Career Outcomes Among Graduates of 2 Urban Health Primary Care Training Programs

Preetham Bachina, BS
Ariel G. Vilidnitsky, MD
Katherine Shaw, MD
Monica Mix, MD, MPH
Talia Robledo-Gil, MD
Leonard Feldman, MD, FACP, FAAP, MHM

ABSTRACT

Background In response to the ongoing primary care physician shortage and high attrition in primary care residency tracks, a large urban hospital unveiled the urban health (UH) internal medicine primary care track (IM PCT) and the combined internal medicine-pediatrics (MP) residency program 15 years ago. The 2 UH programs share a mission to create leaders in primary care who care for underserved populations in urban settings.

Objective To evaluate whether the careers of graduates from the UH IM PCT and MP residency program align with the programs' 4-part mission: training physicians who (1) practice primary care; (2) practice in urban settings; (3) care for underserved populations; and (4) serve in leadership roles.

Methods We developed a 10-minute, 38-item multiple choice and short-answer survey to evaluate the demographics, practice characteristics, and professional involvement of graduates from the UH IM PCT or MP programs between 2014 and 2021. We calculated the proportion of respondents whose careers align with the programs' 4-part mission. Chi-square tests compared demographics and career characteristics by graduation cohort (2014-2017 vs 2018-2021) and program (IM vs MP). Survey creation, data collection, and data analysis occurred between 2022 and 2024.

Results Fifty-seven of 63 (91%) surveyed graduates responded. Seventy-nine percent (45 of 57) currently practice primary care; 86% (49 of 57) work in urban settings; 77% (44 of 57) care for primarily underserved populations; and 67% (38 of 57) have leadership roles.

Conclusions Our study demonstrates that most graduates from the UH residency programs pursue careers aligned with the program's mission, with many practicing urban health primary care and taking on leadership roles.

Introduction

The Health Resources and Services Administration defines primary care health professional shortage areas as regions lacking sufficient primary care physicians (PCPs),[1] with current shortages resulting in only 47% of primary care needs being met.[2] By 2034, the deficit is projected to reach 86 000 PCPs, disproportionately affecting underserved areas.[3] To address this, primary care tracks within internal medicine (IM) residency programs emerged in the 1970s, with 91 programs offering 420 postgraduate year 1 positions in the 2024 Match.[4] While early programs successfully produced PCPs,[5,6] recent data from the 2019-2021 Internal Medicine In-Training Examination indicate that only 32% of graduates of these tracks pursue general internal medicine, with many shifting toward hospital medicine or subspecialties.[7]

Prior studies found that, though most residents enter primary care tracks intending to become PCPs, many change their plans during training.[8-11] For example, in one program, 93% of residents entered the IM primary care track interested in a primary care career.[11] By the end of residency, only 63% maintained similar interest, and after graduation, only 54% worked primarily in primary care.[11] This attrition rate is not unique; numerous primary care training programs report that the percentage of graduates who become PCPs fluctuates between 40 and 55%.[8-11] Since students who are genuinely interested in primary care tend to apply for and join these programs, their later decision not to pursue primary care cannot be explained by self-selection; instead, systemic factors and evolving career preferences likely contribute.[11] Quantitative and qualitative studies illuminate some of these factors. One multi-institutional survey of IM primary care program graduates found that those who worked as PCPs after graduation were more likely to cite their continuity clinic experience, opportunities for multidisciplinary care, relationships with faculty and peers, and the breadth of conditions seen in primary care as positively influencing their decision to work in the field.[12] Meanwhile, graduates who did not pursue primary care reported that administrative burden and concern for future burnout contributed to their decision.[12] A published qualitative study of primary care track graduates who did not enter primary care reveals similar sentiments.[13]

DOI: http://dx.doi.org/10.4300/JGME-D-25-00215.1

Editor's Note: The online supplementary data contains the survey used in the study and further data from the study.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-10-28 via free access

Physician participants cited mismatch between their expectations of primary care and reality, difficulty navigating complex boundaries between patients' social and medical needs, and lack of mentorship.[13]

Partially accounting for these factors, newer primary care tracks offer more tailored training experiences and seem to produce better results.[14,15] For example, an innovative primary care track created in 2009 allowed residents to join at the end of postgraduate year 1, offered scheduling autonomy to reduce mismatched expectations, and saw 11 of its first 13 graduates (85%) enter primary care.[14] Similarly, an HIV primary care pathway created in 2011 graduated 75% (6 of 8) of residents into primary care for patients with HIV.[15]

