



Matching Our Mission: A Strategic Plan to Create a Diverse Family Medicine Residency

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BACKGROUND AND OBJECTIVES: Increasing the number of underrepresented minority (URM) physicians improves access and quality of care. URMs are more likely to practice primary care and work in underserved communities. The racial and ethnic diversity of family physicians lags behind the general population. To create a more diverse residency, the Boston Medical Center Family Medicine Residency Program (BMCFMRP) developed, implemented, and evaluated a strategic plan for diversity recruitment.

METHODS: In academic year (AY) 2014-2015, we set goals to increase the number of URM applicants and the percentage of matched URMs. From 2014-2017, we implemented an intervention focused on: (1) increasing outreach to URM candidates, (2) revising interviews to minimize bias, and (3) analyzing recruitment data.

RESULTS: From 2014-2017, the total number of URM applicants increased by 80% (61 to 110). Evaluating recruitment trends from 2010-2017, there was a statistically significant increase ($P<0.001$) in the percentage of URM applicants from 13.3% (29 of 218 total applicants) to 19.9% (110 of 402). There was also a significant increase ($P=0.029$) in the percentage of matched URMs. Before the intervention, the percentage ranged from 0% to 20% (2011: 0% [$n=0/6$], 2014: 0% [$n=0/10$], 2013: 20% [$n=2/10$]). During the intervention, the percentage ranged from 25% to 50% (2017: 25% [$n=3/12$], 2016: 50% [$n=6/12$]).

CONCLUSIONS: The implementation of a strategic plan for diversity recruitment increased the number of URM applicants and the percentage of URMs matching into the BMCFMRP. Additional research is needed to determine if these strategies produce similar results in residency programs at other institutions and in other medical specialties.

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A diverse physician workforce promotes health equity.¹ Currently racial and ethnic minorities comprise nearly 40% of the US population; however, individuals who identify as black, Hispanic, and Native American are designated underrepresented minorities (URM) in medicine because

their representation in the physician workforce is less than that in the general population.^{2,3} In 2013, 8% of US physicians identified as URMs.

Increasing the number of URM physicians will improve access and quality of health care.^{4,5} URM physicians are more likely to practice primary care and work in underserved

communities of color.^{6,7} Additionally, physician-patient racial or language concordance correlates to improved patient satisfaction and adherence.^{8,9}

The diversity of family physicians has increased, but continues to lag behind the general population.¹⁰ In 2012, 9.4% of family medicine residents identified as Hispanic, 7.9% as black, and 0.9% as Native American.¹⁰ According to the American Academy of Family Physicians, "recruiting and retaining culturally diverse individuals into the field of family medicine is an important strategy to reduce disparities in health outcomes."¹¹ Despite the need for a more diverse family medicine workforce, to date there are no published studies that evaluate strategies for increasing the number of URMs in a family medicine residency program.

Boston Medical Center (BMC) is the largest safety-net hospital in New England. Seventy percent of patients come from underresourced populations and 60% of patient encounters involve patients identifying as black, Hispanic, Native American, or Native Hawaiian. Despite the diverse patient population, the racial and ethnic diversity of the BMC Family Medicine Residency Program (BMCFMRP) has historically been equal to or less than the national median. In academic year (AY)

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2013-2014, 10.3% of residents identified as URMs. In the 2014 National Residency Match Program (NRMP), zero of the 10 matched interns identified as URMs. In response to the 2014 Match the author (M.H.W.), a URM resident passionate about minority representation in medicine, met with the program leadership to discuss strategies for increasing the number of URM residents. Within months, we began the development, implementation, and evaluation of a strategic plan for diversity recruitment.

Methods

In AY 2014-2015, a team comprised of the program director, associate program director, residency coordinator, and the author (M.H.W.) developed a strategic plan to increase the number of URMs who apply and match into the program. We conducted a literature search to identify examples of diversity recruitment strategies employed in medical schools and graduate medical education (GME). We also consulted the Office of Minority Physician Recruitment, an office in the BMC GME Department committed to the recruitment and advancement of URM residents and fellows. From 2014-2017, we implemented a stepwise intervention focused on: (1) increasing outreach to URM candidates, (2) revising interviews to minimize bias, and (3) analyzing recruitment data.

