Received: 18 November 2020 | Revised: 21 January 2021 | Accepted: 19 February 2021

DOI: 10.1111/dth.14917

DERMATOLOGIC THERAPY WILEY

LETTER

Workforce geography of older dermatologists during the COVID-19 pandemic

Dear Editor,

As of January 2021, coronavirus disease 2019 (COVID-19) has caused more than 400 000 deaths in the United States (US) and cases are surging in all 50 states.[1] Dermatologists across the country were reassigned to COVID-19 inpatient units during the initial peak of the pandemic,[2] and this may again become necessary as the US continues to experience record highs in new cases and hospitalizations.[1] Regarding dermatologic care, skin exams limit dermatologists' ability to maintain physical distance from patients, and head/neck procedures often require that patients remove masks, thus placing dermatologists at increased risk of COVID-19 infection. Given the association between older age and COVID-19 severity,[3-6] our objective was to compare the geographic distribution of dermatologists ≥60 years of age to the cumulative distribution of COVID-19 cases to inform safety guidelines and workforce planning.

We extracted demographic information for clinically-active dermatologists age ≥60 from the most recent American Association of Medical Colleges (AAMC) State Physician Workforce Reports (2018).[7] Coordinate (ie, latitude and longitude) data on the cumulative distribution of confirmed COVID-19 cases as of January 19, 2021 were obtained from a disease-specific data repository published by the Environmental Systems Research Institute. We combined both datasets into QGIS geospatial mapping software (version 3.12.1) and superimposed them onto state boundary files published by the US Census Bureau. States were grouped into color-coordinated quintiles based on proportion of dermatologists age ≥60, and confirmed COVID-19 case volumes were adjusted using a logarithmic scale to create proportionally sized data points indicating relative disease burden for each state. This study was considered IRB exempt.

According to the AAMC State Physician Workforce Reports, there were 12 153 practicing US dermatologists in 2018 and 3920 (32.3%) were ≥60 years of age.[7] The proportion of US dermatologists age ≥60 ranged from 23.4% in Minnesota to 47.1% in New Mexico (Table 1). The seven states in the highest quintile of older dermatologists were Alabama, Florida, New Jersey, Indiana, Kansas, Delaware, and New Mexico. Of these states, Florida (1 579 281 cases), New Jersey (635 702 cases), Indiana (595 436 cases), and Alabama (426 543 cases) have been particularly affected by COVID-19, as defined by cumulative cases (Figure 1). Figure 1 provides a geographical heatmap representing the risk faced by older dermatologists during the COVID-19 pandemic.

We identified a 2-fold difference in the proportion of dermatologists age ≥60 across states (23.4%-47.1%), and identified several states with both a high proportion of older dermatologists and high COVID-19 disease burden (Florida, New Jersey, Indiana, and Alabama). Considering the nationwide surge in cases, we encourage hospital/university systems and private practices, especially in "higher risk" states, to take precautions to ensure the safety of older dermatologists. Such measures might include transitioning older dermatologists from in-person patient care to telemedicine roles whenever possible, removing dermatologists age ≥60 from the call pool for in-person procedures on the head/neck in which patients will not be masked, and prioritizing the reassignment of younger dermatologists to COVID-19 inpatient units if the need again arises.[2]

Despite the advent of efficacious vaccines against COVID-19, the duration of immunity they provide and their ability to protect against new, more contagious coronavirus variants (eg, B.1.1.7) remain unknown.[8] As such, it will remain important to take precautions to ensure the safety of the older dermatology workforce. Limitations of this study include not controlling for other factors that may predict increased COVID-19 severity (eg, immunosuppression, Black race, and Hispanic ethnicity),[9] and incorporating only state-level (ie, not city- or county-level) age distribution data into our analysis. Moreover, we acknowledge that COVID-19 infection among younger clinicians is a serious concern. Our hope is that findings from the current study will emphasize the importance of continually assessing how older dermatologists may best provide patient care, while simultaneously limiting their COVID-19 exposure risk, for the duration of the pandemic.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHORS CONTRIBUTION

David X. Zheng and Tarun K. Jella conceived the study and supervised data collection. Melissa A. Levoska, Anne Y. Ning, and Christopher R. Cullison assisted in data collection. Bryan T. Carroll and Jeffrey F. Scott provided advice on study design. David X. Zheng drafted the manuscript, and all authors contributed substantially to its revision. David X. Zheng and Jeffrey F. Scott take responsibility for the article as a whole.

