

Prioritizing Primary Care



**Advisory Committee on Training in Primary Care
Medicine and Dentistry (ACTPCMD)**

Prioritizing Primary Care

**Twenty-first Annual Report
to the
Secretary of the United States
Department of Health and Human Services
and the
Congress of the United States**

December 2023

The views expressed in this report are solely those of the Advisory Committee on Training in Primary Care Medicine and Dentistry and do not represent the perspectives of the Health Resources and Services Administration nor the United States Government.

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Authority

The Advisory Committee on Training in Primary Care Medicine and Dentistry (ACTPCMD) is a Federal advisory committee under the auspices of the Health Resources and Services Administration (HRSA), an agency of the U.S. Department of Health and Human Services (HHS). HRSA is the primary Federal agency for improving access to health care by strengthening the health care workforce, building healthy communities, and achieving health equity. The ACTPCMD is authorized by sections 222 and 749 of the Public Health Service Act (PHSA) (42 U.S.C. §§ 271a, 749), as amended by section 5303 of the Patient Protection and Affordable Care Act (ACA).

The ACTPCMD was established under the authority of section 748 of the 1998 Health Professions Education Partnerships Act. The ACTPCMD provides advice and recommendations on policy and program development to the Secretary of the U.S. Department of Health and Human Services (Secretary) and is responsible for submitting an annual report to the Secretary and Congress concerning the activities authorized under sections 747 of the PHSA, as amended. Reports are submitted to the Committee on Health, Education, Labor, and Pensions of the Senate and the Committee on Energy and Commerce of the House of Representatives. In addition, the ACTPCMD develops, publishes, and implements performance measures and longitudinal evaluations, as well as recommends appropriations levels for programs authorized under Part C of Title VII of the PHSA, as amended.

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The Committee also extends their gratitude and appreciation to our colleagues and fellow Committee members who contributed to the writing of this report: Sandra M. Snyder, DO; Tonya Fancher, MD, MPH; Kim Butler Perry, DDS, MSCS, FACD; David Schneider, MD, MSPH; and Wanda H. Thomas, MD, FAAP. Finally, this report has benefited from the capable assistance of the following HRSA staff: Shane Rogers, Designated Federal Officer, and Jennifer Holtzman, DDS, MPH, Dental Officer and Subject Matter Expert. The Committee deeply appreciates the hard work and dedication of these individuals in producing this report.

Sincerely,

A handwritten signature in black ink that reads "Sandra Snyder". The script is cursive and fluid, with the first name "Sandra" being larger and more prominent than the last name "Snyder".

Sandra M. Snyder, DO
Chair, ACTPCMD

Executive Summary

Increasing the number, distribution, and diversity of the primary care workforce for medical and dental health professions shortage areas in the United States requires a renewed examination of a multitude of facilitators and barriers, as well as diverse strategies to train primary care clinicians.

The training of clinicians has not always taken as long as it does today. It typically takes 8 consecutive years of post-high school education to become a full-fledged general dentist. For physicians practicing primary care (family medicine, internal medicine, or pediatrics), typically at least 11 years are required prior to being board eligible.

High student debt, historical shortages, and the maldistribution of primary care physicians, dentists, dental hygienists, physician assistants, and other primary care clinicians, has spurred the development of educational programs that accelerate the pathway to professional competence and shorten the length of education. This report reviews the historical development of accelerated pathway programs for educating clinicians, along with some of the outcomes related to those programs.

Community-based training of primary care clinicians has been strategically important in addressing clinician maldistribution, as some studies have shown that the *location* of their training can have an effect on where they eventually practice. For example, studies examining training (e.g., clerkships, internships, or placements) in underserved areas have found a positive effect on practice outcomes in underserved areas following training.

This report also explores another factor that limits schools from enrolling more clinicians: the concern of not having an adequate number of clinical training sites. Clinical training allows individuals to learn their profession hands-on under the supervision of a practicing clinician. This report explains some of the challenges related to securing an adequate number of clinical training sites as well as recommendations to address this shortage.

The research presented in this report finds that:

- **Accelerated pathway programs** can help graduate clinicians in less time, with reduced debt, and without impacting the preparation for residency and practice.
- **Community-based primary care dental training programs** are needed to help increase the number of dentists practicing in underserved areas and to address oral health disparities.

- **Increasing the number of clinical training sites and preceptors** is needed to adequately train an increased number of primary care medical, physician assistant, dental hygienist, and dental students.

The Committee believes the recommendations presented below can support these findings and bolster the training of more primary care clinicians who practice in underserved communities.

