

The California Endowment

A Study of Medical Education Training Efficiency and Financing

Final Report

Alvaro Galvis, BA, MA; Autumn Ivy, BS;
Alberto Manetta, MD

Introduction

There is an urgent need for more physicians to enter primary care specialties, particularly family medicine, yet medical student entry into family medicine has declined drastically over the past 12 years.¹ As a result of this, primary care practices are overburdened and the ability for doctors to provide high-quality and efficient care is hampered by patient overload. Reasons for declining student interest in family medicine include lower compensation (compared to non-primary care specialties), rising medical student debt, and the trend of current medical education to favor non-primary care specialties. In our new health care environment approximately thirty-two million previously uninsured Americans will have access to primary care within the next three years; yet there is no mechanism in place to concordantly expand the number of primary care doctors. The current primary care physician shortage will be exacerbated by new health care laws if initiative is not taken now to increase the workforce of family practitioners.

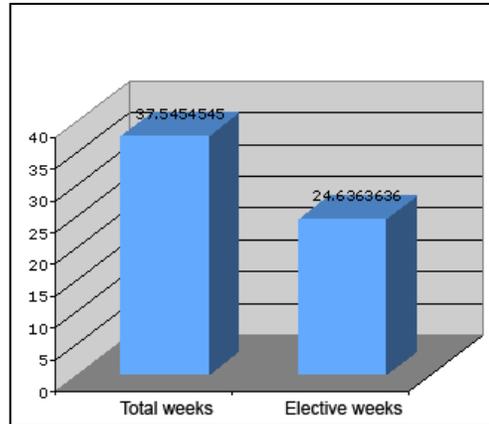
Incentives for attracting highly motivated, talented medical students to primary care and family medicine are necessary to not only adapt to expansion of health care coverage, but to address the current paucity of primary care specialty selection by medical students. The focus of our research has been on two potential programs that will provide such incentives for medical students, as well as attract those students who have a particular motivation for entering primary care.

Combined Program for Family Medicine (CP-FM)

The first program we propose, Combined Program in Family Medicine (CP-FM), is a dedicated training program for students identifying an early interest in family medicine. This program will provide the advantages of condensing medical training into three years instead of four and reducing the amount of debt students incur during medical school. Students in this program will have a curriculum tailored specifically to the training of family medicine physicians and will enter the workforce one year sooner. The feasibility and desirability of this program relies on four factors: 1) the ability of the medical school curriculum to be shortened to three years; 2) the cost-effectiveness of the program for the student and the society, 3) the attractiveness of this program to future medical students, and 4) dedicated family medicine curriculum.

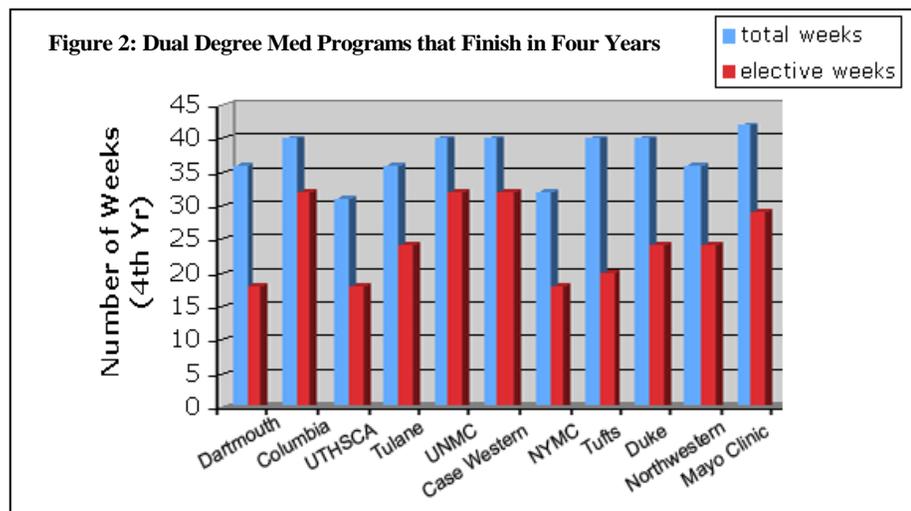
Our group conducted a comprehensive analysis of all dual-degree medical education programs in the US that graduate their students in the normal amount of time to complete the MD degree, i.e. four years. Search methods to obtain this data incorporated the Association of American Medical Colleges (AAMC) CurrMIT website² and World Wide Web searches. We have currently

identified eleven medical schools that have successfully managed to provide additional degrees to the MD within this timeframe (second degrees that are offered include MS, MPH, and less common, MBA). Strategies used by these schools to accelerate graduation with two degrees include starting students on their second-degree requirements during the summers prior to Med Year 1 and between Years 1 and 2, using afternoon free time to take courses, and most notably, using fourth year elective time to finish requirements for the second degree. This last strategy led us to quantify the average length of the fourth



year of US medical schools, and the average number of weeks during fourth year that can be used for elective time (Figure 1). A more detailed analysis of the eleven identified four-year dual-degree programs revealed that their accelerated curricula are able to use fourth year elective time (which

constitutes an average of over 60% of the fourth year schedule) to complete the requirements for both degrees (Figure 2). We propose that CP-FM could utilize fourth-year elective time (as dual-degree programs have) and some of the vacation time to complete undergraduate



medical training at an accelerated pace, which would enable CP-FM trainees to enter residency one-year sooner. These findings provide strong evidence that shortening MD training to three years for CP-FM students can be achieved without reducing the quality of their educational experience.

