

**Education in Primary Care in California's Medical Schools:  
Strengths, Challenges, and Opportunities**

**A Report to the California Advanced Primary Care Institute**

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**Executive Summary:** Acknowledgment of the importance of primary care has grown in recent years, but California still faces an acute shortage of primary care providers. To help address primary care physician pipeline issues, we conducted interviews with 23 students, faculty, and associate deans in 10 of California's medical schools regarding primary care education at their institutions. Based on this assessment, we identified strengths, gaps and best practices in primary care education at California medical schools.

**Current strengths in primary care medical education include**

- a commitment of primary care faculty to patient care and education,
- opportunities for students to have meaningful experiences in an area of interest (e.g., underserved care in free clinics), and
- many innovative best practices at individual schools.

**The gaps in primary care education include:**

- difficulty in finding opportunities for students to have clinical training experiences in high-functioning primary care settings and engage with satisfied, happy primary care providers. *This was the most important gap identified by respondents.*
- disparity in work life, prestige and income that students perceive between primary care and non-primary care fields.

**Based on these finding, we recommended the following:**

- 1) **Immerse students in the primary care team** by providing preclinical students with authentic roles in positions such as health coaching or student-run clinic;
- 2) **Increase partnerships between medical schools and team-based, high-functioning primary care practices** to ensure that students are trained in advanced primary care settings;
- 3) **Develop continuity and sub-internship experiences in advanced primary care settings**, including the opportunity for students to follow their own panel of primary care patients for at least 6 months each year;
- 4) **Develop a Primary Care Leadership Academy** at every medical school to promote learner engagement in primary care innovations efforts; support career interests in primary care; and enhance primary care education, mentoring and advocacy;

- 5) **Engage learners in primary care transformation** efforts including quality improvement projects, development of the Patient Centered Medical Home, and advocacy through Primary Care Progress;
- 6) **Support early pipeline efforts to diversify health professions students** including developing undergraduate pre-medical majors in preventive/public health and expanding the PRIME model for attracting more students with interests in underserved care;
- 7) **Address financial barriers** by advocating for greater loan forgiveness and addressing income disparities between primary care and specialty fields;
- 8) **Promote primary care as cutting edge** in health care through greater exposure of students to national health needs, primary care practice redesign, and advocacy.

## I. Background:

Acknowledgment of the importance of primary care has grown in recent years, highlighted by changes in policy such as an increase in Medicare and Medicaid payments to primary care physicians under the Affordable Care Act (ACA) and steps by major private insurers to pilot reforms in primary care payment, as well as new plans by medical groups to improve not only patient care, but also provide incentives for recruiting and retaining primary care physicians.<sup>1</sup> Between 2009 and 2013, the number of US medical school graduates matching into primary care residencies (internal medicine, family medicine, and pediatrics) increased by 15%.<sup>2,3</sup> New family medicine residencies and an increase in US medical school enrollment may play a role in this change.<sup>4</sup> However, most physicians training in medicine and pediatrics residencies ultimately enter subspecialty fields rather than practicing in primary care, blunting the impact on this trend for enhancing primary care physician supply. According to projections by the Lewin Group, the AAMC still forecasts a shortage of 45,400 primary doctors by 2020.<sup>5</sup>

The research literature has demonstrated that many factors are associated with choice of a primary care field. These factors may be classified as demographic characteristics, student attributes, medical schools factors, and debt level. Medical students with certain demographic traits -- being a woman, having a rural background, or being married – have higher rates of entering primary care fields.<sup>6</sup> Students who are of older age and/or lower socioeconomic status also match into primary care at higher rates than other student groups.<sup>7</sup> Additional student attributes -- such as higher levels of altruism and valuing relationships – are also more highly associated with students entering primary care. Interestingly, students who enter medical school with an aspiration to work with an underserved community are more likely to choose a primary care specialty, even more so than students who enter school already interested in primary care. Participating in the National Health Scholars Corps scholarship program is also associated with four times greater odds of choosing primary care and family medicine.<sup>8</sup>

Medical school factors associated with choosing a primary care specialty include attending a school receiving federal Title VII primary care training grant funding and attending a public school (increases the odds of matching into Family Medicine by 77% and primary care by 27%). In addition, medical schools with certain curricular factors -- such as requiring a rotation in primary care, offering experiences in community health and underserved populations,<sup>9</sup> and having a Family Medicine Interest Group – also match students into primary care at higher rates than other schools.<sup>10</sup>

Studies looking at the effect of debt on choosing a specialty continue to have conflicting results. In regards to public schools, students with a debt of \$100,000-\$150,000 were the most likely to chose primary care. Students with low or no debt were less likely to choose primary care, but this may be due to the fact that students with little to no debt at graduation are more likely to be of higher socioeconomic status, which has not been associated with choosing a primary care specialty.

