An investigation of geographic disparities in health equity in the treatment of psoriasis

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Introduction

- Patients with moderate to severe psoriasis (PsO) require systemic treatment, which may include advanced nonbiologic and biologic therapies[1]
- PsO may be treated by dermatologists, family/general practice physicians, or internal medicine specialists, as well as by nurse practitioners or physician assistants with a dermatology subspecialty
- The distribution of dermatologists is uneven across the United States, with higher concentrations of these specialists in urban areas than in rural areas[2]

Objective

- To identify and characterize geographic disparity in access to care for patients with PsO in the United States

Methods

Study design

- Retrospective, observational study used de-identified data from STATinMED's all-payer database of commercial, Medicaid, and Medicare claims

Inclusion criteria

- Patients had ≥ 1 claim with a diagnosis for PsO and ≥ 1 claim for advanced PsO therapy (apremilast or biologics) between January 1, 2015, and December 31, 2019 (identification period)
- The index date was the earliest date of a claim for an advanced PsO treatment on or after a PsO diagnosis during the identification period
- All patients had ≥ 12 months of continuous enrollment before and after their index date
- All patients were ≥ 18 years of age as of their index date

Geographic type identification

- Patients were assigned a 3-digit ZIP code prefix (zip3) based on the location of their most frequently visited primary healthcare provider (HCP) during the study period; if no provider was identified, the patient was designated as rural
- Urban or rural designations were assigned to each zip3 using the Health Resources and Services Administration Rural Assignment Identifiers[3]
- PsO-treating providers were defined as those who had submitted claims for patients with a PsO diagnosis or who had prescribed advanced therapies for PsO
- The number of PsO-treating providers in each patient's zip3 were identified and designated as urban or rural based on the zip3
- Patient access to PsO-treating providers was determined by the proportion of patients with 0, 1-2, 3-4, or 5+ providers in their zip3

Results

- Approximately half of the patients in the study population were 55-74 years of age (**Table 1**)
- 51% of patients had commercial health insurance, while 40% had Medicare
- Almost half (49%) of the patients had an annual household income of less than $40,000

Table 1. Demographics and baseline characteristics

Characteristic	N = 179,688
Age, mean (median), years	58.5 (61.0)
Race,[a] %	
White[b]	90.1
Black	7.5
Asian	2.4
Sex, %	
Female	56.4
Geographic region,[c] %	
South	40.0
North Central	25.5
Northeast	22.5
West	12.0
Geographic type, %	
Urban	80.0
Rural	20.0

[a]Excludes patients with no race identified.
[b]White includes 11.9% Hispanic and 88.1% non-Hispanic/other ethnicity.
[c]South: AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, and WV; North Central: IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, and WI; Northeast: CT, MA, ME, NH, RI, VT, NJ, NY, and PA; West: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, and WY.

- Overall, dermatologists and family practice physicians had the lowest provider-to-patient ratios (**Figure 1**)
- In both urban and rural areas, most PsO care was provided by family/general practice physicians, internal medicine physicians, and dermatologists (**Figures 2 and 3**)
- Even with a high concentration of providers in urban areas, 2% of patients living in urban areas sought PsO-related care outside of their zip3
- In rural areas, 75% of patients received PsO-related care outside of their zip3

Figure 1. Ratio of providers per 1000 patients, by specialty

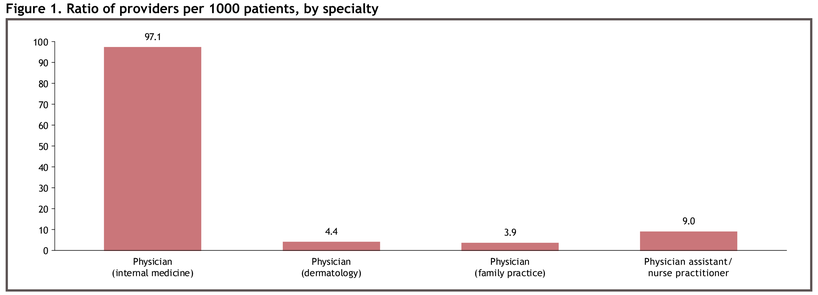
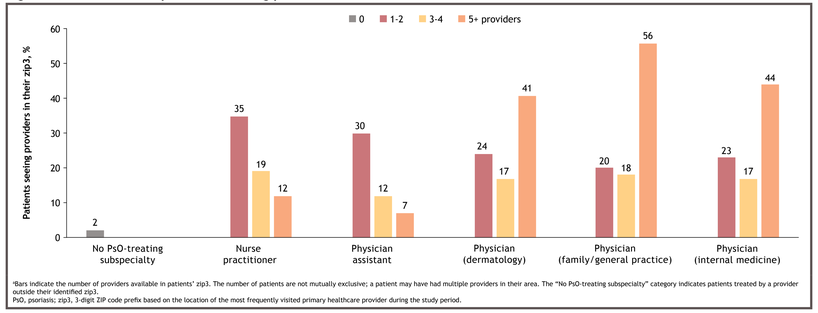
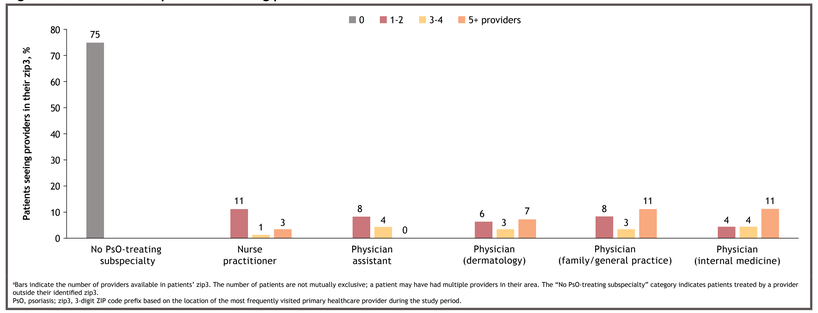


