

The Efficacy of Spinal Cord Stimulation in Reducing Pain & Improving Functional Capacity in Veterans: A 9-year Retrospective Analysis

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Faculty Disclosure: Nothing to Disclose

Spinal Cord Stimulation (SCS) can be a life-altering therapy enabling individuals with chronic pain to have improved functional capacity (FC) and quality of life. New evidence points at notable benefits in functional improvement in patients who have undergone early neuromodulation. There is no long-term outcome study in veterans with chronic spinal and radicular pain who have undergone SCS procedure. The purpose of this study was to explore possible benefits of SCS including reduction in pain, reduction in opioid use, and improved FC in veterans who have undergone SCS procedure at Durham VA Medical Center (DVAMC).

After obtaining IRB approval (VA IRB Pro01830), retrospective data was extracted of veterans who underwent permanent or temporary SCS lead placement from 2005 to 2014. CPT codes were used to identify veterans with Failed Back Syndrome (FBS), Low Back Pain (LBP), Complex Regional Pain Syndrome (CRPS), Lumbar Radiculopathy (LR), Cervical Radiculopathy (CR), and Neuropathic Pain (NPP). The data extracted included demographic information, self-reported pain scores (VAS), Body Mass Index (BMI), and medications use.

203 Veterans underwent SCS trial of which 151 had permanent SCS implants. Majority were male with higher failure rate than female. Veterans with higher pre implant BMI had higher failure rate and those with functioning SCS had decreased post implant VAS score. Opioid consumption did not decline despite continuation of SCS implant.

The result from this study points to the effectiveness of SCS for most veterans. It can be concluded that SCS can be a life-altering therapy leading to improved functional capacity. However, well designed studies are needed to evaluate the effectiveness of SCS in veterans.

Introduction:

- Management of such pain has typically been non-interventional & opioid-centric
- Early neuromodulation procedure (i.e. SCS) is an effective pain management modality
- Studies in veterans who have had SCS procedures in the VA system are scarce

Purpose:

