# NEUROSTIMULATION TREATMENT FOR OVERACTIVE BLADDER: AN EVALUATION OF COST EFFECTIVENESS DATA

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Presented at the 2012 AUA Annual Meeting

#### **Introduction and Objectives:**

Neuromodulation for overactive bladder (OAB), including both electrical stimulation of nerves that control bladder function via direct implantable sacral nerve stimulation (SNS), or indirectly via percutaneous tibial nerve stimulation (PTNS), are increasingly recommended in the OAB treatment algorithm. The objective of this study was to estimate the costs of initial and on-going therapy of percutaneous tibial nerve



stimulation (PTNS) and sacral nerve stimulation (SNS).

## Treatment Algorithm for OAB Symptoms



Pharmacotherapy Antimuscarinics or Anticholinergics

Office-based Neuromodulation PTNS

**Minimally Invasive** Surgery SNS Test **SNS** Implant

### **Methods:**

A Markov model was constructed to compare the initial costs, on-going costs and cost-effectiveness of PTNS and SNS over 3 years. Cost data used average Medicare national physician payment and APC and DRG payments for hospital based care and office visits. Clinical effectiveness, patient adherenceto-treatment rates and adverse event rates were estimated by a review of the literature.

#### **Results:**

Costs for initial therapy were \$1,773 for 12 weekly PTNS treatments and \$1,546 for the initial SNS test stimulation, with the cost for the SNS surgical implant of \$22,892. Cumulative discounted 3-year costs were \$4,416 for PTNS and \$14,544 for SNS, including those who discontinued therapy, with 40% and 47% respectively remaining on therapy. The incremental cost-effectiveness ratio (ICER) of SNS was approximately \$130,000 per additional patient remaining on treatment compared to PTNS. When considering only patients who completed the initial 12 weeks of PTNS

### Table 1. Comparative Cost Analysis of PTNS vs. SNS Over 3 Years



Treatment	Initial*		Year 1**		Year 3**		
	Reimbursement	Initial Success	Reimbursement	On Therapy	Reimbursement	On Therapy	ICER (Cost/add'I patient on SNS therapy)
Base Case							
PTNS	\$1,773 for 12 Tx	67%	\$2,674	55%	\$4,416	40%	\$130,000
SNS	\$1,546 for testing \$22,892 for implant	55%	\$13,790	53%	\$14,544	47%	
Base Case Using Initially Successful Patients Only							
PTNS	\$1,773 for 12 Tx	100%	\$3,110	81%	\$5,721	59%	\$74,300
SNS	\$1,546 for testing \$22,892 for implant	100%	\$23,657	95%	\$25,031	85%	

\*For PTNS, initial costs are those associated with 12-week therapy. For SNS, initial costs are those associated with the test and implant procedure. \*\*The average reimbursement for SNS and PTNS at 1 and 3 year intervals includes the \$0 long-term therapy costs of those who test Source of Funding: Uroplasty, Inc. unsuccessfully (SNS) or whose initial therapy was unsuccessful (PTNS).

therapy or SNS test stimulation successfully and then went on to subsequent therapy, costs were \$5,721 and \$25,031 at 3 years respectively, with 59% and 85% remaining on therapy, for an ICER of \$74,300. See table 1.

## **Conclusions:**

PTNS and SNS are both effective neuromodulation therapies for OAB, with PTNS having a substantially lower cost. When SNS is used, an additional 7% of patients would remain on therapy over 3 years vs. PTNS, but the cost per additional SNS patient would average \$130,000.

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