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Industry payments and Medicare spinal cord stimulation volume: a concentrated and rapidly changing ecosystem

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2,192	4,869	256,725	$30.23M	94.4%	44.1%
clinicians	clinician-years	Medicare SCS service units	included industry payments	of clinician-years had ≥1 included payment	education-, speaker-, faculty-, and training-associated categories of included dollars · $13.33M

WHY THIS MATTERS

SCS is a high-cost therapy with frequent clinician–manufacturer interaction.

Collaboration may support training, programming, and innovation. The distribution of publicly reported payments and their relationship to national SCS use remain poorly characterized.[1,6,7,13]

Objective
Characterize payment structure and its association with annual Medicare SCS service volume.

STUDY DESIGN

1 **National retrospective panel**
2021–2024 CMS Open Payments + Medicare Provider-and-Service + NPI Registry, linked by NPI.

2 **Payment exposure → SCS volume**
Annual General Payment dollars from six manufacturers; service units for HCPCS 63650, 63655, 63685.

3 **Modeling the associations**
Negative-binomial model adjusted for clinician type, year, and region, accounting for repeated clinician observations.

Medicare-defined cohort before payment linkage; zero included payment ≠ no industry relationship.

Exposure included General Payments from six manufacturers, with SCS-specific product tagging required for two.

RESULTS (IRRs)

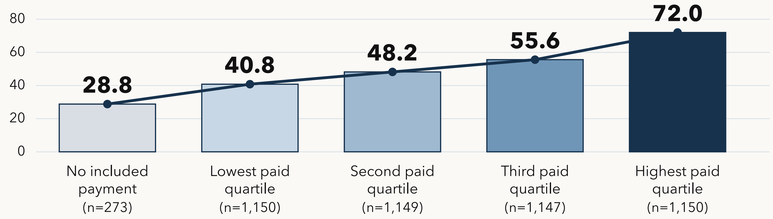
Within clinician 95% CI 1.044–1.053	**1.049**
Prior-year exposure 95% CI 1.048–1.091	**1.069**
Adjusted for prior SCS volume 95% CI 1.012–1.032	**1.022**

IRRs per unit of ln(1 + payment dollars). Attenuation after prior-volume adjustment supports a role for pre-existing practice scale.

Top 10% of clinician-years received 80.6% of payment dollars

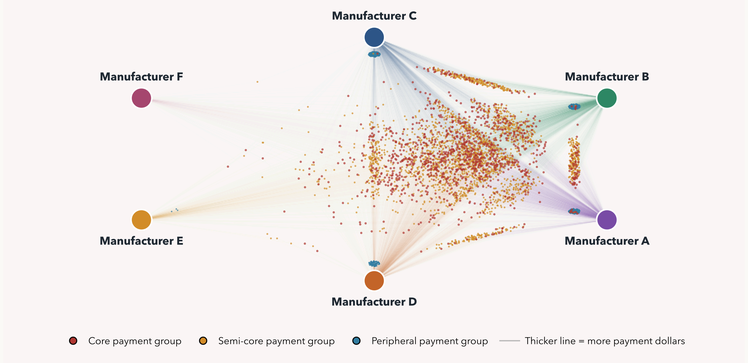
Ranked by annual included SCS-industry payment dollars.

Higher payment exposure tracked with greater Medicare SCS volume



Highest paid quartile vs no included payment: **adjusted IRR 1.98** (95% CI 1.73–2.26; p < 0.001). Bars: mean annual Medicare SCS service units, unadjusted. Quartiles among paid clinician-years; n = clinician-years.

How SCS-industry payments connect clinicians and manufacturers, 2021–2024



Nodes: paid clinician-years. Position: payment mix. Edge width: payment dollars. Groups do not indicate influence, quality, or appropriateness.
Medicare SCS service units do not represent unique patients, unique procedures, or implantation episodes.
Manufacturer reach: one emerging manufacturer expanded from 1 to 330 clinicians (2021–2024). Another reached 191 clinicians in 2024, its first year under the study definition.

PAYMENT CONCENTRATION

Share accounted for by the **top 10% of clinician-years** in each distribution

Payment dollars	**80.6%**
SCS service units	**28.9%**

Payment Gini **0.857** SCS service Gini **0.394**

SCS-SPECIFIC PAYMENT PATTERNS

Procedure outcome	IRR	95% CI	p value
All SCS services	**1.090**	**1.073-1.107**	**<0.001**
Epidural procedures	0.953	0.910–0.998	0.042
Facet procedures	0.937	0.902–0.973	<0.001
Radiofrequency ablation	0.963	0.933–0.995	0.022
All comparator procedures	0.948	0.909–0.989	0.012

Adjusted IRRs per one-unit increase in ln(1 + annual included payment dollars), not per additional dollar. IRR = incidence-rate ratio.

KEY TAKEAWAYS

- Greater payment exposure tracked with higher SCS volume; comparator procedures did not reproduce the positive pattern.
- Prior SCS volume explained much of the temporal association, supporting an important role for pre-existing practice scale.
- These data cannot distinguish commercial influence from expertise-driven collaboration, referral patterns, practice scale, or other shared determinants.

Included payments were nearly universal and highly concentrated among clinicians with observable Medicare SCS activity. Greater exposure was associated with greater SCS volume, but causation and inappropriate care are not established.

Next: Transparent, contextual disclosure and patient-level studies of device choice and outcomes.

SELECTED REFERENCES

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LIMITATIONS

Observational design; Original Medicare FFS only; CMS low-volume suppression. Device manufacturer and patient outcomes unavailable. Payments do not establish intent or influence.

DISCLOSURES & DATA

No potential conflicts of interest reported by any author. No external funding.
Duke University Health System IRB: research not involving human subjects, Protocol Pro00121032; informed consent not required.
Public source data: CMS Open Payments, Medicare Provider-and-Service, and NPI Registry.