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.

Impact of COVID-19 on Dermatology Residency

Sara Samimi, MD[a,*], Juliana Choi, MD, PhD[a], Ilana S. Rosman, MD[b], Misha Rosenbach, MD[a]

KEYWORDS

• COVID-19 • Education • Wellness • Clinical experiences • Safety • Residency

KEY POINTS

- The pandemic declaration by the Accreditation Council for Graduate Medical Education (ACGME) redefined expectations of programs and approach to residency training.
- Graduate Medical Education (GME) programs shifted their didactics to virtual platforms, given in-person limitations.
- Clinical experiences were altered due to COVID-19-related clinical care, use of telemedicine, and changes in patient volumes.
- The pandemic brought a new focus and emphasis on trainee wellness and safety.
- The future of dermatology remains bright, but with new considerations in order to support our trainees during these evolving times.

INTRODUCTION

The COVID-19 pandemic challenged the world to navigate a new normal state. Residency and fellowship programs across the country faced many obstacles, including flexing trainees into new patient care roles, short staffing due to illness or quarantine, increased workloads, shifting responsibilities outside of work, and altered educational experiences. Many trainees were put in unfamiliar environments, including redeployment to provide care outside of their area of expertise.[1] For dermatology residents specifically, many felt uncomfortable being thrust into less familiar clinical roles.[2] Early in the pandemic, different parts of the country were discrepantly affected with surges in COVID-19 rates and strains on healthcare systems. In a survey from April 2020 by Li and colleagues, 18% of programs that responded had experienced reassignments to nondermatological healthcare activities,[2] as compared to 32% during the same time from Shaw and colleagues with a concentration of respondents in the Northeast, an early epicenter of the pandemic.[3] The majority redeployed served on inpatient wards (76%) with more than half volunteering (51.9%).

On March 13, 2020, the Accreditation Council for Graduate Medical Education (ACGME) cancelled all site visits, including accreditation visits and clinical learning environment reviews. The ACGME took unprecedented steps to adjust program requirements in response to the increased demands within local institutions to care for patients with COVID-19. On March 24, 2020, the ACGME issued a modified framework for how graduate medical education (GME) can effectively operate. Three stages were defined along a continuum: "business as usual," increased clinical demands, and pandemic emergency status[4] (**Table 1**). Graduate medical education committees (GMECs) across the country worked to define needs at their institutions and request modified status when necessary.[5] Notably, the extent and timing of pandemic-associated effects on healthcare systems, education, and local restrictions and laws varied by state, region, and setting (eg, urban vs rural), leading to disparate impacts on trainees across the country.

[a] University of Pennsylvania, 3400 Civic Center Boulevard, Philadelphia, PA 19104, USA; [b] Washington University, 660 South Euclid Avenue, CB 8118, Saint Louis, MO 63110, USA
* Corresponding author.
E-mail address: Sara.samimi@pennmedicine.upenn.edu

Dermatol Clin 39 (2021) 609–618
https://doi.org/10.1016/j.det.2021.05.002

Table 1
Modified framework for how graduate medical education (GME) can effectively operate

	Stage 1: "Business as Usual"	Stage 2: Increased Clinical Demands Guidance	Stage 3: Pandemic Emergency Status Guidance
Definition	No significant disruption of patient care and educational activities; planning underway for increased demands	Some residents/fellows need to shift to patient care duties; some educational activities are suspended	Most or all residents/fellows need to shift to patient care; majority of educational activities are suspended
Requirements in effect	Governed by the common and specific program requirements	Governed by the common and specific program requirements and variances; see https://acgme.org/Stage-2-Increased-Clinical-Demands-Guidance	Governed by 4 overriding requirements: work hour limit requirements, resources and training requirements, supervision requirements, fellows allowed to function in core specialty
Flexibility	ACGME activities suspended: site visits, self-study, ACGME surveys. Telemedicine requirements in effect	Stage 1 plus variances (see above) on the following: fellows working as attendings; residents/fellows reassigned, fail to accrue required minimums, graduation; educational program changes; review committee evaluation of disruptions	Stages 1 and 2 plus specialty-specific requirements waived
ACGME notification			Sponsoring institutions can declare pandemic emergency status; contact institutional review committee executive director

Adapted from Accreditation Council for Graduate Medical Education. Three Stages of GME During the COVID-19 Pandemic. https://acgme.org/COVID-19/Three-Stages-of-GMEDuring-the-COVID-19-Pandemic.