ACTPCMD Recommendations

Recommendation 1

ACTPCMD recommends that Congress increase Title VII, Section 747 funding by \$45 million to be used for accelerated pathway programs for primary care practice for both medical and Physician Assistant students.

Recommendation 2

ACTPCMD recommends that Congress increase the Title VII, Section 748 funding by \$83 million to increase the number of community-based primary care dental training programs.

Recommendation 3

ACTPCMD recommends that Congress update the Title VII, Section 747 and 748 legislation to create innovative career-changer programs that support the additional training of Community Health Center staff to broaden their scope of primary care practice.

Recommendation 4

ACTPCMD recommends that Congress and the Secretary, HHS, allow Title VII, Section 747 and 748 funding be utilized to pay community-based clinical sites and preceptors to effectively support training clerkships for primary care medical, physician assistant, and dental students.

Recommendation 5

ACTPCMD recommends that Congress and the Secretary, HHS, support new models of payment/patient care reimbursement for rural based community hospitals, Federally Qualified Health Centers (FQHCs), and health centers to support the training of medical, physician assistant, and dental students in those settings.

Accelerated Pathway Programs

The Changing Educational Landscape of the Health Professions

The education of clinicians in the United States has changed significantly over time. For example, physicians are educated very differently today than in the 1800s and 1900s, and this is not only due to scientific advances.¹ A review of medical schools during that period stated that “...[medical] schools were essentially private ventures, money-making in spirit and object.”²

Historically, admission standards varied greatly across the country with some medical schools requiring two or more years of college while others required only a high school education, or less. A report published in the early 1900s claimed that in some medical schools “no applicant for instruction who could pay his fees ... was turned down.”³ This is especially troubling since at the time, state boards were non-existent and a medical school’s diploma was considered a license to practice.⁴

The 1910 report by the Carnegie Foundation for the Advancement of Teaching, better known as the Flexner Report, reviewed 155 medical schools in the United States and Canada and found that there had been “an enormous over-production of un-educated and ill-trained medical practitioners...”⁵ The Carnegie report also found significant differences in both *what* was taught in medical schools and *how* it was taught.⁶

It showed that there was a general lack of rigorous academic standards and a lack of integration of scientific knowledge and inquiry in a physician’s education.⁷ At the time, the curriculum consisted mostly of didactic instruction—that is, teachers delivering lectures to students consisting, in part, of “rote memorization of the received wisdom of practicing physicians.”⁸ This was a passive form of learning, which transmitted information to students but did not connect it to practice, since at the time students only infrequently examined patients during training.⁹

The Carnegie report further noted that the curricula generally did not integrate scientific knowledge and inquiry into the care of patients.¹⁰ In other words, it was not focused on the formation of scientifically-oriented physicians. This would eventually change when medical laboratories and university teaching hospitals were established, which helped students learn how to solve clinical problems.

Abraham Flexner, the author of the 1910 report, found the lack of integration between medical knowledge and clinical practice to be deficient. This led to one of his most important recommendations: that medical schools provide two years of science education followed by two years of intensive *clinical training* for a total of four years of medical school education.¹¹ He also proposed that admission be based on having a bachelor’s degree with a strong science

background.¹² Flexner's recommendation became what today is the backbone of the four-year (2+2) model of medical school education.

Early Models of Accelerated Education

During World War II (WWII), the nation faced a scarcity of physicians. This was matched by a response that included the development of a three-year accelerated program to speed up physician education.¹³ The federal government urged universities to adopt this approach and the Federation of State Medical Boards revised licensure so that those graduating in three years would be eligible for a medical license.¹⁴

At that time, all but six medical schools adopted a three-year program. After the war, most schools returned to their four-year format.¹⁵ There were several reasons for this reversal, one of them being stress on the medical schools' resources as faculty were moved from research and clinical positions to teach on a more intensive schedule.¹⁶

It wasn't until the 1960s and 1970s that three-year programs would resurface, as national concerns of physician shortages (especially in primary care) began to grow (see Figure 1).¹⁷ During that time, various efforts and funding by the federal government propelled the growth of accelerated programs. Key legislation, such as the *Health Professions Educational Assistance Act* of 1963, established "the first federal program directed to meet the critical needs for physicians, dentists, and certain other health professional manpower, providing assistance to schools for construction of facilities and assistance to students in the form of loans."¹⁸ This act also supported the development of various HRSA programs under Title VII to alleviate provider shortages.