With the goal of creating a program dedicated to the specific needs of urban, disadvantaged populations that could serve as a model for residency programs elsewhere, the Johns Hopkins Urban Health (UH) Primary Care Combined Internal Medicine-Pediatrics (MP) residency and UH Internal Medicine Primary Care Track (IM PCT) enrolled their first intern classes in 2010 and 2011, respectively.[16] The programs center a 4-part mission to produce physicians who (1) practice primary care; (2) practice in urban settings; (3) care for underserved populations; and (4) serve in leadership roles.[16] UH leadership attempted to address some of the factors found to discourage primary care careers while maximizing those that incentivize entering primary care.[16] They prioritized creating a focused UH curriculum that prepares residents to address disadvantaged patients' holistic needs, a robust continuity clinic experience with program leadership as preceptors, and an alumni mentorship community.[16-18]

Early data from the first 4 cohorts from each program showed promising results: 56% of UH IM PCT and 79% of UH MP graduates went on to practice primary care.[16] Now, 15 years after the implementation of our UH residency curricula, we surveyed program alumni to determine the percentage of graduates whose current careers align with the programs' 4-part mission. In doing so, we sought to create a longitudinal dataset, unique in the literature thus far, providing a formal evaluation of our primary care residency outcomes to inform both our program and primary care programs nationwide as they continue to build a primary care workforce responsive to the needs of urban and disadvantaged communities.[16]

KEY POINTS

What Is Known
Primary care residency tracks can suffer from attrition; strategies are needed to optimize such tracks in their programmatic goals.

What Is New
This survey of graduates from a single institution's primary care for urban underserved populations found that most have careers that align with the missions of practicing primary care in urban settings, serving underserved populations, and taking on leadership roles.

Bottom Line
Aligning a program's curriculum and goals with a clear mission may effectively shape graduates' career paths, and tracking alumni is a valuable way to measure this success.

Methods

We surveyed all 63 former residents who graduated from the Johns Hopkins UH IM PCT or UH MP residency between 2014 and 2021. We developed the initial survey in 2022 based on a literature review of residency program evaluation surveys.[8,19-25]

Our survey (provided as online supplementary data) included 2 sections. The first asked respondents about their demographics and current careers (eg, specialty). Due to the small number of graduates, we aggregated the results into two 4-year cohorts and limited answer choices for multiple choice questions to decrease the possibility of inadvertently identifying respondents. For instance, the survey asked respondents whether they come from a background underrepresented in medicine rather than asking about specific racial or ethnic identities. The survey's second section asked graduates if their residency program adequately prepared them in a variety of competencies outlined in the learning objectives of core rotations. All questions from both sections were optional. Responses were collected anonymously and kept confidential. We asked 13 current UH IM PCT/UH MP residents to fill out the survey and provide open-ended feedback. Based on their feedback, we made minor adjustments to optimize length and clarity. We estimated that the final 38-item survey, containing 32 multiple-choice and 6 short-answer questions, took a median time of 10.5 minutes to complete.

Qualtrics generated the survey, and the UH IM PCT and MP program director provided graduate emails and phone numbers. Graduates received individualized emails asking them to participate. The survey remained open for 3 months with up to 7 reminder emails and individualized text messages sent during this period to non-responders. The survey closed in January 2023.

The research coordinator downloaded de-identified survey responses from Qualtrics into an Excel spreadsheet, stratifying counts for demographic and career data by program (UH IM PCT or UH MP) and graduation year (grouped by 2014-2017 and 2018-2021). Using R (4.2.0) in 2023-2024, authors P.B. and A.G.V.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-10-28 via free access

performed chi-square tests to compare demographic and career characteristics by program or year and median tests to compare median time spent on clinical activities. They also calculated how many parts of the 4-part mission each respondent reported meeting, using these totals to determine the percent of respondents meeting each part of the mission and all 4 parts. Respondents choosing not to answer one or more questions related to the program's mission were treated as not fulfilling those components of the mission. They then analyzed odds ratios with Fisher exact tests to determine whether individuals from a given demographic, program, or graduation cohort were more likely to report that their current careers meet all 4 parts of our programs' mission. One respondent did not specify their graduation year cohort; their data were excluded from year-based comparisons but included in program-based analyses. Assumptions for chi-square (minimum expected counts, independence), Fisher exact (independence, fixed totals, mutually exclusive groups), and median tests (independence, ordinal data, similarly shaped distributions, no extreme outliers) were met. Although our study surveyed the full population of UH graduates rather than a random sample, we felt it was reasonable to assume that nonresponders were randomly distributed across cohorts, supporting the validity of these tests.