The COVID-19 pandemic has impacted dermatology residency programs on an acute and chronic time scale. The acute effects were highlighted by abrupt changes to educational experiences to align with virtual learning, and altered clinical experiences—including changed rotations, implementation of teledermatology and virtual visits, and a reduction in patient volumes, in addition to potential redeployment outside of dermatology. The chronic effects include impact on mental health/wellness and their future careers. In this article, we attempt to tackle some of these effects through evidence in the literature as well as our own institutional experiences.

IMPACT ON EDUCATION

COVID-19 forced a complete paradigm shift in medical education, embracing new models of learning and exposing unforeseen educational opportunities in and out of dermatology.[6] As of April 2020, 90% of dermatology residents felt that their education was negatively impacted by COVID-19, though 92% still believed that remote learning was

useful.[2] Notably, the perceived negative impact on education improved over time, with follow-up surveys as the pandemic progressed (surveyed May–July 2020) suggesting 59% of dermatology residents felt their didactics were negatively impacted.[7]

Learning Outside of Dermatology

Given demands across institutions to care for acutely ill patients, trainees have had to refocus on knowledge outside of their chosen disciplines.[6] In parallel, educational resources were developed to support the ability of trainees outside of medicine to flex into direct patient care roles.[8] At our institutions, the University of Pennsylvania (UPenn) and Washington University in St. Louis (WashU), electronic resources were created to facilitate learning for trainees redeployed outside of their specialty on how to care for patients on internal medicine floors and in the emergency department. At UPenn, an institution-specific COVID-19 learning homepage was created to collate carefully composed materials to support trainees flexing into new patient care roles. At WashU, a shared online folder was created to centrally house resources that residents could access. During this past year, trainees have not only had to continue in-depth learning in dermatology to facilitate certification exams, but have also had to be facile and up to date in caring for COVID-19 patients as an internist should the need arise.

Virtual Learning

Given the risk of presymptomatic spread of COVID-19, residency programs have adjusted their didactics to virtual platforms. A survey from May to July 2020 demonstrated that over 90% of dermatology residents reported having virtual didactics.[7] Of note, the majority of respondents were in the Northeast governed by stay-at-home orders. At our institutions (University of Pennsylvania [UPenn] and Washington University [WashU]), starting in March 2020, we adopted a virtual classroom. We adjusted other learning opportunities to be virtual when possible, including clinicopathologic conferences and our weekly live patient grand rounds, which shifted to clinical images rather than in-person patients. We encouraged those engaged in educating residents to use ancillary tools to augment participation, such as audience response systems and in-lecture quizzes and polls, to make sure residents were able to participate actively, even when physically separate.

Some learning experiences are more challenging in a virtual setting. These include dermatopathology and dermatologic surgery. We (at UPenn and WashU) shifted dermatopathology teaching, signout, and consensus conferences into experiences that could be streamed online. Slides were put on the scope and captured via an image viewer to allow for virtual live streaming. For procedural dermatology, UPenn also transiently shifted to virtual experiences with home kits with virtual oversight, where our procedural dermatology group would either review live, virtual sessions with the residents practicing surgical techniques, or the residents would record themselves for asynchronous review. Over time, as the pandemic case counts improved in the summer of 2020, we resumed in-person procedural sessions, but continued a virtual component. During in-person procedural sessions, including lasers, neurotoxin, and filler injections, we limited the number of on-site residents, but continued streaming the procedure sessions online for all residents to observe. Although there are challenges in clarity of images and lack of parallel hands-on experience, this allowed for a safer means of educating all residents on necessary procedures. All residents have had the opportunity to participate in hands-on sessions, but in smaller, socially distanced controlled groups of limited size.

