

Antiracist Curriculum Implementation for Pediatric Residents

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ABSTRACT

OBJECTIVES: Racism has been recognized as a public health crisis, with calls for greater focus on antiracism in medical training. We sought to evaluate a longitudinal antiracist curriculum among pediatric residents.

METHODS: In 2020–2021, we delivered seven educational sessions to pediatric trainees in a single residency program. We administered pre-/post-surveys to assess changes in awareness of structural racism, knowledge of health inequities, antiracist clinical skills, and individual/institutional advocacy behaviors. Awareness was measured with 27 Likert-type items spanning five conceptual domains (schools, healthcare, justice system, employment, and housing/transportation). We evaluated knowledge with 18 true/false or multiple-choice questions. Participants indicated comfort with clinical skills using 13 Likert-type items drawn from national toolkits and policy statements. Individual/institutional advocacy behaviors were measured with 14 items from the Antiracism Behavioral Inventory. McNemar or paired Wilcoxon signed-rank tests compared measures before and after implementation.

RESULTS: Out of 121 residents, 79 (65%) completed pre-surveys, 47 (39%) completed post-surveys, and 37 (31%) were eligible for matching across responses. 78% of respondents were female and 68% identified as White. We found significant increases in awareness across several conceptual domains (schools: $p=0.03$; healthcare: $p=0.004$; employment: $p=0.003$; housing/transportation: $p=0.02$). Mean knowledge score increased after implementation ($p=0.03$). Self-reported clinical skills improved significantly ($p<0.001$). Individual advocacy behaviors increased ($p<0.001$); there were no changes in institutional advocacy.

CONCLUSION: We demonstrate improvements in several educational constructs with a novel antiracist curriculum. Efforts to scale and sustain this work are ongoing, and additional teaching and evaluation methodologies may be incorporated in the future.

KEYWORDS: Antiracism, pediatrics, curriculum development, advocacy

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Introduction

The harmful effects of racism on child health are well-established.¹ Indeed, racism has been recognized widely as a public health crisis,² bolstered by calls for dedicated antiracism education in medical training.^{3,4} While existing medical school and residency curricula have incorporated the social determinants of health,^{5–7} implicit bias awareness,^{8,9} and training to address microaggressions,^{10,11} antiracist education necessitates an understanding of historical forms of racial oppression that emboldens learners to dismantle existing structures of power and privilege.¹² An antiracist approach to patient care incorporates awareness of institutional racism, acknowledgment of past injustices, and implementation of antiracist clinical practices.^{13,14} These frameworks require a personal commitment to growth, grounded in a mindset of humility and justice.

In 2020, the murders of Ahmaud Arbery, Breonna Taylor, George Floyd, and numerous additional Black lives catalyzed

institutional responses to racial trauma.^{15,16} While such instances are representative of centuries of discrimination, efforts to promote antiracism in academic medicine have grown only in the last two years. In graduate medical education, antiracist curricula have been successfully implemented among hematology/oncology fellows and child psychiatry trainees.^{17,18} Additional student- and resident-led initiatives have fostered this momentum in other training environments.^{19–21} Online resources have been developed by key professional organizations to further support antiracist pedagogy.²² National data highlight the importance of such work in repairing profound inequities related to racial injustice in healthcare,²³ including persistent gaps in the representation of minoritized groups in medical training.^{24–26} Publication of a Pittsburgh municipal report reaffirmed these disparities at a local level and identified areas for improvement to advance racial equity in our city, spanning domains of health, education, employment, the justice system, and housing and transportation.²⁷



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While there has been increased commitment to antiracist education in graduate medical education, evaluation of curriculum impact continues to evolve. In addition, few antiracist initiatives have focused explicitly on pediatrics,^{19,28,29} and only a subset have examined forms of historical oppression (e.g., mass incarceration, redlining, occupational segregation) outside of the healthcare context.^{17,21,30} To address these gaps, we sought to develop, implement, and evaluate an antiracist curriculum among pediatric trainees, with particular focus on regional data and attention to structural racism across multiple contexts.