A longstanding concern about the fourth year of medical school has been whether the large amount of elective time is even necessary for the student’s education; students typically use this time to further explore their interests, fulfill elective requirements with less-laborious rotations, or audition for residency spots. The advantage of having this amount of elective time is that the student can customize their education in an effort to determine their career specialty; however, this is not necessary for students who have already made this decision. The American Board of Family Practice attempted to address this concern about 20 years ago, called the Accelerated Residency Program (ARP), and tested it in various institutions.³ In this program the fourth year of medical school would “double” as the first year of residency in Family Medicine, and was initially designed for students who both excelled academically and were confident in their choice of family medicine as their career. The University of Kentucky program was the first program of

this kind to be tested⁴, and its resulting success led to the implementation of twelve programs nationwide. The *post-hoc* analysis of the University of Kentucky-ARP highlights three major advantages of the accelerated program, cited by the first cohort of graduates: reduction in total education length, earlier entry into wage earning positions, and maintenance of clinical skills which may be lost during fourth year.

Table 1

Typical Accelerated Residency Curriculum*

<i>Rotation**</i>	<i>Fulfills M-4 Requirement***</i>	<i>Fulfills Residency Requirement</i>
Family Medicine Inpatient Service—1 block	Yes (Junior internship)	Yes
Family Medicine Inpatient Service—1 block	Yes (M-4 elective)	Yes
Family Medicine Inpatient Service—1 block	Yes (M-4 elective)	Yes
Family Medicine Obstetrics—1 block	No	Yes
Family Medicine Obstetrics—1 block	No	Yes
Family Medicine Obstetrics—1 block	No	Yes
Ambulatory Medicine—1 block	Yes	Yes
Surgical Subspecialties—1 block	Yes	Yes
Neurology—1 block	Yes	Yes
Inpatient Pediatrics—1 block	Yes (M-4 elective)	Yes
Inpatient Pediatrics—1 block	No	Yes
Dermatology—1 block	No	Yes
Internal Medicine—1 block	(Yes) Junior internship	Yes

M-4—fourth-year medical student

* This is an example curriculum from one site (Saint Francis) with minor variations between sites.
 ** Each accelerated resident has Outpatient Continuity Clinic one to two times per week.
 *** Only 8 months are required to complete the M-4 year.

The American Board of Family Practice experiment in medical education was then conducted at the remaining eleven schools to evaluate the benefit of a focused, integrated approach of education in family practice. They surveyed program directors of the experiment sites/medical schools, and found that accelerated student clinical performance was comparable to that of traditional residents and that the fourth year was not necessary to produce competent family medicine interns. Another finding from this experiment, which came from the Marshall University Family Practice Residency⁵, was that the allure of shortened training allowed them to create a competitive program that attracted top-of-the-class students to become family practitioners. The most notable findings were from the programs at the University of Missouri⁶ and the University of Tennessee.⁷ These two institutions were able to effectively shorten their curriculum to meet all requirements for medical school graduation (Table 1) as well as produce competently trained, well-prepared residents (Table 2).

More recently, Texas Tech University Health Sciences Center School of Medicine announced a 3-year medical degree program in combination with a FM residency which will begin in 2011.⁸ The program, Family Medicine Accelerated Track (FMAT) has been approved by the LCME. In contrast with previous attempts, this program will not simply shorten one year of medical school,

it will recruit students from the incoming class to an specialized FM track. Texas Tech expects that educational debt in this track will be 50% in comparison to the regular track.

Table 2
Comparison of Integrated Residents to Residents in the Traditional Curriculum
From the First Alumni Survey Completed Following Residency Graduation

<i>Variable</i>	<i>Number of Surveys</i> (# missing)*	<i>Number Choosing Response/ Number Who Responded (%)</i>		
		<i>Traditional</i>	<i>Integrated</i>	<i>P Value</i>
Expressed need for more training				
Adult inpatient	76 (0)	2/61 (3.3)	2/15 (13.3)	.17
Procedural skills	76 (0)	12/61 (19.7)	1/15 (6.7)	.44
Not well prepared				
Adult inpatient	47 (7)	3/32 (9.4)	0/8 (0.0)	1.0
Adult outpatient	47 (1)	0/36 (0.0)	1/10 (10.0)	.2
Routine inpatient obstetrics	47 (9)	3/30 (10.0)	1/8 (12.5)	1.0
Rated residency training as excellent†	47 (1)	20/37 (54.0)	8/9 (88.9)	.07
Located >30 miles to metropolitan area	70 (0)	19/54 (35.2)	4/16 (25.0)	.44
Any obstetrics since residency	98 (0)	29/76 (38.2)	5/22 (22.7)	.18
Currently doing obstetrics	98 (0)	25/76 (32.9)	4/22 (18.2)	.18
Other practice characteristics				
See nursing home patients	98 (0)	30/76 (39.5)	8/22 (36.4)	.79
Academic practice	98 (0)	6/76 (7.9)	1/22 (4.6)	1.0
Within a health professional shortage area	98 (0)	3/76 (4.0)	2/22 (9.1)	.31
Rural	98 (0)	19/76 (25.0)	5/22 (22.7)	.83
Care for hospital inpatients	98 (0)	42/76 (55.3)	12/22 (54.6)	.95
Teach medical students	98 (0)	41/76 (54.0)	12/22 (54.6)	.96
Teach residents	98 (0)	24/76 (31.6)	6/22 (27.3)	.70
Perform colposcopy	98 (0)	12/76 (15.8)	7/22 (31.8)	.12

* Number of surveys differs because not all surveys contained the same items.