The transition to virtual learning created unexpected challenges, including the need to carefully vet all images for any personal health identifiers (PHIs) and ensure that all platforms utilized for virtual education were HIPAA compliant and secure. Another unforeseen challenge of a push toward digital learning was a proliferation of online courses, educational videos, and conferences. Many of these were marketed directly to residents, some with unclear quality of educational content and obscured potential conflicts of interest. While having a multitude of resources has allowed for enhanced access to learning materials, we have witnessed information overload and digital fatigue in our own trainees.

Board Eligibility and Certification

Many residents expressed uncertainty at their ability to obtain the knowledge needed to pass their boards, and the potential impact time away from dermatology would have on their ability to graduate. The American Board of Dermatology (ABD) has strict criteria regarding training program structure and weeks away (vacation, maternity leave, illness). Notably, during the pandemic, some residents were exposed to SARS-CoV-2 and required to quarantine or isolate if infected. The ABD issued a statement on March 6th recognizing the very

significant impact of COVID-19 on dermatology resident education.[9] They noted that time residents spent in mandated COVID-19 quarantine would be counted as clinical education if they could still work within their programs to have independent structured academic time.[9]

Additionally, for many residents graduating in July 2020, the pandemic limited their exposure to educational conferences, review courses, and in-person group studying. In March 2020, the American Academy of Dermatology (AAD) winter conference was cancelled.[10] This resulted in residents missing courses that are often viewed as high-yield content for board review, or opportunities for residents to round out their education with topics and content that is less well represented at their home institution. Some programs supported participation of their residents in virtual board reviews sponsored by other institutions and paid for resident access to question banks to bridge the gap. As a result, the boards became a rising source of anxiety and uncertainty. Initially there was uncertainty about whether the board exam would be held in person. Eventually, the date of the certification exam was adjusted from July to October, and transitioned to a completely virtual exam at testing sites across the country.

IMPACT ON CLINICAL EXPERIENCES

Redeployment of Dermatology Trainees

For some residents, the peak of the COVID-19 pandemic meant an abrupt shift to nondermatologic care in order to support the efforts of their respective health systems.[1] This shift translated to rotating through the intensive care unit (ICU), medicine floors, emergency departments (EDs), COVID-19 tents, or doing COVID-19 results management. However, as trainees have flexed in and out of their designated specialties, there has undoubtedly been a shift also in their dermatology-specific clinical experiences.

Changes in Volume and Procedural Experiences

At the start of the pandemic, dermatology practices had an abrupt, but necessary, decrease in their clinical volumes,[11] with up to a two-thirds drop in the number of outpatient visits.[7] While these shifts have been transient and dependent on case positivity rate, they continue to pose a challenge in ensuring adequate exposure to clinical experiences for trainees. At our institutions (UPenn and WashU), starting in March 2020, most visits were triaged to allow urgent, acute in-person visits, while other visits types were encouraged to be managed virtually, with the exception of necessary biopsies or procedures for malignancies that could not be delayed. Cosmetic procedures were subsequently put on hold in most places across the country. Procedural volume, as a result, notably decreased and/or stopped during that period. In combination with intermittent, state-by-state mediated suspension of elective procedures, trainees collectively have had altered, skewed, and/or reduced surgical experiences.[12] While volumes have now ramped back up, given the abrupt halt at the start of the pandemic, the cumulative experiences of some residents may be less. A lingering concern for these volume shifts is the ability to meet ACGME case log minimums, especially at smaller programs with lower prepandemic volumes and for less common procedures.

A reduction in procedural volume is especially important for new residents for whom hands-on practice and oversight is key for surgical safety. At our institution (UPenn), we distributed take-home surgical kits, had virtual oversight of common procedure types via live-streaming and recorded video observations, held in-person practice sessions in large open spaces with limited numbers of participants (divided groups), and prioritized hands-on experiences for first years (paired with senior "buddies") for low exposure risk surgical procedures. We (at UPenn and WashU) also secured COVID-19 testing for patients coming in for higher risk procedures to limit exposure risk, such as lengthy surgeries or cases on the head and neck, which may require patient mask removal.

