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<th>Author, year</th>
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<th>Methodology</th>
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<tr>
<td>Arnold, 1997</td>
<td>Applicant Characteristics</td>
<td>Single institution observational study of 327 graduates of University of Missouri-Kansas City (UMKC) School of Medicine; 1983 to 1987</td>
<td>Graduate survey, UMKC's longitudinal database (graduate characteristics on admission &amp; performance during school), NBME scores</td>
<td>Factors prior to matriculation and during medical school affecting specialty choice in primary care</td>
<td>No demographic variables predicted choosing primary care</td>
<td>Pre-clinical medical school performance, but not clinical performance, was lower among those who entered primary care</td>
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<tr>
<td>Ballejos, 2019</td>
<td>Pre-matriculation Program</td>
<td>Single institution observational study of participants in a combined BA/MD program and peers in MD program; 2009-2014</td>
<td>Specialty interest survey at orientation, family medicine residency match results (NRMP data), demographic data</td>
<td>Influence of pre-matriculation program on choosing family medicine as specialty choice</td>
<td>Combined BA/MD students matched into family medicine at twice the rate of traditional medical degree students</td>
<td>Studied 172 BA/MD students at University of New Mexico School of Medicine and compared with 172 non-BA/MD similarly matched peers</td>
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<tr>
<td>Basco, 1998</td>
<td>Targeted premedical recruitment</td>
<td>Multiple institution cross-sectional study of 120 medical schools; 1993-1994</td>
<td>AAMC survey of Generalist Physician Initiatives in 1993 or 1994; AAMC's MSQ in 1994</td>
<td>Medical school admissions practices and proportions of matriculants interested in primary care</td>
<td>1/3 of schools report recruiting future generalists. Recruiting for primary care and public ownership were the only associated variables.</td>
<td>No description of the premedical recruiting processes was available</td>
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<td>Year</td>
<td>Applicant Characteristics</td>
<td>Study Design</td>
<td>Data Collection</td>
<td>Findings</td>
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<tr>
<td>Bowman, 1996</td>
<td>Applicant Characteristics</td>
<td>Multiple institution cross-sectional survey of 30,780 students graduating from US medical schools; 1991 and 1992</td>
<td>Medical student surveys including Premedical Questionnaire, MSQ, and Graduation Questionnaire, as well as information for residency directors about residents in the GME tracking census</td>
<td>Over 1/3 of medical students originally interested in family medicine entered family medicine residencies compared to less than 10% of those not originally interested. 6.4% of matriculants not originally interested in family medicine entered a family medicine residency.</td>
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<tr>
<td>Blumenthal, 1997</td>
<td>Applicant Characteristics</td>
<td>Single institution observational study of 261 students who graduated a new medical school between 1982 and 1989 whose mission was to graduate minority physicians for primary care careers in medically underserved communities</td>
<td>Survey to all first-year students regarding preferences on specialty and again at time of graduation (using AAMC Graduation Questionnaire)</td>
<td>Outcomes of a medical school program designed to produce physicians who practice primary care in underserved communities. 57% of the first 261 medical students entering Morehouse School of Medicine between 1978 and 1985 went into primary care; 45% of these students expressed an interest in practicing in an underserved community. 100% response rate due to dedicated time given to complete survey.</td>
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<tr>
<td>Campos-Outcalt, 2004</td>
<td>Applicant Characteristics</td>
<td>Multiple institution cross-sectional study of 1,428 family medicine residency graduates</td>
<td>Survey sent to all physician graduates of 24 medical schools in 1997-1999 who entered family medicine residency and an equal number to non-family</td>
<td>Factors related to declining interest in family medicine. Schools with increases in graduates entering family medicine enrolled a higher proportion of students with a...</td>
<td>The surveys sent to participants were sent up to 7 years after medical school.</td>
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<tr>
<td>Study Year</td>
<td>Applicant Characteristics</td>