† Compared to good

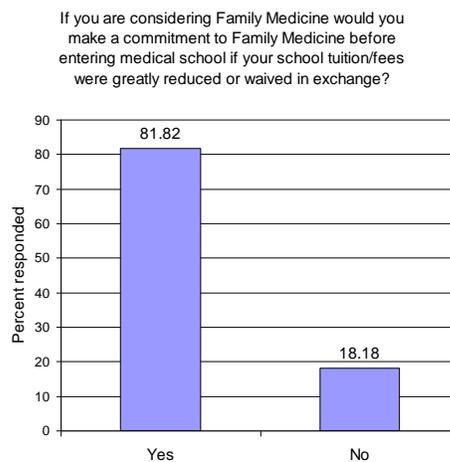
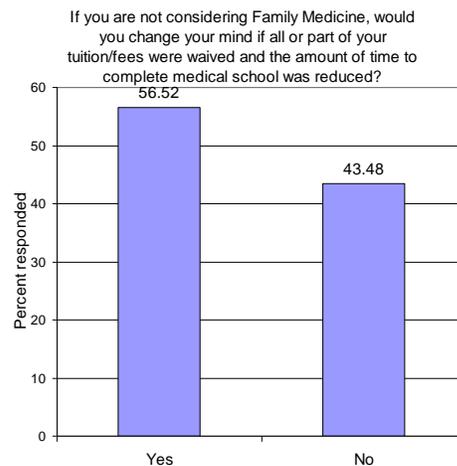
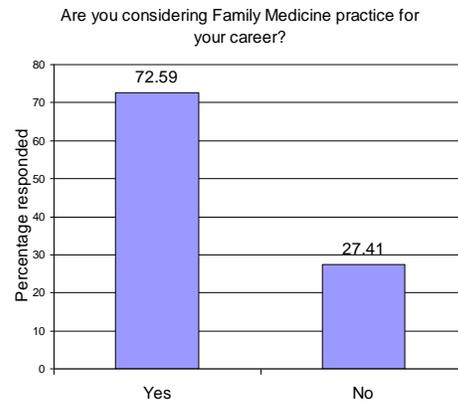
The financial advantages of accelerating undergraduate medical education are obvious. Medical students (who already have a large amount of educational debt) will be able to eliminate one year of medical school tuition, while concurrently making a resident's (and ultimately, physician's) salary one year sooner. Furthermore, the continuous rise in medical student debt is deterring students from entering primary care specialties, and selecting out students from lower income and/or minority communities that may have other financial responsibilities (see MEDREP below). Given these facts, we conducted a cost-benefit analysis (using net present value, NPV) of the potential savings CP-FM could provide graduates of the program. Assuming \$25,206 educational debt per year of medical school and assuming all income after graduation can be allocated toward the debt, CP-FM students would be approximately \$40,024 positive at the end of the sixth year (i.e., after residency completion). Students in the present system will still owe \$25,706. After 32 years of practice, the difference in total earning potential for an entire career of

a CP-FM graduate would ultimately be positive \$174,406 This number is based on loan repayments over the first 15 years of practice, with a 3% student loan interest rate.

Lastly, success of CP-FM relies directly upon whether students are willing to commit to FM prior to medical school entry. We invited 630 pre-medical students to participate in a survey (approved by UCI-IRB) and data was collected from 205 students. This survey assessed general interest in FM and the likelihood of students to enter into a prototypical CP-FM program. Approximately 73% of the survey participants were considering FM as their career. Of these students, about 82% would commit to a dedicated FM training track (Figure 3). On the other hand, of those students that did not have an initial interest in FM, 56% would reconsider their specialty choice if a program like CP-FM—with incentives of waived tuition and faster entry into practice—were available to them. These results suggest that pre-medical students consider length of medical training and accumulation of debt when making specialty choices and their interests could be broadened if specialized programs that address their concerns were in place. It is important to note this survey was taken during a meeting organized by the Latino Medical Student Association and the National Student Medical Association. . Sixty-two percent of the population attending the meeting were African American or Latino premedical students with the remaining being Asian American, Pacific Islanders or Caucasians. Only 13% of the students identified themselves as Caucasians. This large number of minority students may have biased the results in favor of FM. On the other hand, this reaffirms previous studies indicating that minority students tend to select primary care disciplines.

Given the circumstances the field of FM currently faces (i.e. increased patient load, declining student interest, and comparably lower compensation), there must be immediate steps taken to reverse these

Figure 3: Responses of pre-medical students to the survey questions.



trends. CP-FM is designed to attract students that have a specific desire to practice FM as a career. The program would accelerate their training to a) increase the workforce of FM practitioners, which is vital for accommodating new health care laws; b) reduce the student’s medical school debt burden by approximately one-fourth and offset anxiety about loans and future compensation; and c) guarantee that a set number of students will enter primary care each year.

In summary, prior attempts to train students for FM in an accelerated medical school curriculum have been successful in condensing the traditional, four-year medical curriculum into three high-yield, focused years. This was generally accomplished by maximizing fourth year elective weeks, without compromising resident competency or educational experience of the accelerated students. More recently, Texas Tech introduced a program similar to the one we are proposing with a dedicated FM track that starts from the beginning of medical school. Texas Tech will be recruiting 10-12 students from the matriculated incoming class. In contrast, our program (CP-FM) supports recruitment of the best applicants for FM to the applicant pool, prior to selection or matriculation.