This study was deemed exempt from full review by the Johns Hopkins Medicine Institutional Review Board.

Results

Fifty-seven of 63 UH graduates completed the survey for an overall 91% response rate (IM, 85% (28/33) response rate; MP, 97% (29/30); TABLE 1). Among respondents, 60% (34 of 57) are female, 21% (12 of 57) identify as an underrepresented in medicine (URiM), 16% (9 of 57) come from a disadvantaged background, and 23% (13 of 57) were raised in an urban setting (TABLE 1). We found no significant demographic differences when stratifying by program or graduation cohort (TABLE 1).

TABLE 1
Demographic Characteristics of Urban Health Graduates

	Internal Medicine (N=28)		Med-Peds (N=29)[a]		*P* value	*P* value
	2014-2017 (N=11), n (%)	2018-2021 (N=17), n (%)	2014-2017 (N=13), n (%)	2018-2021 (N=15), n (%)	Comparing Programs	Comparing Cohorts
Gender[b]					.44	.31
Male (N=22)[a]	4 (36.4)	8 (47.1)	3 (23.1)	6 (40.0)		
Female (N=34)	6 (54.5)	9 (52.9)	10 (76.9)	9 (60.0)		
Nonbinary (N=1)	1 (9.09)	0 (0.0)	0 (0.0)	0 (0.0)		
URiM[c]					.59	.58
Yes (N=12)	2 (18.2)	5 (29.4)	2 (15.4)	3 (20.0)		
No (N=4)[a]	9 (81.8)	10 (58.8)	11 (84.6)	12 (80.0)		
No Answer (N=2)	0 (0.0)	2 (11.8)	0 (0.0)	0 (0.0)		
Disadvantaged background[d]					.91	.75
Yes (N=9)	2 (18.2)	3 (17.6)	1 (7.7)	3 (20.0)		
No (N=47[a])	9 (81.8)	13 (76.5)	12 (92.3)	12 (80.0)		
No answer (N=1)	0 (0.0)	1 (5.9)	0 (0.0)	0 (0.0)		
Geographic origin					.36	.35
Urban (N=13)	3 (27.3)	2 (11.8)	4 (30.8)	4 (26.7)		
Suburban (N=32)[a]	5 (45.5)	12 (70.6)	5 (38.5)	9 (60.0)		
Rural (N=10)	3 (27.3)	3 (17.6)	3 (23.1)	1 (6.7)		
Other (N=2)	0 (0.0)	0 (0.0)	1 (7.7)	1 (6.7)		

[a] Table totals are one less than the full number of respondents because one UH MP respondent did not specify their cohort year.
[b] Options for gender identity were female, genderqueer/nonbinary/gender diverse, male, another category, and prefer not to say. Sex assigned at birth was asked about in a separate question and included the categories male, female, and intersex.
[c] Underrepresented in medicine (URiM) was defined for respondents using the Association of American Medical Colleges definition, which specifies URiM to mean the "racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population."
[d] Disadvantaged background was defined using the Health Resources and Services Administration definition, which includes environmentally, economically, and educationally disadvantaged categories.
Abbreviations: Med-Peds, internal medicine and pediatrics; URiM, underrepresented in medicine; UH MP, Johns Hopkins Urban Health Primary Care Combined Internal Medicine-Pediatrics.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-10-28 via free access

Seventy-nine percent (45 of 57) of respondents report practicing primary care (TABLE 2). Eighty-six percent (49 of 57) and 77% (44 of 57) report working primarily in urban settings and serving predominantly underserved patients, respectively (TABLE 2). Most respondents report working either outpatient only (23 of 57, 40%) or both inpatient and outpatient (29 of 57, 51%; TABLE 2), while only 4 graduates work exclusively inpatient (4 of 57, 7%). We found no statistically significant differences between programs or graduation cohorts regarding these elements of their clinical practice (TABLE 2).

TABLE 2 shows that the median proportion of time spent in the work week for clinical activities was 70% (IQR 25-85) with no significant differences between programs and graduation cohorts. Several respondents pursued further training via fellowships (22 of 57, 39%) and/or certifications (17 of 57, 30%; TABLE 3). Of those who pursued fellowships, 73% (16 of 22) completed general fellowships often associated with primary care (eg, geriatric medicine; TABLE 3). Most participants (38 of 57, 67%) hold a leadership position (TABLE 4). Additionally, many respondents report using the remainder of their work week for nonclinical activities (eg, research, consulting; TABLE 4). We observed no significant differences between programs and graduation cohorts (TABLES 3 and 4).

