ADVISORY COMMITTEE ON TRAINING IN PRIMARY CARE MEDICINE AND DENTISTRY

COMPREHENSIVE REVIEW AND RECOMMENDATIONS:

TITLE VII, SECTION 747 OF THE PUBLIC HEALTH SERVICE ACT

Report to
Secretary of the U.S. Department of Health and Human Services,
and Congress

November 2001

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

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ADVISORY COMMITTEE ON TRAINING IN PRIMARY CARE MEDICINE AND DENTISTRY

Section 748 [2931] of the Health Professions Partnerships Act of 1998 authorizes establishment of an: Advisory Committee on Training in Primary Care Medicine and Dentistry. The Act directs the Secretary to establish an advisory committee to be known as the Advisory Committee on Training in Primary Care Medicine and Dentistry. The Advisory Committee shall:

(1) Provide advice and recommendations to the Secretary concerning policy and program development and other matters of significance concerning the activities under section 747; and

(2) Not later than 3 years after the date of enactment of this section, and annually thereafter, prepare and submit to the Secretary, and the Committee on Health, Education, Labor and Pensions of the Senate, and the Committee on Energy and Commerce of the House of Representatives, a report describing the activities of the Advisory Committee, including findings and recommendations made by the Advisory Committee concerning the activities under section 747.

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ABSTRACT AND EXECUTIVE SUMMARY

ABSTRACT

Primary care providers touch the lives of more Americans than any other group of clinicians. Two-thirds of all Americans interact with a primary care provider every year. Title VII, section 747 is the only Federal funding dedicated to the education and training of the primary care provider workforce. In 1998, Congress created the Advisory Committee on Training in Primary Care Medicine and Dentistry (Advisory Committee) to provide insight and perspectives from primary care providers, educators and trainees who work on the front line. The Advisory Committee, representing allopathic and osteopathic family medicine, general internal medicine, general pediatrics and physician assistants (PA), as well as general and pediatric dentistry, submits the following report after two years of deliberation and study.

Accomplishments of Title VII, Section 747

- Effectively influences the quality and quantity of primary care training targeted to meet emerging heath care needs. Examples include innovative curricula in HIV/AIDS, geriatrics, managed care, domestic violence, genetics, culturally competent care and rural health.
- Has been critical to the development and maintenance of family medicine, one of the major primary care disciplines. The presence of family medicine in medical schools increases the number of students selecting primary care careers.
- Has played a major role in enhancing the impact and size of general internal medicine and general pediatrics in medical schools and communities.
- Has played a critical role in the growth and development of the physician assistant profession.
- Has been the dominant resource for growth and expansion of general and pediatric dentistry residencies.
- Title VII funded medical schools, primary care residencies, general dentistry and PA programs are more likely to graduate trainees who practice in underserved communities.

Conclusions

Title VII, section 747 is the major vehicle for stimulating primary care education and training in the United States. It is a key mechanism for influencing the content and capacity of primary care education. Improvement in access and expansion of primary care medicine and dentistry requires continuation of Federal support. Expansion of community health centers requires a comparable expansion in the primary care education and training system. Any loss of funding for this program will negatively impact the supply and distribution of primary care providers, possibly resulting in shortages.

Committee Recommendations

- Expand Federal support for Title VII, section 747 programs, retaining its basic structure.
- Maintain a very high priority on educating future primary care providers to deliver effective, high-quality health care for underserved populations.
- Strengthen emphasis on training primary care providers to deliver culturally competent care to an increasingly multicultural population.
- Continue authority for targeted demonstration projects to assure efficient and timely transfer of research findings and major healthcare initiatives, such as genomics, emerging infections and strategies to combat bioterrorism to the public at large through primary care.
- Emphasize interdisciplinary approaches throughout program policies and design.
- Improve the quality of care, eliminate health disparities, and improve patient safety as a high priority in the education of primary care providers.

EXECUTIVE SUMMARY

Advisory Committee on Training in Primary Care Medicine and Dentistry

The Advisory Committee was constituted to:

(1) Provide advice and recommendations to the Secretary of the U.S. Department of Health and Human Services (DHHS) concerning policy and program development and other matters of significance concerning the activities under section 747; and

(2) Not later than three years after the date of enactment of this section, and annually thereafter, prepare and submit to the Secretary, and the Committee on Health, Education, Labor, and Pensions of the Senate, and the Committee on Energy and Commerce of the House of Representatives, a report describing the activities of the Advisory Committee, including findings and recommendations made by the Advisory Committee concerning the activities under section 747.

In 1998, Congress created the Advisory Committee to provide insight and perspectives from primary care providers, educators and trainees who work on the front line. The Advisory Committee, representing allopathic and osteopathic family medicine, general internal medicine, general pediatrics and physician assistants (PA), as well as general and pediatric dentistry, submits the following report after two years of deliberation and study.

The Advisory Committee has carried out its charter through a deliberative process in which committee members were asked to contribute information about their respective disciplines, specific research questions were defined and studies commissioned, and committee members met periodically to discuss the issues and reach consensus views on the many important policy concerns confronting health care today.

Primary Care – What it Means to the Nation

Health care in the United States has evolved since the early 1900's from a system in which nearly all patients saw general practitioners, to a highly segmented system of care delivered by highly specialized practitioners[1]. Perhaps most importantly, the patients often had to assume responsibility for managing their own care, through their decisions of when to seek medical care and which specialist practitioners to visit. During the 1970s, that fragmented system began to change as a result of two events: 1) the development of family practice and physician assistant programs aimed specifically at providing primary care; and, 2) the growth in managed care, greatly aided and accelerated by Federal support, which promoted the concept of health care managers, mainly primary care providers, as defined here. With these two events, the need and demand for primary care practitioners grew.

Primary care providers touch the lives of more Americans than any other group of clinicians. Two-thirds of all Americans interact with a primary care provider every year.

Primary Care, as defined by the Institute of Medicine, is the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community. Primary care ideally represents the medical home for a patient, providing continuity and integration of health care. The aims of primary care are to provide the patient with a broad spectrum of care, both preventive and curative, over a period of time and to coordinate all of the care the patient receives. The primary care disciplines of concern to Title VII, section 747 include osteopathic and allopathic family physicians, general pediatricians, general internists, physician assistants, and general and pediatric dentists.[2]

The primary care disciplines of interest to Title VII, section 747 of the Public Health Service Act are as follows:

- ***Family Medicine*** – Family medicine is the allopathic and osteopathic medical specialty that integrates the biological, clinical, and behavioral sciences providing continuing and comprehensive health care to patients of all ages, both sexes and every disease entity.
- ***General Internal Medicine*** – Internal medicine is the allopathic and osteopathic medical discipline that specializes in health care of adults of both sexes, from young adulthood to the elderly; with expertise in a spectrum that includes general and comprehensive care of ambulatory patients with an emphasis on prevention, screening and the behavioral and ethical aspects of health and disease.

- ***General Pediatrics*** – Allopathic and osteopathic pediatricians practice the specialty of medical science concerned with the physical, emotional, and social health of children from birth to young adulthood; with services ranging from preventive health care to the diagnosis and treatment of acute and chronic diseases with an emphasis on continuity of care.
- ***Medicine-Pediatrics*** – Medicine-Pediatrics providers possess the core knowledge and skills of allopathic and osteopathic general internists and general pediatricians.
- ***Physician Assistants*** – PAs are licensed health care professionals who practice medicine with physician supervision.
- ***General Dentistry*** – General dentistry is the profession responsible for the diagnosis, treatment, management, and overall coordination of services that address patients' oral health needs.
- ***Pediatric Dentistry*** – Pediatric dentistry is an age-defined dental specialty that provides both primary and comprehensive preventive and therapeutic oral health care for infants and children though adolescence, including those with special health care needs.

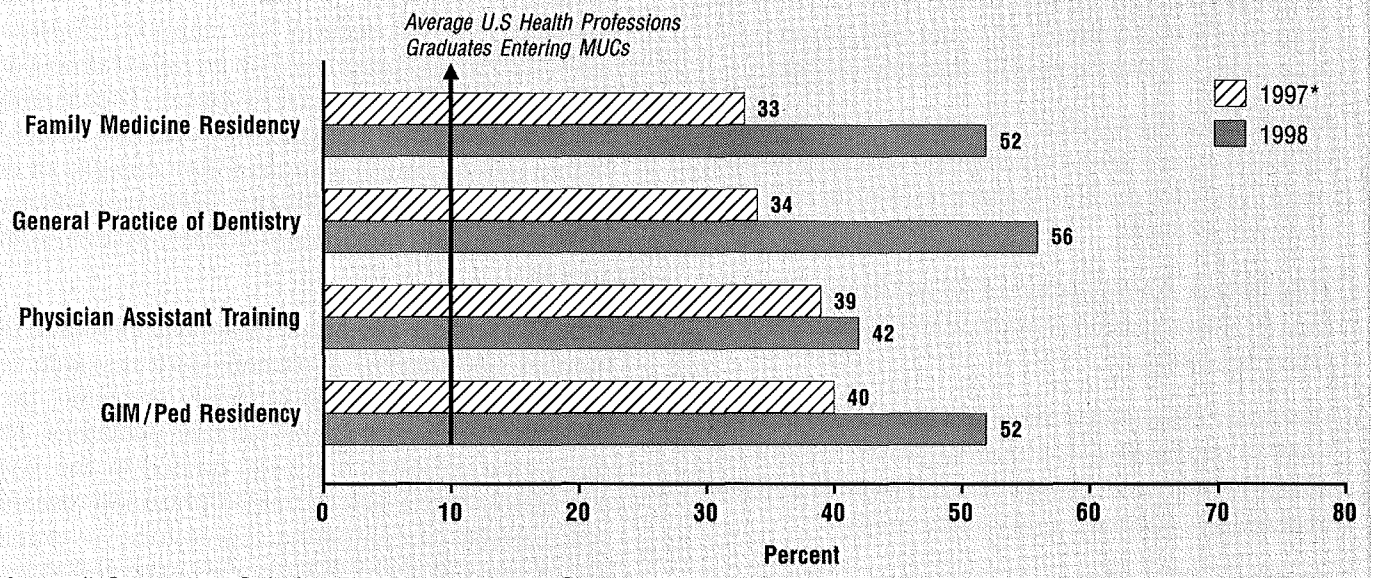
Accomplishments of Title VII, Section 747

Title VII, section 747 has transformed the landscape of primary care training and practice in the United States over the past 25 years.

- Resources from Title VII, section 747 have dramatically altered the nature and quality of the medical curricula made available to students and residents. These programs influenced the quality and quantity of primary care training, targeted to meet emerging heath care needs. Examples include innovative curricula in HIV/AIDS, geriatrics, managed care, domestic violence, genetics, culturally competent care and rural health.
- The Nation's battle against substance abuse became the subject of a Title VII, section 747 program that led to curricular changes in primary care residency programs. Similarly, demonstration programs such as the Interdisciplinary Generalist Curriculum (IGC) and the Undergraduate Medical Education for the 21st Century (UME-21) have created important shifts in the way students are trained. No other Federal vehicle exists to create such structural changes.
- The structure of the Nation's education and training systems in the United States has changed permanently as a result of Title VII, section 747. Family medicine, general internal medicine and general pediatrics owe most of their growth and development to Title VII, section 747 support. Physician assistant training programs can be traced almost entirely to Title VII, section 747 support. The PA training structure, while not yet complete, has delivered highly trained health care providers capable of delivering the type and quality of primary care required by the changing health care delivery system in the country.
- Title VII, section 747 has substantially increased the number and quality of primary care research fellows completing training in family medicine, general internal medicine and general pediatrics. Primary care research has been limited in the past, due mainly to the lack of trained physician research staff capable of competing successfully for grants. The success of Title VII training is expected to lead to an expanded and higher quality knowledge base available to primary care practitioners, affecting both quality and patient safety.
- Title VII, section 747 has been the predominant resource for growth and expansion of general and pediatric dentistry residencies.
- Graduates of Title VII, section 747 programs enter primary care careers in underserved areas in far greater numbers than other health care graduates. As the top chart on the following page illustrates, program graduates are 3-10 times more likely to practice in medically underserved communities.[3] The program's relatively greater emphasis on service to the underserved and the exposure of students to mentors who provide such care has made an important difference in student career choice.
- Programs funded under Title VII, section 747 graduate 2-5 times more minority and disadvantaged students than other programs (see bottom chart, next page). Increasing the numbers of minority graduates has been important both to improve the diversity of the health care workforce and to expand the numbers of practitioners in underserved communities. Studies have shown that minority and disadvantaged graduates are more likely to establish practices that serve the needs of the underserved. The chart below illustrates data from a recent report produced by HRSA from its performance measurement system.

DISTRIBUTION

BHPr Primary Care Medicine and Dentistry Program Graduates Are 3 - 10 Times More Likely to Practice in Medically Underserved Communities



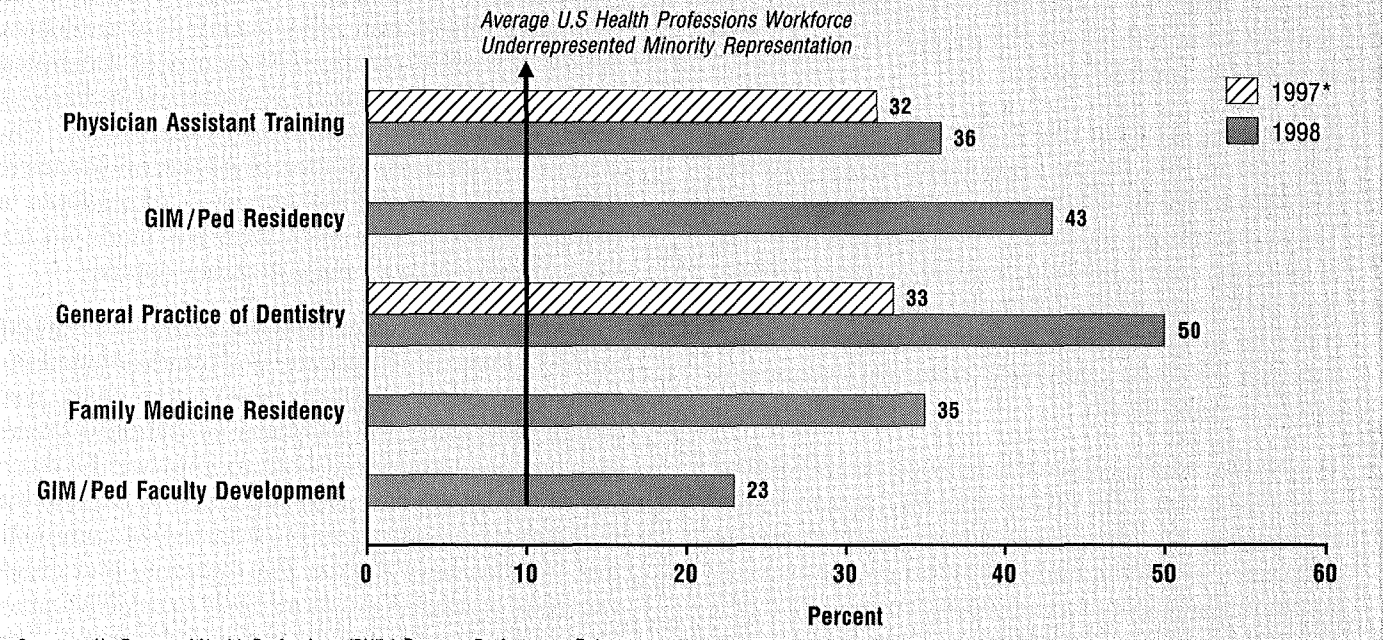
Sources: 1) Bureau of Health Professions (BHPr) Program Performance Data: BHPr Comprehensive Performance Management System.

2) Average U.S. Health Professions Graduates entering MUCs – Calman N., 1991 presentation to New York Council on Graduate Medical Education.

*1997 data show where available.

DIVERSITY

BHPr Primary Care Medicine and Dentistry Programs Graduate 2 - 5 Times More Minority and Disadvantaged Students



Sources: 1) Bureau of Health Professions (BHPr) Program Performance Data: BHPr Comprehensive Performance Management System.

2) Average U.S. Health Professions Workforce Underrepresented Minority Representation, compiled by HRSA, Bureau of Health Professions, National Center for Workforce Information and Analysis, from Bureau of the Census data.

*1997 data show where available.

Primary Care Workforce Challenges

Despite the success of Title VII, section 747 programs, important challenges remain to be overcome.

- **Preparing Students and Residents to Enter Primary Care Careers** – Students who intend to enter careers in primary care must be prepared for the type of practice environments and care requirements they will encounter during their careers. National Health Service Corps (NHSC) and Community Health Center (CHC) practice environments often present challenges to entering practitioners. Quality preparation during undergraduate education and graduate training, made available through Title VII, section 747 programs, increases the likelihood of successful NHSC and CHC practice experiences. A major factor inhibiting students from entering primary care careers is their substantial debt load. Students in the medical and dental fields continue to graduate with debts in the range of $100,000 to $150,000. Programs complementary to Title VII, section 747 include scholarship and loan forgiveness programs that encourage graduates to practice in underserved areas or communities. Such programs are strongly recommended as approaches that can help to improve the overall effectiveness of the primary care education and training programs.
- **Diversity of Faculty and Trainees** – As the U.S. population becomes increasingly multicultural, so must the faculties and trainees of our academic health science centers. There is a need to increase the recruitment of minorities into faculty positions in all primary care disciplines.
- **Faculty Development** – As health concerns change, faculties must be trained to address emerging issues in education and patient care. Such training will require continuing education for existing faculty and preparation of new teachers for their roles. Some disciplines, dentistry in particular, suffer from severe shortages in faculty recruitment, due primarily to compensation disparities for full time dental faculty.
- **Primary Care Research** – Although primary care practices have expanded substantially, primary care research has lagged behind subspecialty-focused research mainly due to the lack of trained research physicians. It is vital to create a core of primary care clinical research investigators who can concentrate on issues of quality and patient safety.
- **Cultural Competence** – The need for culturally effective care has assumed growing prominence among the Nation's pool of practicing clinicians. Cultural competence includes an increased awareness and knowledge of the values, customs, illness beliefs, health care utilization patterns, and health risk behavior, as well as an ability to communicate effectively with patients from other cultures.
- **Recent Match Experiences** – The 2001 national residency match program results continue a recent trend, in which graduates are opting in greater numbers to enter subspecialty training programs and careers. This trend must be reversed and Title VII, section 747 represents a major vehicle for increasing student interest in primary care and thereby achieving the targeted ratios of primary care to subspecialty graduates.
- **Broader Support for Dentistry** – General dentistry and pediatric dentistry programs need to be able to compete for funding for academic units, faculty development and residency support. Current legislative language does not address the eligibility of general and pediatric dentistry to compete for these categories of support, and should be amended.

These challenges require the Nation's policy makers to adopt a long-term view to prevent a loss of primary care providers, leading to subsequent national shortages. The Nation's health care workforce development infrastructure is large, and responds to shifting national supply and demand pressures slowly and often imperfectly. A continued Federal investment is vital both to monitor changing health care system needs and to provide the incentives needed to move the education and training systems in the country toward solutions for upcoming challenges.

Conclusions and Recommendations

Title VII, section 747 is the major vehicle for stimulating primary care education and training in the United States. It is a key mechanism for influencing the content and capacity of primary care education. Improvement in access and expansion of primary care medicine and dentistry requires continuation of Federal support. Expansion of community health centers requires a comparable expansion in the primary care education and training system. Any loss of funding for this program will negatively impact the supply and distribution of primary care providers, possibly resulting in shortages.

The Advisory Committee examined and debated vigorously the growing perception that the Nation's physician workforce is in a state of surplus and, therefore

Title VII, section 747 may no longer be needed. The Advisory Committee rejects the conclusion that an overall surplus, if accurate, requires a reduction or an end to Title VII, section 747 support. The Advisory Committee endorses the view that Title VII, section 747 support continues to be required because important challenges remain to be met and Title VII, section 747 is the sole Federal vehicle to support the necessary changes in the Nation's education and training system. Our recommendations are based on our conclusion that Title VII has a substantial unfinished agenda and is worthy of continued Federal support.

The Advisory Committee Recommends the Following:

1. **EXPAND FEDERAL SUPPORT FOR TITLE VII, SECTION 747 PROGRAMS, RETAINING ITS BASIC STRUCTURE** – The Advisory Committee recommends that Title VII, section 747 be expanded substantially to meet the growing primary care needs of the U.S. population. The program has been extraordinarily successful at creating the basic infrastructure for educating a primary care workforce. However, that infrastructure requires continued Federal support to meet the challenges outlined above. An increased budget level is recommended that will permit the achievement of the policy objectives as outlined herein, while continuing to expand the primary care training system to meet the enlarged needs for primary care providers envisioned under the proposed community health centers and National Health Service Corps expansion plans. The Advisory Committee also recommends retention of the current categories of support. Funding levels for specific categories should depend on changing needs to meet national priorities. The specific categories recommended include:

   - Support for new or existing academic units (e.g., departments of family medicine, or divisions of general internal medicine, or general pediatrics)
   - Support for faculty development
   - Support for pre-doctoral clerkships
   - Support for residency training
   - Support for physician assistant training

   The basic structure to be retained extends to the concept of discipline specific support for family medicine, general internal medicine, general pediatrics, medicine-pediatrics, physician assistants, general dentistry, and pediatric dentistry. Discipline-specific allocations are required to assure that all covered disciplines have access to Title VII funds.

2. **EDUCATING PRIMARY CARE PROVIDERS TO DELIVER EFFECTIVE, QUALITY HEALTH CARE TO UNDERSERVED POPULATIONS SHOULD BE THE HIGHEST PRIORITY FOR TITLE VII** – The Advisory Committee strongly recommends the retention of the current emphasis on medically underserved communities and populations, and urges the expansion of current methods for designation of shortage areas to include underserved populations cared for by primary care practices also engaged in teaching. Meeting this priority requires recruiting greater numbers of disadvantaged and underrepresented minority students to medical schools and to careers in primary care, since these students are more likely to practice with underserved populations at the completion of their training.

3. **INCREASE THE EMPHASIS ON TRAINING PRIMARY CARE PROVIDERS TO DELIVER CULTURALLY EFFECTIVE CARE TO AN INCREASINGLY MULTICULTURAL POPULATION** – As the Nation's population continues to shift to mirror the world's ethnic and cultural composition, our primary care practitioners must be trained to provide health care that is both technically and culturally proficient. As the recent census reveals, the challenges facing the health care workforce are growing rapidly. We must be prepared.

4. **CONTINUE AUTHORITY FOR TARGETED DEMONSTRATION PROJECTS TO ASSURE EFFICIENT AND TIMELY TRANSFER OF RESEARCH FINDINGS AND MAJOR HEALTHCARE INITIATIVES** – Title VII, section 747 has been highly effective at transferring national health care priorities, such as diagnosis and treatment of substance abuse, into the knowledge base of the primary care workforce. These demonstrations have helped to guide the academic field in determining which alternative approaches deserve replication. That demonstration authority needs to be continued and perhaps even expanded. Genomics, emerging infections, and strategies to combat bioterrorism are examples of cutting edge research areas that will eventually require translation to the public at large through primary care. Federal efforts are necessary to insure that our primary care workforce remains alert to new challenges and is equipped to put new medical advances into

practice. The Advisory Committee recommends that some of these demonstration projects include promising approaches in dentistry, or interdisciplinary approaches that integrate medicine and dentistry.

5. **EMPHASIZE INTERDISCIPLINARY APPROACHES** – The Institute of Medicine's report on patient safety urges the expansion of interdisciplinary approaches to training and to clinical practice as one approach to reduce threats to patient safety. Title VII, section 747 programs have for a number of years emphasized such approaches and pressed for their adoption through the use of priorities. The Advisory Committee believes that such approaches should be expanded through priorities and suggests consideration of a set-aside budget pool for such approaches. The Advisory Committee wishes to stress that "interdisciplinary" in this context means training and practice approaches involving more than one medical discipline, medical disciplines working with physician assistants, medical and dental disciplines working together, or any combination of the above.

6. **ASSIGN A HIGH PRIORITY TO THE TRAINING OF PRIMARY CARE PROVIDERS TO IMPROVE THE QUALITY OF CARE TO ALL AMERICANS THROUGH THE ELIMINATION OF HEALTH DISPARITIES AND IMPROVED PATIENT SAFETY** – The Advisory Committee is cognizant of the recommendations of the Institute of Medicine report on patient safety and endorses its recommendations, as noted. The Advisory Committee is concerned about the continued existence of significant health care disparities that seem to be growing despite our ever-expanding national investment in health care research and delivery. Although Title VII remains a modest vehicle, it has served well in educating future practitioners in caring for populations often left behind by the largely private systems of care in the country. Continued focus on eliminating disparities in access and outcomes must remain a high priority of Title VII.

Proposed Authorization of Appropriation Levels

The Advisory Committee's budget proposal is divided into two parts: 1) a set-aside budget pool aimed at supporting interdisciplinary approaches; and 2) the normal discipline-specific budget category. The budget level being proposed represents a substantial expansion over the current level. The Advisory Committee's recommendation is based on our assessment of the Nation's need to expand the pool of primary care practitioners to meet growing service requirements, as well as the need to continue fostering a vehicle that permits national policy to be reflected in health professions educational institution curricula, as well as contributing to the expansion of the pool of primary care practitioners needed to meet growing service requirements.

Having studied the current status of the health professions education and training system in the light of the Nation's projected needs for primary health care providers, the Advisory Committee is convinced that a substantial expansion in the size of the primary care practitioner pool is required if we are ever to reach the state of equitable access to high quality care we believe to be necessary and vital to a healthy Nation. The market forces that serve the country well in other sectors will not by themselves deliver the health care system for which we strive as a Nation. Health care has functioned best in this country when it represents a blend of public and private policies and investments. We believe that a careful blend should remain as a bedrock principle on which the system functions.

In a study published in the Journal of Rural Health[4], Politzer reports, "In 1997, Title VII funded programs increased the rate of graduates entering health professions shortage areas (HPSAs), resulting in 1357 providers, and reducing the time for health professions shortage area (HPSA) elimination to 15 years. Doubling the funding of these programs would increase the number of Title VII funded generalist physicians entering medically underserved areas (MUAs), and could decrease the time for HPSA elimination to as little as

Discipline	*Discipline-Specific Projects*	*Interdisciplinary Projects*	*Total*
FAMILY MEDICINE	$84 million	$12 million	$96 million
GENERAL PEDIATRICS/ GENERAL INTERNAL MEDICINE	$56 million	$13 million	$69 million
PHYSICIAN ASSISTANTS	$15 million	$3 million	$18 million
GENERAL/PEDIATRIC DENTISTRY	$14 million	$1 million	$15 million
TOTAL	**$169 million**	**$29 million**	**$198 million**

six years." That study then argued for a substantial increase in the budget, if the Nation was ever to eliminate shortage areas in the country. In addition, the Advisory Committee notes that a budget authority above current levels will be needed if we wish to support new, innovative approaches to meeting the changing health care needs of the country. Title VII has been a main vehicle for use by primary care training programs interested in supporting innovative approaches aimed at improving quality of care and basic access to care, and has been used to great effect by programs to leverage other sources of funding. This multiplier effect continues to be a powerful tool for channeling other sources of funding into Title VII-supported programs.

The Advisory Committee's proposed budget authority attempts to move beyond maintenance of the current program appropriations' levels, which are necessary simply to avoid future shortages of primary care practitioners. The increases being recommended by the Advisory Committee are intended to make inroads into the problems facing the Nation's health care systems. Even with the increases being sought, Title VII remains a modest investment, but, as has been demonstrated, one with substantial future payoffs in terms of system quality, access to care, and a culturally competent system of care for the entire population.

ADVISORY COMMITTEE REPORT TO THE SECRETARY, DHHS, AND CONGRESS

INTRODUCTION

The U.S. health care system continues to provide a model to the world of technological excellence and innovation. Unfortunately, many in the United States do not benefit fully from this ongoing progress. Distribution of health care providers remains uneven, so that significant numbers of Americans continue to have inadequate access to the health care system and remain underserved. Despite the enormous improvements in knowledge about the prevention and treatment of acute and chronic diseases, striking disparities in a variety of indicators of health persist among members of a variety of underserved populations. In addition, the furious pace of change in the system requires enormous adaptability to maintain a high quality of care, a challenging task in a decentralized, largely private health care system.

As new concerns move to the forefront, crucial adjustments must be made. For example, the Institute of Medicine report: "To Err is Human: Building a Safer Health Care System,"[5] highlighted a need to make important changes in the health care system to reduce all too common errors and their adverse effects on patients. The frantic pace of advances in human genomics and genetics has the potential to create revolutionary advances in the prevention and treatment of serious illnesses, but only if health care providers understand the new knowledge and can apply it appropriately. The striking ongoing growth in elderly populations in the United States continues to create increasing demands for knowledge and resources for geriatric care. Given the pace of change, the future is certain to bring forth new issues demanding that health care providers adapt and change.

Funding provided through Title VII, section 747 of the Public Health Service Act has been authorized by Congress as one mechanism for dealing with some of these issues. A review and assessment of the effects of Title VII, section 747 funding requires consideration of the context of other influences, including other Federal funding initiatives, on the primary care workforce. As detailed in this report, objectives, incentives, and specific programmatic components funded through Title VII, section 747 have changed over time in response to national health care issues. Recipients of funds have also had the leeway to address a wide array of emerging national goals, some of which have been related only indirectly to the main goals of the program, which are increasing numbers of primary care providers in underserved areas and improving minority representation within the health care workforce.

Several factors make it difficult to obtain direct evidence relevant to the influence of Title VII, section 747 programs on its primary goals. First, the program has continued to evolve since it began. With these changes, reporting requirements and evaluation methods have been modified and have not necessarily provided data relevant to the supply, distribution, and composition of primary care providers. Current data sources on provider distribution are incomplete and often difficult to interpret. For example, defined criteria determine whether a locale is classified as a Medically Underserved Community (MUC) or Health Professional Shortage Area (HPSA). However, ranges of income and access to health care may vary considerably within such communities. Not all providers within a geographically defined MUC or HPSA provide care for the underserved, and individuals within a HPSA may have good access to care in a nearby community. Judgments about the effects of Title VII, section 747 funding are further muddied because these programs represent only a minor fraction of overall funding for medical education and training. Other sources of funds, including other Federally funded programs, are driven by competing goals that may drive effects that counteract influences and incentives provided by Title VII, section 747 funds. The billions of dollars provided in support of other national priorities such as biomedical research through the National Institutes of Health and the support through Medicare graduate medical education in subspecialty areas have been powerful influences toward specialty rather than primary care training that dwarf the amounts expended to support Title VII, section 747 incentives.

Notwithstanding these limitations, careful review of available data provides important insights about the impact of Title VII, section 747 funding. Data from the Health Resources and Services Administration (HRSA) indicate that when compared to graduate medical education funding as a whole, programs funded through Title VII, section 747 graduate substantially higher

percentages of primary care practitioners, underrepresented minorities, practitioners from disadvantaged backgrounds, and practitioners who practice in underserved areas. Some useful insights also can be gained from comparisons of medical and dental services. As detailed in this report, funding in support of training in primary care dentistry has been minimal throughout most of the history of Title VII, section 747 programs. Among underserved populations, disparities in the availability of dental care are now profound.[6] Incentives for providers and educational institutions have not been adequate to lead the market to provide adequate care for a significant portion of the U.S. population. The effects of Title VII, section 747 support may be far from sufficient to provide optimum access to medical and dental care for all, but the serious disparities in dental services for so many people provide some indication of the limits of current market incentives in the absence of any appreciable impetus derived from Title VII, section 747 funds. Committee members are also acutely aware of the limitations inherent in Medicaid reimbursement rates, especially for primary dental services. These limitations contribute greatly to the current disparities in medical and dental care access and will need to be remedied in addition to any increases in Title VII financial support.

Many of the effects of Title VII, section 747 funding are indirect and, therefore, difficult to quantify. Many programs funded by Title VII, section 747 provide critical direct services for underserved populations and represent key components of the health care safety net. Thus, they provide access to service as well as worthy examples to trainees. Extensive data indicate that faculty role models can heavily influence student career choices. Support for and expansion of faculty in primary care programs provides a powerful counterbalance to other influences that lead students away from careers providing primary care to underserved patients. Title VII, section 747 funding also has often provided the impetus for additional funding from State, local, institutional, or private sources, serving to multiply the effects of the original investment. This report includes numerous striking examples of direct and indirect outcomes attributed to Title VII, section 747 funding that provide compelling insights into the contributions of such programs. Consistent among these stories is the conviction among a sizable body of primary care program directors that their programs could not have been initiated or sustained without the availability of Title VII, section 747 funding.

In addition, what emerges from examination of the effects of Title VII, section 747 programs is evidence for the development of a critical infrastructure for primary care training. Investment in education to provide primary care has effects that touch the largest number of people in the country. No other group of health care providers can exert such broad influences on the kind and quality of health care in the United States. Primary care training programs are ideally positioned to react quickly to meet ever-changing health care needs and issues, whether they are related to HIV/AIDS, growing numbers of elderly with chronic illnesses, implications of the modern genetics revolution, the threat of bioterrorism, or other issues that will continue to emerge and demand rapid educational intervention. Thus, this infrastructure is uniquely able to play a pivotal role in bringing the latest emerging national priorities in health care to the population at large. This report addresses how this primary care educational infrastructure can be fostered and shaped to better meet these national goals and rapidly evolving national health care needs.

TITLE VII, SECTION 747 STRATEGY

When primary care training programs were initiated, the Nation faced substantial shortages in physician production relative to projected needs, even more serious shortages of primary care clinicians, and known geographic and ethnic/racial imbalances. The early design of the legislation was aimed at achieving basic changes—mainly increases in the capacity of the education and training systems in the country to satisfy the projected needs overall for health professionals.

Medical school training capacity did in fact expand, as a result of the Federal investment during the 1970s and 1980s. That capacity expanded from approximately 5,500 per year during the 1950s to nearly 16,000 during the 1980s. In addition to the increased domestic training capacity, international medical graduates entering the United States increased from 580 per year during the 1950s to approximately 4,300 per year during the 1980s and 1990s.

The overall capacity change was perhaps the last relatively easy problem that needed to be overcome by the Nation's supply system. Reconfiguring the system such that it produced a different specialty distribution, altered the geographic distribution and corrected the minority representation in the workforce represented fundamentally different problems—problems that were not fully within the control of either the training system or the Title VII, section 747 Federal intervention strategy.

The training strategy was designed to operate in three sequential, overlapping stages:

1. **Stage One:** Develop the capacity within medical schools, dental schools, PA education programs and residencies to train primary care practitioners by supporting the development of a credible training system that would allow these primary care training units to compare well in terms of their overall capability with more specialty oriented units.
2. **Stage Two:** Create incentives to attract students and graduates into the primary care fields. Through faculty development, and creation of other incentives to encourage schools to appoint primary care faculty to key committees, schools have expanded the influence of primary care educators and clinicians throughout the education and training system.
3. **Stage Three:** Create incentives to attract graduating primary care clinicians to practice in underserved regions. Primary care graduates are more inclined than subspecialists to enter careers in regions that are underserved. However, shortage areas persist in both rural and urban settings. Title VII, section 747 has in fact induced change in this area, by working with programs that are more promising in regard to their work with underserved areas.

To create the pipeline, the following Federal programs were authorized:

- Support for new or expanded primary care departments/divisions in family practice, general internal medicine and general pediatrics (the latter two generally being created as divisions within existing departments), physician assistants training, and general and pediatric dentistry.
- Support the development of faculty in the new departments/divisions.
- Support primary care clerkships during the third and fourth years of medical school.
- Support graduate training in primary care disciplines, especially focused on programs that are relatively more successful in getting its graduates to enter practices in shortage areas or to work with underserved populations.

The Title VII, section 747 funds are regarded by many senior primary care academicians as highly important because there were—and still remain—so few sources of funding for the development and expansion of the relatively new primary care disciplines. "From the earliest years the Federal dollars have allowed us to initiate many new programs that have been leveraged through our small allocation of core faculty funding. There is no State funding for operational support at our medical school. Frankly, the loss of (Title VII, section 747) funding would represent a major problem for our predoctoral section. We would have to curtail the scope of our activities, were Federal training grant dollars to go away. Just as we are at the point when the tide has turned and more students want to go into family medicine we must sustain the infrastructure that will allow us nationwide to foster that interest and nurture those students wanting to enter a primary care field."[7]

When queried on the role of Title VII, section 747 in building his academic department, one primary care department chair responded, "Receiving Federal funds gave us credibility as we sought additional support for our family medicine educational programs both outside and within the institution. Having Federal recognition of our programs enhanced obtaining outside support. It helped us receive support from State agencies and private organizations. In addition, by having support from the Federal project we had more manpower to focus on our educational activities within the College of Medicine. This support allowed us to build partnerships, as well as participate in educational efforts with other departments. The Federal support also allowed us to take an academic leadership role in developing the current curriculum. This has resulted in a more favorable attitude toward family medicine and primary care within the institution."[8]

Another department chair asserts that, "Title VII, section 747 has been and is essential for the success of (primary care) departments in this country. The dollars have never been large in comparison with many other Federal programs, but the symbolism has been important and the ability of departments and residency programs to be extraordinarily successful in meeting goals makes the return on investment of these programs one of the success stories of Federal initiatives."[9]

If Title VII, section 747 funds were influential in building a primary care training system, what about the students and their decisions? It is clear from research studies that students are influenced greatly by the medical education environment and culture formed through adherence to the mission of the educational institutions. Research and a continued search for excellence in teaching produce an environment focused

on complex, in-patient care and specialized fields of study, made increasingly necessary by the rapid advances in the science of medicine brought about by research findings. This culture has produced a heavy concentration of graduates entering into a continually expanding set of subspecialty fields of graduate study. While primary care has begun to make inroads, the subspecialty disciplines continue to dominate.