Medical Education Debt Reduction Program (MEDREP)

Educational Debt and Choice of Specialty

The cost of medical education in the United States has dramatically increased over the last 30 years; more than 400% at private schools and 250% at public institutions. In 2007, the AAMC reported that graduating medical student debt was increasing at an annual rate of 6.9% and 5.9% in public and private schools, respectively⁹ (see Table 3). In contrast, physician compensation increased modestly by 2.6% from 2001-2006. Currently, based on the average physician salary of \$216,000 (before taxes), monthly student loan payments can represent anywhere from 8.8% (in MEDLOANS) to 14% (Federal Loans) of their income. However, this average physician salary is significantly higher than most primary care physicians earn, which can be 30% less, and significantly lower than most specialties (an average of 16% more). This disparity in physician compensation is a driving force for the type of specialty that many graduating medical students are pursuing. In 2009 a study in Texas,¹⁰ reported that 37% of students anticipated their educational debt would influence their choice of specialty (Figure 4). More than half of the students and residents believed that their choice of practice type and practice area would be influenced by their debt. Eighty-eight percent of students and 73% of residents believed that their educational debt would also influence

Table 3. 2001-2006 Graduating Medical Student Debt in Private and Public Schools

Graduating Medical Student Debt (in dollars)

Year	Public		Private	
	Annual Tuition and Fees	Total Debt	Annual Tuition and Fees	Total Debt
2001	12,411	86,000	31,296	120,000
2002	13,873	92,000	32,649	127,000
2003	16,332	100,000	34,247	135,000
2004	19,043	105,000	37,269	140,000
2005	20,370	115,000	39,024	150,000
2006	20,978	120,000	39,413	160,000
Annual Rate	11.1%	6.9%	4.7%	5.9%

personal decisions (i.e., starting a family or purchasing a home). Therefore, debt is clearly a driving force for choosing a career path and the area where graduating medical students anticipate starting their practice.

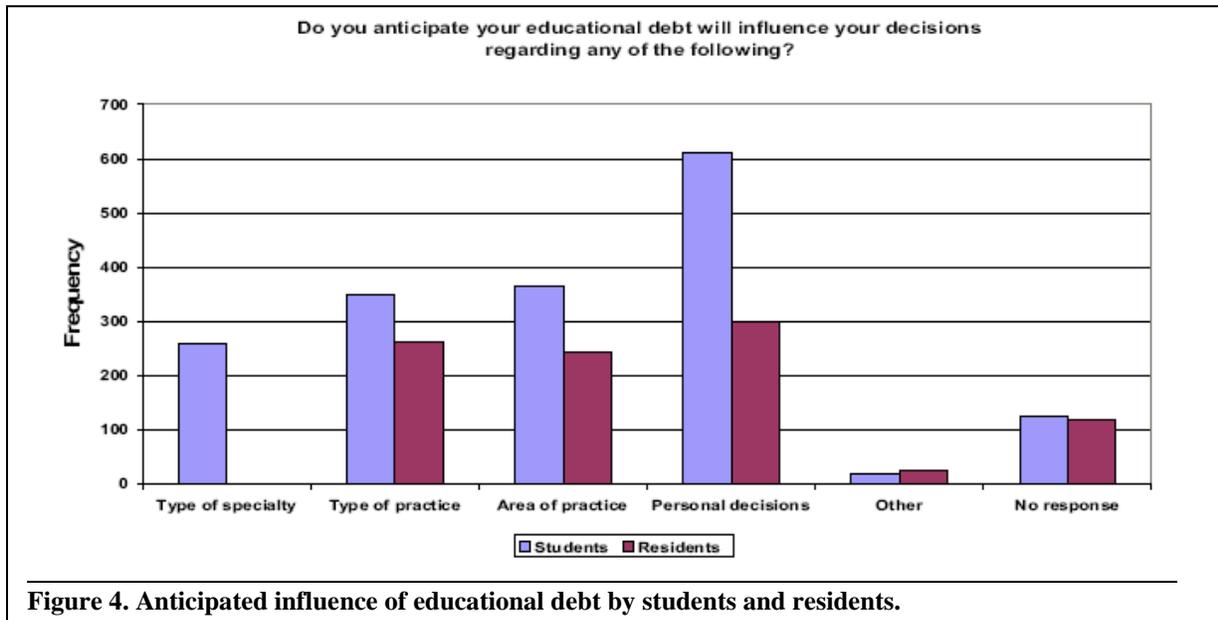


Figure 4. Anticipated influence of educational debt by students and residents.

In the 2009-2010 academic year, in-state median tuition and fees at public institutions were \$26,814 and \$45,448 at private. The median cost of attendance at public and private institutions was \$47,000 and \$65,000 respectively (AAMC Tuition and Student Fees Survey). The rate of increase of medical school tuition and fees continues to outpace inflation and in many years more than doubles the inflation rate. Under average circumstances a student graduating with a debt of \$160,000 will be repaying more than \$300,000 for his/her medical education.

The 2008 AAMC study on parental income of US medical students¹¹ reported the beginning of an undesirable trend in which the number of matriculates from the top quintile of parental income increased from 50.8% in 2000 to 55.2% in 2005 (Figure 5) Note that this study is based solely on those matriculates reporting their parental income for financial aid purposes. Therefore, those who did not need financial aid presumably come from families that can afford to pay their entire medical education and thus are at a higher bracket of income than the average top quintile on this graph.

