality. I have visited the manufacturing facility and they are producing pacemaker-quality equipment for neurostimulation. Because of Medtronic's strong quality assurance program, I anticipate the Mattrix will have a lower equipment failure rate than other dual lead systems.

"Prior to the Mattrix system, clinicians treating bilateral pain with a dual lead system had the unpleasant options of over-stimulating the less painful side or under-stimulating the more painful side."
— R. Lee Irvin, M.D.

In Synch For what kinds of patients is the Mattrix system indicated?

Irvin I would choose a Mattrix system for failed back treatment syndrome patients with bilateral extremity pain or unilateral extremity pain with axial pain. These are patients who are very difficult to treat with a single quadripolar lead — so I would previously not have considered them candidates for SCS. I would also choose the Mattrix for my patients with reflex sympathetic dystrophy (RSD).

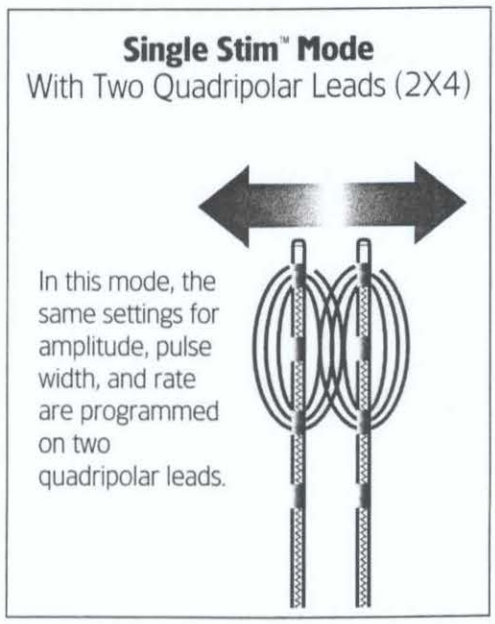
Schade Patients with failed back surgery syndrome who have significant axial (midline low back) pain along with bilateral pain, and even possibly some patients with pure axial pain, can benefit from the Mattrix system.

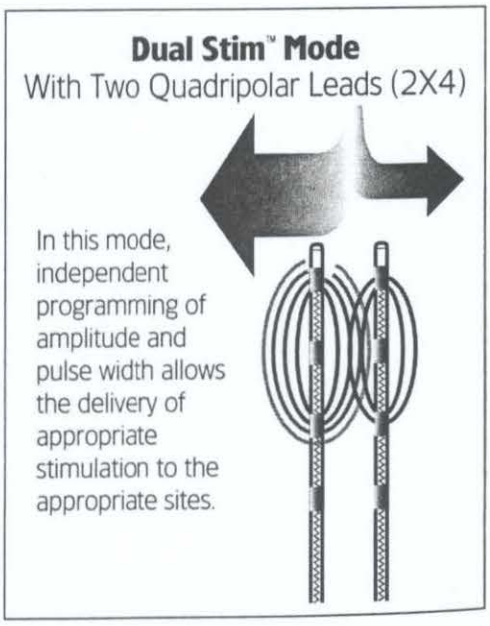
In Synch What is the advantage of two leads?

Schade The spinal cord is a moving target. It is possible to establish excellent paresthesia while the patient is on the operating room table but find that the paresthesia no longer fully covers the painful area when the patient is standing. This is especially true when the painful area is broad or bilateral. If a single lead is used and it is discovered that it is implanted too far to the right or left, the only alternative is to surgically reposition the lead. If two parallel leads are used, the stimulation can be electronically repositioned.

(Continued on page 3)

"... the Dual Stim Mode... is an important advance because patients with bilateral pain rarely experience the same intensity of pain on both sides."
— R. Lee Irvin, M.D.





(A New Treatment Alternative for Bilateral and Axial Pain Patterns
Continued from page 2)

In Synch How does the implant procedure for a Mattrix system differ from a typical SCS implant?

Irvin A major difference is that the Mattrix system has two leads. In the case of low back pain and bilateral leg pain, I would tend to place these either side-by-side or at adjacent levels to cover the areas of T8 to T10-11 or T9 to T11-12. The Mattrix system uses leads from Medtronic's Pisces® family of leads, so many implanters will be familiar with the easy steering of the leads using the angled stylet. I typically place the lead on the most painful side first, and establish good paresthesia coverage before placing the second lead. Another difference for some implanters is that the Mattrix system is a radio frequency (RF) system with both internal and external components.

"... I'm impressed with ... Medtronic's commitment to quality. ... I anticipate the Mattrix will have a lower equipment failure rate than other dual lead systems."
— C. M. Schade, M.D., Ph.D.

In Synch How do you handle screening for a Mattrix system implant?

Irvin Just as for any other SCS screening, I place a single lead on a temporary basis. Patients who demonstrate 60 to 70% reduction in pain in the covered area, decrease in medication, and increase in activity level are candidates for SCS. Although a single lead will not fully cover bilateral pain, it does give us a sense of whether stimulation "works" for the patient.

Schade I place two quadripolar leads side by side and test stimulate in the hospital for two days before removing the leads. By keeping the patient in the hospital, I can accurately record the patient's activity, use of medications, and pain level.

In Synch Thank you, doctors, for sharing your thoughts and experience. ■

Case Studies: Patients' Pain Responds to Mattrix® System

Patient 1

Treated by C. M. Schade, M.D., Ph.D., Center for Pain Control, Dallas, TX

This female failed back surgery syndrome patient in her mid-30s originally injured her back in a lifting accident on the job. She had three back surgeries in as many years, but still had significant pain in her lower back and both legs. Despite aggressive administration of medications including I.V. opioids under the care of a pain specialist, the patient's pain was unresponsive and out of control. She was housebound and bedridden. She presented at the emergency room approximately twice a month because of her pain, and approximately once a month she was admitted to the hospital for several days of treatment.

After appropriate psychological screening, the patient underwent a three-day trial of neurostimulation in the hospital. Her response was highly favorable and she elected to have a Mattrix neurostimulation system implanted one week later.

The patient's quality of life is significantly improved. She is once again able to be active. She recently ran for School Board in her district and defeated the incumbent.

Patient 2

Treated by R. Lee Irvin, M.D., Anesthesia and Pain Management, Mobile, AL

This 52-year-old male experienced a work-related fall seven years ago and subsequent disc herniation. He underwent four back surgeries including a spinal fusion and developed lumbosacral fibrosis disc disease. Unrelated to this injury the patient also has cervical spine disease.

(Continued on page 6)