Increasing Outreach

In AY 2014-2015, we redesigned the program recruitment materials, emphasizing our commitment to underserved communities and featuring URM residents and faculty. We ensured that a URM resident or faculty member attended recruitment conferences focused on URM medical students and students interested in family medicine. Every URM candidate who interviewed met at least one URM resident and received a follow-up email from a URM resident or faculty member.

In AY 2016-2017 the director of diversity programs position, a 20%

full-time effort (FTE) administrative role, was created by the chair of the Department of Family Medicine (DFM) and funded directly by Boston Medical Center with support of the hospital president and CEO. The position is an additional role for a faculty member with demonstrated interest and experience in the area of diversity recruitment. The primary responsibilities of the director are to lead the development, implementation, and evaluation of diversity recruitment efforts within the DFM and to work with the Office of Minority Physician Recruitment to create and disseminate recruitment best practices throughout the institution. The author (M.H.W.) filled the inaugural position upon graduating from residency and being hired as faculty.

Revising Interviews

Medical education studies demonstrate that interviewer bias can affect candidates' interview scores.¹² Each BMCFMRP candidate has four interviews (the program director, two faculty, one resident). Beginning in AY 2015-2016, one faculty and one resident interview were blinded, meaning the interviewer had no access to the candidate's academic record. This helps eliminate the halo effect, in which the interviewer's preconceptions based on scores influence the interview evaluation.¹² Eliminating such bias is relevant given research showing that URMs traditionally score lower on the National Board of Medical Examiners (NBME) examinations.¹³ Structural racism has contributed to the overrepresentation of URM students in underperforming schools.¹⁴ Observed differences in test performance may also reflect stereotype threat.¹⁵ Stereotype threat occurs when individuals are at risk of confirming negative stereotypes about their group, such as the stereotype that racial and ethnic minority students score lower on standardized tests.¹⁵ Additionally, GME literature has questioned the utility of NBME scores in candidate evaluation.^{12,16} Step one scores may predict future examination

scores, but do not necessarily correlate with a resident's clinical performance.^{12,16,17}

In AY 2016-2017, we continued blinded interviews and evolved to a structured interview format with each interviewer asking standardized questions reflecting the program's mission and the characteristics valued in residents. While employment research has long supported structured interviews, medical education studies evaluating their use are limited and outcomes are mixed.^{18,19} Nonetheless, the American Association of Medical Colleges recommends structured interviews noting their greater reliability, validity, and equity.²⁰

Analyzing Recruitment Data

Using the Electronic Residency Application Service (ERAS), we collected recruitment data before and during the intervention (AYs 2010-2017). We recorded annually the number of US and Canadian candidates, both URM and non-URM, who applied, interviewed, were ranked and matched into the program. Individuals who self-identified in ERAS as black, Hispanic, Native American or Native Pacific Islander were designated URMs.

We used the Cochran Armitage trend test to examine trends in the percentage of URMs who applied and matched into the program before and during the intervention. Analyses were performed using SAS v9.4 with $P < 0.05$ considered statistically significant. The Boston University Institutional Review Board reviewed this project and deemed it exempt.

