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Examination of resident characteristics associated with interest in primary care and identification of barriers to cross-cultural care

Sara Abrahams^{1*}, Eun Ji Kim², Lyndonna Marrast², Omolara Uwemedimo³, Joseph Conigliaro² and Johanna Martinez²

Abstract

Background: There is an increasing shortage of primary care physicians in the U.S. The difficult task of addressing patients' sociocultural needs is one reason residents do not pursue primary care. However, associations between residents' perceived barriers to cross-cultural care provision and career interest in primary care have not been investigated.

Objective: We examined residents' career interest in primary care and associations with resident characteristics and their perceived barriers in providing cross-cultural care.

Methods: We conducted a cross-sectional analysis of a resident survey from the 2018–2019 academic year. We first described residents' sociodemographic characteristics based on their career interest in primary care (Chi-square test). Our primary outcome was high career interest in primary care. We further examined associations between residents' characteristics and perceived barriers to cross-cultural care.

Results: The study included 155 family medicine, pediatrics, and internal medicine residents (response rate 68.2%), with 17 expressing high career interest in primary care. There were significant differences in high career interest by race/ethnicity, as Non-White race was associated with high career interest in primary care ($p < 0.01$). Resident characteristics associated with identifying multiple barriers to cross-cultural care included disadvantaged background, multilingualism, and foreign-born parents (all p -values < 0.05). There were no significant associations between high career interest in primary care and barriers to cross-cultural care.

Conclusion: Residents from diverse racial/ethnic and socioeconomic backgrounds demonstrated higher career interest in primary care and perceived more barriers to cross-cultural care, underscoring the importance of increasing physician workforce diversity to address the primary care shortage and to improve cross-cultural care.

* Correspondence: sabrahams1@pride.hofstra.edu

¹Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, 500 Hofstra Blvd, Hempstead, NY 11549, USA

Full list of author information is available at the end of the article



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Introduction

The primary care physician shortage in the United States (U.S.) is increasing with projections estimating a lack of 20,000–50,000 in the next 10–15 years [1, 2]. This has widespread implications, as a robust primary care workforce is associated with improvements in mortality, healthcare access, and quality of care in addition to decreased reliance on safety net institutions [3–7]. Residents cite an inability to address patients' sociocultural needs during primary care clinical experiences as one reason for not pursuing primary care [8–10]. Cross-cultural care aims to understand the ways in which patients' backgrounds shape their views of health and can reduce health disparities [11, 12]. An example of cross-cultural care is using an interpreter for a patient with limited English proficiency to improve communication and the patient's understanding of his or her medical conditions. Residents describe cross-cultural care as important, yet identify barriers, such as language discordance, and lack of preparedness in providing it [13–15]. This suggests barriers to cross-cultural care provision are aspects of primary care that may dissuade trainees from entering the field [16–18].

Exposure to culturally diverse patient populations has been shown to improve trainees' cultural competency [19–21]. The Accreditation Council for Graduate Medical Education recommends cultural competency training in residency but does not provide specific guidelines, leading to inter-program variance [22, 23]. A sense of social responsibility, such as addressing social determinants of health, has been associated with choosing primary care specialties [24, 25]. Few studies have examined associations between residents' interest in primary care and perceived barriers to cross-cultural care.

In our study, we identified associations between residents' sociodemographic and background characteristics and their interest in pursuing primary care. We investigated associations between residents' characteristics and perceived barriers to cross-cultural care [26, 27]. Finally, we evaluated associations between career interest in primary care and perceived barriers to cross-cultural care provision.

Methods

Survey design and study participants

This cross-sectional survey (included in [Supplemental Materials](#)) of residents from internal medicine, pediatrics, and family medicine programs at Northwell Health, a large health system consisting of 23 hospitals and groups of physicians providing comprehensive care together [28], was conducted at the beginning of the 2018–2019 academic year. The survey was based on the Cross-Cultural Care Survey [14], which surveyed residents about their preparedness to provide cross-cultural care, training and

evaluation in cross-cultural care, and perceived barriers to the provision of cross-cultural care, and similarly covers a variety of topics, including residents' understanding of and ability to provide cross-cultural care [14]. For this study, we evaluated survey responses pertaining to our primary outcome and main covariates.