<td>Study Design</td>
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<td>Ferrier, 1987</td>
<td>Applicant Characteristics</td>
<td>Single institution cross-sectional study of 408 McMaster University graduates compared with 1620 graduates of other Canadian schools</td>
<td>Canadian Medical Association’s Physician Resource Data Bank (PRDB) sent to all physicians with a current Canadian medical license</td>
<td>Influence of admission selection policies on career choice. McMaster University graduates are no more likely to enter primary care but are more likely to be involved in academic pursuits. The authors propose that their students may have a higher interest in academic medicine; the students differ demographically from other Canadian medical schools.</td>
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<tr>
<td>Hull, 1996</td>
<td>Applicant Characteristics</td>
<td>Single institution observational study of 465 medical school graduates from 1983-1985</td>
<td>AMCAS application for essay, survey of graduates in 1994 to determine specialty</td>
<td>Relationship between medical school applicants' essays and primary care career choice. Applicants’ stated interest in basic science research or career interest in primary care is predictive of career choice. Study conducted by a subcommittee of the Medical School Admissions Committee at a research-oriented medical school.</td>
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<tr>
<td>Kallail, 2010</td>
<td>Pre-matriculation Program</td>
<td>Single institution observational study of 104 students enrolled in a pre-matriculation program at University of Kansas</td>
<td>Scholars in Primary Care/Rural Health program data (demographics, performance in medical school, residency match results, and post-residency practice)</td>
<td>Pre-matriculation program outcome on primary care specialty choice. 72% of the University of Kansas’ Scholars in Rural Health program had entered primary care, 50% had entered family medicine. A 2-year premedical curriculum for Kansas students with a rural background.</td>
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<tr>
<td>Keith, 1988</td>
<td>Applicant Characteristics</td>
<td>Multiple institution cross-sectional study evaluating</td>
<td>AAMC databases to obtain demographic information of 12,065</td>
<td>Specialty choices of Howard and Meharry graduates</td>
<td>Black graduates from the 1975 classes entered. The findings may be a type II error given the relatively low numbers of minority.</td>
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<tr>
<td>Kost, 2015</td>
<td>Applicant Characteristics</td>
<td>Single institution observational study of 2,047 graduates between 2000-2011</td>
<td>Career preference inventory administered to 1st year students, residency match lists (NRMP) indicating residency specialty of graduates</td>
<td>Sustained contact with family medicine and family physicians through extracurricular programs during medical school and career choice in family medicine</td>
<td>Older age, female gender, rural upbringing, high level of initial interest in family medicine, and participation in family medicine extracurricular programs were significantly associated with choosing family medicine</td>
<td>Study involved all University of Washington School of Medicine graduates from 2000-2011</td>
</tr>
<tr>
<td>Kost, 2018</td>
<td>Applicant Characteristics</td>
<td>Multiple institution observational study of 601 graduates of one school and 744 graduates in another allopathic medical school</td>
<td>Medical school survey (Biographical and Career Preferences Inventory) upon matriculation; 2015 AMA Masterfile to identify eventual practice specialty</td>
<td>Variables related to student characteristics that predict eventual practice in family medicine</td>
<td>Preferring family medicine as specialty choice at matriculation increased the likelihood of match to family medicine residency programs</td>
<td>This study validated a previous study at University of Washington School of Medicine's use of the Family Medicine Interest Survey (FMIS), which predicts eventual practice in family medicine</td>
</tr>
<tr>
<td>Lawson, 2004</td>
<td>Applicant Characteristics</td>
<td>Single institution observational study of 832 graduates from Virginia</td>
<td>Medical school database, AAMC GQ</td>
<td>Variables related to student characteristics and career choice</td>
<td>51% of respondents chose primary care residencies;</td>
<td>67% response rate (555)</td>
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<td>Study</td>
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<td>Litzelman, 1996</td>
<td>Applicant Characteristics</td>