During the 1950s and 1960s, another fast-track strategy was developed, which was the creation of Bachelor of Arts-Doctor of Medicine (BA-MD) programs. These programs combined 3 years of undergraduate education with 3 years of medical school. Similar programs are still offered today by some schools.¹⁹

In 1971, the *Comprehensive Manpower Training Act* increased federal commitment to training family practitioners and increasing the number of minority physicians and other professionals in the health professions. This legislation was an important element in the expansion of accelerated programs in the 1970s. Enrollment in accelerated physician training programs increased from about 1,000 individuals in 1972-1973 to more than 2,200 in the next academic year. By 1973, about one-third (n=33) of medical schools at the time had 3-year accelerated programs.²⁰

In support of innovative ways to help solve the shortages in primary care, the Act also included \$4 million for establishment of new physician assistant (PA) educational programs.²¹

The Act helped support the development of various PA federal programs to more quickly fill the need for more primary care professionals, using the newer PA model to further balance the distribution of the primary care workforce both in diversity and in providing care in rural and medically underserved areas.

By the late 1970s and in the 1980s, support for 3-year physician training programs began to wane. Both students and faculty felt pressured by having to complete a compressed curriculum in 3 years. About a quarter of students in 3-year programs voluntarily extended their education by 1 or 2 years. At Ohio State University, which began its 3-year program in 1970, the mean satisfaction score of faculty participating in this program was 60.5 out of 100. In addition, nearly 50% of the faculty surveyed preferred returning to a 4-year program.²²

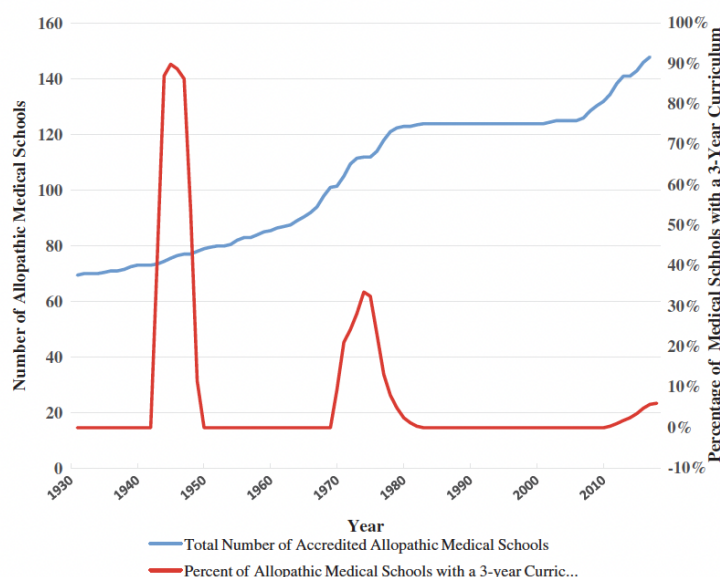


Figure 1. Estimated percentages of medical school 3-year curriculum over time (in allopathic schools) (Source: Christine Schwartz et al., “Comprehensive History of 3-year and Accelerated U.S. Medical School Programs: A Century in Review,” *Medical Education Online*, 2018)

Accelerated Education – Take Two

A hundred years after Flexner’s 1910 seminal report, the Carnegie Foundation published the results of a second study of medical schools titled *Educating Physicians: A Call for Reform of Medical School and Residency*. This 2010 report included a literature review and site visit to 11 of the 130 accredited allopathic medical schools. Among the report’s many findings, the authors

stated that medical training was “inflexible, excessively long, and not learner-centered.”²³ These findings rekindled the discussion surrounding 3-year programs.

There are several reasons why medical schools and other institutions are once again considering 3-year programs. One of them is the current shortage of primary care health providers. HRSA projects a shortage of 35,260 primary care physicians by 2035 in four specialties: family medicine, general internal medicine, pediatrics, and geriatrics.

HRSA estimates a 6% increase in supply of family physicians but a 13% increase in *demand*, resulting in a continued shortage. The discrepancy is even greater for geriatric physicians: an 8% decrease in supply and 50% increase in demand is projected, creating a substantial shortage.^{24,25}

Similar challenges exist for physician assistants and dentists. While PA education continues to expand, with now over 235 accredited programs that graduate more than 11,000 PAs every year, only about a quarter of them practice in primary care settings, creating only a marginal improvement in the overall primary care professional shortage. In addition, a recent article by the American Dental Association estimates a current shortage of 10,877 dentists.^{26, 27, 28}

A second concern regarding clinician/dental education is debt. Carnegie’s new report found medical education to be “excessively long” and it is known that educational length tends to impact a student’s total debt. Today, the estimated median medical school debt is \$200,000, which is a significant burden on some students, especially for rural and disadvantaged students.²⁹

