Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
An analysis of internal and regional dermatology matches during the second year of the COVID-19 pandemic: A cross-sectional study

To the Editor: The COVID-19 pandemic has significantly impacted the dermatology residency application process over the past 2 cycles. Our previous analysis of the 2020-2021 match, in which most applicants could not complete away rotations and interviews were virtual, revealed a significant increase in internal matches (40.3%) compared with prepandemic levels (26.7%) (P < .001).1 Updated guidelines released by the Coalition for Physician Accountability and confirmed by dermatology program directors limited away rotations to 1 per student with a home dermatology program for the 2021-2022 cycle.2 This investigation examined the changes in internal and regional matches during this second pandemic match.

Publicly available match lists produced directly from the institution were gathered from allopathic medical schools with associated dermatology residency training programs. The total possible number of programs that met these criteria was 115. A 3-year control was established from 2017 to 2020 (70 schools) to establish baseline internal and regional match percentages. This was compared with the 2021-2022 first pandemic match (66 schools) and 2020-2021 second pandemic match (63 schools). Regions were established via the Association of American Medical Colleges Residency explorer tool.3 Statistical analysis was performed using the χ² test in Excel.

During prepandemic match cycles (2017-2020), 26.7% of dermatology applicants matched to their home institution. There were statistically significant increases in internal matches of 40.3% during the first pandemic match (2020-2021) and 33.5% during the second pandemic match (2021-2022). There were no significant differences in the overall proportion of regional matches across the prepandemic (61.6%), first pandemic (67.5%), and second pandemic (60.1%) matches (Tables I and II).

The cause of this increase in internal matches is likely multifactorial, with 2 large contributors potentially being the lack of in-person interviews and the limited away rotation opportunities. The average number of self-reported dermatology away rotations undertaken by the matched applicants was as high as 2.82 between the prepandemic match years (2016-2018).4 Analyses have established the perceived importance of these experiences and their influence on the rank list decisions for both applicants and programs.5

Although not statistically significant, the decrease in internal matches from 40.3% in the 2020-2021

References

1. Tam I, Yu J. Allergic contact dermatitis in children: recommendations for patch testing. Curr Allergy Asthma Rep. 2020;20(9):1-9. https://doi.org/10.1007/S11882-020-00939-Z
2. Neale H, Garza-Mayers AC, Tam I, Yu J. Pediatric allergic contact dermatitis. Part I: clinical features and common contact allergens in children. J Am Acad Dermatol. 2021;84(2):235-244. https://doi.org/10.1016/J.JAAD.2020.11.002
3. Schalock PC, Dunnick CA, Nedorost S, et al. American Contact Dermatitis Society core allergen series: 2020 update. Derma- titis. 2020;31(5):279-282. https://doi.org/10.1097/DER.0000000000000621
4. Rick JW, Morgan A, De DR, Hsiao JL, Shi VY. Allergens, marketing claims, and affordability of the most popular baby moisturizers. J Am Acad Dermatol. 2022. https://doi.org/10.1016/j.jaad.2022.04.034
5. Xu S, Kwa M, Lohman ME, Evers-Meltzer R, Silverberg JI. Consumer preferences, product characteristics, and potentially allergenic ingredients in best-selling moisturizers. JAMA Dermatology. 2017;153(11):1099-1105. https://doi.org/10.1001/jamadermatol.2017.3046
cycle to 33.5% in the 2021-2022 cycle could be a result of applicants having the ability to perform 1 away rotation. If the analysis of the upcoming 2022-2023 match cycle, with normal away rotation opportunities, shows the internal match rate reverting to the baseline, then this would support the notion that away rotations have the highest impact, whereas a persistently high internal match rate would support that other factors, such as virtual interviews, are still contributing. Persistently high levels of internal matches also create an even greater barrier to matching for medical students without a home dermatology residency program. These trends are very important to track as these data will help leaders in dermatology better understand the factors related to the pandemic that influence match patterns. The limitations of this study include that the data set only captures about 57% of medical school match lists and the inability to determine how many students match to programs they completed away rotations at.

Table I. Comparison of internal and regional matches among the baseline prepandemic match cycle (2017-2020) and the second pandemic match cycle (2021-2022)*

|                      | Baseline match (2017-2020) | Second pandemic match (2021-2022) | P value |
|----------------------|----------------------------|-----------------------------------|---------|
| Regional matches     | 61.6% (394/639)            | 60.2% (160/266)                   | .671    |
| Internal matches     | 26.7% (171/641)            | 33.5% (89/266)                    | .039†   |
| East                 | 27.5% (53/193)             | 38.7% (29/75)                     | .073    |
| South                | 29.5% (67/227)             | 25.3% (20/79)                     | .476    |
| Central              | 23.0% (40/174)             | 31.3% (25/80)                     | .161    |
| West                 | 21.3% (10/47)              | 46.9% (15/32)                     | .016†   |

*There was a significant increase between the baseline internal match percentage of 26.7% and the second pandemic match cycle of 33.5% (P = .039). There was also a significant increase in the West subgroup (P = .016).
†Significance is defined at P < .05.