All these trends are derived from national data. With support from the California Advanced Primary Care Institute, we sought to more fully investigate pipeline issues impacting the supply of primary care physicians in California by assessing the strengths and challenges of primary care education that are specific to Californians and California medical schools.

## II. Methods:

We convened a group of faculty researchers (Drs Vener, Wilson and Grumbach) to create a brief assessment tool for learning about primary care education in California. We developed a survey of primary care education designed to provide us with information from each California medical school regarding: 1) what are the required primary care educational experiences; 2) what elective opportunities for primary care education exist; 3) what are the perceived strengths and challenges of each of these experiences; 4) what opportunities exist for students to engage in efforts in primary care innovation; 5) novel models for improving students' primary care interests and career choice; and 6) perceived barriers to implementing these models and what might help to

overcome them. We obtained approval from the Committee on Human Research at UCSF.

We contacted faculty members at each of California's medical schools who were known to have a strong involvement in primary care education. In addition to inviting the faculty member to participate in the study, we also asked them to suggest other faculty, residents and/or students who had a strong interest in primary care and might be willing to participate. Eight medical students, residents and faculty were trained to survey participants. We conducted phone interviews from March – April 2013. Each interview was approximately 50 minutes in length. Interviewers wrote up field notes from the interviews. Direct quotations were approved by the interview subjects.

We interviewed 23 students, preceptors, faculty members, associate deans, and leaders of student-run free clinics who have significant involvement in primary care education. Medical students ranged from first through fifth year students. Faculty members were from Family Medicine, Internal Medicine, and Pediatrics. Faculty members surveyed included primary care practitioners with a degree of Doctors of Medicine, Doctors of Osteopathy, or Physician Assistant.

Respondents represented ten of California's eleven medical schools, including eight allopathic and two osteopathic medical schools. We sought to identify best practices, new strategies, on-going challenges and persistent gaps in primary care education.

### III. Findings

#### A. Current state of the Primary Care Environment in Medical Schools

We asked participants how supportive they felt their institution was of primary care, and if it was not supportive, what could be done to improve its primary care orientation. Two allopathic and two osteopathic schools were described as “highly supportive of primary care” (described below). However, most respondents from a majority of medical schools felt that their institutions prioritized highly specialized care. Participants reported that primary care was not valued

because 1) specialists did not feel that primary care was integral to their work and 2) primary care did not bring in the high level of revenue of specialty medicine. Few participants reported an “anti-primary care” environment. The more common concern was that students frequently trained in settings that do not show primary care in its best light. Faculty members felt that students often have their primary care training experiences in places that do not have a strong, highly functional primary care delivery system, such as practices that have achieved Patient-Centered Medical Home status or other indicators of high performing primary care. Students often trained in large academic teaching clinics where they were exposed only to very sick patients and often did not get to experience continuity of care. In addition, primary care physicians often expressed frustration that they could not readily control the micro-system of their practice in academic medical centers with competing priorities and challenging organizational barriers to practice redesign.

Other challenges in the primary care environment were the on-going factors of work hours, money and prestige. Most participants reported that students were told at times: “You are too smart to go into primary care.”. While providing students with training experiences in primary care can have a strong positive impact when students are exposed to role models who are professionally satisfied and working in high functioning systems, they also have the potential to backfire if students are working with preceptors who seem tired, unhappy or working in a system that is not functioning well. Participants reported that when students see primary care physicians consistently staying late at work and looking overwhelmed it detracts from students’ interest in primary care careers. Nearly all respondents also mentioned that the large income differential between primary care and non-primary care physicians discouraged students from choosing primary care.

*One associate dean remarked: “It is all about the context that students see. Students want to know, ‘Is my preceptor happy, mastering what they see in terms of clinical problems and helping patients?’ If students see happy, satisfied preceptors, this increases their interest in primary care, but if their preceptors seem unhappy or frustrated, this may decrease their interest in primary care.”*

## 1. Strengths of the primary care educational environment in California:

The greatest strength of the primary care environment is the deep commitment of many faculty members, residents and students to the practice and advancement of primary care. In addition, the national discussion about health care reform has generated a greater interest in primary care, and many students arrive in medical school eager to learn more about primary care. Other students are attracted to primary care because of their interest in care of the underserved, global health, women's health and primary care redesign. Medical schools provide students with meaningful opportunities to explore these areas, engage with faculty members and residents who can serve as powerful role models, and encourage students to make a difference in addressing an area of need (eg: care of uninsured patients in a student-run free clinic). This “hands-on” experience is a powerful stimulus for many students choosing primary care careers.

