Diversity, Equity, Inclusion, and Justice

A Graduate Medical Orientation Intervention Focused on Local Health Inequities

Emily Caldarelli, EdD
Jennifer J. Hess, MD
Eleanor Weaver, MD
Ryan Buckley, MD
Rebecca R. Swan, MD
Julie Schumacher, PhD
Sophia Kostelanetz, MD, MPH
Mario A. Davidson, PhD, MS, MAS, MA
Megan Whitey, C-TAGME
Reena Black, MBA, C-TAGME
Kyla P. Terhune, MD, MBA

ABSTRACT

Background Residents must understand the social drivers of health in the communities they serve to deliver quality care. While resident orientation provides an opportunity to introduce residents to social and structural drivers of health, inequity, and care delivery relevant to the patient population in their new communities, many graduate medical education orientation curricula do not include this content.

Objective To report the development and implementation of a novel, patient-centered health equity orientation curriculum, including initial feasibility and acceptability data as well as preliminary self-reported outcomes.

Methods The curriculum was developed by academic faculty in collaboration with institutional and local health equity champions. Content centered on the history of inequities and racism within the local communities and included didactic presentations, asynchronous video, and virtual site visits to community resource groups. The curriculum was administered to all 2021 incoming Vanderbilt University Medical Center medical and surgical residents (N=270) over 2 half-days, both in-person and via Zoom. Data were collected anonymously via pre- and post-surveys.

Results A total of 216 residents (80% response rate) provided pre-survey response data, but only 138 residents (51.1%) provided post-survey data, including self-reported demographics (eg, underrepresented in medicine status) and level of agreement with 10 competency-based statements coded as pertaining to knowledge, skills, behaviors, or attitudes (KSBAs). Primary outcomes included improvement in residents' KSBAs from pre- to post-survey. The greatest increases in percentages occurred with content that was specific to local history and population.

Conclusions In a class of incoming residents, this study demonstrated feasibility, acceptability, and pre-post curriculum improvement in self-reported KSBAs when addressing health equity issues.

Introduction

Social and structural drivers have a greater impact on health than do health care services.[1] The Institute of Medicine[2] and Association of American Medical Colleges[3] recommend prioritizing curriculum and training for residents to recognize and address health inequities. Strong recommendations have also been issued to address the history of racism and racist practices embedded in our health care system and to develop resident competency in this area to impact the health of our patients.[4-6] Early introduction of conversations around racism and health inequities primes residents to deliver more thoughtful care for individual populations,[7,8] and focusing these conversations on the local community might better equip residents to deliver equitable care that is specific and effective for the patients they will see.

Whereas most residency orientations focus on logistics, resident bonding, and institutional needs, some residency programs have designed orientation around health inequities and community engagement. These have included a week of experiential learning for an obstetrics and gynecology residency, including time in the community and hearing patient stories[9]; an immersion tool for learning social determinants of health (SDOH) inserted into intern orientation[10]; and a 2-day poverty immersion experience in a community residency program.[11] However, we did not find published evidence of similar endeavors involving a curriculum that includes the whole institution or that were specific to the local community and its history.

To address this gap, we developed an orientation curriculum for all incoming residents at a large academic medical center to describe present and historical structural inequities and their impact on patients,

DOI: http://dx.doi.org/10.4300/JGME-D-23-00016.1

Editor's Note: The online version of this article contains further data and the surveys used in the study.

and to identify existing community partners and resources that address those SDOH. We measured the feasibility, acceptability, and preliminary self-reported outcomes.

Methods

Setting and Participants

This was a pre-post study of the 2021 incoming resident class at Vanderbilt University Medical Center (VUMC) as part of an American Medical Association-funded Reimaging Residency Project titled "Goals of Life and Learning Delineated" (GOL^{2}D). The GOL^{2}D curriculum was developed by VUMC academic faculty and is grounded in Kern's 6-step approach, Miller's Prism of Clinical Competence, and Bloom's Taxonomy. A description of the curriculum, including learning objectives, appears in TABLE 1. The study sample comprised 195 residents across 19 specialties.

Interventions

The orientation consisted of 2 half-days of in-person and virtual content. The overarching goal of the orientation was to introduce incoming medical and surgical residents to the community and patients they will serve, and to prime and empower them to screen for and address SDOH.

The first half-day included in-person talks on health equity, the history of racism in Nashville and at VUMC, and institutional efforts to promote racial equity and anti-racism. During the second half-day the residents were divided into 2 groups and participated in an interactive session to introduce general concepts of structural inequities and SDOH over Zoom. See TABLE 1 for additional details on curriculum objectives and content.

