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The Physician Assistant Workforce In North Carolina

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Introduction

This study examines the current supply of PAs in NC including demographic trends, practice locations, demand for services, and educational trends. This document is a version of the report mandated by the NC Appropriations Act of 2017 (N.C.S.L. 2017-57) on the feasibility of establishing a physician assistant (PA) program at Winston-Salem State University. That report was funded by the UNC System Office.

Background

Physician assistants (PAs) are licensed by the NC Medical Board to practice medicine under the supervision of a physician, which may include examining patients, reviewing lab findings, diagnosing patients, developing a treatment plan, prescribing medication, or assisting in surgery. PAs are trained at the master's degree level and usually complete their degree in roughly two years. Some PAs choose to complete a residency before entering practice, but residency training is not required.

Methods

This analysis used a mixed methods approach, employing both quantitative and qualitative analyses to assess the demand for and supply of PAs in NC.

We analyzed PA licensure data maintained by the NC Health Professions Data System (HPDS). Descriptive statistics and cartographic analyses were used to analyze and display data on PA supply, distribution, and diversity, including a map of the location of PA programs in NC.

Findings

NC Physician Assistant Workforce Trends

In 2016, there were 5,602 active, licensed PAs practicing in NC, with a state ratio of 5.5 PAs per 10,000 population (**Figures 1, 2**).

The PA and the nurse practitioner (NP) workforces have grown rapidly in recent years, both in NC and in the US (**Figure 3**). NPs and PAs are often grouped together because even

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though they are trained under different models, they can fill similar positions and job duties. For example, job postings may advertise for a PA or an NP. As a point of comparison, there were 6,152 NPs in the NC workforce in 2016, a ratio of 6.1 per 10,000 population.

PAs train as generalists but may specialize after training. Some PAs and NPs switch specialties after they have practiced in the workforce.[2] (Figure 4)

Demographics

The PA workforce is majority female, (64.5%, n=3,615). The average age is 41 years old, with 77.3% (n=4,332) of the workforce younger than age 50. Figure 5 describes the age structure of the active PA population in North Carolina.

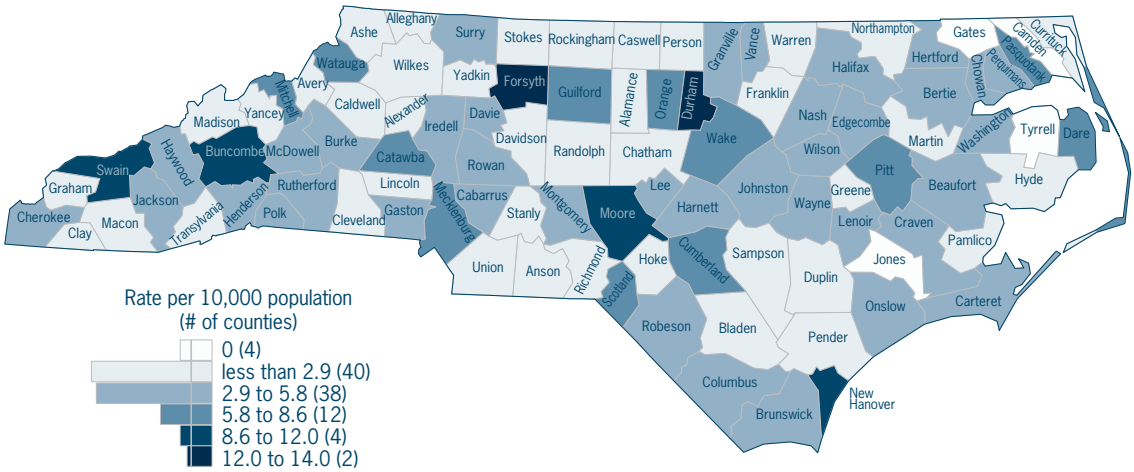
PAs are less diverse than the NC population, with 4.7% (n=263) identifying as Black, 2.9% (n=162) identifying as Hispanic, and 0.7% (n=43) identifying as American Indian (Table 1). PAs in NC have not broadly diversified over the past 16 years, and roughly the same percentage (8%) of PAs identified as an underrepresented minority in 2016 as did in 2000 (Figure 6).

