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# Where Are Future Doctors Who Southern Rural African Americans Will Trust? A Look Back into Rural Medical Scholars Data

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**Objectives:** African Americans' distrust of institutions extends to southern US rural communities, limiting their use of healthcare resources. Local physicians are scarce, and treatable diseases accumulate. These communities want local doctors they can trust, consistent with research promoting culturally concordant doctor–patient relationships. African American student inclusion was a priority of the Rural Health Leaders Pipeline, which included precollege pipeline programs and a professional track (Rural Medical Scholars Program) of a master's degree program and medical education. The purpose of the present study was to review African American students' experience in the professional track to inform future efforts to produce rural African American physicians.

**Methods:** We retrospectively tracked African Americans in the Rural Medical Scholars Program from 1996 to 2017. Data from pipeline and professional programs supplied racial identity, recruitment mechanism (from pipeline or general admissions), completion of a master's degree program, medical school matriculation, medical school attended, and medical school progression. We counted students for visual analysis with a table for students' distribution and graph for student progression.

**Results:** In 21 years, 1045 students participated in the Rural Health Leaders Pipeline—380 (36%) were African American, including 195 high school, 169 posthigh school, and 16 professional track students. Ten (63%) of these African American Rural Medical Scholars had been earlier pipeline students compared with 15% of non-African American peers. All 16 African American Rural Medical Scholars completed the master's program, 12 entered medical school, and 10 progressed successfully, producing one rural African American physician every 2 years. These numbers were too small for statistical analysis.

**Conclusions:** Enthusiasm among preprofessional students and academic success through the master's degree program but so few accessing medical education was the major finding, matching Association of American Medical Colleges' data showing fewer than 0.01% of US medical students are rural African Americans. Interventions beyond recruitment are needed to involve African American students in rural medicine programs to produce culturally concordant physicians whom their communities can trust.

**Key Words:** African American, cultural concordance, pipeline programs, rural medical education, trust

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Trust is a major concern in health care. Limited resource (LR) African American farmers in Alabama distrust institutions whose missions include responsiveness to farmers' needs, including the US Department of Agriculture, the Natural Resources Conservation Service, extension services, and universities.<sup>1</sup> This is one manifestation of distrust that concentrates among rural southern US African American communities<sup>2</sup> and generalizes to the US African American population at large.<sup>3</sup> Distrust is not limited to health care and has associations with individuals' social environments<sup>4</sup> and government.<sup>5</sup> In Alabama, distrust has influenced control of a recent tuberculosis outbreak<sup>6</sup> and the spread of coronavirus disease 2019 (COVID-19).<sup>7</sup> Gerrymandering<sup>8</sup> and the African American farmers civil rights lawsuit (Pigford v. Glickman, 1999)<sup>9</sup> are evidence of the continuing strain on fidelity among diverse populations.

African Americans are wary of medical care they receive because of differences in the ways it may be applied<sup>10</sup> and in its outcomes.<sup>11</sup> Multiple interrelated factors contribute to excessive morbidity and mortality in the rural South, with structural racism, implicit racial or ethnic bias, and patients' trust of physicians playing a part.<sup>12–14</sup> The obvious solution from the community perspective is to educate local youth to become physicians for their communities. In a meeting of a diverse group of rural program medical students with LR African American farmers, one farmer reported: “[Unlike doctors we now see,] these young doctors will just about know what's wrong with you when you walk through the door.” (R. Peterson, MD, personal communication, 2023).

The literature on health benefits resulting from racial and cultural consonance in the patient–physician relationship supports this view.<sup>15,16</sup> The shared identity<sup>17</sup> and improved communication<sup>18</sup> that go with concordant relationships relate to trust and

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## Key Points

- Nationwide, virtually no students represent underserved rural African American communities in medical schools.
- African American students in precollege rural medicine pipeline programs showed a great interest in medicine; however, few accessed medical schools, including rural medicine programs.
- We suggest that interventions be systemic, going beyond recruitment to affect a supply of rural African American physicians.

improved outcomes. There are simply too few physicians who share the rural African American identity being produced. An alternative medical school response of cultural competency and sensitivity training for students and trainees has not improved healthcare outcomes among African American communities<sup>19</sup> and circumvents the obvious solution of involving their students.