Outcomes Measured

To assess the educational impact of the module, we looked at pre- and post-module differences in residents' perceived knowledge, skills, behaviors, and attitudes (KSBAs). Surveys were developed with input from GOL^{2}D faculty. Residents were asked to respond to 10 statements (see TABLE 2) using a 5-point Likert-style response scale ranging from "strongly disagree" to "strongly agree." The instrument also collected demographic data (see online supplementary data), such as underrepresented in medicine (UIM) status (ie, individuals identifying as Black/African American, Hispanic/Latinx, and/or Indigenous American). We collected these data to study potential differences in KSBAs by UIM status to determine if any biases were apparent that might help inform future educational initiatives (see online supplementary data). Study data were collected on the first and second half-days and managed using REDCap electronic data capture tools hosted at Vanderbilt University.

Analysis of the Outcomes

Data were collected anonymously, and pre-post responses could not be linked at the participant level. Descriptive statistics were calculated on demographic drivers and SDOH. Frequencies and percentages were stratified by pre- and post-intervention. Stacked bar graphs were created to assess relations between underrepresented status and SDOH. Chi-square tests were calculated to understand similar associations. Significance was determined at the alpha 0.05 level. All analysis was conducted using SPSS V28.0 (SPSS Inc, Chicago, IL).

VUMC Institutional Review Board (IRB) submission (#220907) was completed. The study did not fit criteria for research, and IRB approval was not required.

Results

We obtained 216 of 270 pre-surveys from incoming residents (80%). A total of 138 residents responded to the post-survey, a response rate of 51.1%. TABLE 1 depicts the difference in agree and strongly agree responses across the 10 competency-based survey statements. Statements are coded as pertaining to knowledge (K), skills (S), behaviors (B), or attitudes (A).

Data were also analyzed by UIM status. There were no significant differences between responses by UIM status at post-curriculum, and Phi ranged from 0.001 to 0.103 indicating a very weak effect. As with the overall findings, the proportion of agree and strongly agree responses increased from pre- to post-module for all respondents. For more detail on analyses, please see online supplementary data.

Acceptability and Feasibility

Acceptability was suggested by responses to 2 post-module qualitative survey items: 68.8% (95 of 138) of participants identified at least one aspect of the curriculum as "most valuable," whereas less than 1% (1 of 138) of participants identified any aspect of the curriculum as "least valuable." The graduate medical education (GME) manager is supported by the GOL^{2}D Grant and had time protected for this work. The GME program manager who was scheduling orientation had minimal change in her job to assist with logistics. Additional faculty volunteered. The community visits were virtual, efficiently utilizing our community partner time and were reimbursed at $150 each hour for non-VUMC partners

TABLE 1
Description and Objectives of Health Equity Curriculum

Activity	Description	Objectives
Half-day 1		
Unidirectional didactic lectures	▪ Lecture 1: Welcome to the institution and organization by the VUMC Associate Dean for Graduate Medical Education ▪ Lecture 2: A history of Black history and racism in Nashville and VUMC by the former Chief Diversity Officer, and Senior Associate Dean for Diversity Affairs ▪ Lecture 3: Prioritizing racial equality and anti-racism in health care by the Vice President and Associate Dean for Health Equity ▪ Lecture 4: "Seeds of Equity," by the Assistant Vice President for Community & Population Health Improvement and Community Health Coordinator	▪ Identify key historical and systemic factors that have contributed to local health inequities ▪ Recognize that addressing patients' social drivers of health is a necessary component of quality health care delivery ▪ Describe current VUMC strategies to address racial inequities
Asynchronous content between sessions		
Asynchronous video	In-depth introduction to the neighborhoods of Nashville, including relevant social determinants of health, presented by VUMC Community Navigator and Vanderbilt Instructor	▪ Recognize the specific neighborhoods of Nashville and their relevant history contributing to social determinants that need addressing
Half-day 2		
Unidirectional didactic lecture	Overview of the VUMC resident guide to addressing patient social determinants of health, presented by VUMC faculty	▪ Describe internal VUMC services and key external community resource organizations available to help address patients' social determinants of health ▪ Practice questions that will uncover social drivers of health ▪ Identify how local resources can be used to address social determinants of health for VUMC patients
Virtual site visits	Representatives from 6 community resource groups provided a virtual tour of their organization followed by a brief question-and-answer session Organizations included: ▪ A state-level public health agency ▪ Nashville area food bank ▪ Grassroots nonprofit focused on issues of poverty and homelessness ▪ A community clinic with a focus on immigrant health ▪ VUMC Clinic for Transgender Health ▪ VUMC outpatient substance use disorder clinic ▪ A community health clinic providing free care to uninsured patients	
Interactive case studies	Hypothetical patient scenarios that were accompanied by 1 to 3 questions prompting residents to incorporate community resources, presented by VUMC faculty Topics included: ▪ Man, aged 57 years, with decompensated heart failure without insurance or medical home ▪ Man, aged 45 years, with diabetes and an infected wound and currently homeless ▪ Boy, aged 7 years, presenting for pneumonia with mother who is Spanish speaking and undocumented	