Results

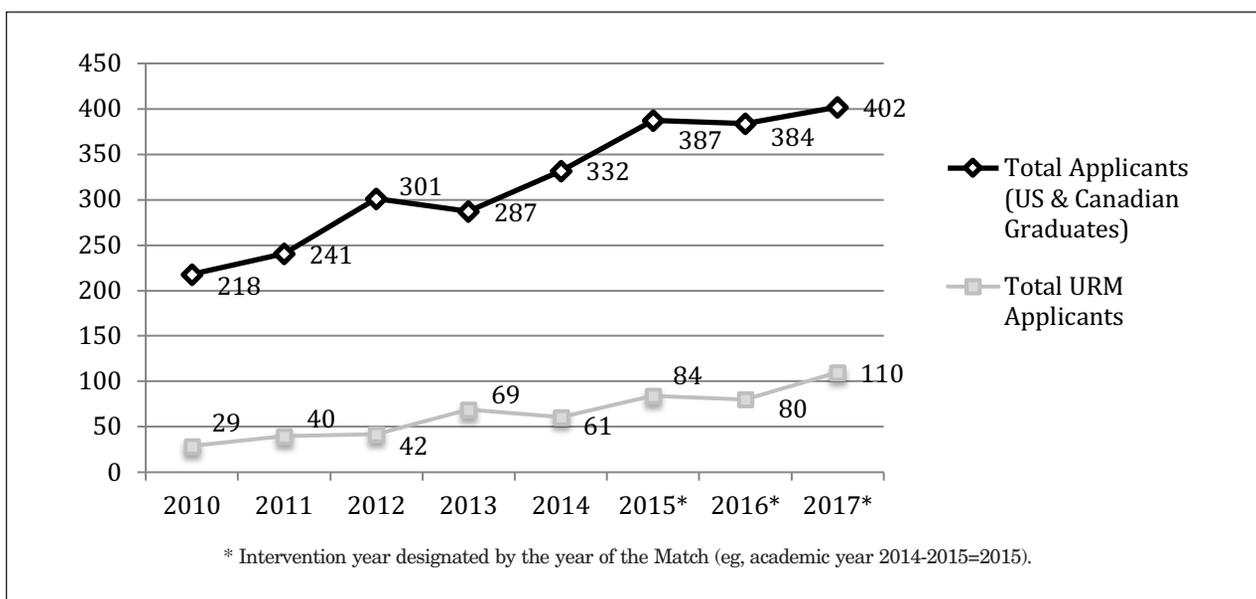
Table 1 describes recruitment data from AYs 2010-2017. During the intervention (AYs 2014-2017), the number of URM applicants increased by 80% (61 to 110, Figure 1). Evaluating recruitment trends from 2010-2017, there was a statistically significant increase ($P < 0.001$) in the percentage of URM applicants from 13.3% (29 of 218 applicants) to 19.9% (110 of 402 applicants, Figure

Table 1: Residency Recruitment Totals and Percentages by Year

	2010	2011	2012	2013	2014	2015*	2016*	2017*
Total applicants (US and Canadian graduates)	218	241	301	287	332	387	384	402
URM applicants, n (%)	29 (13.3)	40 (16.6)	42 (14.0)	69 (24.0)	61 (18.4)	84 (21.7)	80 (20.8)	110 (27.4)
Total candidates interviewed	136	187	196	196	191	195	197	206
URM candidates interviewed, n (%)	15 (11.0)	23 (12.3)	24 (12.2)	31 (15.8)	19 (10.0)	24 (12.3)	37 (18.8)	43 (20.9)
Total candidates ranked	117	126	127	173	172	178	181	199
URM candidates ranked, n (%)	14 (12.0)	20 (15.9)	19 (15.0)	26 (15.0)	18 (10.5)	19 (10.7)	31 (17.1)	40 (20.1)
Total candidates matched	6	6	10	10	10	10	12	12
URM candidates matched, n (%)	1 (16.7)	0 (0)	1 (10.0)	2 (20.0)	0 (0)	4 (40.0)	6 (50.0)	3 (25.0)

Abbreviation: URM, underrepresented minority in medicine.

*Intervention year is designated by the year of the Match (ie, academic year 2014-2015=2015).

Figure 1: Total Number of URM Applicants Compared to the Total Number of US and Canadian Medical School Applicants

2). There was also a significant increase ($P=0.029$) in the percentage of matched URM residents. Before the intervention, AYS 2010-2014, the percentage ranged from 0% to 20% (2011: 0% [n=0/6], 2014: 0% [n=0/10], 2013: 20% [n=2/10]). During the intervention, the percentage ranged from 25% to 50% (2017: 25% [n=3/12], 2016: 50% [n=6/12]; Figures 3 and 4).