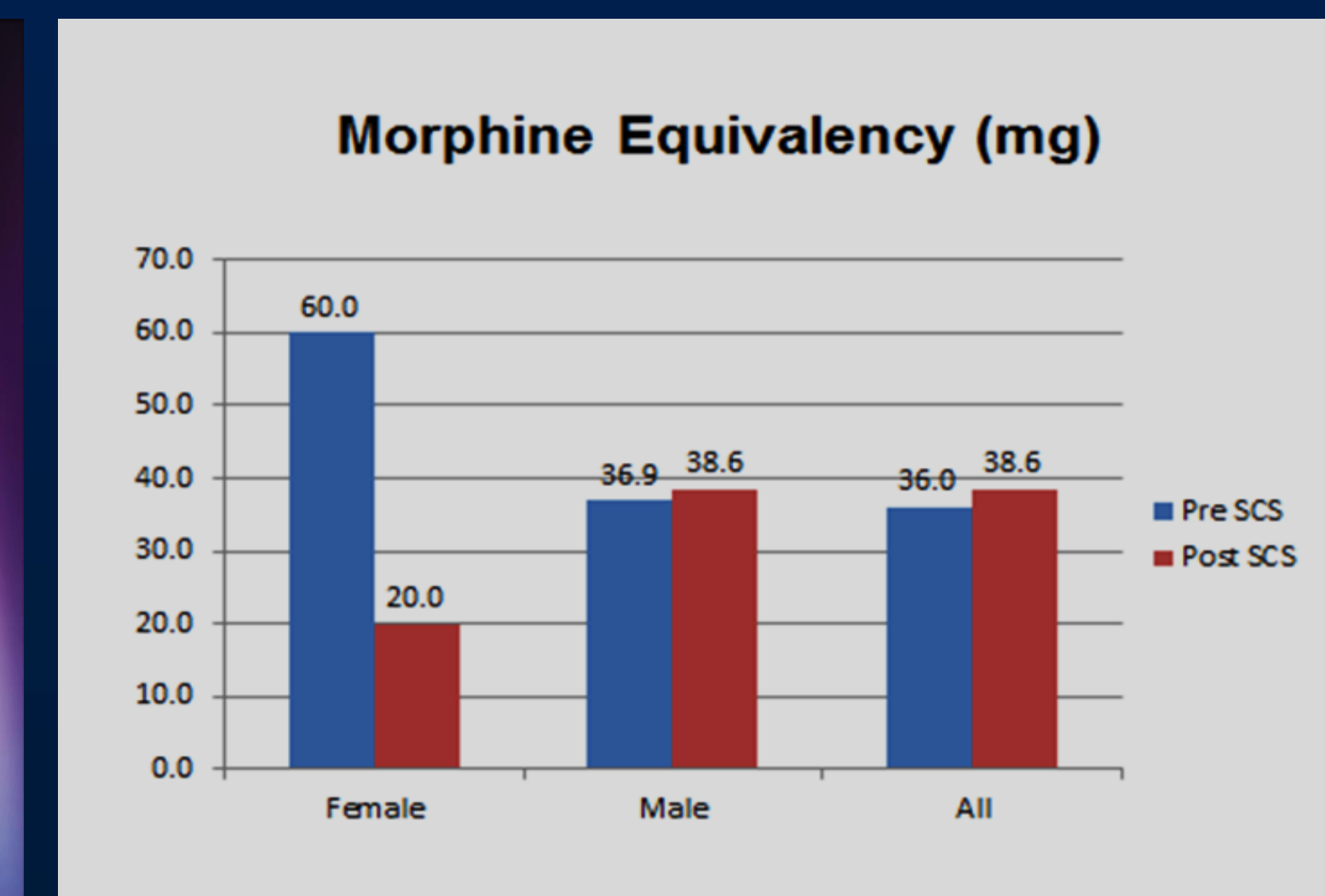
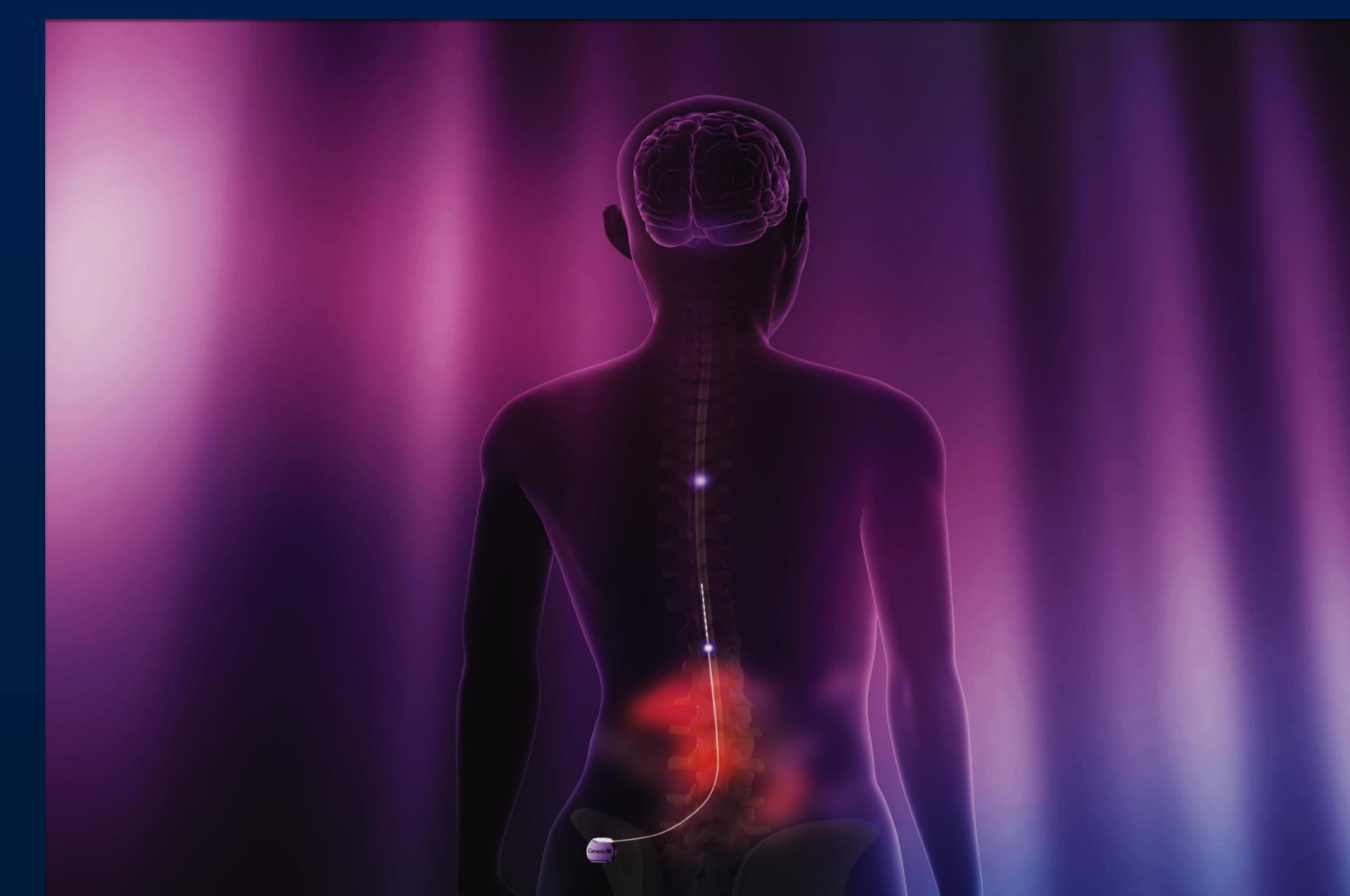