Primary outcome

Our primary outcome was resident career interest in primary care. We identified residents to have high career interest if they indicated 80% or more on a continuous scale, with this cutoff chosen to account for the likelihood that the residents from these specialties may be more inclined to pursue primary care at baseline.

Covariates

We evaluated residents' perceived barriers to cross-cultural care as the primary covariate. We identified a barrier when residents answered “moderate problem” or “big problem” versus “small problem” or “no problem”. Additionally, we captured residents' background characteristics, including disadvantaged background, multilingualism, foreign-born parents, or international medical graduate status.

Statistical analysis

We first described residents' sociodemographic characteristics based on high career interest in primary care, performing Chi-square test to determine differences. We then examined differences in residents' perceived barriers to cross-cultural care based on sociodemographic characteristics and backgrounds. Finally, we evaluated associations between high career interest in primary care and perceived barriers to cross-cultural care. All statistical analyses were conducted using SAS 9.4 (SAS Institute Inc., Cary, NC, USA).

Results

The study population was 155 residents, as 163/239 eligible residents (response rate 68.2%) from internal medicine, pediatrics, and family medicine completed the survey, with 8 excluded for missing responses to main covariates. The study had a diverse population: 86 female (56%), 57 non-Hispanic White (36.8%), 10 non-Hispanic Black (6.5%), 12 Hispanic (7.7%), 58 non-Hispanic Asian (37.4%), and 18 Other (11.6%). A quarter (27.7%) of residents were from disadvantaged backgrounds. Two-thirds of residents had parents born outside of the U.S. (65.8%), and more than half identified as multilingual (58.7%).

There were 17 residents (11.0%) with high interest in pursuing primary care careers (Table 1). Belonging to a racial/ethnic minority group was associated with high career interest in primary care ($p < 0.01$). Nearly half

Table 1 Resident sociodemographic characteristics by high career interest in primary care

	All (n = 155)	High interest in primary care (n = 17)	P-value*
Race/Ethnicity			
White, non-Hispanic	57 (36.8%)	5 (29.4%)	0.01
Black, non-Hispanic	10 (6.5%)	4 (23.5%)	
Hispanic	12 (7.7%)	3 (17.6%)	
Asian, non-Hispanic	58 (37.4%)	5 (29.4%)	
Other	18 (11.6%)	0 (0%)	
Male	69 (44.8%)	3 (1.4%)	0.02
Specialty			
Family Medicine	9 (5.8%)	4 (44.4%)	< 0.001
Internal Medicine	84 (54.2%)	2 (2.4%)	
Pediatrics	62 (40.0%)	11 (17.7%)	
Postgraduate year (PGY)			
PGY1	60 (38.7%)	8 (13.3%)	0.65
PGY2	44 (28.4%)	5 (11.4%)	
PGY3+	51 (32.9%)	4 (7.8%)	
Cultural Background			
Disadvantaged background	43 (27.7%)	7 (16.3%)	0.19
Multilingual	91 (58.7%)	11 (12.0%)	0.59
Parents born outside U.S.	102 (65.8%)	11 (10.8%)	0.92
International medical graduate	10 (6.5%)	2 (20.0%)	0.91

*P-values for race/ethnicity, gender, specialty, PGY correspond to comparisons among the high interest group. P-values for cultural background correspond to comparisons between those who have high interest and those who do not

(44.4%) of family medicine residents had high career interest in primary care versus 2.4% in internal medicine and 17.7% in pediatrics (p -value < 0.001).