Concurrently, medical schools look to engage underserved rural minority communities in research that communities perceive as an immediate benefit to the medical school, while making ineffectual attempts to accommodate rural African American students in the study of medicine. Among all US allopathic medical schools from 2015 to 2019, only 32 of 106,490 (<0.01%) matriculants were rural African American.<sup>20</sup> This is roughly six per year from a population of 6 million rural African Americans who live in the South.<sup>21–23</sup> The burden of preventable and treatable illnesses that makes these communities attractive research partners also creates the acute community need for local family physicians. The communities see producing needed physicians as the primary role of medical schools, but, again, medical schools’ efforts to produce enough rural or African American physicians, such as increasing class sizes, have proven ineffective. It is understandable that medical schools have attracted the same distrust as other institutions; however, there is no proven model for including enough rural African American students in medical education to produce rural African American physicians.

An Alabama legislative mandate driven by popular support in 1989<sup>24</sup> required attention to the state’s prevailing rural health crisis. The mandate created opportunity to demonstrate a program that would produce physicians for rural Alabama, which constitutes almost in its entirety a primary care health professional shortage area. Both minority voice and public health statistics have dictated special attention to rural African American communities whose historical need for primary care physicians remains intense. The agricultural community, including LR African American farmers, proved to be a strong advocate for rural medical education programs and provided students with opportunities to visit farming operations and to engage with farmers in research concerning their health.

The University of Alabama at Birmingham (UAB) School of Medicine (now UAB Heersink School of Medicine) committed in 1990 to develop incrementally a program of medical education that would produce family physicians for rural Alabama. Principles of rural medical education (eg, students from rural backgrounds, community-based instruction, family physician teachers and role models) guided the development.<sup>25</sup> From 1993 to 2017, the Rural Health Leaders Pipeline (RHLP) operated as a demonstration research project. Evaluations conducted without regard to student race showed success in producing physicians who were distributed among rural communities of the state, but less so in the region where the African American population is the majority.<sup>26</sup>

As such, the purpose of the present study was to review the experience of African American students who entered the RHLP at its rural medical education track during the 21 years of the demonstration project. Questions included how many African American students were recruited; how many had used pipeline programs; what was their success rate through the rural medicine track of the master’s degree program and medical school (ie, Rural Medical Scholars Program [RMSP]); and what hypotheses could be generated about their success? This

descriptive study was a preliminary step toward better understanding what may be needed to produce and sustain effective primary care physicians in Alabama’s Black Belt, a rural region with a concentrated African American population.

METHODS

This was a retrospective study. We tracked African American participants in the RMSP from RHLP archival data captured from 1993 to 2017. The University of Alabama institutional review board approved this secondary data review as exempt using deidentified data from the educational setting (UA Protocol ID: 21-10-5090).

Setting

Alabama is a rural state, with 12 counties considered urban and 55 rural by the Alabama Rural Health Association.<sup>27</sup> Virtually all of the rural counties are Health Professional Shortage Areas.<sup>28</sup> Alabama’s population is 27% African American, and a 17-county rural region has an African American majority. This region was named the Alabama Black Belt for its rich, dark soil that generated the historic cotton culture and subsequent concentrated African American population. The Black Belt includes nine of the 10 poorest counties of the state,<sup>29</sup> and this region’s African American population lives with extensive disparities in education, economic development, employment, healthcare resources, and population health outcomes.<sup>30</sup> A large segment of Alabama’s LR African American farmers reside in and contribute significantly to this region. Medical school graduates are less likely to locate in the rural Black Belt than elsewhere in the state.

Table 1 contrasts racial demographics and the primary care physician supply among Black Belt counties, Alabama, and the United States.<sup>29,31,32</sup> Physicians recruited to community health centers and small hospitals in the Black Belt are often culturally distant from the patients they serve.

