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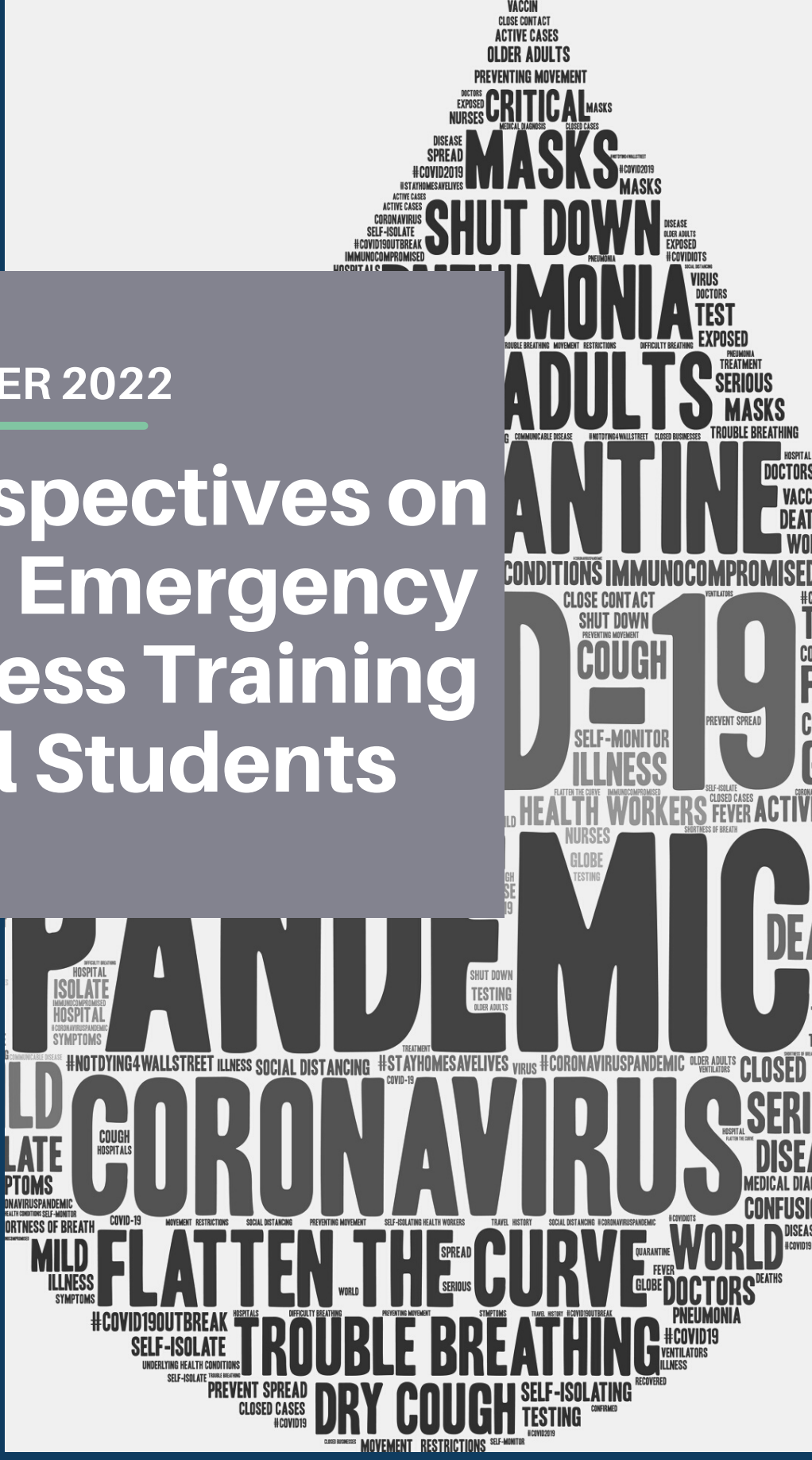
Expert Perspectives on Equity and Emergency Preparedness Training for Medical Students



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ABBREVIATIONS:

EPDR: Emergency preparedness and disaster response

UME: Undergraduate medical education

SDoH: Social determinants of health

MD: Medical Doctor

DO: Doctor of Osteopathy

INTRODUCTION

The COVID-19 pandemic has played out in a predictable pattern in which historically marginalized or under-resourced populations disproportionately experience its harms,[1–4] thus exacerbating inequities created and driven by structural factors. These unequal tolls are not a coincidence, nor do they originate from any biological differences. Rather, they are borne of social and environmental factors (i.e., social determinants of health or SDoH) shaped by upstream structural determinants of health, such as policies, laws, and cultural norms that have a disproportionate negative impact on communities of color.[5,6]

The pandemic demonstrated the crucial role physicians and medical students play in responding to large-scale public health emergencies.[7] Medical students made important and often innovative contributions, from providing childcare for health care workers,[8] to serving as wellness coaches[7], to assisting with COVID-19 vaccinations.[9] They have also seen firsthand the unequal impact of COVID-19 on specific population groups, yet operate within healthcare systems which itself may contribute to those disparities. There is evidence, for example, that symptomatic Black patients were less likely to be referred for COVID testing in the early days of the pandemic, and Black and Hispanic adults are less likely to trust doctors and health care institutions than their white counterparts, a distrust shaped by experiences of discrimination and structural racism.[10,11] Thus, even as clinicians are hailed as heroes for their personal dedication to providing direct patient care during the emergency response, many experience the acute frustration of caring for historically under-resourced communities that have been disproportionately hurt by the pandemic, in part because they have little trust in the health system.

For clinicians and the healthcare system to play a role in acknowledging, addressing, and preventing these injustices in future emergencies, experts maintain that tomorrow's physician workforce must be trained in emergency preparedness and disaster response (EPDR) that is equity-oriented. [12–14] While leaders have developed a health equity framework for EPDR ,[12] there is scant guidance on how to apply the framework in the context of medical education and a lack of clarity on the essential elements this training should entail. The aim of this exploratory study is to shed light on the existing and evolving role of undergraduate medical education (UME) in approaching EPDR with a health equity mindset.

METHODS

STUDY DESIGN

This study seeks to answer two primary research questions: 1) What should medical students be learning about EPDR, as it relates to health equity? and 2) What kinds of educational experiences would allow students to achieve these learning objectives? Given the exploratory nature of the research, study authors employed a qualitative design with in-depth, semi-structured key informant interviews with experts on this topic. The selection strategy for identifying key informants was purposive to obtain input from experts who are uniquely positioned to answer the research questions. Key informants were identified through targeted web searches, a literature review, and referrals from content experts in medical education and public health. Study participation was voluntary, and all key informants were assured anonymity.

Each key informant participated in a single, one-hour interview conducted and recorded over Zoom and facilitated by the lead author using a semi-structured discussion guide. In total, 11 interviews with 12 key informants were conducted for this study (two informants were interviewed jointly). Collectively, informants represented nine institutions or organizations and served in one or more of the following areas: medical education; public health; health equity scholarship; emergency medicine; diversity, equity, or inclusion; and/or emergency preparedness or disaster response.

ANALYSIS

Interview recordings were transcribed verbatim for accuracy, de-identified for subject confidentiality, and uploaded to Dedoose[15] for thematic content analysis. The authors developed a coding scheme using both a deductive and inductive approach,[16] and coded for content related to two major themes: (1) what medical students should learn (i.e., learning content areas), and (2) the types of educational experiences or activities that could facilitate this learning (i.e., pedagogical approaches). Within each of these major categories, sub-themes that captured common opinions among the study population were identified. Two members of the research team (MZ, MK) conducted the coding and thematic content analysis for each interview and resolved any discrepancies through discussion until consensus was reached; another member of the research team (JS) reviewed and refined the coding schema after analysis was conducted to provide an additional measure of reliability.

HUMAN SUBJECTS RESEARCH

The George Washington University IRB ruled this study exempt.

RESULTS

Table 1 shows the dominant sub-themes, descriptions, and sample quotations for the two main themes: learning content areas and pedagogical approaches, which are explored in more detail below.

LEARNING CONTENT AREAS

Four learning content areas to promote equity in EPDR in UME emerged as dominant sub-themes: structural and social determinants of health; community strengths; health systems awareness and integration; and advocacy (Table 1, Theme 1).