Research studies have been conducted into the factors that affect decisions to enter various career fields. For example, one study examined past research into the factors affecting student decisions to enter primary care training.[10] The research concluded the following:

- **Medical school characteristics**: public schools consistently produce greater percentages and absolute numbers of primary care graduates. It is hypothesized that faculty in public schools may be more inclined to favor primary care, and therefore students are receiving positive signals favoring primary care careers.
- **Faculty**: the proportion of family medicine faculty to other faculty seems to positively affect student choice. Bland raises further the issue of faculty credibility, that is, their performance in all aspects of the position—teaching, service and research—is a factor.
- **Commitment of the institution**: the presence of a department of family medicine, affiliated family medicine residencies, and an AHEC are characterized as a strong institutional commitment. The studies remain unclear as to the mechanisms of influence here. For example, these characteristics may simply reflect a broad level of support that includes relatively greater representation of family medicine faculty on committees, in leadership positions, and research production.
- **Curriculum**: studies concluded that a positive relationship exists between a required family medicine clerkship in Year three and Year four of medical school and decisions to enter primary care. Longitudinal primary care experiences are also considered to be related positively to eventual primary care practice decisions.
- **Personal characteristics**: many personal characteristics seem to affect eventual student choice, including gender, cultural and socio-economic backgrounds, and debt level.

Some recent studies reveal the increasing importance of primary care providers in the overall system of care accessed by the American public. In one study, Green, et al[11] revisit a study completed in 1961[12] and report that, of the total visits to physician offices, a high proportion (52%) represent visits to primary care providers. Green reports, "of 1000 men, women, and children in the United States, we estimated that on average each month, 800 experience symptoms, 327 consider seeking medical care, 217 visit a physician in the office (113 visit a primary care physician and 104 visit other specialists), 65 visit a professional provider of complementary or alternative medical care, 21 visit a hospital-based outpatient clinic, 14 receive professional health services at home, 13 receive care in an emergency department, 8 are hospitalized, and less then 1 (0.7) is admitted to an academic-medical center hospital."

In another study, John Noble et al[13] report on the value of primary care training on eventual career choice. "Between 1977 and 1983, graduates of primary care residency training programs in both internal medicine and pediatrics chose generalist primary care careers more often than did graduates of traditional programs. In internal medicine, primary care careers were chosen by 54% of the graduates of traditional residencies compared with 72% of graduates from primary care programs. In pediatrics, generalist careers were chosen by 88% of the primary care graduates, compared with 81% of those in traditional programs." Noble goes on to report, "Although the association of primary care training and a subsequent primary care career choice has been noted in preliminary surveys of the primary care and traditional residents in both internal medicine and pediatrics, our survey indicates that more recent graduates of primary care residencies have chosen primary care careers more often than have earlier graduates."

Title VII, section 747 investments have been targeted so as to affect many of the factors that influence primary care choice, giving the program a design that is supportable through the research literature. How have these characteristics been integrated into the strategic design of the Title VII, section 747 program? Two chief mechanisms are used:

- Allocate funds to building specific types of infrastructure—development of new departments, primary care clerkships, faculty and curriculum development, and new graduate training programs, for example.
- Allocate funds so as to reward those institutions willing to build and operate the type of primary care training system most likely to attract and retain

students in primary care tracks. The system by which funds are allocated includes four major mechanisms:

- Preferences: (Medically Underserved Communities, extended to all programs, plus a preference for establishment/expansion of administrative units).
- Priorities: (additional points added to a proposal's score after scoring is completed. Priorities can be statutory primary care practice for residencies and training disadvantaged/underrepresented minority students for residencies, and physician assistants, as well as a priority for collaborative approaches proposed by academic units); or they can be administrative priorities (research priority for academic administrative units).
- Special consideration (sometimes incorporated in review criteria).
- Review criteria.

In reviewing proposals, review criteria such as the following guide reviewers:

- **Workforce Diversity** – inclusion within the faculty at all levels, of qualified women and minorities.
- **Generalist Faculty** – faculty who are themselves generalists, and who maintain a practice in a community based, ambulatory care setting.
- **Training Emphasis** – curriculum that emphasizes areas of study pertinent to the needs of special populations (e.g., ethnic minorities, disabled) in urban, rural, and underserved areas.
- **Curricular Innovation** – for example, incorporation of information technology in training activities, significant interdisciplinary education, and curricular elements focusing on additional competencies for practice in evolving delivery systems (e.g., managed care plans).
- **Generalist Outcomes** – three-year average track record of a program in placing graduates in primary care training, primary care practice, or generalist faculty positions.

Over time, hundreds of academic and clinical institutions have applied for and received Federal funding as a result of this system, which uses the power of the Federal purse to nudge health professions institutions into adopting Federal policy goals they might otherwise eschew. This type of leveraging approach has been an increasingly important component of the Title VII, section 747 strategy—increasing the pressure on academic institutions to become more aggressive in pursuing Federal policy goals.

TITLE VII, SECTION 747 SUCCESSES

But what progress has been made? Can we say that the Title VII, section 747 implementation strategy has been successful?

- In absolute terms, the number of primary care physicians and dentists has risen dramatically over the past thirty years. Physician to population ratios over the period 1965 to 1994 rose from 131 to 216.[14] Dental ratios rose to a peak of 59/100,000, now projected to decrease to 53, due to the number of dentists retiring (approximately 6,000/year) and the closure of dental schools.
- During this same period, the number of physician assistant (PA) training institutions rose from one institution (Duke) in 1967 to 129 accredited or provisionally accredited educational programs for physician assistants. Given the fact that PA graduates enter primary care careers in greater numbers and percentages than other health care graduates the increase has been extremely beneficial to the Nation's primary care resource pool.
- During the period 1983 to 1994, ninety medical schools received grants for establishment of departments of family medicine. All 19 osteopathic and all but ten allopathic medical schools now have departments of family medicine.[15]
- Until very recently, steady increases have been observed in the number of family practice positions offered in the National Resident Match Program (NRMP) and an increase in the number and percentage of positions filled, both in total and by U.S. seniors. Of 14,539 medical school seniors active in the 1996 match, 15.7% matched in family practice, the highest match rate in history.
- The percentage of family practice physicians rose from 3.1% in 1975 to 8.0% of total physicians in 1994.[16]
- Overall, these data are encouraging and suggest that the Title VII, section 747 strategy has been in synchronous step with the overall trends in the Nation. Recent data gathered by HRSA as part of its ongoing performance measurement system support that in two key areas, access and minority recruitment, Title VII-funded programs are highly effective.

HRSA supported training programs are three to ten times more likely to practice in underserved areas than those of programs not supported by HRSA (see Distribution chart, this page). Likewise, HRSA supported programs are two to five time more likely to produce graduates from underrepresented minority backgrounds than non-HRSA supported programs" (see Diversity chart, next page).[17]

As important as the central access objective has been in the Title VII, section 747 program, it has proven to be complex and difficult for an educational program such as Title VII, section 747 to affect. Access can be measured via a number of different approaches, although the Health Professional Shortage Area (HPSA) measure is the main criterion of success.

The HPSA has received considerable attention over its several decade history as a measure of need. The HPSA measures the extent to which physicians, dentists, nurses and other health professionals serve specific geographic regions or population groups. Various disagreements have arisen over the years about the thresholds used to signal a shortage—generally the physician to population ratio—but these disagreements represent attempts to technically refine the measure. They generally do not represent a quarrel with the basic measure itself. Generally, policy analysts agree that we need to use a measure such as the HPSA to measure the general state of the health care system in U.S. communities.

However useful as a measure of access, though, the HPSA has several problems as a measure of the success of programs such as Title VII, section 747. Its first problem is that the number of HPSAs nationally is remarkably similar to the number of HPSAs that existed nationally 25 years ago. At a minimum, although progress is made routinely in eliminating HPSAs in many parts of the country, the target keeps moving. As one community gains permanency in its health care resources, another neighboring community may lose its practitioner(s), throwing it into the pool of shortage communities. Further, as health care cost controls continue to squeeze private systems of care, groups without the capacity to pay, or small communities may be abandoned by existing private health care systems.

Another problem in the system by which HPSAs are created and maintained is that the system requires a community to apply for HPSA status. That is, the system is not a comprehensive map of the United States created by an integrated data system operated independently of the communities that need health care resources. Although many policy officials recognize the utility of such a national system, the data have never

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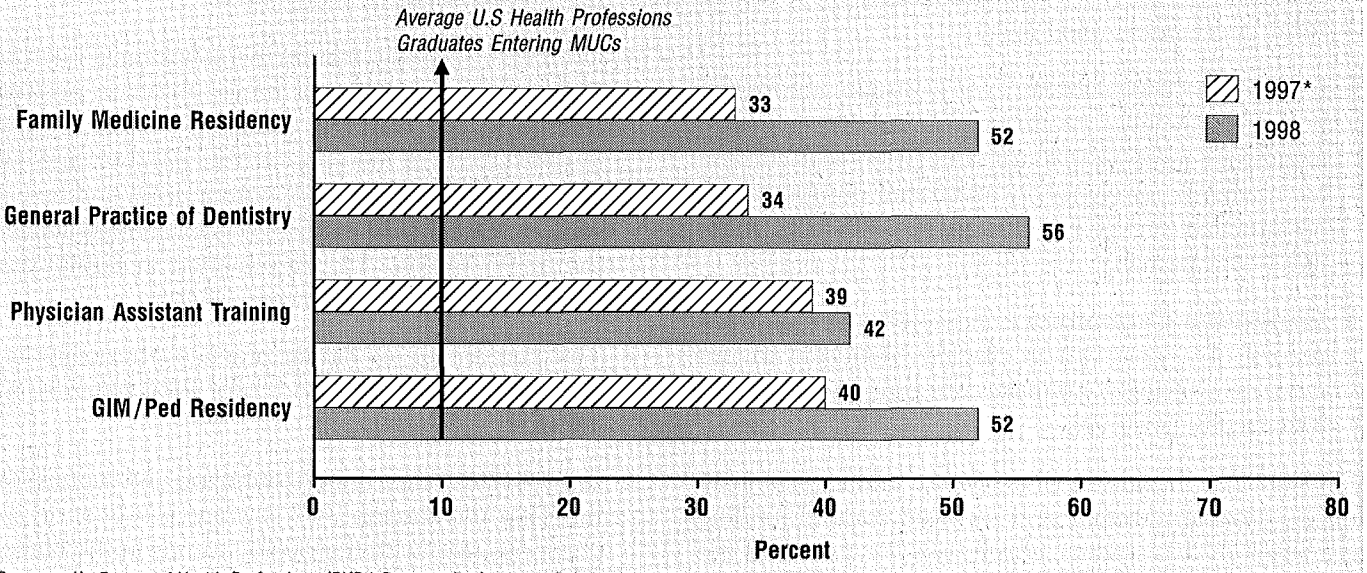
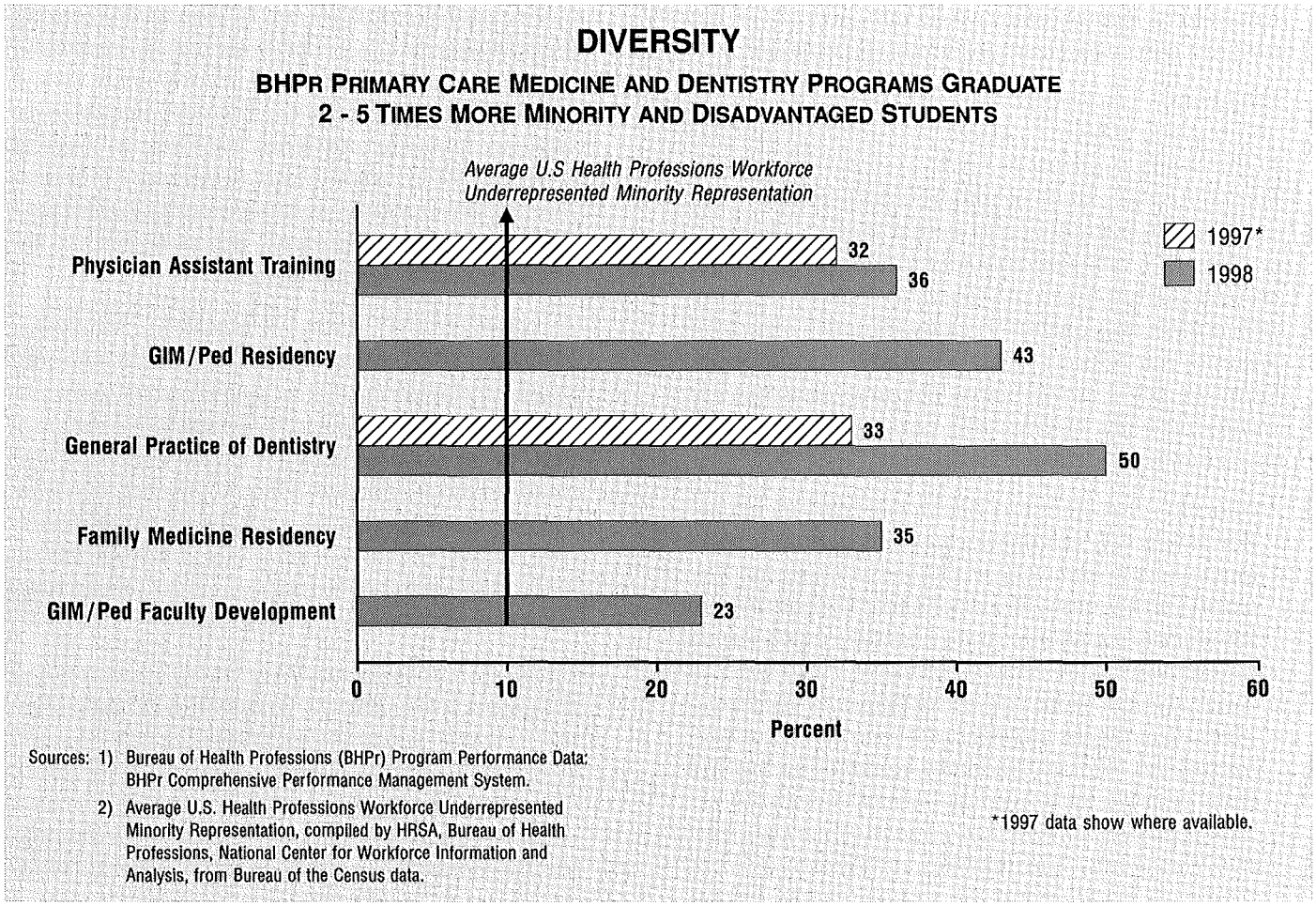
BHPr Primary Care Medicine and Dentistry Program Graduates Are 3 - 10 Times More Likely to Practice in Medically Underserved Communities



Sources: 1) Bureau of Health Professions (BHPr) Program Performance Data: BHPr Comprehensive Performance Management System.

2) Average U.S. Health Professions Graduates entering MUCs – Calman N., 1991 presentation to New York Council on Graduate Medical Education.

*1997 data show where available.



been available to construct such a system. Until such an independent system can be created, the HPSA will continue to provide a useful, albeit limited guide to the relative access of the population to care by health care professionals.

Lastly, many service programs deliver services to populations who reside in shortage areas, although the service unit is not itself within such an area. For example, many Title VII-funded programs train their students and residents to serve underserved populations and reach into such areas for their patients. The current designation process fails to account for such services.

Moving Forward on The Nation's Health Care Workforce Agenda

If Title VII, section 747 financial support has played an effective part in building a primary care education and training infrastructure that continues to operate effectively to produce primary care graduates, then it is time to consider whether and how to redesign the legislation so as to better equip the resulting public-private health care system to meet the current challenges facing the U.S. health care system. What are those challenges?

Primary Care Workforce Challenges

- **Preparing Students and Residents to Enter Primary Care Careers** – Students who intend to enter careers in primary care must be prepared for the type of practice environments and care requirements they will encounter during their careers. NHSC and CHC practice environments often present challenges to entering practitioners. Quality preparation during undergraduate education and graduate training, made available through Title VII, section 747 programs, increases the likelihood of successful NHSC and CHC practice experiences. A major factor inhibiting students from entering primary care careers is their substantial debt load. Students in the medical and dental fields continue to graduate with debts in the range of $100,000 to $150,000. Programs complementary to Title VII, section 747 include scholarship and loan forgiveness programs that encourage graduates to practice in underserved areas or communities. Such programs are strongly recommended as approaches that

can help to improve the overall effectiveness of the primary care education and training programs.

- **Diversity** – Although the ability of our education and training system to attract and retain minorities in the health professions fields is always going to be limited by the extent of minority participation generally in higher education career paths, Title VII, section 747 can and should continue to press the educational program managers to look for and improve their approaches to expanding the representation of minorities in their programs. As the population of the United States becomes increasingly more culturally diverse, the pool of primary care providers must reflect that change.

  - Minority enrollment in health professions education has been declining, presenting a serious problem in health care access, given that minority physicians are significantly more likely to provide care for minority patients and medically underserved populations than other physicians. According to a new report from the Association of American Medical Colleges (AAMC), the number of minority medical school graduates remains far behind their representation in the overall population.[18] The report estimates that African American, Native American, and Hispanic graduates of U.S. medical schools represent approximately six percent of practicing physicians in this country.

  - Although minority applicants to medical school were up by 1.9% in 2000[19] we still have a long way to go. Minority faculty are promoted less frequently than their white counterparts in academic medicine. Osteopathic medical schools appear to be disadvantaged in recruiting underrepresented minorities because of the lack of needed financial support for the trainees.

  - Thirty percent of dentists under age 40 are nonwhite but less than half of these dentists are from the underrepresented population groups—African American, Hispanic/Latino, or Native American. The participation of underrepresented minorities in dental schools continues to be a problem. In 1999, only 4.7% of student bodies in dental schools were African American, 5.3% Hispanic, and 0.6% Native American or Alaska Native.

  - According to the Physician Assistant Census of 1999, approximately 8% of practicing PAs are underrepresented minorities.

  - Affirmative action initiatives are no longer as effective as they were in increasing minority enrollments because of a number of legal events during the past decade. Court decisions such as Hopwood vs. Texas have undermined efforts such as the AAMC's 3000 by 2000 initiative, designed to increase minority and ethnic diversity in medical schools. With inadequate numbers of underrepresented minority students entering health professions training programs, the potential for increasing faculty is diminished.

  - An unpublished national study by Marbella, Holloway and Layde recently found that minority faculty in family medicine departments were under-represented and have lower academic rankings than other medical school faculty. Only 4.4% of minority family medicine faculty has achieved the full professor level, while 13.5% of family medicine faculty, 27.8% of all medical school faculty and 16.8% of minority medical school faculty have achieved that same academic level.[20]

  - Students and residents in primary care training programs from different cultures learn best from mentors with similar backgrounds. South-Paul and Grumbach note that, "Recognizing the disparity in numbers of minority providers compared to their representation in the populations, and understanding the richness that understanding others brings to the practice of healing, we must become more competent in caring for needs of culturally diverse patients and colleagues."[21]

- **Diversity of Faculty and Trainees** – As the U.S. population becomes increasingly multicultural, so must the faculties and trainees of our academic health science centers. There is need to increase the recruitment of minorities into faculty positions in all primary care disciplines.

- **Faculty Development** – As health concerns change, our faculties must continue to be trained in the emerging issues. In addition, in several disciplines, family medicine and dentistry especially, faculty shortages are a mounting concern. In dentistry, the core problem appears to be faculty compensation levels, which stems, in part from dental school financing problems. In family medicine, the problems are complex and relate to the complex series of changes affecting medical education and health care delivery. In a recent study, Hueston, et al, report many new challenges facing family medicine departments.[22] With an increased emphasis on community-based ambulatory education, departments face increased competition among medical schools for community-based sites, instability for teaching

programs and lack of funding for community-based educators. Additionally, departments face increasing difficulty recruiting new faculty members. Hueston reports on other studies revealing that 5.3% of all budgeted family medicine faculty positions were vacant, the second highest in academic medicine and essentially unchanged in 15 years.

- **Primary Care Research** – Although primary care practices have expanded substantially, primary care research has lagged behind the subspecialty-focused research, mainly due to the lack of trained research staff. It is vital to create a core of primary care clinical research investigators who can concentrate on issues of quality and patient safety. In his article, cited above, Hueston also reports that primary care research is inadequate and difficult to resolve over the short term; "The biggest obstacle to developing research capacity cited by interviewees is the lack of mentoring or critical mass of faculty in many departments."

- **Cultural Competence** – The need for culturally effective care has assumed growing prominence among the Nation's pool of practicing clinicians. Cultural competence includes an increased awareness and knowledge of the values, customs, illness beliefs, health care utilization patterns, health risk behavior and ability to communicate with patients from other cultures. As the Nation continues to become more culturally diversified, the health care education and training system should focus part of its most precious commodity—time in the academic curriculum—to subjects that will expand and enhance the cultural competence of its graduates. Studies in this area suggest that, although language barriers comprise a major factor interfering with appropriate health care delivery, other cultural factors can impede effective services even in the absence of a language barrier.[23] As already noted, developing a more culturally competent workforce, a goal of the Bureau of Health Professions, is regarded as important itself and as a major vehicle to reduce health care disparities related to cultural factors.

- **Recent Match Experiences** – The 2001 national residency match program results continue a trend established during the past several years, in which graduates are opting in greater numbers to enter subspecialty training programs and careers. This trend must be reversed and Title VII, section 747 represents the major vehicle for achieving the targeted ratios of primary care to subspecialty graduates.

- **Broader Support for Dentistry** – General dentistry and pediatric dentistry programs need to be able to compete for funding for academic units, faculty development and residency support. Current legislative language does not address the eligibility of general and pediatric dentistry to compete for these categories of support, and should be amended.

- **Disparities in Health Outcomes** – Despite gains in access to health care, brought about through Title VII, section 747 capacity-building, expansion in health insurance, recruitment of qualified minorities into the health care field through such programs as HCOP, National Health Service Corps, and public clinic expansion, the Nation continues to experience significant disparities in access to care, health status and health outcomes. Community economic stability, income, race, culture, ethnicity and geography appear to play a major role in producing unequal health care status among subpopulations of equivalent age groups. While unequal access to high quality health care services continues to exert itself as a major contributing factor, the education and training system can play an expanded role in equipping the Nation's primary care providers to recognize and better manage the care of their patient populations to minimize the resulting health outcome disparities. Health care for most persons in our Nation has improved greatly, except for certain sub-groups in our population. Examples of inadequate health care delivered to such groups include the following:

  - Elderly women constitute most of the new cases and deaths from breast cancer with elderly minority women exhibiting a higher prevalence of the disease.

  - Coronary heart disease is the leading cause of African-American deaths in the United States.

  - Diabetes kills African-Americans at more than three times the rate for whites. There are higher levels of disease and disability in particular racial and ethnic groups.[24]

  - Although Hispanics have a longer life expectancy than non-Hispanic whites, they are more likely to suffer from a number of chronic and debilitating illnesses and diseases. These include asthma, cervical cancer, depression, diabetes, and HIV/AIDS. Ongoing access to a regular source of primary care is critical to the treatment and management of these diseases. However, Hispanics are the group least likely to have access to a regular source of health care.[25]

- Tooth decay is the most common chronic disease of childhood; it is five times more frequent than asthma, for example. Twenty million children—25% of persons under age 19—suffer 80% of all tooth decay. For an estimated 4-5 million of these children, tooth decay interferes with routine activities. Children living in poverty consistently suffer more tooth decay than their more affluent peers; yet children with the greatest dental treatment needs have the least access to dental care. This disparity between the presence of dental disease and access to care is widening despite public health and dental care programs for poor children.[26]

- It is important also that all health care providers understand that cultural factors affect health outcomes and that patients utilize their own approaches to healing and health, consistent with their values and their cultural mores. Providing culturally competent health care that includes an awareness of these factors can improve health outcomes and reduce the basic disparities that exist currently. The January 2000 Supplement to *Pediatrics* cites data from the FOPE II report: "African American physicians are five times as likely and Latino physicians twice as likely, to practice in communities with a high proportion of corresponding minority residents as non-minority physicians."

- **Access to Health Care** – Title VII, section 747 can and should continue to press for support of approaches that promise to equip graduates and even encourage them to enter practices in areas and populations that experience shortages in primary care resources. Examples of access issues include:

  - Without the practicing family physicians currently in place, an additional 1,332 of the United States 3,082 urban and rural counties would qualify for designation as primary care HPSAs. With the recent decline in student interest in family practice, this primary health care resource is at risk.

  - We continue to produce inadequate numbers of minority health care practitioners, which adds to the problems experienced by underserved populations, many of whom are minorities, gaining effective access to health care.

  - The major economic trend most directly affecting access to care and medical practice in the United States is the lack of health care insurance coverage for a large portion of the population. The United States remains the only major western industrialized nation without some form of guaranteed universal insurance coverage. According to the U.S. Bureau of the Census, more than 44 million people in the United States were uninsured for the entire year in 1998. The number of uninsured has doubled since 1980. Despite declining rates of unemployment in the United States, fewer Americans have job-based private insurance.[27]

  - Four thousand six hundred and fifty dentists are needed to remove the 1,480 HPSAs in which 31,405,876 people reside (to reach a population to dentist ratio of 5000:1). Approximately 6,380 dentists would need to be added to achieve the HRSA standard of adequate access. Vacant faculty positions rose from 161 full-time positions in 1986 to 400 currently.

  - Over half (52%) of U.S. children experience clinically detectable tooth decay by ages 6-8; the proportion rises to two-thirds by age 15 and to 80% by age 18. Low socioeconomic status is a significant risk factor for childhood caries. Eighty percent of tooth decay is found in 25% of U.S. children and adolescents. Among Americans receiving the least dental care are young, low-income minority children who cannot afford dental care and who lack insurance coverage. Furthermore, only one in five Medicaid-eligible children receive basic dental services annually. These statistics are consistent with the fact that the majority of dental care in the United States is delivered in the private delivery system, characterized by multiple independent dental offices distributed unevenly across the country.

  - Public dental services are largely unavailable; there is a recognized shortage of pediatric dentists, as well as general dentists with postdoctoral training, and these are the practitioners most qualified to provide care for Medicaid, SCHIP, and other underserved populations. There are significant distribution problems in the number of dentists available to serve certain areas with estimates that one-half of urban and two-thirds of rural areas are underserved. Compounding the problem is the disparity in insurance coverage, especially for low-income children. In 1996, the National Center for Health Statistics found that there were 2.6 times as many children with no dental insurance as children with no medical insurance,

accounting for more than 36% of children and adolescents or about 26 million children across the Nation.

- Coupled with the basic lack of insurance is the problem created when clinicians refuse to participate in programs such as Medicaid. Despite the fact that black and Hispanic children are three times more likely to be covered by Medicaid than white children, the Medicaid program has often failed to deliver dental services in most States. This failure translates effectively into significant disparities in dental care availability. An unpublished study of 35 State Medicaid programs reveals that only 16% of dentists, on average, participate actively in State Medicaid programs and a Federal Inspector General's study reported that in 1995 only 18% of Medicaid children received a preventive dental visit.[28] Medicaid dental programs have been historically underfunded, and have failed to pay anything remotely close to market-based dental reimbursement rates, while placing significant administrative burdens on participating providers. In a January 18, 2001, letter to State Medicaid Directors from the HCFA Center for Medicaid and State Operations, States were requested to submit plans for improvement in outreach and administrative case management for children, adequacy of Medicaid reimbursement rates, increasing provider participation, and claims reporting and processing. Thus, Title VII programs have been attempting to improve access in a system with serious limitations in key areas. Recent reforms in States to pay market-based reimbursement rates, such as Indiana and Michigan resulted in significant increases in dental provider participation.

- **Quality** – The Institute of Medicine report on medical errors[29] served as a reminder to all members of the health care industry that quality cannot be taken for granted. The IOM report indicated that at least 44,000 Americans die each year as a result of medical errors; other studies suggest the number might be as high as 98,000. Despite its deserved record of accomplishment and excellence, the health care industry in the United States continues to exhibit serious problems that produce unnecessary morbidity and mortality. The education and training systems must focus even more sharply on this serious national problem and Title VII, section 747 can play a substantial leveraging role in developing improved approaches to health care management. The Council on Graduate Medical Education (COGME) and the National Advisory Council on Nurse Education and Practice (NACNEP) outline productive approaches to this problem in a recent report to Congress[30]. The COGME-NACNEP report presents a series of recommendations by which the Nation's education and training institutions can participate in changing the systems and the knowledge of health care providers to reduce errors and their costly results. Title VII, section 747 programs can assist in implementing these recommendations by adopting quality as a main objective of Title VII, section 747 grants.

- **Oral Health** – As noted in the 2000 U.S. Surgeon General's Report, Oral Health in America, oral health is integrally connected to overall health and should be a high national priority because of the continued prevalence of disease, the relatively low degree of dental insurance, and the declining ratio of active dentists to population. "Tooth decay is the most common chronic disease of childhood; it is five times more frequent than asthma, for example. Twenty million children (25% of persons under age 19) suffer 80% of all tooth decay."[31]

- **Special Initiatives Aimed at Emerging Health Issues** – Studies carried out by many research investigators point to the difficulty of introducing new material into the crowded curricula of health professions education and training programs. Each new problem recognized by the health care establishment must compete with an already crowded curriculum for space. Title VII, section 747 can become a major vehicle for encouraging curriculum committees to introduce new approaches and new material that will cover the emerging topics. Examples include:

  - **Geriatrics** – As the U.S. population ages, primary care providers will need to become more proficient in managing the care of that population.

  - **Genetics** – Biomedical research promises to continue to expand our knowledge of the genetic component of health and disease.

  - **Bioterrorism** – During the 1950s, the U.S. population worried about nuclear attacks. As the possibility of nuclear weapons attacks faded, other risks have escalated, bioterrorism especially. The health care system requires periodic infusions of information about the extant risks and most effective approaches to recognize and deal with the problem.

- **Medical Informatics** – As health care has become more complex, with a growing list of medical interventions, and more complex reporting requirements, the need for highly efficient, automated information systems grows. Health care providers can no longer afford to ignore such systems. Increasingly, such systems are being used to assist in patient care management as a front-line approach. Both undergraduate and graduate medical and dental education must include information on the integration of medical informatics in the daily care of patients.

- **Violence** – Our Nation continues to experience violence in one form or another within our communities. Violence against children, spousal abuse, and the many forms of violence visited upon our population that are associated with street crime and substance abuse, are a form of public health risk that needs to be addressed by our health care system. Primary care practitioners are often the first health care providers to confront the results of such violence and they need to be better prepared to recognize the problem and care for the affected population.

Title VII, section 747 provides an important path by which national policy officials can encourage the introduction of emerging health care issues into various components of the education and training systems. Because of its long relationship with the health care education and training institutions, Title VII, section 747 is an effective and trusted vehicle, through which a partnership between public and private interests can be merged to achieve national policy objectives.

ADVISORY COMMITTEE CONCLUSIONS AND RECOMMENDATIONS

ADVISORY COMMITTEE CONCLUSIONS

The Advisory Committee has Concluded that Title VII, Section 747 Continues to be Necessary to Meet the New Challenges Facing the Nation

The Advisory Committee's study deliberations have led to the central conclusion that Title VII, section 747 has a substantial unfinished agenda and must be renewed and expanded. Title VII, section 747 has had a remarkable record of successes regarding its multiple objectives over the past 25 years, but many challenges remain to be resolved, as noted in the previous section.

The Advisory Committee held extensive discussions concerning alternative designs for a reauthorized Title VII, section 747 program. What emerged from these discussions is a program that capitalizes on the successes of the existing structure of Title VII, section 747 preserving those features known to work well, while better enabling the program to meet the changing health care needs of the Nation. The Advisory Committee is recommending a program design that retains the fundamental structure of Title VII, section 747 while adding objectives that reflect current national policy priorities.

The Advisory Committee examined and debated vigorously the growing perception that the Nation's physician workforce is in a state of surplus and, therefore Title VII, section 747 may no longer be needed. The Advisory Committee rejects the conclusion that an overall surplus, if accurate, requires a reduction or an end to Title VII, section 747 support. We argue that the Nation's pool of health care practitioners remains unbalanced in favor of subspecialists, leading to increased overall health care costs. Increasing the supply of primary care providers continues to be a high priority. Further, the Advisory Committee endorses the view that Title VII, section 747 support continues to be required because of the growing number of challenges remaining. Title VII, section 747 is the sole Federal vehicle to support the necessary changes in the Nation's education and training system.

The Advisory Committee has observed the growing shortage of nurses, and the shortage of pediatric dentists and general dentists with advanced training, which are linked in part to the reduction in Federal legislative support. Surpluses and shortages appear and disappear as the health care system and the education and training systems synchronize inefficiently. Federal support provides not only financial stimulus to the educational sector, but as importantly, provides a policy bridge to that sector, enabling national priorities to become part of the educational system. Continued Title VII, section 747 support is viewed as a vital continuation of a Federal role in physician, dental and physician assistant education and training policies and programming decisions.

Commitment to Diversity and the Underserved

Despite the relative difficulties in resolving the basic underlying issues that leave too many of our populations and communities perpetually starved for adequate health care resources, Title VII, section 747 should continue as one of several vehicles employed by the Federal Government to reduce these inequities. The Advisory Committee believes that the program must remain committed to resolving the problems of underserved populations in the country. Additionally, the need for a health care workforce that resembles the racial, ethnic and cultural makeup of the country has never been more important than it is now. As the recent census makes clear, we are a multicultural society and our health care resources must reflect that essential fact of life in 21st century America. The private marketplace will never correct the present imbalances in the system. Title VII, section 747 continues to be necessary.

ADVISORY COMMITTEE RECOMMENDATIONS

The Advisory Committee recommends the following:

1. **EXPAND FEDERAL SUPPORT FOR TITLE VII, SECTION 747 PROGRAMS, RETAINING ITS BASIC STRUCTURE** – The Advisory Committee recommends that Title VII, section 747 be expanded substantially to meet the growing primary care needs of the U.S. population. The program has been extraordinarily successful at creating the basic infrastructure for educating a primary care workforce. However, that infrastructure requires continued Federal support to meet the challenges outlined above. The Advisory Committee has queried the academic communities represented on the committee. An increased budget level is recommended that will permit the achievement of the policy objectives as outlined herein, while continuing to expand the primary care training system to meet the enlarged needs for primary care providers envisioned under the proposed community health center expansion plan. The Advisory Committee also recommends retention of the current categories of support. Funding for specific categories should depend on changing needs to meet national priorities. The specific categories recommended include:

   - Support for new or expanded academic units (e.g., departments of family medicine, or divisions of general internal medicine, or general pediatrics)
   - Support for faculty development
   - Support for pre-doctoral clerkships
   - Support for residency training
   - Support for physician assistants training

   The basic structure extends to retention of discipline-specific support for family medicine, general internal medicine, general pediatrics, medicine-pediatrics, physician assistants, general dentistry, and pediatric dentistry. Discipline-specific allocations are required to assure that all covered disciplines have access to Title VII funds.

   On the question of the relative need in this structure for the Advisory Committee, we recommend retention of this advisory structure. The Advisory Committee has functioned effectively over the two years of its existence and we continue to believe that such advisory bodies provide a helpful adjunct to the internal government policy and program management offices.

2. **EDUCATING PRIMARY CARE PROVIDERS TO DELIVER EFFECTIVE, QUALITY HEALTH CARE TO UNDERSERVED POPULATIONS SHOULD BE THE HIGHEST PRIORITY FOR TITLE VII** – The Advisory Committee recommends strongly the retention of the current emphasis on medically underserved communities and populations, and urges the redesign of the current shortage area designation criteria to take account of the many Title VII-funded programs that train students to provide care to underserved populations, although the programs are not located in shortage areas. The Advisory Committee examined at some length the issue of funding incentives—mainly preferences and priorities— that emphasize the importance of service to underserved communities and populations. It is clear that the Title VII, section 747 program is important to the Nation because of its potential to contribute to the two critical goals of increasing access to high quality health care for the entire U.S. population, and reducing the disparities that now exist within the population in terms of health status, health outcomes and basic access to care. Even acknowledging that this program by itself cannot resolve all these issues, it has demonstrated over many years its effectiveness in opening the health care system to the population, and improving its overall efficiency through its emphasis on primary care.

   A major component of this recommendation includes the need to recruit greater numbers of minority students into our educational institutions that educate future health care practitioners, who tend to practice in greater proportion in underserved communities and populations.

3. **INCREASE THE EMPHASIS ON TRAINING PRIMARY CARE PROVIDERS TO DELIVER CULTURALLY COMPETENT CARE TO AN INCREASINGLY MULTICULTURAL POPULATION** – As the Nation's population continues to shift to mirror the world's ethnic and cultural composition, primary care practitioners must be trained to provide health care that is both technically and culturally competent. As the recent census reveals, the challenges facing the health care workforce are growing rapidly. The Nation must be prepared.