Thirty-five percent (20 of 57) of graduates have careers that fulfill all 4 mission objectives (FIGURE). When comparing those whose careers fulfill all 4 parts of the mission to those whose careers do not, we did not observe any statistically significant differences in respondent demographics (including gender, URiM status, and urban hometown), program, or graduation cohort (online supplementary data TABLES 1 and 2). All respondents reported that their careers meet at least one component of the mission (online supplementary data TABLE 2).

TABLE 2
Clinical Practice Characteristics of Urban Health Graduates

	Internal Medicine (N=28)		Med-Peds (N=29)[a]		*P* value	*P* value
	2014-2017 (N=11), n (%)	2018-2021 (N=17), n (%)	2014-2017 (N=13), n (%)	2018-2021 (N=15), n (%)	Comparing Programs	Comparing Cohorts
Primary care[b]					.09	.12
Yes (N=45)[a]	5 (45.5)	14 (82.4)	11 (84.6)	14 (93.3)		
No (N=12)	6 (54.5)	3 (17.6)	2 (15.4)	1 (6.7)		
Underserved patients					.46	1.00
Yes (N=44)[a]	6 (54.5)	14 (82.4)	12 (92.3)	11 (73.3)		
No (N=11)	4 (36.4)	3 (17.6)	1 (7.7)	3 (20.0)		
Other[c] (N=2)	1 (9.1)	0 (0.0)	0 (0.0)	1 (6.7)		
Practice setting					.15	.65
Urban (N=49)	7 (63.6)	15 (88.2)	13 (100.0)	14 (93.3)		
Suburban (N=3)	2 (18.2)	1 (5.9)	0 (0.0)	0 (0.0)		
Rural (N=3)	1 (9.1)	1 (5.9)	0 (0.0)	1 (6.7)		
Other[c] (N=2[a])	1 (9.1)	0 (0.0)	0 (0.0)	0 (0.0)		
Clinical work setting					.50	.35
Inpatient only (N=4)	1 (9.1)	2 (11.8)	0 (0.0)	1 (6.7)		
Outpatient only (N=23)	3 (27.3)	8 (47.1)	9 (69.2)	3 (20.0)		
Both (N=29)[a]	6 (54.5)	7 (41.2)	4 (30.8)	11 (73.3)		
Not clinical (N=1)	1 (9.1)	0 (0.0)	0 (0.0)	0 (0.0)		
% clinical time in work, week (median [IQR])	55 [25-60]	80 [25-95]	60 [30-80]	75 [25-90]	1.00	.10
% clinical time spent inpatient[d], week (median [IQR])	11 [10-20]	50 [6-80]	26.5 [1-33]	10 [5-10]	.21	.33

[a] Table totals are one less than the full number of respondents because one UH MP respondent did not specify their cohort year.
[b] This question was posed to all individuals, including any who spent 100% of their clinical time inpatient.
[c] One respondent was 100% nonclinical, and thus the questions about practice setting and working with an underserved patient population were not relevant to them. Another respondent chose not to answer the question about whether their patient population is underserved.
[d] This question was asked only to individuals who reported practicing both inpatient and outpatient medicine.
Abbreviations: Med-Peds, internal medicine and pediatrics; UH MP, Johns Hopkins Urban Health Primary Care Combined Internal Medicine-Pediatrics.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-10-28 via free access

TABLE 3
Additional Training Pursued by Urban Health Graduates

	Internal Medicine (N=28)		Med-Peds (N=29)[a]		*P* value	*P* value
	2014-2017 (N=11), n (%)	2018-2021 (N=17), n (%)	2014-2017 (N=13), n (%)	2018-2021 (N=15), n (%)	Comparing Programs	Comparing Cohorts
Fellowships					.41	.22
General[b] (N=16)[a]	1 (9.1)	5 (29.4)	3 (23.1)	6 (40.0)		
Subspecialty[c] (N=6)	3 (27.3)	1 (5.9)	1 (7.7)	1 (6.67)		
None (N=34)	7 (63.6)	11 (64.7)	8 (61.5)	8 (53.3)		
N/A[d] (N=1)	0 (0.0)	0 (0.0)	1 (7.7)	0 (0.0)		
Certification					0.28	0.90
Yes (N=17)	2 (18.2)	4 (23.5)	6 (46.2)	5 (33.3)		
No (N=40[a])	9 (81.8)	13 (76.5)	7 (53.8)	10 (66.7)		
Type of certification[e]						
Addiction	1	1	3	4		
HIV	0	1	1	2		
Pediatric HM	0	0	1	0		
Obesity	1	0	1	0		
Informatics	0	2	0	0		
Other	0	1	1	0		