Table II. Comparison of internal and regional matches among the first pandemic match cycle (2020-2021) and the second pandemic match cycle (2021-2022)*

|                      | First pandemic match (2020-2021) | Second pandemic match (2021-2022) | P value |
|----------------------|-----------------------------------|-----------------------------------|---------|
| Regional matches     | 67.5% (156/231)                   | 60.2% (160/266)                   | .088    |
| Internal matches     | 40.3% (93/231)                    | 33.5% (89/266)                    | .116    |
| East                 | 31.7% (19/60)                     | 38.7% (29/75)                     | .398    |
| South                | 42.2% (38/90)                     | 25.3% (20/79)                     | .021†   |
| Central              | 45.2% (28/62)                     | 31.3% (25/80)                     | .089    |
| West                 | 42.1% (8/19)                      | 46.9% (15/32)                     | .741    |

*There was no significant difference between internal matches in the first and second pandemic matches (P = .116). There was also a significant decrease in the South subgroup (P = .021).
†Significance is defined at P < .05.

Travis S. Dowdle, BS,a Michael P. Ryan, MD,b Michelle B. Tarbox, MD,c and Richard F. Wagner, MDd

From the School of Medicine,a and Department of Dermatology, Texas Tech University Health Sciences Center, Lubbock, Texas; Department of Dermatology, University of Texas Health Science Center at Houston, Houston, Texas; and Department of Dermatology, University of Texas Medical Branch, Galveston, Texas.d

Funding sources: None.

IRB approval status: Exempt.

Key words: COVID-19 pandemic; geographic match; internal match; regional match; residency match.

Reprints not available from the authors.

Correspondence to: Travis S. Dowdle, BS, School of Medicine, Texas Tech University Health Sciences Center, Lubbock, Texas 79430.
Greater rosacea severity correlates with greater adherence and improvement in a clinical study

To the Editor: Rosacea is a common skin condition often treated with topical medications such as ivermectin.1 However, adherence to topical medication can be poor.2 Identification of patients at risk for poor adherence may allow physicians to implement practical methods to better manage patients’ disease and to improve clinical outcomes.3 There is limited literature assessing how initial disease severity is related to adherence. We assessed whether objective baseline rosacea severity correlates with medication adherence.

Thirty adult subjects with a clinical diagnosis of rosacea were recruited from the Atrium Health Wake Forest Baptist Department of Dermatology clinics after obtaining institutional review board approval (IRB00062694). The subjects received ivermectin cream 1% to use once daily for 3 months. The subjects were followed at baseline and at a 3-month follow-up visit. Adherence was measured using the medication event monitoring system cap, an electronic device that records the time and date of cap removal.1 Disease severity was assessed using the Investigator’s Global Assessment (IGA) of rosacea (Table I). Three subjects were excluded (2 were lost to follow-up and 1 failed to follow protocol). Data were stratified on the basis of subject baseline IGA scores of ≤2 and ≥3. Differences in group comparisons by mean score were analyzed with the Student t test and by percent adherence with the χ² test using the SAS statistical software 9.4 (SAS Institute Inc).

The mean age of the subjects was 62 years, 93% were Caucasian, and 70% were women. The mean adherence was 62% over the 3-month study period (month 1: 78%, month 2: 57%, and month 3: 49%). At baseline, the mean IGA was 2.4, and at the 3-month follow-up, the mean IGA was 1.3 (P < .00001). At baseline, the subjects with less severe disease had lower adherence (48%) than those with more severe disease (73%, P = .02). Moreover, the subjects with more severe disease remained more adherent over the 3-month study period (month 1: 77%, month 2: 69%, and month 3: 70%), compared with subjects with less severe disease (month 1: 78%, month 2: 45%, and month 3: 27%; P = .002). The mean change in the IGA score from baseline to follow-up was lower (−0.50) in subjects with less severe disease than in those with more severe disease (−1.61, P = .002) (Table II).

In our cohort, subjects with more severe disease were more adherent compared with those with less severe disease. However, poor adherence (<80%) was common, even in subjects with severe disease.5 Moreover, subjects with less severe disease at baseline did not improve as much as those with more severe disease after 3 months of treatment. Although subjects with less severe disease may have responded less to topical ivermectin, subjects with less severe rosacea were also markedly less adherent at months 2 and 3 of treatment. Patients with less severe rosacea may be prone to poor adherence, and this may be due in part to less motivation to treat mild disease compared to more severe disease.

Table I. Investigator’s Global Assessment of rosacea

| Score | Grade | Description |
|-------|-------|-------------|
| 0     | Clear | No inflammatory lesions present, no erythema |
| 1     | Almost clear | Very few small papules/pustules present, very mild erythema |
| 2     | Mild | Few small papules/pustules, mild erythema |
| 3     | Moderate | Several small or large papules/pustules, moderate erythema |
| 4     | Severe | Numerous small and/or large papules/pustules, severe erythema |

https://doi.org/10.1016/j.jaad.2022.04.036