We examined associations between residents' perceived barriers to cross-cultural care and their sociodemographic and background characteristics (Table 2). Postgraduate training year (PGY) was associated with identifying lack of practical experience caring for diverse patient populations, as half (50%) of PGY1 residents selected this compared to only 18.2% of PGY2 and 25.5% of PGY3 residents (p -value < 0.05). Residents from disadvantaged backgrounds were more likely to identify inadequate cross-cultural training ($n = 24$, 55.8%) absence of good role models or mentors ($n = 24$, 55.8%), and dismissive attitudes about cross-cultural care among attending physicians ($n = 20$, 46.5%) as barriers (p -values < 0.05). Multilingual residents additionally identified dismissive attitudes among colleagues ($n = 36$, 39.6%) as barriers (p -value < 0.05). Finally, we examined associations between high interest in primary care careers and perceived barriers to cross-cultural care, which yielded no significant findings.

Discussion

Prior work has shown the positive effects of patient-physician racial/ethnic and language concordance on

patient satisfaction and health outcomes [29–31]. Belonging to a racial/ethnic minority group was associated with interest in primary care, and diverse cultural and linguistic backgrounds were associated with identification of barriers to cross-cultural care. These findings underscore the importance of increasing physician workforce diversity to address the primary care shortage and more competently treat diverse patient populations [32].

Many residents identified barriers to cross-cultural care related to residency training, consistent with prior studies examining cultural competency programming [33, 34]. More PGY1s identified lack of experience providing cross-cultural care as a barrier compared to more senior residents. This indicates that residency training, such as caring for diverse patient populations, curricular initiatives, and working with a diverse group of colleagues, likely influenced this association. These findings warrant further investigation in order to identify which aspects of resident education informed these results.

This study suggests that there is an opportunity to address residents' perceived barriers to cross-cultural care. One potential approach to increasing residents' ability to overcome perceived barriers to cross-cultural care is the development of an Entrustable Professional Activity (EPA), or task that is essential for clinical practice [35, 36], that focuses on cultural competency. Cultural

Table 2 Sociodemographic characteristics of residents identifying barriers to cross-cultural care, n (%)