<td>Single institution observational study of 1,255 Indiana University graduates from 1991-1995</td>
<td>Match results from NRMP database and demographic information from school database</td>
<td>Female gender was predictive of primary care residency choice</td>
<td>The rate of women matching into primary care increased in a non-statistically significant way over the same time period</td>
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<tr>
<td>Lupton, 2012</td>
<td>Pre-matriculation Program</td>
<td>Single institutional observational study of 303 alumni from University of California Postbaccalaureate (UCPB) Program cohorts from 1986-1987 and 2001-2002 who matriculated into medical school compared with 586 randomly selected control physicians</td>
<td>2008 AMA Physician Masterfile for control group data and UCPB graduate specialty data; UCPB program files</td>
<td>Greater percentage of UCPB Program graduates entered primary care (53%) than control alumni from the same school during the same timeframe (40%)</td>
<td>UCPB graduates also had higher percentage of working in high-poverty communities (16% vs 8% in control group)</td>
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<tr>
<td>Martini, 1994</td>
<td>Applicant Characteristics</td>
<td>Multiple institution cross-sectional study of 121 four-year allopathic medical school and 15 osteopathic</td>
<td>Mailed survey to medical schools and graduates; AMA data, AOA data; AMA Annual Survey of Graduate Medical Education Programs</td>
<td>&quot;Personal social values&quot; was the characteristic that most strongly influenced primary care career choice</td>
<td>Criteria used for admitting students (i.e., preferencing applicants with interest in primary care) influences primary care choice</td>
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<td>Reference</td>
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<tr>
<td>Metz, 2017</td>
<td>Pre-matriculation Program</td>
<td>Single institution observational Study of 525 socioeconomically disadvantaged students who entered a 2 year pre-matriculation program between 1995 and 2009 (approximately 30-35 per year)</td>
<td>Pre-matriculation program records (included medical school entry and completion, residency specialty choice and location, and post-residency specialty and location), medical school databases, internet searches, and personal communications with program graduates</td>
<td>During the first 15 years of MEDPREP, 53% of students who completed the program entered primary care, compared to 34% of students nationally during that timeframe.</td>
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<tr>
<td>Mitra, 2018</td>
<td>Applicant Characteristics</td>
<td>Multiple institution prospective cohort of 1,542 first-year Canadian medical students in 15 classes between 2002 and 2004</td>
<td>Student surveys distributed in the first 2 weeks of classes, Scott's Medical Database (information on Canadian physicians' area of practice and demographic distribution)</td>
<td>Interest in rural family medicine and older age at matriculation were associated with eventual rural family medicine practice.</td>
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The University of Southern Illinois School of Medicine hosts MEDPREP, a 2-year post-baccalaureate program designed to prepare socioeconomically disadvantaged students for medical school.
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<td>Nayyar, 2018</td>
<td>Applicant Characteristics</td>
<td>Single institution prospective cohort of 208 preclinical students from one osteopathic medical school</td>
<td>39-question survey tool (Five Facet Mindfulness Questionnaire) and a demographic question</td>
<td>The association of mindfulness during preclinical years in medical school and preference for primary care residency</td>
<td>Being female and beginning medical school immediately after undergraduate education were both associated with preference for primary care residency. A mindfulness score is not a predictor of interest in primary care.</td>
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<tr>
<td>Owen, 2002</td>
<td>Admission subcommittee, Applicant Characteristics</td>
<td>Single instruction cross-sectional study of 509 graduates from University of Virginia School of Medicine from 1990-1993</td>
<td>Medical school applications, AMCAS data (MCAT scores, demographic data), graduate survey, AAMC's MSQ (for stated career preference)</td>
<td>Ability of admission committee members to accurately predict medical student applicants' specialty choice</td>
<td>Admissions committee members inaccurately predicted medical student generalist career choice. Study looked at 13 characteristics from University of Virginia School of Medicine applicants from 1990-1993.</td>