The PA Job Market

In 2016, the mean salary for PAs in NC was $100,480.[3] The job prospects for PAs in NC are currently good. There are no current reports of PAs having difficulty finding employment, although some jobs require years of experience in addition to the degree. Key informants advised that because there are so many open PA positions, PAs tend to "job hop." Table 2 summarizes an analysis of job postings for PAs only (not including jobs posted for either a PA or an NP) conducted by Perri Morgan and colleagues, which showed that there were 1,096 job postings for PAs in 2014[4]. This equates roughly to one job opening for every five PAs in the NC workforce in 2014.[i] These analyses use a novel methodology and it is unclear how accurately they reflect actual vacancies—for example, a health system might decide to leave a posting

i NC HPDS data show 4,790 PAs in the NC workforce in 2014. See: https://nchealthworkforce.sirs.unc.edu/

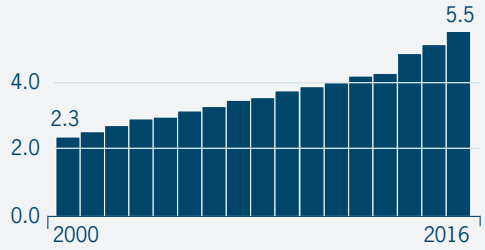
Figure 1. Physician Assistants per 10,000 Population, North Carolina, 2016



Notes: Data include all active, instate PAs licensed in North Carolina as of October 31 of the respective year. **Sources:** North Carolina Health Professions Data System, https://nchealthworkforce.sirs.unc.edu, with data derived from the North Carolina Medical Board, 2016. Population data downloaded from the North Carolina Office of State Budget and Management via NC LINC and are based on US Census data. **Produced by:** The Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

Figure 2. Growth of the Physician Assistant Workforce, North Carolina, 2000-2016

a. PAs per 10,000 Population in North Carolina



b. Total Number of PAs in North Carolina

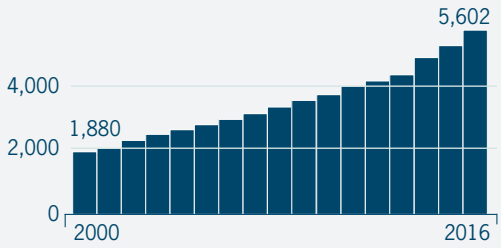


Figure 3. Cumulative Rate of Growth per 10,000 Population in North Carolina Since 2000: Physicians, Nurse Practitioners and Physician Assistants

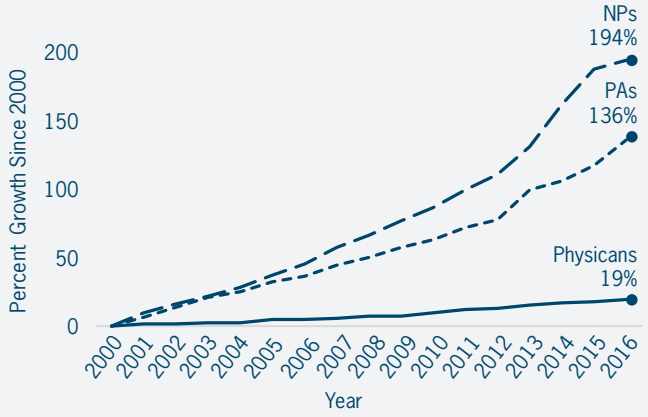


Figure 4. Percent of Nurse Practitioners and Physician Assistants Reporting a Primary Care Specialty, 1997-2011, North Carolina

