



## MEMORANDUM

**DATE:** April 28, 2017

**TO:** Chris Murrell, Medical Programs Manager  
Allison Morfitt, Medical Audit Supervisor

**FROM:** Bryan Null, Sr. Research Analyst

**SUBJECT:** Spinal Cord Stimulator Data Analysis

Eleven months ago (May 27, 2016) we reviewed the use and outcomes of spinal cord stimulators from January 1, 2010 through April 25, 2016. In this review we looked particularly at opiate utilization, return to work, and whether there had been revisions or removals of the spinal cord stimulator as it is a treatment for pain that uses a mild electric current to block nerve impulses to the spine to the purpose of decreasing back pain and reducing the use of pain medications. The ultimate goal in a worker's compensation claim is also to return the injured worker to work in the appropriate capacity when possible.

We have revisited and expanded this review of surgeries for the implant of a spinal cord stimulator in which SAIF made payment on between January 1, 2010 and April 25, 2017. (This study does not include any costs or services prior to 2010.) This produced five additional claims with nine additional spinal cord stimulator implant surgeries, bringing the total reviewed to 75 unique claims with 127 unique implant dates.

The average cost for each of these 127 surgeries was \$20,690 down 1.6% from the previous measurement. This cost is based on the allowed amount for all services on the date of the implant. The average cost per injured worker was \$35,035, down 1.2%. The average time from date-of-injury to implant was 4,346 days or 11.9 years, a minimal change from the previous measurement.

For the claimant's return-to-work status, we reviewed their status at the time of surgery and then one year post surgery for each instance of implant. There was very little overall change. (See Table 1 below.) Essentially of the 75 workers receiving spinal cord stimulators since 2010, one was released from modified work to regular work at one year post-surgery. Otherwise, there were no changes in work status at the one year measurement.

Table 1

<b>Return to Work</b>	<b>No Status</b>	<b>Not Released</b>	<b>Released for Modified Work</b>	<b>Released for Regular Work</b>
Status At Surgery	1	56	54	16
Status 1 Year Post Surgery	1	56	53	17

Each injured worker's utilization of opiates was measured in five 90 day segments for percent of the whole that are utilizing opiates, the average service count (prescription fill) per worker and the average cost per worker during each segment. The measurements began 90 days prior to surgery and ended one year post surgery. (See Table 2 below.)

Table 2

Opiates	Prior to Surgery (90 Days)	1- 90 Days Post Surg	91-180 Days Post Surg	181-270 Days Post Surg	271-365 Days Post Surg	1 Year Post Surgery (90 Days)
Percent Utilizing	70.9%	78.0%	61.4%	55.1%	55.1%	53.5%
Average Service Count	5.1	4.8	4.5	4.6	5.0	5.1
Average Cost	\$412	\$453	\$353	\$307	\$323	\$370

In the 90 days prior to surgery 70.9% of the injured workers were utilizing opiates, down from 80% at our last measurement. Once again, utilization increases slightly in the first 90 days post-surgery to 78.0%, before declining to 53.5% by the end of the first year. This measurement at one year is a decrease from the 61.4% utilizing at this time on our previous report. However, we continue to see utilization over 50% at one year post surgery and there is very little change in the average service counts and average costs per utilizer (There was a 1.2% increase in average service count and an 8.5% increase in cost at one year, compared to the prior measurement.)

For this revisit we also reviewed opiate utilization during the second year following spinal cord stimulator surgery. (See Table 3 below.) The percent utilizing opiates during the second year decreases, but is still at 30.7% at its lowest. Overall, 46.7% of workers who have a spinal cord stimulator utilize opiates during the second year following surgery. There is not a significant decrease in the average opiate services per utilizer from the first year to the second and in fact, in the first quarter of the second year, the average number of services increases to 5.3. We also see a significant increase in the average cost per utilizer as those remaining on the opiates during the second year are utilizing higher strengths and quantities.

Table 3

Opiates (2 Years Post Surgery)	2.00 - 2.25 Years	2.25 - 2.50 Years	2.50 - 2.75 Years	2.75 - 3.00 Years	Year 2 Total
Percent Utilizing	37.3%	41.3%	36.0%	30.7%	46.7%
Workers Utilizing	28	31	27	23	35
Average Service Count	5.3	4.5	4.7	4.6	14.9
Average Cost	\$681	\$611	\$690	\$640	\$2,039

Nearly half (46.1%) of the spinal cord stimulator surgeries resulted in a revision to the equipment just over one year later, (414 days on average.) These revisions add an average of \$1,950 to the cost of the spinal cord stimulator for these injured workers (See Table 4 below.)

Table 4

Revision/Removal	Percent	Average Days from Implant	Average Cost
Revision	46.1%	414	\$1,950
Removal	3.9%	804	\$919

The spinal cord stimulator is considered a permanent device to reduce the injured worker's pain and decrease the utilization of pain medications. We are not seeing significant positive impact in either of these areas. While there is a reduction in opiate use, 53.5% of injured workers in this study remained on opiates one year post surgery. The minimal impact of this procedure on return-to-work status would indicate that the impact on pain reduction as an opportunity to return-to-work is equally minimal. While considered a permanent solution to pain management, in this group we are seeing significant revisions at 1.1 years after implant.