Structural and social determinants of health: Interviewees noted that once a disaster has struck a historically under-resourced community, efforts to mitigate its harms can only go so far. For these populations, emergency preparedness - driven by an understanding of and responsiveness to the upstream drivers of health inequities and disparities - should be prioritized. Deepening student awareness of these drivers, i.e. the structural and social determinants of health, was therefore a priority identified by interviewees (Table 1, sub-theme 1.a). They explained that it would facilitate medical students' understanding of "the broader context of what creates health" and why predictable disparities exist in the context of emergencies and disasters, as well as the underlying systems and policies that must be addressed to prevent inequities in the future. Intervening in communities without this deeper understanding, interviewees cautioned, may result in unintended harms that perpetuate health inequities when providers have a "lack of proper awareness or just self-imposed blinders" about root causes of inequities.

Further, interviewees emphasized the need for students to understand that structural and social determinants of health create conditions for under-resourced communities where daily life represents a potential emergency.

> *"A disaster doesn't always mean 13 million infected and 600,000 dead in the United States. A disaster could be as simple as I didn't get my insulin and my blood sugar is 50 today, and I'm really not feeling well. That's a disaster for that patient, for that family."*

This characterization of the ongoing, daily nature of emergencies for some patients and communities should be embedded in what students learn about EPDR, according to interviewees.

Community Strengths: Interviewees cited a need for medical students to develop a deeper awareness of and appreciation for the existing strengths of communities, which some described as a

community's "wealth" or "assets" (Table 1, sub-theme 1.b). These assets include physical resources as well as trusted leaders who can identify and address the high-priority needs of the community.

Interviewees also emphasized the need for the medical system and its practitioners to be instilled with "the fundamental belief that the communities inherently have the power" to plan for and address their needs in the context of EPDR. Acknowledgement of this power and support of a community's effective use of its strengths can in turn facilitate trust-building in EPDR:

> *"I think the foundation for all of this work is community and/or patient engagement, so that the expertise of the folks that historically have been on the short ends of these sticks have a voice and ownership, and the plans and the preparedness and the rapid responses from the get-go. That's how you really demonstrate the kind of trustworthiness that's needed to make these (emergency) responses successful."*

It appears that understanding both what makes a community vulnerable, as described in Theme 1.a., and what makes it strong must go hand-in-hand with an equity-informed approach to EPDR.

Systems awareness and integration: Medical students should understand the broader systems context, including not just the medical system, but also community institutions, local government, public health infrastructure, and laws and policies (Table 1, 1.c). Interviewees noted that a stronger systems awareness would facilitate "learning on how the piece of the health equity puzzle factors into the rest of the work that lives largely outside of the medical care system," as well as an understanding of the multiple components that comprise the emergency management infrastructure, such as state and local health departments.

According to interviewees, medical students need health systems knowledge to combat the notion that health is synonymous with medical care and to understand their role (and that of the medical system's) within a broader systems context, especially in the context of EPDR.

> *"I think there is a parallel set of organizational competencies from that systems approach - how large academic health centers, how hospitals, how healthcare systems interdigitate with social service agencies, with public health, with business development, to ensure that all of those preparedness pieces are in place."*

While interviewees emphasized the need for awareness of the broader systems context of community health, several also cautioned against the medical system's infringement in areas better served by the community, public health, or other systems. To this end, there was strong consensus among interviewees that physicians should be trained to partner with and support existing community and health equity leaders. This belief was especially strong as applied to EPDR, which interviewees stressed should be rooted in a paradigm of physician as partner or supporter, as stated by one emergency management expert:

> *"Students will never run a disaster, but what we need to teach them is how to integrate into a disaster response…And one of the first things that I am to tell a physician, responding to a disaster, you are not in charge. You now need to be a part of a greater response, and you need to integrate yourself."*

Advocacy: Interviewees noted that physicians have an "outsized" voice and powerful platform in the US healthcare system and noted the potential power in their role as a link between the communities they serve and the healthcare system:

> *"We need [future physicians], especially in primary care, who are just as comfortable sitting in a community meeting or a church meeting as they are in a hospital or clinic setting or in a hospital executive committee room, so that they are effective bridges between the communities that we've partnered with, that we're serving, but also advocating and translating those needs in ways that others like hospitals CFOs and CEOs can understand."*

Advocacy knowledge and competencies was thus identified as a priority learning area. (Table 1, subtheme 1.d). Interviewees stressed the need for physician advocacy within the healthcare system that could be harnessed to promote a broader understanding of community needs, the structural factors that contribute to them, and the systems and policy transformations needed to address them, especially in the context of EPDR.