Abbreviation: VUMC, Vanderbilt University Medical Center.

TABLE 2
Pre- and Post-Survey Difference in Strongly Agree and Agree by Statement

Statement	Pre-Module Survey, n (%); N=216	Post-Module Survey, n (%); N=138	Pre-Post Difference: Agree and Strongly Agree, %
1. I can describe social determinants of health common to the general population (K)	184 (85)	134 (97)	↑12
2. I can describe social determinants of health common to the Vanderbilt University Medical Center patient population (K)	111 (51)	131 (95)	↑44
3. I can identify potential barriers to addressing social determinants of health (S)	183 (85)	131 (95)	↑10
4. I recognize how my own privilege and power affect my clinical practice (S)	182 (84)	133 (96)	↑12
5. I recognize the importance of considering insurance status and other financial/resource constraints when developing a plan of care (S)	169 (78)	131 (95)	↑17
6. I can describe programs and services for addressing social determinants of health, such as access to addiction and mental health care, at Vanderbilt University Medical Center (eg, addiction psychiatry, Bridge Clinic, etc) (S)	73 (34)	125 (91)	↑57
7. I can describe programs and services for addressing social determinants of health, such as food stability, transgender health, and access to affordable, quality care, for external community resources (eg, Shade Tree Clinic, Clinic for Transgender Health, etc) (S)	74 (34)	125 (91)	↑57
8. I am equipped to ask my patients about social and economic factors contributing to their health (B)	146 (68)	130 (94)	↑26
9. All patients deserve the same level of care regardless of their illness (A)	196 (91)	134 (97)	↑6
10. Large institutions, such as hospital systems, have a duty to evaluate the ways in which their practices may lead to health inequities (A)	204 (94)	136 (99)	↑5

Abbreviations: K, knowledge; B, behaviors; S, skills; A, attitudes.

($900 total). Although not formally assessed, the curriculum was sustained over the following 2 years as well as implemented at a partner institution.

Discussion

The results of this curriculum evaluation revealed that it is feasible to deliver an educational intervention focused on the local history of racism and inequality, as well as resources to address these SDOH that results in pre-post change in KSBAs for all incoming residents at a large academic medical center.

These findings are consistent with prior studies that describe addressing SDOH in orientation but take them to a larger scale.[9,11] These findings also suggest that the medical schools represented by the residents who participated in the study are largely providing an adequate foundation in the general principles of SDOH and the attitudes necessary to incorporate these into practice. This foundational knowledge of SDOH allows institutions to move forward with history and tools specific to the local environment rather than focusing on introductory content. Changes in percent agreement for questions 2, 6, and 7 (TABLE 2) demonstrate effective knowledge gain after the curriculum intervention.

Limitations included the lack of a link between pre- and post-responses which limited statistical analyses, and the lack of follow-up to assess durability, recency bias,[12,13] and retention of KSBAs.

Conclusions

This novel, patient-centered health equity intervention for medical and surgical residents was feasible to implement during orientation. We demonstrated

improvement in KSBAs around racism and health equity topics after the intervention for both UIM and non-UIM residents. The greatest knowledge increase was around SDOH specific to VUMC patients and community services available to bring upstream solutions.