Methods

Setting

Our curriculum was implemented during the 2020–2021 academic year at a large pediatric residency program in Pittsburgh, PA. Our institution lacked formal antiracist education at the time; however, all first-year residents completed a community health rotation in which they learned about social influences on health and community-based resources. A special interest group focused on community service and advocacy was also available for trainees. In addition, our program convened a monthly diversity and inclusion committee, which was established in 2015. The present curriculum was piloted in an effort to develop structured mandatory training among pediatric residents with an explicitly antiracist lens, prior to the availability of other resources.

Informed by Kern's 6-step approach to curriculum development,³¹ we developed content after the release of a municipal report regarding racial inequities in our city²⁷ (problem identification) and discussions with program leadership and residents about gaps in training (needs assessment). Our goals were to: develop understanding of historical oppression and structural racism, specifically highlighting regional history and disparities which directly impact the trainees' patient population; promote behaviors to repair inequities in health/healthcare; and enhance antiracist attitudes/practices among pediatric trainees. Five content domains with relevance to pediatrics were selected: schools, healthcare, employment, justice system, and housing/transportation. Curriculum content was developed collaboratively by chief residents and adolescent medicine faculty (authors). Our team had longstanding partnerships with several community members with expertise in these areas, who were invited to speak during selected sessions. To ensure sustainability and translatability, we incorporated the curriculum into protected educational lunch conferences.

Curriculum Structure

The curriculum incorporated one introductory session, five didactic sessions, and one wrap-up session. Sessions were an hour and occurred in a hybrid in-person/virtual format

approximately every other month over the course of one academic year. Didactics drew material from varied multidisciplinary sources. In accordance with Vygotsky's conceptual framework of situated learning and guided participation,³² lectures adopted the following general format: (1) review of historical oppression related to content area; (2) discussion of clinical and interprofessional skills to repair inequities; (3) identification of resources to support patients and colleagues affected by racism; and (4) facilitated reflections on power, privilege, and bias. Learning objectives were tailored to the content of each session. For example, in the session on the schools, the objectives were: (1) analyze historical oppression and structural racism in the setting of schools; (2) describe anti-racist policies and practices to target racism in schools; and (3) identify individual advocacy opportunities to address school inequity. A content outline for this session is presented as Supplement 1. Discussions highlighted local organizations and advocacy opportunities in an effort to decenter institutional power. Two sessions (justice system and housing/transportation) featured community partners who were compensated for their time.

Measures

Using a quasi-experimental design, we evaluated the curriculum with pre-/post-surveys (Supplement 2), which were distributed electronically to 121 pediatric trainees using a residency-wide email list. Demographic data were elicited from each respondent. Additional measures included: (1) *awareness* of structural racism, (2) *knowledge* of racial inequities, (3) comfort with anti-racist *clinical skills*, and (4) individual and institutional *advocacy behaviors*. Given the lack of existing evaluation frameworks, three measures (awareness, knowledge, clinical skills) were developed *de novo* and piloted among members of the research team. Individual and institutional advocacy behaviors were assessed with self-report items derived from the Anti-Racism Behavioral Inventory, a validated measure developed among White counseling and psychology students.³³ Details regarding the number of items, internal consistency, sample items, response options, and scoring for each measure are shown in Table 1.

Residents indicated curriculum feasibility and acceptability by responding to five items (e.g., "The material in this curriculum was useful for my practice") rated on a 5-point Likert scale (1= "strongly disagree"; 5= "strongly agree"). We present the proportion of individuals who indicated "agree" or "strongly agree" in response to these items. Respondents also self-reported their attendance at each curricular session.

Statistical Analysis

Demographic characteristics were summarized with means/standard deviations and frequencies/proportions. We used McNemar or paired Wilcoxon sign-rank tests to compare

Table 1. Comparison of measures before and after curriculum implementation ($n = 37$).