> *"Part of it is defining those right sized roles for individual clinicians around…advocacy, both within communities, but importantly advocacy within their own healthcare systems for the kinds of policies and structural changes that would promote preparedness and equitable responses."*

Interviewees observed that medical student activism in response to racial injustice and health inequity is already evident and expressed optimism in the "young people who are not taking no for an answer." Student activism was identified it as a valuable lever of change for holding schools accountable for promoting health equity in medical education.

> *"Because of the murder of George Floyd, because of the gross inequities in COVID, we have an opportunity because now all the schools have put out statements about racism, about equity. And once you put out a statement, your students are saying, so what next?"*

While interviewees expressed hope in the current cohort of medical students in understanding the importance of advocacy, they noted additional work must be done to bring this message of the importance of advocacy to the medical education system as a whole.

PEDAGOGICAL APPROACHES

Three dominant themes emerged related to pedagogical approaches to facilitate student learning: required community-engaged experiential opportunities; a longitudinal, integrated curriculum emphasizing health equity principles; and having equity role models as teachers (Table 1, Theme 2).

Community-engaged, experiential learning opportunities: There was near consensus among interviewees that engaging with communities through required experiential learning opportunities is essential to achieving the learning aims they identified (Table 1, Sub-theme 2.a). These experiences, interviewees posited, would provide medical students with the most effective opportunity to gain an in-depth understanding of structural and social determinants of health that shape a community's experience of health and to develop relationships with community members. The idea of basing experiential learning on community strengths also echoed a sub-theme of learning content areas, described above.

> *"I would give [medical students] experiential opportunities outside of the classroom working in some way, shape, or form in the community so that they see, one, the impact and that it's real.*

And number two, begin to appreciate the wealth that exists in communities that we can partner with and leverage as we do [emergency] response."

Successful community-engaged experiences were described those that address community-identified needs, are led by or in partnership with community members, and place medical students in a responsive, rather than interventional role. Further, one interviewee specified that community-engaged experiences should "not [be] elective, they need to be requirements."

When engaging with communities, students and practitioners must maintain humility. One professor of community and family medicine emphasized that medical students must approach community engagement *"with the learner's mind,"* going on to state, "One of the key competencies is actually an attitude that we don't know the answer until we listen." Another pointed out the risks of ill-informed attempts at community engagement and suggested adding formal training in it to the UME curriculum:

"…if I could add a class to UME…there are real methods and theories and practice around community and patient engagement…Thinking that you are engaging communities in an authentic, meaningful, humble way, does not necessarily mean that that's received in that way, and in some instances it's worse to do it wrong than to not do it at all."

Interviewees also explained that the classroom and clinic are not sufficient learning environments for achieving health equity learning objectives, with one stating, "We have to be able to speak the language of and be perceived as members of the communities we serve. And you can't do that if you spend all your time sitting inside hospitals or clinics." Some suggested the integration of home visiting programs, stressing that that they allow students to witness first-hand the upstream determinants of health in a way that visiting with patients in the clinic does not:

"That changes perspective for the trainees, when you can see patients in their living environment and almost immediately the disparities will jump out at you. You can see where they live and what's missing in that environment and what they're struggling with."

Longitudinal, integrated health equity curriculum: The need for a longitudinal curriculum integrated throughout medical school emphasizing health equity was a common theme across interviews (Table 1, Sub-theme 2.b).

"When you do health equity work, a standalone lecture is not going to fix the problem. It is not going to change students' minds. This needs to be integrated into undergraduate medical education. This needs to be part of the core competencies, the milestones we expect students to reach for graduation."

Underemphasis of health equity concepts in the UME curriculum reinforces them as "the second language in medicine," as one interviewee stated, referring to how health equity can be presented as an afterthought, or secondary to biomedical content. Another interviewee reinforced the need to normalize health equity in UME:

"… [health equity] should be integrated into the mainstream teaching as the norm. The norm is that it is inequitable – that people show up because they have inequities because they're subjected to a lifetime of microaggressions and weathering and racism and all this other stuff. And that's the way it should be taught. There's not a parallel education track. It's not some extra

thing."