For dentists, the average student debt in 2022 was \$293,000, and 83% of dental students graduated with some level of debt.³⁰ The amount of dental student debt is important, as some studies have found a link between debt and career decisions. For example, a survey of nearly 1,800 practicing dentists found that those with higher debt were more likely to enter private practice, accept high-paying jobs upon graduation, and work longer hours.³¹

A survey of matriculating PA students found that nearly 75% expected an educational debt of at least \$50,000 upon graduation and nearly 40% expected their debt to exceed \$100,000. This is in addition to the existing debt accumulated by matriculating students prior to starting PA education. Nearly half of all matriculating students reported having an existing educational debt, with an average amount of outstanding educational loans totaling nearly \$40,000.³²

In 2013 and 2014, educational deans and residency program directors were surveyed on their opinions of 3-year accelerated programs. The 2013 survey sampled 125 educational deans, with 75 responding. Nearly 56% of them stated that they “strongly agreed” or “somewhat agreed” that physician training could be shortened. The majority of deans (84%) responded that training

could be shortened through competency-based progression. A 2014 follow-up survey of 127 medical schools showed that 7% already had a 3-year pathway, 4% were developing one, and 34% were considering developing one.³³ Deans responded on the benefits of having a 3-year program, with 67% of deans endorsing debt reduction as a benefit, 38% feeling it would accelerate pathways to clinical careers; and 21% believing it would increase entry into primary care careers.³⁴

In 2022, results were published of a separate national survey of students graduating from 3-year accelerated programs in 2017-2018. Data were collected by the Association of American Medical Colleges (AAMC) through a survey of all U.S. medical students in their last year of medical school. The study compared students graduating from 3-year accelerated pathway (AP) programs to non-AP students, in terms of satisfaction with their education, preparedness for residency, and debt.³⁵

Ninety-seven percent of students in the AP programs responded they were satisfied with the quality of education received compared with 89% of non-AP students from an AP school. The vast majority of AP students (95%) felt prepared for residency compared with 89% of non-AP students. In addition, comparing scores from 3- and 4-year students from the United States Medical License Examination (USMLE)—which assesses a physician’s ability to apply knowledge, concepts, and principles—showed no major difference in performance between these graduates.³⁶

Significantly, 41% of AP students reported graduating with *no medical school debt*, compared with 28% of non-AP students. The survey also found that twice as many (44%) of AP students had a medical school debt of \$149,000 or less compared with 21% of non-AP students. In addition, about half of non-AP students had a medical school debt of \$150,000 to \$400,000 *or more*. The survey also found that more AP students planned to care for underserved populations (55%) than non-AP students (37%).³⁷

In 2015, a grant from the Josiah Macy Jr. Foundation supported the development of the Consortium of Accelerated Medical Pathway Programs (CAMPP). The consortium was founded to study best practices in the development of accelerated medical school programs, track outcomes, and support other schools wanting to start their own programs. Originally started with eight schools, the consortium now has 31 school members. The goal is not to create a cookie-cutter approach, but for each institution to develop their program based on its needs and the needs of those it serves so each has a unique accelerated program. Some of these programs include a direct progression option into graduate medical education, thus easing the transition into residency. Many programs focus on family medicine or primary care.^{38,39}

Exemplary Programs

Listed below are three exemplary AP programs.

Ohio University – [The Transformative Care Continuum](#)

Ohio University offers an accelerated program for family physicians. It was launched in 2018 and consists of 3 years of medical school followed by a 3-year residency in family medicine. The program's Transformative Care Curriculum was developed in partnership between the Heritage College of Osteopathic Medicine and the Cleveland Clinic.

The curriculum is competency-based and places students in a clinical setting early on. Students are embedded into their Cleveland Clinic site in their first days of medical school and are accepted to the residency program even prior to starting medical school. This program invests in its medical students from the beginning of their education, leading to a greater capacity to graduate family physicians who are well-prepared to serve their patients.^{40,41,42}

Duquesne University PA Program – [The Accelerated PA Model](#)

While most PA programs offer a master's degree requiring 6 or more years of study after high school (4 years of undergraduate study plus an average of 27-months of PA professional studies), Duquesne University offers an accelerated 5-year PA program. Students are admitted out of high school and complete a 3-year curriculum focused on basic sciences, humanities, and medical sciences tailored to a career in health care followed by a 27-month curriculum dedicated to PA education. Program graduates earn both a Bachelor of Science in Health Sciences degree and Master of PA studies degree.⁴³