Intervention

The RHLP began in 1993 with the mission to produce physicians for rural Alabama who are leaders in developing healthy communities. It included two pipeline programs and a rural medical education track. The Rural Health Scholars (RHS) Program designed for high school juniors sought students of varying backgrounds from throughout rural Alabama. The

TABLE 1. Alabama’s Black Belt region by population, African American percentage, and PCP supply, 2020

Region	Population <sup>31</sup>	Black or African American % <sup>31</sup>	Average population per PCP <sup>32a</sup>
Black Belt (17 counties) <sup>29</sup>	558,473	60	3593
Alabama (all 67 counties)	5,024,356	27	1540
United States	329,500,000	12	1330

PCP, primary care physician.  
“Montgomery County in the Black Belt was excluded in this column because it includes the capital city and has a ratio of 1030 population per PCP.

Minority Rural Health Scholars (MRHS) Program designed for high school seniors gave preference to students who had attended public schools in the Black Belt. Both pipeline programs introduced academic preparation, peer group development, and exposure to rural health professionals while students attended the University of Alabama during a 5-week summer term.

The RMSP, a medical education track combining a 1-year Master's in Rural Community Health with medical school, recruited students with rural backgrounds, expressed commitment to rural medicine, a "B" or better grade point average, a threshold or better score on the Medical College Admission Test (MCAT), strong letters of recommendation, and impressive interview skills. The admissions office at the UAB School of Medicine supervised the administration of these requirements. Participation in earlier pipeline programs was not required. The medical school adjusted the MCAT threshold score for RMSP applicants to 24 (old) and 495 (new), without which few RMS would have been competitive for admission.<sup>33</sup> Students could enter the master's degree component of the RMSP without having achieved the required MCAT score but had to present an acceptable score during the master's year to gain admission to the medical school component. If not selected by UAB, they were encouraged to pursue other medical schools. Students in the RMSP studied rural health and advanced premedical sciences, followed by community-based rural medical education emphasizing family medicine and community health.

Pipeline programs, master's degree program, and clinical years of medical school were located on the University of Alabama campus in Tuscaloosa; the preclinical years of medical school required attendance at the UAB School of Medicine in Birmingham. Evaluation studies not considering race found RMS success completing medical school in 4 years comparable to peers in traditional medical education<sup>25</sup> and their choices significantly greater for family medicine training<sup>33</sup> and rural practice.<sup>26</sup>

## Study Group

The study group was African American students admitted to the RMSP between 1996 and 2017. Students included those who had taken part in the pipeline programs and others from general admissions.

## Data

We accessed student data collected and archived at admission and during progress through any of the three programs

from 1993 to 2017. Deidentified data included racial identity (African American or non-African American), source of student recruitment (from pipeline or from general admissions), completion of master's program (yes or no), medical school matriculation (yes or no), medical school attended (UAB or other), medical school progression (yes or no), and medical degree obtained (yes or no).

## Analysis

Descriptive analysis was visual, with a table showing African American student distribution among the RHLP programs and a graph of RMS progression through the master's degree program and medical school components. The graph used the number of students progressing at sequential stages in the RMSP and showed the whole group and recruitment subgroups, either pipeline or general admissions. No inferential statistics were applicable due to the small number of participants.

The University of Alabama institutional review board approved this secondary data review as exempt using deidentified data from the educational setting. We consulted Poulson and Wallace's criteria for high-quality reporting of small-scale studies<sup>34</sup> in preparing this article.

## RESULTS

Table 2 counts rural participants in each program by race. During the course of 21 years, participants in the three programs totaled 1045. African American participation varied by program (ie, 30% of RHS, 97.1% of MRHS, and 7.3% of RMS). The 220 RMS included 40 who had participated in pipeline programs. Sixteen (7.3%) of the 220 RMS were African American. Ten of 16 (62.5%) African Americans and 30 of 204 (14.7%) non-African Americans entered the RMSP after taking part in pipeline programs.

The Figure shows African American RMS progression through stages in the rural medicine track of the master's degree program and medical school. The 16 African American RMS were divided into subgroups, those either admitted with experience in the pipeline (10) or those admitted without pipeline experience (6).