How to integrate health equity into the mainstream UME curriculum was one of the few areas where interviewees expressed divergent views. Some advocated for a complete overhaul of the medical school curriculum, with one medical school faculty member stating a need for a "wholesale top to bottom review of medical education curricular requirements," starting with diverse leadership in UME curriculum design. Other interviewees advocated for more targeted opportunities to integrate health equity into the existing curriculum:

> *"You could have that woven in there, just a couple of slides, each, every few lectures... If it's good medicine, it's like you don't even know you get it."*

This issue of how to incorporate health equity into the curriculum merits further study.

Health Equity Role Models as Teachers: Interviewees argued that medical students should learn about health equity from faculty and other role models fit to teach it and prepared to lead by example (Table 1, Sub-theme 2.c). They proposed recruiting faculty with health equity experience from departments outside of medicine, noting the important role that external faculty can play:

> *"Just by having a student see patients who may be under-insured or uninsured and come from a marginalized background, that's great. That's some exposure, but that doesn't necessarily mean that that student understands the equity implications, that they understand the lived experience of that patient, how their health is going to be impacted because of what's happening in their life. So you should have faculty members who are already trained to facilitate those discussions, to ask those critical questions."*

In addition to recruiting faculty with health equity experience, interviewees also talked about the need to draw upon the wealth of knowledge that exists outside of academia, such as community leaders. These leaders can be harnessed to augment traditional medical school faculty.

Interviewees further noted the need for consistency between what medical students are taught they should value and the real-world practices they observe in the health system, particularly from those who should be serving as clinician role models. At the same time, there was acknowledgement that this consistency is hard to achieve when few medical school faculty have the training or lived experience to teach equity principles. Interviewees pointed out that faculty "blind spots" can serve as barriers to student learning and subsequently stressed the need for faculty development in health equity. One stated: "If I only had one lever or magic wand, I would focus it on faculty development at this point."

Faculty recruitment and development, as well as expanding the definition of teacher beyond traditional medical faculty, has the potential to serve as central component of both what and how students learn about health equity within and outside the context of EPDR.

Table 1. Expert Perspectives on the Promotion of Health Equity in Emergency Preparedness and Disaster Response Training for Undergraduate Medical Students: Summary of Dominant Qualitative Themes

Sub-themes	Descriptor	Illustrative Quote
Theme 1: Learning Content Areas		
a. Structural and social determinants of health	Awareness of the structural and social drivers of health and how those factors shape community needs and susceptibility to the effects of emergencies and disasters	*…the clinician who graduates from medical school needs to, yes, be great at the bedside and know all the science and the diagnostics and the treatment, but also have a very full understanding of culture and the context of social determinants and the impact on an individual patient and thus a population's ability to achieve maximal health.*
b. Community strengths	The unique resources of a community and how they can be leveraged to plan for and respond to emergencies	*Even a community that is living in poverty has wealth. They've got a structure, community organizations, churches, athletic organizations, social organizations, stores, that are run by community members…What are the strengths of a community that need to be leveraged to build an effective response to preparedness for disasters and emergencies recovery?*
c. Health systems Awareness and Integration	An understanding of the broader community health systems context (e.g., local government, public health) and the physician's role within it	*I think you have to expose [medical students] to the structure, particularly around emergency preparedness response. What are the laws and the policies? What is the role of your local health department, your city health department, your state health department, the federal system, and what are clinicians' roles in all of that?*
d. Advocacy	Translating awareness of the determinants of health inequities to actions for change	*Part of it is defining those right sized roles for individual clinicians around…advocacy, both within communities, but importantly advocacy within their own healthcare systems for the kinds of policies and structural changes that would promote preparedness and equitable responses.*
Theme 2: Pedagogical Approaches		
a. Community-engaged, experiential learning opportunities	Opportunities to work with and learn from communities in a way which the community itself defines	*We have to be able to speak the language of and be perceived as members of the communities we serve. And you can't do that if you spend all your time sitting inside hospitals or clinics.*
b. Longitudinal, integrated health equity curriculum	Integrating health equity and public health principles in the existing curriculum and throughout the four years of medical school	*(Health equity) should be integrated within the mainstream teaching as the norm.*
c. Equity role models as teachers	Students learn about health equity from those with lived experience or specialized knowledge of it	*Those folks – the assets in the neighborhood, the primary assets – those are the folks that students should be learning from*

DISCUSSION

In this study, a diverse sample of content experts were interviewed to shed light on what and how undergraduate medical students should be learning about equity in the context of EPDR. The authors observe that a shared aim across the learning content areas and pedagogical approaches identified is the

establishment of a deeper connection between medical students and the community, which interviewees viewed as necessary to anticipate and respond to emergencies with an equity mindset. These findings agree with those suggested by expert committees,[17,18] based on evidence that community-based learning promotes understanding of the social determinants of health,[19] is the most promising strategy for improving medical students' attitudes toward underserved communities,[20] and is associated with eventual practice in high-need areas.[21–24] Interviewees reinforced the value of community-engagement in principle and practice by expanding it as a core element to promoting equitable EPDR.