Embracing Telemedicine

At the start of this global crisis, many dermatology programs and practices shifted to telemedicine to limit in-person exposures, conserve critical supplies of personal protective equipment (PPE), and reduce disease transmission according to guidelines issued by the Centers for Disease Control and Prevention (CDC) and the American Academy of Dermatology (AAD).[13] As a result, trainees have engaged in more telemedicine experiences through both synchronous and asynchronous care.[7] E-visits and e-consults using "store and forward" technology and live video virtual visits have increased dermatologic access during the pandemic for patients, while also enhancing educational exposure for trainees.[14] Trainees are able to delve into the clinical case, mirroring the flow of an in-person clinic, before presenting their differential and plan to the staff attending.[15,16] Trainees enter a virtual visit, obtain the history, and perform a clinical exam, whether it be by review of photographs submitted or video

demonstration of the affected area(s). Then they are able to pause the visit to present their findings and assessment/plan to the attending. Subsequently, both the trainee and attending are able to enter back into the virtual visit to offer feedback to the patient and complete the visit.

Additionally, during the pandemic, numbers of persons under investigation (PUI), COVID-19-positive patients in the ED and admitted to the hospital have waxed and waned, leading to potential increased risk of exposure to hospital personnel. Inpatient dermatologists are a part of that at-risk group, and as a result, consideration of telemedicine to triage dermatologic care and increase access in the inpatient setting is also paramount.[17] Implementation of telemedicine in the inpatient setting also allows for conservation of critical PPE. Trinidad and colleagues highlight an algorithm to: prioritize the use of telemedicine consultation to minimize risk of COVID-19 exposure to patients and consulting dermatologists; identify high-risk patients; limit use of resources for low-risk patients; and provide a framework for outpatient dermatologists to use in the setting of an inpatient consult.[18] Algorithms like this are key to continue to champion both patient care and trainee safety in a pandemic setting.

SPOTLIGHT ON SAFETY

Now more than ever, the pandemic has put a spotlight on safety. Bringing attention to these issues remains integral to ensuring the safety of our trainees within dermatology and health systems as a whole.

Access to Personal Protective Equipment

In a survey by Stewart and colleagues, the majority of dermatology residents reported a hospital shortage of PPE, while only 74.5% felt that they had adequate PPE to perform their duties.[7] Similarly, when the dermatology program director listserv was surveyed, the responses were highly variable, ranging from no access to N95s to use of N95s with every dermatology patient. Even in those cases, most N95s were extensively reused. This highlights the need for institutions to continue to advocate for adequate PPE for trainees and suggests a national approach to this continued shortage is needed.

Dermatology residents are exposed to high-risk outpatient procedures, and PUIs and COVID-19-positive patients in the inpatient setting, but also potential high-risk exposures in the outpatient setting through procedures and evaluations around the nose and mouth for prolonged periods of time. Not only should there readily be access to PPE (N95s, surgical masks, eye protection, powered air-purifying respirators), there should also be access to fit testing, and educational resources to ensure appropriate donning and doffing of protective gear. These resources should be available at all trainee practice sites.[19] Additionally, some institutions have developed guidelines for limiting exposure of trainees to COVID-19-positive patients in the inpatient setting to promote safety and to conserve PPE.[18]

Symptom Reporting and Testing

While transmission at the workplace is relatively low with universal masking, shared spaces—particularly during meals—can lead to risk of transmission at work. Programs have had to adapt existing spaces and rotations to ensure trainees have safe locations, preferably outdoors, or isolated singly, to eat and drink during the day. Community positivity rates have varied greatly over the course of the COVID-19 pandemic, and trainees remain at risk both at work, and outside of work. As such, residents should be encouraged to report their symptoms and to stay out of work with any concerning symptoms until further evaluation. Careful planning is required by programs to provide coverage for residents following an exposure, while they quarantine, or to isolate after a positive test. CDC guidelines have evolved during the course of the pandemic, and state or institutional guidance may vary, but trainees should be supported if they require time away after an exposure. Directly linked with that is access to and knowledge about institution-specific policies for COVID-19 testing and ensuring access for trainees to get testing done when appropriate.[19] How vaccine status may affect these policies remains unknown.