4. **CONTINUE AUTHORITY FOR TARGETED DEMONSTRATION PROJECTS TO ASSURE EFFICIENT AND TIMELY TRANSFER OF RESEARCH FINDINGS AND MAJOR HEALTH CARE INITIATIVES** – Title VII, section 747 has been highly effective at transferring national health care priorities, such as diagnosis and treatment of substance abuse, into the knowledge base of the primary care workforce. The Interdisciplinary Generalist Curriculum, Faculty Futures Initiative, Undergraduate Medical Education for the 21st Century, and other demonstrations have helped to guide the academic field in determining which of alternative promising approaches deserve replication. That demonstration authority needs to be continued and perhaps even expanded. In particular, demonstrations involving general or pediatric dentistry along with the other primary care disciplines should be authorized. The Advisory Committee considered and rejected the use of set-asides for the demonstration component. Demonstrations have tended to be opportunistic, building on research, or new thinking at given points in time. To that extent, the Bureau of Health Professions has served the health care field well in being responsive to knowledge changes that should be more broadly adopted in academic or clinical practice communities. We recommend continuation of the current flexibility to design and implement targeted demonstrations.

5. **EMPHASIZE INTERDISCIPLINARY APPROACHES** – The Institute of Medicine's report on patient safety urges the expansion of interdisciplinary approaches to training and to clinical practice as one approach to reduce threats to patient safety. Title VII, section 747 programs have for a number of years emphasized such approaches and pressed for their adoption through the use of priorities. The Advisory Committee believes that such approaches should be expanded through priorities and suggests consideration of a set-aside budget pool for such approaches. The Advisory Committee wishes to stress that "interdisciplinary" in this context means training and practice approaches involving more than one medical discipline, medical disciplines working with nursing or allied health disciplines, medical and dental disciplines working together, or any combination of the above.

6. **ASSIGN A HIGH PRIORITY TO THE TRAINING OF PRIMARY CARE PROVIDERS TO IMPROVE THE QUALITY OF CARE TO ALL AMERICANS THROUGH THE ELIMINATION OF HEALTH DISPARITIES AND IMPROVED PATIENT SAFETY** – The Advisory Committee is cognizant of the recommendations of the Institute of Medicine report on patient safety and endorses its recommendations, as noted. Additionally, however, the Advisory Committee is concerned about the continued existence of significant health care disparities that seem to be growing despite our ever-expanding national investment in health care research and delivery. Although Title VII remains a modest vehicle, it has served well in educating future practitioners in caring for populations often left behind by the largely private systems of care in the country. Continued focus on disparities in access and outcomes must remain a high priority of Title VII.

A PROPOSED AUTHORIZATION OF APPROPRIATIONS FOR A RENEWED TITLE VII, SECTION 747

The Advisory Committee recommends a budget level that will permit the achievement of the policy objectives outlined above, while continuing to make progress in expanding the primary care training system to meet the projected needs.

The levels proposed are as shown in the chart on the next page.

Interdisciplinary approaches are encouraged and are to be supported more strongly than in the past due to their importance in improving the operational effectiveness of primary care practices, and reducing the incidence of medical errors throughout the health care system. By interdisciplinary projects, the Advisory Committee means a project in which at least two primary care disciplines will collaborate to achieve some intended objective related to one or more of the national objectives outlined in this report.

Having studied the current status of the health professions education and training system in the light of the Nation's projected needs for primary health care providers, the Advisory Committee is convinced that a substantial expansion in the size of the primary care practitioner pool is required if we were ever to reach the state of equitable access to high quality care we believe to be necessary and vital to a healthy Nation. The market forces that serve the country well in other sectors will not by themselves deliver the health care system for which we strive as a Nation. Health care has functioned best in this country when it represents a blend of public and private policies and investments. A careful blend should remain as a bedrock principle on which the system functions.

Discipline	Discipline-Specific Projects	Interdisciplinary Projects	Total
FAMILY MEDICINE	$84 million	$12 million	$96 million
GENERAL PEDIATRICS / GENERAL INTERNAL MEDICINE	$56 million	$13 million	$69 million
PHYSICIAN ASSISTANTS	$15 million	$3 million	$18 million
GENERAL / PEDIATRIC DENTISTRY	$14 million	$1 million	$15 million
TOTAL	**$169 million**	**$29 million**	**$198 million**

In a study published in the Journal of Rural Health[32], Politzer reports, "in 1997, Title VII funded programs increased the rate of graduates entering HPSAs, resulting in 1357 providers, and reducing the time for HPSA elimination to 15 years. Doubling the funding of these programs would increase the number of Title VII funded generalist physicians entering MUAs, and could decrease the time for HPSA elimination to as little as six years." That study, then, argued for a substantial increase in the budget, if the Nation was ever to eliminate shortage areas in the country. In addition, the Advisory Committee notes that a budget authority above current levels will be needed if we wish to support new, innovative approaches to meeting the changing health care needs of the country. Title VII has been a main vehicle for use by primary care training programs interested in supporting innovative approaches aimed at improving quality of care and basic access to care, and has been used to great effect by programs to leverage other sources of funding. This multiplier effect continues to be a powerful tool for channeling other sources of funding into Title VII-supported programs.

The Advisory Committee's proposed budget authority attempts to move beyond maintenance of the current program's appropriations levels, which are necessary simply to avoid future shortages of primary care practitioners. The increases being recommended by the Advisory Committee are intended to make inroads into the problems facing the Nation's health care systems. Even with the increases being sought, Title VII remains a modest investment, but, as has been demonstrated, one with substantial future payoffs in terms of system quality, access to care, and a culturally competent system of care for the entire population.

APPENDICES

APPENDIX A: TITLE VII, SECTION 747 ENVIRONMENT AND ACCOMPLISHMENTS

THE CURRENT ENVIRONMENT

The current primary care training environment is being pressed by a number of forces. One such force is the ongoing need to adjust to a changing financial environment brought about by the Balanced Budget Act of 1997, State GME funding activities, Medicare funding reform and market demands.

Second is the pressure from public policy quarters regarding how well the supply of primary care practitioners in the United States aligns with the health care needs of the U.S. population. Although there is general agreement between the various education and training institutions and Federal entities that a surplus exists in the overall physician pool, the extent of this overall surplus and the appropriate proportion of primary care to specialists are matters of dispute. The mix of primary care physicians and specialists in the United States is unbalanced when compared with other developed countries. The United Kingdom has an overall ratio of seven generalists for every three specialists, while 50% of all physicians in most other developed countries are generalists. In 1990, approximately one in three U. S. allopathic physicians were generalists and of those providers considered as generalists or primary care practitioners, 36% were family medicine physicians, 39% were general internal medicine physicians, 19% were general pediatrics physicians, and seven percent were osteopathic physicians. Of the medical students entering residencies in these fields, the majority of trainees in family medicine, osteopathic medicine and general pediatrics end up practicing primary care.[33] [34]

HMO staffing averages have been sometimes advanced as the gold standard for the proper mix of primary care to specialist physicians. Based on this model the ideal ratio would be two generalists for every specialist. One caution in this approach is that HMO populations are predominately employed individuals who are younger and healthier than the population as a whole. Thus, these ratios do not consider the needs of the underserved, the uninsured and the elderly.

Most recent literature indicates that primary care physicians constitute approximately 40% of current practicing physicians. The Council on Graduate Medical Education in its Fourteenth Report argued for a ratio of 50% primary care physicians. They also noted that the number of specialists currently being trained exceeds the target goal by 41%. The American College of Physicians 1998 position paper points to the reality that currently no mechanism exists for adjusting the supply of physicians to approximate the health care needs of our Nation. This deficiency is striking, given that the trend of increasing numbers of physicians entering primary care residencies during the first half of the 1990s seems to be reversing. Beginning in 1998, and including the 2001 residency match, a marked decline has been noted in the number of students matching in the primary care disciplines.

Many characteristics influence specialty choice. Medical school type has been shown to be fundamental, influencing the mission and faculty composition, which in turn affects both admission policy and curriculum. Public medical schools produce significantly more primary care physicians than private medical schools. Schools with well-established primary care departments with academically credible faculty show markedly higher production rates of generalists. Longitudinal curriculum in primary care also has been shown to influence positively the likelihood of students choosing primary care. Attention needs to be given to restructuring in light of these findings if primary care medical training is to move forward.

The following sections offer descriptions of the current environment experienced by each of the primary care disciplines supported by Title VII, section 747. These descriptions are grouped according to HRSA targeted funding categories, including 1) family medicine/osteopathic family medicine, 2) general internal medicine, 3) general pediatrics, 4) physician assistants, 5) general dentistry, and 6) pediatric dentistry.

Family Medicine

Family practice is the allopathic and osteopathic medical specialty that provides continuing and comprehensive health care for the individual and family. It is the specialty in breadth, which integrates the biological, clinical, and behavioral sciences. The scope of family practice encompasses all ages, both sexes, and

every disease entity. The training of family physicians emphasizes prevention, acute problems, chronic disease management and the care of psychosocial problems affecting health. This training emphasizes continuity of patient care in the context of the family and community. The family physician is the most common primary care physician in rural and metropolitan America, and the most common physician in community clinics and underserved areas.

HISTORICAL FACTORS

The discipline of family medicine came into being in 1969 in response to public need expressed during a period of excessive specialization. As a specialty it set the standard for quality early in its existence, by being the first to require periodic recertification of its members. This recertification along with mandatory hours of continuing medical education (CME) has compelled family physicians to maintain their skills throughout their career. Family practice has grown steadily over thirty years, and by the mid-90's residencies were established in each of the fifty States. However, for the last four years there has been a decline in U.S. medical school graduates choosing to specialize in family practice. Within the academic environment there is not yet parity, partly due to resistance from other disciplines. The average number of primary care faculty in medical school departments varies from 120 in internal medicine, 60 in pediatrics, to only 24 in family medicine. Due to its historical emphasis on graduate medical education and its late entrance into many academic medical centers, family medicine has had a slow growth in externally funded research. For example, NIH funding is distributed unequally, with internal medicine departments receiving approximately $1.4 billion, pediatric departments receiving $280 million, and family medicine departments totaling only $18 million. In addition, there are still 10 schools without departments of family medicine, and twenty without required family medicine clerkships. Both Federal and State legislatures have recognized the need for family medicine and have mandated funding specifically for such training.

WORKFORCE TRENDS

Family physicians are becoming more ethnically and culturally diverse: of current residents in training, 45% are female and 24% are minorities. Women constitute a third of all family medicine faculty members. Family physicians serve more of the Nation's underserved populations than any other discipline. The payer mix for the average family physician is 22% Medicare, 13% Medicaid, and 9% indigent. In addition, family physicians practice in HPSAs and CHCs more than any other discipline. The Nation relies heavily on family physicians to practice in HPSAs. Without family physicians, an additional 1332 of the U.S. urban and rural counties would qualify for designation as a primary care HPSA.

Even with the successes of Title VII, we are not training enough family physicians to meet America's current needs and shortages will increase dramatically as baby boomer family physicians begin to leave the workforce. At the present rate, more family physicians are retiring than are being produced. Access to care remains a problem for many Americans. Family physicians are needed throughout the country, particularly in places such as rural communities and urban centers that historically have had difficulty attracting physicians.

EDUCATIONAL TRENDS

Issues such as lifestyle, income, student debt, and technological orientation dominate specialty choice today causing fewer U.S. medical school graduates to select primary care and particularly family practice. An intangible but important factor in specialty choice is the lack of prestige associated with the specialty of family practice, particularly within the medical school environment. In addition, the costs of training family physicians are not offset by clinical revenues as much as the training of procedural specialists who have enhanced reimbursement for clinical services.

EDUCATION AND TRAINING

There are currently 493 family practice residency programs, training approximately 11,000 family practice residents. Family physicians specialize in caring for all people regardless of age, gender, or diagnosis. Family physicians provide primary care and serve as important coordinators of care—including when either specialty or tertiary care is required. This helps to improve quality and reduce costs. Family physicians have played an especially important role in meeting the health care needs of those living in rural and inner city areas in this country.

The residency requirements for certification in family practice include a 36-month curriculum. This curriculum includes adult care, surgical care, children's health care, maternity and gynecologic care, human behavior and mental health, as well as community medicine. Training in the medical and surgical subspecialties is included and training programs have increased emphasis on procedural skill training

responding to new technology. The core of the program is the supervised continuity ambulatory practice conducted in the Family Practice Center model office over a three-year period. The training provides experience caring for patients of all ages in ambulatory, hospital, extended and home care settings. Family practice training emphasizes comprehensive, continuous patient care in the biopsychosocial model.

General Internal Medicine

Internal medicine is the allopathic and osteopathic medical discipline that specializes in health care of adults of both sexes, from young adulthood to the elderly. The training of internal medicine physicians (internists) encompasses the scientific basis of prevention, the causes and treatment of illnesses occurring throughout the adult lifespan, as well as skills to understand the role of community, family and environment in health and disease for the full range of adult medical needs. Internists have expertise in a spectrum that includes general and comprehensive care of ambulatory patients with an emphasis on prevention, screening and the behavioral and ethical aspects of health and disease. They are also expert in the diagnosis and treatment of acute and chronic disease in both the ambulatory and the inpatient setting. Internists are skilled in caring for the increasingly complex and aging population with individualized care that emphasizes interventions and systems of care that focus on optimizing functional status and quality of life.

HISTORICAL FACTS

In the past 15 years, approximately 16,000 general internal medicine practitioners have been trained in Title VII recipient programs. In fiscal year 1996 alone, 932 general internal medicine residents were trained through Title VII. Over 37% of graduates of general internal medicine programs from 1996-1998 have established practice in medically underserved communities. Over 69% of Title VII funded internal medicine program graduates practice primary care after graduation[35]. This rate is nearly twice that of programs not receiving Title VII funding.

WORKFORCE TRENDS

The discipline of internal medicine trains 25% of residents (excluding PGY-1 medicine preliminary positions), graduating over 5000 trainees eligible for certification by the American Board of Internal Medicine each year. Four hundred of these graduates are from primary care internal medicine programs. There are 372 categorical internal medicine training programs and 104 primary care internal medicine training programs. Between 1980 and 1985, 56% of these graduates entered careers in general or primary care internal medicine, which is the largest source of generalist physicians in the United States. Data from 1999 were nearly identical.[36]

In recent years, the number of full-time funded internal medicine faculty has increased only 0.5% per year, necessitating continued dependence on volunteer faculty. Half of the faculty in internal medicine teaching units, defined as the department, division, section, or other equivalent group of internists centered on general internal medicine teaching activities (most of which are divisions of general internal medicine) are volunteers and are primarily located away from university or medical school settings. Ninety-eight percent of internal medicine faculty teach medical students and 99% teach internal medicine residents. Nearly half of the internal medicine teaching units support faculty and trainees in underserved clinic settings, defined as Health Professional Shortage Areas, National Health Service Corps sites, Indian Health Service sites, State or local sites designated by State government, or clinics with more than 50% Medicaid or uninsured patients.

This enormous dependence on volunteer faculty makes internal medicine teaching faculty vulnerable to current economic pressures. In the increasingly competitive economic medical environment of managed care, volunteer faculty are forced to see a growing number of patients in the same time period with the same resources. "It is likely that these volunteer faculty will need to reexamine whether they are able to commit precious time to teaching and whether they are willing to stay even later into the evening to complete clinical tasks set aside earlier in the day." [37]

EDUCATION AND TRAINING

General internal medicine requires at least 30 months of training in the discipline of general internal medicine, subspecialty internal medicine, critical care medicine, geriatric medicine, and emergency medicine. Up to four months of the 30 months may include training in other primary care areas (e.g., neurology, dermatology, office gynecology or orthopedics) In addition, up to three months of other electives approved by the internal medicine program director are required. Of the 36 total months of residency training, at least 24 months must occur in settings where the resident personally provides, or supervises junior residents who provide, direct care to patients in inpatient or ambulatory settings.

SCOPE OF PRACTICE

General internal medicine is the discipline that specializes in health care of adults of both genders, from young adulthood to the elderly. The training of internal medicine physicians (internists) encompasses the scientific basis of prevention, the causes and treatment of illnesses occurring throughout the adult lifespan, as well as skills to understand the role of community, family and environment in health and disease for the full range of adult medicine needs. Internists have expertise in a spectrum that includes general and comprehensive care of ambulatory patients with an emphasis on prevention, screening and the behavioral and ethical aspects of health and disease. Internists are also expert in the diagnosis and treatment of common or complicated acute and chronic disease in both the ambulatory and the inpatient setting. General internists have expertise in managing patients with advanced illness and disease of several organ systems. Internists are skilled in caring for the increasingly complex and aging population with individualized care that emphasizes interventions and systems of care that focus on optimizing functional status and quality of life.

General Pediatrics

Allopathic and osteopathic pediatricians practice the specialty of medical science concerned with the physical, emotional, and social health of children from birth to young adulthood. Pediatric care encompasses a broad spectrum of health care services ranging from preventive health care to the diagnosis and treatment of acute and chronic diseases with an emphasis on continuity of care. Because the welfare of children and adolescents is heavily dependent on the home and family, pediatricians support the creation of a nurturing environment, including education about healthful living and guidance for both patients and parents. Pediatricians participate in the community to prevent or solve problems in child and adolescent healthcare and serve as advocates for children and adolescents. With a greater appreciation of the importance of childhood antecedents of adult disease, the practice of pediatric medicine also has a particular emphasis on early intervention biologically, psychologically, and socially.

HISTORICAL FACTORS

Pediatrics as a medical specialty has its beginnings in the early part of the last century when it was recognized that there were unique physiological and psychological developmental aspects of child and adolescent health that set it apart from adult medicine. Training and practice of pediatrics at that time was based predominantly on a biomedical model, with the pediatrician, a true generalist, caring for minor and major illnesses extensively in both community and hospital settings. The general pediatrician served a dual role as primary care provider and as referral specialist for moderate to complex child and adolescent problems.

As pediatric subspecialties evolved in the second half of the twentieth century, the role of the general pediatrician became more focused on primary care. Patients with complex, chronic illnesses such as cancer, congenital heart disease, complex seizures were increasingly cared for by specialists. These specialists usually had additional training beyond residency, often in National Institutes of Health supported fellowships. With this shift in patient care, general pediatricians began to readdress their care to a more comprehensive healthcare model that recognized the importance of the social and psychological issues associated with the primary health care of children and adolescents. Drs. Green and Haggarty, in the 1970's, identified these issues as the "new morbidities" in pediatrics and encouraged training and practice that encompassed this expanded view of pediatric health care.

The general pediatrician at the turn of the current century has had training not only in the biomedical aspects of pediatrics, but increasingly in the social and psychological aspects as well. Current residency training requirements include curricula that address such issues as advocacy, cultural competency, and community-based experiences. In addition, most generalist academic fellowships have a focus on some aspect of clinical care or health care system research that address issues of underserved populations. Much of the current research in pediatrics with regard to health disparities, access, and clinical care of special needs populations, especially the underserved, is being done by trainees from Title VII supported fellowships.

Title VII funds have had a significant impact on other aspects of training at all three levels. It has been instrumental in increasing the number of divisions of general pediatrics from 95 to 119 in the past 10 to 15 years. Additional services, including the development of new programs and training of physicians to care for underserved children, particularly in the urban setting, have also resulted from this support. Innovative educational materials, including a "serving the underserved" curriculum and a manual for pediatric education in community settings have been used extensively throughout pediatric residency programs across the Nation.

WORKFORCE TRENDS

In a major document produced in 2000,[38] it was noted, "that by the year 2020 nearly 50% of U.S. children under the age of 18 will be African American, Latino, Asian American, or Native American; yet of the 1997 medical school graduates entering pediatric programs only approximately 15% were African American or Latino." Overall, underrepresented minority matriculation into medical school has also declined in recent years, with a long-term effect of exacerbating the problem of access of minority, underserved communities. This is particularly a problem in pediatrics in selected geographic HPSAs that include an estimated seven million children. It is projected that an additional 2,000 to 3,500 pediatricians will be required to care for these children. In 1998-1999, the total number of residents in general pediatrics, including both categorical pediatrics programs and Med/Peds programs was 9,459.

Although recent residency match results have been very favorable for pediatrics with the 2001 matching at one of its highest levels (97%), there is an increasing perception that there is a need for more pediatric subspecialists. Currently only 18% of board certified pediatricians are subspecialists. A potential trend away from primary care as a career coupled with a lagging diversity among pediatric residents, underscores the need for programs such as Title VII that encourage and support both primary care and diversity.

EDUCATION AND TRAINING

Training in general pediatric medicine occurs at three levels, in the clinical years of medical school, during a three-year pediatric residency, and at a post-residency fellowship level. Title VII funds are currently structured to support training at all three levels, although historically it has been utilized primarily to support residency and fellowship training in general pediatrics.

All medical schools require a pediatric medicine experience as part of their core clinical requirements. Clerkships in pediatrics usually consist of a six to ten week experience in the third year of medical school. Most of these clerkships now have a particular emphasis on outpatient and primary care experiences. Some students will do additional pediatric training in the fourth year of medical school, usually in a subspecialty.

General pediatrics residents must complete three years of postgraduate pediatric training. During the training program, the resident is expected to assume progressive responsibility for the care of patients. Supervisory experience must be an integral part of the total three-year program with the last 24 months of training including five months of direct supervisory responsibility in general pediatrics. At least 10% of their time must be in a longitudinal primary care continuity experience throughout the three years. In the second and third year, the continuity time increases to 20% in most programs. Current residency training requirements include curricula that address such issues as advocacy, cultural competency, and community-based experiences.

At the general pediatric fellowship level, the training is usually two to three years in duration. Title VII dollars have been critical in sustaining academic generalist fellowship training programs which have been key producers of health services researchers and educators in general pediatrics, with a particular focus on health care of underserved populations.

Medicine-Pediatrics

Medicine-Pediatrics programs contain the core elements of allopathic and osteopathic internal medicine and pediatric training programs. After completing a combined training program, graduates are recognized by colleagues, patients, the American Board of Internal Medicine and the American Board of Pediatrics as fully-trained Internists and Pediatricians who possess both breadth and depth of knowledge

HISTORICAL FACTS

Following agreement by the ABP and ABIM in 1967 to allow combined training to lead to dual certification, the Boards recognized the first program in 1971. Med-Peds training grew slowly for the next decade, and then experienced a rapid increase in popularity. From 1979 to 1989, the number of training programs increased 16 fold, and the number of available first year, Residency 01 (R01) training positions increased from 5 to 249. R01 positions increased another 89% from 1989 to 1997, before leveling off.

Medicine-Pediatrics programs contain the core elements of both internal medicine and pediatric training programs. After completing a combined training program, graduates are recognized by colleagues, patients, the American Board of Internal Medicine and the American Board of Pediatrics as fully-trained internists and pediatricians who possess both breadth and depth of knowledge.

WORKFORCE TRENDS

In 1992, there were nearly 900 Med-Peds physicians that had graduated from approved programs. By 2000 the total had grown to 3200 with nearly 400

graduates a year entering the workforce today. A recent survey report[39] by Lannon, et al, showed that over 70% of graduates were involved in direct patient care. Nearly 50% of the graduates were associated with teaching in medical schools. Eighty-five percent of graduates managed patients who required hospitalization.

EDUCATION AND TRAINING

Training in combined internal medicine/pediatric programs occurs over 4 years. Time is divided evenly between the two disciplines with residents rotating approximately every 3 or 4 months. All residents see both adults and children in the outpatient setting on a weekly basis. Since training is condensed from 6 years to 4 years, it is cost-effective training and provides communities with both an internal medicine (adult) doctor and a pediatric doctor at the same time.

SCOPE OF PRACTICE

These physicians are well qualified to care for the spectrum of health care needs of children and adults. Because the U.S. health care system mandates a strong primary care base, these physicians will play an increasingly important role in providing high-quality generalist care. Additionally these physicians are assets to the other primary care disciplines. Over one-third of Med-Peds trained physicians work with family practice physicians, and nearly 40% work with general pediatricians and general internists. Over 43% of Med-Peds physicians work in communities that have less than 100,000 people and 27% work in communities of fewer than 50,000.

The Med-Peds physician has achieved national recognition as a collaborative physician—meeting health care needs and taking a leading role in an evolving managed care market. Both Houses of Congress have placed their support behind Med-Peds by protecting the continued funding of these programs in passing the Primary Care Promotion Act of 1997. In addition, the Balanced Budget Act of 1997 added full Medicare Direct GME support for the fourth year of the combined medicine-pediatrics residency training. Outcome data have now demonstrated that Med-Peds has created enhanced practice efficiency in collaborative practices with family physicians, further optimizing the managed care environment.

Osteopathic Medicine

Physicians licensed as doctors of osteopathic medicine (D.O.s), like their medical counterparts (M.D.s), must pass a national or State medical board examination in order to obtain a license to practice medicine. D.O.s provide comprehensive medical care to patients in all 50 States and the District of Columbia. Title VII, section 747 has supported grants to osteopathic medical institutions, both at the undergraduate and graduate levels that satisfy the basic Title VII, section 747 program requirements.

HISTORICAL FACTS

Osteopathic medicine is a distinctive form of medical care founded on the philosophy that all body systems are interrelated and dependent upon one another for good health. This philosophy was developed in 1874 by Dr. Andrew Taylor Still, who pioneered the concept of "wellness" and recognized the importance of treating illness within the context of the whole body.

Osteopathic physicians use all of the tools available through modern medicine including prescription medicine and surgery. They also incorporate osteopathic manipulative treatment (OMT) into their regimen of patient care when appropriate. OMT is a set of manual medicine techniques that may be used to relieve pain, restore range of motion, and enhance the body's capacity to heal.

WORK FORCE TRENDS

Currently, there are approximately 47,000 D.O.s practicing in the United States. Reflecting the osteopathic philosophy of treating the whole person, 57% of D.O.s serve in the primary care areas of family medicine, general internal medicine, and general pediatrics, often establishing their practices in medically underserved areas. Another 43% are found in a wide range of medical specialties including surgery, anesthesiology, sports medicine, geriatrics, and emergency medicine. Still others serve as health care policy leaders at the local, State, and national levels. In addition, increasing emphasis on biomedical research at several of the osteopathic colleges has expanded opportunities for D.O.s interested in pursuing careers in medical research.

EDUCATION AND TRAINING

With the number of D.O.s increasing 50% in the last decade, osteopathic medicine has become one of the fastest-growing health professions in the United States, a reflection of the many benefits it offers both practitioner and patient.

To meet the growing demand for D.O.s, who treat more than 35 million Americans, the number of colleges

of osteopathic medicine has increased from 5 to 19 within the last 20 years. The colleges enroll more than 10,000 medical students, of whom 41% are women.

The academic program leading to the D.O. degree involves four years of study, followed by a one-year rotating internship in such areas as internal medicine, obstetrics/gynecology, and surgery, followed by two to six years of residency training if a specialty is desired.

The curriculum in colleges of osteopathic medicine reflects the osteopathic philosophy, with an underlying emphasis on preventive, family and community medicine. Clinical instruction emphasizes looking at all patient characteristics (including behavioral, environmental, etc.) and how various body systems interrelate. Close attention is given to the ways in which the musculoskeletal and nervous systems influence the functioning of the entire body. An increasing emphasis on biomedical research in several of the colleges has expanded opportunities for students to pursue research careers.

Physician Assistants (PAs)

PAs are licensed health care professionals who practice medicine with physician supervision. Physicians may delegate to PAs those medical duties that are within the physician's scope of practice and the PA's training and experience and are allowed by State law. PAs provide a broad range of diagnostic and therapeutic services, from primary care to surgical procedures. In their work with physicians, PAs routinely perform physical exams and take patient histories, order and interpret laboratory tests, manage and treat illnesses, repair lacerations and assist in surgery, write prescriptions, and provide health education and patient counseling. All States, the District of Columbia, and Guam license PAs. Forty-seven States, the District of Columbia, and Guam authorize physicians to delegate prescriptive privileges to the PAs they supervise.

Historical Facts

The PA profession began in the 1960s when the United States was facing a serious shortage and maldistribution of physicians to address the Nation's need for primary health care services. To expand the delivery of quality medical care, Dr. Eugene Stead of the Duke University Medical Center put together the first class of physician assistants in 1965. He selected four Navy corpsmen who received considerable medical training during their military service, but who had no comparable civilian employment opportunities. He based the curriculum of the PA program in part on his knowledge of the fast-track training of doctors during World War II.

The first major expansion of PA programs began in 1971. From 1970 to 1980, the number of PA programs grew from 12 to 56. The growth in the number of programs slowed in the early 1980s; however, by 1990, a total of 80 programs had been established. Today, there are 129 PA programs accredited by the Accreditation Review Commission on Education for the Physician Assistant.

Through 2000, more than 50,000 individuals became eligible to practice as PAs, up from 24,000 in 1990. About 81%, or nearly 41,000 of those eligible to practice as PAs, are in clinical practice. Although PAs comprise a small percent of the Nation's clinical workforce, it is a growing profession that is expected to increase to more than 87,000 by 2010. The U.S. Bureau of Labor Statistics projects that the number of PA jobs will increase by 48% between 1998 and 2008.

Workforce Trends

PAs practice in virtually every medical and surgical specialty, working in partnership with physicians to ensure the highest quality of care for their patients. The 2000 American Academy of Physician Assistants (AAPA) Annual PA Census reveals the following information about the PA profession:

- **Type of Community Served:** PAs provide care in communities ranging from the most rural to the inner city. Almost thirty percent of respondents report working in areas with fewer than 50,000 people.
- **Employer Type:** Nearly four in ten respondents (39%) are employed by a single or multi-specialty physician group practice. One-fourth of the respondents are employed by hospitals. Four percent are employed by HMOs.
- **Work Setting:** The predominant work setting for more than one-third of all respondents is a hospital, another third work predominantly in solo or group practice offices, and approximately ten percent work predominantly in some type of Federally Qualified Health Center or community health facility.
- **Primary Specialty of Practice:** While PAs practice in at least 60 specialty fields, more than half of this year's respondents report that their primary specialty is one of the primary care fields: family/general practice medicine (37%), general internal medicine (9%), general pediatrics (3%), and

obstetrics/gynecology (3%). Other prevalent areas of practice for PAs include general surgery/surgical subspecialties (20%), emergency medicine (10%), and the subspecialties of internal medicine (8%).

- **Functions Performed:** PAs can perform a variety of functions for their primary employer. One-fourth of respondents assist in surgery; almost half (44%) perform invasive procedures.
- **Public Service:** About 12% of the respondents work for a government agency, with the Department of Veterans Affairs being the single largest government employer of PAs.

EDUCATION AND TRAINING

The typical PA program consists of 111 weeks of instruction. The first phase of the program consists of intensive classroom and laboratory study, providing students with an in-depth understanding of the medical sciences. More than 400 hours in classroom and laboratory instruction are devoted to the basic sciences, with over 70 hours in pharmacology, more than 149 hours in behavioral sciences, and more than 535 hours of clinical medicine.

The second year of PA education consists of clinical rotations. On average, students devote more than 2,000 hours or 50-55 weeks to clinical education, divided between primary care medicine and various specialties, including family medicine, internal medicine, pediatrics, obstetrics and gynecology, surgery and surgical specialties, internal medicine subspecialties, emergency medicine, and psychiatry. During clinical rotations, PA students work directly under the supervision of physician preceptors, participating in the full range of patient care activities, including patient assessment and diagnosis, development of treatment plans, patient education, and counseling.

Physician assistant education is competency based. After graduation from an accredited PA program, the physician assistant must pass a national certifying examination jointly developed by the National Board of Medical Examiners and the independent National Commission on Certification of Physician Assistants. To maintain certification, PAs must log 100 continuing medical education credits over a two-year cycle and reregister every two years. Also to maintain certification, PAs must take a recertification exam every six years.

The majority of students entering PA programs have a BA/BS degree and 45 months of health care experience prior to admission. Of the 129 accredited PA programs, 61 award master's degrees, two offer master's degree options, 60 award bachelor's degrees or a bachelor's degree option, seven award associate degrees, and 55 award certificates (many programs provide a certificate in addition to a degree).

General Dentistry

A general dentist is an individual who has successfully completed formal dental training leading to a DDS or DMD degree, which qualifies that individual to be licensed to accept the professional responsibility for the diagnosis, treatment, management, and overall coordination of services that meet patients' oral health needs, and who has not announced a limitation of practice to any of the specialty areas recognized by the American Dental Association. The four-year predoctoral dental curriculum prepares an individual to provide continuing and comprehensive oral health care for patients of all ages. Dental graduates are eligible to stand for licensure and entry into practice immediately upon graduation. Of the total practicing dentists, 79% are general practitioners and 21% are specialists. Postdoctoral general dentistry training is an option open to dental graduates. Those dentists completing residency training in general dentistry (General Practice Residency or Advanced Education in General Dentistry) have enhanced skills and experiences. General dentistry programs provide advanced training and experiences in disease diagnosis and treatment planning advanced technical procedures, management of medically compromised patients, multi-disciplinary care and cultural competency. Most graduates and program directors agree that a one-year general dentistry residency is equivalent to at least five years of clinical experience and produces a primary care provider who is more likely to practice in a medically underserved area and/or treat medically underserved populations. In most instances, the training experiences could not be duplicated in the private setting.

HISTORICAL FACTS

Oral health has risen to national prominence because of the continued prevalence of disease, the relatively low degree of dental insurance, and the declining ratio of active dentists to 100,000 population. "Tooth decay is the most common chronic disease of childhood; it is five times more frequent than asthma, for example. Twenty million children—25% of persons under age 19—suffer 80% of all tooth decay." [40]

Over the 20-year history of general dentistry residency funding through HRSA, 59 new programs and

560 new training positions were created. As of 1997, 88% of the programs and 69% of the new positions have been retained beyond the funding cycles. The success of the Title VII, section 747 dental program has resulted in 72% of the net growth in programs and 77% of the net growth in positions.

WORKFORCE TRENDS

While most dentists are in general practice (79%), of immediate concern is the distribution of the dental workforce and the disparities that exist in oral health and access to oral health care. Many areas exist in which the population is seriously underserved, ranging from inner cities to rural locations. The number of dental Health Professional Shortage Areas (HPSAs) has increased to 1,233, encompassing over 26 million people. It is estimated that only 20% of Medicaid-eligible children receive any dental care. In order to remove these HPSAs, 3,775 additional dentists are needed.

There are currently 55 dental schools in the United States, graduating about 4,100 dentists a year. The number of dentists per 100,000 population peaked in 1990 at 59. The ratio is declining and is projected to decline throughout the 2020 projection period, falling to 53 dentists per 100,000 population. Dental schools began to decrease their enrollments in the late 1970s in response to a perceived oversupply of dentists. Continued concern about a perceived oversupply of dentists, along with decreases in Federal and State support, led to the closure of six dental schools by 1990. Dental school enrollment in 1998 was 4,236, a drop of 2,036 from its high of 6,301 in 1978. The current infrastructure of dental education precludes any significant expansion of dental school enrollments. Today, although dental schools are graduating approximately 4,100 per year, over 6,000 dentists are estimated to be retiring each year.

EDUCATION AND TRAINING

The four-year predoctoral dental curriculum prepares graduates as primary care, general dentists. Graduates may stand for licensure and entry into general practice. A dental residency is not required as it is in medicine. Thus, postdoctoral dental education is elective. About 50% of dental graduates apply to programs of postdoctoral dental education. About 37% of the graduating classes are accepted into postdoctoral programs; 25% into general practice residencies or advanced education in general dentistry programs, 12% into dental specialty programs. Demand for postdoctoral dental education exceeds the number of postdoctoral positions. Over the 20-year history of Title VII, section 747 funding for dental residencies, 72% of the net growth in programs and 77% of the net growth in positions occurred through the assistance of these funds. There still remain inadequate numbers of post-graduate training positions. Were post-graduate training to become mandatory in dentistry, it is estimated that at present the system is 2,518 positions short.

While the importance of residency training is acknowledged by most of the profession, the percent of graduates applying to postgraduate training in general dentistry had declined by 1999 to 25.6% from a high of over 35% in 1990-1993. Much of this decline can be attributed to the growing indebtedness of graduating dental students. Seventy-one percent of these going into practice indicate that educational debts influenced this decision. For the class of 1999, 22% of dental school graduates reported debt greater than $150,000 and 74.2% reported debt in excess of $100,000.

A significant crisis exists in academic dentistry. Budgeted, vacant faculty positions have grown from 161 in 1986 to over 400. During the coming decade, it is estimated that 3,255 - 5,465 faculty will retire. This is a critical figure in view of the fact that only 1.3% of current graduates elect teaching, research, or administration. The limited numbers of students entering faculty positions generally becomes even more critical when considering the growing need for pediatric dental faculty. Incentives for the recruitment and retention of faculty will be essential for future of dental education and the oral health of the public.

SCOPE OF PRACTICE

General dentistry is the primary care discipline of dentistry that provides comprehensive services to patients of all age categories including diagnostic, preventive, periodontal, endodontic, restorative, esthetic, implant and minor oral surgical procedures. All graduates of U.S. dental schools are general dentists, unless they complete additional accredited specialty training. As stated above, nearly 80% of U.S. dental practitioners are primary care, general dentists. Authority and responsibility for licensure, professional regulation, and scope of practice rest with individual States.

Those dentists that complete residency training in general dentistry have enhanced skills and experiences. General dentistry programs provide advanced training and experiences in disease diagnosis and treatment

planning, advanced technical procedures, management of medically compromised patients, multi-disciplinary care, and cultural competency. Most graduates and program directors believe that a one-year general dentistry residency is equivalent to at least five years of clinical experience. And in many instances, the training experiences could not be duplicated in the private setting.

Pediatric Dentistry

Pediatric dentistry is an age-defined dental specialty that provides both primary and comprehensive preventive and therapeutic oral health care for infants and children though adolescence, including those with special health care needs. Pediatric dentists serve as primary dental care providers for millions of children from infancy through adolescence; provide advanced, specialty-level dental care for infants, children, adolescents, and patients with special health care needs in private offices, community-based clinics, and hospital settings; and are the primary contributors to professional education programs and scholarly works concerning dental care for children. Although limited in numbers and unevenly distributed, pediatric dentists provide approximately 30% of oral health care services for children in the United States, and treat a disproportionate percentage of Medicaid, State Children's Health Insurance Program (SCHIP), medically compromised, and disabled children. Since children's oral health is an important part of overall health, pediatric dentists often work with pediatricians, other physicians, and dental specialists.