One area that merits further exploration is whether health equity should serve as a guiding paradigm for UME curriculum or be retrofitted within the existing curriculum. Objections to integrating health equity training focus on the risk it would supplant existing elements of the curriculum or traditional EPDR training,[25] but physician leaders posit that it is not "an 'either/or' scenario", noting that health disparities will continue to be one of the biggest issues affecting patient health outcomes and cost in both emergency and non-emergency times.[26] Based on the interviews, the authors conclude that if the root of the glaring health disparities observed during COVID-19 lies in social and structural factors, emergency preparedness strategies and the training needed to implement them should too. This training would offer the most efficient way to prepare the future physician workforce to approach any emergency – from personal to pandemic – with an equity mindset.

However, evidence suggests that medical schools still need to gain significant ground if many of the themes identified in this study are to be broadly integrated in educational programming. For instance, integrating SDoH throughout medical school training may normalize them as key drivers of health, yet few medical schools teach about them beyond the first year of training,[27] and even then duration and intensity of the exposure to the topic varies greatly.[28] Also, interviewees noted the potential and power of physicians as advocates for the communities they serve, but advocacy is not explicitly mentioned in curricular content standards by the accrediting bodies for MD or DO granting medical schools in the US and is often elective or incomplete when offered.[29–31] Lastly, interviewees stressed the need for medical schools to prioritize community engagement, yet fewer than one-third of medical schools require service learning – presumably the most recognizable opportunity for students to learn about, in and with communities – in the formative pre-clinical years.[32]

Despite the progress that remains to be made, there are strong examples of medical schools across the country demonstrating themes identified in this study. For example, Florida International University maintains a longitudinal, required service-learning program, where medical students are placed in interprofessional teams and paired with a household in a medically underserved community to "prepare socially accountable and culturally sensitive future physicians, while partnering with a network of community agencies to improve the health of medically underserved households."[33] In 2019, the University of Arizona College of Medicine engaged community groups and tribal nations in conducting a large-scale disaster simulation for health professions trainees in a highly diverse and under-resourced community.[34] And the George Washington University's MD program has a required Clinical Public Health curriculum that integrates public health and population health throughout students' four-year education, building students' ability to identify and address community needs and to become clinician advocates.[35]

Lastly, the essential role of students themselves must be acknowledged. They may ultimately be drivers of transformation for the medical education paradigm. They have borne witness to the injustices of COVID-19, multiple natural disasters, and the daily toll of structural racism and are increasingly rising up to tackle them.[36,37]

LIMITATIONS

The authors acknowledge the study's limitations. They only interviewed 12 experts; findings cannot be extrapolated to represent a larger pool of experts in medical education, health equity, or disaster preparedness. However, key informants were intentionally selected based on their deep

expertise in one or more of these areas, and interviews allowed us to reach thematic saturation. As with any qualitative study, the interpretation of content and development of themes was subjective. The authors used a multi-layer review and discussion strategy with all team members to reduce this limitation as much as possible. Despite these limitations, study findings contribute to the literature by adding expert perspectives and guidance on the integration of health equity in EPDR for medical students at a time when both topics are at the forefront of national discourse.

CONCLUSION

Unfortunately, COVID-19 is unlikely to be the only public health emergency or large disaster medical students will respond to in their future careers. Further, interviewees for this study emphasized that medically underserved and under-resourced populations live on the precipice of personal disaster daily due to racism and structural drivers that breed inequity. As one stated, "Every day is an emergency for a marginalized person." For physicians to play a role in narrowing the disparities endemic in society and exacerbated by disasters, medical students should be trained in the upstream determinants that create them and how to translate this awareness to action and advocacy. Findings from this study may aid medical and other health professions schools in creating or adapting training approaches that will prepare trainees for applying an equity mindset to EPDR in the future.

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