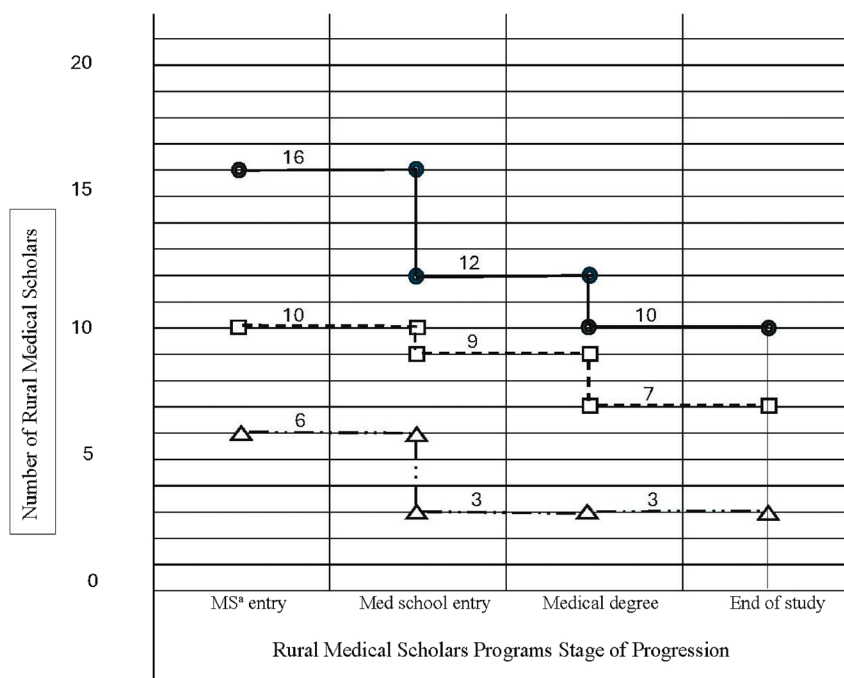
## African American RMS

All 16 African American RMS entered and completed the master's component (100%). Twelve African American RMS matriculated to medical school (75%); three went to schools

**TABLE 2.** RHLP participants by program and race, 1993–2017

RHLPs	No. and % participants					
	African American		Non-African American		Total	
	N	%	N	%	N	%
Post-11th grade pipeline (RHS)	195	30.0	456	70.0	651	100
Post-12th grade pipeline (MRHS)	169	97.1	5	2.9	174	100
RMS (MS/MD) track	16	7.3	204	92.7	220	100
Total RHLPs	380	36.4	665	63.6	1045	100
RMS duplicates with pipelines	10	25.0	30	75.0	40	100

MRHS, Minority Rural Health Scholars; MS/MD, Master of Science/Doctor of Medicine; RHLP, Rural Health Leaders Pipeline; RHS, Rural Health Scholars; RMS, Rural Medical Scholars.



**FIG.** Observed progression of African American Rural Medical Scholars, 1996–2017, as a total group (circle), pipeline subgroup (square), or general admission subgroup (triangle). MS, master's program in Rural Community Health.

other than UAB. Two of the 12 matriculants dropped out, and 10 (83%) progressed successfully, resulting in a cumulative African American RMS progression rate of 10/16 (63%).

The pipeline subgroup included 10 RMS with earlier pipeline experience. Although not shown in Table 2, pipeline recruits included three who completed the high school (RHS) program only, one who completed the post-12th grade (MRHS) program only, and six who completed both. All 10 completed the RMSP master's degree component. Nine (90%) matriculated to medical school, one to a school other than UAB, and seven progressed successfully (78%), for a cumulative African American RMS progression rate of 70% among pipeline recruits.

The general admissions subgroup included six RMS, all of whom completed the master's degree component. Three matriculated to medical school (50%), with two to schools other than UAB. All three progressed successfully (100%), for a cumulative African American RMS progression rate of 50%.

During the 21-year period, the RHLP involved 195 African American students in the diverse high school pipeline program and 169 in the minority-focused posthigh school pipeline program, but only 16 accessed the rural medical education track. Ten of the 16 African American RMS used the pipeline programs; six came from the general admission process. The Figure draws a visual distinction between these two admissions subgroups, but the numbers are too small to support statistical conclusions or to explore for correlates. Table 2 shows that 10 of 16 (63%) African American RMS versus 30 of 204 (15%) non-African American RMS used the pipeline programs and provides a basis for hypothesizing that the pipeline programs have added benefit. Four African American RMS did not matriculate to medical school after success in the master's degree program. Three RMS matriculated

to medical schools other than UAB. Two RMS matriculated but did not finish medical school.