HISTORICAL FACTS

The 2000 U.S. Surgeon General's Report *Oral Health in America,* documented that although the oral health of our Nation's children has improved dramatically over the past three decades, millions of children with severe dental disease and disability continue to suffer from high rates of tooth decay (caries or cavities).[41] A recent article in the *Journal of the American Medical Association*[42] noted that "tooth decay is the most common chronic disease of childhood"—five times more common than asthma. Eighteen percent of 2-4 year olds have visually evident caries. By ages 6-8, 52% of U.S. children have already experienced tooth decay, with the prevalence rising to roughly 80% by age 17. Children from low-income and minority families have twice the rate of tooth decay and 2-3 times as much untreated dental disease. It is, in the words of the Surgeon General, "a silent epidemic." The profound disparities in oral health were also discussed in the U.S. General Accounting Office's April 2000 Report "Dental Disease is a Chronic Problem Among Low-Income Populations."

WORKFORCE TRENDS

The American Dental Association reports that of the nearly 150,000 active practicing dentists in the United States, less than 20% are specialists. The Nation's 3,800 practicing pediatric dentists comprise approximately 14% of all active dental specialists and less than 3% of all actively practicing dentists. The U.S. dentist-to-population ratio began declining in the early 1990s and is expected to decrease more rapidly over the next two decades. The production of dentists has declined substantially over the past two decades, resulting in a notable gap between the number of retiring dentists and the number of new graduates (estimated at nearly 2000 dentists annually).

It has also become abundantly clear that the United States is not training enough pediatric dentists to meet the increasing need for pediatric oral health care services. In 1980, there were approximately 200 training seats per year for pediatric dentistry residents. That number subsequently dropped to 180 because of program reductions and discontinuations and remained substantially unchanged through 1997-98. Because of increased attention to this problem, first year positions have been slowly increasing and are now over 200. However, the growth rate is not fast enough to meet societal needs. Furthermore, many applicants to pediatric dentistry training positions are turned away because of a lack of positions.

The decreased number of available pediatric dentists is adversely impacting private practice, public clinics and academics. Pediatric dentists are needed not only to treat children but also to train general dentists to provide pediatric services. Many positions for pediatric dentists remain open in private practice, public health clinics, dental schools, residency training programs, corporate employment, and government service. Increasing the number of practicing pediatric dentists is viewed as an essential step for improving access to dental care and the oral health status of underserved American children.

In 1998, Congress responded to this recognized need by including pediatric dentistry training programs as eligible recipients of Title VII section 747 funds. This was an important and long overdue change in Federal health policy. It is important to note that as administered

heretofore, this program provides limited three-year "start up" funds to either increase pediatric dentistry positions at existing programs or initiate new programs. This Title VII support is critical to expanding pediatric dentistry training; however, additional funds are needed to support further expansion of residency programs, strengthen academic units, help ensure an adequate supply of faculty, and develop new curricula to train dentists and other primary health care providers in the "new science" of pediatric oral health care.

EDUCATION AND TRAINING

The two-year pediatric dentistry residency program, taken after graduation from dental school, immerses the dentist in scientific study enhanced with clinical experience. Pediatric dentistry residents learn advanced, diagnostic, and surgical procedures; child psychology and clinical management; oral pathology; pediatric pharmacology; radiology; child development; management of oral-facial trauma; caring for patients with special health care needs; conscious sedation; and treatment of children under general anesthesia. Residencies generally include rotations in pediatric medicine and experiences in other hospital settings, ambulatory medical care, and community clinic settings. While first-year pediatric dentistry positions have increased approximately 20% over the past five years, this increase has not kept pace with the significant increase in demand for this training in recent years.

ACCOMPLISHMENTS OF TITLE VII, SECTION 747

The Health Professions Education Assistance Act of 1976 continued a policy of Federal support to medical education that began in 1963, with construction grants to medical schools. Early support was aimed broadly at increasing the numbers of health practitioners, with the ultimate intent of achieving a more cost-effective geographic and specialty distribution of practitioners. The initial theory supporting the early Federal initiatives was that, with increased numbers would come a more even distribution of health resources. When instead, physicians increased the extent of subspecialization and continued to remain in areas with heavy medical resources, the Federal Government sharpened its focus through changes to Title VII, section 747. The focus continued to sharpen over time through requirements on grantees to demonstrate increased production of primary care practitioners and increased spread of practitioners into underserved areas. Though conflicting incentive systems in private and public support systems interfere with Title VII, section 747 inspired gains in primary care, Title VII, section 747 has continued to serve as an anchor for training programs that comprise a vital part of the Nation's primary care training system. Without Title VII, section 747 support, the training of primary care physicians would likely have been considerably more modest than it is today, with even greater imbalances between generalists and specialists.

Although Title VII, section 747 is viewed mainly as a mechanism to develop a national training capacity, national public health policy objectives extend well beyond the capacity of the Nation's training system. As important as the capacity is, it is solely a means to an end. The underlying reason for public support of primary care training is the need for primary care practitioners serving in underserved areas. There exists a substantial body of knowledge and a theoretical construct that supports the 25-year history of Title VII, section 747 primary care support. When Title VII, section 747 programs were initiated, the Nation faced substantial shortages in overall physician production, relative to projected needs, and even more serious shortages of primary care clinicians. The driving rationale for HRSA's Title VII, section 747 program has remained what it was a quarter of a century ago—eliminating shortages in health care resources that frustrate the basic national goal of equal access to high quality primary health care for the entire population and that contribute to disparities in health care status and outcomes.

Title VII, section 747 has been reviewed in whole or in part through a number of studies, most of which have been aimed at examining particular aspects of Title VII, section 747 initiatives. In 1994, the General Accounting Office (GAO) prepared a report on the relationship between Title VII, section 747 on the issue of access to care[43]. The report noted:

- "Evaluations have not shown that these programs had a significant effect on those changes that have occurred in the supply, distribution, and minority representation of health professionals. Often evaluations have not addressed these issues, and those that did had difficulty establishing a cause and effect relationship. Such a relationship is difficult to establish because the programs have other objectives besides improving supply, distribution, and minority recruitment and because no common outcome goals or measurements have been established."

- "The supply of primary care physicians and general dentists has increased in all types of urban and rural areas, but the distribution patterns in HPSAs have remained relatively unchanged for the past 15 years. This indicates that HPSAs may be caused more by individual community or population characteristics rather than an overall geographic maldistribution between urban and rural areas."
- "Although no improvement occurred in distribution between urban and rural areas, the substantial increase in primary care physician supply may have resulted in greater access to primary care for people in rural as well as urban counties."

The GAO report found an absence of conclusive evidence, many confounding variables, as noted earlier, a general scarcity of data concerning central outcomes of interest, and multiple objectives by grantees. Further, conflicting public and private financing systems have given rise to forces that affect the distribution of health professionals far more than the tug exerted by Title VII, section 747 funding. Data scarcity is a problem well known within the Department of Health and Human Services. Data gaps caused by the absence of comprehensive national data systems frustrate efforts to examine effects of Federal funding; some extant data systems, such as the Health Professions Shortage Area (HPSA) system, while one of the more useful systems maintained by the department, exhibit known system weaknesses, as outlined in earlier sections.

In gathering information for this report, the Advisory Committee solicited input from the health care institutions that have participated in Title VII, section 747 programs over many years. There may be no single conclusive study of effects of the program, but there exist many stories of success that, in the aggregate, begin to define a successful picture of the program. Reported below is a small segment of such stories, organized by the program's main outcome objectives. In a later appendix, additional case studies are presented and organized by State. While the individual case studies cannot substitute entirely for a true, comprehensive program evaluation, they nonetheless present a picture of performance that supports the continuation and expansion of this vital primary care program.

Access to Health Care

HEALTH PROFESSIONAL SHORTAGE AREAS (HPSAS)

Title VII, section 747 programs have produced significant increases in access for our Nation's medically underserved. While Title VII, section 747 funding has supported a variety of programs which affect the supply of primary care health professionals, in recent years it has focused a great deal of effort on producing generalist physicians to serve in medically underserved areas (MUAs). This is an important and needed emphasis because there is an undersupply of primary care physicians, particularly in areas identified by the Health Resources and Services Administration as health professional shortage area (HPSAs). The record shows that Title VII, section 747 programs have had a significant impact in reducing the Nation's HPSAs. Indeed, a recent study estimated that if funding of Title VII, section 747 programs were doubled the effect would be to eliminate the Nation's HPSAs in as little as six years.[44]

Rural communities have an especially hard time attracting and retaining health care providers, and Title VII, section 747 funding has supported important programs that have responded to needs for rural health care.

- At the Society of Teachers in Family Medicine (STFM) meeting in Denver, Colorado on May 2, 2001, a paper was presented that reports on the success of Title VII in influencing the career and practice locations of students. In "***Fifteen Years of Predoctoral Title VII Funding: The Impact Today***," Drs. David Krol, Larry Green, George Fryer and Robert Phillips report on a study they completed. The study's objective: to assess the association between Title VII predoctoral program support for family medicine and physician practice characteristics. In the study, 192,561 U.S. medical graduates from 1981-1995 were compared for practice location and specialty on the basis of having graduated from schools that did versus those that did not receive predoctoral Title VII grant support during their student experience. The study found that a sustained four-year grant support was significantly associated with rural practice, care for underserved populations, and choice of a primary care, particularly family medicine, medical specialty. The study concludes that predoctoral Title VII funding for family medicine succeeds in producing physicians who go into family practice and serve in rural and underserved areas.
- Dr. John Fogarty at the University of Vermont reports that the Department of Family Medicine has used its "(1997-2000 Title VII, section 747 predoctoral) grant to develop WEB-based scenarios for students to access in the rural family practice offices that the students (go) to for their four-week rotations. We saw this as a way to do 'remote

learning' and also a way to get our rural preceptors up to speed on information technology. We have developed several (cases) and decided to use 'prevention' as one of our themes for the clerkship. We are in the middle of a curriculum redesign process for the medical school and that is what drove our choosing prevention."

- Dr. Fogarty also notes, "We have linked with our statewide AHEC program to coordinate rotations, housing while away, and some funding for travel. We do annual faculty development training along with AHEC for our community preceptors on an annual basis in a Joint Primary Care Meeting (with PCIM and Peds) and our clerkship directors site visit the rotation mid-way during the rotation (Vermont isn't very big!) Each month we send one-third of the students to Maine for their rotation so we are trying to link up to insure that students get the same experience at both centers."

- The Wichita State University Physician Assistant program has received Title VII, section 747 funds for more than twenty years, and with that support the program has had a significant effect on the provision of health services to rural Kansas. Dr. Marvis Lary, Chairperson of the Wichita State program, notes that more than 500 physician assistant students have had a significant portion of their training in the "remote medically underserved communities of Kansas." Because of this training exposure the program's graduates feel an ongoing connection to these communities and the patients who reside there. An indication of this ongoing connection is that 62% of the Wichita State PA graduates who are practicing in Kansas spend two or more days per week in these rural underserved communities.[45]

- The Physician Assistant Program in Roanoke, Virginia, trains PAs to work in rural Appalachia and in small cities in the region. Rebecca Scott, the Director of this relatively new physician assistant program, relates the experience of a recent graduate who, "works in a psychiatric unit that serves a 5-county area in the mountains of North Carolina. He does admission histories and physicals, daily rounds, and generally manages the patients on the unit while the psychiatrist does her outpatient clinics. As you can imagine, psychiatrists are few and far between in rural areas, so he is able to extend her ability to serve this 5-county area enormously." Another way that this program increases access to health services is to train them to use modern technology with great facility. The ability to remain in touch with colleagues though email and on-line medical education is helping to create a "virtual" professional community that will "help them feel less isolated, even though they may be miles and miles from the nearest peer." It is hoped that these professional connections will help prevent the isolation and burnout that often discourages practice in rural areas. This approach thus has promise for maintaining access to health care in Appalachia.[46]

- Using Title VII, section 747 funds, The University of Buffalo family practice department began a rural training track to give its trainees exposure to rural medical practice and encourage them to establish their practices in these communities upon graduation. The effect has been impressive: there are now seven family physician graduates of the Buffalo family practice residency program who serve rural communities in New York and Ohio. The program produces graduates who provide rural health care services and has important effects on the rural communities. Dr. Tom Rosenthal, chair of the department, notes that the effect of the faculty teaching residents in Cattauragus County, New York, has been to reduce that county's perinatal mortality rate by 30%.[47]

- Because of the success of the Buffalo rural training track, thirteen family practice residency programs in 22 rural countries around the country have replicated the rural training model developed in Buffalo. These sites include rural training tracks in Washington, Colorado, South Dakota, Nebraska, Oklahoma, Louisiana, Kentucky, North Carolina, West Virginia, and New York. A recent publication notes that 76% of the 77 graduates of these training tracks practice in rural areas and 61% of them are practicing in health professional shortage areas. Significantly, 67% of these physicians plan to stay more than 5 years in their practice locations.[48]

PROVIDING INCREASED HEALTH CARE ACCESS FOR URBAN UNDERSERVED POPULATIONS.

- Title VII, section 747 funding has enabled the University of Pennsylvania Health System to strengthen its commitment to providing care for underserved populations and to train residents and fellows in primary care. Dr. Jack Ende reports that the use of Title VII, section 747 support has enabled the division of general internal medicine to "expand the mission and capacity of its fellowship program . . . to address the needs of underserved populations.

The fellows trained in this program remain in academic medicine, practicing in underserved areas, and the residents participate in a primary care residency track . . . with its own curriculum and mission, which is to provide training for future general internists who are committed to practicing in areas that are underserved."[49]

- Drs. Harvey Bernstein, Judith Palfrey and Daniel Singer at Children's Hospital and Harvard Medical School in Boston report on the faculty development and primary care training grants received under Title VII, section 747. The Act's support has promoted scholarship by faculty and primary care access for the children of Boston. Notable in increasing access has been the establishment of a comprehensive health center for homeless and runaway teenagers and the "Advocate for Successful Kids" program to evaluate children with school problems. The comprehensive center for runaways has been cited as a national "model of care" for HIV infected individuals, young women seeking confidential family planning services and gay, lesbian, bisexual and transgendered youth. Title VII, section 747 funding has clearly made a difference for these children.[50]

ORAL HEALTH TRAINING NETWORKS

Title VII, section 747 funding in dentistry has been limited since 1980 to programs of postdoctoral education in general dentistry. The support of pediatric dental residency training was authorized in 1998 in recognition of the national shortage of pediatric dentists. These programs of advanced education provide a broader range of training than that acquired in dental school. Emphasis is given to care of a broader mix of patients, including the medically compromised and disabled. Many of these programs are located in and provide care to underserved communities. Specific to dentistry, almost 80% of the growth in these programs has been through start-up support provided by Title VII, section 747 funds. About 30% of the graduates from the supported programs established practices or spent 50% or more of their time in health professional shortage areas or settings providing care to underserved communities or populations.

- Five Title VII, section 747 grants over the past 15 years have enabled the University of Florida Statewide Network for Community Oral Health to, "expand training opportunities for predoctoral and general dentistry residents . . . and to increase access to care for underserved patients throughout Florida." The general dentistry residency program is one year in length and places both student and resident trainees in underserved areas serving low income and indigent patients. Title VII, section 747 funding has permitted establishment of eleven such centers across the State, training a total of 20 general dentistry residents per year—as well as many students—and significantly expanding oral health care to Florida residents.[51]

- A similar program at the Louisiana State University School of Dentistry enabled that institution to establish an advanced education general dentistry residency in 1995 as well as to establish two rural dental student clinics and an underserved student clinic in New Orleans. An article in *Louisiana Dentistry* notes that the Lallie Kemp Medical Center in Independence, Louisiana, although it had been established in 1939, did not offer dental care until 1994 when Title VII, section 747 funding made it possible. Oral health care was a critical need in this rural community and the addition of dental services has been a "win-win situation for everyone." Dr. Eric Hovland notes that students get to see an average of 25 patients per day, and student Craig Crawford comments that, "It's a two-fold benefit; we get lots of experience, and the patients receive good dental care."[52]

- The Dental School at the University of Texas Health Science Center at San Antonio received a pediatric dental grant to increase the number of residents trained in providing care to indigent and underserved populations, especially Hispanic children. The grant also initiated prevention activities for preschool underserved children. Clinic training sites included the Christus Santa Rosa Children's Hospital and two WIC clinics. This type of training initiative directly addresses those disparities in children's oral health highlighted in the U.S. Surgeon General's report and two reports of the GAO last year.

NEW PRIMARY CARE DEPARTMENTS IN MEDICAL SCHOOLS

- Susan Wolfstahl, MD, at the University of Maryland reports that they are just starting the second year of a three-year medicine–pediatrics grant and have just been awarded another three-year grant for the establishment of a Division of Primary Care Education for Medicine, Pediatrics and Family Medicine.

  - "(Without Title VII, section 747) it is likely that most of our programs would continue, (for example) evidence based medicine training,

modules in managed care and caring for the underserved.

- However, we would not be able to have as extensive a program in cultural diversity since the grant pays for these instructors.

- For the upcoming grant, we would not be able to develop the research infrastructure or hire our medical educator without Title VII, section 747 funding. Hence, the full scope of the grant and the full collaboration among the three departments would not be accomplished."[53]

- Larry Culpepper, MD, Chair of the new Department of Family Medicine at Boston University, calls Title VII, section 747 funding "absolutely critical" to the establishment of his department. Title VII, section 747 funds have supported the planning and initiation of the department, the development of student rotations, and a residency which places learners in Federal community health centers for their clinical experiences. Because of the presence of these "teaching community health centers," the department will be able to add colonoscopy and flexible sigmoidoscopy to the range of services in these locations. These additions will give the patients served by these community health centers better access to cancer screening and should reduce their high rates of preventable cancer.[54]

- Efforts to establish departments of family medicine—like that at Boston University—have been significantly assisted over the past 30 years by Title VII, section 747 funding. There are currently only ten U.S. medical schools without a department of family medicine; over one hundred family medicine departments have been established with Title VII, section 747 support since 1969.

INNOVATIVE MEDICAL EDUCATION CURRICULA

- Richard Usatine, MD, describes the *Doctoring* curriculum at the UCLA School of Medicine as having a "central goal of turning out humane physicians with great communication skills." The course, required in the first three years at UCLA medical school, centers around patient cases illustrating issues of communication, ethics, prevention, information systems, cultural competency, and evidence based medicine. The course is the single largest component in the UCLA medical school curriculum and could not have been developed without Title VII, section 747 support, which has freed up the time of the course leaders, including Dr. Usatine to develop and refine the course. A key component of the curriculum is to place all third year students with preceptor physicians in urban medically underserved sites in the Los Angeles area. Thus, students learn about the medically underserved and the access issues these patients face, not only through cases in the first two years of medical school, but also through direct practice experience in their third year.[55]

Cultural Competence

The increasingly diverse American public benefits from treatment by culturally competent primary health providers. Crucial variables in the physician-patient relationship are trust and communication, which are both enhanced when the health care provider knows how to listen carefully to the patient and understands the patient's culture and health beliefs. Such skills don't just happen and can readily be taught. Examples of Title VII, section 747 projects that have enhanced the cultural competence of primary care providers include:

- Dr. Dennis Mull from the Department of Family Medicine at the University of Southern California notes that: "The university is located in a multi-ethnic area in which 120 different languages are spoken. In July 1999 we received $17,000 from a HRSA Predoctoral Training Grant to fund a part-time community site developer for our six-week third year clerkship program in family medicine. We were able to hire a seasoned medical anthropologist for this position . . . She has focused on increasing student exposure to professionally rewarding medically underserved practices during their five-week community preceptorships. She has fostered student interest by developing interactive cross-cultural exercises for use during our classroom orientation week and by collecting testimonials from students who have done their preceptorships in medically underserved sites . . . An important component of her work has been to conduct in-depth interviews with students already committed to practicing in underserved areas to determine the basis of their commitment. She has also made site visits to observe students' experiences directly and has assigned an ethnographic paper to be written on a patient's family of the student's choosing. As a result of her efforts and those of clerkship staff, over the 1999-2000 academic year we have placed 35% more students in medically underserved sites than we did in 1998-1999. This illustrates how a very modest amount of funding can have a substantial result in terms of exposing more medical students to the

benefits and rewards of practicing in medically underserved settings."

- "The *Clinica Campesina* residency track was a direct result of a department development grant to enhance care of the underserved and training of providers to care for the underserved. The grant provided start-up funds to develop the relationship and initiate the program. After the initial department grant, a residency training grant provided educational funding to enhance cultural competency. In fact, lack of ongoing funding from Title VII, section 747 funding is one reason we had to close the program. The program was incredibly successful: 8 of 9 residents are practicing in underserved sites."
- "Without this funding we would not have strengthened our mission to training family physicians specifically for care of the underserved and would most likely have remained training suburban and rural docs."[56]

- Christine Legler, from the physician assistant program at Pacific University, reports that Title VII, section 747 funding has enabled her program to place a new emphasis on multicultural awareness and minority outreach. She notes that the PA program's initiative has spread widely through her whole institution. She comments that:
  - "(Title VII, section 747 funds have) enabled us to increase the University's awareness of the need to expand programs for multicultural students . . . The University is now creating a new office of Multiculturalism and hopes to apply for a Title III and HCOP grant through this new office. This office was created as a response to the PA program diversity program funded by Title VII, section 747 monies."
  - "(These funds have) increased (the) number of rotations in communities that serve multicultural populations and hopefully will eventually increase our enrollment of minority students."
  - "(Without Title VII, section 747 funds) we would not be able to create new programs within our PA courses and would need to maintain our curriculum as is. We would not be able to recruit or mentor disadvantaged applicants."[57]

- A recent study of multi-cultural curricula in family practice residency programs found that 58% of these programs have an informal curriculum, 28% have a formal curriculum, while 14% have no curriculum. Factors that facilitate such curricula include "cultural diversity of communities and residents, multicultural interests of faculty and residents, and faculty's multicultural experience." Curricular efforts are impeded by "lack of time, money, resources, faculty expertise and cultural diversity in the community." There has been a marked increase in the prevalence of multicultural curricula in family practice residencies since 1985.[58]

Diversity

The primary care disciplines have been working for several decades to make the composition of America's health care providers more representative of the ethnic and cultural make up of America. The following stories illustrate these efforts:

- Dr. Herbert Muncie at the University of Maryland comments that, "at the U. of Maryland the Title VII, section 747 money has been instrumental in allowing us to completely change the mix of our faculty (then residents). In the early 1990's our full time faculty was 80% male and only 7% minority. With the assistance of the Title VII, section 747 funds we consciously sought more minority residents and women residents. We also used funds to encourage more minority and women faculty to join the faculty and mentor their careers. In fiscal year 2000, we are now 40% male and 47% minority faculty. Of our 39 residents, 30 are women and 18 are minority. We anticipate with successful additional funding to add three more junior minority women faculty in fiscal year 2001. We have the highest percent of minority family medicine faculty of any non-minority medical school."[59]

- Dr. Dale Lefever reports that the efforts of the department of family medicine at the University of Michigan to recruit minority students and faculty have been emulated throughout the medical school: "We . . . attempt to develop programs that are useful to the medical school and/or generalizable to family medicine nationally. For example, our efforts to recruit minority residents have been used by several other departments and have resulted in a medical school-wide effort especially with the Student National Medical Association both regionally and nationally."
  - "At the Dean's request, presentations were made to the chair of every clinical department. We have a multicultural competency work group and two departments have used our materials to start

similar programs in their departments here at the UM. One of our faculty sits on the dean's committee on diversity and career development and chairs the minority recruitment subcommittee. We also have created a multicultural awareness website and have made the contents available to everyone in the medical school, hospital and schools of public health and nursing. It is on the Intranet and is password protected."

- "These efforts have increased our visibility and political strength within the institution. We plan to develop a listserve as the next step in this process."

- The University of Kentucky College of Dentistry has been training its dental residents in underserved communities, and this effort has increased the numbers of under-represented minorities entering the dental work force. They have two female dental residents (one Hispanic) who have completed the school's distance learning community based general dentistry residency program. Two other residents, one a minority, are in training this year in rural Kentucky and one has expressed a desire to go to an underserved area to practice.[60]

- Dr. John Fogarty at the University of Vermont reports that his family medicine department is linking with the local community health center to develop a curriculum in "cultural sensitivity and diversity" for second and third year residents.[61]

Quality

All medical and dental trainees should experience quality training and should acquire the systems thinking perspectives that will enable them to improve the health care delivery systems to which they will later devote their professional lives.

Crucial elements in the expansion of primary care training have been focused on attracting and training a cadre of primary care faculty, encouraging this faculty to make career-long commitments to academic practice, and improving the process of medical and dental education.

Recent reports and studies during the last several years have dramatically illustrated the need for teaching primary care trainees the systems thinking skills they will need to improve the institutions they work in and the quality of care delivered to patients.[62,63, 64, 65] Thus far many primary care efforts to increase training quality have centered on faculty development and the building of information technology infrastructure.

PRIMARY CARE FACULTY DEVELOPMENT

The record of primary care disciplines in using Title VII, section 747 funding for fellowships and other methods of training faculty in the skills and attitudes needed for academic success is truly impressive:

- The department of pediatrics at the University of Rochester has used Title VII, section 747 funding to offer a general pediatrics fellowship program to general pediatricians who wish to enter academic practice. Faculty development programs such as these have a multiplier effect, producing generalist physicians, scholars and teachers who go on to serve as teachers and scholars in other generalist training programs and thereby increase the supply of general pediatricians to meet the needs of underserved populations. Indeed, Dr. Michael Weitzman, Chief of Pediatrics at Rochester General Hospital, notes that their fellowship program has produced "two dozen leading generalist scholars who are making an on-going contribution to the field at institutions around the country." Dr. Weitzman further notes that the majority of his graduates have their clinical practices in academic clinics and community health centers in which a high proportion of the Nation's indigent children are provided cared. Two of the Rochester fellows initiated a Pediatrics Links with the community program that enables pediatric residents to interact with underserved children in homeless shelters, foster care clinics and other non-traditional settings. Because of its impact, this program was awarded the prestigious *2000 Ambulatory Pediatrics Teaching Award* and was recently awarded a major foundation grant.[66]

- Dr. William Branch, Director of the Division of General Internal Medicine at Emory University School of Medicine, notes that his department has also had Title VII, section 747 support for a faculty development program. This fellowship has trained 24 faculty over four years, 14 of whom have remained on the general internal medicine faculty and are practicing in underserved areas. This fellowship program has thus dramatically increased the number of providers available to see underserved patients. Dr. Branch notes also that fellowship is "the only intensive faculty development program at Emory University School of Medicine and is setting an example for the rest of the school."[67]

- Dr. William Mygdal, Director of the Family Practice Faculty Development Center in Waco, Texas, notes that the year-long part-time fellowship he directs has been operating with Title VII, section 747

support since 1978. Significantly, the fellowship has produced 134 graduates, who make up a substantial proportion of the full-time faculty in Texas family practice departments and residency programs. Recent fellowship alumni surveys indicate that 77% of these graduates remain in active roles as full-time teachers of family practice. Seventy-four percent of the program's graduates report that they work in medically underserved communities. Graduates of the Waco fellowship direct eleven of the 30 allopathic family practice residencies in the State. Since almost all of these programs serve indigent and low-income patients, the multiplier effect of this one fellowship on Texas patient care access is significant. The faculty development center was awarded the National 1997 Primary Care Achievement Award for Education by the Pew Health Professions Commission.[68]

Unanticipated Outcomes

Efforts to build the primary care disciplines have frequently had unexpected but highly influential outcomes.

- Stephen E. Willis, director of predoctoral education at East Carolina University (ECU), relates the history of the use of standardized patients to teach effective interviewing skills to medical students. This innovation was introduced at ECU with the support of Title VII, section 747 funds and has been adopted by "over 95%" of medical schools across the country. Dr. Willis comments that, "those of us who participate in standardized patient teaching sessions have little doubt that this is an effective way to teach clinical communication and effective interpersonal skills with patients." Standardized patients will soon be used in examinations designed to test the interpersonal skills of first year medical residents being developed by the National Board of Medical Examiners and are already employed in exams administered by the Educational Commission for Foreign Medical Graduates. This methodology is a significant advance in the education and evaluation of physicians and is a direct and *unexpected* outcome of Title VII, section 747 funding.[69]

- Byron Crouse, Assistant Dean of Clinical Affairs at the University of Minnesota Duluth reports that Title VII, section 747 grants have "...allowed our department to pilot many innovations that are now being incorporated throughout our school. These adoptions by other groups include web-based and computer based testing; school wide testing for other courses; web-based lectures allowing for asynchronous access; putting lectures on the web so students can participate in longitudinal experiences such as with our geriatric and OB experiences that may occur during lecture times."

  – Dr. Crouse notes, "other departments and courses are planning to put courses on line. ...Other efforts include development of geriatrics curriculum promoting increased knowledge and sensitivity to issues of the elderly. Through this project, multiple community agencies are participating in developing geriatric projects, and student directed clinical research."[70]

Special Initiatives

Special Initiatives are Title VII, section 747 programs initiated by HRSA staff to accomplish specific desired objectives. Several such initiatives—and some of their outcomes—are described below:

THE INTERDISCIPLINARY GENERALIST CURRICULUM (IGC)

This project was initiated in 1993 with the award of demonstration grants to support interdisciplinary projects at five U.S. medical schools. The grants were awarded in order to allow these schools to develop collaborative predoctoral programs involving their general pediatric, general internal medicine, and family medicine departments. It was hoped that these efforts would increase student interest in generalist medical careers and build a collaborative climate among the three generalist-physician specialties.[71] This project was the first time that the three specialties had been invited to respond collaboratively to a Federal funding opportunity.

Because of the strong response a second request for proposals was issued in 1994, funding five additional medical schools. Some of the outcomes of these ten very successful and sustained projects include:

- Since the implementation of IGC started in 1994, over 7,000 students have been exposed to at least 150 hours of new or significantly enhanced curriculum time. At least half of this time, 75 hours, was spent with a generalist preceptor.

- The institutions and individuals involved in IGC have made a concerted effort to disseminate their project findings. These products, as of October 2000, include seven published manuscripts, 25 papers "in press", six book chapters and 98 presentations at regional, national, and international meetings.

- Individual IGC faculty have been awarded notable increases in leadership. These appointments and roles include:
  - Associate Dean of Curricular Affairs;
  - Associate Dean for M1 and M2 years;
  - Assistant Dean for Faculty Development;
  - Associate Dean for Education;
  - Associate Dean for Primary Care;
  - Director of Preclinical Generalist Education;
  - Senior Associate Dean for Academic Affairs;
  - Senior Associate Dean for Education; and
  - Associate Dean for Educational Development and Evaluation.[72]
- Dr. Gwyn Barley, the course master for the three-year integrated primary care curriculum at the University of Colorado, describes the effect of that school's IGC project: "The Primary Care Curriculum, changing its name to Foundations of Medicine, was the direct result of the IGC contract. This curriculum has had profound impact on the overall School of Medicine curriculum from curriculum innovation and integration, to evaluation. The downstream impact has been the development of a clinical continuum from first through third year with the clerkship directors working together on all fronts for the first time. The integration of basic and clinical sciences . . . make the basic sciences more relevant for students. Students who have extensive community based primary care patient contact early and longitudinally . . . make them better communicators and diagnosticians."[73]

UNDERGRADUATE MEDICAL EDUCATION FOR THE 21ST CENTURY (UME-21)

UME-21 is a five-year collaborative project, begun in 1997, of the Primary Care Organizations Consortium (PCOC). UME-21's objective is to demonstrate innovative educational strategies to teach third and fourth year medical students the skills they need for successful practice in managed care settings. Each of the eighteen participating medical schools has developed objectives for their senior level medical school curricula which center around nine specified knowledge areas, and each school must have a partner such as a managed care organization, integrated health care system, or community health center. The Center for Research in Medical Education and Health Care at Jefferson Medical College is the national program evaluator.

Two examples of UME-21 projects, as described by Dr. Douglas Wood, Project Administrator, include:[74]

- *Dartmouth Medical School.* "Dartmouth is a rural school and most of its students go out into communities that are quite distant from the campus. As in most of the UME-21 projects, the school has strong input from its managed care partners; they are true partners. Dartmouth has an interdisciplinary, integrated primary care program that cuts across medical student levels and communities. Under a system of preceptor-learner dyads, the student and preceptor work very closely together. It is hoped that the student learns from the preceptor and the preceptor learns from the student."
- "How does a preceptor learn from a student? At Dartmouth, for example, the students apply evidence-based medicine (EBM) concepts to a particular patient-care problem or issue within the practice in which they are working. They collect data. They analyze patient population data. Then they propose systems improvement within the practice. One might wonder if these preceptors take to a study being conducted of their practice by students and them accept what the students have to say about practice improvement, including the whole area of patient safety. The answer is definitely, Yes."
- *University of Nebraska College of Medicine.* "Among the schools involved in UME-21, the College of Medicine at the University of Nebraska has probably the strongest input from its managed care partners. The school's project, $E=MC^2$, deals with managed care competencies. It is broad-based, intensely learner-focused and combines both didactic and experiential learning methods. Its use of technology is impressive. The rural population of Nebraska is geographically scattered, and the students must go into distant places for clinical rotations. The technologies bring the medical center to the student."

THE FACULTY FUTURES INITIATIVE

This initiative was begun in 1996 to develop a strategic plan for faculty development in family practice. As part of that effort Dr. Mark Quirk and colleagues of the University of Massachusetts recently completed a study of faculty development delivery methods in family medicine.[75] They derived their data from focus groups conducted with experienced faculty development experts. The goals of this study were to define effective methods of delivering faculty development, identify the characteristics of effective faculty development

approaches and describe an effective structure for delivering faculty development to all family practice faculties. The study was conducted in conjunction with the larger Faculty Futures Initiative (FFI) conducted by the Society of Teachers of Family Medicine. Important findings of the report are that:

- The data strongly support a plan for faculty development that provides a 'menu' of delivery methods to meet a broad variety of faculty needs;
- The most often cited barrier to implementation of, and participation in, faculty development activities are perceived lack of time and money;
- It was commonly expressed that "should HRSA discontinue funding for faculty development, it would most likely cease to exist."

THE GENETICS IN PRIMARY CARE PROJECT

The Nation's primary care physicians need specialized training to translate the dramatic advances in genetics knowledge and technology resulting from the Human Genome Project into real medical benefits for their patients. To meet this need, HRSA is awarding $200,000 grants to 20 faculty teams to create models for adapting the latest in scientific knowledge to everyday clinical practice. The program will give faculty, students, and medical researchers in family medicine, general internal medicine and general pediatrics in-depth training on how to blend genetics information into primary care practice.[76]

APPENDIX B: BACKGROUND OF TITLE VII, SECTION 747 LEGISLATION

For nearly forty years successive Federal legislative efforts have defined and authorized the educational grant programs authorized by Titles VII and VIII of the Public Health Service Act. Title VII, section 747 programs have focused on physicians, dentists and physician assistants, while Title VIII programs have focused on nurses, nurse practitioners, and nurse midwives.

Title VII, section 747 programs, which have served as the principal source of funding for the impressive growth of primary health care education, have supported numerous initiatives. These initiatives include: 1) the establishment of primary care academic units in medical schools; 2) the strengthening of predoctoral programs for medical, dental, and training of physician assistant students; 3) the creation of faculty development for primary care educators; and 4) the support of residency training in medical and dental disciplines. Almost 80% of the growth in residency programs in general dentistry was supported through Title VII, section 747 start-up assistance. Title VII, section 747 legislation has been influential in making primary health care services more available to the American public in all areas of the country, including those geographic areas where primary care health care providers have been lacking. Importantly, Title VII, section 747 legislation has helped to reduce disparities in the availability of health care services to different groups in our country.

CURRENT LEGISLATION

Programs under Title VII, section 747 are currently administered by the Division of Medicine and Dentistry, of the Bureau of Health Professions, under the authorization of section 102 of the Health Professions Education Partnerships Act of 1998, (Public Law 105-392).

The Advisory Committee on Training in Primary Care Medicine and Dentistry (ACTPCMD) was authorized by the Health Professions Education Partnerships Act of 1998 and is charged with providing ". . . advice and recommendations to the Secretary concerning policy and program development and other matters of significance concerning the activities under section 747 . . ." [77]

This report is the first issued by the Advisory Committee on Training in Primary Care Medicine and Dentistry as required by section 748 of the PHS Act.

LEGISLATIVE HISTORY

Title VII, section 747 of the Public Health Service Act was designed to remedy perceived problems in the supply and distribution of health professionals and in the recruitment and retention of underrepresented minorities in health professions. While other sources of Federal dollars support medical education (National Institutes of Health grant support, and funding from Medicare, Medicaid, and the Veterans' Administration), Title VII, section 747 programs have been unique in attempting to encourage primary care specialty choice among graduates of medical and dental schools and physician assistant training institutions.[78]

Programs authorized under Title VII, section 747 programs seek to improve the structures and processes of health professions training and to produce more primary care graduates to respond to the Nation's well-established health care needs. In contrast to Medicare's Graduate Medical Education funding and other sources, the vast majority of which finance patient care, Title VII, section 747 funds are focused exclusively on education.

Ten legislative acts from 1963-1998 have shaped the successive foci of these primary care training programs. A tabular summary of this legislation is found in the table on pages 50-51.