Access to the COVID-19 Vaccine

As of December 2020, the CDC updated their recommendations for access of healthcare personnel to the COVID-19 vaccine.[20] Based on recommendations by the Advisory Committee on Immunization Practices (ACIP), the CDC advised that healthcare professionals be offered the COVID-19 vaccine first. Trainees comprise a critical mass of personnel at risk. However, the methodology behind vaccine roll outs has differed by institution. In some cases, as at Stanford, a well-intended algorithm to identify those on the front lines only included seven out of 1300 trainees.[21] While this was ultimately remedied, it highlights the importance of institutions identifying those at risk to make sure there is appropriate access to the vaccine.

IMPACT ON WELLNESS

In recent years there has been increased awareness surrounding physician wellness. The ACGME has recognized its importance and subsequently placed greater emphasis on trainee wellness. This has been particularly important in dermatology, as our field has seen one of the largest increases in rates of burnout compared to other specialties.[22] COVID-19 has only accelerated the need to address wellness.

What Is Physician Wellness?

The answer is multifaceted and previously largely focused on negative mental aspects including burnout, depression, and emotional exhaustion. More recently there has been a shift in focus toward more positive aspects such as overall quality of life and work–life balance. In an attempt to synthesize the definition of physician wellness, Brady and colleagues conducted a systematic review of the literature.[23] They proposed defining physician wellness as "quality of life, which includes the absence of ill-being and the presence of positive physical, mental, social, and integrated well-being experienced in connection with activities and environments that allow physicians to develop their full potentials across personal and work-life domains."[23]

Stressors on Trainee Wellness

Wellness is different for each trainee. While dermatology trainees are not as commonly stressed, for example, by long overnight shifts and disrupted sleep, they have their own unique stressors, such as learning a new vocabulary, adjusting to seeing higher patient volumes in an outpatient setting, and needing to spend large amounts of nonclinic time to independently study less common diseases with dermatologic manifestations. COVID-19 has magnified these stressors. The decrease in outpatient clinic volumes including surgical procedures, the transition to telemedicine for outpatients as well as some inpatients, and redeployment to nondermatology services has led many trainees feeling as though their clinical training has been negatively impacted by COVID-19.[7] For incoming trainees there is the additional stress of adjusting to a new city and new job while being socially isolated. For upper level trainees there is heightened anxiety related to the uncertainties surrounding the board certification exam as well as obtaining fellowship positions and future employment.[24] For some there is also the added stress of starting a family and experiencing pregnancy during a pandemic or having childcare issues due to school closures and possible COVID-19 exposures. And there have also been trainees who have needed to care for COVID-19-positive patients or family members, had sick family that they were unable to visit, or have even experienced loss of patients or loved ones from COVID-19. Some of these stressors have disproportionately fallen upon female trainees in the setting of a further dwindled support network during COVID-19.[25]

Furthermore, the pandemic has led to many restrictions across state lines, quarantine requirements, and institutional travel bans. As a result, many trainees have found themselves completely isolated and/or socially distanced from their typical support networks. In conjunction, many have experienced chronic anxiety around the uncertainty of the state of the world and where their expertise may be requested or required. Dermatology residents across the country, especially in certain hot spots, have had to transition onto medicine floors, intensive care units, and emergency rooms, putting them on the true frontlines of COVID-19 care. Additionally, for many, the social and celebratory aspects of residency were altered with reduced in-person gatherings, cancellation of graduation, and muted welcoming events for incoming first years. The discordance of what they expected their residency trajectory would be and their current reality further drives their anxiety and depression. As a result, mental health and wellness, more so than ever, need to be at the forefront of all residency programs, including dermatology.