University of the Pacific – [The Accelerated Pre-Dental Advantage Program](#)

The University of the Pacific offers an accelerated dental program called the Pre-Dental Advantage Program. It is a 3+3 program, with 3 years of pre-dental education and 3 years of dental school. Those completing the first 3 years will have a guaranteed interview with the School of Dentistry. Students completing the full 6-year program graduate with both a BS and a DDS degrees. All students spend at least 40 hours shadowing a general dentist.⁴⁴

Community-Based Clerkships and Rotations

The Importance of Clerkships and Rotations

Typically, during the last 2 years of medical school, students begin a series of clerkships (also known as clinical rotations) to experience training in a single specialty for several weeks before

rotating to another one. Accredited U.S. medical schools are required to offer clerkships in six specialties: family medicine, internal medicine, psychiatry, surgery, pediatrics, and obstetrics and gynecology. Similarly, in physician assistant education the final 12-15 months are typically spent in a rotation of clerkships requiring the same six specialties along with other elective rotations.

Clerkships are an important part of medical and PA school because they can influence or create interest in a particular specialty, including family medicine.⁴⁵ Clerkships tend to last weeks and focus on several specialties, while residency focuses on one specialty and lasts years.

Dentistry is similar to medical school in that the last 2 years are mostly clinical and expose students to direct patient care in various dental specialties. During that time, students rotate through clinics and hospitals where they learn to care for children, geriatric patients, the disabled, and other types of patients to create a well-rounded clinical experience.⁴⁶

Some studies have shown that the *location* of the clerkship can have an effect on where the clinician eventually practices. In 2022, a scoping review was conducted of family medicine programs in the U.S., Australia, Canada, and other countries. The review included 36 studies that reported on the relationship between undergraduate training and later practice. The studies examined training (e.g., clerkships, internships, or placements) in underserved areas. Most of the studies found a positive effect on practice outcomes in underserved areas.^{47, 48}

Similar findings have been found with residency. One study found that 56% of family medicine residency graduates practice within 100 miles of their training site. Therefore, having access to rotations and residencies in underserved areas is important to having clinicians practice in those areas.^{49,50}

Community Preceptors and their Perspective on Payment

Preceptors help medical, PA, and dental students to better learn in a clinical setting. In family medicine, a preceptor is an experienced physician that practices family medicine and provides supervision to medical and PA students, thus bridging the gap between theory and practice.

An example would be a family medicine physician with a small community-based practice who takes on a medical student for a clerkship lasting a few weeks. During that time, the family medicine physician would continue to practice as usual, but also supervise the student in a clinical setting on a one-to-one basis. This allows the student to be exposed to common medical conditions and the management of chronic illnesses in an outpatient setting.^{51,52}

Historically, community-based family physicians have become preceptors for altruistic reasons and the personal rewards stemming from preceptorship, such as the love of teaching and being able to impact the next generation of doctors. Some institutions have also incentivized preceptors further by offering perks such as library access, adjunct faculty appointments, and free or discounted continuing education. Despite these non-monetary rewards, some studies are showing the payment of preceptors as a growing trend.⁵³

On the preceptor side, the additional time and burden of the preceptorship is something to be considered. Some studies show that one of the negative impacts of preceptorship is an increase in the length of the clinician's workday. One study listed the median workday increase to be 60 minutes, at a cost of \$100-\$200 per day.^{54,55}

An article going back to 2001 presented the results of a survey of 2,700 primary care physicians in New England, with 831 responding. More than half were in a solo or small practice and about 79% were either precepting or had been preceptors. While 53% of respondents replied that precepting improved practice quality, 73% reported that a major negative effect was decreased productivity and 40% reported the increased cost of doing business as a negative impact. A total of 55% of physicians reported payment to compensate for lost time or income to be "important" or "very important."⁵⁶

Institutions and their Perspective on Payment for Preceptors

The landscape of clinician education has changed over the last decades. For instance, there has been a significant increase in medical student class size—a 29% growth in matriculation between 2002 and 2018—which has produced an increased demand for preceptors.⁵⁷ In PA education, there has been a substantial increase in both the number of PA programs and graduates. In 1985 there were a total of about 750 graduating students, while in 2019 this number had increased to nearly 9,500.⁵⁸

A national survey on clerkship directors was published in 2018 by the Alliance for Clinical Education, an organization comprising representatives from multiple clerkship organizations. The survey included clerkship directors from various specialties including pediatrics (27%), obstetrics and gynecology (20%), family medicine (13%), and other specialties.⁵⁹