Figure 2. Distribution of psoriasis-treating providers in urban areas[a]



[a]Bars indicate the number of providers available in patients' zip3. The number of patients are not mutually exclusive; a patient may have had multiple providers in their area. The "No PsO-treating subspecialty" category indicates patients treated by a provider outside their identified zip3.
PsO, psoriasis; zip3, 3-digit ZIP code prefix based on the location of the most frequently visited primary healthcare provider during the study period.

Figure 3. Distribution of psoriasis-treating providers in rural areas[a]



[a]Bars indicate the number of providers available in patients' zip3. The number of patients are not mutually exclusive; a patient may have had multiple providers in their area. The "No PsO-treating subspecialty" category indicates patients treated by a provider outside their identified zip3.
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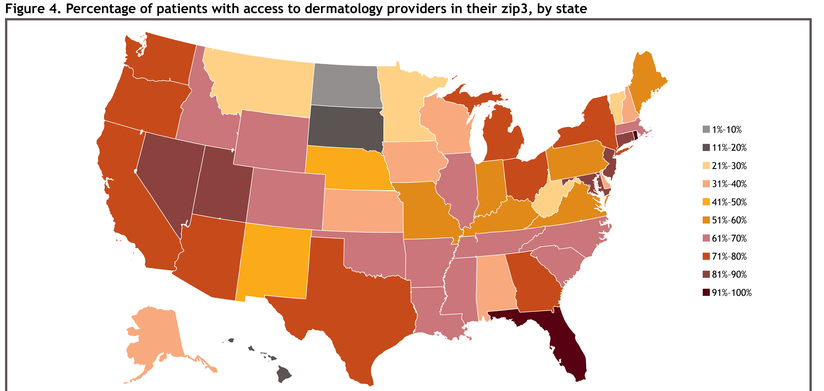
Access to PsO-treating dermatologists across the United States

- The 5 states with the lowest access to dermatologists were North Dakota, Hawaii, South Dakota, Minnesota, and Vermont (**Figure 4**)
  - Fewer than one third of patients in these states had PsO providers within their zip3
- The 5 states with the highest access were Utah, Connecticut, Nevada, Florida, and Rhode Island
  - 87%-96% of patients in these states had a PsO-treating dermatology provider within their zip3
- In all states, a greater proportion of patients received biologics compared with oral therapies
  - Only California had more than 7% of patients receiving oral therapies
  - In 26 states—including Hawaii, South Dakota, and Minnesota, which had the lowest access to PsO-treating providers—more than 10% of patients were receiving biologics
  - Connecticut, Delaware, and Nevada had the highest proportions of patients receiving biologics (ranging from 15.4%-16.8%)

Figure 4. Percentage of patients with access to dermatology providers in their zip3, by state



Zip3, 3-digit ZIP code prefix based on the location of the most frequently visited primary healthcare provider during the study period.

Conclusions

- Geographic disparities in PsO care are evident
  - Patients in rural areas have limited access to PsO-treating providers who prescribe advanced therapies
  - Up to 75% of patients in rural areas seek dermatologic care outside of their zip3 area compared with 2% in urban areas
  - In urban areas, patients likely seek care outside of their zip3 area because of health insurance restrictions
  - A large proportion of patients in rural areas traveled from their zip3 to urban areas, indicating limited access to dermatology specialty care in a large portion of the United States
  - The observed geographic disparities raise the question of whether PsO treatments that are easy to administer (ie, oral therapies) and/or require little to no monitoring would help to alleviate the burden of limited access to PsO-treating providers in rural areas
- Future research will further explore differences in PsO treatment patterns resulting from geographic disparities in specialty care

References

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2. Feng H, et al. *JAMA Dermatol*. 2018;154:1265-1271.
3. Health Resources and Services Administration. https://www.hrsa.gov/rural-health/about-us/what-is-rural.

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