An Analysis of Trends of United States Dermatology Clinician Workforce From 2016 to 2023: A Cross-Sectional Study

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INTRODUCTION

A shortage of United States (US) dermatologists exists. In 2023, US dermatologist density was 3.7 per 100,000, below the suggested 4 per 100,000.[1] Geographic nonuniformity of dermatology clinicians amplifies this problem.[2] Nonphysician-clinicians have supplemented dermatologists to mitigate geographic disparities.[3] With addition of dermatology physician assistants (DPAs), 2016 density of US dermatology-clinicians was 4.14 per 100,000.[1] The growing disparity of dermatology-clinician density between urban and rural regions can negatively impact access to care.[2] The purpose of this study was to assess changes in density and geographic distribution of US dermatology clinicians vs 2016 data[1] and how these trends may impact access to care.

MATERIALS AND METHODS

A cross-sectional analysis was performed to determine the number of currently practicing US dermatologists, DPAs, and dermatology nurse practitioners (DNPs) by US postal section-codes (first 3 digits of ZIP codes) in 2023. Membership data were obtained from the American Academy of Dermatology (AAD), Society of Dermatology Physician Assistants (SDPA), and Society of Dermatology Nurse Practitioners (SDNP). DPAs and DNPs were defined as physician assistants (PAs) and nurse practitioners (NPs), respectively, who identify as primarily providing dermatologic care. US Census Bureau population data were used to calculate dermatology clinician density. Data from 2023 were compared with a 2017 study using the same methodology.[2] Gini coefficient, a measure of population nonuniformity used in clinician distribution studies,[4] was calculated to measure the degree of geographic density inequality of US dermatology clinicians.

RESULTS

There were 16,156 (12,120 dermatologists, 3,709 DPAs, and 327 DNPs) US dermatology clinicians in 2023. Overall density was 4.87 per 100,000. There was an 18.4% increase in dermatology clinicians and a 15.5% increase in overall density since 2016. Number of section-codes with ≥4 per 100,000 dermatology clinicians increased by 55.5%, while those with <4 per 100,000 decreased by 31.4%. Section-codes having ≥1 dermatology-clinician rose by 5.9%. Dermatology clinicians in the 100 most-populated section-codes increased by 37.4%. Gini coefficient was 0.50. Table 1 summarizes trends in the dermatology clinician workforce; Figure 1 depicts the 2023 density.

DISCUSSION

There has been an increase in dermatology-clinician density since 2016. As the suggested density is 4 per 100,000,[1,2] our results show that DPA and DNP workforce augmentation helps achieve this target. There are now more section-codes achieving this density and fewer section-codes without a dermatology clinician vs 2016, suggesting an overall increase in coverage for dermatologic care. However, the Gini coefficient (0.50) indicates that a high geographic nonuniformity remains.

Dermatology clinician density has increased more substantially in urban areas.[2] Furthermore, the absolute density of dermatologists has decreased in rural regions.[1] Given the positive correlation between dermatologist density and patient outcomes, this trend raises concerns about access to care. Thus, patients requiring dermatologic services may need to wait longer or turn to clinicians who may not have specialized training in dermatology. Adding DPAs and DNPs to the rural workforce could mitigate the impact of this finding.
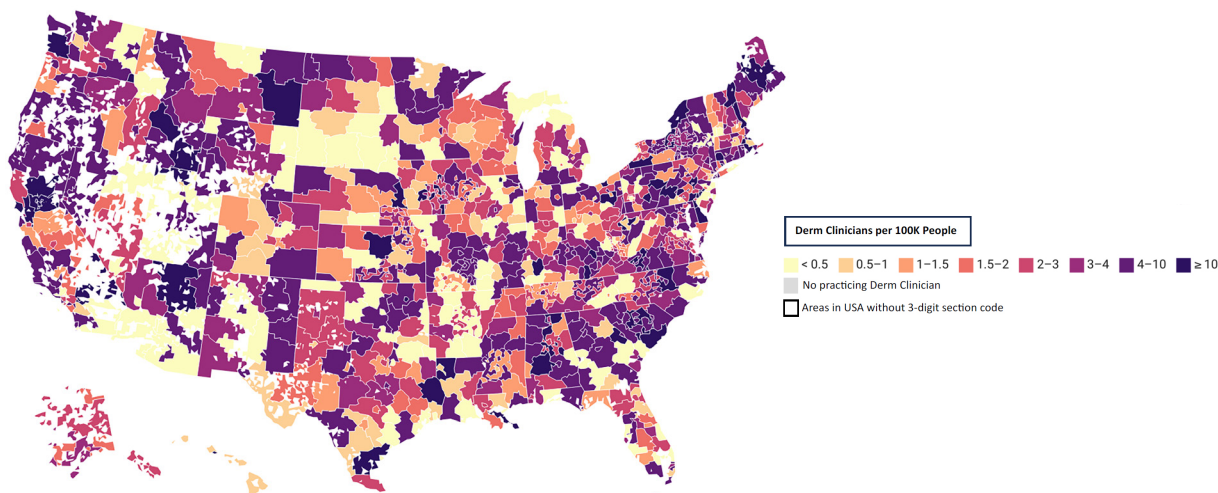
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TABLE 1.