TABLE 1 Dermatologist workforce profile and confirmed COVID-19 cases by state, as of January 19, 2021[a]

State	Dermatologists age ≥60; n (%)	Total dermatologists per state	Dermatologists per 100 000 people	State population per dermatologist	Confirmed COVID-19 cases by state
New Mexico	24 (47.1)	51	2.43	41 087	164 263
Delaware	10 (43.5)	23	2.38	42 051	71 311
Kansas	29 (41.4)	70	2.40	41 593	261 825
Indiana	58 (37.4)	155	2.32	43 173	595 436
New Jersey	135 (37.2)	363	4.07	24 541	635 702
Florida	347 (37.0)	944	4.43	22 563	1 579 281
Alabama	48 (36.1)	133	2.72	36 751	426 543
Rhode Island	24 (35.8)	67	6.34	15 781	107 066
West Virginia	15 (35.7)	42	2.33	42 996	110 820
Connecticut	67 (35.6)	188	5.26	19 004	230 125
New York	372 (35.5)	1047	5.36	18 665	1 261 530
Arizona	86 (35.4)	243	3.39	29 513	679 282
Pennsylvania	187 (35.3)	529	4.13	24 210	779 437
Nebraska	13 (35.1)	37	1.92	52 142	182 176
California	633 (34.9)	1815	4.59	21 795	3 022 183
Washington	90 (34.6)	260	3.45	28 983	289 939
South Carolina	48 (34.5)	139	2.73	36 576	391 464
Hawaii	21 (34.4)	61	4.29	23 287	24 710
Mississippi	23 (34.3)	67	2.24	44 575	255 125
Michigan	112 (34.0)	331	3.31	30 199	585 128
Oklahoma	27 (32.9)	82	2.08	48 086	358 374
Maryland	101 (32.8)	308	5.10	19 619	330 186
Tennessee	61 (32.4)	188	2.78	36 011	687 751
Nevada	21 (32.3)	65	2.14	46 683	263 972
Virginia	100 (31.4)	318	3.73	26 785	451 076
Kentucky	38 (31.4)	121	2.71	36 929	328 667
Louisiana	60 (30.8)	195	4.18	23 897	372 089
Utah	35 (30.7)	116	3.67	27 251	324 919
Massachusetts	138 (30.6)	451	6.53	15 304	473 441
Georgia	83 (30.6)	271	2.58	38 817	820 952
Idaho	13 (30.2)	43	2.45	40 796	155 554
Ohio	116 (30.1)	385	3.28	30 362	831 066
Iowa	23 (29.9)	77	2.44	40 989	306 236
Colorado	66 (29.3)	226	3.97	25 202	376 171
Illinois	128 (29.1)	440	3.45	28 957	1 076 532
Wisconsin	61 (28.8)	212	3.65	27 422	569 335
Texas	237 (27.7)	857	2.99	33 491	2 138 664
North Carolina	97 (26.8)	362	3.49	28 684	684 497
Missouri	53 (26.5)	200	3.26	30 632	451 986
Oregon	41 (25.9)	158	3.77	26 524	133 851
New Hampshire	13 (25.0)	52	3.83	26 086	57 864
Arkansas	17 (23.6)	72	2.39	41 859	272 263
Minnesota	49 (23.4)	209	3.72	26 848	448 268
U.S. (total)	*3920 (32.3)*	*12 153*	*3.72*	*N/A*	*24 005 165*

[a]Alaska, Maine, Montana, North Dakota, South Dakota, Vermont, and Wyoming were excluded from the table, as there were fewer than 10 dermatologists age ≥60 in each of these states, and this was the AAMC cut-off for publishing data for a given state.