In terms of the racial and ethnic identities of the matched URM residents, in 2015 three of the matched interns identified as black and one identified as Hispanic. In 2016, five identified as black and one identified as Hispanic. In 2017, one intern identified as black and two identified as Hispanic.

Discussion

The implementation of a strategic plan for diversity recruitment increased the total number of URM applicants and the percentage of URM residents matching into the BMCFM-RP. These results support previous research demonstrating that prioritizing diversity as a goal and implementing strategic interventions can lead to more diverse residency programs.^{21,22,23}

Figure 2: URM Applicants as a Percentage of Total Applicants

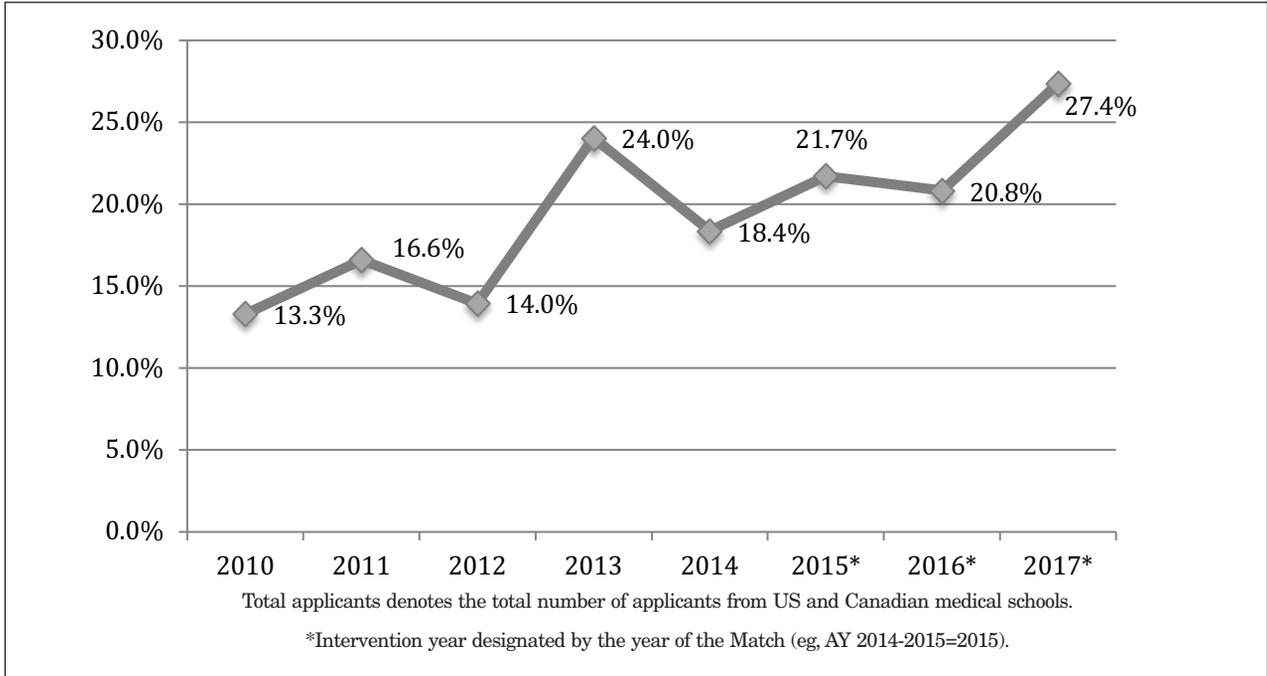
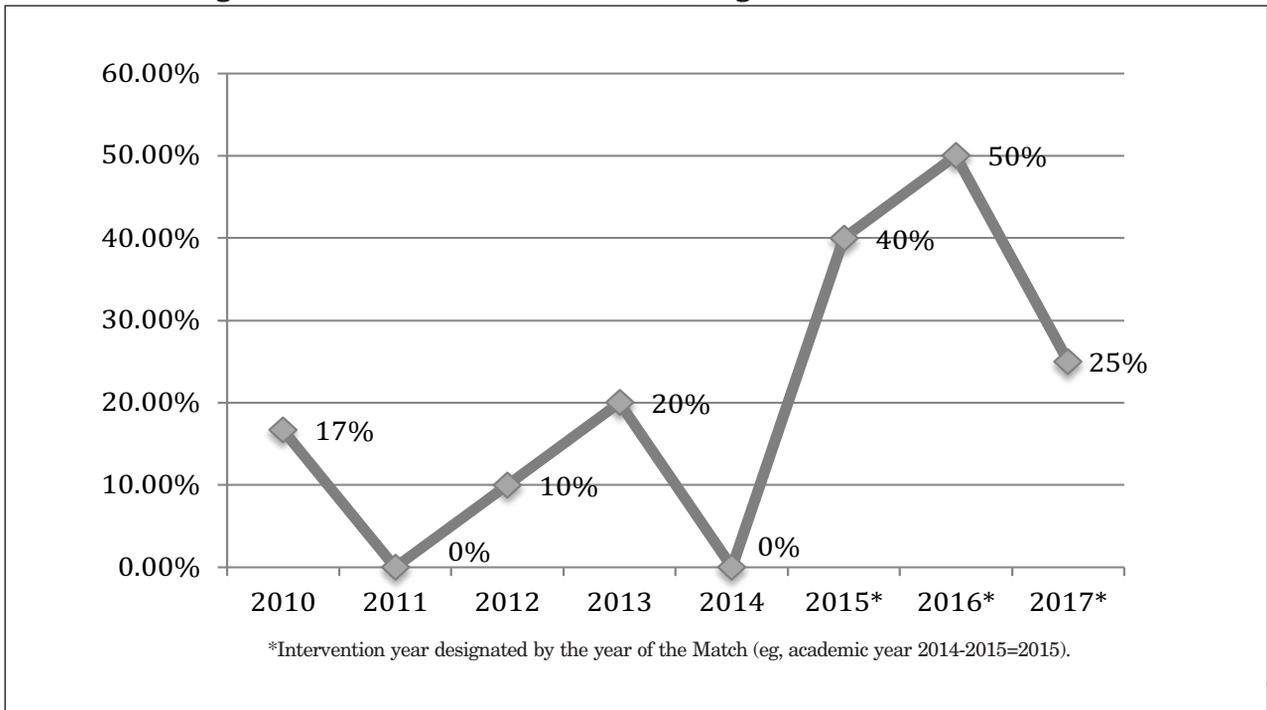