## DISCUSSION

Our major finding is that rural African American students, although highly recruited, were markedly underrepresented (7.3%) in a program specifically designed to produce physicians needed in rural Alabama, where 17 counties average 60% African Americans in the population. The literature and personal contacts revealed no other medical education programs specifically targeting rural African Americans. Association of American Medical Colleges data from all US allopathic medical schools, 2015–2019,<sup>20</sup> showed that only 32 of 106,490 (<0.01%) medical school matriculants were rural African American (ie, born and graduated high school from rural counties). At six/year from 6 million rural African Americans nationwide, traditional medical education matriculated one rural African American student per million population compared with 67 million matriculants from the 288 million non-African American, non-Black population. Clearly, systemic changes are necessary to bring balance to this inequity.

We found that rural Alabama African American students had strong interest in medicine and were well represented in preprofessional pipeline programs beyond the 27% of African Americans in the state's population. They performed well in the master's degree program. The restriction occurred at the point of admission to medical school.

The RHLP demonstrated significant success in comparison to traditional medical education in producing family physicians who chose to practice in rural areas where the White population was the majority, but because of this restriction, not in the 17-county majority African American region.<sup>26</sup> Informal



feedback from this region and our observations tell us that more African American physicians are expected and that adaptations in medical education beyond those that are successful for White rural communities will be needed. LR African American farmers reinforce the need to encourage students from their communities to join the medical profession to serve them. These would be physicians whom they would trust.

On first consideration, the small number of rural African American students in this review of our experience may appear to be a weakness or limitation. Such an interpretation would be in error. The purpose was not to complete inferential statistical operations but to find what our experience showed. We found no other similar experiences in the literature, and the inclusion of rural African American students in medical schools is virtually nil. The limitation is not in the small number of rural African American students in the review but in the system of medical education that does not accommodate them adequately. Apparently, there is some variation among medical schools in such accommodations in that three of our 12 matriculants found medical school seats elsewhere when not accepted to UAB School of Medicine. The small number of rural African American students in the RMSP and in medical education in general<sup>20</sup> is the substantive finding of this review. It serves as a sentinel message that medical education as currently formulated is inadequate to the task of supplying trustworthy primary care physicians for the large population of rural US southern African Americans.

In response to the farmers and other regional healthcare stakeholders, we completed this review to begin the process needed to produce a supply of “homegrown physicians.” This review and an exploratory focus group discussion with rural medical educators and RHLP alumni<sup>35</sup> supply the best insights to date for beginning to understand the size and complexity of the task ahead.

A weakness of this descriptive review is that we cannot assume that it generalizes to the population of rural African American students with the potential to complete medical education and training. The number of participants in this review was too small, and the criteria for admission to the RMSP were modeled on existing admission policies that may not match the purpose of expanding rural African American representation. As just one example, an admission policy that enrolls students to a master’s degree program with the possibility at its completion of choosing from among several medical and other professional schools may attract a larger group who end up in medicine. The small sample size does, however, supply further evidence of the disparate representation of rural African Americans in medical education and training. In addition, we have learned that despite the positive effects of preprofessional pipeline programs,<sup>36</sup> efforts beyond pipeline and prematriculation master’s degree programs will be required to make a substantial increase in this representation in our setting.

Another limitation is the study’s truncated view of students’ progress from high school through medical education that provides insights only into their success with these intermediate steps in becoming physicians. No assumption that these students will become rural physicians in the Black Belt can be justified without further information about the efficacy of their curriculum, medical school setting, postgraduate training, community contexts, and existing policies to promote and support their ambitions.

## CONCLUSIONS

We conclude that major adaptations or a new model of health professional education is needed to accommodate rural African American students’ preparation for and inclusion in medical education. We conjecture that beyond the inclusion of local students in generic medical education, a community-based education matching local culture followed by a receptive healthcare system will be needed to meet the expectations of rural African Americans for trustworthy physicians. Far more study from the experiences of rural African American alumni, communities they stand for, and institutions/agencies that will commit to action based on such studies will be required to formulate adaptations or new models.