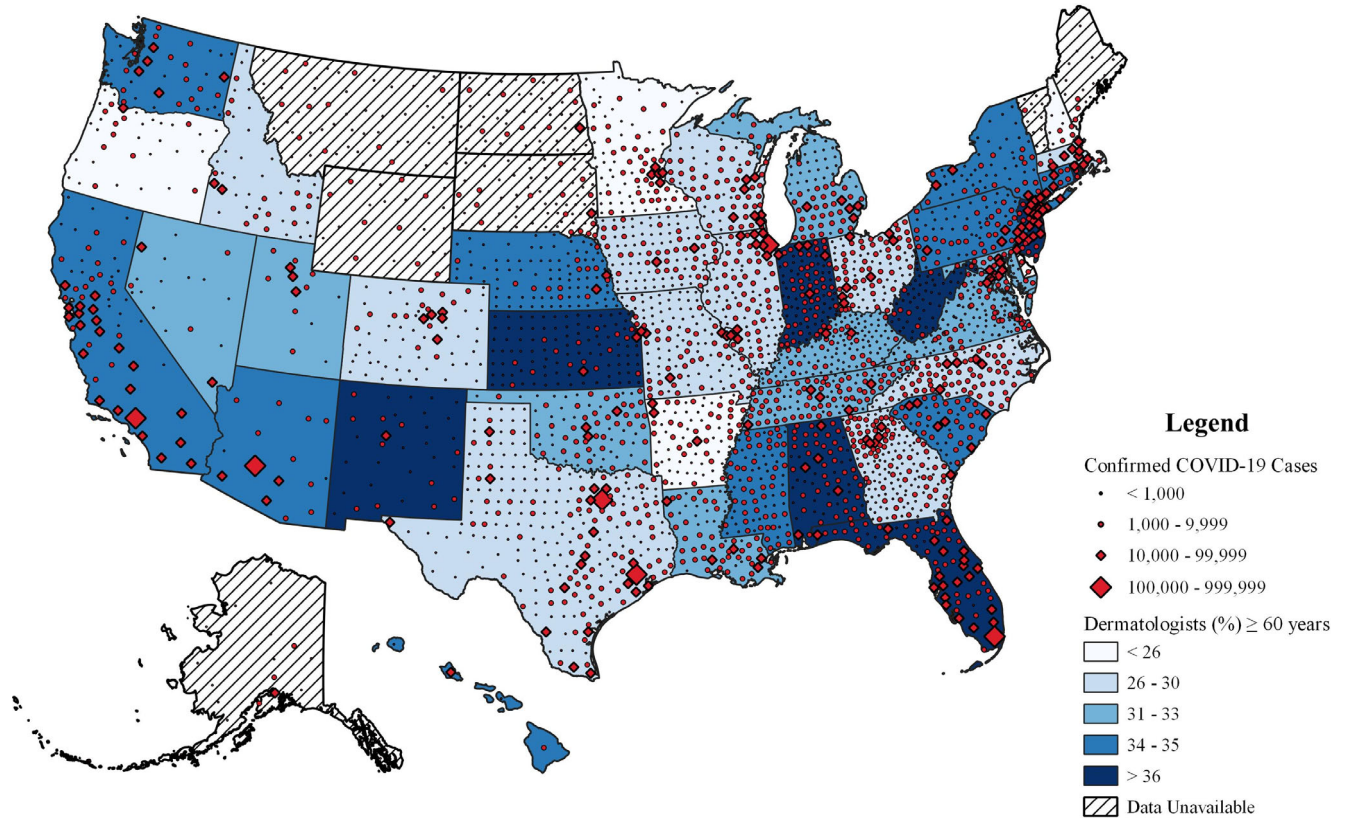

FIGURE 1 Geographic distribution of dermatologists age ≥60 years and cumulative COVID-19 case distribution, as of January 19, 2021. States were grouped into color-coordinated quintiles based on relative proportion of older dermatologists, and cumulative COVID-19 case volumes were adjusted using a logarithmic scale to create proportionally-sized data points

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in The COVID Tracking Project at https://covidtracking.com (reference number 1), AAMC State Physician Workforce Report at https://aamc.org/data-reports/workforce/data/2019-state-profiles (reference number 7), and ESRI COVID-19 resources at https://coronavirus-resources.esri.com.

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