

Health Professional School Enrollment Following Participation in the Rural and Urban Community Health Scholars Pathway Program (RUSCH)

Yer Lee, BA; Keegan J. Reilly, MD; Ryan E. Tsuchida, MD; Vera K. Tsenkova, PhD; Elizabeth Bush, MS, MA; Matthew C. Walsh, MPH, PhD; Elizabeth M. Petty, MD

ABSTRACT

Background: The University of Wisconsin’s Rural and Urban Community Health Scholars (RUSCH) pathway program was developed to prepare undergraduate students interested in addressing health disparities in Wisconsin for successful medical school matriculation.

Methods: Post-completion enrollment outcomes and demographics of participants who completed RUSCH from 2010 through 2024 were analyzed to assess medical school and health professions school matriculation, with associations evaluated using chi-square tests.

Results: Seventy-four percent of participants enrolled in a health professions degree program, with 49% enrolling in medical school, most at institutions within Wisconsin. Men were more likely than women, and non-Hispanic participants were more likely than Hispanic participants, to enroll in medical school following RUSCH completion.

Discussion: RUSCH participation was associated with success in pursuing a health profession degree; however, demographic differences in enrollment outcomes need to be addressed.

BACKGROUND

There is a pressing need to address health disparities and inequities in underserved rural and urban Wisconsin communities. Developing a well-equipped workforce to improve health outcomes for underserved populations is one approach to addressing this issue.¹ Undergraduate training pathway programs that intentionally recruit, mentor, and engage potential future health professionals with diverse experiences and demographic backgrounds may help build a workforce prepared to optimize health across communities.²⁻⁵ In 2009, the University of Wisconsin School of

Medicine and Public Health (UWSMPH) launched the Rural and Urban Scholars in Community Health (RUSCH) undergraduate pathway program for students interested in pursuing and practicing medicine in Wisconsin’s rural or urban underserved and health professional shortage areas.⁶ RUSCH recruits applicants and supports students with academic potential from all backgrounds, including diverse and disadvantaged backgrounds, from the University of Wisconsin (UW)—Madison, UW—Milwaukee, UW—Parkside, UW—Platteville, and Spelman College (a historically Black, women’s college in Georgia), as well as prehealth students affiliated

with the UW Native American Center for Health Professions to meet this goal. Disadvantaged criteria include financial need based on federal poverty guidelines; educational barriers such as first-generation college status or being first in a family to pursue a health professions degree; social or cultural identity factors, personal hardships; and residence in rural, urban, tribal, or medically underserved areas.

The selection process closely mirrors the mission and values upheld by the UWSMPH MD admissions process. A rubric is used to evaluate eligibility and readiness for the RUSCH program. Applicants must meet the following baseline criteria: enrollment at a partner institution, US citizenship or residency status, and good academic performance (minimum “B” grades in introductory math, English, and science courses, as well as cumulative and science grade point averages of 3.0). Applicants are also evaluated on a 0-to-5 scale (0 = does not meet expectations; 5 = exceptional) in the following areas: experiences (academic reference, clinical activities, and leadership), motivation (commitment to medicine and underserved communities),

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Author affiliations: University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin (Bush, Lee, Petty, Reilly, Tsenkova, Tsuchida, Walsh).

Corresponding author: Elizabeth M. Petty, MD, University of Wisconsin School of Medicine and Public Health, 4201 Health Sciences Learning Center, 750 Highland Ave, Madison, WI 53705; email epetty@wisc.edu; ORCID ID 0000-0003-1171-7608

and personal characteristics (maturity, empathy, and communication skills). Additionally, a video interview is scored based on applicant's demonstrated enthusiasm for public health and medicine. This rubric ensures a mission-aligned review that emphasizes both academic merit and personal commitment to serving underserved populations. The selection committee consists of leaders and coordinators of the RUSCH program, the Office of Multicultural Affairs for Health Professions Learners, the Wisconsin Area Health Education Centers (AHEC), and the Office of Health Professional Student Research. These faculty and staff provide diverse perspectives and expertise to ensure a mission-driven review process.