Of the 188 respondents, 26% said they compensated their preceptor directly or indirectly (via the clinic or health system). The types of payments for preceptorship varied. The most common was a fixed monetary amount per student (46% of respondents), a fixed amount for a specific period of time (18%), or a periodic stipend (12%). Payments also varied across regions. Of the respondents in the southern region, 46% said they paid preceptors compared with 20% in the central, 18% in the northeast, and 14% in the western regions. The two clerkships most likely to offer compensation were pediatrics (27%) and family medicine (26%).⁶⁰

The reasons for paying preceptors also varied, with competition from other schools being the primary reason. In the survey, 56% of respondents said they “agreed” or “strongly agreed” that they compensated preceptors due to competition by other MD-granting schools.⁶¹

In 2020, the AAMC published a Medical School Enrollment Survey of 155 American MD-granting schools. Two predominant factors were noted as limiting a school’s capacity to enroll students: 1) The impacts of the COVID-19 pandemic, and 2) The availability of qualified preceptors. In fact, a total of 37% of the schools listed the availability of qualified primary care preceptors as a limiting factor in enrollment. Another issue limiting enrollment was school competition for clinical training sites. A total of 31% of schools listed competition from other MD-granting schools for clinical training sites as a concern.⁶²

The issue of having an adequate number of clinical training sites is not unique to MD-granting schools. In 2013, the AAMC published results of a survey of schools granting MD, DO (Doctor Osteopathic Medicine), NP (Nurse Practitioner), and PA degrees. Results showed at least 80% of respondents in each of the above disciplines felt concern regarding the adequacy of the number of clinical training sites. Also, more than half of the respondents in each discipline felt “moderate to extremely high pressure to either increase or begin using financial compensation incentives, particularly for new sites.”⁶³

An analysis published in 2018 by the PA Education Association (PAEA) found that 95% of PA program directors felt “moderately” or “very concerned” about the availability of adequate clinical training sites.⁶⁴ The latest PAEA program survey, published in 2019, shows an increased trend for payments to clinical training sites. In 2012, only 22% of sites reported paying clinical sites while in 2018 this number had risen to 52% (see Figure 2).⁶⁵

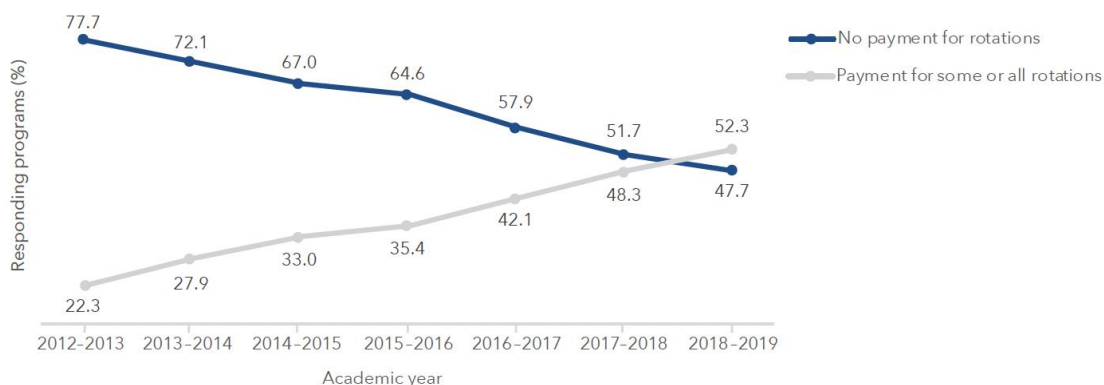


Figure 2. Trends in Payment for Clinical Sites, 2012-2019 (Source: PAEA, “Program Report 35: By the Numbers, Data from the 2019 Program Survey,” 2019)

A recommendation to address the increased demand for payment is made in this report: to allow Title VII, Sections 747 and 748 funding be utilized to pay community-based clinical sites, such as Federally Qualified Health Centers (FQHCs)—which include community health centers (CHCs)—and rural hospitals as well as preceptors to effectively support training clerkships for primary care medical, Physician Assistant, and dental students.

Involving CHCs is a practical approach for two reasons. First, it has a large set of clinicians who could serve as preceptors. CHCs form the largest primary care network in the country, providing affordable care—including dental care—to more than 30 million patients. Second, CHCs provide care in underserved communities, exactly where there is an increased need for primary care clinicians.⁶⁶

Another recommendation to address the matter is to develop new reimbursement models that allow for the training of primary care medical, physician assistant, dental hygiene, and dental students at CHCs, FQHCs, and rural hospitals.

