Arete Healthcare LLC

Independent Practices | Shared Infrastructure | Clinician-Led Governance

ARETE ORIGINAL RESEARCH

The Organizational Outlier

Group Size, Specialty Composition, and Multi-Specialty Scaling of Chiropractic Compared to Fourteen Professions and Specialties

Purpose

- Using CMS National Provider Directory, Medicare PECOS, and NPPES data, this paper **compares the organizational structure of chiropractic with fourteen other professions and specialties**: organization size, single- versus multi-specialty composition, geographic breadth of licensure, and individual-level health-IT endpoint registration.
- Arete's view is that these attributes are not incidental - **they reflect how professions, specialties, and practices adapt to the economic and contracting environment they operate in**.
- The findings set up a question this paper does not answer, but that later papers in this series will: **do the structural attributes that have enabled chiropractors to survive also limit their ability to reach their full potential - for their patients and for themselves?**

Key Findings

Within the PECOS-active cohort, **80.9%** of chiropractic affiliation records are with organizations of **1-5** Medicare-enrolled practitioners. Optometry is next at **38.7%**; the other thirteen range from **1.1%** to **33.6%**.

Only **7.7%** of chiropractic affiliations are with organizations of **21** or more PECOS-active practitioners. The next-lowest specialty is optometry at **38.8%**.

Single-specialty organizations account for **78.2%** of chiropractic affiliations, versus **53.7%** for optometry, **15.4%** for physical therapy, and no more than **18.8%** for any other specialty.

Among **36,183** multi-specialty organizations with at least 11 PECOS-active practitioners, only **4.0%** contain a chiropractor. Presence rises from **2.3%** in **11-20** groups to **14.1%** in organizations with more than **200** practitioners.

In multi-specialty organizations, chiropractic is the only specialty whose mean headcount is lower in the >**200** category than in the **11-20** category: **3.44** to **2.58**, a **0.75x** ratio (n=**310** and n=**429** organizations, respectively).

In >**200**-practitioner multi-specialty organizations, chiropractors average **2.58** clinicians and **0.23%** of the PECOS-active practitioner mix. By contrast, physical therapy is present in **29.2%** of these organizations and averages **58.0** PTs when present.

In Pictures

The three figures show the same organizational pattern from complementary perspectives. Figure 1 follows provider-organization affiliations across single- and multi-specialty settings; Figure 2 looks from the organization side and asks how often selected MSK specialties are present, and how many clinicians of that specialty are present when they appear. Figure 3 adds a measure of connectivity and illustrates how disconnected chiropractors are structurally and technologically.

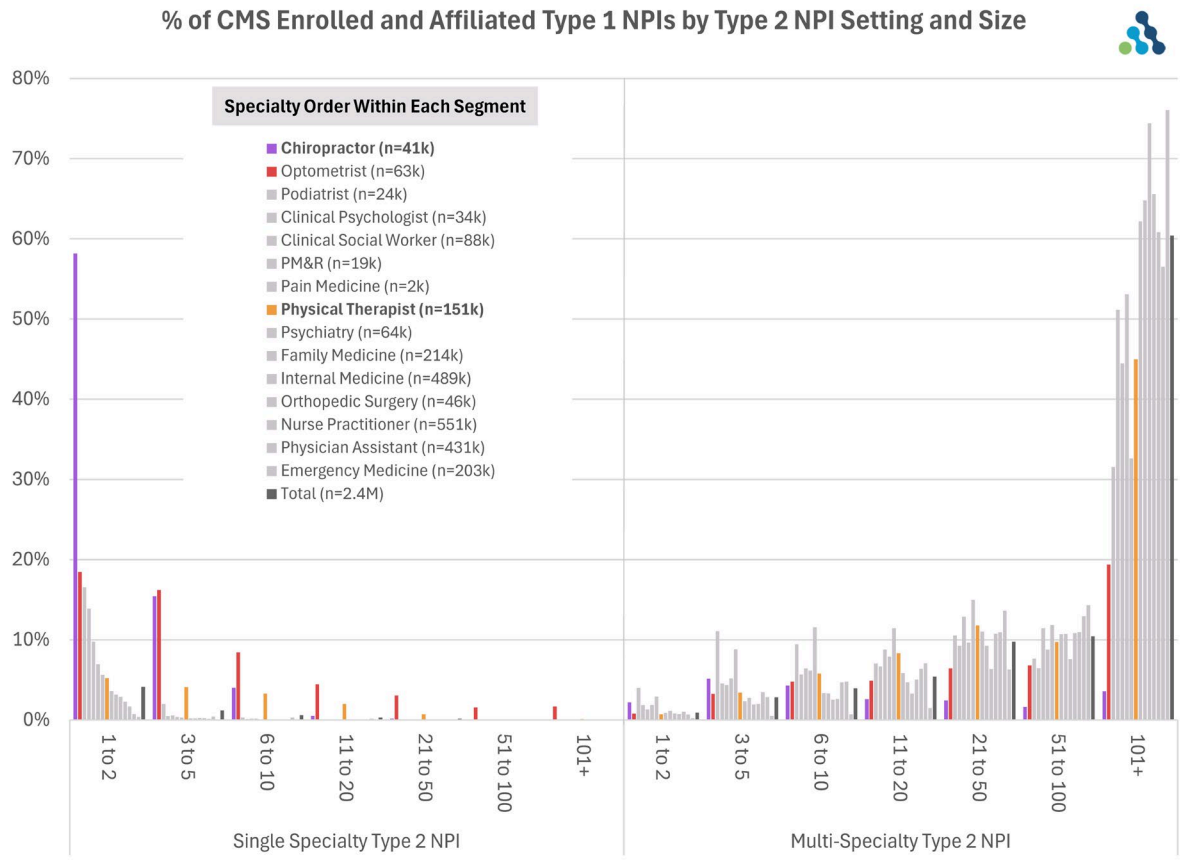

Figure 1. Distribution of PECOS-active provider-organization affiliations by Type 2 NPI setting and size. Because a provider can have more than one organization link, the chart describes affiliation records rather than unique people. Visualization was human generated.