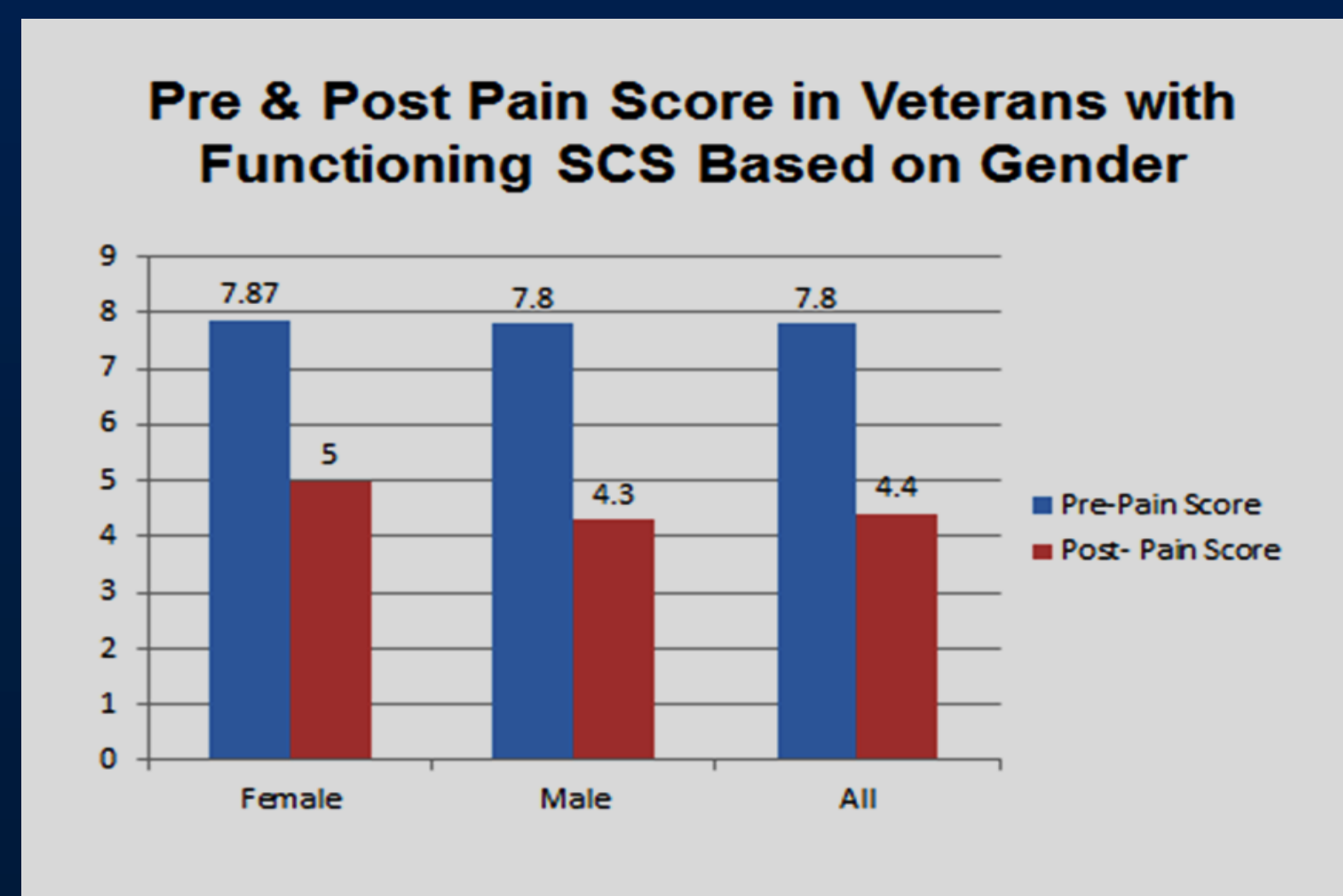
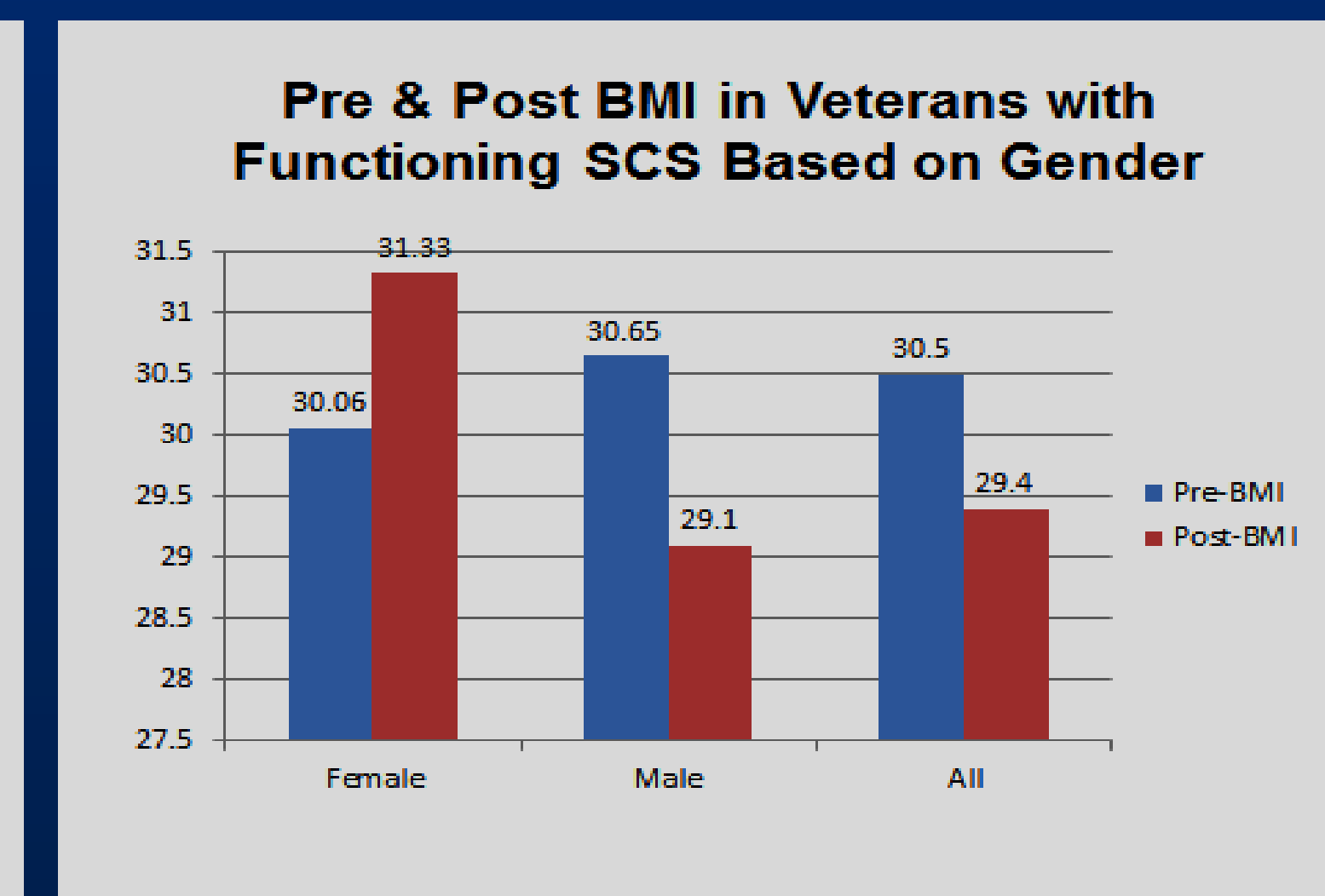
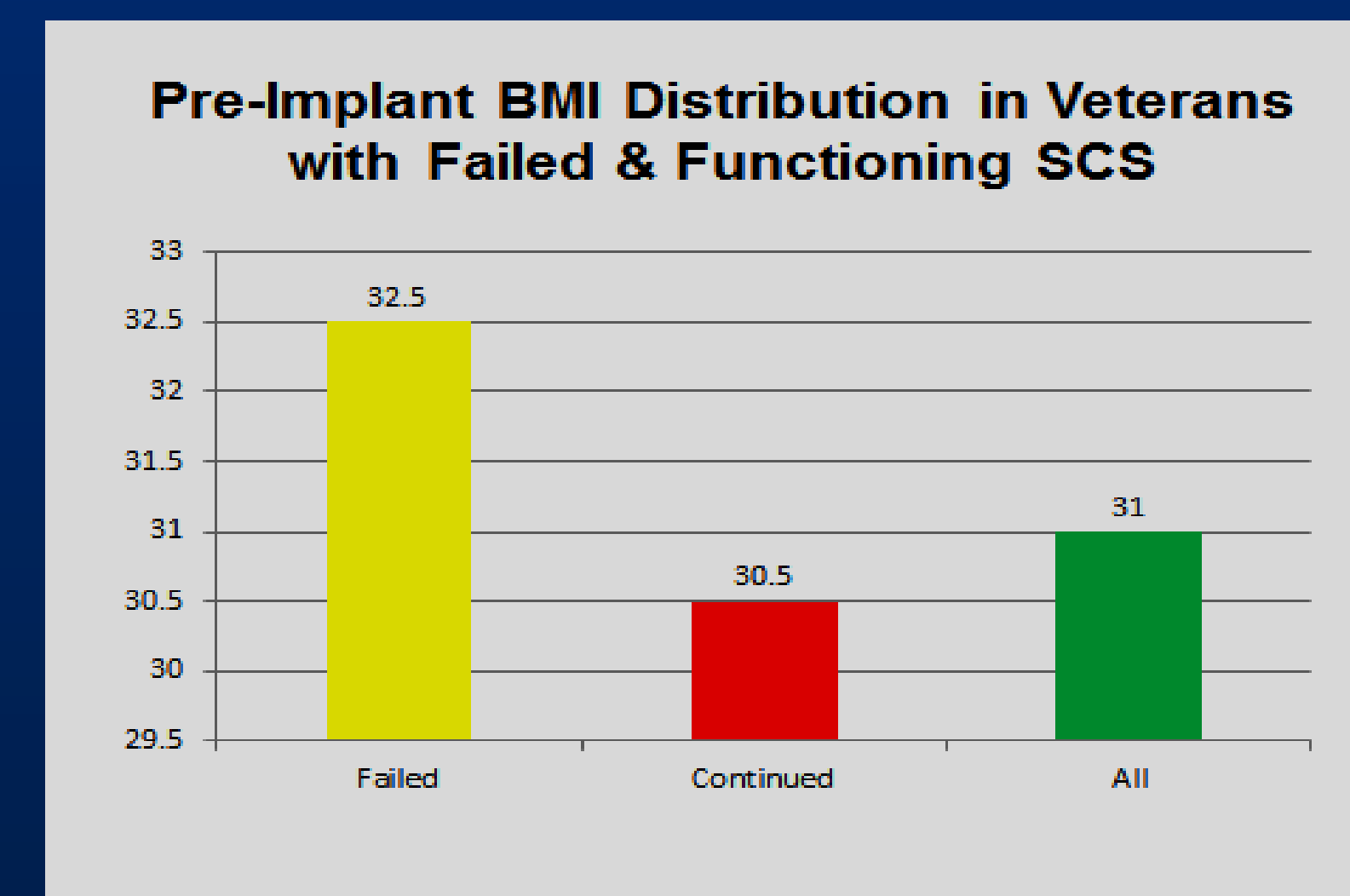