RUSCH provides participants with individualized advising services, community health internships in partnership with Wisconsin AHEC, UWSMPH faculty-mentored research experiences, public health and health disparities education, and individualized enrichment opportunities. Participants explore potential careers in medicine and other health care fields by building core knowledge, skills, and attitudes essential for acceptance into and success within medical school or other advanced health-profession degree programs. RUSCH consists of 3 longitudinal phases delivered over 2 years, each with specific learning activities and support services (see Table 1). Those who successfully complete RUSCH and meet the UWSMPH MD program's minimum application criteria are guaranteed interviews. Advising, support, and career guidance continue throughout the and after program completion to ensure participants remain supported in pursuing their long-term goals.

Ongoing analysis of participant and mentor feedback has guided continuous quality improvement of program processes and content. Thus, after 15 years of RUSCH, our aim was to answer 2 questions:

1. What percentage of RUSCH graduates attend medical school, and where do they matriculate?
2. Are RUSCH graduates across all sociodemographic groups equally likely to enroll in medical school and other advanced health-profession degree program?

METHODS

The UW Madison Quality Improvement/Program Evaluation Self-Certification tool (accessed February 11, 2025) indicated that this program evaluation was exempt from institutional review board review. Participants' self-reported sociodemographic data, collected during the application process and updated throughout

Table 1. Components Included in Different Phases of the University of Wisconsin School of Medicine and Public Health (UWSMPH) Rural and Urban Community Health Scholars (RUSCH) Longitudinal Undergraduate Student Pathway Program to Medicine and Health Care Professions

RUSCH Phase	Time, Length	Experience	Goals	Key Partners
Phase 1	First summer, 8 weeks	Immersive community health internship	<ul style="list-style-type: none"> • Community health internship with Wisconsin organizations • Develop public health skills • Build understanding of local health disparities • Personalized prehealth timeline planning 	<ul style="list-style-type: none"> • Area Health Education Education Centers • Community partners throughout Wisconsin
Phase 2	Intervening academic year, fall/winter/spring	Academic year enrichment	<ul style="list-style-type: none"> • Engage in virtual enrichment sessions throughout the academic year • Deepen understanding of health equity/social determinants of health in Wisconsin • Prepare for MCAT/other health profession pathways 	<ul style="list-style-type: none"> • Prehealth advisors at home institution • UWSMPH faculty/staff
Phase 3	Second summer, 8 weeks	Immersive research internship	<ul style="list-style-type: none"> • Research internship at UWSMPH with faculty mentor • Gain biomedical/public health research experience • Explore UWSMPH opportunities • Receive guidance on medical school applications • Expand mentorship and networking 	<ul style="list-style-type: none"> • UWSMPH Office of Health Profession Student Research • UWSMPH faculty/staff

Table 2. Medical School Enrollment of Rural and Urban Scholars in Community Health (RUSCH) Participants,^a 2010-2024

	N (%)
Medical school enrollment	
Yes – outside Wisconsin	26 (15.1)
Yes – inside Wisconsin (Medical College of Wisconsin)	14 (8.1)
Yes – inside Wisconsin (UWSMPH)	45 (26.2)
Not enrolled in medical school	87 (50.6)
Advanced health professions degree enrollment	
Yes	128 (74.4)
No	44 (25.6)
Totals	172

^aTen participants were lost to follow-up and are not included in these data. Abbreviation: UWSMPH, University of Wisconsin School of Medicine and Public Health.

the program, were reviewed for all individuals who completed RUSCH from 2010 through 2024 and who graduated from college for whom follow-up data were available. For participants with incomplete outcome data, internet searches of professional profiles (eg, LinkedIn, employers' websites) were used to determine current profession or career status. Names, undergraduate institutions, and undergraduate attendance information were used to verify identities. Internet searches were considered reliable when online data had been updated within the past year and were consistent across at least 2 sources.

Descriptive statistics were used to summarize baseline demographics and participant outcomes. Associations between categorical sociodemographic variables and outcomes were assessed using chi-square tests conducted with SAS/STAT software, version 9.4

(SAS Institute Inc). *P* values $\leq .05$ were considered statistically significant.

RESULTS

Since 2009, 182 students have completed RUSCH and graduated with an undergraduate degree. Ten students were lost to follow-up.