	Identified barriers to cross-cultural care in clinical practice							
	Lack of experience	Lack of time	Inadequate training	Poor access to interpreters	Lack of non-English materials	Lack of mentors	Dismissive attending attitudes	Dismissive resident attitudes
All (n = 155)	51 (32.9)	116 (74.8)	65 (41.9)	68 (43.9)	107 (69.0)	62 (40.0)	49 (31.6)	51 (32.9)
High Interest in Primary Care (n = 17)	6 (35.3)	14 (82.4)	6 (35.3)	6 (35.3)	12 (70.6)	8 (47.1)	6 (35.3)	6 (35.3)
Race/Ethnicity								
White, non-Hispanic (n = 57)	15 (26.3)	45 (78.9)	20 (35.1)	20 (35.1)	39 (68.4)	18 (31.6)	14 (24.6)	15 (26.3)
Black, non-Hispanic (n = 10)	4 (40.0)	7 (70)	4 (40.0)	6 (60.0)	7 (70.0)	7 (70.0)	6 (60.0)	6 (60.0)
Hispanic (n = 12)	6 (50.0)	7 (58.3)	5 (41.7)	5 (41.7)	10 (83.3)	5 (41.7)	6 (50.0)	6 (50.0)
Asian, non-Hispanic (n = 58)	19 (32.8)	44 (75.9)	29 (50.0)	28 (48.3)	37 (63.8)	25 (43.1)	18 (31.0)	18 (31.0)
Other (n = 18)	7 (38.9)	13 (72.2)	7 (38.9)	9 (50.0)	14 (77.8)	7 (38.9)	5 (27.8)	6 (33.3)
Male (n = 69)	19 (27.5)	66 (77.6)	29 (42.0)	37 (43.5)	43 (62.3)	23 (33.3)	28 (32.9)	24 (34.8)
Specialty								
Family Medicine (n = 9)	3 (33.3)	7 (77.8)	4 (44.4)	4 (44.4)	5 (55.6)	4 (44.4)	5 (55.6)	5 (55.6)
Internal Medicine (n = 84)	27 (32.1)	61 (72.6)	40 (47.6)	40 (47.6)	56 (66.7)	35 (41.7)	26 (31.0)	29 (34.5)
Pediatrics (n = 62)	21 (33.9)	48 (77.4)	21 (33.9)	24 (38.7)	46 (74.2)	23 (37.1)	18 (29.0)	17 (27.4)
Postgraduate year (PGY)								
PGY1 (n = 60)	30 (50.0)*	48 (80)	31 (51.7)	31 (51.7)	42 (70.0)	25 (41.7)	23 (38.3)	24 (40.0)
PGY2 (n = 44)	8 (18.2)*	30 (68.2)	15 (34.1)	15 (34.1)	30 (68.2)	18 (40.9)	10 (22.7)	9 (20.5)
PGY3+ (n = 51)	13 (25.5)*	38 (74.5)	19 (37.3)	22 (43.1)	35 (68.6)	19 (37.3)	16 (31.4)	18 (35.3)
Cultural Background								
From a disadvantaged background								
Yes (n = 43)	18 (41.9)	32 (74.4)	24 (55.8)*	24 (55.8)	29 (67.4)	24 (55.8)*	20 (46.5)*	19 (44.2)
No (n = 112)	33 (29.5)	84 (75.0)	41 (36.6)*	44 (39.3)	78 (69.6)	38 (33.9)*	29 (25.9)*	32 (28.6)
Multilingual								
Yes (n = 91)	33 (36.3)	67 (73.6)	46 (50.5)*	44 (48.4)	66 (72.5)	43 (47.3)*	37 (40.7)*	36 (39.6)*
No (n = 64)	18 (28.1)	49 (76.6)	19 (29.7)*	24 (37.5)	41 (64.1)	19 (29.7)*	12 (18.8)*	15 (23.4)*
Parents born outside of the U.S.								
Yes (n = 102)	38 (37.3)	76 (74.5)	47 (46.1)	49 (48.0)	71 (69.6)	46 (45.1)*	38 (37.3)*	40 (39.2)*
No (n = 53)	13 (24.5)	40 (75.5)	18 (34.0)	19 (35.8)	36 (67.9)	16 (30.2)*	11 (20.8)*	11 (20.8)*
International medical graduate								
Yes (n = 10)	2 (20.0)	5 (50.0)*	3 (30.0)	3 (30.0)	5 (50.0)	3 (30.0)	3 (30.0)	3 (30.0)
No (n = 145)	49 (33.8)	111	62 (42.3)	65 (44.8)	102 (70.3)	59 (40.7)	46 (31.7)	48 (33.1)

Table 2 Sociodemographic characteristics of residents identifying barriers to cross-cultural care, n (%) (Continued)

Identified barriers to cross-cultural care in clinical practice							
Lack of experience	Lack of time	Inadequate training	Poor access to interpreters	Lack of non-English materials	Lack of mentors	Dismissive attending attitudes	Dismissive resident attitudes
(76.6)*							

*All *P*-values < 0.05 and obtained using chi-square test of difference

competency training exists, yet varies between residency programs and specialties [37–39]. Developing an EPA for cultural competency would be a positive step towards increasing uptake of cultural competency training across residency programs.

Our study had several limitations. The study sample was predominantly non-White residents, which limits generalizability along with our single-center design [40]. The sample includes trainees from specialties likely to produce primary care physicians. Our survey did not capture other possible contributing factors to lower career interest in primary care, such as financial incentives and physician burnout [41]. The cross-sectional study design limits our ability to identify causal relationships.

Residents' decisions not to pursue primary care careers are multifactorial with one such factor being an inability to adequately address the sociocultural needs of patients [14, 25]. Prior studies demonstrate higher perceived importance of culturally competent care is associated with interest in primary care [42]. Primary care interest was associated with residents' personal characteristics, such as belonging to a minority group or coming from a disadvantaged background, rather than with residents' perceived barriers to cross-cultural care. Increasing the racial/ethnic and socioeconomic background diversity may augment the number of residents pursuing primary care careers. With the majority of health outcomes tied to social factors and the growing physician shortage threatening patients' access to health care, one cannot overemphasize the impact that increasing the number of residents entering primary care can have on improving the health of patients across a spectrum of cultural backgrounds [9, 43].