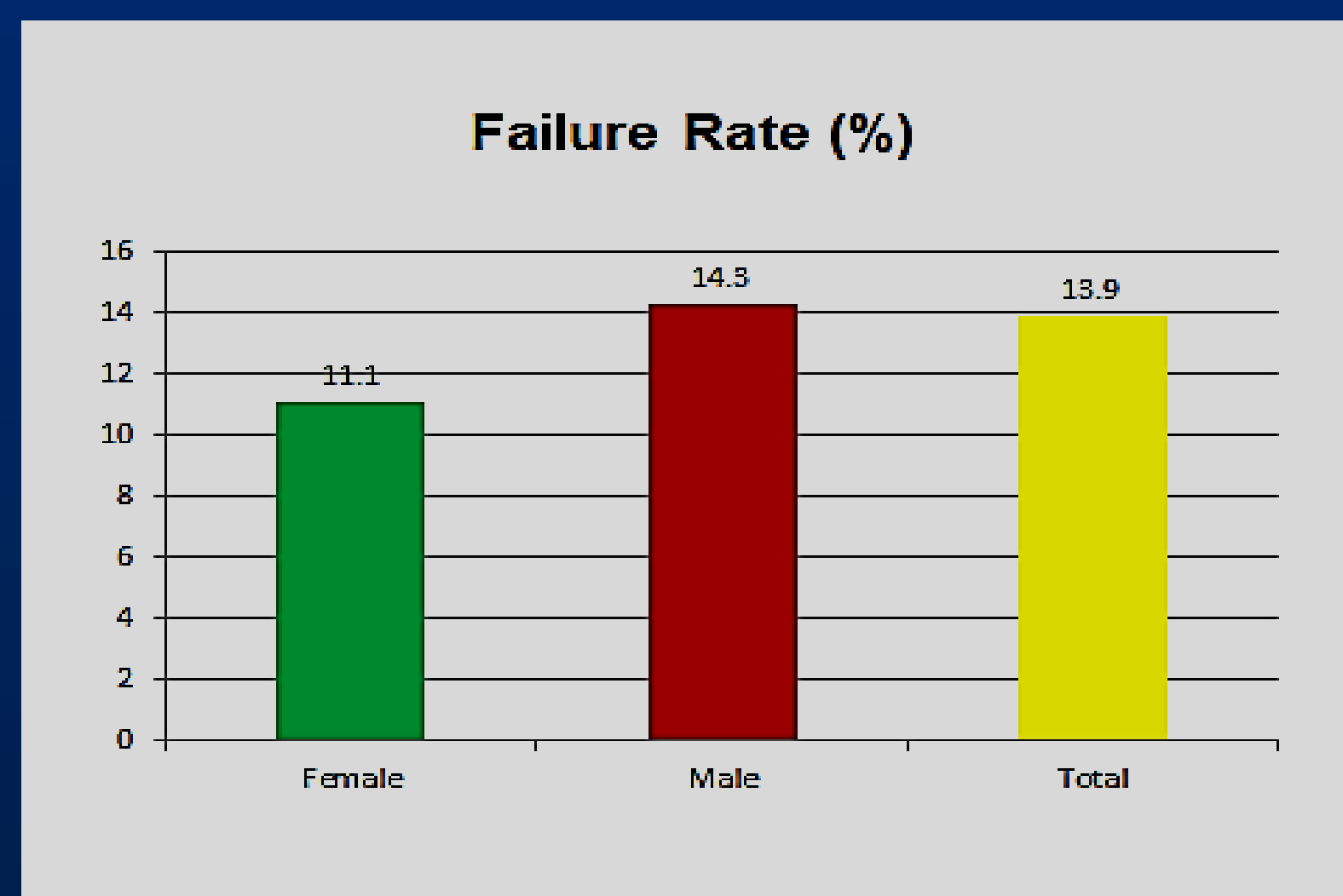
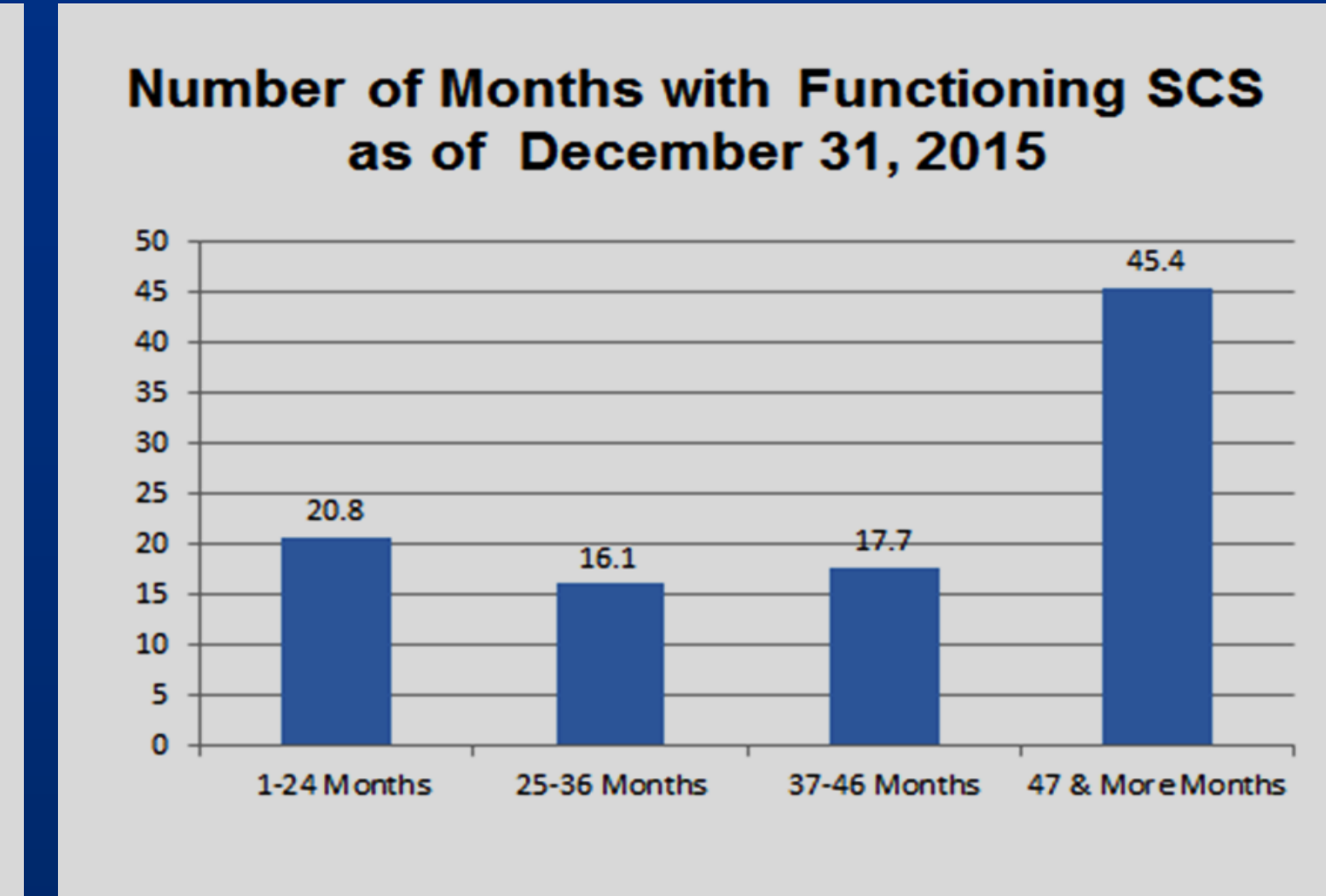