Respondents from four of California’s medical schools described their schools as “highly primary care oriented” (Touro, Western, UC Davis, UC Riverside). These schools noted that their entire first and second year curriculum was largely oriented towards a primary care perspective, often with a strong emphasis on community health. Early students were primarily precepted by primary care physicians, and there was strong institutional support of primary care. Two of these schools offered strong longitudinal primary care experiences for all students.

## 2. Gaps in primary care education in California:

The single biggest gap in primary care education -- identified by nearly every respondent -- is difficulty in finding opportunities for students to have clinical training experiences in high-functioning primary care settings and engage with satisfied, happy primary care providers. *One clerkship director replied: “We all talk a lot about how great primary care is, and students arrive at their clerkship wanting to believe this, but they need to see it for themselves. Nothing is more powerful than seeing a role model who seems happy doing the kind of work that you want to do.”* In most cases, primary care clinical training for students is in “double jeopardy” because: 1) students are often working in primary care clinics that are not functioning well, such



as in tertiary-care focused academic medical centers; and 2) most medical schools do not compensate their community-based preceptors so teaching adds an additional, unpaid stress for preceptors.

An additional problem in primary care education is the frequent lack of continuity experience. A conventional 6 week “block” training experience in primary care does not afford the opportunity for students to experience one of the most rewarding aspects of primary care practice: forming healing relationships with patients over time. *As one respondent replied, “If we want student to choose primary care for the continuity experience, then their medical education needs to allow them to experience the benefits of continuity.”*

Another notable gap is the lack of collaboration between primary care fields and professions. While different specialties may collaborate to teach in a given course, overall career recruitment remains discipline-based (e.g., Family Medicine interest group). Most schools lack a model where different medical specialties (family medicine, internal medicine and pediatrics) and professions (nurse-practitioner, physician’s assistant, etc.) collaborate together.

The final significant gap noted is the perceived, and real, disparity in prestige and salary that students see between primary care and non-primary care fields. Specialty care is often portrayed as higher status, higher pay, more technologically sophisticated and more desirable. Primary care faculty members need to help students better understand the importance of primary care and why it is “cutting edge” in health care in the United States. At the same time, there is need for greater advocacy and action from medical students, residents and faculty members to reduce the income and work hours gap between primary care and specialty fields. While such efforts have traditionally been thought of as the role of primary care groups, one respondent pointed out that greater partnership is needed with non-primary care fields in this area because all providers and patients depend on a strong primary care base for the health care system to flourish. In short, all areas of medicine need to unite to advocate for making primary care a more sustainable career choice.

## B. Current State of Primary Care Education

### 1. Required primary care curriculum in first and second year

Nearly all medical schools have a first and second year curriculum that includes some component of primary care exposure for students (e.g. core curricula in basic clinical skills and fundamentals of “doctoring”). However, there was wide variation from schools that had no formal primary care content in the introductory Doctoring course to schools that have a strong emphasis on primary care with most or all teaching done by primary care faculty (eg: Touro, UC Davis). In many instances, small group sessions were led by primary care faculty. In most settings these small group leaders were volunteers.

*One faculty member observed: “We’ve lost preceptors because they just can’t pay bills and accommodate a learner at the same time, so compensation is a huge part of this.... If there were a way to compensate outpatient primary care doctors for teaching, we could revolutionize medical education and the pipeline for primary care. Given free reign, I could imagine a completely redesigned system in which happy outpatient primary care doctors had half as many patients for teaching so that they could fold students into the experience of seeing patients in an outpatient setting.”*

A majority of schools reported that students had some continuity with these small group leaders and that many were role models for students. Most schools also had preceptorships linked with the Doctoring course. Many of these were in primary care settings.

#### *Best practices:*

- a. The first two years of medical education are organized around a primary care perspective. This includes preventive care and population health. (Touro, Western, UC Riverside).
- b. The early curriculum includes a half day of primary care preceptorship every other week that continues for the first three years of medical schools. Students learn a primary care perspective early in their training and have substantial continuity with patients and preceptors (UC Riverside).

- c. Instead of relying on volunteer efforts, the school of medicine pays primary care small group leaders (UC San Diego).

## 2. Required primary care clerkships in third or fourth year

Because California requires that students complete a Family Medicine clerkship to be eligible for state licensure, all schools offer a Family Medicine clerkship for a minimum of 4 weeks.