Conclusions

Residents from diverse racial/ethnic and socioeconomic backgrounds demonstrated higher career interest in primary care and perceived more barriers to cross-cultural care, underscoring the importance of increasing physician workforce diversity to address the primary care shortage and to improve cross-cultural care.

Abbreviations

U.S.: United States; PGY: Postgraduate year; EPA: Entrustable Professional Activity

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12909-021-02669-w>.

Additional file 1. SURVEY: Cross-Cultural Aspects of Care.

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Authors' contributions

SA cleaned and interpreted data, constructed the tables, wrote, and edited the manuscript. EJK conducted data analysis, assisted with table design, wrote, and provided substantial edits. LM and JC provided substantial revisions. JM and OU collected the data and assisted with manuscript revision. JM provided content expertise. All authors reviewed the manuscript. The author(s) read and approved the final manuscript.

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Availability of data and materials

The data sets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

The Institutional Review Board for the Feinstein Institutes at Northwell Health approved this study. Informed consent was obtained from study participants with all methods carried out in accordance with relevant guidelines and regulations.

Consent for publication

NA

Competing interests

NA

Author details

¹Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, 500 Hofstra Blvd, Hempstead, NY 11549, USA. ²Donald and Barbara Zucker School of Medicine at Hofstra/Northwell and Division of General Internal Medicine, Northwell Health, Hempstead, NY, USA. ³Occupational Medicine, Epidemiology, and Prevention at the Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, USA.

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References

- Petterson SM, Liaw WR, Tran C, Bazemore AW. Estimating the residency expansion required to avoid projected primary care physician shortages by 2035. *Ann Fam Med*. 2015;13(2):107–14. <https://doi.org/10.1370/afm.1760>.
- Long T, Chaiyachati K, Bosu O, Sircar S, Richards B, Garg M, et al. Why aren't more primary care residents going into primary care? A qualitative study. *J Gen Intern Med*. 2016;31(12):1452–9. <https://doi.org/10.1007/s11606-016-3825-9>.