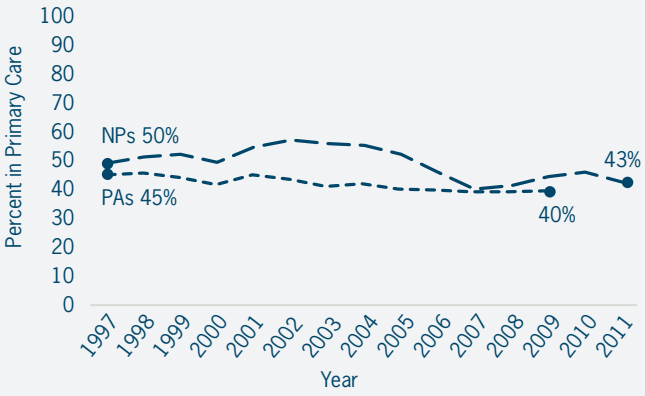


Figure 5. Active, Licensed Physician Assistants by Age Group, NC, 2016

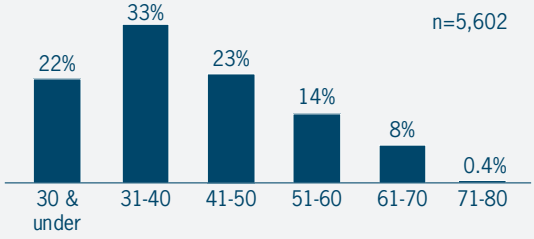


Figure 6. Percent of PAs who were Underrepresented Minorities in North Carolina, 2000 to 2016

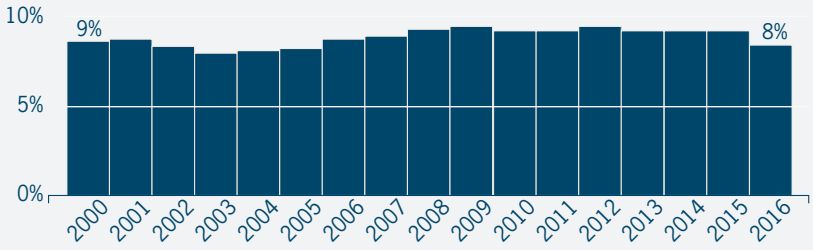


Table 1. Diversity of the NC Population and Physician Assistants, 2016

	NC Population n=10,146,788	Physician Assistants n=5,602
Black/African-American	22%	5%
Hispanic	9%	3%
Asian/Pacific Islander	3%	2%
American Indian/Alaskan Native	2%	0.7%
Other/Multiracial	2%	1%
Nonwhite	**36%**	**12%**
White	**64%**	**81%**

7% of PAs (n=133) were missing race data.

Table 2. North Carolina Physician Assistant Job Postings, 2014[4]

Job Type	Number	Percent
For PAs only	1,096	65.5%
For PAs or NPs	577	34.5%
Total	**1,673**	**100%**

Notes: Figures 2, 5, 6; Table 1: Data include active, instate PAs licensed in North Carolina as of October 31 of the respective year. Underrepresented minorities include PAs who self-identify as African-American, Hispanic, or American Indian/Alaska Native. Figures 3, 4: Data include active, instate, non-federal, non-resident-in-training physicians (Figure 3), and all active, instate PAs and NPs (Figure 4) licensed in North Carolina as of October 31 of the respective year. Specialty data were prepared in December 2012 and include a primary specialty of family practice, general practice, internal medicine, ob/gyn, or pediatrics for PAs, and a physician extender type of family nurse practitioner, adult nurse practitioner, ob/gyn nurse or pediatric nurse practitioner for NPs. PA data for 2010 and 2011 are excluded due to changes in the way specialty data were collected. **Sources:** North Carolina Health Professions Data System, https://nchealthworkforce.sirs.unc.edu, with data derived from the North Carolina Medical Board and North Carolina Board of Nursing, 2000 to 2016. Population data downloaded from the North Carolina Office of State Budget and Management via NC LINC and are based on US Census data. **Produced by:** The Program on Health Workforce Research and Policy, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.

open after it is filled to have the ability to hire additional personnel later. However, signs point to a strong current demand for PAs in the state.

While the current demand for PAs exceeds the supply, it is not known how long this demand will persist. Discussion in the academic literature suggest that the US may be oversupplied with PAs in the future, but due to the paucity of data around PA and NP practice patterns, it is unknown when or whether the market will be saturated with these professionals.[5]

PA Education Trends

PA training programs in NC have expanded rapidly to meet the demand from the employer side and the high level of demand from students. The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) accredits PA educational programs. Seven NC programs are fully accredited and four are provisionally accredited (**Figure 7**). The PA program at Pfeiffer University is under development and is not yet accredited.