We thank LR African American farmers of Alabama for helping us understand the centrality of trust in deciding the utility of agencies, including health care, whose missions are to serve their communities. We appreciate the work of Smolski and Schulman<sup>37</sup> toward clarifying the different framework by which Black farmers, who are respected members of rural African American communities, evaluate and approach programs, institutions, and policies for their benefit. Our task now is to engage with these communities to embark on studies needed to solidify a comprehensive longitudinal model for producing enough physicians whom these communities can trust.

Finally, this study was limited to the goal of producing rural African American physicians and invites discussion to this end. Consideration of alternative and supplementary approaches are beyond the scope of the article.

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## REFERENCES

1. Key CD, Wheat JR. An exploratory study of occupational safety and health with limited resource African-American farmers. *J Agromedicine* 2021;6:140–150.
2. Hart A, Redmon J. Distrust of health care system adds to toll in rural Black communities gutted by COVID. <https://www.ajc.com/news/coronavirus/distrust-of-healthcare-system-adds-to-toll-in-rural-black-communities-gutted-by-covid/SO06UWMIBZHPTN7DMK3ZHCNQMI>. Published August 14, 2020. Accessed December 23, 2024.
3. Washington HA. *Medical Apartheid*. New York: Random House; 2019.
4. Shoff C, Yang TC. Untangling the associations among distrust, race, and neighborhood social environment: a social disorganization perspective. *Soc Sci Med* 2012;74:1342–1352.
5. Koch JW. Racial minorities’ trust in government and government decisionmakers. *Soc Sci Q* 2019;100:19–37.
6. Ouyang H. Where health care won’t go: a tuberculosis crisis in the Black Belt. <https://harpers.org/archive/2017/06/where-health-care-wont-go>. Published June 2017. Accessed December 23, 2024.
7. Budhwani H, Maycock T, Murrell W, et al. COVID-19 vaccine sentiments among African American or Black adolescents in rural Alabama. *J Adolesc Health* 2021;69:1041–1043.
8. Waymer D, Heath RL. Black voter dilution, American exceptionalism, and racial gerrymandering: the paradox of the positive in political public relations. *J Black Stud* 2016;47:635–658.
9. Wood SD, Ragar CR. Grass tops democracy: institutional discrimination in the civil rights violations of Black farmers. *J Pan Afr Stud* 2012;5:16–36.
10. Institute of Medicine. *Unequal Treatment: What Healthcare Providers Need to Know about Racial and Ethnic Disparities in Healthcare*. Washington, DC: The National Academies Press; 2002.
11. Zeng H, Xu M, Xie Y, et al. Racial/ethnic disparities in the cause of death among patients with prostate cancer in the United States from 1995 to 2019: a population-based retrospective cohort study. *EClinicalMedicine* 2023;62:102138.