</tr>
<tr>
<td>Pearson, 2002</td>
<td>Admissions Process</td>
<td>Multiple institution observational study of all 3747 graduates from 2 Australian medical schools between 1983 and 1998</td>
<td>Mailed survey to graduates of Newcastle and Sydney University medical schools</td>
<td>Practice outcomes of physicians graduating from University of Newcastle and Sydney University medical schools</td>
<td>More graduates from the University of Newcastle practice family medicine or psychiatry than graduates from the University of Sydney (58.2% versus 43.5%). Study looked at 13 characteristics from University of Virginia School of Medicine applicants from 1990-1993.</td>
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<td>Penn, 1986</td>
<td>Admission subcommittee</td>
<td>Single institution observational study of graduates from program between 1973 and 1981</td>
<td>Mailed survey of 113 graduates of the University of California, San Diego admitted through the SAS</td>
<td>Specialty choice and location of graduates</td>
<td>Graduates admitted through the SAS were more likely to be practicing primary care. The SAS was specifically charged with admitting 30 percent of entering classes consisting of socioeconomically disadvantaged applicants.</td>
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<tr>
<td>Author, Year</td>
<td>Study Title</td>
<td>Study Description</td>
<td>Methods</td>
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<td>Roman, 1994</td>
<td>Applicant Characteristics</td>
<td>Single institution observational Study of 1,402 students from Sophie Davis School of Biomedical Education (SDSBE) from 1973 through 1988</td>
<td>Medical school records, AMA Masterfile</td>
<td>Effectiveness of increasing medical careers and primary care specialty choices for inner-city youth</td>
<td>SDSBE had an explicit mission to encourage graduates to enter primary care</td>
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<tr>
<td>Rosner, 1983</td>
<td>Applicant Characteristics</td>
<td>Single institution observational study of 258 American graduates of primarily Mexican medical schools who participated in a 10-month fifth pathway program prior to residency</td>
<td>Graduate survey, Medical school databases, NRMP databases</td>
<td>Specialty choice of graduates from primarily Mexican medical schools who participate in a 10-month fifth pathway program</td>
<td>54% of &quot;Fifth Pathway&quot; graduates from the State University of New York School of Medicine entered primary care</td>
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<td>Schieberl, 1996</td>
<td>Applicant Characteristics</td>
<td>Single institution observational study of 474 University of California, San Diego (UCSD) School of Medicine alumni from the classes of 1974, 1978, 1982, 1986, and 1990</td>
<td>Survey of school alumni on demographics, school and personal factors, and specialty choice</td>
<td>Characteristics of medical school applicants more likely to enter primary care</td>
<td>Rural background, older age, and being part of an under-represented minority group, and personal social values were all associated with choosing primary care</td>
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<td>351 graduates of the UCSD responded (74%)</td>
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<td>Senf, 1997</td>
<td>Multiple institution cross-sectional study of 121 US medical schools to estimate percentages of 1994 graduates in primary care practice</td>
<td>Survey, AAMC databases, NIH databases, AAFP databases, AMA Masterfile, and a questionnaire mailed to each medical school</td>
<td>Medical school characteristics that influence graduates' choice of primary care specialties</td>
<td>The best predictor of eventual practice of family medicine was interest in the specialty at matriculation; rural background, female sex, and attending a public medical school were all associated with entering primary care</td>
<td>The authors conclude that selecting applicants interested in family medicine is the most effective way to increase primary care physicians</td>
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<tr>
<td>Senf, 2005</td>
<td>Multiple institution cross-sectional study of each allopathic medical school graduating class entering family medicine residency in 1997, 1998, &amp; 1999 (118 schools)</td>
<td>AAFP databases (to determine proportion of class entering FM residency), survey of family medicine department heads, survey of faculty, and survey of a sample of graduates, AAMC data (MSQ and GQ)</td>
<td>Relationship between interest in research and interest in family medicine by US medical school graduates</td>