Since 2011, the state has added six new PA schools, matriculating a combined 175 students annually.[6] This count does not include the program under development at Pfeiffer University, scheduled to open in 2020 with an inaugural class of 24 students that will eventually grow to 45.[8] In addition to the new programs, existing PA schools have increased enrollment. Projected enrollment for the PA schools in NC in 2017-2018 was 520 students, a 16% increase over enrollments in the 2015-2016 school year (**Table 3**).

Cost of attendance varies depending on whether the program is located at a public or a private school. For example, estimated total costs to obtain a PA degree at East Carolina University are $43,395 for NC residents and $89,417 for non-residents,[9] while costs for a PA degree at Elon University are $106,191.[10]

Estimates of the cost to develop a PA program in the Southeastern US are documented in the academic literature. A study of a new PA program at the University of Tennessee Health Science Center (UTHSC) in Memphis with a class of 25 applicants cost $10.5 million in 2015 dollars for the first ten years of operation.[11]

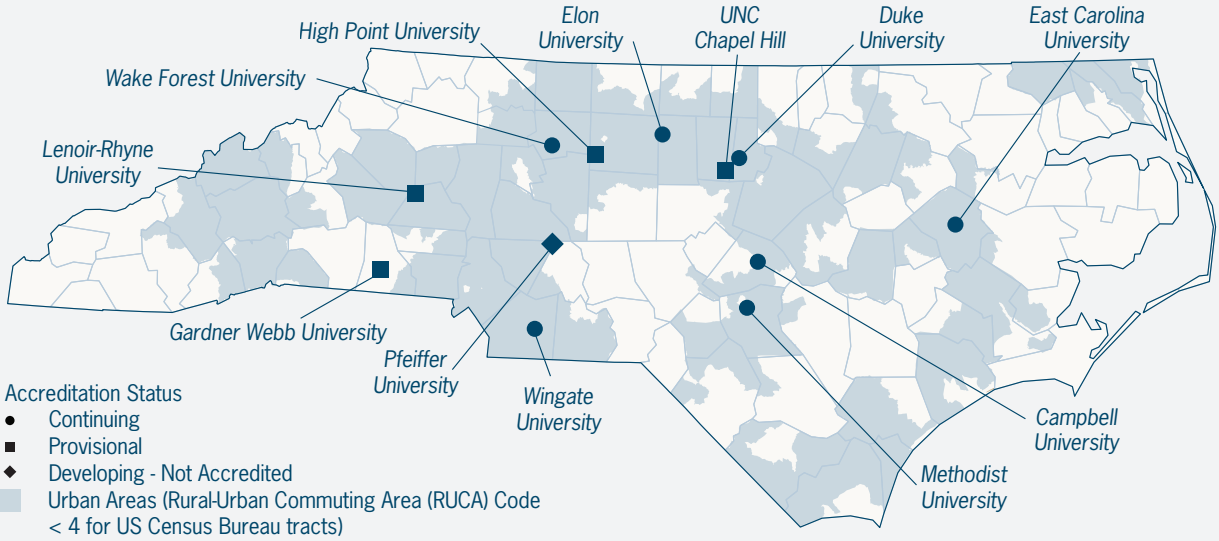
Student Interest in PA Programs

Students apply to PA programs online via the Central Application Service for Physician Assistants (CASPA). CASPA data demonstrate that between 2002 and 2011, despite the rapid expansion of PA programs throughout the US, the total number of applicants to PA programs increased compared to the number of seats available (**Figure 8**).[12] The most recent data from CASPA indicate that in the 2015-2016 admissions cycle, there were 3.0 PA school applicants per seat.[13]

PA Faculty Recruitment

National data from the 2016 Physician Assistant Education Association program report, which surveyed all 209 PA member programs in 2016, indicate that faculty recruitment for PA programs is challenging.[14] The report shows that 77% (n=161) of PA programs hired new faculty in the prior academic year. Of those that hired new faculty, 85% (n=137) cited the lack of