Of the 172 participants for whom data permitted analysis, 74% ($n=124/172$) matriculated into an advanced health professions degree program. Almost half—49% ($n=85/172$) matriculated into medical school (Table 2). Among those, 64% ($n=59/85$) attended one of the 2 medical schools in Wisconsin, with most ($n=45/59$) enrolling at the UWSMPH and the remainder at the Medical College of Wisconsin (MCW) (Table 2). Although medical school enrollment varied by RUSCH completion year, ranging from 67% in 1 year to 18% among 2024 graduates, no specific trends were observed.

Table 3 highlights associations between key sociodemographic factors (eg, race and ethnicity, disadvantaged status, undergraduate campus dichotomized as Wisconsin or Georgia) and enrollment in medical school or advanced health professions degree program. Participants from Wisconsin universities, non-Hispanic populations, and men were significantly more likely to enroll in medical school. Non-Hispanic individuals also had significantly higher rates of attending advanced health professions degree programs overall compared with Hispanic individuals. Although no other statistically significant differences based on self-identified sociodemographic variables were identified for medical school enrollment alone, significantly fewer self-identified disadvantaged participants enrolled in advanced health professions degree programs overall.

DISCUSSION

Over the past 15 years, RUSCH has successfully supported undergraduates from rural and urban backgrounds interested in becoming physicians. Underscoring the program's effectiveness, nearly half of all participants enrolled in medical school, most commonly at one of Wisconsin's 2 medical schools. Although RUSCH specifically focuses on medical school preparation, participants are also introduced to other health professions and are fully supported in pursuing other advanced health profession degrees aligned with their evolving interests. To meet this demand, RUSCH has expanded its health professions programming, including formal

Table 3. Characteristics of Rural and Urban Scholars in Community Health (RUSCH) Participants^a Based on Medical School or Advanced Health Degree Enrollment^b

	Advanced Health Degree Enrollment ^c			Medical School Enrollment		
	No N (%)	Yes N (%)	Chi-square (<i>P</i> value)	No N (%)	Yes N (%)	Chi-square (<i>P</i> value)
Undergraduate campus						
UW–Madison	5 (31.3)	11 (68.8)		6 (37.5)	10 (62.5)	
UW–Milwaukee	9 (22.5)	31 (77.5)		19 (46.32)	22 (53.7)	
UW–Parkside	9 (20.5)	35 (79.6)		20 (46.5)	23 (53.5)	
UW–Platteville	10 (23.8)	32 (76.2)		20 (47.6)	22 (52.4)	
Spelman	11 (36.7)	19 (63.3)	3.1 (.54)	22 (73.3)	8 (26.7)	8.0 (.09)
Undergraduate campus						
Wisconsin	33 (23.2)	109 (76.8)		65 (45.8)	77 (54.2)	
Georgia	11 (36.7)	19 (63.3)	2.3 (.13)	22 (73.3)	8 (26.7)	7.5 (.006)
First generation student						
Yes	15 (30.0)	35 (70)		21 (43.8)	27 (56.3)	
No	28 (24.6)	86 (75.4)	0.5 (.47)	60 (51.7)	56 (48.3)	0.9 (.35)
Self-reported disadvantaged						
Yes	16 (43.2)	21 (56.8)		17 (48.6)	18 (51.4)	
No	16 (21.6)	58 (78.4)	5.6 (.02)	34 (45.3)	41 (54.7)	0.1 (.75)
Sex						
Female	34 (29.6)	81 (70.4)		69 (60.5)	45 (39.5)	
Male	10 (17.5)	47 (82.5)	2.9 (.09)	18 (31)	40 (69.0)	13.4 (.003)
Race and ethnicity						
White, non-Hispanic	15 (17.1)	73 (83)		39 (44.3)	49 (55.7)	
Black, non-Hispanic	14 (33.3)	28 (66.7)		27 (62.8)	16 (37.2)	
Hispanic, any race	12 (66.7)	6 (33.3)		11 (73.3)	4 (26.7)	
Other, non-Hispanic	3 (12.5)	21 (87.5)	22.8 (<.0001)	10 (38.5)	16 (61.5)	8.6 (.04)

^a2010–2024 Rusch graduates.