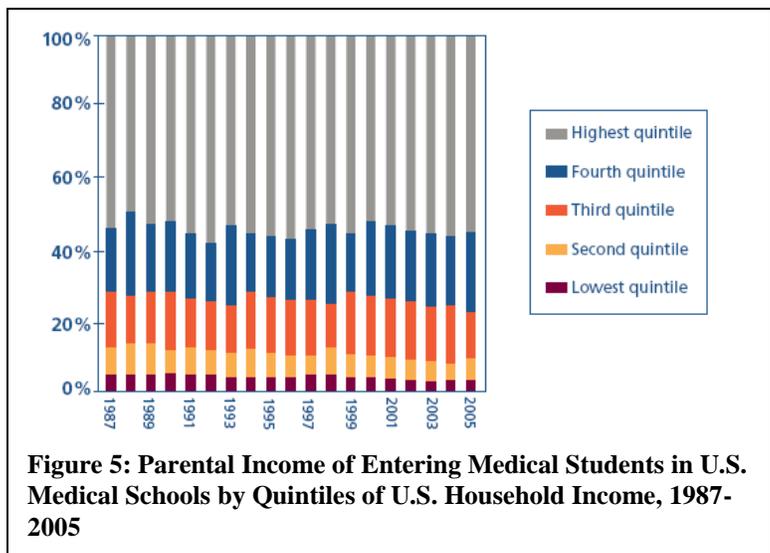
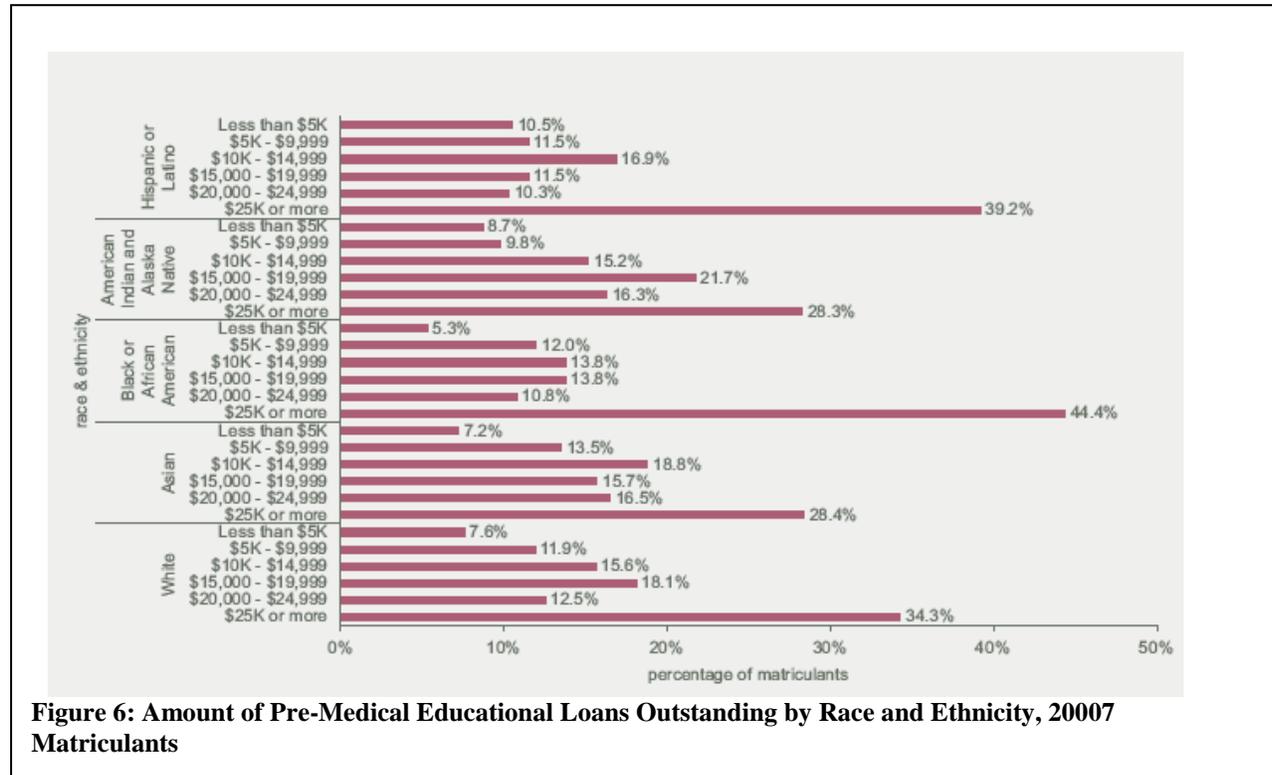


Figure 5: Parental Income of Entering Medical Students in U.S. Medical Schools by Quintiles of U.S. Household Income, 1987-2005

Extremely high tuition is making the profession out of reach for many undergraduate students.

As a result, more than 55% of medical students' parents are from the highest quintile of income in our society. The medical profession is turning into an elitist profession unaffordable for many

Furthermore, by having medical students coming from the top quintiles of society, the racial diversity of the profession will be greatly affected. Another 2008 study by the AAMC¹² reported that under-represented minorities (URM) begin with a disadvantage of increased debt prior to entering medical school. In 2007, 44% of African Americans and 39.2% of Hispanics owed \$25,000 or more in pre-medical school debt. While whites and Asians reported the lowest percentages of overall pre-medical schools debt (Figure 6), presumably because of the



availability of financial resources from their families. Historically, both African American and Hispanic physicians choose to practice in an underserved community at a greater rate than white and Asian physicians (Figure 7). If educational debt influences a physician's choice away from FM, it is possible this increased debt could lead to fewer FM physicians practicing in underserved communities. Therefore, in addition to a trend for the medical profession to become elitist and lack diversity, it also will not serve populations having the greatest medical need.

