



## Predictors of spinal cord stimulation success

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### Introduction

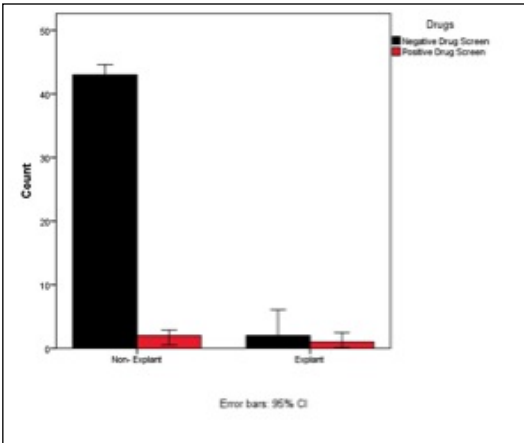
As many as 30% of SCS patients fail to obtain long term pain coverage, even with the strictest parameters of a successful trial, unremarkable psychological assessment, and ideal placement of the permanent device. Why these patients either never receive adequate benefit or lose benefit remains elusive. Nearly 18% of Americans currently smoke cigarettes today. More than 50% have tried to quit in the past year, however these smokers on average attempt to quit about 2 times each year. Health care providers should inform patients on the harmful effects of smoking and encourage them to quit because this has proven to be an effective cessation treatment, but it is estimated that less than 50% of smokers are actually advised to quit.

### Methods

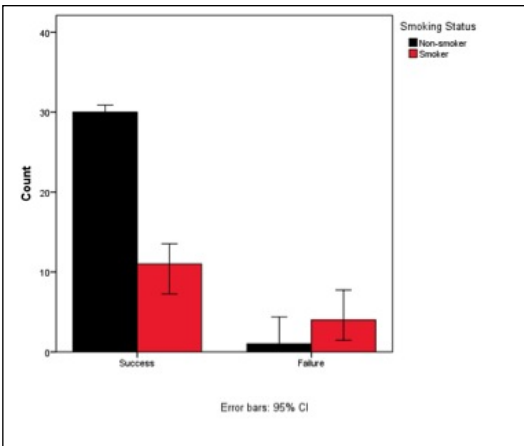
We perform a retrospective review of our prospective database of SCS patients undergoing surgery for routine indications. Six month post-operative follow-up data was available for 57 patients. A score for global impression of outcome (1-10 with 10 being the best) by two reviewers who saw the patients pre-operatively and throughout follow-up. Their scores were blinded from one another. A score of 5 was conservatively chosen as a success. The impact of Body Mass Index (BMI), random drug screen results, workers' compensation status, depression, and smoking were assessed.

### Results

At six month follow of 57 patients, 5 failures, 3 explants, 4 new pain revision, and 2 migration revisions were documented.

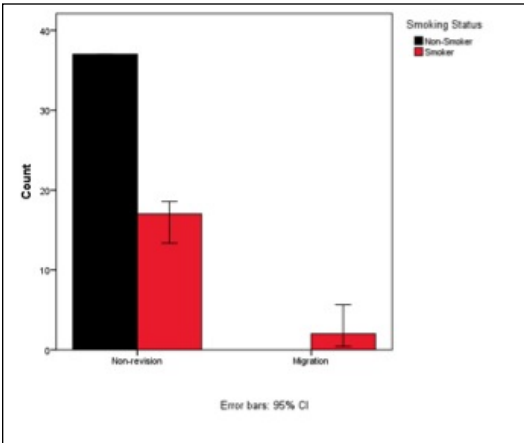


**Figure 1:** Positive drug screen was observed in 33% of explant patients and less than 2% of non-explant patients.



**Figure 2:** Smokers compose 80% of the failure group and 33% of success group.

Explantation, defined in this study as removal of device for reasons other than infection, is correlated with recreational drug use with  $\phi=0.289$  ( $p=0.045$ ) (**Figure 1**). Smoking status is correlated with failure (global outcome rating scale  $<5$ ) in patients where  $\phi=0.353$  ( $p=0.017$ ) (**Figure 2**).



### References

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**Figure 3:** Smokers compose 100% of patients requiring revision due and 31% of non-revision patients.

### Conclusions

Tobacco use correlates with less success with SCS at 6 month follow-up. Whether that is because of issues with healing and our transmission of signals to the periphery warrants further exploration. This data provide further evidence that tobacco cessation is important to surgical results.

### Learning Objectives

By the conclusion of this presentation participants will be able to 1) Describe the impact of smoking and drug use on success of SCS 2) Identify factors which should be discussed with patients prior to SCS 3) Discuss factors such as BMI, worker's compensation, and depression which have no measurable effect on SCS outcomes