^bSeveral categories do not sum up to the total sample size due to missing data.

^cAdvanced health degree includes medical school and any postgraduate health-related programs, eg, physician assistant, pharmacy, dentistry, public health.

Abbreviation: UW, University of Wisconsin.

partnerships with the UWSMPH Master of Physician Assistant (PA) Studies program.

While only 18% of the 2024 RUSCH cohort who completed an undergraduate degree enrolled in medical school, this proportion will likely increase as some participants pursue gap-year experiences for personal and professional enrichment. This is consistent with national data from the 2024 AAMC Matriculating Student Questionnaire, which notes that approximately 74% of incoming matriculants take at least 1 gap year before entering medical school.⁷

RUSCH was established to expand a health care workforce capable of addressing health disparities in rural and urban underserved areas in Wisconsin.⁶ As most RUSCH graduates have remained in Wisconsin to pursue advanced health profession degrees, the program is poised to meet this goal. Longitudinal tracking of participants into clinical practice will be needed to establish the program's long-term impact. Participants from the out-of-state partner institution were less likely to attend medical school than those from Wisconsin universities, likely due to multifactorial issues (eg, distance from support networks, out-of-

state tuition costs, cultural and environmental differences). Future program directions include expanding participation from more Wisconsin colleges and universities and prioritizing Wisconsin connections for out-of-state university applicants.

While some sociodemographic variables (eg, race, disadvantaged status) were not significantly associated with medical school enrollment, fewer women than men enrolled in medical school—an unexpected finding given national trends showing higher enrollment in medical school among women than men in recent years.⁷ Participants who identified as Hispanic also exhibited a notably lower medical school enrollment rate (26% [n = 4/15]) compared with non-Hispanic White RUSCH graduates (56% [n = 49/88]), non-Hispanic Black RUSCH graduates (36% [n = 16/43]) for, and other non-Hispanic graduates (62% [n = 16/26]). Current data do not permit further disaggregation of relevant variables to help determine underlying contributors. Potential barriers for underrepresented students include inadequate academic preparation, lack of exposure to health care, insufficient preparation for standardized examinations, and admissions committee compositions.⁵ Future work, including participant focus groups and analyses of additional individual-level variables, is needed to elucidate the factors contributing to gender- and ethnic-based differences in medical school enrollment after RUSCH participation. Such insights will be important for program improvement to help ensure that all RUSCH participants interested in pursuing medical school or other advanced health professions degree programs are well-prepared and fully supported.

RUSCH outcome analysis provides insight into the design of effective undergraduate pathway programs aimed at diversifying the health professions workforce. The program's multiyear longitudinal design—incorporating both dedicated research-based and community engagement phases in addition to mentoring and medical school application preparation—is unique, limiting direct comparisons with similar programs. A 2023 review of 25 premedical pathway programs reported that while these programs helped prepare participants for medical school with development of relevant skills, long-term workforce outcomes were difficult to assess due to the lack of longitudinal or comparison data, underscoring the need for more transparency, data collection, and rigorous analyses.³ In addition, both immersive community engagement and mentored research experiences have demonstrated productive pathways.⁸⁻¹⁰ RUSCH's inclusion of both is a notable strength (Table 1). The overall success of RUSCH may suggest that longitudinal, individualized support extending beyond a summer program leads to a high proportion of graduates enrolling in advanced health professional degree programs. This approach aligns with current trends in health professions pathway programming, emphasizing long-term mentorship and academic preparation (eg, Medical College Admission Test preparation) to strengthen applications and support student success.¹¹⁻¹² However, this study did not examine individual pro-

gram components as determinants of success, limiting our ability to draw conclusions about program design.

Limitations and Future Directions

Given the observational nature of this report, we were unable to evaluate the impact of specific program components on enrollment outcomes. Despite program size and a 15-year follow-up period, sample sizes were insufficient for meaningful multivariate analysis across sociodemographic subgroups, limiting interpretability. Analyses were also limited by the use of binary gender and race/ethnicity social construct variables. Finally, outcomes were limited to enrollment in an advanced health professions degree programs, not academic success in that program or post-training service to underserved communities in Wisconsin

Future longitudinal studies that examine longer term career outcomes, incorporate additional cohort years, and include comparisons with non-RUSCH control groups will permit more comprehensive analysis of RUSCH programming relevant to meeting its goals and for guiding focused program improvements. In addition, expansion to include students from other Wisconsin universities and continued partnership with the UW SMPH PA program should further enhance the development of a workforce of providers serving underserved rural and urban communities across Wisconsin.