12. Miller CE, Vasan RS. The southern rural health and mortality penalty: a review of regional health inequities in the United States. *Soc Sci Med* 2021;268:113443.
13. Hall WJ, Chapman MV, Lee KM, et al. Implicit racial/ethnic bias among health care professionals and its influence on health care outcomes: a systematic review. *Am J Public Health* 2015;105:e60–e76.
14. Do YK, Carpenter WR, Spain P, et al. Race, healthcare access and physician trust among prostate cancer patients. *Cancer Causes Control* 2010;21:31–40.
15. Snyder JE, Upton RD, Hassett TC, et al. Black representation in the primary care physician workforce and its association with population life expectancy and mortality rates in the US. *JAMA Netw Open* 2023;6:e236687.
16. Jetty A, Jabbarpour Y, Pollack J, et al. Patient-physician racial concordance associated with improved healthcare use and lower healthcare expenditures in minority populations. *J Racial Ethn Health Disparities* 2022;9:68–81.
17. Street RL Jr, O'Malley KJ, Cooper LA, et al. Understanding concordance in patient-physician relationships: personal and ethnic dimensions of shared identity. *Ann Fam Med* 2008;6:198–205.
18. Shen MJ, Peterson EB, Costas-Muñiz R, et al. The effects of race and racial concordance on patient-physician communication: a systematic review of the literature. *J Racial Ethn Health Disparities* 2018;5:117–140.
19. Guillaume G, Robles J, Rodríguez JE. Racial concordance, rather than cultural competency training, can change outcomes. *Fam Med* 2022;54:745–746.
20. Gunter B. Black or African American (alone or in combination) matriculants to U.S. MD-granting medical schools by rural status, academic years 2002–2003 through 2019–2020 in groups. AAMC applicant matriculant data file. Association of American Medical Colleges; 2020. <https://alabama.box.com/v/aamc-rural-aa-matriculants>
21. Rastogi S, Johnson TD, Hoeffel EM, et al; US Census Bureau. The Black population: 2010. <https://www.census.gov/library/publications/2011/dec/c2010br-06.html>. Published 2011. Accessed June 20, 2024.
22. Housing Assistance Council. Race & ethnicity in rural America. <https://www.slideshare.net/slideshow/race-and-ethnicity-in-rural-america/13695674>. Published 2012. Accessed June 20, 2024.
23. Murray CJL, Kulkarni SC, Michaud C, et al. Eight Americas: investigating mortality disparities across races, counties, and race–counties in the United States. *PLoS Med* 2006;3:e260.
24. Fox CE. Alabama's Rural Health Care Crisis: Report to the Legislature from the Rural Health Task Force. Montgomery, AL: Alabama Department of Public Health; 1989.
25. Wheat JR, Brandon JE, Leeper JD, et al. Rural Health Leaders Pipeline, 1990–2005: case study of a second-generation rural medical education program. *J Agromed* 2007;12:51–61.
26. Wheat JR, Leeper JD, Murphy S, et al. Educating physicians for rural America: validating successes and identifying remaining challenges with the Rural Medical Scholars Program. *J Rural Health* 2018;34(Suppl 1):s65–s74.
27. Alabama Rural Health Association. Analysis of urban vs. rural. <https://arhaonline.org/analysis-of-urban-vs-rural>. Accessed Nov 10, 2023.
28. US Department of Health and Human Services. Health professional shortage areas-primary care. <https://www.ruralhealthinfo.org/rural-maps/mapfiles/hpsa-primary-care.jpg?v=16>. Published 2024. Accessed June 20, 2024.
29. University of Alabama Center for Economic Development. Alabama's Black Belt counties. [https://www.uaced.ua.edu/uploads/1/9/0/4/19045691/about\\_the\\_black\\_belt.pdf](https://www.uaced.ua.edu/uploads/1/9/0/4/19045691/about_the_black_belt.pdf). Accessed November 10, 2023.
30. Gibbs RM. Reconsidering the southern Black Belt. *Rev Reg Stud* 2003;33:254–263.
31. US Census Bureau. QuickFacts Alabama. <https://www.census.gov/quickfacts/fact/table/AL/PST045222>. Published 2020. Accessed October 30, 2023.
32. County Health Rankings & Roadmaps. Primary care physicians. <https://www.countyhealthrankings.org/explore-health-rankings/county-health-rankings-model/health-factors/clinical-care/access-to-care/primary-care-physicians?year=2020&state=01&tab=1>. Published 2020. Accessed October 30, 2023.
33. Wheat JR, Leeper JD, Brandon JE, et al. The Rural Medical Scholars Program study: data to inform rural health policy. *J Am Board Fam Med* 2011;24:93–101.
34. Poulson L, Wallace M. Designing and writing about research: developing a critical frame of mind. In: Wallace M, Poulson L, eds. *Learning to Read Critically in Educational Leadership and Management*. Thousand Oaks, CA: Sage Publications; 2003:39–62.
35. Wheat JR, Gardner AJ, Downey LH, et al. Medical education for African American communities in the rural South: a focus group approach to identify fundamental considerations. *J Rural Health* 2023;39:535–544.
36. Wheat JR, Leeper JD. Pipeline programs can support reforms in medical education: a cohort study of Alabama's Rural Health Leaders Pipeline to engage community leaders. *J Rural Health* 2021;37:745–754.
37. Smolski AR, Schulman MD. Navigating farm stress: traumatic and resilient dimensions of the Black agrarian frame. *J Agromed* 2024;29:55–65.