Need for Action

At UPenn and WashU, preexisting institutional wellness initiatives have grown during COVID-19 to help combat some of the deleterious effects of this pandemic on wellness. Dedicated wellness websites are accessible to all trainees and include resources for self-care, family care, gratitude, as well as basic and life essentials including support for food, housing, and childcare. Additional institutional resources include free and confidential mental health counseling, virtual sessions to improve coping and resilience strategies, as well as group sessions on mindfulness and more. Furthermore, at the program level, we have been able to convert many wellness-related activities to virtual platforms or socially distanced events including an annual resident wellness retreat and monthly curated wellness activities (at UPenn). At WashU, we also formed "family groups," each comprised of a resident from each class and a faculty member to provide additional peer support

and opportunities for social interactions outside of work.

In challenging times, clear and transparent communication from program leadership is critical to address trainee concerns, sustain relationships, and promote wellness. In the study by Li and colleagues, 22% of residents felt their program was not transparent in providing updates on COVID-19 impacts.[2] At UPenn and WashU, we implemented weekly virtual meetings with all trainees to ensure real-time information dissemination, validation of fears and concerns, and an open forum for discussion. Important faculty–trainee relationships have been further strengthened during this time by continued mentorship through digital platforms.

IMPACT ON CAREERS

The effects of COVID-19 on dermatology residents and their experiences have not only impacted their current state, but also their future career paths. With recommendations across health systems to remain grounded, away rotations, electives, and mentorship experiences were put on temporary hold. Many residents lost the opportunity to spend time with individuals who may have otherwise helped further shape their career or guide their decisions as to their areas of focus. Those who were awarded society mentorship grants opted to delay those experiences with the hopes that restrictions, and the pandemic itself, would not be long lasting.

Dermatology is a small world, allowing for connections forged across all academic and practice settings. These connections have been consistently strengthened by networking at various conferences, including the annual meeting of the AAD. While many meetings have been held virtually, residents are not able to get to know leaders in the field, potential mentors, and potential employers in the same way that an intimate conversation in person can bring.

While there is no shortage of qualified dermatology residents continuing to graduate from residency programs, hiring freezes at institutions and private practices are in place as a result of the financial strains imposed by the pandemic. This has likely shifted how residents have approached their job search, adjusted their expectations, and prioritized their career goals. The full impact of this is yet to be seen.

IMPACT ON RESIDENT RECRUITMENT AND SELECTION

The COVID-19 pandemic significantly disrupted undergraduate medical education (UME) with downstream effects on the UME-to-GME transition. Changes to clinical rotations, grading, and extracurricular activities impacted medical students as they navigated the application process amid the pandemic. Program directors responsible for addressing trainee and program needs were also tasked with reworking resident recruitment processes and counseling students concerned about their applications. With the pandemic entering its second year, it is clear there will be far-reaching consequences to resident recruitment and selection. Given prepandemic calls to address disparities in the application process, we have a unique opportunity to continue and expand upon COVID-19-related reforms beyond the current crisis.

Changes to Undergraduate Medical Education and the Application Process

Beginning in March 2020, medical schools implemented widespread changes including delayed and canceled rotations, shifts to virtual education, and expanded pass–fail grading. In-person away electives were cancelled, and there were delays or cancellations of United States Medical Licensing Exam (USMLE) Step administration. Pandemic-associated changes to institutional policies and faculty availability led to decreased opportunities for longitudinal service, advocacy, and research projects. These changes conceivably affected specialty choice, letters of recommendation, medical school rankings, and honor society elections, leading to significant impacts on the content and quality of individual applications, particularly in highly competitive specialties such as dermatology.

Continued travel restrictions and limitations to clinical and research activities directly affected the application process. To allow students to complete clinical rotations and acquire letters of recommendation, and to facilitate a comprehensive medical student performance evaluation (MSPE), the Association of American Medical Colleges (AAMC) delayed opening of the Electronic Residency Application Service by 5 weeks, to October 21, 2020. This delay significantly compressed the timeline for application review. Following a national call for virtual interviews, nearly all dermatology programs converted to a remote recruitment process.