- *Chiropractic is concentrated at the small, single-specialty end: 58.2% of DC affiliations are in 1-2-practitioner single-specialty organizations and 73.6% are in 1-5-practitioner single-specialty organizations.*
- *Physical therapy shows nearly the reverse pattern: 66.5% of PT affiliations are in multi-specialty organizations of 21 or more PECOS-active practitioners and 45.0% are in multi-specialty organizations of 101 or more.*
- *Optometry is much more broadly distributed across settings.*

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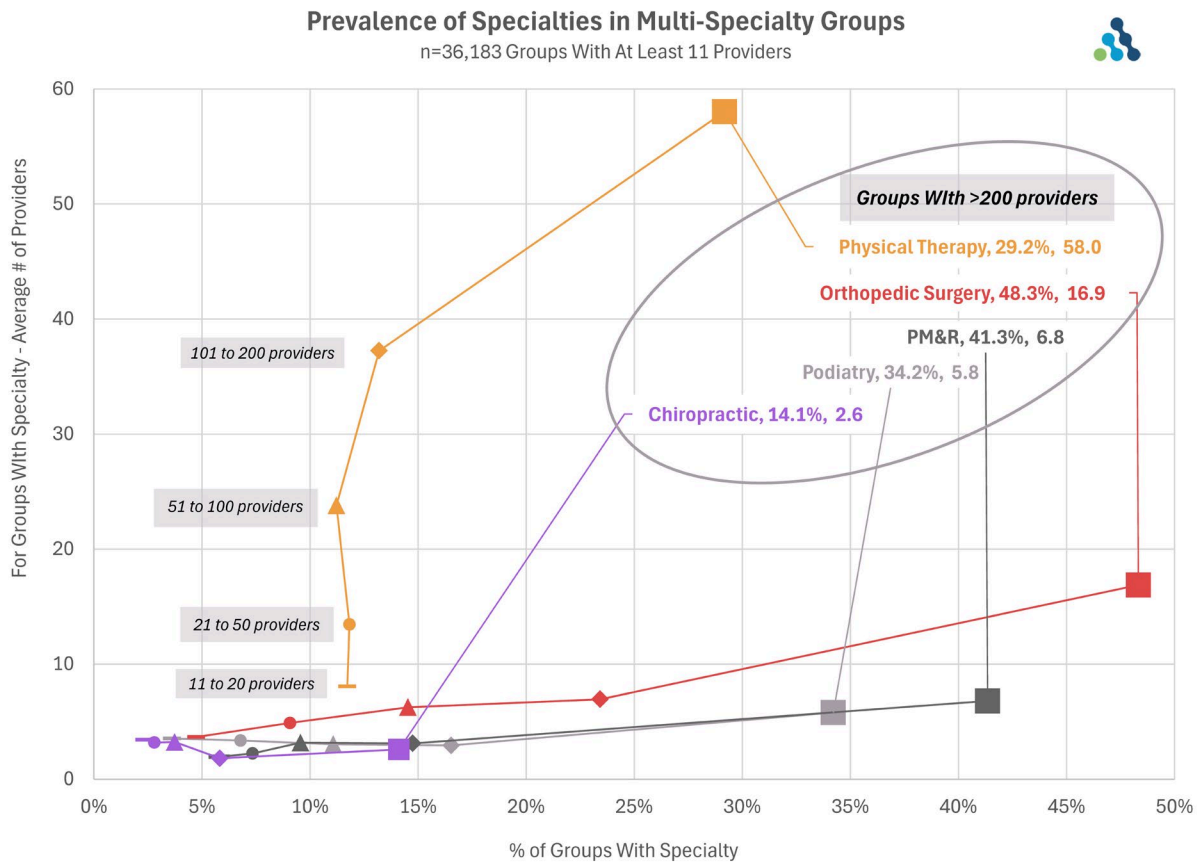

Figure 2. Specialty prevalence and mean specialty headcount among 36,183 multi-specialty organizations with at least 11 PECOS-active practitioners. The x-axis is the percentage of organizations containing the specialty; the y-axis is the average number of clinicians of that specialty among organizations where it is present. Visualization was human generated.

- *Chiropractic becomes more common only in the largest category (14.1% of organizations with more than 200 practitioners), but its mean headcount remains 2.6.*
- *Physical therapy, orthopedic surgery, PM&R, and podiatry become both more prevalent and more numerous as organization size increases.*

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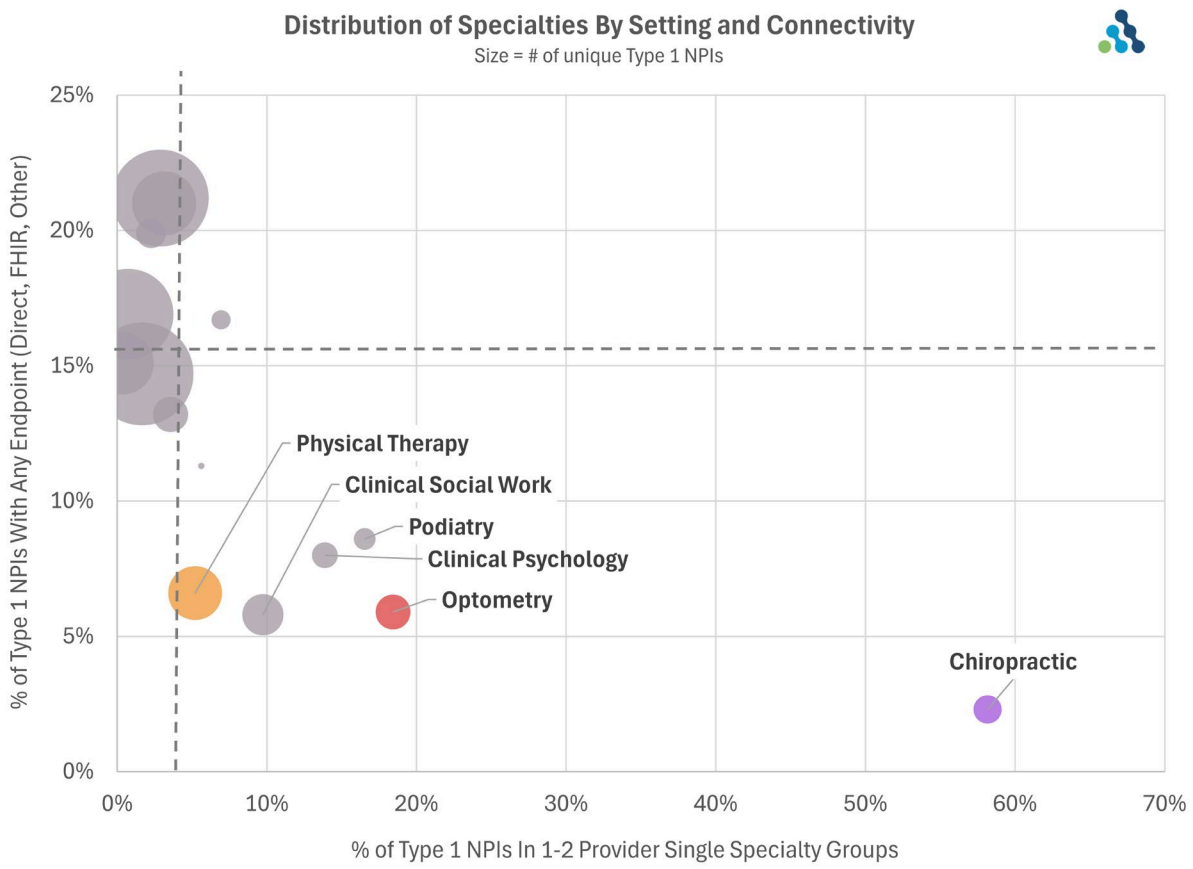