One example is the Teaching Health Center Graduate Medical Education (THCGME) Program, developed by Congress in 2010 as part of the ACA. The program supports the development of residencies in community-based health centers. Over the period of 11 years, 2,207 new physicians and dentists have graduated from Teaching Health Centers and entered the workforce. The majority of these graduates (65%) practice in primary care, compared with 20.4% of all U.S. residency graduates. Also, 56% are practicing in underserved areas, compared with 24.1% of all graduates.⁶⁷

General Dentistry Training

Oral Health and Overall Health

In his 2000 seminal report, *Oral Health in America*, the Surgeon General stated that the mouth is the “mirror of health or disease...” and that a person “cannot be healthy without oral health.”⁶⁸ Since then, studies have shown strong evidence associating periodontal disease (also known as gum disease) to other medical conditions such as diabetes, heart disease, rheumatoid arthritis, adverse pregnancy outcomes, and even cancer.^{69,70}

A 2017 review examined the association between cancer and periodontal disease. The review, which included 46 studies involving cancer and periodontal disease, found a “positive association between gum disease and risk of lung, pancreatic, and head and neck cancers.”⁷¹ Other studies found tooth loss to be associated with a higher risk of cardiovascular disease. One study estimated that for every 2 teeth lost there was a 3% *increment* in coronary heart disease.⁷²

These and other studies show that improving the overall health of the nation requires acknowledgement of the importance of good oral health as well as the unequal burden of oral disease among populations.⁷³ Oral disease, which includes tooth loss, can be preventable and general dentists and other health care professionals can play an important role in educating patients about early prevention, thus decreasing the risk for disease and tooth loss.^{74,75}

Oral Health Disparities

Unfortunately, despite the recognized importance of oral health, not everyone in the U.S. benefits equally from the existing health care system. The burden of disease can impact different groups differently, thus creating health disparities.

Disparities can be defined as “a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health...”⁷⁶

Vulnerable and underserved populations in the U.S. are groups commonly experiencing health disparities. They can include racial/ethnic minority communities, individuals with special health care needs, those living with disabilities, rural populations, older adults, homeless individuals, incarcerated people, those who are uninsured/underinsured, individuals with low-socioeconomic status, lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals, and other groups.^{77,78,79}

The reasons for the existence of disparities are complex and can involve numerous factors. In the area of oral health, disparities can exist based on type of insurance, socioeconomic status, age, sexual orientation, geography, disability, and various other factors. For example, in low-income households, the percentage of children ages 2 to 5 years with untreated cavities in their primary teeth is nearly 3 times higher than those from higher-income households.⁸⁰

Furthermore, nearly twice as many adults enrolled in Medicaid reported that they had not visited a dentist in the past few years compared with non-enrolled Medicaid adults (30% vs 16%, respectively).⁸¹ In addition, adults living in rural areas were less likely to receive preventive services, more likely to seek dental care in the emergency room (ER), and had higher rates of cavities than their nonrural counterparts.⁸²

Maldistribution of General Dentists

Like many medical professions, dentists can be trained as general dentists or specialize in areas such as pediatrics, oral and maxillofacial surgery, anesthesiology, orthodontics, and other areas.

General dentists, along with other primary care clinicians, provide services focusing on health promotion, disease prevention, patient education, and the diagnosis and treatment of many diseases. General dentists also play a key role in primary care because, in some cases, they may be the first point of contact an individual has with the health system. General dentists can also play key roles in the integration and coordination of dental and medical care.⁸³

Despite their importance in providing primary care, not everyone in the U.S. has access to a dentist. One of the challenges is the uneven distribution of dentists across the country. For instance, there are 104 dentists per 100,000 people in Washington, DC, but only 41 per 100,000 in the State of Alabama.⁸⁴

In addition, specific areas across the nation are more acutely impacted by a shortage of dentists. HRSA designates Health Professional Shortage Areas (HPSAs) as geographic areas, populations, or facilities that have a shortage of primary care medical, dental, or mental health care providers.⁸⁵

According to HRSA, there are 6,920 dental health HPSAs in the US—in other words, areas where few, if any, dentists practice.⁸⁶ Altogether, there are 67 million individuals living in dental health professional shortage areas. In the rural space, roughly two-in-five rural Americans are practically without access to dental care.⁸⁷

The reasons for the maldistribution and the existence of dental HPSAs are many. Dentists are some of the major health professionals with the highest educational debt.⁸⁸ The average dentist's debt is \$239,895 for public dental schools and \$341,190 for private ones.⁸⁹ As a result, practicing in rural and/or high-poverty areas may imply lower payout-margins and therefore a longer period to discharge this debt.⁹⁰

Also, in the U.S. almost two-thirds of dentists do not accept public insurance, in part due to low reimbursement rates and a higher administrative burden.⁹¹ Therefore, recruitment and retention of dentists serving those who are publicly insured in rural and urban low-income areas continues to be a challenge.