- The initial legislative purpose of the programs was to increase the general supply of physicians and to ensure the financial viability of health professions schools as specified by the Health Professions Education Assistance Act – 1963 (Public Law 88-129). This assistance, largely in the form of school construction grants, required schools to increase their first year enrollments by five percent and maintain the increase for at least 10 years after construction.
- Under this and the subsequent 1965 Health Professions Educational Assistance Amendments (Public Law 89-290), primary care training programs

provided matching grants to assist in construction of teaching facilities for schools of medicine, dentistry, osteopathic medicine, optometry, and podiatry. Grants were also available for school loan funds for students.

- Under the 1968 Health Manpower Act (Public Law 90-490), the program expanded to fund additional initiatives to strengthen, improve, or expand programs to train health professionals.
- The 1971 Comprehensive Health Manpower Training Act (Public Law 92-157) increased primary care and dental providers, including for the first time physician assistants, improving the geographic maldistribution and increasing the number of minorities in health professions. This was a very broad program with numerous categories of grants, including grants for training programs in family medicine for students, interns, residents, and practicing physicians. It also provided for start-up and conversion grants, financial distress grants, student loans, health professions scholarships, special projects, health manpower education initiative awards, family medicine training grants, postgraduate training of physicians and dentists, and health professions teacher training.
- The 1976 Health Professions Education Assistance Act (Public Law 94-484) represented a major redesign in primary care training funding and was designed to address specialty and geographical maldistribution. Its purpose was to " . . . support the development of undergraduate and residency training in family medicine, general internal medicine, and general pediatrics . . . ." This act also authorized stipends for postdoctoral general dentistry education.[79]
- The 1981 Omnibus Budget Reconciliation Act (Public Law 97-35) was largely a continuation of previous legislation, but it repealed the 1976 requirement that 10% of available funds go to general dentistry programs and gave priority to graduate training programs and traineeships in family medicine graduate programs.
- These grants and priorities were continued by the 1985 Health Professions Training Assistance Act (Public Law 99-129) and the Health Professions Reauthorization Act of 1988 (Public Law 100-607).
- In 1992 the Health Professions Education Extension Amendments (Public Law 102-408) refined training in primary care to include increasing the number of primary care providers for medically underserved communities (MUCs), increasing the number of students entering family medicine, and exposing students to primary care in ambulatory settings. This act substantially shifted the focus for Title VII, section 747 to providing for MUCs and targeting primary care providers to fill this need. It continued training in family medicine for predoctoral, graduate, departmental, and faculty development programs. It also continued funding general internal medicine and general pediatrics for residency training and faculty development programs and continued programs for general dentistry and physician assistants.
- The 1998 Health Professions Education Partnerships Act (Public Law 105-392) re-authorized and consolidated different Federal health professions training programs previously authorized under Titles VII and VIII of the PHS. Title VII continued to focus on the production of primary care physicians, dentists, pediatric dentists and physician assistants, and on getting primary care health care providers into medically underserved communities. As noted above, this act established the Advisory Committee on Training in Primary Care Medicine and Dentistry.

RECENT DEVELOPMENTS AFFECTING THE TITLE VII, SECTION 747 PROGRAM

Beyond the legislative changes over time, new requirements have been introduced into Federal program management processes affecting virtually all Federal programs. These requirements introduce new or expanded requirements for accountability for performance and for new data systems. Perhaps the most significant change introduced is the concept of outcome performance management. In the past, aside from "hardware heavy" programs in which both functional and performance specifications are used to guide decisionmaking, most Federal programs have been managed using process measures. The new approaches, outlined below, lay out a new approach to Federal program management that requires performance management aimed at securing the outcomes or purposes of Federal investments. Under these approaches, it is not adequate to assure simply that the appropriated funds have been allocated properly to the intended types of institutions for specific categories of expenditure. Increasingly, it

is necessary to be able to demonstrate that problems are being solved or reduced through Federal program expenditures. The most significant of these new legislative requirements are summarized below. These management processes will have a direct effect on the types of data to be collected and on the performance expected of Title VII, section 747 programs.

Government Performance and Results Act (GPRA) - 1993

GPRA and Strategic Planning – HRSA and its bureaus periodically prepare a new strategic plan, defining its mission and the structure and content of its programs that collectively serve as the mechanisms by which that mission is to be realized. The strategic plans generally set forth goals to be achieved by the Agency and by each bureau over a five to ten year period. With the passage of the Government Performance and Results Act of 1993, PL 103-62 Government Performance and Results Act (GPRA), the preparation and implementation of strategic plans acquired new force, since the GPRA anticipates that performance at the outcome level would be defined, measured, and demonstrated to Congress. GPRA requires agencies to establish strategic plans for implementing their missions and to create performance measures for each program so that programs can be evaluated on an annual basis. These performance reports are to be tied to the agency's annual budget requests that ultimately are reviewed by congressional appropriations committees. Because of the direct link to the budget process, GPRA is a law with powerful teeth.

CFO Act and Outcome Performance Management – The Chief Financial Officers (CFO) Act of 1990 requires Federal programs to be defined in terms of "outcomes." The CFO Act requires that Federal departments prepare annually a report on the performance of the department and its major functions and legislative programs. The CFO Act assigns to the Office of Management and Budget's Deputy Director for Management government-wide responsibility for "managerial systems, including the systematic measurement of performance." It also assigns to agencies' Chief Financial Officers the responsibilities for developing and maintaining agency systems for "the systematic measurement of performance," and for preparing and submitting "timely performance reports." In the past, most agency managers have reported performance on their programs in terms of activity—resources consumed, new programs initiated, grants continued, etc. Under the CFO Act, outputs and outcomes of programs should be reported to higher management and to the Congress. For many programs, outcome measures will shift from the province of evaluators to program managers, because reporting implies accountability for performance. It is no longer simply an abstract evaluation exercise. Potentially, there are budgetary consequences associated with below-par performance.

Unmet Needs Measurement – The HRSA Administrator has also required that all HRSA programs be defined in terms of "Unmet Needs." Given the other major systems implications of GPRA and the CFO Acts, this Unmet Needs requirement amounts to a supplemental measurement component added to the basic reporting systems being developed to satisfy major legislative planning and reporting requirements. Since both the CFO and GPRA require agency programs to be defined in terms of outcomes, the use of Unmet Needs within HRSA is a way to impose a certain type of outcome measure on all HRSA programs. Unmet Needs are intended to fit within the broader systems context of the GPRA reporting requirements.

Bureau of Health Profession's Comprehensive Performance Monitoring System (CPMS) - 1999

The Bureau of Health Professions, responding to GPRA and the GAO report, established the CPMS system. Through CPMS, the Bureau is attempting to create a uniform monitoring system based on comparable data. The goal is to have accurate performance outcome data for program management and to report to Congress on Title VII, section 747 programs. CPMS specifies that an "application submitted under this section shall contain a specification by the applicant entity of performance outcome standards that the project to be funded under the grant or contract will be measured against. Such standards shall address relevant health workforce needs that the project will meet. The recipient of a grant or contract under this section shall meet the standards set forth in the grant or contract application."[80]

In the most recent version of the CPMS, grantees are required to submit data of the following kind:

- Number of graduates and program completers by discipline
- Minority/disadvantaged status of enrollees, graduates, and program completers
- Number of graduates or program completers by discipline who enter various types of residencies or practice sites (C/MHCs, HPSAs, etc).

General Accounting Office (GAO) Report – 1994

The General Accounting Office undertook studies in 1993 and 1994 to examine the role of Titles VII and VIII programs in improving access to health care in rural and medically underserved areas. The 1994 GAO reports to Congress noted an increase in the supply of health professions personnel and stated that Title VII, section 747 programs were ". . . important for funding innovative projects and providing 'seed money' for starting new programs. For example, Title VII, section 747 was considered important in the creation and maintenance (emphasis added) of family medicine departments and divisions in medical schools."[81] In a second report in October 1994, the GAO stated, "students who attended schools with family practice departments were 57% more likely to pursue primary care." The same report goes on to state that "students attending medical schools with more highly funded family practice departments were 18% more likely to pursue primary care and students attending schools requiring a third-year family practice clerkship were (also) 18% more likely to pursue primary care."[82] Although data were available, the GAO reported neglected to mention that 80% of the growth in general dental residency programs was caused by Title VII, section 747 start-up funds.

The complexity and variety of these programs and the design of project evaluations posed problems for these GAO studies. They failed to find causal relationships between Titles VII and VIII programs and the increase in health professionals, the increased access to health care, and the increased supply and distribution of minority health care professionals. In 1997, Bernice Steinhardt, Director of Health Services Quality and Public Health Issues in the General Accounting Office testified before the U.S. Senate Subcommittee on Public Health and Safety. In her statement she acknowledged the concerns about demonstrating the impact of Title VII, section 747 and Title VIII programs, but noted, "an appropriate number and mix of health professionals is vital to ensuring that all Americans have adequate access to health care." She called for " . . . clarifying the role of Title VII, section 747 and Title VIII programs in improving the supply, distribution, and minority representation of health professionals."[83]

Legislative History of Title VII, Section 747 Grant Programs

DATE	ACT	LAW	PURPOSE	SUMMARY	REQUIREMENTS
1963	HEALTH PROFESSIONS EDUCATION ASSISTANCE ACT	88-129	Increase supply of health professionals, school construction	Original legislation which amended Title VII, section 747 of the PHS Act	Relative effectiveness in expanding capacity or promoting geographic distribution of schools; must increase enrollment.
1965	HEALTH PROFESSIONS EDUCATIONAL ASSISTANCE AMENDMENT	89-290	School construction, expand enrollment, promote educational innovation, improve quality of education	Two types of educational improvement grants: 1. Basic improvement 2. Special improvement	*For basic* – schools must meet accreditation and fulfill expansion requirement. *For special* – looked at financial need, effectiveness, equitable distribution of schools.
1968	HEALTH MANPOWER ACT	90-490	Construction, emergency need to increase supply of health professionals	Continued construction grants and requirement of increasing enrollment. Added category to strengthen, improve or expand programs.	Extent project would increase enrollment, financial need, and curricular improvement.
1971	COMPREHENSIVE HEALTH MANPOWER TRAINING ACT	92-157	Increase health professionals in primary care, including physician assistants, and dentistry. Improve geographic maldistribution and quality of education. Increase minorities in health professions.	A very broad program with numerous categories. Also provided for start-up grants, financial distress grants, and student loans	Increase enrollment, curricular improvement, interdisciplinary training, innovative training or teaching, primary care, and recruitment of disadvantaged students.

(Continued)

Legislative History of Title VII, Section 747 Grant Programs
(Continued)

DATE	ACT	LAW	PURPOSE	SUMMARY	REQUIREMENTS
1976	HEALTH PROFESSIONS EDUCATIONAL ASSISTANCE ACT	94-484	Increase number of primary care physicians, PAs, provide physicians and PAs for underserved areas.	Eligibility broadened to include schools of medicine or osteopathic medicine (previously limited to hospitals). Added training for teaching in FM and for dentistry.	Enrollment expansion, enrollment of students from disadvantaged backgrounds.
1981	OMNIBUS BUDGET RECONCILIATION ACT	97-35	Funding for FM, and dentistry. Broadened eligibility for GIM and Peds – added faculty development to these. Continued PA funding.	Largely a continuation of previous legislation, but Congress deleted a 10 % set-aside for dentistry.	Gave priority to graduate training programs in Family Medicine.
1985	HEALTH PROFESSIONS TRAINING ASSISTANCE ACT	99-129	Continued funds for FM, GIM, Peds, Dentistry, and PAs.	Largely a continuation of previous legislation.	Continued priority for commitment to Family Medicine, and extended priority for commitment to GIM and Peds.
1988	HEALTH PROFESSIONS REAUTHORIZATION ACT	100-607	Expand number of general dental residency and advanced education dental programs. Continued funds for FM, GIM, Peds, and PAs.	Largely a continuation of previous legislation.	Continued priority for commitment to FM, GIM, and Peds.
1992	HEALTH PROFESSIONS EDUCATION EXTENSION AMENDMENT	100-607	Increase providers for MUCs and healthcare reform. Increase student exposure to FM and ambulatory primary care.	Substantially shifted the focus to providing for MUCs, targeting primary care providers.	Preference for expanding or establishing academic administrative unit in FM; preference for high rate or increase in grads in MUCs.
1998	HEALTH PROFESSIONS EDUCATION PARTNERSHIP ACT	100-607	Reauthorized and consolidated 44 federal health professions programs in Primary Care cluster. Established Advisory Committee on Training in Primary Care Medicine and Dentistry.	Continued funding in FM, GIM, Peds, General and Pediatric Dentistry, and PA. Added pediatric dentistry.	Priority for collaboration, training for primary care, trainees from disadvantaged/ URM backgrounds high rate or increase in graduates in MUCs and special consideration for training for care of underserved or high risk pop.

APPENDIX C: A HISTORY OF TITLE VII, SECTION 747 FUNDING

THE FUNDING OF HEALTH PROFESSIONS EDUCATION

Health professions education at the undergraduate and graduate levels is funded by different mechanisms, each of which is undergoing substantial change.

Undergraduate Medical Education Funding

Traditional sources for support of departments providing predoctoral education in medical schools have included:

- Core funding from the school itself, from the school's affiliated teaching hospitals and from the State in which the school is located;
- Income from the faculty practice plan;
- Research grants, and
- Title VII, section 747 training grants directed to family medicine, general pediatrics and general internal medicine.

In recent years, primary care departments have come to rely increasingly on practice plan income, as other sources have either remained constant or declined slightly. However, the increasing presence of managed care capitation has limited the clinical income that these departments can generate, and the lower reimbursement rates for "cognitive services" provided by primary care faculty further limit their ability to rely on clinical care income. Because primary care faculties generally lack research and grant writing expertise, the proportion of income their departments derive from research grants remains low. Title VII, section 747 grants have been a crucial factor in the establishment and growth of primary care departments and have enabled them to develop innovative curricula.

Subspecialty departments have relied on core funding, practice plan income and research grants. They have also experienced declines in core funding as academic medical centers have suffered financial crises caused by escalating costs, loss of referrals to teaching hospitals and declining hospital revenues. Thus, specialty departments have also come to rely increasingly on practice plan income and have the advantage of higher reimbursement rates for procedural services. These departments can count on National Institutes of Health (NIH) research funding. Although NIH grants are highly competitive, the Federal Government in recent years has increased substantially the NIH budget. It remains an important factor in these departments' budgets.

While the specialty infrastructure is strongly reinforced through NIH grants, amounting to billions of dollars nationwide, primary care departments share small proportions of this largesse, and have to depend much more on a patchwork of funding from State and local governments, private foundations, sometimes-ambivalent hospital support, meager clinical services income, and about $50 million in Title VII grants.

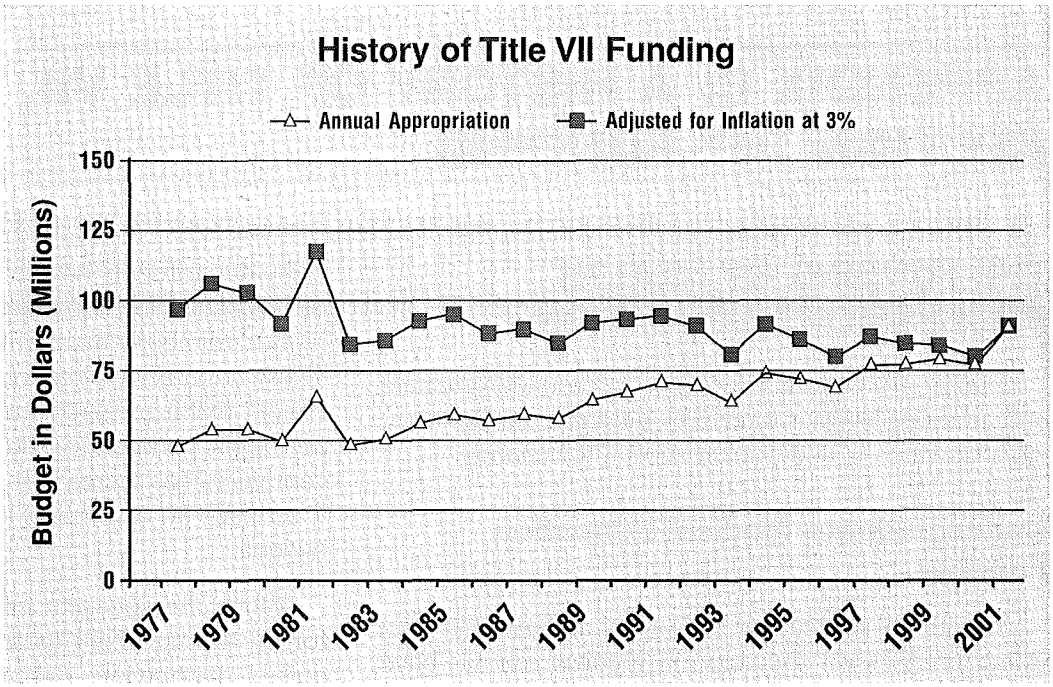
Graduate Medical Education Funding

Graduate medical education (GME) is funded substantially by payments from the Medicare Trust Fund, which was established in the 1960's to insure care for the Nation's elderly population. The fund makes payments directly to teaching hospitals and other sponsors of graduate medical education to defray the extra costs of educating the approximately 97,000 residents who are in training at any given time. Two funding streams, direct medical education (DME) payments, and indirect medical education (IME) payments pay for resident and faculty salaries and compensate the sponsoring institution for reduced productivity in the teaching hospital, the processing of additional diagnostic tests for more complex patients and higher patient care costs.

As in medical schools, faculty teaching in residency training programs has had to rely increasingly on the generation of clinical income. The disparity of reimbursement rates provided by primary care faculty versus specialty faculty means that primary care teaching is under considerably greater financial pressure.

Until 1997 the incentives built into the Medicare payment system encouraged the continued expansion of residency training, producing an abundance of procedurally oriented specialists and a large influx of

international medical graduates (IMGs) into the U.S. medical care system. During the early to mid 1990's, the number of U.S. medical school graduates increased very slowly, while the number of IMG residents increased by nearly 12%. The Balanced Budget Act of 1997 placed caps on residency positions offered by sponsoring institutions and offered some incentives for training of residents in rural settings. The Balanced Budget Refinement Act of 2000 revised adjustment factors that were lowering IME payments, and allowed a 30% increase in caps on training in rural areas.



Freestanding children's hospitals have always operated under a disadvantage with respect to Medicare GME funding of residencies. To compensate teaching hospitals for pediatrics, Congress authorized the Children's Hospitals Graduate Medical Education Program (CHGME). The Program provides funds to these children's hospitals to support the training of pediatric and other residents in graduate medical education programs. Since Federal financial support of GME is extensively supported by the Medicare system, this program compensates for the disparity in the level of Federal funding for teaching hospitals for pediatrics versus other types of teaching hospitals. For example, on average a freestanding children's hospital receives $374 per resident in Medicare funds versus an average of $87,034 per resident for a non-children's hospital. The CHGME program is an interim measure to assist children's hospitals to continue their teaching programs while Congress examines the medical education funding system. The CHGME Act authorizes $280 million for fiscal year (FY) 2000 and $235 million in FY 2001. Under the FY 2001 appropriations law, $238 million has been appropriated for this program.

Title VII Funding History

Title VII, section 747 has supported the achievement of national health policy objectives through the set of flexible funding categories that comprise Title VII, section 747. The funding levels have varied over time, but, taking inflation into account, the most recent authorized funding level is lower than the level authorized in 1977. The figure above illustrates this inflation-indexed funding history.

Physician Assistant Training Funding

The Title VII, section 747 Health Professions Program is the only source of Federal funding available, on a competitive application basis, for physician assistant (PA) educational programs. PA programs do not receive financial support through Medicare's GME funding stream.

According to the Association of Physician Assistant Programs' (APAP's) *Sixteenth Annual Report on Physician Assistant Educational Programs in the United States. 1999-2000*, PA programs received the majority of their financial support from the sponsoring institution, averaging $466,641 (62% of the budget), and the Title VII, section 747 Federal training grants, averaging $150,111 (20% of the budget). Thirty-six PA programs (35%) reported they received Federal training grant support in 1999-2000, with three-year grants ranging from $29,000 to $408,000. Sixty-seven of the 103 programs surveyed reported that they did not receive Federal grant support in 1999-2000.

In reviewing the funding trends from 1984 through 1999, the APAP report notes that total program budgets increased an average of 7.2% annually from 1984 through 1999, a total increase of 173% over the past

sixteen years. During the same period, institutional support for the typical program increased an average of 7.2% per year, while Federal training grant support remained relatively unchanged (16 year mean = $150,111) and accounted for an average of 29% of the total program budget (41% in 1985 down to 20% in 1999).

Increased Title VII, section 747 support for educating PAs to practice in underserved communities is particularly important given the market demand for physician assistants. (The U.S. Bureau of Labor Statistics predicts that the number of PA jobs will increase by 48% between 1998 and 2008.) Without the Title VII, section 747 funding to expose students to underserved sites during their training, PA students are far less likely to practice in medically underserved communities.

General and Pediatric Dental Education Funding

The most challenging resource issues for dental institutions are faculty, facilities, staffing and trainee costs, in that order. These institutions are under financial pressure because of a number of factors:

- First, the number of students trained in dental schools declined significantly during the 1980s, and it will be expensive to expand the training capacity of the Nation's dental schools.
- Second, there is a burgeoning pediatric population as U.S. demographics change, and inadequate numbers of pediatric dentists are being trained, particularly those willing to care for uninsured and low-income children. Many positions for pediatric dentists remain open in private practice, public health clinics, dental school residency training programs, corporate employment and government service.
- Third, costs of dental education continue to rise, even though dental students pay high tuition and are increasingly burdened with debt upon graduation. Since 1989-90, tuition and fees have risen annually by an average of 5% per year for residents and nearly 6% for non-residents. Tuition and fees for residents in 1997-98 were 55% higher than in 1989-90, while non-resident tuition and fees for 1997-98 were 62% more than those in 1989-90. Dental students are also in the unique position of contributing to the cost of patient care in dental school clinics, by virtue of their obligation to either purchase or rent the instruments and some of the equipment used in these clinics. The average cost to the student is $10,000.
- Fourth, only one-third of dental graduates enroll in post-graduate training upon graduation, with 51.5% entering directly into practice. Seventy-two percent of these graduates going into practice indicate that educational debts influenced this decision. The average dental graduate with debt in 2000 had a debt load of $106,000.[84]
- Fifth, there are inadequate numbers of post-graduate training positions. Were post-graduate training to become mandatory, it is estimated that dentistry would be 2,518 positions short at present. It will be expensive to expand the training capacity of these dental residencies. Support for dental training under Title VII, section 747 has been extremely important. Over the twenty-year history of HRSA funding, 59 new programs and 560 positions were created. HRSA is responsible for 72% of the net growth in programs and 77% of the net growth in positions.

In order to address these educational needs, the American Dental Education Association has recommended that academic dental institutions seek collaborative ways to support interdisciplinary education, public-private partnerships and other measures that will build up the Nation's dental training infrastructure.[85] This collaborative and interdisciplinary approach is consistent with the Institute of Medicine report of 1995, which recommended much greater integration of dental and medical education and practice.[86]

History of Title VII, Section 747 Funding

DISCIPLINES FUNDED Values in Actual Dollars Funded				
Fiscal Year	Family Medicine	GIM/GP	Physician Assistants	Dental
2001	Cluster Funding = $90,892,480			
2000	Cluster Funding = $78,983,665			
1999	$50,509,000	$18,125,000	$6,631,000	$3,800,000
1998	$49,424,000	$17,678,000	$6,398,000	$3,800,000
1997	$49,277,000	$17,628,000	$6,380,000	$3,800,000
1996	$44,002,000	$15,741,000	$5,697,000	$3,400,000
1995	$46,057,000	$16,503,000	$5,964,000	$3,530,000
1994	$47,194,000	$16,847,000	$6,554,000	$3,730,000
1993	$38,194,000	$16,847,000	$4,916,000	$3,730,000
1992	$43,885,000	$17,170,000	$4,961,000	$3,802,000
1991	$44,258,000	$17,256,000	$5,021,000	$3,834,000
1990	$40,792,000	$17,682,000	$4,789,000	$3,929,000
1989	$40,012,000	$17,383,000	$4,511,000	$2,606,000
1988	$32,750,000	$17,712,000	$4,596,000	$2,655,000
1987	$33,263,000	$18,500,000	$4,800,000	$2,697,000
1986	$31,868,000	$17,704,000	$4,594,000	$2,584,000
1985	$33,950,000	$18,450,000	$4,800,000	$2,000,000
1984	$32,100,000	$17,500,000	$4,462,000	$1,900,000
1983	$32,100,000	$11,412,000	$4,800,000	$1,900,000
1982	$24,960,000	$16,320,000	$4,800,000	$1,920,000
1981	$33,705,000	$19,500,000	$8,100,000	$3,745,000
1980	$36,450,000	N/A	$9,100,000	$3,645,000
1979	$40,500,000	N/A	$9,100,000	$4,050,000
1978	$40,500,000	N/A	$9,100,000	$4,050,000
1977	$39,000,000	N/A	$8,500,000	N/A

DISCIPLINES FUNDED Values Converted to 2001 Dollars*				
Fiscal Year	Family Medicine	GIM/GP	Physician Assistants	Dental
2001	Cluster Funding = $90,892,480			
2000	Cluster Funding = $81,353,175			
1999	$53,584,998	$19,228,813	$7,034,828	$4,031,420
1998	$54,006,939	$19,317,228	$6,991,267	$4,152,363
1997	$55,461,698	$19,840,469	$7,180,746	$4,276,933
1996	$51,010,378	$18,248,133	$6,604,384	$3,941,532
1995	$54,994,467	$19,705,445	$7,121,328	$4,215,005
1994	$58,042,667	$20,719,685	$8,060,593	$4,587,430
1993	$48,383,016	$21,341,276	$6,227,442	$4,725,052
1992	$57,259,971	$22,402,956	$6,472,980	$4,960,748
1991	$59,479,051	$23,190,621	$6,747,804	$5,152,575
1990	$56,465,668	$24,476,023	$6,629,096	$5,438,655
1989	$57,047,545	$24,784,001	$6,431,607	$3,715,533
1988	$48,094,479	$26,010,669	$6,749,381	$3,898,957
1987	$50,313,272	$27,982,910	$7,260,431	$4,079,454
1986	$49,649,306	$27,582,255	$7,157,302	$4,025,788
1985	$54,479,784	$29,606,834	$7,702,591	$3,209,413
1984	$53,056,409	$28,924,834	$7,375,006	$3,140,411
1983	$54,648,101	$19,428,166	$8,171,679	$3,234,623
1982	$43,767,511	$28,617,219	$8,416,829	$3,366,732
1981	$60,874,979	$35,219,169	$14,629,501	$6,763,887
1980	$67,807,737	NA	$16,928,681	$6,780,774
1979	$77,602,188	N/A	$17,436,541	$7,760,219
1978	$79,930,254	N/A	$17,959,637	$7,993,025
1977	$79,278,970	N/A	$17,278,750	N/A

* Assuming 3% per year inflation rate

APPENDIX D: CASE STUDIES OF TITLE VII, SECTION 747 FUNDED PROGRAMS

NATIONAL PROJECTS

- Beginning in 1993, the American Medical Student Association (AMSA) launched the Generalist Physicians-in-Training (GPIT) initiative led by a student coordinating committee. Its focus was to encourage and support fellow students in pursuing careers in primary care particularly in underserved communities through a variety of activities, workshops, and educational materials focusing on primary care curricula, role models and community outreach. AMSA continues to produce a primary care scorecard, originally launched under GPIT, which is published annually in *The New Physician* and assesses medical schools' success in graduating primary care providers. AMSA also initiated the Leadership Training Project through GPIT in collaboration with a host medical school for interested students each summer. With the conclusion of Federal support for GPIT, AMSA's Primary Care Interest Group incorporated GPIT's peer support activities. Currently, the former student coordinators of GPIT are enrolled in primary care residency programs. Funding for GPIT was supplemented with a grant from the Robert Wood Johnson Foundation to support the development and dissemination of Projects in a Box, a set of educational models to be used with local GPIT groups in peer education. These educational tools are still in demand today from AMSA's online resource center.

- The AMSA Managed Care Fellowship Program was piloted in 1998 in Boston, Massachusetts with support from the Center for Managed Care, HRSA. It is a seven-week program designed to introduce physicians-in-training to managed care issues, particularly as they relate to providing health services to underserved populations. The program combines an in-depth orientation to managed care and health services administration with weekly seminars and field placements in managed care plans, community health centers, and government offices in the Boston area. Fellows work on projects of the following topics: Medicaid/Medicare managed care, utilization review, care for the underserved, guideline policies, quality assurance, preventive services, and outcomes measurement. The first week begins with an academic orientation to managed care, coordinated by the Tufts Managed Care Institute. The academic sessions continue on a weekly basis for the rest of the program, although the fellows spend most of their time working in their placement sites. The fellows complete the program by orally presenting the abstract to their required 10-15-page paper, a project that helps them to assimilate the information they have learned in the academic sessions and at their placement sites.

- National Primary Care Week (NPCW), launched in 1999, has become an annual event, in follow-up to National Primary Care Day, to highlight the importance of primary care and to bring health care professionals together to discuss and learn about generalist medicine and interdisciplinary care, particularly its impact on and importance to underserved populations. AMSA and NPCW student coordinators at medical and other health professions schools work in conjunction with local Area Health Education Centers (AHECs) to observe National Primary Care Week. Over 150 health professions schools have celebrated NPCW each year. While this is a national initiative, each school is encouraged to tailor the week as much as possible to reflect local need and interest, involve students from many health-related disciplines and interact with, or provide service to, the community. Funding for NPCW was supplemented by a grant from the Robert Wood Johnson Foundation for evaluating the first year's activities and efforts.

- In 1998, AMSA launched the Promoting, Reinforcing, and Improving Medical Education (PRIME) initiative to address major issues in medical education, including diversity training and experiential service-based learning for students with career interests in primary care. The PRIME project is designed to encourage and support primary care students by developing specialized curricula that emphasize the practical knowledge and skills necessary to meet the unique needs of underserved populations. In addition to instituting curricular reform and continuing the Leadership Training Project and Primary Care

Scorecard, the contract provides for two student-centered initiatives, one being "Barriers to Healthcare," introduced in Spring 2000. Implementation of the pilot curricula often involves community partners.

- AMSA's mission is to focus on the needs of medical education to meet today's health care needs. Many of the AMSA Foundation programs achieve their results due to cross-fertilization of ideas and experiences among the projects. Many of AMSA's projects focus on primary care/medical education and community health issues of underserved populations. It is estimated that more than half of AMSA Foundation funding currently emanates from the Title VII, section 747 program.

STATE-SPECIFIC CASE EXAMPLES

ALABAMA CASES

- Prior to Title VII funding at the University of Alabama, the general internal medicine division included six faculty members only one of whom had completed a fellowship in general internal medicine. Nine years later, the division had grown to 12 including five individuals with advanced training in general internal medicine. In addition, five members of the division split off to found the division of gerontology and geriatrics and six others to create a division of preventive medicine.

- Ambulatory care experiences in general internal medicine, internal medicine subspecialties, and pertinent non-medical specialties such as gynecology, ear, nose and throat (ENT), dermatology, neurology, nutrition, and sports medicine were created for primary care trainees. Prior to Title VII funding, such rotations accounted for 1-2 of the 36 months of training; with funding, this was increased to 9 months for primary care residents and to 3-4 months even for categorical residents.

- With Title VII funding the content of the didactic sessions was augmented by the inclusion of such topics as medical decision-making, statistics, epidemiology, medical interviewing, doctor-patient relationship, and evaluation of medical publications.

- Prior to Title VII funding with no primary care track, fewer than 35% of internal medicine residency graduates chose to enter careers in general internal medicine. With funding, 55% selected such practices including more than 85% of the graduates of the primary care track.

Alabama Profile* ***Fiscal Year 1999***

Health Care Provider Resources	AL	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	76.7	91.7
Under-Represented Minority Physicians, 1998 (percent)	10.7	12.0
Physician Assistants (rate per 100,000 pop.), 1999	4.2	10.5
Dentists (rate per 100,000 pop.), 1998	40.9	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	28.0	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	38.6	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	94.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	34.3	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Alabama meet these needs by funding three grants in primary care providers and dentists totaling $387,173 in FY 1999.

ALASKA CASES

- The University of Washington MEDEX northwest physician assistant program has a 30-year history of training individuals with extensive health care backgrounds as physician assistants. The MEDEX program operates three didactic training sites. The Seattle site is targeted for students from western Washington and the Seattle-Tacoma urban area. The site in Yakima, Washington serves students from central/southeastern Washington, Alaska, and Wyoming. The Spokane site was created to meet the needs of students from northeastern Washington, northern Idaho, and western Montana.

- The program's goals (workforce diversity, generalist faculty, primary care training emphasis, curricular innovation, and generalist outcomes) are consistent with the purposes of Title VII funding. The program's success in meeting these goals is evidenced by the placement of 80% of its graduates in primary care practice sites and the deployment of 40% of the graduates in Federally defined medi-

Alaska Profile*	Fiscal Year 1999	
Health Care Provider Resources	**AK**	**U.S.**
Active Primary Care Physicians (rate per 100,000 pop.), 1998	82.1	91.7
Under-Represented Minority Physicians, 1998 (percent)	4.4	12.0
Physician Assistants (rate per 100,000 pop.), 1999	34.7	10.5
Dentists (rate per 100,000 pop.), 1998	69.4	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	28.5	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	16.1	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	60.7	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	N/A	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Alaska meet these needs by funding a grant to train primary care providers and dentists totaling $55,479 in FY 1999.

Arizona Profile*	Fiscal Year 1999	
Health Care Provider Resources	**AZ**	**U.S.**
Active Primary Care Physicians (rate per 100,000 pop.), 1998	73.9	91.7
Under-Represented Minority Physicians, 1998 (percent)	10.0	12.0
Physician Assistants (rate per 100,000 pop.), 1999	11.2	10.5
Dentists (rate per 100,000 pop.), 1998	43.4	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	33.4	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	9.2	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	93.3	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	46.7	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Arizona meet these needs by funding six grants to train primary care providers and dentists totaling $670,051 in FY 1999.

cally underserved areas. Additionally, minority students typically comprise 25-30% of the class, although the minority population in the region is approximately 11%.

- The MEDEX program has clinical training sites in that State of Alaska at Barrow, Kotzbue, Nome, Unalakleet, Bethel, Unalaska, Aniak, Soldotna, Anchorage, McGrath, Healy, Fairbanks, Skagway, Juneau, Sitka, Craig, and Ketchikan.

ARIZONA CASES

- Title VII, section 747 departmental and predoctoral programs include an objective on diversity, the former to mentor minority medical students, the latter to develop curriculum related to underserved, minority populations. The residency grant program, in a former cycle, had an objective to develop a curriculum in providing culturally competent care that is still being taught. Although the faculty development program does not have an objective directed to this area, some of the physicians enrolled are from the medically underserved areas of the State.

ARKANSAS CASES

- The University of Arkansas received a three-year grant to establish the department of family and community medicine several years ago. This and other grants have allowed faculty to teach residents how to practice high quality care. This grant has allowed the clinic to implement a program in quality improvement that will lead to improved patient care and to teach medical students about unique health care needs of the underserved patient population. Without these grants, the clinical training in family medicine would be severely curtailed.

- The department of family and community medicine is also developing and implementing a statewide curriculum to train family practice residents in effective use of an electronic medical records (EMRs) system. This has been pilot tested at the Area Health

Arkansas Profile*	Fiscal Year 1999	
Health Care Provider Resources	**AR**	**U.S.**
Active Primary Care Physicians (rate per 100,000 pop.), 1998	77.1	91.7
Under-Represented Minority Physicians, 1998 (percent)	7.7	12.0
Physician Assistants (rate per 100,000 pop.), 1999	1.7	10.5
Dentists (rate per 100,000 pop.), 1998	39.4	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	19.3	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	34.9	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	68.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	25.3	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Arkansas meet these needs by funding four grants to train primary care providers and dentists totaling $499,080 in FY 1999.

Education Center (AHEC) of Northwest Arkansas; all six AHEC residency programs in the State will have participated in the statewide effort by the end of the project. Faculty (n=18) and residents (n=129) will be competent in three important EMR areas: instructional techniques in the use of an EMR, EMR documentation review techniques, and evidence-based medicine techniques to build EMR clinical content.

CALIFORNIA CASES

- The physician assistant programs at Stanford University places its students in community based clinical rotations. All students train in clinics that serve the same populations as they will serve when they graduate and many of these clinics serve non-English speaking high-risk patients. The program has students working in refugee clinics, migrant health clinics, rural health clinics and Indian clinics. Graduates are working with HPSAs in San Diego County, the Hmong community in Fresno and Modesto and Cambodians in the San Jose area.[87]

- Over one-third of the United States legal permanent residents (recent immigrants and those eligible for naturalization) live in California (3,717,000 people). There is a large Latino and Asian population in the State, some of whom are particularly at risk with regard to access to health care services and information because of limited English proficiency, high rates of poverty and unemployment, and low education. At the Stanford University family and community medicine program, a major emphasis is placed on graduates who can serve these high-risk, non-English speaking populations. Each year approximately one third of our graduates are fluent in a second language that is relevant to underserved populations. Student preceptorships are community based, rather than hospital-based as is more typical in the East. Therefore, students train in local clinics that serve the same populations they will serve after graduation. Many of these clinics serve non-English speaking, high-risk patients. Currently, students are being precepted in refugee clinics, migrant health clinics, rural health clinics, and Indian clinics. Imperial County in California has large areas that are underserved and lacks health professions training. A local training and recruitment satellite in San Diego was established in an effort to recruit students from Imperial County and deploy them back to that area. Two graduates work in HPSAs in that county. Two recent graduates currently spend several days a week in mobile clinics, vans that serve migrant farm workers by driving to remote areas in the central valley in CA. A Spanish-speaking graduate is in a newly opened (Federally funded) clinic in Fort Smith, Arkansas. The clinic is intended to serve Spanish-speaking workers who have recently located there to work in poultry processing. Several graduates are recent immigrants from China and Vietnam and are working in San Francisco and San Jose with monolingual populations from those countries. Three graduates (not Hmong) work with Hmong populations in Fresno and Modesto. Cambodian graduates work with Cambodian patients in San Jose. Several graduates who are recent immigrants from Russia are able to serve the rapidly increasing Russian-speaking population in this area. A refugee from Afghanistan was admitted recently as a student (This is a growing refugee population here).