3. Basu S, Berkowitz SA, Phillips RL, Bitton A, Landon BE, Phillips RS. Association of primary care physician supply with population mortality in the United States, 2005–2015. *JAMA Intern Med.* 2019.
4. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington (DC): National Academy of Sciences;2001.
5. Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. *Milbank Q.* 2005;83(3):457–502. <https://doi.org/10.1111/j.1468-0009.2005.00409.x>.
6. Hussein M, Diez Roux AV, Field RI. Neighborhood socioeconomic status and primary health care: usual points of access and temporal trends in a major US urban area. *J Urban Health.* 2016;93(6):1027–45. <https://doi.org/10.1007/s11524-016-0085-2>.
7. Macinko J, Starfield B, Shi L. Quantifying the health benefits of primary care physician supply in the United States. *Int J Health Serv.* 2007;37(1):111–26. <https://doi.org/10.2190/3431-G6T7-37M8-P224>.
8. 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):1333–8. <https://doi.org/10.1007/s11606-015-3356-9>.
9. Hood CM, Gennuso KP, Swain GR, Catlin BB. County health rankings: relationships between determinant factors and health outcomes. *Am J Prev Med.* 2016;50(2):129–35. <https://doi.org/10.1016/j.amepre.2015.08.024>.
10. Phillips JP, Petterson SM, Bazemore AW, Phillips RL. A retrospective analysis of the relationship between medical student debt and primary care practice in the United States. *Ann Fam Med.* 2014;12(6):542–9. <https://doi.org/10.1370/afm.1697>.
11. Betancourt JR. Cultural competence — marginal or mainstream movement? *N Engl J Med.* 2004;351(10):953–5. <https://doi.org/10.1056/NEJMp048033>.
12. Institute of Medicine Committee on U, Eliminating R, Ethnic Disparities in Health C. In: Smedley BD, Stith AY, Nelson AR, editors. *Unequal treatment: confronting racial and ethnic disparities in health care.* Washington (DC): National Academies Press (US) Copyright 2002 by the National Academy of Sciences. All rights reserved; 2003.
13. Green AR, Chun MBJ, Cervantes MC, Nudel JD, Duong JV, Krupat E, et al. Measuring medical students' preparedness and skills to provide cross-cultural care. *Health Equity.* 2017;1(1):15–22. <https://doi.org/10.1089/hecq.2016.0011>.
14. Weissman JS, Betancourt J, Campbell EG, Park ER, Kim M, Clarridge B, et al. Resident physicians' preparedness to provide cross-cultural care. *JAMA.* 2005;294(9):1058–67. <https://doi.org/10.1001/jama.294.9.1058>.
15. Park ER, Betancourt JR, Miller E, Nathan M, MacDonald E, Ananeh-Firempong O, et al. Internal medicine residents' perceptions of cross-cultural training. Barriers, needs, and educational recommendations. *J Gen Intern Med.* 2006;21(5):476–80. <https://doi.org/10.1111/j.1525-1497.2006.00430.x>.
16. Blumenthal D, Gokhale M, Campbell EG, Weissman JS. Preparedness for clinical practice reports of graduating residents at academic health centers. *JAMA.* 2001;286(9):1027–34. <https://doi.org/10.1001/jama.286.9.1027>.
17. Betancourt JR, Green AR, Carrillo JE, Ananeh-Firempong O 2nd. Defining cultural competence: a practical framework for addressing racial/ethnic disparities in health and health care. *Public Health Rep.* 2003;118(4):293–302. [https://doi.org/10.1016/S0033-3549\(04\)50253-4](https://doi.org/10.1016/S0033-3549(04)50253-4).
18. Daniel H, Bornstein SS, Kane GC, Health ft, Physicians PPCotACo. Addressing social determinants to improve patient care and promote health equity: an American College of Physicians Position Paper. *Ann Intern Med.* 2018;168(8):577–8. <https://doi.org/10.7326/M17-2441>.
19. Marshall JK, Cooper LA, Green AR, Bertram A, Wright L, Matusko N, et al. Residents' attitude, knowledge, and perceived preparedness toward caring for patients from diverse sociocultural backgrounds. *Health Equity.* 2017;1(1):43–9. <https://doi.org/10.1089/hecq.2016.0010>.
20. Frintner MP, Mendoza FS, Dreyer BP, Cull WL, Laraque D. Resident cross-cultural training, satisfaction, and preparedness. *Acad Pediatr.* 2013;13(1):65–71. <https://doi.org/10.1016/j.acap.2012.10.005>.
21. Lopez L, Vranceanu AM, Cohen AP, Betancourt J, Weissman JS. Personal characteristics associated with resident physicians' self perceptions of preparedness to deliver cross-cultural care. *J Gen Intern Med.* 2008;23(12):1953–8. <https://doi.org/10.1007/s11606-008-0782-y>.
22. Jernigan VB, Heard JB, Tran K, Norris KC, Buchwald D. An examination of cultural competence training in US medical education guided by the tool for assessing cultural competence training. *J Health Dispar Res Pract.* 2016;9(3):150–67.