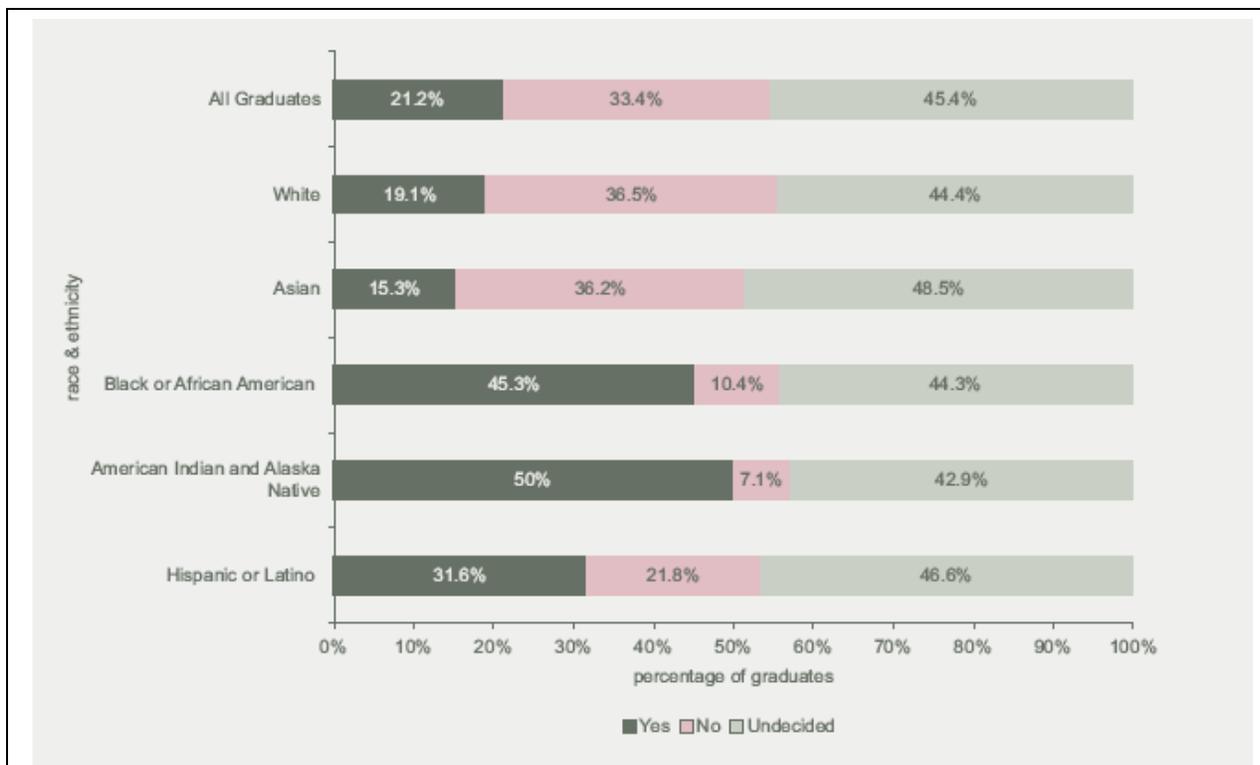


Figure 7. Percentage of Medical School Graduates Planning to Practice in an Underserved Area by Race and Ethnicity, 2007.

A separate study¹³ looking at medical student perceptions of family medicine practice and salary found that as they progressed through medical school training there was an increase in not choosing family medicine. Presumably, this is due to medical students having a better grasp of their final debt by the fourth year. Furthermore, this study shows that fourth year medical students had the highest positive perception that a specialty career was a better way to clear debt than the alternative of choosing family medicine (Table 4).

Table 4. Perception of Remuneration by Specialty and Percentage of Students Considering Family Medicine Track

Statement	Year 1 Students	Year 2 Students	Year 3 Students	Year 4 Students	Chi-Square	P Value
Family physicians get paid too little. (% who agreed or strongly agreed)	85%	89%	88%	89%	1.04	.792
Specialists get paid too little. (% who agreed or strongly agreed)	19%	25%	34%	32%	7.96	<.05
Specialty career is a better way to clear debt. (% selecting this choice over alternative)	57%	63%	54%	64%	4.21	.24
I would not choose family medicine because of low financial remuneration. (% who agreed or strongly agreed)	15%	20%	29%	40%	21.87	<.001
Are you considering family medicine as a potential career? (% who answered yes)	72%	61%	57%	30%	44.36	<.001
Percent of students who rated payment as one of the top two most important factors in career selection.	0%	7%	9%	15%	14.62	<.005

The 2025 projection of overall shortage of 124,000 physicians will not affect all clinical disciplines equally and it is expected that 37% of the shortage will be in primary care (PC)¹⁴, presumably because educational debt is the driving force behind graduating medical students choosing the higher paying specialties. In order to address these problems, many federal and state agencies have developed various programs that target either students at the beginning of their medical educations (service-requiring scholarships and service-option loans) or during their residency training (loan repayments, direct financial incentives, and resident support) to entice young physicians into medically underserved settings or PC.

A study by Pathman et al¹⁵ reported that program participants are more likely than non-participants (P=0.03) to work in underserved areas in the long run (71% vs. 61% at 4 years and 55% vs. 52% at 8 years). However, a systematic literature review by Bärnighausen and Bloom (2009)¹⁶ concluded that participants are less likely to remain at the site of original placement. This may be due to poor site matching with participants and the recruitment of individuals who have no other alternatives to repaying their educational debt. In other words, those who participated in a financial incentive program were influenced to make a career working with underserved communities, but perhaps not the community in which they were initially placed.