California Profile* ***Fiscal Year 1999***

Health Care Provider Resources	CA	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	89.3	91.7
Under-Represented Minority Physicians, 1998 (percent)	10.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	7.8	10.5
Dentists (rate per 100,000 pop.), 1998	62.2	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	51.5	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	10.7	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	74.1	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	36.2	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped California meet these needs by funding 50 grants to train primary care providers and dentists totaling $7,785,089 in FY 1999.

- Through Title VII, section 747 funds a comprehensive program was developed to prepare family physicians as teachers and educators. The Northern California faculty development fellowship program (NCFDFP), established in 1995, represents a regional, interdepartmental, network design for fellowship training in family medicine. The two family medicine departments in Northern California—the UC San Francisco department of family and community medicine (UCSF/FCM) and the UC Davis department of family practice (UCD/FP)—have collaborated to create a one-year, comprehensive, multi-component fellowship program to prepare full-time teaching faculty members within each department's network of academic sites in Northern California. The NCFDFP represents the first regional collaboration in faculty development between two medical schools. Over the current 1995-98-project period, 37 fellows have participated in the fellowship program representing 15 academic sites.

- At the UCSF family practice residency program at San Francisco General Hospital, the Title VII, section 747 funds have been invaluable in enabling our residency program to prepare family physicians to care for low-income families living in inner-city communities. A recent Title VII, section 747 grant allowed development of highly innovative postgraduate curricula in three areas: behavioral science, community-oriented primary care (COPC), and practice management. The behavioral science curriculum was designed to prepare family physicians for managed care practice in urban, underserved settings, reflecting a model that integrates family-systems, cross-cultural approach with the needs of an urban, underserved, and multicultural patient population. A key focus for the curriculum was relationships: among physicians, patients, and families; among family members; among patients, families, and the managed care organization; and between faculty members and residents. The curriculum has three interrelated components: direct observation and supervision, a behavioral science seminar, and a family care unit.

- The department of family medicine at the University of Southern California is located in a multi-ethnic area in which 120 different languages are spoken. In July 1999, a $17,000 HRSA predoctoral training grant funded a part-time Community Site Developer for a six-week third year clerkship program in family medicine. A seasoned medical anthropologist who was hired for this position has focused on increasing student exposure to professionally rewarding medically underserved practices during their five-week community preceptorships. She has fostered student interest by developing interactive cross-cultural exercises for use during classroom orientation week and by collecting testimonials from students who have done their preceptorships in medically underserved sites. She has expanded the number of opportunities for placement in such sites by identifying and recruiting new preceptors. She has conducted in-depth interviews with students already committed to practicing in underserved areas to determine the basis of their commitment. She has also made site visits to observe students' experiences directly and has assigned an ethnographic paper to be written on a patient's family of the student's choosing. As a result of her efforts and those of clerkship staff, over the 1999-2000 academic year, 35% more students have been placed in medically underserved sites than in 1998-1999. This example illustrates how a very modest

amount of funding can have a substantial result in terms of exposing more medical students to the benefits and rewards of practicing in medically underserved settings.

- The Clinica Campesina residency track was a direct result of a department development grant to enhance care of the underserved and training of providers to care for the underserved. The grant provided start-up funds to develop the relationship and initiate the program. After the initial department grant, a residency-training grant provided educational funding to enhance cultural competency. In fact, lack of ongoing funding from Title VII, section 747 funding is one reason the program was closed. The program was incredibly successful—eight of nine residents are practicing in underserved sites.

- Under Title VII funding, the University of California/Davis has graduated 101 primary care residents with 84 in primary care practice, seven in academic positions, and one as chief resident. Over 90% stay in general medicine/geriatrics/primary care. The primary care track has high exposure since the entire third year is devoted to outpatient medicine.

- Western University of Health Sciences/College of Osteopathic Medicine of the Pacific in Pomona, California has been the recipient of numerous grants from the Department of Health and Human Services through the Health Resources and Services Administration over the years. These funds have been a tremendous source of support, which have been used to establish new and innovative programs that have been beneficial to our students in our College of Osteopathic Medicine of the Pacific (COMP) and our College of Allied Health Professions.

  - Title VII funds enable COMP to create the Standardized Patient Program in which medical students are educated on how best to communicate effectively with their patients. Having access to patients gives students an advantage over studies restricted to books, computerized examples and any other alternative form of education. The live sessions expose students to "real life" encounters and educate these future physicians as to how to incorporate their medical and scientific "know-how" with the needed people skills of compassion and caring.

  - In addition to creating the Standardized Patient Program, a Title VII grant was used to explore a new educational program in managed care. This elective was created to expose students to what being a health care provider means in today's managed care environment.

COLORADO CASES

- As a direct result of its Interdisciplinary Generalist Curriculum project, the University of Colorado changed it primary care curriculum to a foundations of medicine curriculum. This curriculum has had profound impact on the overall School of Medicine curriculum. The impact has been the development of a clinical continuum from first through third year with the clerkship directors working together. The integration of basic and clinical sciences makes the basic sciences more relevant for students. Students who have extensive community based primary care patient contact early and longitudinally become better communicators and diagnosticians.

Colorado Profile* — ***Fiscal Year 1999***

Health Care Provider Resources	CO	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	88.6	91.7
Under-Represented Minority Physicians, 1998 (percent)	4.7	12.0
Physician Assistants (rate per 100,000 pop.), 1999	16.7	10.5
Dentists (rate per 100,000 pop.), 1998	63.0	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	22.2	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	10.1	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	79.4	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	12.7	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Colorado meet these needs by funding 10 grants to train primary care providers and dentists totaling $1,360,533 in FY 1999.

- At the child health associate physician assistant program, Title VII, section 747 support has had direct effects on academic and patient communities. Title VII, section 747 funding was instrumental in the initiation of the program and has provided invaluable support for the creation of a host of grant activities that were subsequently integrated into the educational program and mission. The benefit to patients has been significant, with over 20% of the students choosing to pursue a career that meets the needs of the medically underserved. Students also serve these patients in clinical rotations that were established under the auspices of grant funds. Every student does a one-month rotation in an underserved area and another month in a rural rotation. The rural track, begun with grant support, requires students to do a four-month block rotation in a rural area. To date, over 60% of rural track graduates have elected to practice in a rural setting. Supplementary funding was also received from local sources to continue or expand grant-initiated programs. As an example, the program received a Colorado Commission Award of Excellence ($2,100,000) based on the recognition of many programs that were grant initiated. Among other things, the award allowed expansion of the rural track to 10 (25% of the class) students per year. The funds impacted the choice of grant activities and led to the development of a number of innovative, model academic curricula to meet the needs of the underserved that have subsequently been replicated in other programs. These innovations have been presented at national and international meetings.

- The University of Colorado Health Sciences Center, division of general internal medicine/pediatrics provides a two-year intensive, fulltime or part-time faculty development training in research and educational techniques. Of the twenty-one graduates, 14 are faculty in general internal medicine and seven in general pediatrics. These individuals are providing leadership to physicians and non-physician clinicians, providing role models for medical students and residents and are transforming the practice of medicine in their sites. This has led to the formation of a primary care-oriented Health Outcomes Program on campus and to the development of a Primary Care Research Unit linking general internal medicine, general pediatrics, and family medicine, also with HRSA funding through its administrative units grant program.

CONNECTICUT CASES

- The primary care and community medicine training program (PC/CM) at Griffin Hospital, Derby, is developing a program transition plan that will increase the number of PC/CM residents from 8 to 20. The curriculum on the psychosocial aspect of illness, management of common psychiatric problems and understanding of psychosocial aspects of illness has been completed and has been submitted to the Accreditation Council on Graduate Medical Education (ACGME) for their Request For Proposal 2000 project; the geriatric curriculum, including a new faculty member, has been identified. Residents will be provided clinical experience and skills in the area of adolescent medicine. An expanded managed care curriculum is preparing primary care residents to practice in a managed care setting, and approval has been sought and received for a MPH and board eligibility in internal medicine and preventive medicine. Twelve community sites have been identified to improve health care services delivery.

Connecticut Profile* ***Fiscal Year 1999***

Health Care Provider Resources	**CT**	**U.S.**
Active Primary Care Physicians (rate per 100,000 pop.), 1998	119.6	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	18.0	10.5
Dentists (rate per 100,000 pop.), 1998	73.0	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	20.2	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	6.7	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	87.5	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	75.0	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Connecticut meet these needs by funding two grants to train primary care providers and dentists totaling $274,320 in FY 1997.

- The Middlessex Hospital family practice residency program in Middletown is developing an innovative longitudinal, family residency curriculum that prepares family physicians to address the health needs of culturally diverse communities and high-risk populations. The project staff will collaborate with the Yale University School of Medicine to enhance recruitment of qualified residents and faculty to the program. The residency program hopes to serve as a model for community-based family practice residency.

DELAWARE

Delaware Profile* *Fiscal Year 1999*

Health Care Provider Resources	DE	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	79.1	91.7
Under-Represented Minority Physicians, 1998 (percent)	11.7	12.0
Physician Assistants (rate per 100,000 pop.), 1999	9.0	10.5
Dentists (rate per 100,000 pop.), 1998	44.5	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	25.2	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	12.7	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	100.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	66.7	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Delaware meet these needs by funding a grant to train primary care providers and dentists totaling $87,404 in FY 1997.

DISTRICT OF COLUMBIA CASES

- The George Washington University department of medicine has established a collaborative primary care research program (CPCRP) within the academic units of adult primary care and general medicine and general pediatrics. The CPCRP has recruited a new faculty member who has done both pediatric and adult medicine primary care research with a focus on health disparities; another faculty with a focus on minority health issues, specifically the Latino populations, is being recruited. The research projects will involve residents in primary care with close mentoring by the faculty of the CPCRP who have been identified. The establishment of the primary care research fellowship with focus on the underserved and minority populations will train primary care physicians in research related to the populations they serve. An elective to increase knowledge of clinical research methodology in underserved and minority populations will be offered to fourth year medical students after five residents have completed it.

District of Columbia Profile* *Fiscal Year 1999*

Health Care Provider Resources	DC	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	232.3	91.7
Under-Represented Minority Physicians, 1998 (percent)	25.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	24.7	10.5
Dentists (rate per 100,000 pop.), 1998	113.0	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	72.8	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	13.7	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	100.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	100.0	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped the District of Columbia meet these needs by funding seven grants to train primary care providers and dentists totaling $1,143,514 in FY 1999.

- Georgetown University department of medicine received Title VII funding to expand the research capacity of the department and to enhance the primary care research activities of the division of general internal medicine and general pediatrics. The funds have established an administrative center for primary care research and a research associate and

network coordinator have been hired. A primary care practice-based network is planned to involve all full time clinical faculty and providers from the District community health centers. We are starting to explore model research curriculums for primary care residents. A primary care poster session was held during National Primary Care Week. Collection of clinic capacity surveys for university practice sites and the District community health centers is planned

FLORIDA CASES

- The University of Florida (UF) College of Dentistry has a long history of community-based educational programs, starting with a rural clinic in Mayo, Florida that was affiliated with the county health department. Major expansion of the statewide presence of the college was initiated in the early 1990s with the development of general dentistry residency programs in Jacksonville and St. Petersburg, Florida, in facilities owned and operated by the College of Dentistry. The University of Florida Statewide Network for Community Oral Health was initiated in 1995 to further expand training opportunities for predoctoral and general dentistry residents of the College, as well as to increase access to care for underserved patients throughout Florida. The Network is a collaboration among the UF College of Dentistry, community-based affiliates and health care organizations that have a mission to provide education and/or health care to underserved patients, and the Florida Dental Association. Teaching faculty includes University of Florida-employed dentists, dentist employees of the affiliates, and volunteer dentists from the membership of the Florida Dental Association. The Network is based at the college's facilities in Gainesville, which provides administrative and academic oversight and support to the various programs. The Network includes three college-owned facilities located in Jacksonville, St. Petersburg and Hialeah, Florida, as well as a number of other affiliates throughout the State, including community health centers, county health departments, homeless shelters and hospitals. Currently, the UF College of Dentistry has seven general dentistry residency training programs, with a total of 20 general dentistry residents, working in 11 sites. The general dentistry residency programs are one year in duration and are housed totally within the community-based site. Three of these sites are also used for two-week predoctoral dental student rotations; each dental student spends two two-week rotations at selected sites. Thus, the general dentistry residency program provides a backbone of support for the predoctoral student rotations. In addition, negotiations are underway with at least three additional sites, including an expansion into pediatric dentistry residency training.

Florida Profile* *Fiscal Year 1999*

Health Care Provider Resources	FL	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	82.7	91.7
Under-Represented Minority Physicians, 1998 (percent)	21.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	10.2	10.5
Dentists (rate per 100,000 pop.), 1998	47.2	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	32.5	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	18.4	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	86.6	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	58.2	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Florida meet these needs by funding ten grants to train primary care providers and dentists totaling $1,248,277 in FY 1999.

- The Statewide Network is funded through a variety of mechanisms including college State general revenue funds, the Florida Department of Health clinical income, the statewide Area Health Education Center, Title VII, section 747 funding from Health Resources and Services Administration (HRSA) and philanthropic donations. The University of Florida College of Dentistry has received five grants from HRSA Title VII, section 747 programs. These grants combined have brought in $1,500,000 in funding and the creation or expansion of four new residency programs. The Title VII funding in dentistry is used to initiate new programs and/or expand existing programs. These grants phase out over three years. Funding can be used to do planning, site preparation,

hire faculty, support resident stipends and salaries for support staff and to pay for supplies, educational material, and so forth. The funding is a critical link in allowing the College of Dentistry to implement such programs because early development of the programs can generate significant fiscal deficits until the program is up and running in a mature fashion. Recent improvements in Federal Medicare GME funding to general dentistry residency programs have allowed these programs to be self-sustaining, when combined with the limited income that can be generated from indigent patient care. In addition, the use of volunteer faculty and health care sites owned and affiliated by other institutions helps maintain the financial sustainability of community-based general dentistry programs.

GEORGIA CASES

- Title VII, section 747 has made an enormous difference to the division of general medicine, Emory University School of Medicine, the patients at Grady Memorial Hospital, who are underserved, and our surrounding community. Forty-seven residents have been trained in the primary care residency program supported by Title VII, section 747 over the past five years. Of the 47 residents, 17 have graduated, 15 of whom have entered careers in general internal medicine, including four who are practicing in an underserved area as designated by the State governor (Grady Memorial Hospital). Of the enrollees and graduates of the primary care residency program, five are African American and three Hispanic or Latino, thereby enriching the number of underrepresented minority physicians in our medical school and community. These numbers demonstrate how the ability to create a well-organized, separately governed primary care residency program within the department of medicine strongly promotes primary care as a career choice. Title VII, section 747 has also supported a faculty development program in general internal medicine, which has had a large impact on the division of general medicine, medical school, and community. This program trained or enrolled 24 faculty over four years, focusing on clinician-educators, each of whom was able to participate in a yearlong curriculum emphasizing teaching skills, evidence based medicine, and scholarly projects. This program has been crucial for retaining clinician educator faculty members working in the underserved area at Grady Memorial Hospital. This has been especially important for underrepresented minorities. Five African American and two Hispanic faculty members are enrollees or graduates of the program. Of the 18 graduates of the program, 14 have remained on the faculty. This is the only intensive faculty development program at Emory University School of Medicine and is setting an example for the rest of the school. The faculty development grant is critical to our plans for developing clinician educators to their full potential as members of the facult. As the program develops their scholarship and teaching skills, their academic careers become more fruitful and successful.

Georgia Profile* — *Fiscal Year 1999*

Health Care Provider Resources	GA	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	80.9	91.7
Under-Represented Minority Physicians, 1998 (percent)	14.3	12.0
Physician Assistants (rate per 100,000 pop.), 1999	12.5	10.5
Dentists (rate per 100,000 pop.), 1998	40.7	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	33.6	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	25.3	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	77.4	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	12.0	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Georgia meet these needs by funding 16 grants to train primary care providers and dentists totaling $2,197,827 in FY 1999.

HAWAII CASES

- Kelley Withy, M.D., Asst. Professor, Dept of Family Practice and Community Health and Statewide AHEC Program Director, Hawaii notes: "In Hawaii we have one medical school that has a mission to provide primary care physicians for Hawaii and the Pacific Basin. In order to do this, we depend on Title VII funds to provide predoctoral education in rural and underserved areas. Almost all of these rural

Hawaii Profile* *Fiscal Year 1999*

Health Care Provider Resources	HI	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	109.3	91.7
Under-Represented Minority Physicians, 1998 (percent)	4.7	12.0
Physician Assistants (rate per 100,000 pop.), 1999	6.5	10.5
Dentists (rate per 100,000 pop.), 1998	78.5	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	75.0	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	7.0	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	80.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	40.0	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Hawaii meet these needs by funding two grants to train primary care providers and dentists totaling $425,832 in FY 1999.

Idaho Profile* *Fiscal Year 1999*

Health Care Provider Resources	ID	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	63.7	91.7
Under-Represented Minority Physicians, 1998 (percent)	2.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	11.5	10.5
Dentists (rate per 100,000 pop.), 1998	51.8	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	10.3	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	15.9	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	90.9	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	72.7	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Idaho meet these needs by funding four grants to train primary care providers and dentists totaling $782,521 in FY 1999.

and underserved areas are on islands other that Oahu (where the medical school is located). Without Title VII funding, the only way our students would get to outer islands for rotations would be to swim, or pay themselves. If students do not get to rotate on outer islands, it is unlikely that they will spontaneously choose to work in the areas with the greatest need. We depend on continued Title VII funds to match with local funds to provide the experiences for our students that will diminish the significant health disparities in this State."

IDAHO CASES

- A patient was 28 weeks pregnant and admitted to the OB service septic from a kidney infection and in preterm labor. She had a blood sugar of over 400 (normal up to 140). She was Spanish speaking, married to a migrant farm worker living in a shack with poor sanitation on the farmer's land. She was suspicious of needles and insulin and was intensely shy and uncomfortable with male physicians. Treating her sepsis getting her diabetes controlled and preventing the preterm birth saved the county funds and the State over $100,000 in neonatal intensive care unit (NICU) costs. The Idaho State University Pocatello Family Practice Residency sought and was granted Title VII funds to partner with a local community health center to enhance their perinatal outreach to the communities of American Falls and Aberdeen, 20 and 40 miles from Pocatello, respectively. Services have also been extended to the nearby Native American population. The grant has allowed support to the community health center by a bilingual resident and faculty MD. A bilingual prenatal intervention team was formed, including a social worker, health educator and nutritionist. Seventy-six pregnant women were delivered between July 1, 1999 and June 30, 2000 as part of this project. Thirty-nine of these women were Hispanic, 17 of whom were Spanish-speaking only. Twenty-seven were Native Americans who also benefited from the health education and case management services. Health insurance was Medicaid 31,

Indian Health Service 20, private insurance 13 and self pay 12. One case saved the State over $100,000. How much did 76 cases save the State? There are two family practice residencies in Idaho supported by Title VII funds, both with similar stories to tell. The two residency directors estimate that the residencies provide over $900,000 of uncompensated care per year through activities like this some of which are supported by Title VII funds. A question a State legislator might ask is: who would cover these costs if Title VII funds were cut? Jonathan Cree, MD, Idaho State University.

- The University of Washington MEDEX northwest physician assistant program has a 30-year history of training individuals with extensive health care backgrounds as physician assistants. The MEDEX program operates three didactic training sites. The Seattle site is targeted for students from western Washington and the Seattle-Tacoma urban area. The site in Yakima, Washington severs students from central/southeastern Washington, Alaska, and Wyoming. The Spokane site was created to meet the needs of students from northeastern Washington, northern Idaho, and western Montana. The MEDEX program operates clinical training sites in the State of Idaho in Coeur d'Alene, Plummer, Lewiston, Orofino, Cottonwood, Payette, Caldwell, Nampa, Boise, Garden Valley, Glenns Ferry, Twin Falls, American Falls, Pocatello, Idaho Falls, Driggs, and Rexburg. The program's goals (workforce diversity, generalist faculty, primary care training emphasis, curricular innovation, and generalist outcomes) are consistent with the purposes of Title VII funding. The program's success in meeting these goals is evidenced by the placement of 80% of its graduates in primary care practice sites and the deployment of 40% of the graduates in Federally defined medically underserved areas. Additionally, minority students typically comprise 25-30% of the class, although the minority population in the region is approximately 11%.

ILLINOIS CASES

- Dr. Jerry Kruse from the department of family medicine at Southern Illinois University reports that Title VII, section 747 funds have helped create a research infrastructure in his department and medical school. "We are in the final year of a department grant that (has) established a research infrastructure for the department. This grant has allowed four faculty members to have 25% of their time dedicated to research, and has opened a research dialogue between primary care departments in the School of Medicine. The Associate Dean for Research and several members of other departments now attend our research meetings. We have now formed an affiliation with psychiatry, which has led to an integrated third year clerkship and joint research. This collaboration grew directly out of the strategic plan and research agenda generated by the grant. Also, the Dean has given permanent funding to our research director and the department will pick up the frills. So, the (Title VII, section 747) grant established a unit that will be ongoing."[88]

Illinois Profile* — ***Fiscal Year 1999***

Health Care Provider Resources	IL	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	102.2	91.7
Under-Represented Minority Physicians, 1998 (percent)	14.0	12.0
Physician Assistants (rate per 100,000 pop.), 1999	5.0	10.5
Dentists (rate per 100,000 pop.), 1998	61.9	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	29.0	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	11.1	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	33.3	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	11.8	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Illinois meet these needs by funding 29 grants to train primary care providers and dentists totaling $4,428,898 in FY 1999.

- The department of medicine at Mount Sinai Hospital in Chicago has utilized Title VII general internal medicine grant funding to establish community based primary care training sites in health professional shortage areas of Chicago. With these funds, it developed a Spanish language elective that trains its residents in medical Spanish, which is then utilized in a Latino ambulatory care setting. It has been able to recruit new faculty because of the presence of

the training program, as well as to attract superior resident trainees and to develop new curriculum. Since the initiation of the grant, the Department has been able to increase the number of minority primary care physicians working at the institution. Because of the grant funding, it has also been able to initiate faculty development training sessions for its faculty.

- The general internal medicine residency program at Northwestern University provided funds to design an improved curriculum focusing on better outpatient care to help avoid unnecessary admissions, to address psychosocial issues important to patients, and to provide a more cost effective approach to patient care. The faculty development program, in addition to providing fellowships, developed preceptors and junior and mid-career faculty. Rotations through the local community health centers resulted in the hiring of residents upon completion of their program. The funds have fostered and increased the working relationship between general internal medicine, pediatrics and family medicine. Over 100 community-based preceptors provide volunteer time for 174 medical students to experience a clerkship in ambulatory care office setting.

- At the University of Illinois at Chicago, the general internal medicine faculty development program supported with Title VII funds has become more diverse. Out of a total of 12 faculty there are now two African American, one Hispanic, and three faculty with Asian ancestry. The faculty serve as role models for underrepresented minorities in a primary care specialty.

- The Chicago College of Osteopathic Medicine of Midwestern University (CCOM) is in the third year of funding with an establishment of family medicine grant. This grant has allowed for establishment of a new course "Topics in Family Medicine" for second year medical students. CCOM took material that was historically taught the last eight weeks of the second year and developed it into a full year course focusing on topics in medicine normally seen by primary care physicians and including issues in managed care and practice management. A new didactic program has also been developed for MSII's that meets weekly for four hours. A simulated patient program has been incorporated that allows students to practice dealing with difficult patient situations such as death and dying. Community medicine sites have been enhanced and approximately 50 new preceptors have been added. This spring, CCOM will sponsor a faculty development program for all new preceptors. There have also been great strides in the area of technology and on-line capabilities for things such as distance learning with the students. Though CCOM is in their final year of funding, they have submitted a renewal application for funding for another three years.

INDIANA CASES

- Indiana University has two Title VII, section 747 funded programs. The first grant provides stipends for general internal medicine and general pediatrics fellows who are being trained as academic generalists. Since our program was first funded in 1985, there have been a total of 52 generalist physician fellow trainees—44 program completers and 8 current enrollees, 42 in general internal medicine, six in general pediatrics, three in medicine-pediatrics, and one in family practice. Of the 44 program completers, 36 (82%) hold generalist faculty positions in medical schools or research positions

Indiana Profile* *Fiscal Year 1999*

Health Care Provider Resources	IN	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	74.2	91.7
Under-Represented Minority Physicians, 1998 (percent)	7.0	12.0
Physician Assistants (rate per 100,000 pop.), 1999	3.1	10.5
Dentists (rate per 100,000 pop.), 1998	45.5	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	7.0	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	10.9	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	45.7	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	7.6	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Indiana meet these needs by funding six grants to train primary care providers and dentists totaling $736,332 in FY 1999.

elsewhere (e.g., Federal Government). Collectively, they have authored over 350 peer-reviewed publications and have presented more than 225 abstracts at regional and national scientific meetings, as well as numerous workshops.

- The Indiana program provides care for a large medically underserved population in Indianapolis. The majority of our graduates has assumed faculty positions at our own institution and continues to provide most of the primary care for indigent patients in five Community Health Centers and our public hospital; train medical students and residents in these settings; and conduct research to improve the care of underserved populations. Without Title VII, section 747 funding, many of our teaching and research efforts to improve the care of underserved populations would not be possible.

IOWA CASES

- The University of Iowa department of family medicine has expanded the behavioral medicine curriculum by creating seven new didactic courses and adding four consultation sessions; has developed and implemented curricula on health risk assessment for second and third year residents; has conducted a four-hour class for first year residents on computer based medical programs; and is teaching all residents how to use electronic mail as a clinical tool in a primary care setting. The medical school administration and the University of Iowa hospital administration are providing strong support for faculty involvement in the electronic mail consultant service as a result of this Title VII support.

Iowa Profile* — *Fiscal Year 1999*

Health Care Provider Resources	IA	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	66.5	91.7
Under-Represented Minority Physicians, 1998 (percent)	5.9	12.0
Physician Assistants (rate per 100,000 pop.), 1999	14.1	10.5
Dentists (rate per 100,000 pop.), 1998	52.3	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	5.5	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	11.8	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	49.5	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	3.0	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Iowa meet these needs by funding five grants to train primary care providers and dentists totaling $619,329 in FY 1999.

KANSAS CASES

- The University of Kansas (KU) at Wichita family practice residency at Smoky Hill, Kansas has had several Title VII, section 747 residency training grants focusing on improving health access in rural Kansas. Clinical emphases have included rural behavioral science, medical procedures, community health and improvement in emergency training.

Kansas Profile* — *Fiscal Year 1999*

Health Care Provider Resources	KS	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	81.7	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.1	12.0
Physician Assistants (rate per 100,000 pop.), 1999	13.6	10.5
Dentists (rate per 100,000 pop.), 1998	47.7	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	13.9	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	8.8	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	37.1	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	19.0	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Kansas meet these needs by funding nine grants to train primary care providers and dentists totaling $1,192,127 in FY 1999.

Sixty-three family physicians have graduated from this program and 96% of them practice in towns of less than 50,000 people. Even more impressive for the purpose of rural health access, 58% of the graduates (or 37 physicians) practice in towns of less that 10,000 population. Dr. Rick Kellerman, Chair of the Family Medicine Department at KU Wichita reports that this program received the Outstanding Rural Health Program in America award in 1996, "in no small part due to the help Title VII, section 747 gave in improving training."[89]

KENTUCKY CASES

- The physician assistant program at the University of Kentucky places special emphasis on working with rural HIV patients. Over 150 Kentucky PA students have gone through didactic training, and 22 have completed a five-week rotation. Through video teleconferencing, this program has educated approximately 1000 practicing PAs from around the country on rural HIV issues. Thus, not only did this one program significantly increase access for HIV patients in one region, it exported its knowledge to other practitioners throughout the country. The latest step in this educational effort has been to capture the HIV didactic program on a CD-ROM that has been certified by the State of Kentucky for training of its health professionals. Many physicians, pharmacists, dentists and nurses and others will benefit from this PA effort.[90]

- The University of Kentucky College of Dentistry has been training its dental residents in underserved communities. This effort has increased the numbers of under-represented minorities entering the dental workforce. It has two female dental residents (one Hispanic) who have completed the school's Distance Learning Community Based General Dentistry Residency Program. Two other residents, one a minority, are in training in rural Kentucky, and one has expressed a desire to practice in an underserved area.

- The University of Louisville participated in Title VII funding for its general practice residency training program in dentistry (GPR) and its advanced education in general dentistry program (AEGD) in the 1980s and an expansion grant for the AEGD program in the early 1990s. These programs are still operating quite successfully. In addition to providing advanced general dentistry training, these programs are providing outreach to indigent patients, children, and patients in a psychiatric hospital.

Kentucky Profile* ***Fiscal Year 1999***

Health Care Provider Resources	KY	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	78.9	91.7
Under-Represented Minority Physicians, 1998 (percent)	7.2	12.0
Physician Assistants (rate per 100,000 pop.), 1999	8.8	10.5
Dentists (rate per 100,000 pop.), 1998	51.7	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	8.9	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	28.9	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	61.7	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	14.2	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Kentucky meet these needs by funding 11 grants to train primary care providers and dentists totaling $1,432,058 in FY 1999.

- The Pikeville College School of Osteopathic Medicine (PCSOM) is currently in its third year of funding with an establishment of family medicine grant. The grant has enabled PCSOM to target the three main healthcare issues in the Eastern Kentucky region: childhood obesity, geriatrics, and spousal abuse. PSCOM has established a training program for the student to become more cognizant of these healthcare issues. The school has been able to bring in speakers to discuss the problems and work on methods to improve these healthcare issues. PCSOM has brought in professional patients to work with students learning to take patient histories and physical examinations on patients with these three health care problems.

LOUISIANA CASES

- A program at the Louisiana State University School of Dentistry enabled that institution to establish an advanced education general dentistry residency in 1995, two rural dental student clinics, and an

underserved student clinic in New Orleans. An article in Louisiana Dentistry notes that the Lallie Kemp Medical Center in Independence, Louisiana, although it had been established in 1939, did not offer dental care until 1994 when Title VII, section 747 funding made it possible to do so. Oral health care was a critical need in this rural community and the addition of dental services has been a "win-win situation for everyone." Dr. Eric Hovland notes that students get to see an average of 25 patients per day, and student Craig Crawford comments that, "It's a two-fold benefit; we get lots of experience, and the patients receive good dental care."

- Beginning in mid 1999, a three year faculty development grant awarded to the ambulatory section of the pediatrics department of the Louisiana State University Medical Center's School of Medicine in New Orleans has enabled the department to plan, implement, and evaluate its programs: a faculty development program for local and distant community physicians and physicians in affiliated hospitals; and a fellowship in general pediatrics.

  Since the awarding of the grant, the department chair has observed several areas of enhanced activity in the ambulatory division faculty's traditional work and practice in underserved communities. Physicians in the pediatrics clinics have been able to develop a greater variety of patient education materials for use with the diverse populations that they serve.

MAINE CASES

Ann Skelton, MD, Program Director, Chief of Department of Family Practice, Maine Medical Center, Portland, Maine, reports:

- "We have developed curricula in rural health, quality improvement and community oriented primary care . . . early 90's anticipated that these would be

Louisiana Profile* — *Fiscal Year 1999*

Health Care Provider Resources	LA	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	86.3	91.7
Under-Represented Minority Physicians, 1998 (percent)	13.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	4.0	10.5
Dentists (rate per 100,000 pop.), 1998	45.2	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	36.6	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	33.4	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	84.4	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	25.0	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Louisiana meet these needs by funding two grants to train primary care providers and dentists totaling $249,008 in FY 1999.

Maine Profile* — *Fiscal Year 1999*

Health Care Provider Resources	ME	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	86.3	91.7
Under-Represented Minority Physicians, 1998 (percent)	3.1	12.0
Physician Assistants (rate per 100,000 pop.), 1999	26.0	10.5
Dentists (rate per 100,000 pop.), 1998	46.5	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	2.4	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	14.6	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	100.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	81.3	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Maine meet these needs by funding three grants to train primary care providers and dentists totaling $351,106 in FY 1999.

important areas for resident education as time went on, and are delighted to have incorporated robust education as well as practice focus in these areas in our residency and family practice centers."

- "Most recently (1999-2000) received funding from HRSA for faculty development in informatics . . . greatly enhanced our faculty member's use of computers to support clinical decision making at the time of patient care and resident education, as well as focus on evidence-based medicine."
- "Both of these endeavors have allowed us as a residency program to learn about new, leading edge (at the time!) areas in which we had little expertise, and incorporate them into our program's culture. The 21 residents we educate annually benefit from these projects, as do all of our patients."

MARYLAND CASES

- Dr. Herbert Muncie at the University of Maryland comments that, "at the U. of Maryland the Title VII, section 747 money has been instrumental in allowing us to completely change the mix of our faculty (then residents). In the early 1990's our full-time faculty was 80% male and only seven percent minority. With the assistance of the Title VII, section 747 funds, we consciously sought more minority residents and women residents. We also used funds to encourage more minority and women faculty to join the faculty and mentor their careers. In fiscal year 2000, we are now 40% male and 47% minority faculty. Of our 39 residents, 30 are women and 18 are minority. We anticipate with successful additional funding to add three more junior minority women faculty in fiscal year 2001. We have the highest percentage of minority family medicine faculty of any non-minority medical school."[91]
  - Susan Wolfstahl, MD, at the University of Maryland reports that they are just starting the second year of a three-year medicine-pediatrics grant and have just been awarded another three-year grant for the establishment of a division of primary care education for general internal medicine, pediatrics and family medicine. "Without Title VII, section 747 it is likely that most of our programs would continue, (for example) evidence based medicine training, modules in managed care and caring for the underserved. However, we would not be able to have as extensive a program in cultural diversity since the grant pays for these instructors."

Maryland Profile* ***Fiscal Year 1999***

Health Care Provider Resources	MD	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	126.0	91.7
Under-Represented Minority Physicians, 1998 (percent)	15.0	12.0
Physician Assistants (rate per 100,000 pop.), 1999	15.7	10.5
Dentists (rate per 100,000 pop.), 1998	67.6	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	35.8	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	11.6	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	54.2	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	20.8	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Maryland meet these needs by funding nine grants to train primary care providers and dentists totaling $1,480,320 in FY 1999.

  - "For the upcoming grant, we would not be able to develop the research infrastructure or hire our medical educator without Title VII, section 747 funding. Hence, the full scope of the grant and the full collaboration among the three departments would not be accomplished."[92]
- The Johns Hopkins Faculty Development Program (FDP) in general internal medicine was established in 1987 with grant support from the Bureau of Health Professions. Grant support from 1987-1996 and 1997-2003 has been essential in enabling the program to develop and implement unique training for clinician-educators both from Johns Hopkins and from a large number of other educational institutions. The program's major accomplishments since its inception have been the following:
  - 1987 to present: Created, implemented, and continues to develop a longitudinal program for clinician-educators addressed to the two major areas of competence needed by clinician-educators:

interpersonal teaching skills (TS) and curriculum development (CD) skills. Each of the two arms of this program lasts nine months and participants meet for one-half day per week during the entire nine-month period.

- The teaching skills arm includes in sequence, modules on learning and facilitating, time management, feedback, small group leadership and participation, doctor-patient communication, precepting in clinical settings, management skills, lecturing, and teaching portfolio. In 1997-2000, managed care as the context for teaching was emphasized throughout the TS program. In 2000-2003, teaching for the care of culturally diverse patients will be a theme in all modules.
- In the curriculum development (CD) arm, participants working in groups develop and implement a new curriculum, using a 6-step model created for this faculty development program (FDP): problem identification and general needs assessment, needs assessment of targeted learners, goals and objectives, educational strategies, implementation, evaluation and feedback. In the CD program, 51 curricula have been developed and implemented at Johns Hopkins and other regional programs. Many curricula have focused on preventive medicine and the needs of special populations (AIDS, homeless, alcoholism, and other substance abuse, elderly).
- Over 250 clinician-educators have participated in our longitudinal program. In addition to general internists, educational administrators and physicians from multiple disciplines, i.e., pediatricians, psychiatrists, and behavioral scientists, have been included.
- 1992 to present: Created, implemented, and continue to develop a one to three-year full-time medical education fellowship, located jointly in the divisions of general internal medicine at the Johns Hopkins Bayview Medical Center and the Johns Hopkins Hospital. Twelve fellows have completed, or are currently in (3 of the 12) this program. All graduates have taken leadership roles, two at Johns Hopkins, and seven at other academic institutions. Of the 12 fellows, four are from minority backgrounds. The results of research completed by past fellows have been published including a study of the attributes of excellent attending role models, surveys of promotion committee chairpersons and internal medicine department chairs on promotion criteria for clinician-educators, a job satisfaction measure for internal medicine residency program directors, a study of resident humanistic behaviors that determine patient satisfaction, a national survey of residency programs regarding problem residents, evaluation of a national curriculum for the internal medicine core clerkship, and development of a formula for estimating pretest probability.
- 1992 to present: Developed, implemented, and continues to implement a large number of special programs, from one-half day to multiple days in duration, using a consultation model that adapts elements of our FDP to the unique needs of client institutions. These programs have been implemented at Johns Hopkins, at over 20 other institutions, and at major national meetings. Cumulatively, these special programs have reached more than 1,000 clinician-educators.
- 1993 to present: Created, implemented, and continues to develop a longitudinal facilitator training program to train facilitators who, like the core faculty of the FDP, are qualified to develop and teach faculty development programs. Sixteen individuals have completed this program, which uses as its training setting the Longitudinal Program described above.
- 1989 to present: Dissemination of scholarly work: A detailed description of the teaching skills program and results of evaluation of the first ten cohorts (1987-1997) is in preparation for publication. The nearly 200-page book, "Curriculum Development for Medical Education," that describes the six-step approach developed for the longitudinal program was published in 1998. A scholarly paper, reporting the outcome of the 45 curriculum development projects completed 1987-1999 is being planned. Preliminary results of evaluations of both arms of the FDP have been presented at national meetings and published in abstract form. Besides publications, this FDP has had a widespread impact beyond Johns Hopkins through the large number of special programs denoted above.