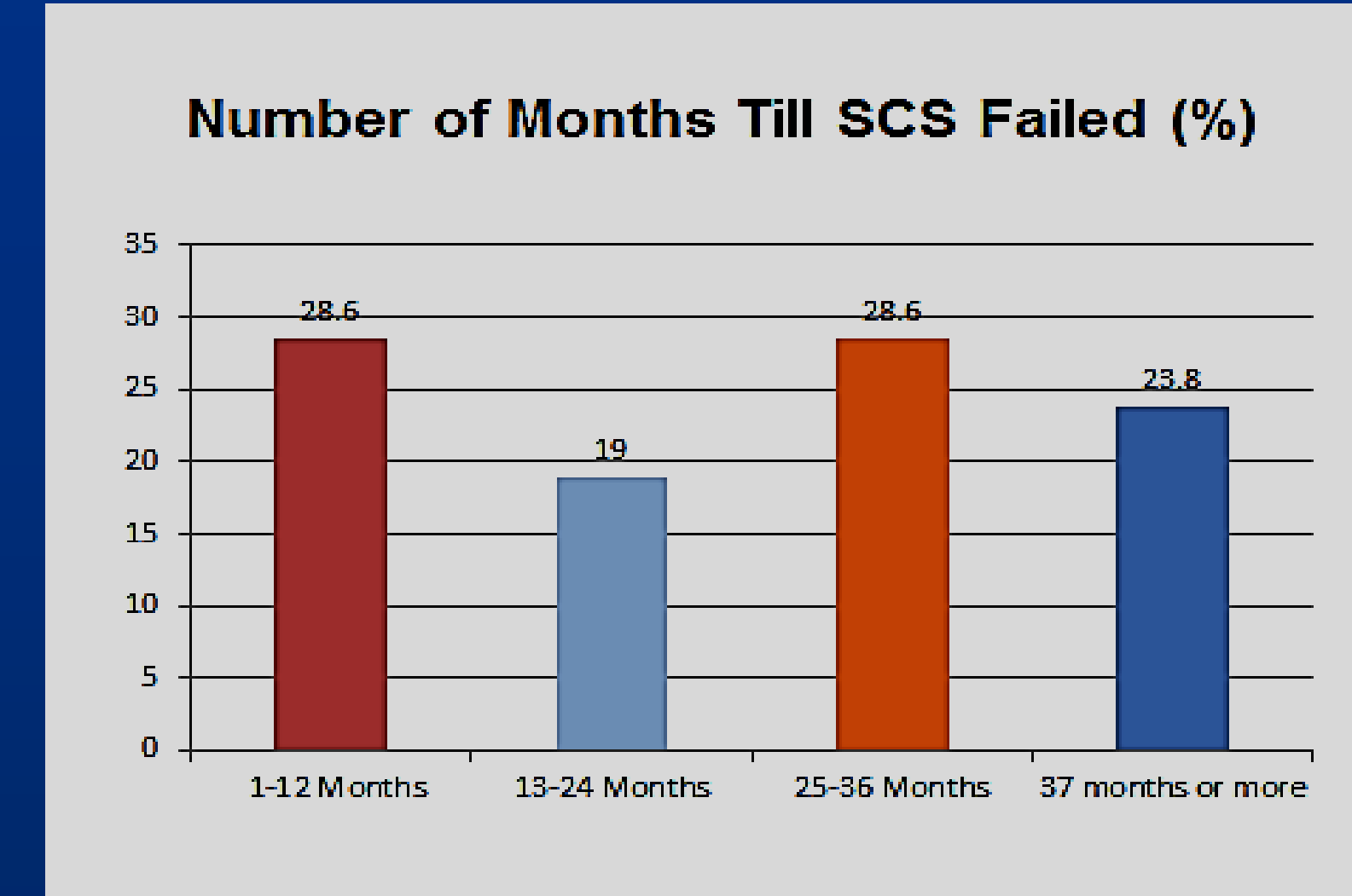
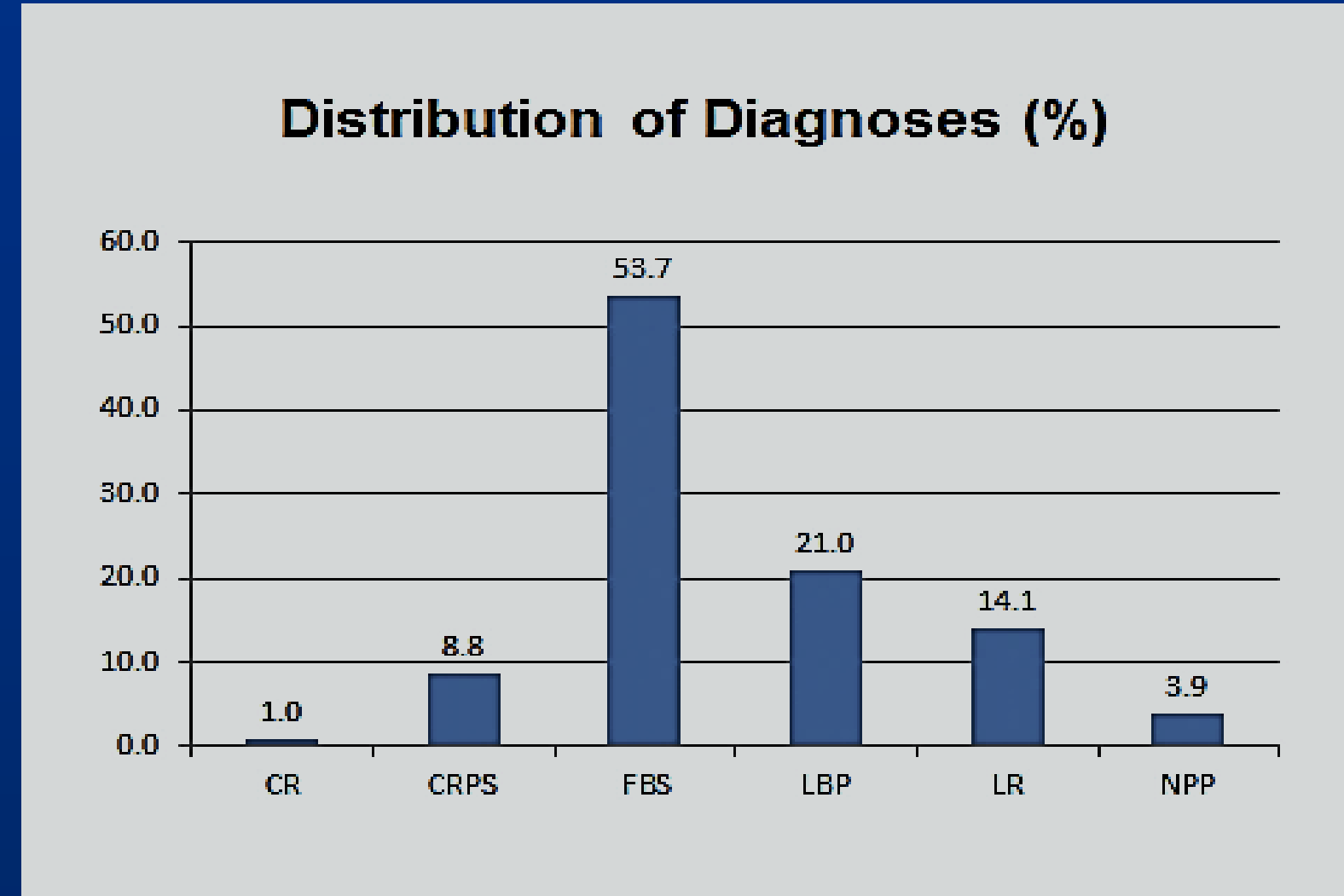
- To examine the efficacy of SCS for reducing pain
- To evaluate the impact of SCS on functional capacity
- To explore the effectiveness of SCS in reducing opioid consumption
- To explore other potential benefits of SCS