[a] Table totals are one less than the full number of respondents because one UH MP respondent did not specify their cohort year.
[b] General fellowships include general internal medicine, general pediatrics, geriatric medicine, adolescent medicine, addiction medicine, obesity medicine, and National Clinical Scholars Program.
[c] Subspecialty fellowships included hematology/oncology, infectious disease, critical care medicine, and palliative care.
[d] One respondent preferred not to answer.
[e] Individuals may attain more than one certificate, so the total number of certificates does not equal the total number of graduates with a certificate.
Abbreviations: Med-Peds, internal medicine and pediatrics; N/A, not available; HM, hospital medicine; UH MP, Johns Hopkins Urban Health Primary Care Combined Internal Medicine-Pediatrics.

TABLE 4
Leadership and Nonclinical Activities of Urban Health Graduates

	Internal Medicine (N=28)		Med-Peds (N=29)[a]		*P* value	*P* value
	2014-2017 (N=11), n (%)	2018-2021 (N=17), n (%)	2014-2017 (N=13), n (%)	2018-2021 (N=15), n (%)	Comparing Programs	Comparing Cohorts
Leadership[b]					1.00	.10
Yes (N=38[a])	9 (81.8)	9 (52.9)	11 (84.6)	8 (53.3)		
No (N=16)	2 (18.2)	6 (35.3)	2 (15.4)	6 (40.0)		
N/A[c] (N=3)	0 (0.0)	2 (11.8)	0 (0.0)	1 (6.67)		
Nonclinical activities						
Medical education	7 (63.6)	10 (58.8)	6 (46.2)	11 (73.3)		
Administrative	7 (63.6)	10 (58.8)	7 (53.8)	5 (33.3)		
Research	6 (54.5)	5 (29.4)	6 (46.2)	8 (53.3)		
Consulting	2 (18.2)	2 (11.8)	1 (7.7)	0 (0.0)		
Public health	3 (27.3)	2 (11.8)	0 (0.0)	3 (20.0)		
Global health	0 (0.0)	0 (0.0)	0 (0.0)	1 (6.7)		
Policy	0 (0.0)	3 (17.6)	0 (0.0)	0 (0.0)		

[a] Table totals are one less than the full number of respondents because one UH MP respondent did not specify their cohort year.
[b] Leadership roles were self-identified.
[c] One respondent preferred not to answer.
Abbreviations: Med-Peds, internal medicine and pediatrics; N/A, not available; UH MP, Johns Hopkins Urban Health Primary Care Combined Internal Medicine-Pediatrics.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-10-28 via free access

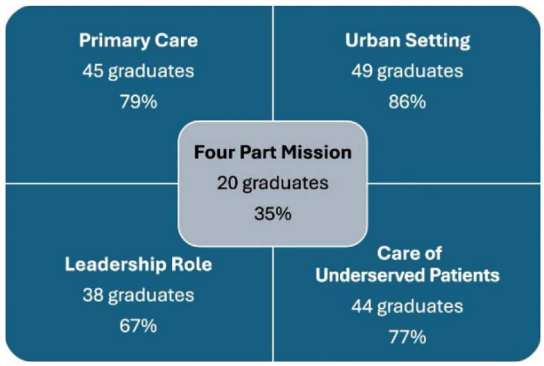

FIGURE
Percentage of Graduates Whose Current Careers Fulfill Each Component of the 4-Part Mission

Discussion

This study, which included survey responses from 57 of 63 (91%) former residents from our first 8 cohorts of graduates, revealed a 79% retention rate in primary care, which is greater than the 40-55% retention rates reported in prior studies.[8-11] The retention rates of 68% and 90% surpassed our previously reported 56% and 79% in 2017 for our UH IM PCT and UH MP cohorts, respectively.[16] Most of our UH cohort did not pursue fellowships or certifications; those who did largely focused on general fellowships or certifications in areas commonly managed by PCPs, such as addiction and HIV. Only 11% (6 of 57) pursued subspecialty fellowships not typically associated with primary care, a rate lower than in prior studies.[8,10] While many factors may contribute to our improvement, further research is needed to identify them for national replication. We suspect the 3 most important factors are our continuity clinic design, residents' specific training in addressing medical problems that disproportionately affect underserved urban communities, and an emphasis on the range of career and leadership opportunities within primary care.