MASSACHUSETTS CASES

- A major multi-disciplinary faculty development effort has taken place at the University of Massachusetts. Dr. Dan Lasser reports that: "At the University of Massachusetts, we have received Title VII, section 747 funding for many years to support faculty

Massachusetts Profile* *Fiscal Year 1999*

Health Care Provider Resources	MA	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	128.1	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.3	12.0
Physician Assistants (rate per 100,000 pop.), 1999	10.1	10.5
Dentists (rate per 100,000 pop.), 1998	71.1	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	16.4	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	4.9	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	64.3	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	28.6	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Massachusetts meet these needs by funding 26 grants to train primary care providers and dentists totaling $5,176,257 in FY 1999.

development programs, mostly focused on community-based preceptors. About 8-10 years ago, we began to develop our proposals synergistically with proposals coming out of the departments of pediatrics and general internal medicine."

- "When (these grants) were all funded, we worked together to develop integrated workshops for generalist preceptors. Along came some additional seed funding, . . . and this collaborative effort turned into a formal University of Massachusetts Community Faculty Development Center. The Center is run by a board consisting of faculty from all three disciplines, and it has a Regional Advisory Board with faculty representatives from all New England allopathic and osteopathic schools, as well as a few schools from New York State, which meets formally at least twice each year."

- "The Center runs an annual workshop series for 60-80 faculty preceptors from each of these schools and each of these disciplines. The series is generic for primary care preceptors, and has turned into a terrific way to bring people together from across the region. The Center is now also conducting needs assessments, surveys, and original research. New curricular elements are being developed related to computer skills, use of the Internet, and teaching cultural diversity. This year, we are sponsoring six fellowship positions (two from each discipline)."[93]

- At Harvard Medical School, Massachusetts General Hospital, the program for residency training in general internal medicine was initiated with Title VII, section 747 funds 25 years ago, and during that time the number of entering general medicine residents increased from two to ten per year. During training these resident physicians work in a variety of community health centers in the Boston area and many remain in these underserved areas for practice after they complete training. This pattern of training in an underserved area, followed by establishment of practice site in the same or similar underserved area, demonstrates clearly the intended effect of Title VII, section 747 residency training grants. Since, as Dr. Michael Barry notes, the Massachusetts General program no longer needs Title VII, section 747 funding, their effort can be counted a definite success. It has substantially increased numbers of generalist internal medicine physicians who work with the medically underserved populations of the Boston area.[94]

  - At the Harvard program, Title VII, section 747 funding has supported several elements crucial to the success of our training program. First, it provides modest support for faculty mentoring. Such close mentoring is a primary determinant of success during fellowship and a determinant, as well, of satisfaction in subsequent career decisions. Title VII, section 747 funding supports our formal teaching skills curriculum and an ongoing seminar series that conveys our curriculum in "serving the underserved." Neither of these latter formal curricula would be possible without Title VII, section 747 support. These latter curricula are also taught with our general pediatrics trainees, allowing for productive interactions across these two primary care specialties. In all, Title VII, section 747 support has helped ensure that academic general internal medicine (GIM) is well populated, productive, and highly respected throughout the Harvard system. Many of the research projects fostered in our GIM program are oriented towards patient outcomes and improving quality of care.

The publications that result add importantly to this body of knowledge and directly improve care at our home institutions.

- By utilizing Title VII, section 747 funds, the Boston University School of Dental Medicine (BUSDM) has been able to establish the advanced education in general dentistry (AEGD) program as a "cornerstone of the mission of the school." The AEGD program is a "school without walls" that places 18 dental residents per year in over 100 extramural sites. These sites include community health centers, military bases, Veterans Administration Medical Centers, and over 60 private practices across the country. Dr. Paula Friedman notes that "Title VII, section 747 support provided the seed money for Boston University School of Dental Medicine to expand oral health services to underserved communities." In addition to the sites mentioned above, these underserved patient communities include spinal cord injury units, senior citizen housing complexes, and HIV/AIDS programs. In addition to placing learners in these communities, the AEGD program has had strong impact on its graduates, many of whom have gone on to practice in underserved areas. Examples include:

  - David Blanco, an Hispanic dentist, completed a Title VII, section 747 funded general pediatric residency (GPR) program, then completed a Title VII, section 747 geriatric dentistry fellowship program, earned an MPH degree with a concentration in health services, and is now dental director of a community health center where he trains AEGD residents in primary care.

  - Yvonne Grady, an African-American dentist, completed a two-year GPR program, completed the geriatric dentistry fellowship, earned an MPH with a concentration in health services, and is working at a U.S. Air Force base to provide comprehensive oral health services.

  - Michelle Henshaw completed a GPR, completed the geriatric dentistry fellowship program, earned an MPH with a concentration in epidemiology and biostatistics, was recruited to the faculty of BUSDM in the department of health policy and health services research and is currently funded by a five-year career development award from NIDCR. She is engaged in a number of public health research projects and is regarded as a future leader in the field.

  - Joseph Calabrese completed the AEGD program, the geriatric fellowship program, is a member of the BUSDM general dentistry faculty, and director of dentistry at Hebrew Rehabilitation Center for the Aged (HRCA), the largest long-term care facility in Massachusetts (725 beds). HRCA is a Harvard-affiliated facility; Dr. Calabrese was recruited for the position of dental director because of the strength of his training and experience in Title VII, section 747 supported programs.

  - John Ictech-Cassis, a Hispanic dentist, has been the project director of the BUSDM AEGD program for seven years. He has been a role model and mentor to the residents in a large AEGD program and has assumed a leadership role in the school based on his successful leadership of the Title VII, section 747 program.[95]

  - Boston University developed a substantial primary care training program (PCTP) under Title VII support. The goal of the program is to prepare and motivate residents to care for medically underserved populations and to equip them to assume leadership roles. Title VII funding has been critical in developing the basic curriculum for the program. Title VII funds also were vital to the creation of the PCTP in 1974, at the Boston City Hospital. Following hospital and residency training program mergers, the PCTP was redesigned in 1997 with Title VII support and listed under separate NRMP number in 1998.

- Boston Medical Center (BMC) was created in 1996 by the unique merger of a public and a private hospital—Boston City Hospital and Boston University Medical Center Hospital. BMC is located in an inner-city neighborhood of Boston. It maintains a deep commitment to provide care for all, regardless of the ability to pay and is the largest safety net hospital in Massachusetts. Title VII support has allowed the PCTP to develop a comprehensive and innovative, ambulatory-based curriculum that is focused on the care of vulnerable populations. The program has developed curriculum modules in addiction medicine, domestic and urban violence, health care for the homeless, prison health, immigrant and refugee health, cultural competency, survivors of torture, patient interviewing skills, and public health.

  - The Title VII grant has supported the development of a network of community based teaching sites at neighborhood health centers (NHC) in the Boston area. Over 70% of the current PCTP residents have selected a NHC as the site for their continuity clinic practice. Grant support has allowed

us to develop faculty preceptors, an on-line continuity clinic curriculum available at all clinic sites, and psychiatry faculty who are a part of the clinic preceptor team. Over the past three years, between 90 and 100% of our graduates pursue careers in primary care, and about half chose to work in underserved communities.

- Minority recruitment continues to be the focus of major efforts. The number of minority faculty within the section of general medicine continues to increase, from 10 in 1997 to 14 in 2000.

- Children's Hospital has been the recipient of Title VII funding for faculty development in general pediatrics for the last eight years. As a result of this support, program staff have been successful in 1) developing a curriculum for children with special health care needs; 2) developing and enriching a curriculum for serving underserved populations; 3) helping in the development of a comprehensive community health center for homeless and runaway teenagers; 4) establishing the "advocate for successful kids" program for the diagnostic evaluation of children with school problems, and 5) creating clinical programs in international pediatrics, travel medicine, and adoption.

MICHIGAN CASES

- Two well-known part-time fellowship programs, those at Michigan State University and the University of North Carolina at Chapel Hill, have obtained positive results. As described in the literature, 83% of the Michigan State fellowship graduates and 69% of the Chapel Hill graduates remain in academic medicine, while about one-third work and teach in medically underserved communities. These part-time fellowships train more faculty each year than all of the full-time family medicine faculty development fellowships combined, and their impact on indigent and underserved patients is significant.

- Primary care researchers in Michigan have created three research networks, pooling information from primary care practice around the State to answer common problems. These efforts include the Michigan Research Network (MIRNet), the Primary Care Research Network (PCRNet) and the Upper Peninsula Research Network (UPRNet). These networks bring together primary care practitioners of several specialties and have important impacts on fostering scholarly inquiry and providing answers about common primary care questions.[96]

Michigan Profile* ***Fiscal Year 1999***

Health Care Provider Resources	MI	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	83.0	91.7
Under-Represented Minority Physicians, 1998 (percent)	13.1	12.0
Physician Assistants (rate per 100,000 pop.), 1999	12.5	10.5
Dentists (rate per 100,000 pop.), 1998	55.9	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	19.2	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	12.4	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	88.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	83.1	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Michigan meet these needs by funding 16 grants to train primary care providers and dentists totaling $2,440,426 in FY 1999.

- At Wayne State, Title VII, section 747 funds were used to establish practice-based research (The PILOT project) and achieved additional commitment from the medical school towards this clinical research effort. The department of family medicine at Wayne State is uniquely positioned to create the primary care practice-based research agenda with the university. This is critical in an urban setting like Detroit because the diversity of the population served and the proportion of under and uninsured is large and positive clinical research results will directly impact care of these selected populations. While we are currently focusing on important clinical questions in family practice clinical settings, it is likely that development of practice-based research networks will expand to include general internal medicine and general pediatrics practices and we are positioned to provide leadership to this collaborative research. Faculty development Title VII, section 747 dollars are fueling the "Champions Project", a

project that focuses on clinical faculty in the department of family medicine.

- Dr. Dale Lefever reports that the efforts of the department of family medicine at the University of Michigan (UM) to recruit minority students and faculty have been emulated throughout the medical school: "We . . . attempt to develop programs that are useful to the medical school and/or generalizable to family medicine nationally. For example, our efforts to recruit minority residents have been used by several other departments and have resulted in a medical school-wide effort especially with the Student National Medical Association both regionally and nationally."
  - "At the Dean's request, presentations were made to the chair of every clinical department. We have a Multicultural Competency Work Group and two departments have used our materials to start similar programs in their departments here at the UM. One of our faculty sits on the Dean's Committee on Diversity and Career Development and chairs the minority recruitment subcommittee. We also have created a Multicultural Awareness Website and have made the contents available to everyone in the medical school, hospital and schools of public health and nursing. It is on the Intranet and is password protected."
  - "These efforts have increased our visibility and political strength within the institution. We plan to develop a listserv as the next step in this process."

MINNESOTA CASES

- Byron Crouse, Assistant Dean of Clinical Affairs at the University of Minnesota Duluth reports that Title VII, section 747 grants have: "Allowed our department to pilot many innovations that are now being incorporated throughout our school. These adoptions by other groups include web-based and computer based testing; school wide testing for other courses; web-based lectures allowing for asynchronous access; putting lectures on the web so students can participate in longitudinal experiences such as with our geriatric and OB experiences that may occur during lecture times. Now, Dr. Crouse notes, other departments and courses are planning to put courses on line. Other efforts include development of geriatrics curriculum promoting increased knowledge and sensitivity to issues of the elderly. Through this project, multiple community agencies are participating in developing geriatric projects; and student directed clinical research."

Minnesota Profile* ***Fiscal Year 1999***

Health Care Provider Resources	MN	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	99.3	91.7
Under-Represented Minority Physicians, 1998 (percent)	5.1	12.0
Physician Assistants (rate per 100,000 pop.), 1999	8.8	10.5
Dentists (rate per 100,000 pop.), 1998	59.0	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	8.7	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	8.5	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	40.2	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	3.4	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Minnesota meet these needs by funding nine grants to train primary care providers and dentists totaling $1,318,951 in FY 1999.

MISSISSIPPI CASES

- Susan Hart-Hester, Ph.D., Department of Family Medicine, University of Mississippi Medical Center, reports: "Title VII funds have enabled our department to expand and enhance services provided for preclinical students, residents, and faculty. We have instituted summer preclinical preceptorships, research assistantships, and third-year medical student clerkships sponsored initially through Title VII funds."
  - "In addition, Title VII funding has provided monies to incorporate faculty development activities surrounding the theme of cultural competence. Our faculty benefited from the knowledge and expertise of national as well as local speakers on such topics as cultural competence, managed care, and population studies."
  - "This funding mechanism is a valuable tool for developing innovative programs from preclinical instruction through residency and faculty development."

Mississippi Profile* ***Fiscal Year 1999***

Health Care Provider Resources	MS	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	64.4	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.7	12.0
Physician Assistants (rate per 100,000 pop.), 1999	1.1	10.5
Dentists (rate per 100,000 pop.), 1998	36.8	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	38.3	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	46.7	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	72.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	47.6	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Mississippi meet these needs by funding a grant to train primary care providers and dentists totaling $38,545 in FY 1999.

Missouri Profile* ***Fiscal Year 1999***

Health Care Provider Resources	MO	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	78.4	91.7
Under-Represented Minority Physicians, 1998 (percent)	9.7	12.0
Physician Assistants (rate per 100,000 pop.), 1999	4.0	10.5
Dentists (rate per 100,000 pop.), 1998	46.5	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	14.4	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	17.5	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	54.8	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	5.2	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Missouri meet these needs by funding 13 grants to train primary care providers and dentists totaling $1,914,805 in FY 1999.

- Since 1972, the department of family medicine of the University of Mississippi has attempted to meet the need for rural family practitioners by placing its family medicine residency graduates in practice roles within Mississippi. Additionally, over 80% of their family medicine graduates practice in HPSAs.

- The University of Mississippi Medical Center family medicine faculty development grant focuses on family physicians who have been in academic medicine for less than 2 years. The major goals have been to augment faculty skills and promote leadership in developing culturally competent systems of care; promote and reinforce faculty skills in population studies and community health; and provide faculty with the skills necessary to adapt to the changing demands of the health care environment.

MISSOURI CASES

- Mark Mengel, MD, MPH, St. Louis University (SLU) School of Medicine, reports: "At the SLU physician assistant program, Title VII support has allowed our program to develop clinical sites in underserved areas. The funds have helped support our students' transportation costs to and housing in underserved areas. The grants have further helped us to do site visits in these areas and purchase laptop computers for students to use while on rotations in medically underserved areas. Our grants have paid for faculty development in the area of primary care. With the funds, the program has developed a web-based course on PA reimbursement. Thirty students enter the program each year and all of our students and our entire faculty have benefited from these training grants each year."

- "Our first predoctoral grant was awarded in 1997, enabling us to establish a required one month family practice clerkship in the 3rd year, which increased the number of students going into family practice at SLU from a baseline rate of five percent on average over the past 10 years to 15% over the past two years, 12% this year. If we are

funded this year, we will be able to improve our first year medical student curriculum, (introducing more family practice topics), substantially strengthen our third year clerkship, participate more in the medical school's program to recruit underrepresented minorities to the medical school, and open up more clerkship training sites in underserved areas, thus encouraging more of our students to practice in underserved areas."

MONTANA CASES

- The University of Washington MEDEX northwest physician assistant program has a 30-year history of training individuals with extensive health care backgrounds as physician assistants. The MEDEX program operates three didactic training sites. The Seattle site is targeted for students form western Washington and the Seattle-Tacoma urban area. The site in Yakima, Washington severs students from central/southeastern Washington, Alaska, and Wyoming. The Spokane site was created to meet the needs of students from northeastern Washington, northern Idaho, and western Montana.

- The MEDEX program has clinical training sites in the State of Montana in Plains, Polson, Missoula, Great Falls, Billings, and Crows Agency. The program's goals (workforce diversity, generalist faculty, primary care training emphasis, curricular innovation, and generalist outcomes) are consistent with the purposes of Title VII funding. The program's success in meeting these goals is evidenced by the placement of 80% of its graduates in primary care practice sites and the deployment of 40% of the graduates in Federally defined medically underserved areas. Additionally, minority students typically comprise 25-30% of the class, although the minority population in the region is approximately 11%.

- The Montana family practice residency program is the recipient of Title VII funding for a residency training grant for enhanced training for family practice residents in the care of people with mental illnesses. We are the only residency in Montana, preparing doctors for practice in rural and frontier areas.

- There are only 11 of the 56 counties in Montana that have a practicing psychiatrist and about half have no practicing mental health professionals of any kind. Patients in those areas with mental illness receive their assessment and ongoing care, as well as interventions for acute problems from the local family practitioners. This requires these doctors to have a high degree of knowledge and ability to handle the full spectrum of mental illness from the more common depression to substance abuse issues, to full blown psychotic disorders. They must learn to deal with these needy patients without ready or local access to psychiatric consultation and use telemedicine and other remote access modalities to access the help they need. This grant funds local and rural based education in psychiatry and mental illness management for the residents, with a substantially higher level of expertise developed than in the traditional basic curriculum in family practice. The grant also funds remote and rural based modeling of access experiences through Internet and telemedicine, and for the behavioral faculty to travel to the rural training track sites. It also co-educates the faculty in family practice with the residents allowing us to take on more of the teaching in the future as we develop our own skills.

Montana Profile* ***Fiscal Year 1999***

Health Care Provider Resources	MT	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	73.8	91.7
Under-Represented Minority Physicians, 1998 (percent)	3.0	12.0
Physician Assistants (rate per 100,000 pop.), 1999	14.9	10.5
Dentists (rate per 100,000 pop.), 1998	51.8	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	9.1	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	22.9	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	68.4	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	3.5	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Montana meet these needs by funding a grant to train primary care providers and dentists totaling $78,867 in FY 1999.

- "We work in a community health center and about 20% of our patients have an untreated or under treated coexisting mental illness and/or substance abuse problem. The presence of the staff funded by this grant allows our residents and faculty to provide care for these underserved patients who have no other source of care for these issues. Without the grant funding, this would not happen. We have a very limited budget, small staff and no other access to increased funding other than through grants. Reduction in this grant program would have a deleterious effect on this project and the opportunity for future expanded training in this State."[97] "We greatly appreciate this opportunity to expand our training and hope this program will continue to be funded at the current level or at a greater level."

NEBRASKA CASES

- "The Federal grant has allowed the Union College Physician Assistant Program in Nebraska to develop clinical rotations in a number of rural communities. We have developed software via the grant support that allows us to track student's clinical experiences in all rotations. While we can send students to rural environments, we wanted to identify and quantify the populations served. One marker we use is the patient's economic status, labeled by the student as being in one of the following three categories: homeless, low income/Medicaid, or not low income."

NEVADA CASES

- A previously provided predoctoral training grant to the University of Nevada enabled it to address training and testing in aspects of cultural/ethnic diversity and has been incorporated in the program's third year curriculum. The University currently has a department of family practice grant that is helping in establishing a research infrastructure and initiating primary care research in the department.

Nebraska Profile* — *Fiscal Year 1999*

Health Care Provider Resources	NE	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	89.3	91.7
Under-Represented Minority Physicians, 1998 (percent)	5.6	12.0
Physician Assistants (rate per 100,000 pop.), 1999	22.0	10.5
Dentists (rate per 100,000 pop.), 1998	61.6	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	10.6	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	18.4	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	53.8	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	17.2	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Nebraska meet these needs by funding four grants to train primary care providers and dentists totaling $454,396 in FY 1999.

Nevada Profile* — *Fiscal Year 1999*

Health Care Provider Resources	NV	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	66.0	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	8.8	10.5
Dentists (rate per 100,000 pop.), 1998	35.9	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	30.0	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	6.8	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	100.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	58.8	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Nevada meet these needs by funding a grant to train Primary Care Providers and Dentists totaling $145,344 in FY 1999.

NEW HAMPSHIRE CASES

- Dartmouth Hitchcock Medical Center Title VII, section 747 grant funds a primary care track in our internal medicine residency, and a three- year grant to develop infrastructure for research in our section of GIM. The availability of these funds has allowed us to develop an innovative training curriculum for training general internists preparing for rural practice. The training emphasizes outpatient practice, but does not skimp on intensive care experience, since we know that often general internists in rural areas are responsible for running ICUs and performing many procedures. Our residents are taught critical thinking skills and try to practice evidence-based medicine through critical appraisal of the medical literature. Primary care track residents have several blocks when they are placed in community practices located in rural underserved areas of New Hampshire and Vermont. Additionally, more than half of the residents have longitudinal clinic practices that operate out of the Good Neighbor Health Clinic, a local free clinic that provides health care for indigent patients who are unable to access health care through other means. The presence of the residents had also increased the number of DHMC faculty who volunteer on a regular basis at the Good Neighbor Health Clinic, and has increased our visibility in the community. The GIM infrastructure grant is giving us an opportunity to support asking and answering of clinically relevant questions during the course of our daily activities. Our section has always excelled in education and in clinical care but, unfortunately, few of us have been able to find time to add research activities to our lives. The new grant will provide the groundwork so that this will happen more easily, and should provide a major "shot in the arm" for our clinical faculty, who have found it difficult to document activities for academic promotion. The initial three years will give us a good start, but if this grant is renewable, we believe we will strengthen our sectional involvement in research to a level that would be self-sustaining.

New Hampshire Profile* ***Fiscal Year 1999***

Health Care Provider Resources	NH	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	89.4	91.7
Under-Represented Minority Physicians, 1998 (percent)	3.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	13.5	10.5
Dentists (rate per 100,000 pop.), 1998	54.4	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	3.6	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	5.0	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	60.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	10.0	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped New Hampshire meet these needs by funding four grants to train primary care providers and dentists totaling $564,483 in FY 1999.

NEW JERSEY CASES

- Mark Johnson, MD, UMDNJ-New Jersey Medical School reports: "We have just been notified that we received a grant to enhance research infrastructure. This is the third "departmental" grant that we have received. The first I wrote before I even started here. The flexibility that it awarded me as a new chair was tremendous. Having access to those funds provided me with leverage to get other commitments. The initial growth of the department exceeded projections. The next grant was also for research. It allowed us to buy research services from other departments, including bio-statistical support, and translated it into out-of-the-department mentors. Also it gave us dedicated staff for research. I would like the record to show the immense importance that Title VII monies have had to our mission of service to the citizens of New Jersey at UMDNJ-Robert Wood Johnson Medical School. For the past three years, through the school's Department of Family Medicine, we have received more than $2,700,000 from Title VII competitive grant sources. This has enabled us to serve the citizens of New Jersey in remarkable ways that otherwise would not have been possible, as other funding sources either do not exist, or are severely constrained."

  – "Our predoctoral division has been able to train medical students in the care of the indigent, and

overall give more than 2000 medical students contact time with family physicians in the State, increasing interest in the discipline of family practice. This is particularly important to New Jersey, which ranks near the bottom nationally in number of family physicians per population. The direct consequence of this shortage to our citizens was seen in the Medicare data, recently released, showing New Jersey near the bottom of the country in quality heath care measures. New Jersey desperately needs additional family physicians, and Title VII dollars are helping us meet that need."

- "Our residency training program has also used Title VII dollars to prepare physicians for working in the increasingly multicultural health care environment. As you know the New Jersey population is one of the most diverse ethnically and racially (2000 census), and these monies have allowed the development of innovative, comprehensive training for resident physicians to care for diverse populations in a culturally competent way that has become a national model."

- "Similarly, individuals with developmental disabilities are an underserved group, and these monies have allowed the establishment of a training program of national reputation for care of these patients who are universally distributed geographically throughout the State and Nation. Lack of access to high quality primary care services has been a major need for these patients, and Title VII dollars have created a model training program in New Jersey."

- "Other Title VII dollars have allowed the creation of unique population based training programs in women's health, geriatrics, and sports medicine, all populations of high need in our State and nationally. These programs have built the capacity to produce physicians' with enhanced competencies geared toward meeting the needs of these special populations."

- "To fully understand the impact of Title VII grant opportunities for the citizens of our State, I would invite our legislators to come with us to a home visit to elderly shut-ins, to the nursing homes, to the outpatient offices and clinics, to the hospital wards, to the school systems, to the factories and office buildings, to the community health centers, and multiple other locations of hundreds of communities throughout the State, where these dollars have allowed the growth of unique, innovative, service oriented programs that have benefited thousands of citizens in New Jersey."

- Alfred F. Tallia, M.D., M.P.H. Vice Chairman, UMDNJ-Robert Wood Johnson Medical School, New Jersey reports: "Title VII dollars are essential to the continued success of the service mission of our public university. I strongly urge Federal support for the continuation of this funding that has been so meaningful to our State and its citizens."

- David Swee, MD, UMDNJ-Robert Wood Johnson Medical School, New Jersey reports: "Title VII continues to be the lifeblood of our department. It allows for creative development of new areas that have the potential for future growth and for which there is almost no other funding. While this is particularly true for medical education enterprises, whether at the predoctoral, residency, or faculty development/ fellowship level, it is also true in the heart of scholarship, i.e., research."

New Jersey Profile* ***Fiscal Year 1999***

Health Care Provider Resources	NJ	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	107.7	91.7
Under-Represented Minority Physicians, 1998 (percent)	14.9	12.0
Physician Assistants (rate per 100,000 pop.), 1999	3.7	10.5
Dentists (rate per 100,000 pop.), 1998	71.7	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	32.9	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	11.5	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	66.7	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	33.3	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped New Jersey meet these needs by funding 12 grants to train primary care providers and dentists totaling $1,831,609 in FY 1999.

NEW MEXICO CASES

- The University of New Mexico PA program is now four years old. We are the first PA program in the State. Given the rural and frontier nature of New Mexico, there is a need for home grown and locally trained PAs. We have a special need for Spanish speaking and Native American PAs. The State legislature funded a small start-up amount to get a PA program started. The amount was increased when the doors opened, but it was only enough to cover the barest of bones. Title VII, section 747 funds enabled us to have at least a basic faculty and we are currently at 3.6 FTE. The State's population is about 1.7 million—many States have cities larger than this. The demographics are: 40% Hispanic, 49% Anglo, 9% Native American, and 2% Black. Only a few counties have sufficient health care providers and these are concentrated in our larger metro areas. In Albuquerque, despite a larger population and a major medical school, we still have areas of the city and county that are declared HPSAs. The students in our program are selected with our mission in mind— serving the rural and underserved of our State. Our classes are very small, so statistics are essentially useless—but the first class was three-eighths Hispanic, second class four-tenths Hispanic, third class two Hispanic, one Native American and our fourth class is three-tenths Hispanic. We also have had Vietnamese (1) and Pakistani (1). We have one class graduated and working. Out of eight graduates, all working in rural or underserved areas, six are in New Mexico. The second class has recently graduated and is still in the process of settling in but so far, all but one look like they are staying in NM. It initially appears as if we may have a higher percentage working in the city, but two graduates are already definitely employed in rural settings. We have also had two graduates take a rural/migrant health care fellowship, one in Idaho and one in North Carolina. Our clinical rotations are blended—some city, most rural. Students can be sent to areas that have minimal health care facilities. One of our clinics has a PA who has to row across a river to get to the tiny town she works in. Another has a PA who is not only the only health care practitioner, but is also everything else—the ambulance driver, the EMT, the MI, etc. He was the AAPA rural health care PA of the year for 2000.
- The longer we are here, the more we are accepted—particularly in the rural communities. Every time we send a PA out on a clinical we hear back that it was a blessing for the community. With next year's Title VII, section 747 funds (big assumption on my part) we plan to begin a preceptor development program to go even further into developing the highest quality clinical educators. We anticipate even better relationships with communities and their health care systems. Our goal is to help bring excellence in health care to New Mexico. To be honest, I doubt we could continue without the help of the Title VII, section 747 funds. PAs make a difference in New Mexico and we are needed. Our salaries are lower than most States and to be competitive we need to train PAs in our own system.

New Mexico Profile* ***Fiscal Year 1999***

Health Care Provider Resources	NM	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	86.0	91.7
Under-Represented Minority Physicians, 1998 (percent)	13.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	15.6	10.5
Dentists (rate per 100,000 pop.), 1998	39.6	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	53.8	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	32.7	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	78.8	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	63.6	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped New Jersey meet these needs by funding 12 grants to train primary care providers and dentists totaling $1,831,609 in FY 1999.

NEW YORK CASES

- The Columbia University College of Physicians has graduated 15 primary care fellows, all of whom have gone on to practice primary care, several in HPSA's. All of the faculty and fellows supported by these funds provide care in the predominantly Latino community of Northern Manhattan. Last year over

60,000 patients were in our general medicine clinics. With help of these funds several faculty have established collaborations with the department of psychiatry to examine depression among Latino patients and with the School of Public Health's Sergievsky Center to examine dementia among minority elders. We are also beginning collaborations with the department of pediatrics who recently received funds for their own fellowship. We plan to carry out weekly joint research meetings and explore collaborative research projects.

- At the Columbia University School of Dental and Oral Surgery Title VII, section 747 funds have supported the establishment of a primary care track in the general dentistry postdoctoral program. This new program has created a new Community DentCare Network to help underserved and HIV positive patients in off-site settings. Dr. Alan Formicola notes that Title VII, section 747 funds were ". . . integral to the development of this service network which includes five treatment centers, a dental van and seven intermediate school and high school programs. Graduates of the program have become faculty leaders at Columbia Dental School and strongly influence its whole curriculum, which now has a greater focus on "comprehensive patient care management rather than fragmented procedural care."[98]

- The University of Rochester School of Medicine and Dentistry has received Title VII, section 747 faculty development support for its general pediatrics program. For the past 10 years, the program has enrolled between two and five faculty per year. In 1998, the program received the Ambulatory Pediatric Association Teaching Award, which is presented to an innovative educational program that has had a substantial impact on trainees and on the lives of children. Graduates of the program during this time period hold faculty positions in pediatrics departments at The University of Rochester School of Medicine and Dentistry, The University of California at Davis, Dartmouth Medical School, University of Cincinnati, Northwestern University, Temple University, and Vanderbilt University. The majority of graduates of the fellowship program have gone on to careers in either departments of academic general pediatrics, or in community health centers or comparable entities. Most poor and near-poor children in America depend on academic clinics and community health centers, and the practitioners who work there, for their health care. The graduates of the fellowship not only care for these children, but conduct research to address some of the most serious issues facing children in poverty, including lead poisoning, asthma, school failure, teen pregnancy, and violence prevention. In addition, two of its former fellows initiated the pediatric links program with the community program at the University of Rochester School of Medicine and Dentistry during their fellowship training, and one of them, now a faculty member, continues to lead it. This is a clinical care and health education program that allows residents to interact with the underserved children within the community. These interactions take place in non-traditional settings such as homeless shelters, a foster care clinic, family resource centers, and food kitchens. This program is highly regarded in the Rochester community, and itself received the 2000 APA Teaching Award. Pediatric links recently received a major grant award from the Dyson Foundation.

- The University of Buffalo has used Title VII funds to start a rural training track in Olean, NY for its family medicine residents. As of 2000 there were seven

New York Profile* ***Fiscal Year 1999***

Health Care Provider Resources	NY	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	135.3	91.7
Under-Represented Minority Physicians, 1998 (percent)	14.1	12.0
Physician Assistants (rate per 100,000 pop.), 1999	18.9	10.5
Dentists (rate per 100,000 pop.), 1998	72.3	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	38.0	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	14.2	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	77.4	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	37.1	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped New York meet these needs by funding 51 grants to train primary care providers and dentists totaling $7,496,781 in FY 1999.

family doctors serving rural communities in New York State and Ohio that graduated from the program. As a side effect, the faculty has decreased the perinatal mortality rate in Cattauragus County by 30% by improved and stabilized primary care obstetrics services. This model has been duplicated in 22 rural communities across the United States.

- The New York College of Osteopathic Medicine (NYCOM) was awarded a family medicine graduate training grant in 1997 to develop graduate-training programs (osteopathic internships and family practice residency programs) at rural locations in upstate New York. This grant has permitted NYCOM to assist Samaritan Hospital in Watertown and Auburn Memorial Hospital in Auburn to develop and apply for internship and family practice residency programs. Samaritan now has an approved internship and is applying for the residency. Auburn has applied for the internship and will subsequently apply for the family practice residency. NYCOM has established affiliations with each hospital to provide normal third year rotations and the students have actively worked to have fourth year clerkships approved for these sites; they report substantial satisfaction with the training provided. During the first year 14 students rotated through the hospitals; three of these did all six rotations at the hospital. During the second year (1999-2000) 29 students are signed up and four are spending the full year on site. They are encouraged to be flexible, to participate in emergency room, surgical, obstetric, and other activities when not otherwise engaged to obtain the full opportunities provided to learn medicine. Learning at these sites is not a 7 a.m. to 6 p.m. job; medicine can be learned 24 hours a day.

- The most recent grant, initiated in 1999 will permit NYCOM to help clinical family practice faculty make better educational use of computers and encourage the use of video for recording and reviewing clinical encounters. This faculty development grant for faculty development in computer and video technology, will help NYCOM develop and implement training materials in the educational use of both computer and video technologies for family practice faculty, hospital attendings, and preceptors. At the end of the project we expect that computer use for literature searching and retrieval, evidence-based medicine, and clinical problem solving will occur in all family rotations, and video will be used frequently to evaluate and enhance patient encounter skills.

NORTH CAROLINA CASES

- Duke University Medical Center offers an array of training programs designed to "teach faculty who can then go on to teach students and residents about how to improve the care of patients." These programs, all supported by Title VII, section 747 funding include a nationally known multi-disciplinary training program in geriatrics and a family medicine faculty development program which has trained over 3,000 family doctors and other specialists in teaching skills, curriculum design and evaluation. The physician assistant program, the first such program in the county, is notable for its innovation and its placement of physician assistants in rural North Carolina.[99]

North Carolina Profile* ***Fiscal Year 1999***

Health Care Provider Resources	NC	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	84.8	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.2	12.0
Physician Assistants (rate per 100,000 pop.), 1999	20.7	10.5
Dentists (rate per 100,000 pop.), 1998	40.1	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	26.8	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	29.6	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	57.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	20.0	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped North Carolina meet these needs by funding 19 grants to train primary care providers and dentists totaling $2,449,333 in FY 1999.

- Stephen E. Willis, Chair of Family Medicine at East Carolina University, relates the history of the use of standardized patients to teach effective interviewing skills to medical students. This innovation was introduced at East Carolina University with the support of Title VII, section 747 funds and has been adopted by "over 95%" of medical schools across the country. Dr. Willis comments that, "those of us who participate in standardized patient teaching sessions have little doubt that this is an effective way to teach clinical communication and effective interpersonal skills with patients." Standardized patients will soon be used in examinations designed to test the interpersonal skills of first year medical residents being developed by the National Board of Medical Examiners, and are already employed in exams administered by the Educational Commission for Foreign Medical Graduates. This methodology is a significant advance in the education and evaluation of physicians and is a direct and unexpected outcome of Title VII, section 747 funding.[100]

- The faculty development in primary care program of the Wake Forest University Medical Center has recruited and enrolled two fellows in the Masters in Epidemiology and Health Services Program offered by the Department of Public Health Sciences. The career goal of the first-year fellows includes a major focus on minority women's health, and the fellows will be working with Hispanic and African-American women in a community health center.

NORTH DAKOTA CASES

- The University of North Dakota, School of Medicine and Health Sciences Department of Family Medicine, is developing an evidence-based medical curriculum; a student performed, faculty guided, practice-based chart reviews/surveys of clinical care at the clerkship and other sites throughout North Dakota; and will provide the various family medicine clerkship sites with access to an evidenced-based database. Faculty development through the office of medical education will be provided for selected faculty and preceptors to improve small group facilitator teaching and evaluation skills. A faculty mentor network within the Department of Family Medicine is under development. A course in the use of and access to authoritative secondary databases representing the best in evidence-based research will be offered to students and faculty at the major campuses as well as students and preceptors at the rural clerkship and Rome sites.

North Dakota Profile* *Fiscal Year 1999*

Health Care Provider Resources	ND	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	94.6	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.2	12.0
Physician Assistants (rate per 100,000 pop.), 1999	24.1	10.5
Dentists (rate per 100,000 pop.), 1998	48.4	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	7.3	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	25.2	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	66.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	22.6	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped North Dakota meet these needs by funding two grants to train primary care providers and dentists totaling $363,112 in FY 1999.