Figure 3. Specialty specific group size and connectivity for 2.4M distinct Type 1 NPIs. The x-axis is the percentage of Type 1 NPIs practicing in 1-2 provider single-specialty groups; the y-axis is the percentage of Type 1 NPIs with any connectivity endpoint registered in NPPES. (Note: this is self-reported and subject to error.) Visualization was human generated.

- *Chiropractic is the most structurally isolated and disconnected of the 15 specialties analyzed.*
- *Optometry, Podiatry, Clinical Psychology, Clinical Social Work, and Physical Therapy, while not as extreme as chiropractic, are also disconnected and more isolated than other specialties.*

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Arete's Take

Among the 15 specialties in the analysis ***chiropractic is by far the most concentrated in small, single-specialty organizations.*** *The group-prevalence analysis adds another dimension: among 36,183 multi-specialty organizations with at least 11 PECOS-active practitioners, only 4.0% contain a chiropractor, and even in organizations with more than 200 practitioners only 14.1% do.*

Arete's working hypothesis is that ***this organizational pattern reflects adaptation to a challenging economic and contracting environment****: low reimbursement in many commercial arrangements, limited public-program coverage relative to other professions, and contracting structures that frequently operate at the individual-provider or small-practice level. These mechanisms are not tested in this paper; later papers in the series are intended to examine them directly.*

The findings raise a practical question: ***do the structural attributes that have enabled chiropractic practices to remain economically viable also limit their access to the technology, contracting leverage, data infrastructure, and care-integration capabilities increasingly expected in modern healthcare?***

Arete believes the answer may lie in independent practices achieving virtual scale through adopting a shared platform rather than ownership consolidation: *shared EHR/RCM infrastructure, standardized data exchange, group contracting, quality measurement, and clinically led network governance that allow independent practices to participate as a coordinated system without surrendering local ownership.*

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Table 1. At a Glance

Domain	Chiropractic	Range across other 14	Interpretation boundary
PECOS-active providers in DC primary-taxonomy cohort	45,727	1,115-296,791	Medicare practitioner enrollment (14-*)
Unique DCs with >=1 NPD organization link	35,852 (78.4%)	72.7%-98.6% linked	Group-size analyses use the affiliated subset
DC-organization affiliation records	41,061	1,993-550,595	A provider may contribute more than one link
Organization links per affiliated DC	1.15	1.35-3.23	Lowest of 15 specialties
Median organization size linked to a DC	2 practitioners	9-440	Affiliation-weighted; PECOS-active practitioners only
DC affiliations in organizations of 1-5	80.9%	1.1%-38.7%	Next highest: optometry 38.7%
DC affiliations in organizations of 21+	7.7%	38.8%-96.6%	Affiliation-weighted
DC affiliations in single-specialty organizations	78.2%	0.5%-53.7%	Single-specialty = one primary taxonomy among PECOS-active practitioners
Mean DC headcount in 201+ multi-specialty organizations	2.58	1.45-121.09	n=429 DC-containing organizations; SD=11.36
DC share of PECOS-active practitioner mix in >200	0.23%	0.11%-18.00%	Type 2 NPI organization, not necessarily one site
201+/11-20 mean headcount ratio	0.75x	1.14x-31.95x	Only specialty below 1.0
Multi-specialty organizations 11+ containing a DC	4.0%	2.7%-65.6%	Group-level presence; n=36,183 organizations
Single-state license share	92.3%	74.3%-92.0%	Highest; next highest Social Worker 92.0%
Any individual NPPES endpoint registered	2.3%	5.8%-21.2%	Lowest; individual NPI registration, not organization reachability

All organization-size statistics use the PECOS-active practitioner cohort. Ranges exclude chiropractic. Source: Arete Group Size Data.xlsx; methods in Workforce Practice Setting Analysis Methods Mimilabs.docx.

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Abstract

This cross-sectional analysis links a May 2026 CMS National Provider Directory snapshot to a July 2026 Medicare PECOS practitioner cohort and compares chiropractic with fourteen other specialties on organization size, single- versus multi-specialty composition, specialty prevalence within multi-specialty groups, geographic licensure, and individual-NPI endpoint registration. Chiropractic remains the strongest small-organization and single-specialty outlier: 80.9% of its affiliation records are in organizations of five or fewer PECOS-active practitioners, and among 36,183 multi-specialty organizations with at least 11 practitioners only 4.0% contain a chiropractor; even in organizations with more than 200 practitioners, 14.1% contain a chiropractor and those organizations average only 2.58 DCs. These findings describe a Medicare-enrolled, cross-sectional cohort and do not establish ownership, employment, referral, interoperability, or causal relationships.

Context

The administrative-data pattern is consistent with independent survey evidence. The National Board of Chiropractic Examiners 2025 Practice Analysis reported that 55% of respondents described themselves as sole proprietors; its final U.S./territory analytic sample included 3,876 chiropractors. By contrast, prior health-services research has documented a broader movement of physicians from smaller to larger practices. The present analysis does not test change over time, but it places chiropractic's current organizational structure against that wider consolidation context.

Methods

2.1 Study Design, Data Sources, and Population

This is a cross-sectional, descriptive study of five related dimensions of practice setting: group-size distribution, DC/PT co-location patterns, specialty prevalence within groups, state licensure, and individual-NPI endpoint registration. It combines three federal data sources processed in Arete's mimilabs Databricks environment:

- CMS National Provider Directory (NPD), May 7, 2026: primary taxonomy, active practitioner-to-organization roles, organization identifiers, and state-license records.
- CMS Medicare Fee-for-Service Public Provider Enrollment (PECOS), July 17, 2026: active practitioner enrollment status. Providers are included when provider_type_cd LIKE '14-%'.
- NPPES endpoint registry, August 15, 2026: individual-NPI endpoint registrations, categorized as Direct, FHIR, or other endpoint types.