CONCLUSIONS

Analysis of RUSCH post-undergraduate health professional program enrollment outcomes suggests that a pathway program with longitudinal support, student-centric programming, and immersive community and research experiences paves the way for successful matriculation into medical school or other health professional degree programs. Future studies examining the impact of specific program components and processes will be essential to improve programming, address cost-effectiveness, and better understand factors associated with success—especially among groups such as women, Hispanic, and socioeconomically disadvantaged participants. Understanding specific elements critical for successful prehealth pathway programs that advance health equity and build a workforce reflective of the communities it serves is needed to deliver care in underserved areas.

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REFERENCES

1. *Summary Report: The Complexities of Physician Supply and Demand From 2021-2036*. Association of American Medical Colleges; March 2024. Accessed June 30, 2025. <https://www.aamc.org/media/75231/download?attachment>
2. Armstrong AT, Noble CA, Azeredo J, Daley E, Wilson RE, Vamos C. An overview of an

undergraduate diversity MCH pipeline training program: USF's Train-A-Bull. *Matern Child Health J.* 2022;26(suppl 1):26-36. doi:10.1007/s10995-021-03332-y

3. Kaljo K, Braun MT, Maddula R, Ferguson CC, Bonifacino E, Farkas A. Undergraduate college pathway programs designed to attract and matriculate students from underrepresented groups into medicine. *South Med J.* 2023;116(12):942-949. doi:10.14423/SMJ.0000000000001631

4. Mayrath M, Fontanez D, Abdelbaset F, Lenihan B, Lenihan DV. Increasing diversity in the physician workforce: pathway programs and predictive analytics. *Acad Med.* 2023;98(10):1154-1158. doi:10.1097/ACM.00000000000005287

5. Tello C, Goode CA. Factors and barriers that influence the matriculation of underrepresented students in medicine. *Front Psychol.* 2023;14:1141045. doi:10.3389/fpsyg.2023.1141045

6. Health Resources and Services Administration. HPSA Find. HRSA Data Warehouse. 2025. Updated 2025. Accessed June 30, 2025. <https://data.hrsa.gov/tools/shortage-area/hpsa-find>

7. 2024 MSQ All School Summary Report. Association of American Medical Colleges; 2024. Accessed June 30, 2025. <https://www.aamc.org/data-reports/students-residents/report/matriculating-student-questionnaire-msq>

8. Gross DA, Mattox LC, Winkleman N. Priming the physician pipeline: a regional AHEC's use of in-state medical school data to guide its health careers programming. *J Health Care Poor Underserved.* 2016;27(4A):8-18. doi:10.1353/hpu.2016.0194

9. Jung S, Rosser AA, Alagoz E. Engaging the entire learner: pathway program administrators' experiences of providing students with research experiences in academic medicine. *J Med Educ Curric Dev.* 2023;10:23821205231189981. doi:10.1177/23821205231189981

10. Anders ME, Prince LY, Williams TB, McGehee RE Jr, Thomas BR, Allen AR. Summer undergraduate biomedical research program for underrepresented minority students in a rural, low-income state. *Front Public Health.* 2024;12:1395942. doi:10.3389/fpubh.2024.1395942

11. Teherani A, Uwaezuoke K, Kenny J, et al. Aspiring physicians program: description and characterization of the support processes for an undergraduate pathway program to medicine. *Med Educ Online.* 2023;28(1):2178368. doi:10.1080/10872981.2023.2178368

12. Parsons M, Caldwell MT, Alvarez A, et al. Physician pipeline and pathway programs: an evidence-based guide to best practices for diversity, equity, and inclusion from the Council of Residency Directors in Emergency Medicine. *West J Emerg Med.* 2022;23(4):514-524. doi:10.5811/westjem.2022.2.54875

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