<td>Family medicine graduates were more likely to have an elective serving the underserved, nursing home experience, teaching experience, or community health experience</td>
<td>The authors found a negative relationship between medical students' interest in research and interest in family medicine</td>
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<tr>
<td>Talamantes, 2017</td>
<td>Multiple institution cross-sectional study of 19,517 allopathic medical school matriculants in 2012</td>
<td>AAMC's MSQ in 2012</td>
<td>Association between community college participation and initial specialty interest among US allopathic medical students</td>
<td>Medical students who attended a community college were more likely to report intentions to specialize in family medicine</td>
<td>9,885 students responded to the 2012 AAMC MSQ</td>
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<tr>
<td>Ward, 2004</td>
<td>Applicant Characteristics</td>
<td>Single institution longitudinal cohort of 229 first year students between 1984 and 1989</td>
<td>Surveys and personality questionnaire during first year of medical school and interview four years after graduation</td>
<td>Factors that best predict medical career choice</td>
<td>Students who chose primary care were more likely to be female, while students who were more &quot;creative and abstract in their thinking&quot; or &quot;conscientious and rule-bound&quot; were less likely to choose primary care</td>
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<td>Wimsatt, 2016</td>
<td>Targeted premedical recruitment</td>
<td>Multiple institution cross-sectional study of 123 departments of family medicine and family medicine match rates in 2011 and 2012</td>
<td>Surveys of departments of family medicine, AAFP databases for family medicine match rates</td>
<td>Factors associated with family medicine match rates and how they differ at various medical schools</td>
<td>8% of private US medical schools and 32% of public medical schools indicated that their admissions practices explicitly favored students with an interest in primary care ($p = 0.03$); this was not predictive of matching in family medicine</td>
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<tr>
<td>Xu, 1996</td>
<td>Applicant Characteristics</td>
<td>Multiple institution observational study of 2,955 primary care physician graduates from 1983 and 1984 of 126 US allopathic</td>
<td>AMA and AOA Physician Masterfile (for demographic and practice location), survey to graduates sent in 1993</td>
<td>Relationship between race or ethnicity of primary care physicians and career choice</td>
<td>Students from under-represented minority groups were more likely than white students to report personal social</td>
</tr>
<tr>
<td>Xu, 1997-1</td>
<td>Applicant Characteristics</td>
<td>Multiple institution observational study of 2,600 primary care physicians who graduated from US allopathic schools in 1983 and 1984</td>
<td>Survey sent to primary care physicians in 1993, AMA Masterfile (for specialty information)</td>
<td>Age as a factor influencing decision to enter primary care</td>
<td>Older students (30+) were more likely to have decided to enter primary care before entering medical school</td>
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<tr>
<td>Xu, 1997-2</td>
<td>Applicant Characteristics</td>
<td>Multiple institution observational study of 1,831 allopathic and osteopathic primary care physicians</td>
<td>Survey sent to primary care allopathic and osteopathic physicians in 1993</td>
<td>Timing of specialty choice (before medical school, during the basic science years, or after clerkship years)</td>
<td>41% of primary care providers reported having made their specialty choice before entering medical school</td>
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<tr>
<td>Yutrzenka, 2004</td>
<td>Pre-matriculation Program</td>
<td>Single institution observational study of 28 Alumni Student Scholars Program (ASSP) graduates</td>
<td>Medical school databases</td>
<td>Pre-matriculation program outcome of primary care specialty choice</td>
<td>25 of 28 alumni entered USDSM. Five of 11 (45%) ASSP alumni who had completed medical school entered family medicine residencies</td>
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Appendix 1.

Abbreviations:
AAFP: American Academy of Family Physicians  
AAMC: American Association of Medical Colleges  
MCAT: Medical College Admissions Test  
MSQ: Matriculating Student Questionnaire
AMA: American Medical Association
AMCAS: American Medical College Application Service
AOA: American Osteopathic Association
GQ: Graduate Questionnaire

NBME: National Board of Medical Examiners
NIH: National Institute of Health
NRMP: National Resident Matching Program