Figure 7. Physician Assistant Programs, North Carolina, 2017



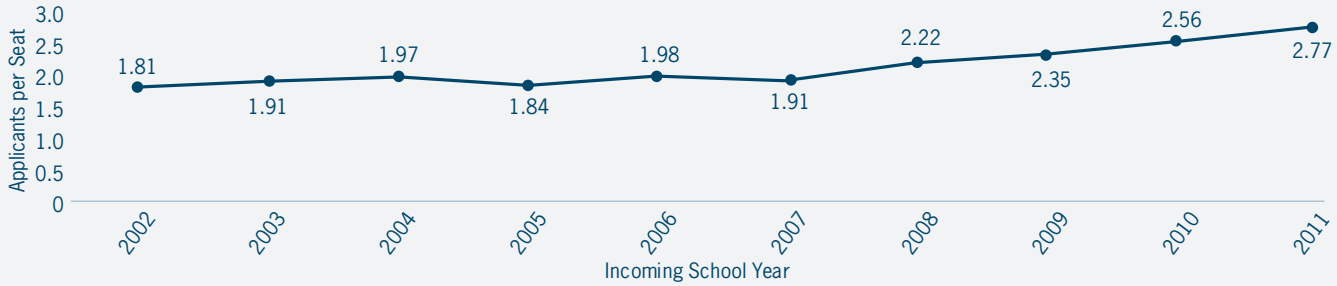
Physician assistant program data from the Physician Assistant Education Association Program Directory, accessed November 30, 2017 from http://directory.paeaonline.org/programs. RUCA data from the USDA Economic Research Service, https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes.aspx.

Table 3. Enrollments in North Carolina Physician Assistant Programs, 2015-2017[7]

University	2015-16	2016-17 projected	2017-18 projected	Projected % Increase
Campbell University	44	44	50	14%
Duke University	90	90	90	0%
East Carolina University	34	36	36	6%
Elon University	38	38	38	0%
Gardner-Webb University	22	29	31	41%
High Point University	19	21	35	84%
Lenoir-Rhyne University	0	32	40	25%
Methodist University	40	40	40	0%
UNC Chapel Hill*	20	20	20	0%
Wake Forest University	90	90	90	0%
Wingate University	50	50	50	0%
PA Totals	**447**	**510**	**520**	**16%**

*Data for UNC have been updated to reflect actual numbers per https://www.med.unc.edu/ahs/unc-pa/admissions-information-2/frequently-asked-questions.

Figure 8. Number of Applicants per Seat, Physician Assistant Programs, U.S., 2002-2011



McDaniel MJ, Hildebrant CA, Russell GB. Central application service for physician assistants ten-year data report, 2002 to 2011. *J PA Educ.* 2016;27(1),17-23.

qualified candidates as a significant barrier to hiring new faculty, and 82% (n=132) cited lack of teaching experience as a barrier (Figure 9).

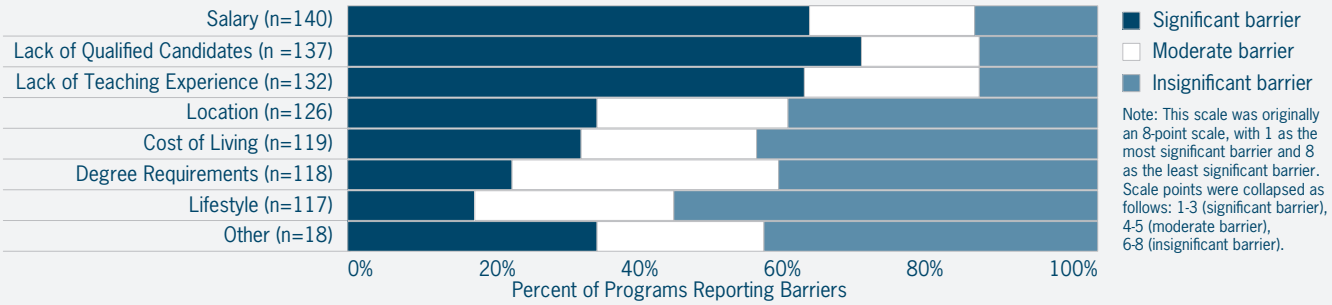
Survey data from 2015 show that the majority (80.4%, n=863) of PA faculty were PAs, but one in five were not. Most commonly, non-PA faculty held PhDs (33.7%, n=66) or were physicians (30.0%, n=51).

Survey results suggested that most PA faculty have not held their positions for a long period of time.[15] Of those surveyed, the majority of faculty (81.6%, n=621) had only been employed at one program. Close to half (46.2%, n=495) had held their current faculty position for fewer than four years. The majority of the 193 faculty that were hired in the prior academic year came from clinical practice; 45.6% (n=88) were in clinical practice and precepted students, and 20.7% (n=40) were in clinical practice and did not precept students (Table 4).