However, some schools required longer rotations (UCSF, Touro). Other schools required a third or fourth-year Ambulatory Care rotation which could be in Internal Medicine and/or Family Medicine (UC Irvine). A few schools offered a longitudinal option for meeting the Family Medicine clerkship requirement so that students could gain more skill in continuity of care (UC Irvine, UC San Diego, UCSF). Schools who offered a continuity experience felt that this was highly valuable to students. At some schools, students could follow their own panel of continuity patients and have a high level of responsibility for their primary care (UCSF, UC Davis).

Regardless of the type of clerkship experience, almost every school articulated that their greatest challenge in promoting primary care for students was finding high-functioning primary care settings in which students could train and interact with satisfied physicians. In addition, preceptors needed substantially reduced patient schedules in order to provide a successful learning environment for students.

### *Best practices:*

- a. Medical school provide a continuity experience in primary care over at least 6-12 months (UC Irvine, UC San Diego, UCSF)
- b. Students develop their own primary care continuity panel of patients and follow them over at least 6 months (UCSF, UC Davis).
- c. All third year clerkships are continuity experiences instead of block rotations and have an ambulatory care focus (UC Riverside).
- d. Schools of medicine partner with large high-functioning primary care groups to provide students with a strong positive experience including participating in the patient-centered medical home, etc. (UCSF)

### 3. Elective experiences in primary care in first and second year

Almost all schools offer experience in a student-run free clinic (UCLA, UC San Diego, UCSF, UC Davis, UC Irvine, Stanford, etc). However, not all of these clinics focus on a primary care model, and some are oriented around specialty care or an urgent care model. UC Davis offers seven free clinics and almost all sessions are precepted by Family Physicians. At UC San Diego, 98% of students volunteer in a student-run free clinic. Some students assume a high level of responsibility for running these clinics; for many students this was a high point of the four years of medical education. Nearly all schools also offered first and second year electives in community-based medicine, health disparities, social medicine, integrative medicine, etc. These electives are often student-led and very popular. Many offered lecture series on primary care as well. The California Academy of Family Physicians summer mentoring programs provides significant opportunities for shadowing and mentoring in primary care for students at all schools. Electives that pair a student with a chronically ill child or pregnant woman are also quite popular and perceived to have a positive impact on students' appreciation of primary care.

#### *Best practice:*

Medical schools support strong primary care experience (including QI etc) in student run free clinics. (UC San Diego, UCLA, UC Irvine)

### 4. Elective experiences in Primary Care in Third and Fourth Year

While most schools offer advanced clinical experiences in the inpatient hospital setting (commonly referred to as “sub-internships”), only a few offer the option of sub-internships in primary care (UCSF, UC Davis). UC Davis offers a 4<sup>th</sup> year FM-internship where students follow a panel of patients for a month as well as offering rural FQHC rotations. Several schools offer inpatient Family Medicine electives and all offer inpatient Pediatrics and Internal Medicine sub-internships.

#### *Best Practices:*

- a. Medical schools partner with large medical groups to provide primary care sub-internships in successful primary care settings that expose students to high-functioning primary care at the point of their career decision making (UCSF)

- b. Medical schools partner with community health clinic to provide outpatient primary care sub-internships in underserved settings (UC Davis).

### 5. Primary Care Interest, Advocacy and Mentoring Groups

All schools offered student interest groups in primary care fields, usually organized separately by specialty (eg; Pediatric Interest Group). Many students are involved in local chapters of Primary Care Progress, a national organization committed to increasing student and resident interest in primary care, and this has helped connect students with the larger vision of primary care and encourage national efforts at advocacy.

#### *Best Practices:*

- a. The Primary Care Leadership Academy (PCLA) at UCSF is a collaboration of students, residents and faculty in all primary care fields working together to promote primary care. The goal of the PCLA is to promote learner engagement in primary care innovations efforts; support career interests in primary care; and enhance primary care education, mentoring and advocacy. The PCLA at UCSF will soon work with medical students at Stanford as well as in seven greater Bay Area Family Medicine Residencies to help integrate student and resident projects, mentoring and other activities to support primary care.
- b. Primary Care Progress chapters at several campuses engage students in primary care advocacy and education efforts (UCLA, Stanford, etc).

### 6. Opportunities for Primary Care Innovations

Some schools offered opportunities for community-based research or health policy research. (USC, UCSF). UCSF also offers opportunities for engagement in primary care Quality Improvement (QI) projects. Summer programs exist for QI or health systems research between first and second year at UCLA. Several schools facilitate students' entry into dual degree programs such as MD plus MPH, MPP or MBA, and some students in these programs work on primary care innovation topics.