OHIO CASES

- Ohio State University School of Medicine received Title VII, section 747 funding from approximately 1990 to 1993. Through Title VII, section 747 the school was able to start a primary care residency track. The track was continued even when the funding was stopped. Without the funding, the school would never have had a primary care track. In addition, the funding gave general internal medicine and primary care visibility at a time when it could have disappeared entirely from the Department of Medicine. As a result of the perceived benefits of the primary care track, the entire residency was moved in the direction of primary care.

- Ohio University College of Osteopathic Medicine has had great success with Title VII grant funds.

Ohio Profile*	Fiscal Year 1999	
Health Care Provider Resources	**OH**	**U.S.**
Active Primary Care Physicians (rate per 100,000 pop.), 1998	88.1	91.7
Under-Represented Minority Physicians, 1998 (percent)	10.3	12.0
Physician Assistants (rate per 100,000 pop.), 1999	7.1	10.5
Dentists (rate per 100,000 pop.), 1998	50.7	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	14.5	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	12.6	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	53.4	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	15.9	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Ohio meet these needs by funding 23 grants to train primary care providers and dentists totaling $3,353,821 in FY 1999.

Oklahoma Profile*	Fiscal Year 1999	
Health Care Provider Resources	**OK**	**U.S.**
Active Primary Care Physicians (rate per 100,000 pop.), 1998	65.2	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.3	12.0
Physician Assistants (rate per 100,000 pop.), 1999	12.7	10.5
Dentists (rate per 100,000 pop.), 1998	46.2	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	20.9	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	19.1	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	51.9	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	14.3	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Oklahoma meet these needs by funding four grants to train primary care providers and dentists totaling $382,685 in FY 1999.

Through these grants, three family practice residency clinics, in Toledo, Cleveland and Southeast Ohio were able to expand their access to patients in communities that had no other medical care available. The college was able to develop a geriatrics program to provide treatment for these populations in underserved communities. A community out-reach program was started where family practice residents provide a monthly program on various health topics for the community, and provide education on smoking, drugs, proper nutrition, etc. to the schools in underserved areas. These grants have also allowed the college to expand care to migrant worker camps.

OKLAHOMA CASES

- The Oklahoma State University College of Osteopathic Medicine operates a HCOP program designed to attract promising candidates into its medical education program. In the first year, the program hosted a young Cherokee woman, who had been referred by a local boarding school. The young woman had considered becoming a physical therapist. She was an excellent student, who became intrigued with the possibilities of becoming an osteopathic physician while she participated in the HCOP program. The HCOP program assisted her with ACT preparation. The program director relates that she scored 26. She is performing well and expects to apply for admission to the osteopathic medical school. In the program's second year, three young Cherokee women were accepted into the program. All three were sixteen year olds with their own little children. All of these women are now determined to complete high school and go on to further training in a health field. All three are receiving excellent academic grades.

OREGON CASES

- At the Oregon Health Sciences Center, Title VII, section 747 support has catalyzed major changes in the overall program from predominantly inpatient

Oregon Profile*	Fiscal Year 1999	
Health Care Provider Resources	**OR**	**U.S.**
Active Primary Care Physicians (rate per 100,000 pop.), 1998	86.8	91.7
Under-Represented Minority Physicians, 1998 (percent)	3.3	12.0
Physician Assistants (rate per 100,000 pop.), 1999	7.7	10.5
Dentists (rate per 100,000 pop.), 1998	62.4	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	12.5	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	11.9	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	86.1	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	55.6	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Oregon meet these needs by funding seven grants to train primary care providers and dentists totaling $728,641 in FY 1999.

orientation to a more balanced inpatient-outpatient approach. Many providers have been trained, whose main focus is service to the underserved. The internal medicine faculty who serve an underserved population have been trained. The program funding has led to broader cultural changes in the institution that transcend primary care, per se.

PENNSYLVANIA CASES

- The Pennsylvania Shortage Area Program (PSAP) at Jefferson Medical College has worked for 22 years to place family doctors in rural Pennsylvania communities and has had notable success. A recent study found that the graduates of this program represent 21% of the family physicians practicing in rural Pennsylvania who had graduated from one of the State's seven medical schools. This finding is remarkable since PSAP graduates represent only 1% of the graduates from Pennsylvania medical schools during the period studied. The authors conclude that ". . . outcomes of the PSAP after 22 years have shown that selectively admitting medical school applicants who are most likely to become rural family physicians based on their background and career intentions, supporting them during medical school and allowing them to gravitate to rural and underserved areas . . . has had a substantial and long lasting impact . . . on underserved rural areas."[101]

- Dr. Bob Wright, Director of the Scranton Temple General Internal Medicine Residency Program comments that "The Scranton Temple Residency Program was among the first internal medicine residencies funded in 1977. We were then a brand new program and would have been unable to begin without (this) financial support . . . . We have brought medical education to Northeast Pennsylvania through the program and renewed our primary care base. The average age of a primary care physician in the region was 57 in 1977. It is now in the low 40's. We have trained 120 primary care internists who practice in this region. We are the backbone of an ambitious continuing medical education program that promotes physician renewal." Dr. Wright notes that graduates of his program "provide significant leadership in area institutions (three medicine chairs, Physician-in-Chief, Director of Quality . . . Medical Director of a State Hospital). (Graduates) have also risen to leadership positions outside the region (Chief of Staff at the Miami VA, Director of Medical Affairs Broward Co. Hospital in Florida, Director of the TB program in Philadelphia, Director of a hospice program in Reading, Pa." Dr. Wright developed the Primary Care Institute at Temple University, and that Institute developed the Fundamentals of Clinical Care curriculum that is used to introduce Temple medical students to clinical medicine.[102]

- Title VII, section 747 funding has enabled the University of Pennsylvania Health System to strengthen its commitment to providing care for underserved populations and to train residents and fellows in primary care. Dr. Jack Ende reports that the use of Title VII, section 747 support has enabled the Division of General Internal Medicine to "expand the mission and capacity of its fellowship program . . . to address the needs of underserved populations. The fellows trained in this program remain in academic medicine, practicing in underserved areas, and the residents participate in a primary care residency track . . . with its own curriculum and mission, which is to provide training for future general internists who are committed to practicing in areas that are underserved."

Pennsylvania Profile*	Fiscal Year 1999	
Health Care Provider Resources	**PA**	**U.S.**
Active Primary Care Physicians (rate per 100,000 pop.), 1998	99.7	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.8	12.0
Physician Assistants (rate per 100,000 pop.), 1999	13.3	10.5
Dentists (rate per 100,000 pop.), 1998	60.6	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	14.1	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	9.8	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	76.1	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	37.3	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Pennsylvania meet these needs by funding 30 grants to train primary care providers and dentists totaling $4,959,570 in FY 1999.

- The Lock Haven University has only recently received PA funding through the Title VII program. The grant will be used for a special project that will develop an entirely web-based curriculum over the next three years. This will better prepare its students for the future workforce and provide patients in rural communities health providers that can rapidly access new diagnostic and treatment information. The program staff hopes to eventually utilize the web technology to reach potential students who represent minority and medically underserved populations.

- The Philadelphia College of Osteopathic Medicine (PCOM) received a three-year grant, now in its final year, from the Health Resources and Services Administration to develop a predoctoral curriculum, which places significant emphasis on comprehensive persons. The three major curriculum goals are:

  – To develop, implement and evaluate a teaching module, which focuses on preventive medicine for the medically underserved in a managed care environment.

  – To develop, implement and evaluate a teaching module, which focuses on understanding the roles of family and community in health care delivery.

  – To develop, implement and evaluate a teaching module, which focuses on the application of evidence-based medicine in patient care and on becoming a self-directed learner.

This program will serve as a model for medical institutions that, like the Philadelphia College of Osteopathic Medicine, are interested in reaching out to medically underserved populations by training doctors to understand the socioeconomic aspects of patients' lives in order to provide them with the appropriate, comprehensive, and integrative health care.

RHODE ISLAND CASES

- Over the last twelve years the Brown University/ MHRI family practice residency has placed particular emphasis on training residents who will practice in underserved communities. During the 1970's the residency helped establish two community health centers in Rhode Island, one in Pawtucket and one in Central Falls, the cities served by Memorial Hospital of RI and the residency. Throughout the early and mid 1980's the Brown University department of family medicine maintained unofficial ties with these two health centers. In 1988 with the help of the department the two health centers merged, forming Blackstone Valley Community Health Centers, Inc. (BVCHC). An interagency agreement was negotiated between BVCHC and the family medicine residency during 1988-89. The major purpose of this agreement was to establish the Central Falls site of BVCHC as an accredited residency program continuity site. Title VII, section 747 funding was instrumental in establishing the initial agreement and subsequent funding has been essential to the continued success of the program. This relationship has proven mutually rewarding to the residency and the CHC's. The health centers have reported increased ability to recruit and retain family physician staff and the relationship has helped facilitate the residency's goal of placing graduates in underserved communities. The residency has set a goal of placing 40-50% of graduates in practices serving underserved communities. Since 1988, 75 of 161 graduating residents (47%) have chosen to practice in underserved communities upon graduation and

Rhode Island Profile* *Fiscal Year 1999*

Health Care Provider Resources	PA	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	125.2	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.7	12.0
Physician Assistants (rate per 100,000 pop.), 1999	10.4	10.5
Dentists (rate per 100,000 pop.), 1998	54.5	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	14.5	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	15.1	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	60.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	60.0	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Rhode Island meet these needs by funding seven grants to train primary care providers and dentists totaling $1,108,998 in FY 1999.

South Carolina Profile* *Fiscal Year 1999*

Health Care Provider Resources	SC	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	80.5	91.7
Under-Represented Minority Physicians, 1998 (percent)	7.2	12.0
Physician Assistants (rate per 100,000 pop.), 1999	5.6	10.5
Dentists (rate per 100,000 pop.), 1998	41.4	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	32.3	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	35.8	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	78.3	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	23.9	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped South Carolina meet these needs by funding seven grants to train primary care providers and dentists totaling $933,816 in FY 1999.

65 of the 161 (40%) continue to practice in underserved practice sites in the year 2000.

SOUTH CAROLINA CASES

- The Medical University of South Carolina has used Title VII, section 747 funds to support a multi-disciplinary internal medicine–pediatric faculty development fellowship.[103]
- The Medical University of South Carolina has used Title VII, section 747 funding to establish an innovative rural experience for its students. An article by Clay Barbour in the Charleston Post and Courier on November 8, 2000, described the experience as follows:
  - The Dean's Primary Care Rural Clerkship places students in thirty South Carolina communities, and is designed to bring better medical care to these typically poorer areas and to encourage them to consider a rural practice career.
  - Officials say the rural experience teaches students about patients in ways an office visit never will. In a newspaper interview Dr. Elizabeth Gordineer, clerkship supervisor, commented that "you really can't overestimate the importance of seeing how someone lives in diagnosing them. When you practice rural medicine, you get to know social history as well as medical history. And it really helps in treating them." Tony Sagel, one of the participating students, said that the experience has helped him. "When you go to someone's home, you often find problems the patient wasn't even aware of," he said ". . . . like eating the wrong kinds of foods, or keeping a dirty place. Seeing that can help me treat them."
  - The rural clerkship has another goal. Officials hope some students will find the experience rewarding enough to consider practicing medicine in such areas. Dr. Donna Kern, MUSC's community-based education coordinator, commented, "most medical

students aren't exposed to that part of medicine because most medical universities are in urban areas. And many students find it hard to give up the comfort of urban living, the shows, the restaurants, everything."

– Dr. W.H. Turner, a legend in Edgefield, has been practicing medicine in the area for 36 years. He remembers when he went on at least six house calls a day, each one costing the patient between $4 and $5. He admits there isn't a lot of money in practicing medicine in such areas, but there is a lot of gratification. "I go to the grocery store or to a restaurant, and I see someone I've helped, some life I've saved, he said. Not many city doctors get to have that privilege. I just hope that some of our young doctors work out here and say, 'that's a life I want. That's what I want to do.'"[104]

- John Lammie, Program Director, Columbia, SC Palmetto Health Alliance/University of South Carolina, reports: "Title VII has allowed us to move forward with an exciting GIS initiative to geocode the practice, to train residents in spatial health, to identify seriously mentally ill patients in the community to improve learning about and care for this population. Previous Title VII funding allowed the establishment of a strong COPC mindset for community outreach. We have been able to fund outstanding faculty in the areas of public health, GIS technology, minority faculty. Title VII has been the key element of our community outreach."

South Dakota Profile* ***Fiscal Year 1999***

Health Care Provider Resources	SD	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	84.7	91.7
Under-Represented Minority Physicians, 1998 (percent)	3.7	12.0
Physician Assistants (rate per 100,000 pop.), 1999	26.8	10.5
Dentists (rate per 100,000 pop.), 1998	45.9	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	10.5	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	28.4	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	76.1	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	19.4	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped South Dakota meet these needs by funding three grants to train primary care providers and dentists totaling $336,054 in FY 1999.

SOUTH DAKOTA CASES

- The USD PA Studies Program has been able to provide the leadership in the initiation of a USD School of Medicine task force on distance education during the past three years. The grant enabled the task force to present training workshops for faculty and students in the use of distance education equipment and teaching techniques. A Distance Education Handbook was compiled covering the concepts of distance education, teaching methodology, audiovisual techniques and facilitator guidelines for telemedicine/video conferencing distance learning. The USD PA Program was also able to address the issue of recruitment, retention, and placement of trainees into underserved areas. Physicians and clinics were identified as potential clinical training sites and communities for future PA employment. An additional part of the grant support was used to identify support services to assist students with financial aid, academics, and personal services within the university to help identify and admit underrepresented minorities and disadvantaged students into the program. As a result of those efforts the program was able to admit two individuals into the Class of 2002 and one student is admitted into the Class of 2003.

TENNESSEE CASES

- Dr. Jim Wilson, Professor and Chairman of Family Medicine at East Tennessee State University's James H. Quillen College of Medicine, writes "Without any doubt Title VII, section 747 funds have played an immense role in establishing our discipline in this institution. We have used these funds to plan and implement numerous curriculum elements in the residency programs and in our medical student education programs. Examples of these would include health maintenance and wellness promotion curriculum, women's health curriculum, geriatrics curriculum,

Tennessee Profile* *Fiscal Year 1999*

Health Care Provider Resources	TN	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	91.0	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.9	12.0
Physician Assistants (rate per 100,000 pop.), 1999	6.7	10.5
Dentists (rate per 100,000 pop.), 1998	48.3	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	18.9	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	28.5	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	66.3	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	91.6	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Tennessee meet these needs by funding seven grants to train primary care providers and dentists totaling $736,172 in FY 1999.

Texas Profile* *Fiscal Year 1999*

Health Care Provider Resources	TX	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	73.5	91.7
Under-Represented Minority Physicians, 1998 (percent)	16.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	9.4	10.5
Dentists (rate per 100,000 pop.), 1998	43.6	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	45.3	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	18.7	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	57.9	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	31.1	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Texas meet these needs by funding 25 grants to train primary care providers and dentists totaling $3,235,063 in FY 1999.

many aspect of our rural training in both graduate and medical student programs and much, much more. A specific example includes the Appalachian Preceptorship, a unique program supported from its inception by the pre-doctoral training grant. Each year we get students from all over the United States coming to our medical school for this unique rural preceptorship. The Special Exemplary Project Award was presented to the Appalachian Preceptorship by the Rural Health Association of Tennessee in 1997."[105]

TEXAS CASES

- The University of Texas Medical Branch (UTMB) PA Program by use of DHHS grant funding provides support to started a new satellite PA Program in Edinburg, Texas located in South Texas where the lower seven counties have vast poverty, unemployment, and sanitation issues. The PA graduates are able to provide medical care to underserved patients who suffer from poverty, dysentery, illiteracy, and malnutrition. The UT Pan Am PA Program now is self-standing and has graduated over 140 certified students providing care in the South Texas area. The DHHS grant funds given to UTMB supported the use and development of new technology (interactive TV) to bring the advanced medical care curriculum to rural, underserved, impoverished South Texas border area. Students (primarily Hispanic) were able to stay in their homes and receive the PA Training. Patients of all ages receive primary medical care as well as community action programs in substance abuse, teenager pregnancy, violence, and water sanitation.

- Dr. William Mygdal, Director of the Family Practice Faculty Development Center in Waco, Texas, notes that the year-long part-time fellowship he directs has been operating with Title VII, section 747 support since 1978. Significantly, the fellowship has produced 134 graduates, who make up a substantial

proportion of the full-time faculty in Texas family practice departments and residency programs. Recent fellowship alumni surveys indicate that 77% of these graduates remain in active roles as full-time teachers of family practice. Seventy-four percent of the program's graduates report that they work in medically underserved communities. Graduates of the Waco fellowship direct eleven of the 30 allopathic family practice residencies in the State. Since almost all of these programs serve indigent and low-income patients, the multiplier effect of this one fellowship on Texas patient care access is significant. The Faculty Development Center was awarded the national 1997 Primary Care Achievement Award for Education by the Pew Health Professions Commission.

- Joshua Freeman, MD, University of Texas Health Science Center San Antonio reports that, "Our predoctoral grant has been revolutionary, not only in the department, but in the medical school . . . . Modules from our M3 clerkship, including community based teaching and cultural competency, have been successfully integrated into the M1 course, and will be picked up by other clerkships, such as pediatrics."

- The Department of Family Practice and Community Medicine at the University of Texas Health Science Center at Houston reports that Title VII funds have helped the department make major improvements affecting the training of medical students, residents and faculty. An academic administrative units grant was used to strengthen the research programs of the department and to develop the Houston area practice based research network (HAPN). A predoctoral training grant was utilized to make fundamental changes in the medical school curriculum. As result of a pilot program, a new course, Introduction to Clinical Medicine, was added to the first year medical school curriculum. This course uses standardized patients to teach medical history taking and physical exam skills to first year medical students. This course also covers social and ethical issues affecting health care in this country. An ongoing faculty development grant is supporting the multi-disciplinary primary care fellowship involving family medicine, general pediatrics and general internal medicine. This fellowship provides training in both research and academic skills for future primary care faculty.

UTAH CASES

- The Department of Family and Preventive Medicine at the University of Utah has four ongoing Title VII, section 747 projects including:

Utah Profile* ***Fiscal Year 1999***

Health Care Provider Resources	UT	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	72.6	91.7
Under-Represented Minority Physicians, 1998 (percent)	2.4	12.0
Physician Assistants (rate per 100,000 pop.), 1999	12.4	10.5
Dentists (rate per 100,000 pop.), 1998	58.4	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	11.6	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	15.4	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	86.2	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	51.7	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Utah meet these needs by funding five grants to train primary care providers and dentists totaling $874,379 in FY 1999.

  - Establishment of departments of family medicine (EDFM)
  - Graduate training in family medicine
  - Faculty development in family medicine
  - Physician assistants

- The EDFM grant is focused on developing a clinical research infrastructure at one of the department's residency training sites and has little relation to building the department's diversity or cultural competence. Both the faculty development and family medicine graduate training grants have as objectives developing COPC skills, including care for diverse populations (part of the training program is conducted through the local CHCs). The PA program training grant is focused entirely on minority recruitment, building trainee skills in the delivery of health care to culturally diverse populations, and on placing students in medically underserved communities.

VERMONT CASES

- At the University of Vermont, the Title VII, section 747 pre-doctoral grant was used to develop web-based scenarios for students to access in the rural family practice offices that the students were using for their four-week rotation. These provided a "remote learning" experience and allowed rural preceptors to become more knowledgeable regarding information technology. The university has developed several scenarios and decided to use "prevention" as one of the themes for the clerkship. The cases to date have included:
  - an infant for a physical with issues around immunizations, lead screening and fluoride, along with a positive history of smoking in the parents;
  - an adolescent (16) for a physical with issues of smoking, sexual activity with several partners and multiple problems with communication; and,
  - an older patient (53) for physical with positive tobacco and alcohol abuse history, PH of asthma, requesting routine health maintenance with a pos FH of colon cancer.
- The grant has linked with the statewide AHEC program to coordinate rotations, housing while away, and some funding for travel. Staff engages in annual faculty development training along with AHEC for community preceptors on an annual basis in a Joint Primary Care Meeting (with PCIM and Peds) and the clerkship directors site visit the rotation midway during the rotation. Each month one third of the students go to Maine for their rotation to insure that students get the same experience at both centers.

VIRGINIA CASES

- The physician assistant training program in Roanoke, Virginia has made effective use of its Title VII, section 747 grant to train its graduates to be able to practice effectively in rural areas. In the most recent class on which data are available, four graduates

Vermont Profile* — *Fiscal Year 1999*

Health Care Provider Resources	VT	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	125.7	91.7
Under-Represented Minority Physicians, 1998 (percent)	3.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	16.6	10.5
Dentists (rate per 100,000 pop.), 1998	56.4	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	2.5	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	10.9	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	78.6	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	7.1	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Vermont meet these needs by funding a grant to train primary care providers and dentists totaling $97,200 in FY 1999.

Virginia Profile* — *Fiscal Year 1999*

Health Care Provider Resources	VA	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	93.9	91.7
Under-Represented Minority Physicians, 1998 (percent)	10.7	12.0
Physician Assistants (rate per 100,000 pop.), 1999	6.6	10.5
Dentists (rate per 100,000 pop.), 1998	53.6	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	27.7	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	16.6	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	40.4	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	8.8	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Virginia meet these needs by funding 14 grants to train primary care providers and dentists totaling $2,258,699 in FY 1999.

work in rural family practice centers, seeing farm workers (including a growing number of Hispanic workers), who commute to urban areas an hour or more away, a large number of elderly folks, and children. Program staff notes that three of the graduates are women who see a large number of women patients. Many of the women live in the "hills and hollers" of Virginia and won't seek health care from male providers. The program has one (female) graduate in an ob-gyn practice in Forest, who has become a preceptor. One graduate works in a psychiatric unit that serves a five-county area in the mountains of North Carolina. He does admissions histories and physicals, daily rounds, and generally manages the patients on the unit while the psychiatrist does her outpatient clinics. In addition to these students who are physically located in rural areas, the program has a number of others who are in small cities in catchment areas that include rural Appalachia and other rural areas.

- The founder of our "high-tech high-touch PA education" wanted our program to emphasize two areas 1) high involvement with patients in terms of good interviewing techniques and thorough physical examinations, and 2) the ability to use modern technology with great facility. The rationale for the latter is this: if we want to place students in isolated areas, they will face the challenges of professional isolation and of keeping current with rapidly changing medical knowledge. If they can create a "virtual" professional community that will help them be less isolated, even though they may be miles and miles from the nearest peer. If they can access online continuing medical education and up-to-date treatment guidelines, etc., they can upgrade their medical knowledge in a timely fashion. Graduates report keeping in touch with one another via e-mail and chat groups, so at least the first premise is being borne out. They reported that, as students, they were among the most technologically savvy in the areas where they were doing clinical rotations and were able to access information from even the most remote sites.

WASHINGTON CASES

- At the Swedish Hospital Downtown Family Medicine Clinic, Title VII, section 747 funding helps pay for the costs of resident and faculty staffing. With this funding, staff is able to offer a full-time, full-service clinic that meets all the primary care needs of our patients. Without this funding, it is unlikely that the public health center would be able to offer a primary care clinic, and many patients would have to go elsewhere, which often means traveling a farther distance and going to clinics that do not offer the wide range of interpreter and social services offered by the program. Already, many patients come from communities far outside of Seattle because the public health centers in their areas have closed down. Swedish also provides a significant amount of services to the various refugee communities that have settled in Seattle. After being screened in the public health refugee clinic, those patients have the option to receive their primary health care at the Swedish clinic, and many of them choose to do so.
- Title VII, section 747 funds are also essential to the existence of the Swedish family medicine residency program at Swedish Medical Center. The Swedish family medicine residency program was established 30 years ago by Dr. Joseph Scardapane, who had the vision to see that Swedish could offer an excellent training ground for future primary care physicians.

Washington Profile* *Fiscal Year 1999*

Health Care Provider Resources	WA	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	90.0	91.7
Under-Represented Minority Physicians, 1998 (percent)	4.5	12.0
Physician Assistants (rate per 100,000 pop.), 1999	15.9	10.5
Dentists (rate per 100,000 pop.), 1998	60.0	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	17.3	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	11.5	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	79.5	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	66.7	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Washington meet these needs by funding seven grants to train primary care providers and dentists totaling $1,178,743 in FY 1999.

Thanks to Federal support, Swedish offers a full-spectrum training program that prepares residents for primary care practice in any setting. As with most medical centers, there is not enough of a profit margin to independently support such a large and committed educational program. With Title VII, section 747 funds, not only is Swedish able to do so, it also guarantees that there is a strong primary care focus in an otherwise highly-specialized medical system. Interactions between the family medicine residency program and staff with other Swedish specialists and the hospital are very positive and collaborative. In short, Title VII, section 747 funding helps insure that primary care continues to have a strong voice at the institution.

WEST VIRGINIA CASES

- At the WV School of Osteopathic Medicine, Title VII funds supported development of a mechanism for remote access to instructional materials for medical students on rural rotations, giving rural students the same access via Internet that they would have had at the home campus. The new system provides on-line access to rotation objectives, medical journals and text data bases; allows remote submission of logs and rotation evaluations; informs students about learning opportunities and rural housing; and provided on-line application to affiliated family practice residencies. In addition to the immediate benefits of this technology within the training program, experience with effective use of distance technology will make rural practice more attractive by demonstrating how distance technology can overcome geographic isolation.

West Virginia Profile* — *Fiscal Year 1999*

Health Care Provider Resources	WV	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	85.2	91.7
Under-Represented Minority Physicians, 1998 (percent)	8.9	12.0
Physician Assistants (rate per 100,000 pop.), 1999	17.6	10.5
Dentists (rate per 100,000 pop.), 1998	43.1	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	4.4	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	29.5	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	70.9	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	18.2	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped West Virginia meet these needs by funding seven grants to train primary care providers and dentists totaling $721,185 in FY 1999.

WISCONSIN CASES

- The LOCUS program would not exist without Title VII, section 747 support. This program currently has 24 students, all of whom are engaged in community service projects with the medically underserved. While professional and community leadership is an acknowledged need in our society,

Wisconsin Profile* — *Fiscal Year 1999*

Health Care Provider Resources	WI	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	87.0	91.7
Under-Represented Minority Physicians, 1998 (percent)	5.6	12.0
Physician Assistants (rate per 100,000 pop.), 1999	12.0	10.5
Dentists (rate per 100,000 pop.), 1998	55.1	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	10.5	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	13.4	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	76.4	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	16.7	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Wisconsin meet these needs by funding ten grants to train primary care providers and dentists totaling $1,414,242 in FY 1999.

few programs promote leadership skill development among undergraduate medical students. Many students enter medical school with motivation for community service; however, in the absence of reinforcement, these interests often diminish as students progress through training. While many medical schools have established volunteer community service programs, often students lack the skills necessary to effectively lead programs. LOCUS is a recently established elective program for medical students at the University of Wisconsin, which supports interest in community service and leadership training and complements the required medical school curriculum. LOCUS selects and matches interested medical students with faculty mentors for longitudinal clinical experience and project development.

- In addition, the predoctoral training grant provided funding for Wisconsin to develop a statewide clerkship including a web site with interactive, evidence based curriculum, available to students and faculty throughout the State of Wisconsin.

WYOMING CASES

- The University of Wyoming Family Practice-Casper objectives include: retain behavioral medicine faculty. expand behavioral medicine opportunity and improve resident insight regarding practice management. A quality behavioral medicine experience at Lander Valley Medical Center has been firmly established. The behavioral medicine rotation to include work at the local mental health center (Central Wyoming Counseling Center) provides opportunity in the treatment of substance abuse, adolescent mental health problems and seriously and persistently mentally ill adults. Both residents and preceptors are involved in achieving the practice management rotation's goals. Fifty percent of last year's residents who graduated are now practicing in Wyoming.

- The University of Washington MEDEX northwest physician assistant program has a 30-year history of training individuals with extensive health care backgrounds as physician assistants. The MEDEX program operates three didactic training sites. The Seattle site is targeted for students from western Washington and the Seattle-Tacoma urban area. The site in Yakima, Washington severs students from central/southeastern Washington, Alaska, and Wyoming. The Spokane site was created to meet the needs of students from northeastern Washington, northern Idaho, and western Montana. The MEDEX program has clinical training sites in the State of Wyoming in Casper, Graybull, Cody, Sheridan, and Newcastle.

Wyoming Profile* *Fiscal Year 1999*

Health Care Provider Resources	WY	U.S.
Active Primary Care Physicians (rate per 100,000 pop.), 1998	80.5	91.7
Under-Represented Minority Physicians, 1998 (percent)	3.0	12.0
Physician Assistants (rate per 100,000 pop.), 1999	17.1	10.5
Dentists (rate per 100,000 pop.), 1998	49.9	55.0
Selected Access Indicators		
Minority Population, 1998 (percent)	9.9	28.7
Persons Without Access to a Primary Care Provider, 1996 (percent)	27.8	17.1
Counties Designated as Primary Care HPSAs, 1999 (percent)	87.0	64.6
Counties Designated as Dental HPSAs, 1999 (percent)	4.3	26.9

** Source for State profile information is the most recent comprehensive state data available in the HRSA State Profiles Data Element.*

HRSA helped Wyoming meet these needs by funding a grant to train primary care providers and dentists totaling $88,070 in FY 1999.

The program's goals (workforce diversity, generalist faculty, primary care training emphasis, curricular innovation, and generalist outcomes) are consistent with the purposes of Title VII funding. The program's success in meeting these goals is evidenced by the placement of 80% of its graduates in primary care practice sites and the deployment of 40% of the graduates in Federally defined medically underserved areas. Additionally, minority students typically comprise 25-30% of the class, although the minority population in the region is approximately 11%.

Definitions and Sources Used in State Profiles

1. **Active Primary Care Physicians:** Number of Active Primary Care Physicians per 100,000 population in the year cited – All areas.

   Source: HRSA State Profiles.

2. **Under-represented Minority Physicians:** Percent of non-Asian and non-White Federal and

Non-Federal physicians in the State in the year cited.

Source: HRSA's Bureau of Health Professions, 1998 Unpublished data from the American Medical Association, Table 6A: Federal and Nonfederal Physicians by Race and State of Practice.

3. **Physician Assistants:** Number of Physician Assistants per 100,000 population in the year cited.

   Source: Quality Resource Systems, Inc., 1999 Area Resource File, Quality Resource Systems, Inc. Note: There is a 16% undercount in the sum of the States relative to the national total due to missing county information; if no county was reported, the data were only added to the national total but not to the State.

4. **Dentists:** Number of dentists per 100,000 population in the year cited.

   Source: HRSA State Profiles.

5. **Minority Population:** The Minority Population is the sum of each of the racial minority groups and persons of Hispanic Origin divided by the total population in the year cited.

   Source Link: http://www.census.gov/population/estimates/state/srh/srhus98.txt.

6. **Without Access to Primary Care Provider:** The estimated number of people without access to a Primary Care Provider in the year cited. Calculated at a ratio of 1 provider to 1,500 people, to produce the number of those remaining without access. Needs Assessment completed using the Bureau of Primary Health Care's BHCDANET.

   Source: HRSA's Bureau of Primary Health Care, 1996 BPHC State Profiles 1996 (the "red book"), BPHC State Profiles Office of Data, Evaluation, Analysis and Research / Office of Data Management.

7. **Primary Care HPSAs:** Percentage of counties in the State designated as Primary Care Health Care Professions Shortage Areas (HPSAs) as of the date cited, either entirely or in part.

   Source: HRSA's Bureau of Primary Health Care, 1999 Uniform Data System, Unpublished data (data as of November 1, 1999).

8. **Dental HPSAs:** Percentage of counties in the State designated as Dental Health Professional Shortage Areas (HPSA), either wholly or in part, as of the date cited.

   Source: HRSA's Bureau of Primary Health Care, 1999 Uniform Data System, Unpublished data (data as of November 1, 1999).

9. **Grants to Train Primary Care Providers and Dentists:** Number of active grants in a State during the fiscal year cited (October 1 - September 30) for programs to train primary care providers and dentists. Funding amount listed is total HRSA dollars awarded in a State during the fiscal year cited (October 1 - September 30) for programs to train primary care providers and dentists.

APPENDIX E: GLOSSARY

AAMC: Association of American of Medical Colleges

Access: "effective access to health care" has been defined as the timely use of personal health services to achieve the best possible health outcomes.

Comprehensive Performance Monitoring System (CPMS): The reporting system established by the Bureau of Health Professions to create a uniform monitoring system based on comparable outcome data produced by the Title VII, section 747 and Title VIII programs it funds.

Cultural Competence: A set of knowledge-based and interpersonal skills that allows providers to understand, appreciate, and work with individuals of cultures other than their own. It includes awareness and acceptance of cultural differences; self-awareness; understanding the dynamics of difference; basic knowledge about the patient's culture; and adaptation of skills.

Disadvantaged: An individual who (1) comes from an environment that has inhibited the individual from obtaining the knowledge, skill and abilities required to enroll in and graduate from a health professions school, or (2) comes from a family with an annual income below a level based on low income thresholds according to family size published by the U.S. Bureau of the Census.

Evidence-based Medicine (EBM): Evidence-based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.

GAO: General Accounting Organization

General Dentistry: The fields of adult and pediatric dentistry devoted to caring for all common dental problems regardless of age. General dentists complete a one-year residency in general dentistry after graduation from dental school.

Government Performance and Results Act (GPRA): This 1994 legislation provided for a shift in government programs toward outcomes and comparison of results to resources. It required that programs be evaluated on the basis of defined and measurable outcomes.

Graduate Medical Education (GME): Graduate medical education (GME) is the second phase of physician education, preparing physicians for practice in a medical specialty. GME focuses on the development of clinical skills and professional competencies and on the acquisition of detailed factual knowledge in a medical specialty. This learning process prepares the physician for the independent practice of medicine in that specialty. The programs are based in hospitals or other health care institutions and, in most specialties, utilize both inpatient and ambulatory settings, reflecting the importance of care for adequate numbers of patients in the GME experience. GME programs, including Transitional Year programs, are usually called residency programs, and the physicians being educated in them, residents.

GME is also used often to denote the complex system of payments used to support the residency education in medicine and certain other disciplines. The bulk of these funds come from the Medicare Trust Fund. Payments under this system consist of Direct Medical Education payments, used to defray direct costs of training physicians and Indirect Medical Education payments that cover the added costs that teaching hospitals incur patient care by having residents in training.

Health Professional Shortage Area (HPSA): Section 332 of the Public Health Service Act provides that the Secretary of Health and Human Services shall designate health professional shortage areas, or HPSAs, based on criteria established by regulation. The HPSA criteria require three basic determinations for a geographic area request: (1) the geographic area involved must be rational for the delivery of health services; (2) a specified population-to-practitioner ratio representing shortage must be exceeded within the area; and (3) resources in contiguous areas must be shown to be overutilized, excessively distant, or otherwise inaccessible.

Interdisciplinary / Multidisciplinary Education: Programs that include collaboration among individuals from other disciplines, i.e., family medicine, pediatrics,

internal medicine, osteopathic medicine, physician assistants, general/pediatric dentistry, nursing, and nurse-practitioners in teaching and/or providing primary care services.

Institute of Medicine (IOM): The Institute of Medicine is a private, non-profit organization established in 1970 under the 1863 charter of the National Academy of Sciences. The role of the Institute of Medicine is to advise the nation on issues of health and medical policy.

Medically Underserved Community (MUC): An urban or rural area or population that: (a) is eligible for designation under section 332 as a HPSA; (b) is eligible to be served by a Migrant Health Center or Community Health Center under section 330; (c) has a shortage of personal health services determined under criteria issued by the Secretary under section 1860 of the Social Security Act; or (d) is designated by a State governor as a shortage area, or medically underserved community.

OSCE/OSCI: Objective structured clinical examination/interview, an assessment method that assesses in a structured and objective manner an examinee's performance of specified clinical tasks. Standardized patients are sometimes used to help carry out OSCEs.

Primary Care: The provision of integrated, accessible, health-care services by clinicians who are accountable for addressing a large majority of personal health-care needs, developing a sustained partnership with patients, and practicing within the context of family and community.

Primary Care Dentistry: For purposes of Title VII, section 747 primary care dentistry means general and pediatric dentistry as defined under general dentistry.

Quality:

- Doing the right thing, for the right patient, at the right time, with the right results.
- Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.

Standardized Patient (SP): An individual who has been trained to portray the history, physical findings, and affect of an actual patient in a standardized way on a repeated basis. SPs are used for both the teaching and the assessment of students. An SP may be an actual patient or may be an actor.

Underrepresented Minorities: Racial and ethnic populations that are underrepresented in the health professions relative to their proportion of the population involved, to include Blacks or African Americans, Hispanics or Latinos, American Indians and Alaska Natives, Native Hawaiians or other Pacific Islanders, and any Asians other than Chinese, Filipino, Japanese, Korean, Asian Indian or Thai.

APPENDIX F: REFERENCES

[1] An important exception to this statement is the practice of dentistry in the United States, in which 79% of dentists remain general practitioners.

[2] Nurse Practitioners and other nursing professionals also fall clearly within any definition of primary care. This profession is covered under Title VIII of the PHS Act and thus are not within the purview of the Advisory Committee and are not discussed in this report.

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[26] The Reforming States Group. Pediatric *Dental Care in CHIP and Medicaid: Paying for What Kids Need, Getting Value for State Payments*. The Milbank Memorial Fund, New York, NY 1999.

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[28] U.S. DHHS 1996 Office of Inspector General, U.S. Department of Health and Human Services. *Children's Dental Services Under Medicaid – Access and Utilization, OEI-09-93-00240*, San Francisco: Office of Evaluations and Inspections, April 1996.

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