The PECOS filter is applied across all analyses. It excludes providers who are not actively enrolled as Medicare practitioners, including cash-only and commercial-only clinicians and providers enrolled only for ordering/referring, DME, or Part A purposes. This improves denominator consistency across specialties, but it means the study does not describe the entire licensed workforce.

Within the chiropractic primary-taxonomy cohort, 45,727 PECOS-active practitioners were identified; 35,852 (78.4%) had at least one active NPD organization link and therefore contribute to the group-size analysis. Endpoint and licensure analyses do not require an organization link.

2.2 Specialty Classification and Comparator Set

Specialty classification uses the provider's primary NUCC taxonomy code (taxonomy_code_1). Fifteen categories are included: chiropractic, physical therapy, podiatry, pain medicine, PM&R, family medicine, psychiatry, nurse practitioner, internal medicine, orthopedic surgery, physician assistant, emergency medicine, optometry, psychology, and social work. The revised SQL uses the corrected prefixes 207P for emergency medicine, 207X for orthopedic surgery, and 208VP for pain medicine.

Two workbook labels are broader than their names imply. The SQL category labeled "Clinical Psychologist" uses 103T* (Psychologist) plus 103G* (Clinical Neuropsychologist), and the category labeled "Clinical Social Worker" uses 1041* (the Social Worker family). This draft therefore presents those categories as "Psychologist" and "Social Worker" in narrative and tables. No data values were changed.

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Pain medicine is intentionally narrow: only primary 208VP* taxonomy codes are classified as Pain Medicine. Pain-related subspecialty codes under anesthesiology, PM&R, or psychiatry remain in their parent primary-taxonomy cohorts to avoid double counting. More generally, a clinician whose relevant specialty is listed only as a secondary taxonomy will not be captured in that specialty cohort.

Dentistry was considered as an independent-practice comparator but was excluded from this PECOS-practitioner analysis because the supplied methods show a strongly non-comparable Medicare enrollment pattern: 5,770 dentist NPIs enrolled as practitioners versus 36,904 enrolled only for ordering/referring. Optometry, psychology, and social work were added specifically to test whether chiropractic simply resembles other independent licensed professions.

2.3 Organization Size, Affiliation Weighting, and Specialty Composition

An organization is identified by a Type 2 NPI. Group size is the number of distinct PECOS-active practitioners with an active NPD role at that organization, regardless of specialty. This is not the organization's total workforce: clinicians without PECOS practitioner enrollment are not counted. One Type 2 NPI may represent a single location, multiple locations, a billing entity, or a health system.

Size categories are 1, 2, 3, 4, 5, 6-10, 11-20, 21-50, 51-100, 101-200, and a final SQL bucket coded as total_providers > 200. Although the workbook labels that bucket "200+", it operationally means 201 or more; this draft uses "201+" in narrative and tables.

Affiliation-weighted statistics count each provider-organization link. A clinician linked to three organizations contributes three affiliation records. Organization-weighted statistics count each organization once. The paper reports both where useful and labels affiliation-weighted measures explicitly.

Single-specialty organizations are those in which all PECOS-active practitioners share one primary NUCC taxonomy code; multi-specialty organizations contain two or more distinct primary taxonomy codes. This is a taxonomy-based analytic definition, not proof that the organization is single-profession or multi-profession in operational practice, and non-PECOS clinicians are invisible to this classification.

2.4 Headcount Scaling Analysis

For each specialty and size category, the analysis reports the number of organizations, mean specialty headcount, and standard deviation separately for total, single-specialty, and multi-specialty organizations. The headline 201+/11-20 ratio divides mean specialty headcount in multi-specialty organizations with more than 200 PECOS-active practitioners by the corresponding mean in 11-20-practitioner multi-specialty organizations.

The ratio is cross-sectional, not longitudinal. It compares different organizations observed at one point in time and does not show that any organization grew from one category to another. Because the supplied workbook contains aggregated category-level results rather than organization-level rows, this draft reports cell counts and standard deviations but does not calculate medians, bootstrap intervals, or organization-level sensitivity analyses.

2.5 Co-Location and Specialty Prevalence Analyses

For chiropractic and physical therapy separately, the co-location analysis identifies multi-specialty Type 2 NPI organizations containing at least one PECOS-active provider of the target specialty and tabulates the primary NUCC taxonomies of other PECOS-active providers linked to those organizations. These are raw co-occurrence counts; they do not establish enrichment, referral relationships, common ownership, or clinical integration.

The specialty-prevalence analysis reverses the perspective. For each organization size and single-/multi-specialty category, it counts the number of distinct organizations and whether each contains at least one provider from each of the fifteen study specialties. The measure therefore answers, for example, "What percentage of multi-specialty organizations with 21-50 PECOS-active practitioners contain a chiropractor?" It is an organization-level presence measure, not a provider-share measure.

2.6 State Licensure

State-license records come from the NPD practitioner_license table for PECOS-active practitioners. Records with a non-null two-character state code are counted. Metrics include average number of state licenses per provider,

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median licenses, maximum licenses, single-state share, and share licensed in three or more states. These records depend on CMS data and are not a fresh verification against each state licensing board.

2.7 NPPES Endpoint Registration

For each PECOS-active provider, the analysis checks whether the individual NPI appears in the August 15, 2026 NPPES endpoint table. Endpoints are categorized as Direct, FHIR, or other. A provider may have more than one endpoint type, so type-specific counts are not additive.

Individual endpoint registration is an imperfect connectivity measure. Endpoints may be registered at the Type 2 organization level instead of the individual level, and EHR vendors may auto-publish individual endpoints in bulk. Registration therefore partly reflects vendor and directory practices, not just clinician adoption or actual exchange activity. An organization-level endpoint analysis would be a useful companion test but is not included in the supplied dataset.

2.8 Analytic Approach

The study reports counts, percentages, medians, means, standard deviations, ratios, prevalence measures, and rankings. It does not perform significance tests or causal modeling. Organization-size and prevalence comparisons are cross-sectional: they compare different organizations at one point in time and do not show that an organization changed size or added a specialty over time. All interpretations are descriptive unless explicitly labeled as Arete commentary.

Results

3. Cohort Coverage and Organizational Linkage

The PECOS-active chiropractic cohort includes 45,727 practitioners with a primary chiropractic taxonomy. Of these, 35,852 (78.4%) had at least one active NPD organization link. Those affiliated chiropractors generated 41,061 provider-organization records, or 1.15 links per affiliated chiropractor - the lowest value among the fifteen specialties. The next-lowest values were Psychologist (1.35) and Social Worker (1.36).