Our continuity clinic serves as the foundation of the UH programs and emphasizes using team-based care to address the social determinants of health.[26,27] Designated as a Federally Qualified Health Center since 2020, the clinic includes an interdisciplinary team of social workers, case managers, community health workers, pharmacists, and nutritionists/diabetes educators. This team-based structure enhances resident education, strengthens patient relationships, and allows more time for direct patient care.[26,27] Building on their continuity clinic experiences, residents gain focused exposure in areas directly applicable to their patients through dedicated rotations on topics including women's health, carceral medicine, addiction, HIV, Hepatitis C, mental health, and care for unhoused individuals. These rotations, along with available public health and policy experiences at local, state, and federal levels, enhance residents' ability to advocate for systemic change. Altogether, the curriculum equips residents for the challenges they will face in independent practice and enables them to identify areas where they can take on leadership roles to shape the field.

While our mission is specific, our curricular emphasis on diverse career and leadership opportunities within primary care likely contributes to our high retention rate, showcasing pathways in research, medical education, advocacy, and administration that graduates can pursue alongside clinical practice. While prior surveys show an average primary care retention rate of 57%,[8] newer tailored residency models, including ours, report rates above 75%.[14,15] These programs may achieve higher retention by aligning with students' specific interests and providing relevant curricular offerings that promote long-term retention in primary care.[14,15] Consistent with this hypothesis, all survey respondents reported engaging in activities beyond direct clinical care and the majority (67%, 38 of 57) hold leadership roles, reflecting the emphasis on leadership development in our programs. Our graduates find their niche in primary care.

Further demonstrating the impact of our programs' targeted design, outcomes across our 4-part mission did not significantly differ by demographics, program, or graduation cohort.

Our study has limitations. First, definitions of "underserved," "primary care," and "leadership," rely on self-identification. This design allowed participants to interpret these terms based on their professional context and lived experiences, with the goal of capturing diverse and potentially nontraditional—but meaningful—forms of service. Nevertheless, this flexibility introduces subjectivity to our findings.

Second, self-selection likely plays a role in our graduates' high primary care retention rate. However, as the data reflects that self-selection plays a role for all residents choosing primary care programs, this alone cannot account for the higher primary care retention observed in our program.[8-11] Future research will focus on which elements, including our recruitment process and specific residency experiences, most influence our graduates' career choices.

Third, our survey captured only respondents' current careers, though medical careers evolve over time. Nevertheless, given the relatively young age of our programs, many of our graduates may have only had one postgraduation job up until this point. With this early-career baseline established, future surveys may track career progression, providing longitudinal data to identify factors that support long-term primary care retention. Relatedly, to protect respondent anonymity, we chose to dichotomize graduation years

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-10-28 via free access

as 2014 to 2017 and 2018 to 2021. We recognize that this approach limits detection of gradual changes in career outcomes over time, but anticipate that longitudinal data collected over future iterations of the survey will help further clarify temporal trends. Furthermore, while we had an excellent response rate of 91%, there is likely self-selection bias based on who chose to respond. Including non-responders may have dampened the results. Finally, responses may have been influenced by social desirability bias, with participants potentially overstating behaviors related to the programs' 4-part mission.

Understanding the factors influencing career outcomes of primary care residency graduates is crucial to solving the national PCP shortage. We aim to continue using this survey with future cohorts to develop a novel, longitudinal database of post-residency outcomes to inform primary care residency program design. Moreover, we also aim to collaborate with newer programs with similar goals and curricula, including those at the University of Miami, Mount Sinai, and MetroHealth, to determine which aspects of our model are both most successful and most generalizable. We hope this will lead more institutions serving disadvantaged populations to build programs of their own based on our model.

Conclusions

Our survey demonstrates that the majority of Johns Hopkins Urban Health residency graduates report careers in primary care, primarily in urban and underserved settings, with high rates of involvement in both clinical and nonclinical activities. Two-thirds hold leadership roles, and over one-third pursued additional training through fellowships or certifications. All respondents reported careers aligning with at least one component of the programs' mission, with 35% (20/57) fulfilling all 4 components.

