

## Neural Prosthesis Seminar “Spinal Cord Stimulation Present and Future”

**Friday, December 14, 2012 • 8:30 AM**  
**Biomedical Research Building 105**  
**Case Western Reserve University**



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#### **Abstract:**

Neuropathic pain is a pervasive cause of morbidity that affects 1.5–8% of general population and one that is inadequately addressed by conventional medical management (CMM). Furthermore, failed back surgery syndrome (FBSS) complicates up to 10-40% of cases of lumbosacral spine surgery and is generally not remediable by further surgery.

This presentation starts off with a discussion of the current state of spinal cord stimulation (SCS) by examining the three randomized control trials (RCTs) conducted to date. Special emphasis is given to evaluation of the multicentre PROCESS trial that compared SCS with CMM for treatment of failed back surgery syndrome. We will also touch on the two other RCTs which examined SCS versus re-operation and role of SCS in complex regional pain syndrome (CRPS) I, respectively. Next, the superior cost effectiveness profile of SCS as compared with CMM and re-operation is discussed. The shortcomings and limitations of SCS are outlined in the context of hardware design the implantation procedure itself, pulse generator lifespan, and wait-times for SCS. This section also highlights the disconnect between rapid technological progress and the development of clinical evidence, which is lagging. Suggestions for areas of improvement are offered.

Traditionally, axial back pain has defied harnessing by SCS due to inadequacy of paresthesia coverage. However advances in lead design, programming capability, and the advent of field stimulation provide promise in this regard. Finally, the new frontiers in SCS are explored in terms of technological advancement, upcoming trials, and future therapeutic indications. Specific discussion will center on the dorsal root ganglion as a target for stimulation and role of high frequency stimulation in the treatment of chronic pain.

**For more information, please contact Cheryl Dudek at (216) 231-3257.**

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