This denominator now provides a direct coverage check that was not available consistently in the prior draft. It should not be interpreted as the share of the entire U.S. chiropractic workforce in organizations; it is the share of PECOS-active primary-taxonomy chiropractors with an active NPD organization link.

Specialty	PECOS active	Affiliated NPIs	% linked	Links/NPI	Median org	Aff. 1-5	Aff. 21+
Chiropractic	45,727	35,852	78.4%	1.15	2	80.9%	7.7%
Optometrist	45,181	40,831	90.4%	1.54	9	38.7%	38.8%
Podiatry	16,343	14,656	89.7%	1.65	20	33.6%	49.6%
Psychologist	35,178	25,576	72.7%	1.35	113	20.7%	66.9%
Pain Medicine	1,115	1,065	95.5%	1.87	36	17.6%	59.4%
Social Worker	83,396	64,721	77.6%	1.36	70	15.9%	68.7%
PM&R	11,746	11,140	94.8%	1.70	145	14.3%	71.5%
Physical Therapy	105,629	98,508	93.3%	1.53	70	13.4%	67.2%
Family Medicine	118,972	113,521	95.4%	1.88	225	7.2%	84.8%
Psychiatry	32,520	30,083	92.5%	2.14	190	6.9%	83.9%
Nurse Practitioner	296,791	280,879	94.6%	1.96	185	6.2%	82.7%
Internal Medicine	240,054	231,327	96.4%	2.11	440	5.8%	88.3%
Orthopedic Surgery	27,123	26,368	97.2%	1.74	275	5.2%	87.2%
Physician Assistant	158,678	153,631	96.8%	2.81	134	4.7%	83.1%

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Specialty	PECOS active	Affiliated NPIs	% linked	Links/NPI	Median org	Aff. 1-5	Aff. 21+
Emergency Medicine	63,610	62,710	98.6%	3.23	252	1.1%	96.6%

Table 2. Organizational setting by specialty. Organization size counts PECOS-active practitioners; percentages are affiliation-weighted. The final very-large category in the underlying detail is >200 (201+).

4. Organizational Scale: Chiropractic Remains the Small-Organization Outlier

Chiropractic remains the most concentrated specialty in very small organizations even after adding optometry, psychology, and social work. 80.9% of chiropractic affiliation records are with organizations of 1-5 PECOS-active practitioners. Optometry is a distant second at 38.7%, followed by podiatry at 33.6%. Physical therapy is 13.4%.

The median organization linked to a chiropractor contains 2 PECOS-active practitioners. Optometry is next at 9; podiatry is 20; physical therapy is 70. Only 7.7% of chiropractic affiliation records are with organizations of 21 or more practitioners, compared with 38.8% for optometry, the next-lowest specialty.

From the organization-weighted perspective, 91.3% of organizations containing a chiropractor have five or fewer PECOS-active practitioners. The two weighting approaches therefore point in the same direction: both the typical DC-containing organization and the organization linked to the typical chiropractic affiliation are small within this Medicare-enrolled cohort.

5. Specialty Composition

Chiropractic also remains the strongest single-specialty outlier. 85.9% of organizations containing a chiropractor are single-taxonomy among PECOS-active practitioners, and 78.2% of chiropractic affiliation records are in those organizations. Optometry is the closest comparator at 75.5% of organizations and 53.7% of affiliations. Physical therapy is 15.4% affiliation-weighted.

Specialty	Organizations	Single orgs	Affiliations in single	Affiliations in multi
Chiropractic	26,027	85.9%	78.2%	21.8%
Optometrist	16,751	75.5%	53.7%	46.3%
Podiatry	9,192	40.5%	18.8%	81.2%
Psychologist	11,136	41.9%	14.5%	85.5%
Pain Medicine	1,464	7.7%	5.9%	94.1%
Social Worker	21,122	39.5%	10.4%	89.6%
PM&R	6,984	18.3%	7.5%	92.5%
Physical Therapy	18,750	47.7%	15.4%	84.6%
Family Medicine	32,678	19.3%	3.4%	96.6%
Psychiatry	11,725	19.0%	3.8%	96.2%
Nurse Practitioner	57,400	15.2%	1.8%	98.2%
Internal Medicine	44,733	30.1%	3.2%	96.8%
Orthopedic Surgery	7,129	14.3%	2.5%	97.5%
Physician Assistant	37,387	8.8%	1.6%	98.4%
Emergency Medicine	12,820	5.7%	0.5%	99.5%

Table 3. Taxonomy composition by specialty. "Single" means one distinct primary taxonomy code among PECOS-active practitioners in the organization; it does not establish one profession, one service line, or one physical site.

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6. Specialty Headcount Scaling: Peripheral Within the Largest Organizations

Within multi-specialty organizations, chiropractic headcount is approximately flat across the middle size bands and lower in the largest categories. Mean DC headcount is 3.44 in 11-20-practitioner organizations, 3.19 in 21-50, 3.23 in 51-100, 1.82 in 101-200, and 2.58 in organizations with more than 200 PECOS-active practitioners.

The 201+/11-20 ratio is therefore 0.75x - the only ratio below 1.0 among the fifteen specialties. The result does not rest on a handful of organizations: the 11-20 cell contains 310 multi-specialty organizations and the 201+ cell contains 429. However, dispersion is substantial, particularly in the largest category: mean +/- SD is 3.44 +/- 3.41 in 11-20 and 2.58 +/- 11.36 in 201+. The aggregate workbook does not permit a median or bootstrap interval, so the point estimate should be read as a descriptive mean rather than a precise population parameter.

In the 201+ category, DC-containing organizations average about 1,120 PECOS-active practitioners overall but only 2.58 chiropractors, or 0.23% of the practitioner mix. Only pain medicine has a smaller share (0.11%). Chiropractic's unique affiliated cohort is approximately 34 times larger than the pain-medicine cohort, underscoring that the small share is not simply a consequence of an exceptionally small source population.