Training Sites for PA Students

An important concern regarding PA (as well as physician and NP) education in the state is the lack of available preceptorships. As part of training, students must complete rotations at clinical sites. The rapid expansion of PA school enrollment, along with medical school and NP school enrollment, has put pressure on the state to find qualified preceptors for learners. While NP students are typically (although not always) precepted by other NPs, medical students and PA students sometimes compete for the same

Figure 9. Barriers to Hiring New PA Faculty, PAEA, 2015



Source: Physician Assistant Education Association, Physician Assistant Program Faculty and Directors Survey Report, 2015, Washington, DC: PAEA, 2015, accessed November 30, 2017 from http://paeaonline.org/wp-content/uploads/2017/05/faculty-directors-report20160218.pdf.

Table 4. Past Employment of New Physician Assistant Faculty Hired in the 2014-15 Academic Year
(N=193, 18% of all respondents)

Immediate Past Employment	Number	Percent
Clinical practice (including precepting)	88	45.6%
Clinical practice (no precepting)	40	20.7%
PA education	31	16.1%
Other educational program (non-PA)	16	8.3%
Previously worked part-time at the current institution/program	5	2.5%
Other	13	6.8%
Total	**193**	**100%**

Source: Physician Assistant Education Association, Physician Assistant Program Faculty and Directors Survey Report, 2015, Washington, DC: PAEA, 2015, accessed November 30, 2017 from http://paeaonline.org/wp-content/uploads/2017/05/faculty-directors-report20160218.pdf.

preceptorships.[16] The NC AHEC program has declared the situation a "crisis" and has made the issue one of its key priorities.[17] According to a study conducted by AHEC in 2016, 93% (27 of 29) of the NC schools that train physicians, PAs, NPs, or pharmacists provide financial incentives to preceptors, which typically go to the practice, rather than the preceptor.[18] Two healthcare systems in the state have set explicit limits on the number of students they will precept and the number of schools from which they will accept students due to the indirect costs associated with precepting,[19] which include supervising practitioner time, background checks for students, onboarding to electronic health record systems (EHRs), and administrative costs. Given the choice between precepting students from two different schools, a preceptor may be more likely to accept students from schools that provide larger incentive payments. Private schools can opt to charge higher tuition to cover these incentive payments and are then at an advantage when competing for preceptors with publicly funded institutions. AHEC has led a taskforce around these issues and is evaluating options to level the playing field. Georgia, Maryland, and Colorado have recently passed legislation providing tax credits to physicians who precept medical students.[20] It remains to be seen whether NC will pursue a similar model.

A 2016 AHEC report noted that two key influences related to preceptorships are accreditation requirements and alumni ties.[21] Without a pre-existing alumni network of graduates, a new PA program may be at a comparative disadvantage in recruiting preceptors.

Discussion

The demand for PAs in NC on the employer side is strong and the demand for students is such that despite the growth in seats at training programs, the number of applicants per seat has grown. At the same time, PA programs have expanded rapidly in the state and in the country over the past six years. While the current job market appears strong, there are concerns among PA workforce researchers that the market will reach saturation in the future. Evidence to support any current PA workforce saturation is lacking because information on PA practice patterns is scarce.

At present, there are only two PA programs at public universities in NC, one at ECU and one at UNC-CH. In total, only 10.7% (n=56/520) of PA students in the state enroll in public universities where tuition costs are much lower than at private universities. ECU reports on its website that between 600 and 700 applicants apply annually for the PA program, which enrolls 36 students in each class.[22] The cost of a PA degree at ECU for an in-state student is roughly 41% of the cost of the same degree from Elon University. The lack of PA programs at public institutions in the state may present a barrier for potential students who wish to pursue the degree but cannot afford private university tuition.

The lack of available preceptors in the state to train learners is a significant barrier faced by PA programs looking to expand enrollment. PAs and medical students sometimes compete for the same preceptorships. Private universities may be able to pay preceptors more by increasing tuition costs, which is not an option for public schools that seek to keep tuition affordable.

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