A closer inspection of the data by Pathman¹⁷ reports that service option loan programs have the lowest average completion rates (44.7%) followed by scholarship programs (66.5%). Furthermore these two program types had the greatest buy-out of service commitments at 49.2% and 27.2%, respectively. Hence, the high buy-out rates of student programs account for their low service completion rates. A significant question to consider regarding these two programs is whether a 22-year-old medical student is capable of making a commitment prior to going through medical training. The data show that while only 44.7% of participants remain in the service option loan program, those who do demonstrate excellent satisfaction and retention in their service communities. The 55% who buy out of their program contracts are no different and require no greater public expense than the vast majority of medical students that fund their education with a publicly sponsored loan. In contrast, due to government mandated constraints of high buy-out penalties for most student scholarship programs, those participants who remain until completion have the lowest satisfaction and retention in their service communities of all support-for-service programs. Therefore the key to the success for these student support service programs, as described in the literature¹⁷, is to target a special demographic group and anticipate the unique needs of those individuals to maintain a low buyout of service option.

The program we are proposing, Medical Education Debt Reduction Plan (MEDREP) is an innovative alternative to the traditional way of financing medical education by utilizing partner institutions. MEDREP will increase the number of physicians at no additional expense to the taxpayer. The premise of the program relies on a partner institution to financially sponsor a medical school to expand its class size and the take care of the educational debt of those additional medical students. In return, students that benefit from class size expansion and free tuition are to be trained in the partner institution during their clinical years and work certain amount of years after graduating from a residency program.

A partner institution in MEDREP is defined as a non-profit organization or government agency that has a large healthcare delivery system and ability to hire new physicians throughout its

network. Through MEDREP the partner institution will have the ability to recruit, train and retain individuals whom best fit their mission statement and meet their needs, This type of recruitment is what many articles on loan repayment programs have advocated for in order to meet the final goal of long term retention of program participants. One potential use of this program would be for a partner institution to meet their needs in family medicine.

As previously stated, the rising educational debt of medical school is becoming a driving force for its graduates to choose a higher paying specialty over primary care. In fact as Table 4 illustrates, 72% of first year medical students would consider family medicine but by the time they reach their fourth year the number drops to 30%. One way to retain more interest in family medicine would be through MEDREP associated with a Partner Institution that sponsors family medicine. In our study, we conducted a survey of 205 pre-medical students and found a very similar trend to their interest for family medicine (72.5%) (see Figure 3). We found that, of those who responded yes to considering family medicine, 81.8% would be willing to fully commit to family medicine if their fees were reduced or waived (as intended through MEDREP). Furthermore, of the remaining 27.4% not interested in family medicine, 55.6% would re-consider their interest and would be willing to become family practitioners if their fees were reduced or waived.

In summary, the vast majority of pre-medical students would consider making a commitment to family medicine if given an option like MEDREP. Partner institutions could selectively target for individuals who wish to become family practitioners and have the qualities they wish to see in their physician workforce (e.g., diversity, willingness to work with particular populations and even willingness to relocate to particular areas). Hence, the success of the program could be quite high when candidates are properly matched with a partner institution prior to entering medical school. This program could potentially allow anyone who has the desire and qualifications to become a physician—regardless of their ability to pay for their education. Partner Institutions attempting to recruit FM physicians would better their position by supporting schools that have adopted a CP-FM.

Conclusion

This is a very timely study. Most institutions, health systems, and many patients assert that medical education in the United States is in need of significant reform. In June 2010, The Carnegie Foundation for the Advancement of Teaching published a 320 page report, *Educating Physicians: A Call for Reform of Medical School and Residency*.¹⁸ The study includes seven recommendations among them that AAMC, American Medical Association (AMA), Accreditation Council for Graduate Medical Education (ACGME), medical specialty societies and medical schools collaborate on the development of a medical workforce policy for the United States. A variety of interventions addressing the cost of medical education, length of training, and practice viability ensure that the country has the mix of specialty and subspecialty physicians to meet the needs of the population.

CP-FM and MEDREP are very much within the spirit of this recommendation by decreasing cost of training, decreasing length of training and balancing recruitment into primary care and specialty disciplines. Next academic year, Texas Tech will start its combined Family Medicine Accelerated Track (FMAT) which is very similar to the CP-FM with one important difference:

recruitment to the program takes place from already matriculated students. We think a weakness of this program is that the pool of candidates is dramatically reduced. We continue to support that recruitment should take place from the entire medical school applicant pool and selecting students with the best primary care characteristics. Secondly, these students' grades and scholastic achievements should be checked to be certain that they will be able to successfully graduate from medical school. Historically, medical education has almost entirely molded students around strict curricular guidelines where any deviation was the exception. We believe the opposite should guide institutions. Following a basic introduction, we should shape the rest of the curriculum around the needs, skills and natural abilities of students. One of the authors of this report was the creator of the Program in Medical Education for the Latino Community (PRIME-LC) at the University of California, Irvine School of Medicine. PRIME-LC is a five year, dual degree program designed to prepare students to address the health care needs of Latinos in California. After five years, and with a full complement of sixty students, only two students have left the program. The reason for this program's success is pre-admission recruitment and the ability to meet curricular needs of the students. We strongly believe that medical education, within a framework of the highest quality, should embrace cost effectiveness and curricular flexibility.

Medical education debt has transformed from an economical issue into a social justice concern. The profession is at risk of becoming one of the most elite professions in the United States. It is difficult to understand why the cost of medical education is outpacing inflation in such a dramatic way. MEDREP provides a novel and advantageous alternative to typical loan repayment programs and scholarships. It has the ability to utilize a combination of public and private funds, making the system very versatile. Loan repayment programs are the typical approach to combat high educational debt. They have served many graduates well and provided manpower to underserved areas. However, we favor a program that helps students avoid debt (versus getting rescued from it) and has a predictable financial path after graduation from medical school. Loan repayment programs have not included the private sector and are relatively low in number compared to the need. Typical partner institutions could be a network of community clinics, State Department of Detention and Rehabilitation, private not for profit, integrated health care delivery systems, Department of Veterans Affairs and essentially any large, stable organization that hires a great number of physicians.