Specialty	n 11-20	Mean +/- SD	n 201+	Mean +/- SD	Ratio	Share 201+
Chiropractic	310	3.44 +/- 3.41	429	2.58 +/- 11.36	0.75x	0.23%
Pain Medicine	179	1.27 +/- 0.73	326	1.45 +/- 1.00	1.14x	0.11%
Podiatry	479	3.54 +/- 4.51	1,040	5.80 +/- 11.12	1.64x	0.60%
Optometrist	511	6.02 +/- 4.08	551	15.31 +/- 47.46	2.54x	1.18%
PM&R	768	1.95 +/- 2.12	1,257	6.81 +/- 12.30	3.49x	0.72%
Orthopedic Surgery	627	3.67 +/- 3.14	1,469	16.88 +/- 25.53	4.60x	1.94%
Psychologist	918	2.49 +/- 2.49	1,155	12.92 +/- 29.61	5.19x	1.31%
Social Worker	2,081	3.70 +/- 2.90	1,246	23.62 +/- 109.76	6.38x	2.56%
Physical Therapy	1,551	8.08 +/- 5.18	887	58.03 +/- 148.42	7.18x	5.96%
Psychiatry	1,425	2.63 +/- 2.54	1,496	21.04 +/- 37.61	8.00x	2.43%
Physician Assistant	5,577	5.45 +/- 4.77	2,258	78.93 +/- 151.46	14.48x	11.19%
Family Medicine	3,779	2.64 +/- 2.21	2,428	45.82 +/- 75.62	17.36x	6.60%
Nurse Practitioner	7,471	4.69 +/- 3.26	2,645	101.12 +/- 152.56	21.56x	15.13%
Emergency Medicine	1,330	2.23 +/- 2.73	2,255	50.89 +/- 112.86	22.82x	7.13%
Internal Medicine	4,250	3.79 +/- 3.51	2,585	121.09 +/- 196.93	31.95x	18.00%

Table 4. Cross-sectional specialty headcount scaling within multi-specialty organizations. The workbook label "200+" corresponds to SQL total_providers > 200 and is shown here as 201+. "Share" is specialty practitioners divided by all PECOS-active practitioners in the category.

Organization size	Chiropractic	Optometry	Physical Therapy
6-10	3.11 +/- 2.12	3.84 +/- 2.30	4.53 +/- 2.53
11-20	3.44 +/- 3.41	6.02 +/- 4.08	8.08 +/- 5.18
21-50	3.19 +/- 5.82	9.44 +/- 10.69	13.46 +/- 11.85
51-100	3.23 +/- 5.91	16.18 +/- 24.15	23.80 +/- 25.44
101-200	1.82 +/- 2.29	18.20 +/- 40.03	37.25 +/- 48.75
201+	2.58 +/- 11.36	15.31 +/- 47.46	58.03 +/- 148.42

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Table 5. Mean +/- SD specialty headcount in multi-specialty organizations for three clinically or structurally informative comparators.

The pattern is descriptive, not causal. The data do not identify whether reimbursement, patient demand, referral patterns, physical space, credentialing, organizational design, coding, or clinician preference explains why chiropractic headcount remains low in large organizations.

7. Specialty Prevalence Within Multi-Specialty Organizations

The group-level prevalence analysis provides a second view of chiropractic's limited presence in larger organizations. Across 36,183 multi-specialty organizations with at least 11 PECOS-active practitioners, 1,448 (4.0%) contained at least one chiropractor. Chiropractic prevalence rose with organization size - 2.3% in 11-20, 2.8% in 21-50, 3.7% in 51-100, 5.8% in 101-200, and 14.1% in organizations with more than 200 PECOS-active practitioners - but remained uncommon relative to most specialties.

The MSK contrast is especially informative. In organizations with more than 200 practitioners, physical therapy appears in 29.2% of groups and averages 58.0 PTs when present; orthopedic surgery appears in 48.3% and averages 16.9; PM&R in 41.3% and averages 6.8; and podiatry in 34.2% and averages 5.8. Chiropractic appears in 14.1% and averages 2.58 DCs. The largest organizations are therefore more likely to contain chiropractic than mid-sized organizations, but the number of chiropractors within DC-containing organizations does not scale in parallel with the other selected MSK specialties.

Specialty	11-20	21-50	51-100	101-200	>200	All 11+
Nurse Practitioner	56.5%	63.6%	71.7%	78.5%	87.0%	65.6%
Physician Assistant	42.2%	48.2%	54.8%	61.9%	74.3%	50.4%
Internal Medicine	32.1%	43.2%	58.2%	69.8%	85.0%	47.4%
Family Medicine	28.6%	40.4%	53.2%	63.8%	79.9%	43.5%
Emergency Medicine	10.1%	21.2%	38.7%	52.1%	74.2%	27.0%
Social Worker	15.7%	18.6%	20.8%	24.3%	41.0%	20.3%
Psychiatry	10.8%	15.3%	19.4%	27.3%	49.2%	18.2%
Physical Therapy	11.7%	11.8%	11.2%	13.2%	29.2%	13.3%
Orthopedic Surgery	4.7%	9.1%	14.5%	23.4%	48.3%	12.9%
Psychologist	6.9%	9.1%	11.2%	16.8%	38.0%	11.8%
PM&R	5.8%	7.3%	9.6%	14.7%	41.3%	10.6%
Podiatry	3.6%	6.8%	11.1%	16.5%	34.2%	9.5%
Optometry	3.9%	3.8%	4.8%	6.2%	18.1%	5.4%
Chiropractic	**2.3%**	**2.8%**	**3.7%**	**5.8%**	**14.1%**	**4.0%**
Pain Medicine	1.4%	1.8%	2.5%	3.9%	10.7%	2.7%

Table 6. Percentage of multi-specialty organizations containing each study specialty, by organization size. Denominators are 13,224 organizations (11-20), 11,144 (21-50), 5,479 (51-100), 3,296 (101-200), and 3,040 (>200), for 36,183 organizations with at least 11 PECOS-active practitioners. Presence means at least one provider of that specialty is linked to the organization. Source: Arete Group Size Data.xlsx, SpecialtyPrevalenceByGrpSize sheet.

The co-location analysis is consistent with the earlier descriptive pattern but should be interpreted cautiously. Among multi-specialty DC-containing organizations, the most common co-occurring primary taxonomies are Family Nurse Practitioner (1,610 organizations), Family Medicine Physician (1,240), Nurse Practitioner (1,218), Physical Therapist (1,202), and Physician Assistant (1,164). These are raw co-occurrences, not enrichment estimates; common taxonomies can appear frequently simply because they are common in multi-specialty organizations generally.

8. Geographic Licensure

Chiropractors have the lowest average number of recorded state licenses in the fifteen-specialty comparison (1.09) and the highest single-state share (92.3%). The next-highest single-state share is Social Worker at 92.0%, so the geographic-licensure distinction is real but much narrower than the group-size and specialty-composition

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gaps. Only 0.9% of chiropractors with license records are licensed in three or more states, the lowest rate in the comparison.