Most and Least Dermatology Clinician Dense Section Codes and Changes in Dermatology Clinician Density, 2023 vs 2016.[1]									
	2023				**2016**				
	Derms Only	DPAs Only	Total Derm Clinicians	Change From Derms Only to Total Derm Clinicians, %	Derms Only	DPAs Only	Total Derm Clinicians	Change From Derms Only to Total Derm Clinicians, %	Change between 2023 vs. 2016, %
Dermatology clinicians, No.	12120	3709	15829	+ 30.6	10845	2520	13365	+ 23.2	+ 18.4
Dermatology clinicians per 100 000 persons	3.66	1.11	4.78	+ 30.6	3.36	0.78	4.14	+ 23.2	+ 15.5
Section codes serviced, No.	734	628	777	+ 5.9	712	561	734	+ 3.1	+ 5.9
Section codes with more than 4 dermatology clinicians, %	53.3	29.8	62.5	+ 17.3	27.7	1.7	40.2	+ 12.5	+ 55.5
Section codes with fewer than 3 dermatology clinicians, %	40.9	54.8	32.5	- 20.5	59.8	95.4	47.4	- 12.4	- 31.4
Dermatology clinicians in 100 most dense section codes, %	60.7	41.1	48.1	- 20.8	38.6	28.2	35	- 3.6	+ 37.4
Dermatology clinicians not in 100 most or least dense areas, %	59.7	58.3	51.5	- 13.7	59.6	64.5	63.5	+ 3.9	- 18.9

	2023				**2016**				
Rank	3-digit postal code	Location	No. of Derm Clinicians	Derm Clinicians per 100,000 people	Rank	3-digit postal code	Location	No. of Derm Clinicians	Derm Clinicians per 100,000 people
				Most Dermatology-Clinician Dense Areas in the US					
1	101	Manhattan, NY (Upper East Side)	26	38.8	1	101	Manhattan, NY (Upper East Side)	29	46.6
2	022	Boston, MA (Downtown)	13	38.4	2	022	Boston, MA (Downtown)	11	39.0
3	904	Santa Monica, CA	31	32.7	3	904	Santa Monica, CA	35	38.0
4	024	Middlesex County, MA	126	28.7	4	943	Palo Alto, CA	40	37.6
5	100	Manhattan, NY (Central and Lower)	447	27.8	5	024	Middlesex County, MA	119	29.1
6	943	Palo Alto, CA	31	25.5	6	830	Jackson, WY	6	29.0
7	037	Hanover, NH	19	24.4	7	100	Manhattan, NY (Central and Lower)	381	25.4
8	214	Annapolis, MD	22	24.0	8	037	Hanover, NH	17	21.9
		Least Dermatology-Clinician Dense Areas in the US[2]							
769	307	Chattanooga, TN	2	0.44	728	783	Portland, TX	1	0.43
770	384	Columbia, TN	1	0.43	729	465	Granger, IN	2	0.42
771	851	Phoenix, AZ	2	0.43	730	776	Nederland, TX	1	0.37
772	114	Jamaica, NY	3	0.42	731	971	McMinnville, OR	1	0.31
773	628	Centralia, IL	1	0.41	732	351	Vestavia Hills, AL	1	0.31
774	539	Portage, WI	1	0.41	733	467	Roanoke, IN	1	0.30
775	924	San Bernardino, CA	1	0.32	734	451	Loveland, OH	1	0.29
776	351	Birmingham, AL (North)	1	0.29	735	114	Jamaica, NY	2	0.27

Abbreviations: Derms, dermatologists; DPAs, dermatology physician assistants.
[1]Changes show the comparison between dermatologist, DPA, and total dermatology provider density and percent change to the total dermatology provider pool with the addition of DPAs.
[2]Section codes with no practicing dermatologists or DPAs were excluded.

FIGURE 1. US Dermatology Clinician density by 3-digit ZIP code. Colors on the map indicate the number of dermatology clinicians (dermatologists, DPAs, and DNPs) practicing per 100,000 people in each 3-digit postal ZIP code.

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Limitations of this study include the inability to account for clinicians not listed in the analyzed databases (US DNPs estimated at 1,800 in 2022).[5] Additionally, patients may seek care outside of their home section code, and clinicians may practice across multiple sites. However, the use of consistent methodology with prior published studies supports the validity of our findings.

CONCLUSION

Dermatology clinician density is increasing, and geographic distribution is improving; however, geographic nonuniformity persists. The decreasing density observed in rural areas suggests that policy initiatives aimed at improving access to dermatologic care in these regions may be warranted. Further research into the factors influencing dermatology clinicians' practice location decisions may offer valuable insight into these trends.

DISCLOSURES

The authors have no conflicts of interest to disclose.

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