References

1. Health Resources and Service Administration. What is shortage designation? Accessed August 14, 2025. https://bhw.hrsa.gov/workforce-shortage-areas/shortage-designation#hpsas
2. Health Resources and Services Administration. Designated Health Professional Shortage Areas Statistics Third Quarter of Fiscal Year 2024 Designated HPSA Quarterly Summary. Accessed August 14, 2025. https://data.hrsa.gov/default/generatehpsaquarterlyreport
3. Association of American Medical Colleges. The complexities of physician supply and demand: projections from 2021 to 2036: summary report. Published March 2024. Accessed August 14, 2025. https://www.aamc.org/media/75231/download?attachment&%3A%7E%3Atext=Physician%20demand%20is%20projected%20to%2Cand%2086%2C000%20physicians%20by%202036
4. National Resident Matching Program. Advanced data tables: 2024 Main Residency Match. Accessed August 14, 2025. https://www.nrmp.org/wp-content/uploads/2024/03/Advance-Data-Tables-2024.pdf
5. Lipkin M, Zabar SR, Kalet AL, et al. Two decades of Title VII support of a primary care residency: process and outcomes. *Acad Med*. 2008;83(11):1064-1070. doi:10.1097/ACM.0b013e31818928ab
6. Altshuler L, Fisher H, Hanley K, et al. Training primary care physicians to serve underserved communities: follow-up survey of primary care graduates. *J Gen Intern Med*. 2019;34(12):2728-2730. doi:10.1007/s11606-019-05198-x
7. Paralkar N, LaVine N, Ryan S, et al. Career plans of internal medicine residents from 2019 to 2021. *JAMA Intern Med*. 2023;183(10):1166-1167. doi:10.1001/jamainternmed.2023.2873
8. O'Rourke P, Tseng E, Chacko K, Shalaby M, Cioletti A, Wright S. A national survey of internal medicine primary care residency program directors. *J Gen Intern Med*. 2019;34(7):1207-1212. doi:10.1007/s11606-019-04984-x
9. Klein R, Alonso S, Anderson C, et al. Delivering on the promise: exploring training characteristics and graduate career pursuits of primary care internal medicine residency programs and tracks. *J Grad Med Educ*. 2019;11(4):447-453. doi:10.4300/JGME-D-19-00010.1
10. West CP, Dupras DM. General medicine vs subspecialty career plans among internal medicine residents. *JAMA*. 2012;308(21):2241-2247. doi:10.1001/jama.2012.47535
11. Stanley M, O'Brien B, Julian K, et al. Is training in a primary care internal medicine residency associated with a career in primary care medicine? *J Gen Intern Med*. 2015;30(9):1333-1338. doi:10.1007/s11606-015-3356-9
12. O'Rourke P, Tackett S, Chacko K, et al. Factors influencing primary care career choice: a multi-institutional cross-sectional survey of internal medicine primary care residency graduates. *J Gen Intern Med*. 2025;40(1):247-252. doi:10.1007/s11606-024-08846-z
13. Long T, Chaiyachati K, Bosu O, et al. Why aren't more primary care residents going into primary care? A qualitative study. *J Gen Intern Med*. 2016;31(12):1452-1459. doi:10.1007/s11606-016-3825-9
14. Brislen H, Dunn A, Parada A, Rendon P. Addressing the primary care shortage on a shoestring: a successful track in an internal medicine residency. *Acad Med*. 2016;91(2):224-228. doi:10.1097/ACM.0000000000000916
15. Fessler DA, Huang GC, Potter J, Baker JJ, Libman H. Development and implementation of a novel HIV primary care track for internal medicine residents. *J Gen Intern Med*. 2017;32(3):350-354. doi:10.1007/s11606-016-3878-9

