

Temporal Patterns and Modifiable Risk Factors for Ex-plantation of Spinal Neurostimulators

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Introduction:
Spinal neurostimulators are used to treat refractory chronic neuropathic pain but the **durability** of these devices has been **challenged**. Given upfront costs associated with device implant, it is crucial **to identify factors** that may **predict device explant**.

Methods:
Database: This retrospective cohort study queried the **TriNetX Research Network**.
Population: Adults ≥18 years old who underwent spinal neurostimulator implantation were **identified through CPT codes**.
Analysis: **Explant events** were **tracked** at 3, 6, 12, 24, 36, and 60 months post-implant. Subgroup analyses examined the effect of **patient comorbidities** on explant rate.



National database identifies diabetes mellitus, tobacco use, and opioid use as factors associated with higher explant risk of spinal neurostimulators within first year of implant

Patient Variable	0-3 months explant risk	<i>p</i> value	0-6 months explant risk	<i>p</i> value	0-1 year explant risk	<i>p</i> value	0-2 years explant risk	<i>p</i> value	0-5 years explant risk	<i>p</i> value
Opioid Use	1.137 (0.865, 1.493)	.3567	1.223 (.996, 1.502)	0.0538	1.248 (1.061, 1.467)	0.0074*	1.138 (.99, 1.308)	0.0684	1.063 (0.929, 1.216)	0.3757
Diabetic Status	1.225 (1.012, 1.482)	.0371*	1.018 (0.872, 1.189)	0.8185	1.088 (0.959, 1.235)	0.1892	1.074 (0.965, 1.194)	0.1897	1.067 (0.961, 1.185)	0.2235
Obesity	1.12 (0.921, 1.361)	0.2556	0.997 (0.852, 1.166)	0.9692	1.078 (0.947, 1.227)	0.2553	1.057 (0.946, 1.18)	0.3291	1.002 (0.894, 1.123)	0.9707
Tobacco Use	1.258 (0.965, 1.639)	0.0888	1.245 (1.01, 1.534)	0.0399*	1.142 (0.964, 1.352)	0.1235	1.084 (0.925, 1.27)	0.321	0.976 (0.837, 1.137)	0.7530

Early interventions to address these risk factors may reduce explant rates and optimize long-term outcomes.

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Results (continued):

The number of patients included in analysis of explant rates ranged from 14,233 - 26,170 patients per time interval.

The explant rate was **1.76%, 2.78%, 4.60%, 7.64%, 10.05%, and 12.38%** at **3, 6, 12, 24, 36, and 60 months**, respectively.