In addition, having a dearth of dentists means that dentists in a shortage area may find it difficult to refer a patient and therefore may need to provide a wider range of dental services for medically, behaviorally, and socially complex patients across the life span.

Financial Costs and System Burden

Recommendations made by the Committee in this report to increase the number and diversity of dental practitioner programs serving underserved populations could help improve access to dentists and thus aid in decreasing system costs.

There is an important and lasting economic impact of poor oral health along with associated increases in health care costs, missed work/school days, and oral health inequities. A lack of access to dental providers burdens individuals as well as the entire health system through increased morbidity.

Estimates show that every 15 seconds someone visits an ER seeking treatment for a non-traumatic dental condition that could be mostly preventable.⁹² These visits occur for a variety of reasons, including being uninsured or underinsured, difficulty in finding a provider accepting Medicaid, not knowing how to access the dental system, and not being able to find evening or weekend dental appointments.^{93,94}

Unfortunately, dental treatment in the emergency setting is often palliative and does not always address the root cause, which may result in the patient returning to the ER.⁹⁵ An estimated 90% of ER dental patients receive only pain medication or antibiotics for their infections.

Dental treatment in the ER is also often expensive.^{96,97} Some estimates show that receiving ER dental care can be up to five times more expensive than receiving treatment at a dental office.⁹⁸ At a national level, these financial costs can be significant. For example, there were 2.1 million visits to the ER for nontraumatic dental conditions such as tooth decay, infections, swollen gums, and other similar conditions in 2012.^{99,100} A study estimated the average cost per visit to be \$749 and the total cost to be \$1.6 billion for the year analyzed.¹⁰¹

For the 2.1 million ER dental visits described above, Medicaid paid for 61% of the pediatric visits for those 18 and under—a total of nearly \$94 million. In addition, Medicare paid for 85% of ER dental visits for those 65 and over for a total of nearly \$61 million. A study estimated that 79% of these ER visits could have been diverted to a community setting, bringing considerable system savings.¹⁰²

Increasing the number of community-based primary care dental training programs located in CHCs can play an important role in serving vulnerable and underserved populations, especially those living in rural and other geographic areas that have a shortage of dental health care providers. This would not only decrease system costs, but also increase access to care, limit oral disease, and reduce the burdens of chronic diseases thereby improving the health of all Americans.

Summary

Improving the health of the public is a national goal. However, the delivery of primary care to all Americans is contingent on an adequate number and distribution of clinicians throughout the country.

The five recommendations presented by the ACTPCMD in this report aim to support an increase in the supply of primary care clinicians and community-based primary care dentists through various strategies, including accelerated pathway educational programs. This increase is key to addressing projected workforce shortages.

In addition, the report's recommendations address bottlenecks and barriers to the education of primary care clinicians and their practice in underserved areas.

The research presented in this report finds that:

- **Accelerated pathway programs** can help graduate clinicians in less time, with reduced debt, and without impacting the preparation for residency and practice.
- **Community-based primary care dental training programs** are needed to help increase the number of dentists practicing in underserved areas and to address oral health disparities.
- **Increasing the number of clinical training sites and preceptors** is needed to adequately train an increased number of primary care medical, physician assistant, dental hygienist, and dental students.

The ACTPCMD believes the implementation of the recommendations in this report could help achieve a primary care system that is more accessible, equitable, and affordable for Americans living in underserved areas.

List of Acronyms and Abbreviations

AAMC	Association of American Medical Colleges
ACTPCMD	Advisory Committee on Training in Primary Care Medicine and Dentistry
AP	Accelerated Pathway
CAMPP	Consortium of Accelerated Medical Pathway Programs
CHC	Community Health Center
DO	Doctor of Osteopathic Medicine
ER	Emergency Room
FQHCs	Federally Qualified Health Centers
HHS	Department of Health and Human Services
HPSA	Health Professional Shortage Area
LGBTQ	Lesbian, Gay, Bisexual, Transgender, and Queer
NP	Nurse Practitioner
PA	Physician Assistant
PAEA	Physician Assistant Education Association

USMLE United States Medical License Examination

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