Method:

- Target population: veteran with chronic spine related pain who have undergone SCS from 2005-2014 at DVAMC
- Data were collected using retrospective method
- IRB was obtained for all the research team members from VA IRB committee
- Data were extracted from CPRS & CPT codes were used to identify the subjects
- Opioid use was computed using Morphine Equivalency formula
- During the study period, 203 veterans underwent SCS trial

Results:

- Majority of the veterans with SCS were male reflecting the overall distribution of this population
- Failure rate in the studied population was 13.9%
- Males had higher failure rate than females (14.3% vs 11.1%)
- Pre SCS implant BMI in veterans who had failed implant was higher compare to those who had functioning SCS (32.1vs 30.5%). ***This may suggest that the SCS implant is more effective in individuals with less BMI.***



Conclusion:

- Results from this study support the effectiveness of SCS for most veterans who have had this procedure.
- Higher failure rate in veterans with high pre implant BMI suggests that weight loss should be considered preceding SCS procedures.
- In veterans with failed SCS implant, the majority benefited by keeping the SCS for 2 or more years.
- Post implant opioid consumption rose pointing to the need for counseling and better communication regarding alternative pain treatment modalities
- Majority of veterans experienced weight loss pointing to improved FC. This was accompanied with significant decline in post implant VAS score.
- Overall, it can be concluded that SCS can be a life-altering therapy enabling individuals with chronic pain to have improved quality of life and improved FC

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