MEASURE	NUMBER OF ITEMS	CRONBACH'S α	EXAMPLE ITEM(S)	BEFORE	AFTER	P-Value ^a
Awareness: No. (%) ^b						
General	6	0.82	Equity, implicit bias, microaggression, system of oppression, White guilt, cross-racial hostility	35 (95%)	37 (100%)	0.48
Schools	5	0.75	Resource officers, achievement gap, school-to-prison pipeline, stereotype threat, restorative justice	23 (62%)	32 (87%)	0.03
Healthcare	4	0.61	Compulsory sterilization, weathering hypothesis/allostatic load, adverse childhood experiences, CBPR	20 (54%)	30 (81%)	0.004
Justice system	4	0.83	Mass incarceration, prison industrial complex, decriminalization, felony disenfranchisement	27 (73%)	32 (87%)	0.13
Employment	4	0.65	Occupational segregation, Ban the Box, resume whitening, racial wealth gap	12 (32%)	24 (65%)	0.003
Housing/transportation	4	0.73	Redlining, municipal shrinkage, gentrification, transportation apartheid	16 (43%)	25 (68%)	0.02
Knowledge: Mean (SD) ^c	18	–	True/False: Levels of police violence correlate with overall rates of violent crime	69 (10)	73 (10)	0.03
Clinical skills: No. (%) ^d	11	0.88	Examining privilege and power with patients and families	15 (41%)	29 (78%)	<0.001
Advocacy: Mean (SD) ^e						
Individual	9	0.63	I interrupt racist conversations and jokes when I hear my friends talking that way	3.7 (0.5)	4.0 (0.5)	<0.001
Institutional	5	0.70	I volunteer with anti-racist or racial justice organizations	2.4 (0.7)	2.5 (0.9)	0.90

^a p -value from McNemar or Wilcoxon sign-rank tests.

^bIndividual items rated on 3-point Likert scale (1 = "not at all familiar"; 3 = "very familiar"); summarized by mean score, with number/percent indicating residents with mean scores >2.

^cIncluded true/false and multiple choice questions; summarized by calculating the percent correct out of 18 items.

^dIndividual items rated on 3-point Likert scale (1 = "not at all comfortable"; 3 = "very comfortable"); summarized by mean score, with number/percent indicating residents with mean scores >2.

^eMean across items rated on 5-point Likert-type items (1 = "strongly disagree"; 5 = "strongly agree").

binary or continuous measures, respectively, before and after curriculum implementation.³⁴ Sensitivity analyses compared baseline characteristics between responders and non-responders. All analyses were conducted in R version 4.0.4 (2021-02-15). Residents received \$10 for the completion of surveys. This study was deemed exempt by the University of Pittsburgh Institutional Review Board (STUDY20070260), and completion of the online survey indicated an individual's consent to participate.

Results

Out of 121 residents, 79 (65%) completed pre-surveys, 47 (39%) completed post-surveys, and 37 (31%) were eligible for matching across time points. There were no significant differences in demographic or outcome characteristics between post-survey responders and non-responders. For the 37 residents with complete data, mean age was 28.3 (SD : 1.8) years. Most were in their first ($n = 18$; 49%) or second ($n = 11$; 30%) year

of training, and the majority ($n = 29$; 78%) identified as female. Most ($n = 22$; 59%) were non-Hispanic White, with fewer residents indicating Asian/Asian-American ($n = 7$; 19%), Black/African-American ($n = 2$; 5%), or Hispanic or Latino identities ($n = 4$; 11%).

Following the implementation of the curriculum, there were significant increases in awareness of concepts related to schools (62% to 87%; $p = 0.03$), healthcare (54% to 81%; $p = 0.004$), employment (32% to 65%; $p = 0.003$), and housing/transportation (43% to 68%; $p = 0.02$) (Table 1). There was a modest increase in knowledge (69 [SD : 10] to 73 [SD : 10]; $p = 0.03$). More residents indicated comfort with antiracist clinical skills after the curriculum (41% to 78%; $p < 0.001$). Individual advocacy behaviors also increased (3.7 [SD : 0.5] to 4.0 [SD : 0.5]; $p < 0.001$), but there were no changes in institutional advocacy.