Reforms Implemented During the Pandemic

Program directors from the Association of Professors of Dermatology (APD) released two statements to address applicants' concerns in spring 2020, which included recommendations for both applicants and programs.[26] Important recommendations

for programs included: limiting in-person away rotations to applicants without a home dermatology program and creating virtual away experiences; performing holistic application review and considering COVID-19 related changes to individual applications; and conducting all-virtual interviews.[27] Applicants were encouraged to: continue with their application plans despite perceived weaknesses due to COVID-19; and to limit their number of applications and interviews to facilitate holistic review and equitable interview distribution.

While away rotations foster personal connections and facilitate letters of recommendation and research opportunities, financial costs, scheduling conflicts, and limited availability may lead to inequity in the process, hampering efforts to increase diversity in dermatology.[28,29] Programs introduced a variety of virtual options for this application cycle including electives, informational sessions, and participation in virtual didactics. Additionally, an initiative to increase transparency about dermatology residency programs led to guidelines for website information,[30] as well as an accessible Google doc with program-specific information about the application cycle.[31]

The COVID-19 pandemic inspired additional creative opportunities for virtual interaction between programs and applicants. Webinars hosted by national dermatology organizations addressed applicant concerns and offered recommendations on topics ranging from application content, pre- and postinterview communication, preference signaling, and interview etiquette.[32] Social media became both a powerful resource for mentorship and for outreach by dermatology programs, with many expanding their presence on popular platforms such as Twitter and Instagram.

The dual pandemics of COVID-19 and systemic racism unmasked the urgent need to address the lack of diversity in medicine. Holistic application review has been promoted as a means to increase diversity in medicine and shift emphasis away from standardized metrics toward qualities that have become even more critical during the current crisis, such as leadership, commitment to service, and resilience.[29,33,34] The compressed timeline for review challenged PDs to develop manageable but effective holistic review processes. Holistic review featured heavily at this year's Diversity Champions Workshop;[35] guidelines and best practices are currently being developed.

Match Outcomes

As of April 2021, limited data have been released from the National Resident Matching Program (NRMP). Early results suggest that overall match rates for dermatology decreased from prior years, given that the total number of PGY2 positions (478) was relatively stable in 2021 compared to 2020, yet there was an increase in applicants from 699 in 2020 to 734 in 2021.[36,37] Compared to 2020, the match rate for PGY2 dermatology positions decreased for US MD seniors from 78% to 74% and for DO applicants from 57% to 47%.[36,37] More granular data will be released by NRMP later this year and will allow for further analysis of match outcomes and application patterns during this cycle.

Future Directions in Resident Recruitment and Selection

The COVID-19 pandemic accelerated discussions about the resident application process, with increased calls for reform within dermatology and across all specialties.[38,39] Areas of particular interest include: preference signaling mechanisms, application and interview limits, virtual interviewing, increased transparency between programs and applicants, and an honest accounting of how we counsel dermatology hopefuls and weigh certain application parameters such as Step scores, research gap years, and publication numbers. Considerations to optimize the process are critical to address ongoing changes to UME and to create a more equitable and sustainable application process beyond the current crisis.

LOOKING TO THE FUTURE

We have yet to fully understand the long-term impact of COVID-19 on dermatology residency, but we know that we must remain transparent, adaptable, and engaged to ensure the best educational and clinical experiences for our trainees, and to secure a strong future for our specialty. The pandemic is not yet over, as is evidenced by surges in positivity rates across the country as of April 2020, but there is a light in the form of a vaccine. Questions remain regarding the duration of immunity, efficacy against various SARS-CoV-2 variants, and access to vaccines on a global level. That said, for an unknown period of time, as educators, we will need to continue to remain adaptable on shorter time scales given the continued unprecedented time we find ourselves in.

DISCLOSURE

The authors have no relevant commercial or financial conflicts of interest. M. Rosenbach is on the AAD's Ad Hoc COVID-19 task force and I.S. Rosman is the Chair of the APD Program Director

Section Steering Committee. This paper reflects the authors' views.

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