Figure 3: URM Candidates Matched as a Percentage of Total Candidates Matched



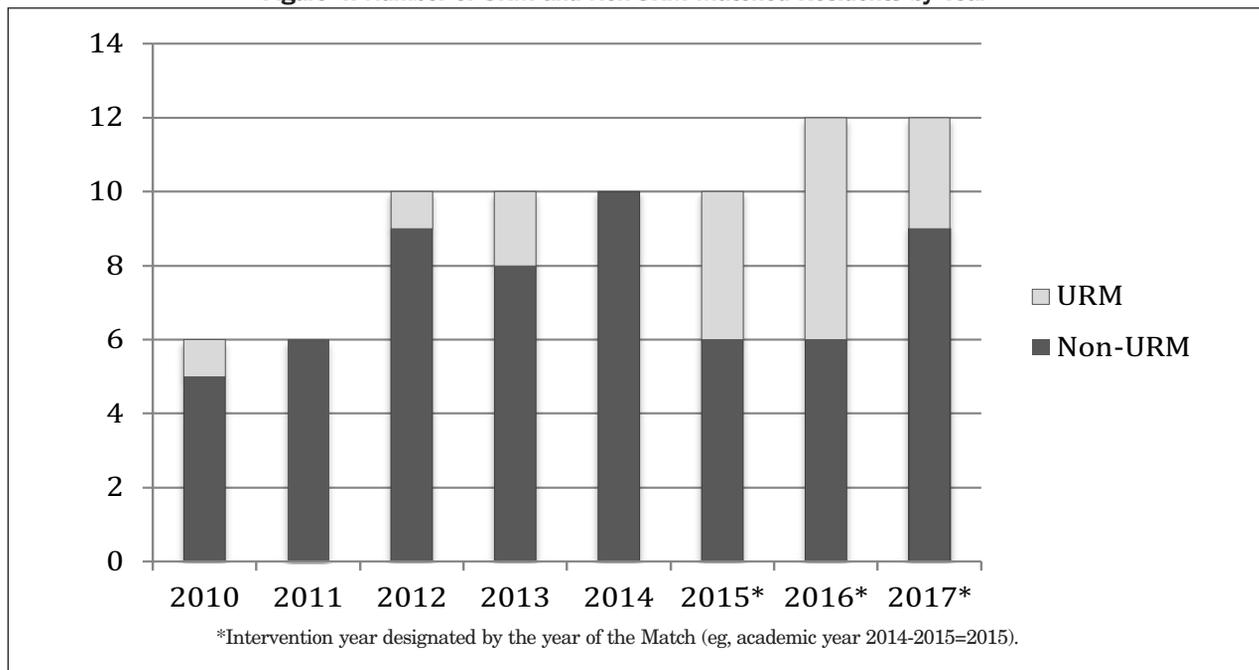
We encountered challenges during the implementation of the diversity recruitment strategies. To address questions from residents and faculty about the shift from our prior recruitment process, we began each recruitment season with a resident

meeting and a faculty development workshop. During the resident meeting, we emphasized our commitment to diversity recruitment, reviewed the process for the upcoming year, and explained the reasoning behind the interventions. The faculty

development workshop focused on the use of blinded and structured interviews to mitigate bias.

Central to the implementation and success of our strategic plan was the involvement of URM residents and faculty. Literature refers

Figure 4: Number of URM and Non-URM Matched Residents by Year



to the extra responsibilities placed on URM in academic medicine, particularly related to diversity, as the “minority tax.”²³ In order to decrease this burden, non-URM faculty assisted in the development of the revised recruitment processes. In addition, the participation of URM residents and faculty in additional recruitment activities was presented as optional, rather than an expectation. Most importantly, the creation of the Director of Diversity Programs position enabled the author (M.H.W.) to assume primary responsibility for the initiatives in an administrative role with protected time and compensation.

There are several methodological weaknesses to our evaluation. Data are observational. We cannot determine if our findings were due to the intervention. Other potential contributing factors include temporal changes in the characteristics of the candidates, the increased size of the intern class, the program reputation, and other nationwide recruitment trends. Since data are limited to a single residency, it is unknown if our results will generalize to other programs. Finally, individuals designing the plan were involved in evaluating

and ranking candidates, possibly introducing observer bias.

Further evaluation of the BMCFMRP strategic plan for diversity recruitment should examine the effect of URM candidates’ rank-list position and factors affecting URM candidates’ program-ranking decisions. In addition, the 2014-2017 strategic plan did not address applicant screening and selection for interview. In AY 2017-2018, our team developed and implemented a holistic applicant review aimed at mitigating bias and promoting our program’s mission and values in the screening and selection process. The data related to this intervention will be collected, analyzed, and reported. Beyond the BMCFMRP, research is needed to determine if implementing these strategies produces similar results in residency programs in other locations and in other specialties. Future interventions should expand their focus to supporting URM residents, recruiting and retaining URM faculty, creating pipeline initiatives, and developing curricula on the history and continued effects of racism, bias, and discrimination in order to further promote health equity.

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