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-10-28 via free access

16. Oldfield BJ, Clark BW, Mix MC, et al. Two novel urban health primary care residency tracks that focus on community-level structural vulnerabilities. *J Gen Intern Med*. 2018;33(12):2250-2255. doi:10.1007/s11606-017-4272-y
17. Johns Hopkins Medicine. Urban Health Internal Medicine Primary Care Track. Accessed August 14, 2025. https://www.hopkinsmedicine.org/medicine/education/osler-medical-residency/urban-health-primary-care/overview
18. Johns Hopkins Medicine. Medicine-Pediatrics Urban Health Residency Program. Accessed August 14, 2025. https://www.hopkinsmedicine.org/medpeds-urban-health
19. Torbeck L, Canal DF, Choi J. Is our residency program successful? Structuring an outcomes assessment system as a component of program evaluation. *J Surg Educ*. 2014;71(1):73-78. doi:10.1016/j.jsurg.2013.06.008
20. Durning SJ, Hemmer P, Pangaro LN. The structure of program evaluation: an approach for evaluating a course, clerkship, or components of a residency or fellowship training program. *Teach Learn Med*. 2007;19(3):308-318. doi:10.1080/10401330701366796
21. Luer S, Aebi C. Assessment of residency program outcomes via alumni surveys. *Adv Med Educ Pract*. 2017;8:307-315. doi:10.2147/AMEP.S131043
22. Parrino TA, Kern DC. The alumni survey as an instrument for program evaluation in internal medicine. *J Gen Intern Med*. 1994;9(2):92-95. doi:10.1007/BF02600209
23. Gaeta T, Mahalingam G, Pyle M, Dam A, Visconti A. Using an alumni survey to target improvements in an emergency medicine training programme. *Emerg Med J*. 2018;35(3):189-191. doi:10.1136/emermed-2017-206692
24. Weidner AKH, Chen FM, Peterson LE. Developing the National Family Medicine Graduate Survey. *J Grad Med Educ*. 2017;9(5):570-573. doi:10.4300/JGME-D-17-00007.1
25. Stanford Medicine Graduate Medical Education. Forms, templates & examples. Accessed August 14, 2025. https://med.stanford.edu/gme/program_portal/programs/forms.html#acgme
26. Kryzhanovskaya I, Cohen BE, Kohlwes RJ. Factors associated with a career in primary care medicine: continuity clinic experience matters. *J Gen Intern Med*. 2021;36(11):3383-3387. doi:10.1007/s11606-021-06625-8
27. Peccoralo LA, Tackett S, Ward L, et al. Resident satisfaction with continuity clinic and career choice in general internal medicine. *J Gen Intern Med*. 2013;28(8):1020-1027. doi:10.1007/s11606-012-2280-5
28. Laven G, Wilkinson D. Rural doctors and rural backgrounds: how strong is the evidence? A systematic review. *Aust J Rural Health*. 2003;11(6):277-284. doi:10.1111/j.1440-1584.2003.00534.x
29. Strasser R. Learning in context: education for remote rural health care. *Rural Remote Health*. 2016;16(2):4033. doi:10.22605/RRH4033
30. Weiss J, Balasuriya L, Cramer LD, et al. Medical students' demographic characteristics and their perceptions of faculty role modeling of respect for diversity. *JAMA Netw Open*. 2021;4(6):e2112795. doi:10.1001/jamanetworkopen.2021.12795
31. Xierali IM, Nivet MA. The racial and ethnic composition and distribution of primary care physicians. *J Health Care Poor Underserved*. 2018;29(1):556-570. doi:10.1353/hpu.2018.0036
32. Snyder JE, Upton RD, Hassett TC, Lee H, Nouri Z, Dill M. 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(4):e236687. doi:10.1001/jamanetworkopen.2023.6687
33. Marrast LM, Zallman L, Woolhandler S, Bor DH, McCormick D. Minority physicians' role in the care of underserved patients: diversifying the physician workforce may be key in addressing health disparities. *JAMA Intern Med*. 2014;174(2):289-291. doi:10.1001/jamainternmed.2013.12756

Preetham Bachina*, BS, is a 4th Year Medical Student, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA; **Ariel G. Vilidnitsky, MD*,** is a PGY-1 Resident, Pediatrics Residency Program, Johns Hopkins University, Baltimore, Maryland, USA; **Katherine Shaw, MD,** is an Instructor in Medicine, Departments of Internal Medicine and Pediatrics, Clinic Preceptor and Associate Director, Johns Hopkins Urban Health Residency Program, Johns Hopkins University, Baltimore, Maryland, USA; **Monica Mix, MD, MPH,** is an Instructor in Medicine, Departments of Internal Medicine and Pediatrics, Clinic Preceptor and Associate Director, Johns Hopkins Urban Health Residency Program, Johns Hopkins University, Baltimore, Maryland, USA; **Talia Robledo-Gil, MD,** is an Internist, Department of Medicine, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, USA; and **Leonard Feldman, MD, FACP, FAAP, MHM,** is an Associate Professor, Departments of Internal Medicine and Pediatrics, and Program Director, Johns Hopkins Urban Health Residency Program, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA.

*Drs Bachina and Vilidnitsky served as co-first authors and contributed equally to the work.

Funding: The Health Resources and Services Administration, Department of Health and Human Services, provided financial support for this project under grant D58HP37574. The contents are those of the authors and may not reflect the policies of the Department of Health and Human Services or the US government.

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

This work was presented as a poster at the Alliance for Academic Internal Medicine, April 14-17, 2024, Columbus, Ohio, USA.

The authors would like to thank the Urban Health graduates for taking the time to complete the survey and allowing them to analyze and publish this important data.

Corresponding author: Leonard Feldman, MD, FACP, FAAP, MHM, John Hopkins University School of Medicine, Baltimore, Maryland, USA, lf@jhmi.edu

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-10-28 via free access