Respondents attended a mean of 3.2 (SD : 1.5) sessions (range: 1–6). Attendance at individual sessions ranged from 9 (24%) to 30 (81%). Most participants felt the curriculum was

useful ($n = 35$; 95%) and relevant ($n = 35$; 95%); the majority ($n = 31$; 84%) reported that it was easy to participate. 92% ($n = 34$) agreed the curriculum should be mandatory for all clinical care providers, and learners perceived that the presentation of material was unbiased ($n = 33$; 89%).

Discussion

Our residency antiracist curriculum improved awareness of structural racism, knowledge of racial inequities, comfort with antiracist clinical skills, and individual advocacy behaviors. Increases in awareness and knowledge of racism have been reported with other curricula^{17,21}; however, our work incorporated regional data with the goal that trainees would better understand inequities specific to their current patient population and addressed multiple content areas with attention to historical forms of oppression. We also assessed comfort with antiracist clinical skills and self-reported advocacy behaviors, both of which are novel in their application to medical trainees. Further, by focusing on advocacy and partnership at a local level, we aimed to highlight our community's strengths to trainees, who may have mostly been aware only of its difficulties, and attenuate forms of institutional power.

We acknowledge the limitations of this study. First, we note a lack of racial/ethnic diversity in our sample. While promoting antiracism among a predominantly White cohort is essential for supporting systematic change, especially when encouraging White trainees to take on advocacy efforts with the goal of decreasing minority tax, overrepresentation of White perspectives may bias session dialogue and/or observed outcomes. Changes in certain measures may not be educationally significant, and there may be limits on generalizability given findings at a single institution. We conducted this pilot study among a small sample, which limits our statistical power. While incentivization was provided, only a third of the residency program could be included in paired analyses. Such attrition increases the risk of response bias; however, sensitivity analyses showed no major differences between residents completing pre- and post-surveys and those completing pre-surveys only. Attendance at in-person sessions varied, though this was measured by self-report. While residents could view recorded sessions asynchronously, in-person attendance may have been limited by clinical responsibilities or specific rotation structure (e.g., night float) as well as capacity restrictions related to the COVID-19 pandemic. Thus, results may indicate a diffusional impact on program attitudes/culture. Our evaluation relied exclusively on self-report, limiting our ability to infer actual behavior change. While surveys were piloted among the authors, some measures lacked psychometric validation and require a larger sample to support reliability and validity; however, items were developed to allow for immediate delivery of this critical content and to assess proximal changes and feasibility/acceptability related to pilot curriculum implementation.

While our efforts were an important initial step, sustaining, scaling, and translating these efforts are necessary to transform institutional culture. Our work spearheaded additional initiatives including asynchronous online modules, case-based discussion guides, and replication and dissemination across other departments, including pediatric faculty, fellows, and internal medicine residents. Our institution has reaffirmed its commitment to antiracist pedagogy through incorporation of these concepts across multiple reoccurring training contexts (e.g., inpatient floors, continuity clinics, subspecialty experiences); however, evaluation of this work is ongoing. Next steps include secondary forms of evaluation, such as standardized clinical scenarios and patient/peer feedback, as well as qualitative methods that further describe these constructs. While this curriculum produced changes in many self-reported outcomes, emboldening medical trainees as advocates and allies require complementary approaches to promote growth and action.


Conclusions

We demonstrate improvements in several educational constructs with implementation of a novel antiracist curriculum individualized for our regional context. Our work highlights the need for continued focus on advocacy opportunities and professional skills building to counter racism in clinical and interpersonal interactions.

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Supplemental Material

Supplemental material for this article is available online.

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