Although we are in general agreement that, as mentioned by The Carnegie Foundation, the AAMC, AMA, ACGME, medical specialty societies and medical schools should collaborate on the development of a medical workforce policy for the United States. We believe that, given the complexity of the societies involved and the fact that more than 140 allopathic medical schools are operating in the United States, this will be a very long and tedious process. In the meantime, we strongly recommend piloting reasonable programs that have the possibility of a high degree of success. We believe the Combined Program for Family Medicine (CP-FM) and the Medical Education Debt Reduction Plan (MEDREP) are two examples of programs with an excellent possibility of success and relatively low downside risk.

Presentations Given and Abstracts Submitted

Early in the research study, the Combined Program for Family Medicine (CP-FM) was presented to:

1. Dr. Thomas Bent, President of the California Academy of Family Physicians.
2. Both CP-FM and the new model for financing medical education (MEDREP) were presented as resolutions to the California Medical Association Delegates on October 17, 2009 (Resolution 612-09, “Combined Program in Primary Care” and Resolution 613-09, “New Model for Financing Medical Education”).
3. An abstract, “Reverting the downward trend in recruitment to Family Medicine: the Combined Program in Family Medicine (CP-FM),” was accepted for presentation at the Sixth Annual AAMC Physician Workforce Research Conference and an abstract has been submitted to the annual meeting of the Coalition of Community Clinics of California.
4. The CP-FM and MEDREP programs were presented to the Program Subcommittee of the Health Professions Education Foundation (HPEF) on July 12, 2010. CP-FM and MEDREP will be presented to the HPEF Board, Office of State Health Planning, in Sacramento on August 12, 2010. Chair, Dr. Diana Bonta.

References

1. Bodenheimer T, Grumbach K, Berenson RA. *A lifeline for primary care*. N Engl J Med. 2009 Jun 25;360(26):2693-6.
2. Association of American Medical Colleges (AAMC). *CurrMIT (Curriculum Management & Information Tool)*. Retrieved December, 2009 from <http://www.aamc.org/meded/curric/start.htm>.
3. Galazka SS, Zweig S, Young P. *A progress report on accelerated residency programs in Family Practice*. Acad Med 1996 Nov;71(11):1253-5.
4. Bratton RL, David AK. *The University of Kentucky's Accelerated Family Practice Residency Program*. Fam Med. 1993 Feb;25(2):107-10.
5. Petrany SM, Crespo R. *The accelerated residency program: the Marshall University family practice 9-year experience*. Fam Med. 2002 Oct;34(9):669-72.
6. Ringdahl E, Kruse RL, Lindbloom EJ, Zweig SC. *The University of Missouri integrated residency: evaluating a 4-year curriculum*. Fam Med. 2009 Jul-Aug;41(7):476-80.
7. Delzell JE Jr, McCall J, Midtling JE, Rodney WM. *The University of Tennessee's accelerated family medicine residency program 1992-2002: an 11-year report*. Fam Med. 2005 Mar;37(3):178-83.
8. Texas Tech University Health Sciences Center. *Primary Care Physician Shortage: Texas Tech University Health Sciences Center Has the Solution*. Retrieved July, 2010 from <http://www.prweb.com/releases/2010/fmat/prweb3763794.htm>.
9. Jolly, P. *Medical School Tuition and Young Physician Indebtedness. An update of the 2004 Report*. Washington, DC: AAMC. 2007 Oct.
10. Price MA, Cohn SM, Love J, Dent DL, Esterl R. *Educational debt of physicians-in-training: determining the level of interest in a loan repayment program for service in a medically underserved area*. J Surg Educ. 2009 Jan-Feb;66(1):8-13.
11. Jolly P. *Diversity of U.S. Medical Students by Parental Income. Analysis in Brief*. Washington, DC: AAMC. 2008 Jan;8(1).
12. Castillo-Page L. *Diversity in Medical Education Facts and Figures 2008*. Washington, DC: AAMC Diversity Policy and Programs. 2008.
13. Morra DJ, Regehr G, Ginsburg S. *Medical students, money, and career selection: student'' perception of financial factors and remuneration in family medicine*. Fam Med. 2009 Feb;41(2):105-10.
14. Dill M, Salsbert E. *The Complexities of Physician Supply and Demand: Projections through 2025*. Washington, DC: AAMC. 2008 Nov.
15. Pathman DE, Konrad TR, King TS, Taylor DH Jr, Koch GG. *Outcomes of states' scholarship, loan repayment, and related programs for physicians*. Med Care. 2004 Jun;42(6):560-8.
16. Bärnighausen T, Bloom DE. *Financial incentives for return of service in underserved areas: a systematic review*. BMC Health Serv Res. 2009 May 29;9:86.

17. Pathman DE. *What outcomes should we expect from programs that pay physicians' training expenses in exchange for service?* N C Med J. 2006 Jan-Feb;67(1):77-82.
18. Cooke M, Irby DM, O'Brien BC. *Educating Physicians: A Call for Reform of Medical School and Residency*. San Francisco, CA: Jossey-Bass/Carnegie Foundation for the Advancement of Teaching. 2010 June.

Acknowledgement

The authors would like to thank Dr. Hector Flores for his support.

List of Appendices

- A. Pre-Health Conference Survey Instrument
- B. Pre-Health Conference Survey Results PowerPoint
- C. California Medical Association Resolutions 612-09 and 613-09
- D. Abstract submitted to AAMC Physician Workforce Research Conference
- E. Abstract submitted to Coalition of Community Clinics of California
- F. CP-FM and MEDREP PowerPoint Presentation