#### *Best Practices*

Faculty and residents engage students in primary care innovations through experiences in quality improvement, practice redesign, and development of the Patient Centered Medical (UCLA, UCSF, etc).

#### 7. Special programs with designated missions of primary care or underserved care

Programs in Medical Education (PRIME) at UC medical schools promote education about health disparities (UC Irvine, UCSF, UC Davis, UCLA, UC San Diego). PRIME programs were established between 2004-2008 to increase the number of physicians working in California's underserved communities. The programs attract students from diverse backgrounds who are interested in reducing health disparities and improving the health of underserved populations. Although the programs are still early in their development, graduates appear to choose primary care specialties more than their non-PRIME peers.

UC Riverside has a mission statement that charges the school with improving the health of inland Southern California. Because of the strong primary care focus in this area, UC Riverside integrates a central, unifying primary care curriculum with three years of longitudinal primary care experience and substantial experiences in community and population health.

#### 8. Pipeline/Medical School Admissions

All respondents agreed that the number of students selecting primary care careers was to some extent determined by the characteristics of the class admitted to medical school. Traditional medical school admissions criteria value students who achieve high grade point averages in science courses but there is often no required course work in public health. Students with a strong interest at matriculation in public and preventive care may have a greater interest in primary care. To address this issue, primary care faculty at UC San Diego are partnering with undergraduate teaching faculty to develop a Bachelors of Science/Public Health degree. Their intention is that the BS/PH degree would be an attractive major for premedical students with a strong interest in public and preventive health. Ultimately more of these students might bring a wider view of population-based health into their medical training and a greater percentage of them might be interested in primary care.

### *Best practice*

Medical school faculty and undergraduate faculty partner to promote undergraduate education in public health as a potential major for students interested in health professions (UC San Diego).

## IV. Recommendations

Based on the information collected in the interviews and our review of the research literature, the following strategies are recommended to enhance primary care education at California medical schools, increase the number of students pursuing careers in primary care, and better equip medical school graduates with the skills needed to effectively practice in high performing primary care teams in a reformed health care system:

### A. Early immersion in the primary care team:

Provide preclinical students with a meaningful and authentic role on the primary care team during their first and second years of medical school. This may include positions such as health coaching or playing a significant role in a student-run clinic that is primary care based. These experiences will provide students with opportunities for meaningful patient interactions, playing a significant role on a primary care team, and making a genuine impact in improving primary care delivery.

### B. Increase partnership between medical schools and high-functioning primary care settings:

Develop more formal structured partnerships between individual medical schools and large, team-based, high-functioning primary care settings (e.g. medical groups, IPA's, and community health center systems recognized as leaders in advanced models of primary care) to ensure that students are trained in advanced primary care settings. This can be a “win-win-win” proposition for students, health care organizations, and schools of medicine. Students are able to participate in successful primary care delivery teams and interact with primary care preceptors who may model positive career satisfaction and desirable work-life balance. Practices are able to expose students to their model of care and potentially recruit them to their practice group and/or primary care. Compared with small, independent practices, medical groups and other organized practice networks are more likely to be able to invest the resources needed to support teaching by

modestly decreasing preceptors' patient schedules while teaching so that the quality of teaching and learning are improved.

C. Continuity and sub-internship experiences in advanced primary care settings:

Provide students with continuity experiences in primary care practices for at least 6 months each year of the first three years of medical school. Allow students to follow their own panel of primary care patients during third or fourth year. Develop sub-internships in outpatient primary care for fourth year students in high-functioning primary care settings so that students participate in successful primary care during the pivotal time of career selection.

D. Primary Care Leadership Academy (PCLA):

Develop a Primary Care Leadership Academy at each medical school to encourage collaboration of students, residents and faculty to promote primary care. The PCLA should promote learner engagement in primary care innovations efforts; support career interests in primary care; and enhance primary care education, mentoring and advocacy.

E. Engage learners in primary care transformation efforts:

Engage learners longitudinally in quality improvement projects, health policy research or practice redesign. Encourage national advocacy of primary care through participation in groups such as Primary Care Progress. Ideally, advocacy for primary care should include partnership across health professions and also include both primary care and specialty groups.

F. Pipeline:

Develop an undergraduate major in preventive/public health as an alternative to majoring in science for premedical students. Use the PRIME model for attracting more students with interests in underserved care.

G. Address financial barriers: Advocate for greater and expanded loan forgiveness for graduates in primary care and payment reform to decrease income disparities between primary care and non-primary care specialties.



## H. Cutting edge:

Promote primary care as cutting edge in health care through greater exposure of students to national health needs, primary care practice redesign, advocacy, etc.

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