Spinal Cord Stimulation Utilization and Expenditure Trends in Florida: A Statewide Analysis of Public Medicare Data, 2019–2023

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INTRODUCTION

Spinal cord stimulation (SCS) is an established neuromodulation strategy for chronic pain. However, recent trends in utilization, regional variation, and Medicare expenditures remain incompletely characterized.Florida represents a large Medicare population and provides an opportunity to examine how SCS utilization and spending have evolved relative to national patterns.

AIM

To evaluate national and Florida-specific trends in SCS utilization and Medicare expenditures from 2019–2023, including the geographic concentration of services across Florida ZIP codes.

METHOD

- **CMS Medicare Physician & Other Practitioners Public Use Files, 2019–2023**
- **SCS services identified by HCPCS procedure codes**
- **Aggregated by year, geography, active clinicians, ZIP code, Medicare payment, and payment per service**
- **Florida vs national trends; 2023 ZIP-level geospatial analysis**
- **Descriptive and geospatial analysis in R 4.5.2**

*IRB exemption: publicly available, de-identified, aggregated data.
** AI-assisted code generation (Claude, Anthropic) for data cleaning and workflow development under investigator oversight.

MAIN FINDING

National SCS **spending increased despite lower utilization**, driven by **higher payment per service**. Florida exceeded its pre-pandemic baseline by **5.9%**, and its share of national SCS volume increased from **7.1% to 8.6%.**

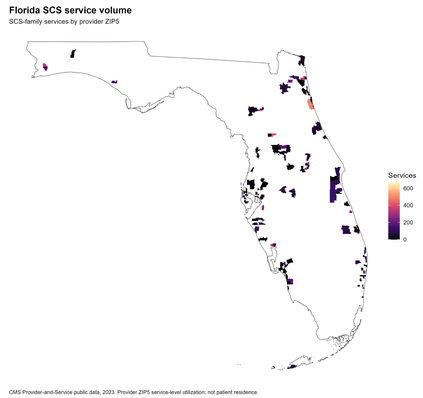
Geography	Year	Services	Reported Beneficiaries	Active NPIs	Active ZIP Codes	Payment per Service	Total Medicare Payment
National	2019	**132,155**	77,613	2,086	1,159	**$2,478**	**$327,450,336**
	2020	101,389	59,001	1,678	978	$2,892	$293,208,323
	2021	106,314	61,651	1,718	994	$3,024	$321,515,015
	2022	107,679	61,862	1,754	1,024	$3,146	$338,804,928
	2023	**115,227**	65,835	1,805	1,033	**$3,340**	**$384,842,863**
Florida	2019	**9,363**	5,737	149	91	**$2,867**	**$26,847,939**
	2020	7,019	4,506	137	79	$2,890	$20,283,161
	2021	6,529	4,269	131	79	$3,401	$22,208,020
	2022	6,882	4,411	143	82	$3,091	$21,275,595
	2023	**9,911**	5,866	163	94	**$3,459**	**$34,277,778**

National payment per service **+34.8%**

Florida payments **+27.7%**

Florida services **+5.9%**

Table 1: Medicare SCS utilization and expenditure, United States and Florida, 2019–2023



Florida 2023:
25 ZIP codes
62.6% of services
61.9% of spending

Figure 1: Geospatial distribution of Medicare SCS services across Florida ZIP codes in 2023

KEY RESULTS

- **562,764 SCS services** were performed nationally; **39,704 (7.1%)** occurred in Florida.
- National SCS volume remained **12.8% below** 2019 by 2023, despite partial recovery after 2020.
- National Medicare spending increased **17.5%**, while payment per service rose **34.8% ($2,478 → $3,340)**.
- Florida SCS volume increased **5.9% vs 2019**, raising its national share from **7.1% → 8.6%.**
- Florida Medicare spending increased **27.7%**, with payment per service rising **20.7% ($2,867 → $3,459).**
- In 2023, **25 ZIP codes accounted for 62.6% of Florida SCS services** and **61.9% of statewide spending**.

CONCLUSIONS

National SCS utilization remained below pre-pandemic levels in 2023, while Medicare spending increased, driven by higher payment per service.

Florida exceeded its 2019 SCS volume and increased its share of national utilization, with nearly **two-thirds of services concentrated in 25 ZIP codes**.

These findings may reflect **care centralization**, **geographic differences in access, site-of-service shifts, fee schedule changes, or evolving technology**; patient-level studies are needed to distinguish centralization from disparities in access.

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Data source: CMS Medicare Physician & Other Practitioners PUFs · No external funding.

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