References

1. Braveman P, Egerter S, Williams DR. The social determinants of health: coming of age. *Annu Rev Public Health*. 2011;32:381-398. doi:10.1146/annurev-publhealth-031210-101218
2. Institute of Medicine, Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care; Smedley BD, Stith AY, Nelson AR, eds. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. National Academy Press, 2002.
3. Association of American Medical Colleges. Diversity, equity, and inclusion competencies across the learning continuum. Accessed June 7, 2023. https://www.aamc.org/data-reports/report/diversity-equity-and-inclusion-competencies-across-learning-continuum
4. Wilkins CH, Williams M, Kaur K, DeBaun MR. Academic medicine's journey toward racial equity must be grounded in history: recommendations for becoming an antiracist academic medical center. *Acad Med*. 2021;96(11):1507-1512. doi:10.1097/ACM.0000000000004374
5. Siegel J, Coleman DL, James T. Integrating social determinants of health into graduate medical education: a call for action. *Acad Med*. 2018;93(2):159-162. doi:10.1097/ACM.0000000000002054
6. Daniel H, Bornstein SS, Kane GC, et al. Addressing social determinants to improve patient care and promote health equity: an American College of Physicians position paper. *Ann Intern Med*. 2018;168(8):577-578. doi:10.7326/M17-2441
7. Hansen H, Braslow J, Rohrbaugh RM. From cultural to structural competency-training psychiatry residents to act on social determinants of health and institutional racism. *JAMA Psychiatry*. 2018;75(2):117-118. doi:10.1001/jamapsychiatry.2017.3894
8. Noriea AH, Redmond N, Weil RA, Curry WA, Peek ME, Willett LL. Development of a multifaceted health disparities curriculum for medical residents. *Fam Med*. 2017;49(10):796-802.
9. Talati AN, Lappen JR, Bondurant-Sullivan A, Cossler NJ, Wieczorek M, Gecsi KS. Starting health disparities education during resident orientation: our patients, our community. *Obstet Gynecol*. 2018;132(5):1153-1157. doi:10.1097/AOG.0000000000002911
10. Chang AY, Bass TL, Duwell M, et al. The impact of "see the city you serve" field trip: an educational tool for teaching social determinants of health. *J Grad Med Educ*. 2017;9(1):118-122. doi:10.4300/JGME-D-16-00212.1
11. Wallace EA, Miller-Cribbs JE, Duffy FD. An experiential community orientation to improve knowledge and assess resident attitudes toward poor patients. *J Grad Med Educ*. 2013;5(1):119-124. doi:10.4300/JGME-D-12-00015.1
12. Baddeley AD, Hitch G. The recency effect: implicit learning with explicit retrieval? *Mem Cognit*. 1993;21(2):146-155. doi:10.3758/BF03202726
13. Murdock BB Jr. The serial position effect of free recall. *J Experiment Psychol*. 1962;64(5):482-488. doi:10.1037/h0045106

Emily Caldarelli, EdD, is a Doctoral Candidate, Peabody College of Vanderbilt University, and Director of GME Accreditation, Temple University Hospital; **Jennifer J. Hess, MD,** is Assistant Professor, Department of Emergency Medicine, Vanderbilt University Medical Center; **Eleanor Weaver, MD,** is Assistant Professor of Medicine, Vanderbilt University Medical Center; **Ryan Buckley, MD,** is Assistant Professor of Clinical Internal Medicine, Vanderbilt University Medical Center; **Rebecca R. Swan, MD,** is Vice Chair for Education, Department of Pediatrics, and Assistant Dean, Graduate Medical Education, Vanderbilt University Medical Center; **Julie Schumacher, PhD,** is Professor and Vice Chair for Education, Department of Psychiatry and Human Behavior, University of Mississippi Medical Center; **Sophia Kostelanetz, MD, MPH,** is Assistant Clinical Professor and Health Equity Lead, Department of Medicine, One Brooklyn Health, and Associate Program Director in Health Equity, Interfaith Internal Medicine Residency Program, Vanderbilt University School of Medicine; **Mario A. Davidson, PhD, MS, MAS, MA,** is Associate Professor and EDP Director for Classroom Peer Reviews, Department of Biostatistics, Vanderbilt University School of Medicine; **Megan Whitey, C-TAGME,** is Lead Program Manager, Graduate Medical Education, Vanderbilt University Medical Center; **Reena Black, MBA, C-TAGME,** is Senior Program Manager, Graduate Medical Education, Vanderbilt University Medical Center; and **Kyla P. Terhune, MD, MBA,** is Associate Dean for Graduate Medical Education, Vanderbilt School of Medicine.

Funding: The authors report no external funding source for this study.

Conflict of interest: The authors declare they have no competing interests.

Corresponding author: Jennifer J. Hess, MD, Vanderbilt University Medical Center, jennifer.hess@vumc.org, Twitter @VUMCGME

Received January 4, 2023; revision received May 22, 2023; accepted May 30, 2023.