23. Gard LA, Peterson J, Miller C, et al. Social determinants of health training in U.S. primary care residency programs: a scoping review. *Acad Med.* 2019;94(1):135–43. <https://doi.org/10.1097/ACM.0000000000002491>.
24. Pan RJ, Clark-Chiarelli N, Peters AS, Block SD. Intention to practice primary care by pediatric residents: nature or nurture? *Clin Pediatr (Phila).* 1999;38(8):473–9. <https://doi.org/10.1177/000992289903800806>.
25. Jeffe DB, Whelan AJ, Andriole DA. Primary care specialty choices of United States medical graduates, 1997–2006. *Acad Med.* 2010;85(6):947–58. <https://doi.org/10.1097/ACM.0b013e3181d8e77d>.
26. Park ER, Chun MB, Betancourt JR, Green AR, Weissman JS. Measuring residents' perceived preparedness and skillfulness to deliver cross-cultural care. *J Gen Intern Med.* 2009;24(9):1053–6. <https://doi.org/10.1007/s11606-009-1046-1>.
27. Chun MB, Yamada AM, Huh J, Hew C, Tasaka S. Using the cross-cultural care survey to assess cultural competency in graduate medical education. *J Grad Med Educ.* 2010;2(1):96–101. <https://doi.org/10.4300/JGME-D-09-00100.1>.
28. Quality AfHRa. Defining Health Systems. <https://www.ahrq.gov/chsp/chsp-reports/resources-for-understanding-health-systems/defining-health-systems.html>. Updated September 2017. Accessed 2021.
29. Saha S, Komaromy M, Koepsell TD, Bindman AB. Patient-physician racial concordance and the perceived quality and use of health care. *Arch Intern Med.* 1999;159(9):997–1004. <https://doi.org/10.1001/archinte.159.9.997>.
30. Eamranond PP, Davis RB, Phillips RS, Wee CC. Patient-physician language concordance and lifestyle counseling among Spanish-speaking patients. *J Immigr Minor Health.* 2009;11(6):494–8. <https://doi.org/10.1007/s10903-008-9222-7>.
31. Cooper LA, Roter DL, Johnson RL, Ford DE, Steinwachs DM, Powe NR. Patient-centered communication, ratings of care, and concordance of patient and physician race. *Ann Intern Med.* 2003;139(11):907–15. <https://doi.org/10.7326/0003-4819-139-11-200312020-00009>.
32. 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):289–91. <https://doi.org/10.1001/jamainternmed.2013.12756>.
33. Alpern JD, Davey CS, Song J. Perceived barriers to success for resident physicians interested in immigrant and refugee health. *BMC Med Educ.* 2016;16(1):178. <https://doi.org/10.1186/s12909-016-0696-z>.
34. Ambrose AJ, Lin SY, Chun MB. Cultural competency training requirements in graduate medical education. *J Grad Med Educ.* 2013;5(2):227–31. <https://doi.org/10.4300/JGME-D-12-00085.1>.
35. Taylor D, Park YS, Smith C, Cate O, Tekian A. Constructing approaches to entrustable professional activity development that deliver valid descriptions of professional practice. *Teach Learn Med.* 2021;33(1):89–97. <https://doi.org/10.1080/10401334.2020.1784740>.
36. ten Cate O, Taylor DR. The recommended description of an entrustable professional activity: AMEE Guide No. 140. *Med Teach.* 2020:1–9.
37. Staton LJ, Estrada C, Panda M, Ortiz D, Roddy D. A multimethod approach for cross-cultural training in an internal medicine residency program. *Med Educ Online.* 2013;18(1):20352. <https://doi.org/10.3402/meo.v18i0.20352>.
38. Mechanic OJ, Dubosh NM, Rosen CL, Landry AM. Cultural competency training in emergency medicine. *J Emerg Med.* 2017;53(3):391–6. <https://doi.org/10.1016/j.jemermed.2017.04.019>.
39. Shah SS, Sapigao FB 3rd, Chun MBJ. An overview of cultural competency curricula in ACGME-accredited general surgery residency programs. *J Surg Educ.* 2017;74(1):16–22. <https://doi.org/10.1016/j.jsurg.2016.06.017>.
40. Xierali IM, Nivet MA. The racial and ethnic composition and distribution of primary care physicians. *J Health Care Poor Underserved.* 2018;29(1):56–70. <https://doi.org/10.1353/hpu.2018.0036>.
41. Faber DA, Joshi S, Ebell MH. US residency competitiveness, future salary, and burnout in primary care vs specialty fields. *JAMA Intern Med.* 2016;176(10):1561–3. <https://doi.org/10.1001/jamainternmed.2016.4642>.
42. Shapiro J, Hollingshead J, Morrison E. Self-perceived attitudes and skills of cultural competence: a comparison of family medicine and internal medicine residents. *Med Teach.* 2003;25(3):327–9. <https://doi.org/10.1080/0142159031000100454>.
43. Levine DM, Linder JA, Landon BE. Characteristics of Americans with primary care and changes over time, 2002–2015. *JAMA Intern Med.* 2019.

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