Specialty	With license	Avg states	1 state	3+ states	Max
Chiropractic	45,701	1.09	92.3%	0.9%	8
Social Worker	76,677	1.10	92.0%	1.3%	14
Psychologist	33,684	1.11	89.9%	1.1%	10
Pain Medicine	1,115	1.12	89.7%	1.8%	4
Nurse Practitioner	296,759	1.13	90.4%	1.5%	15
Physical Therapy	95,469	1.15	88.4%	2.0%	15
Physician Assistant	131,710	1.16	87.0%	1.8%	15
Optometrist	45,169	1.17	86.6%	2.4%	14
Podiatry	16,323	1.18	85.1%	2.3%	7
Family Medicine	118,879	1.21	84.2%	2.7%	15
PM&R	11,739	1.25	80.0%	3.8%	14
Psychiatry	32,511	1.26	81.3%	4.4%	15
Internal Medicine	239,920	1.27	79.1%	4.3%	15
Emergency Medicine	63,587	1.32	75.1%	5.1%	15
Orthopedic Surgery	27,106	1.33	74.3%	6.1%	10

Table 7. State-license records among PECOS-active practitioners. License status is based on NPD records and is not independently validated against state boards.

9. Digital Connectivity: Individual NPPES Endpoint Registration

Chiropractic has the lowest individual-NPI endpoint registration rate of the fifteen specialties. 1,056 of 45,727 PECOS-active chiropractors (2.3%) have any registered NPPES endpoint, compared with 5.8% for the next-lowest specialty (Social Worker) and 21.2% for the highest (Internal Medicine). Within chiropractic, 651 providers (1.4%) have a Direct endpoint and 40 (0.09%) have a FHIR endpoint.

This result is best interpreted as low individual-directory endpoint registration, not proof that chiropractic practices are unable to exchange records electronically. Type 2 organization endpoints are not captured in this individual-NPI analysis, and vendor auto-registration behavior can materially affect specialty-level rates.

Specialty	PECOS active	Any endpoint	Any %	Direct %	FHIR %	Other %
Chiropractic	45,727	1,056	2.3%	1.4%	0.09%	0.9%
Social Worker	83,396	4,843	5.8%	3.3%	0.23%	2.6%
Optometrist	45,181	2,648	5.9%	2.9%	0.31%	2.9%
Physical Therapy	105,629	6,956	6.6%	3.0%	0.60%	3.5%
Psychologist	35,178	2,820	8.0%	5.6%	0.75%	2.4%
Podiatry	16,343	1,402	8.6%	5.9%	0.92%	2.7%
Pain Medicine	1,115	126	11.3%	9.2%	1.08%	2.1%
Psychiatry	32,520	4,288	13.2%	9.6%	1.44%	3.7%
Nurse Practitioner	296,791	43,542	14.7%	12.4%	1.94%	2.3%
Emergency Medicine	63,610	9,600	15.1%	10.6%	1.73%	4.5%

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Specialty	PECOS active	Any endpoint	Any %	Direct %	FHIR %	Other %
PM&R	11,746	1,958	16.7%	12.7%	1.59%	3.9%
Physician Assistant	158,678	26,816	16.9%	14.8%	2.13%	2.3%
Orthopedic Surgery	27,123	5,405	19.9%	16.7%	2.63%	3.1%
Family Medicine	118,972	24,952	21.0%	16.3%	2.08%	4.8%
Internal Medicine	240,054	50,802	21.2%	17.2%	2.73%	3.9%

Table 8. Individual-NPI NPPES endpoint registration. Endpoint-type columns can overlap because a provider may register more than one type.

Key Limitations

- **PECOS-active cohort, not the full workforce:** All results are restricted to practitioners with Medicare PECOS enrollment type 14. Cash-only, commercial-only, order/referring-only, DME-only, and other non-practitioner enrollment patterns are excluded. This improves denominator consistency but limits generalizability.
- **Organization size is PECOS-active practitioner size:** Non-Medicare clinicians in the same Type 2 NPI organization are not counted. The reported group-size categories can therefore understate the organization's full clinical workforce.
- **Group-size analysis uses the affiliated subset:** 78.4% of PECOS-active chiropractors in the primary-taxonomy cohort had an active NPD organization link. Providers without an organization link do not contribute to group-size or specialty-composition results.
- **Primary taxonomy only:** Specialty classification uses taxonomy_code_1. Clinicians whose relevant specialty appears only as a secondary taxonomy are not counted in that specialty cohort. The Pain Medicine cohort is intentionally narrow, and several broad parent-code cohorts include subspecialties.
- **Comparator labels must follow the actual code families:** The workbook labels 103T*/103G* as Clinical Psychologist and 1041* as Clinical Social Worker, but those code families are broader. This draft uses Psychologist and Social Worker to avoid overstating specificity.
- **Affiliation records are not unique people:** A provider linked to multiple organizations is counted once per provider-organization pair in affiliation-weighted measures. Links per provider do not prove simultaneous active clinical practice at every linked organization.
- **Type 2 NPI is not a practice site or employer:** One NPI may span multiple locations or service lines, and one company can use multiple Type 2 NPIs. The data do not establish employment, ownership, co-location, or shared clinical workflows.
- **Single- versus multi-specialty is taxonomy-based within the PECOS cohort:** It uses distinct primary taxonomy codes among PECOS-active practitioners. Non-PECOS clinicians are invisible, and multiple subspecialty codes within one profession can make an organization appear multi-specialty.
- **Specialty prevalence is an organization-level presence measure:** A group is counted as containing a specialty when at least one PECOS-active provider of that specialty is linked to the Type 2 NPI. The measure does not show provider share, service volume, referral intensity, or whether clinicians work at the same physical site.
- **Co-location is not enrichment or integration:** The DC/PT co-location analyses report which taxonomies appear in the same multi-specialty Type 2 NPI organizations. Common specialties may appear frequently because they are common in multi-specialty organizations generally; the analysis does not establish preferential association, referrals, co-management, or clinical integration.
- **Cross-sectional scaling is not growth:** The 201+/11-20 ratio compares different organizations at one point in time. It does not show how any organization changed over time.
- **The 201+ label is a correction to the SQL implementation:** The supplied SQL places exactly 200 practitioners in the 101-200 bucket and uses >200 for the final bucket. The workbook calls that final bucket 200+; this draft calls it 201+.

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- **Aggregated group-size results limit distributional inference:** Cell counts and standard deviations are available, but the workbook does not contain organization-level rows needed for medians, percentile distributions, bootstrap intervals, or outlier sensitivity checks.
- **Endpoint registration is not practice-level interoperability:** The endpoint analysis checks individual NPIs. Organization-level endpoints and exchange through other mechanisms are not captured; EHR vendor auto-registration may influence rates; registration does not establish use.
- **Licensure records may be incomplete or stale:** NPD license records are not a fresh state-board verification and may not contain every license held by a clinician.
- **No causal mechanism data:** The data contain no reimbursement, ownership, compensation, referral, utilization, payer-mix, physical-site, or quality measures. They cannot determine why chiropractic remains concentrated in small organizations or peripheral within large ones.

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Disclosures and Publication Status

This work is classified as a public-data workforce and health-services analysis under the Arete Research Library Governance Framework; it is not PBRN-sponsored human-subjects research. Arete Healthcare supports independent outpatient chiropractic and physical therapy practices and has a commercial and professional interest in workforce infrastructure, interoperability, and payer contracting. The DAWG review is intended to test methods, reproducibility, limitations, and the boundary between findings and Arete interpretation.

AI Use Disclosure: This work used AI-assisted technologies during preparation and quality assurance; AI systems are not authors and are not cited as evidentiary sources. ChatGPT (OpenAI; GPT-5.6 Sol) assisted with reconciliation of DAWG methodological-review comments against revised methods, SQL, and tabulated results, and with manuscript drafting, organization, and assembly across versions through v2.22. Claude (Anthropic; Claude Sonnet 5) performed independent reproduction of the headline statistics against the source workbook, Style Guide compliance implementation, and drafting support for the Arete Original Research naming change. Claude Fable 5 (Anthropic) supported Joel Carmichael's August 12, 2026 DAWG review. All AI-assisted calculations, code, factual statements, and manuscript text incorporated into this work were reviewed by human authors against the underlying data, executed queries, or primary sources, as documented in the internal AI Assistance and Reproducibility Record maintained under the Arete Research Library Governance Framework. Human authors and reviewers remain fully responsible for accuracy, methodology, interpretation, and the publication decision.

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Appendix A. Glossary

Term	Definition
Affiliation record	One recorded link between a provider and a Type 2 NPI organization in the NPD. A provider may have more than one.
Affiliation-weighted	A statistic that counts provider-organization links rather than unique providers.
Cross-sectional	A snapshot at one point in time; it does not show change or causation.
NPI	National Provider Identifier. Type 1 identifies an individual; Type 2 identifies an organization.
NPD	CMS National Provider Directory data used here for taxonomy, roles, organizations, and license records.
PECOS-active practitioner	A provider with a current Medicare Fee-for-Service Public Provider Enrollment record whose provider_type_cd begins 14-.
Primary taxonomy	The taxonomy_code_1 value used to classify each provider into a specialty cohort.
Organization size	Number of distinct PECOS-active practitioners with active NPD roles at a Type 2 NPI; not the organization's complete workforce.
Single-specialty organization	An organization with one distinct primary taxonomy code among its PECOS-active practitioners.
Multi-specialty organization	An organization with two or more distinct primary taxonomy codes among its PECOS-active practitioners.
Endpoint	An NPPES-registered technical endpoint associated with an NPI, including Direct, FHIR, and other endpoint types.
201+ category	The final detail bucket where SQL total_providers > 200. The source workbook labels this bucket 200+.
Specialty prevalence	The percentage of organizations in a defined size/type category that contain at least one PECOS-active provider of a given specialty. This is a group-level presence measure, not a provider-share measure.

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Appendix B. Supplemental Comparative Table

B1. Multi-Specialty Mean Headcount Across All Size Categories

Specialty	6-10	11-20	21-50	51-100	101-200	201+
Chiropractic	3.11	3.44	3.19	3.23	1.82	2.58
Optometrist	3.84	6.02	9.44	16.18	18.20	15.31
Podiatry	4.14	3.54	3.36	3.04	2.94	5.80
Psychologist	2.35	2.49	3.14	3.61	4.83	12.92
Pain Medicine	1.35	1.27	1.46	1.70	1.38	1.45
Social Worker	2.52	3.70	5.48	8.86	12.13	23.62
PM&R	1.60	1.95	2.24	3.18	3.11	6.81
Physical Therapy	4.53	8.08	13.46	23.80	37.25	58.03
Family Medicine	1.81	2.64	4.39	7.86	13.00	45.82
Psychiatry	1.75	2.63	4.16	6.48	9.52	21.04
Nurse Practitioner	2.84	4.69	8.48	15.34	26.10	101.12
Internal Medicine	2.56	3.79	6.41	11.58	21.94	121.09
Orthopedic Surgery	2.33	3.67	4.89	6.26	6.95	16.88
Physician Assistant	3.15	5.45	10.91	18.57	31.99	78.93
Emergency Medicine	1.40	2.23	5.38	13.67	22.93	50.89

Values are mean target-specialty headcount per multi-specialty organization. The source workbook label "200+" is displayed as 201+ because the SQL condition is >200.

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B2. Specialty Prevalence Across Multi-Specialty Organizations With 11+ Practitioners

Specialty	11-20	21-50	51-100	101-200	>200	All 11+
Nurse Practitioner	56.5%	63.6%	71.7%	78.5%	87.0%	65.6%
Physician Assistant	42.2%	48.2%	54.8%	61.9%	74.3%	50.4%
Internal Medicine	32.1%	43.2%	58.2%	69.8%	85.0%	47.4%
Family Medicine	28.6%	40.4%	53.2%	63.8%	79.9%	43.5%
Emergency Medicine	10.1%	21.2%	38.7%	52.1%	74.2%	27.0%
Social Worker	15.7%	18.6%	20.8%	24.3%	41.0%	20.3%
Psychiatry	10.8%	15.3%	19.4%	27.3%	49.2%	18.2%
Physical Therapy	11.7%	11.8%	11.2%	13.2%	29.2%	13.3%
Orthopedic Surgery	4.7%	9.1%	14.5%	23.4%	48.3%	12.9%
Psychologist	6.9%	9.1%	11.2%	16.8%	38.0%	11.8%
PM&R	5.8%	7.3%	9.6%	14.7%	41.3%	10.6%
Podiatry	3.6%	6.8%	11.1%	16.5%	34.2%	9.5%
Optometry	3.9%	3.8%	4.8%	6.2%	18.1%	5.4%
Chiropractic	**2.3%**	**2.8%**	**3.7%**	**5.8%**	**14.1%**	**4.0%**
Pain Medicine	1.4%	1.8%	2.5%	3.9%	10.7%	2.7%

Values are percentages of distinct multi-specialty Type 2 NPI organizations in each PECOS-active practitioner-size category that contain at least one provider of the specialty. Source: Arete Group Size Data.xlsx, SpecialtyPrevalenceByGrpSize sheet.

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