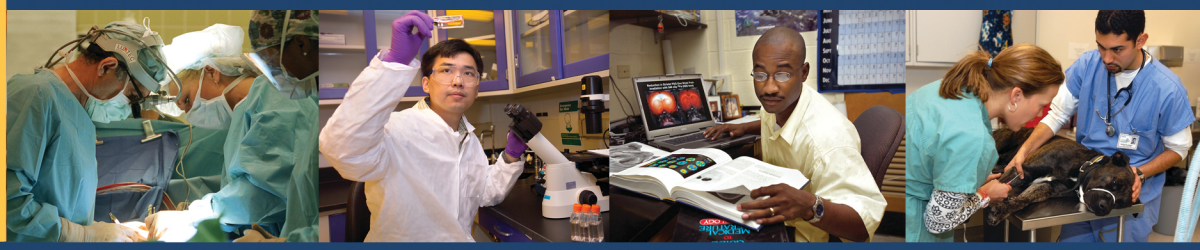
UNIVERSITY *of* CALIFORNIA

Health Sciences Instructional Program



ADVISORY COUNCIL *on* FUTURE GROWTH *in* *the* HEALTH PROFESSIONS

FINAL REPORT

JANUARY 2007

OFFICE *of* HEALTH AFFAIRS

A COMPELLING CASE FOR GROWTH

Special Report of the Advisory Council on Future Growth in the Health Professions

Submitted to University of California
President Robert C. Dynes
January 2007

Table of Contents

Executive Summary 1

Introduction 6

I. Background and Context for Council Review 7
- The UC Health Sciences Instructional Program
- Context for Planning in the Health Professions

II. Advisory Council Findings 9
- California Demographics
- Health Workforce Projections
- Factors Affecting Need and Demand for Health Services
- Educational Opportunities for Students
- The Master Plan for Higher Education
- Campus Interests and Priorities

III. Advisory Council Recommendations 15
- Health Professions in Need of Enrollment Growth
- Health Professions with No Enrollment Growth Recommended
- Approach to Growth at Campuses with Existing Programs
- Development of New Programs and Schools

IV. Profession-Specific Information and Enrollment Plans 21
- Health Professions Where Enrollment Growth is Recommended
  - i. Medicine
  - ii. Nursing
  - iii. Pharmacy
  - iv. Public Health
  - v. Veterinary Medicine
- Health Professions Where Enrollment Growth is not Recommended
  - vi. Dentistry
  - vii. Optometry

V. Concluding Comments 55

VI. Appendices 56

Executive Summary

In June 2005, the University-wide Health Sciences Committee (HSC) submitted the most comprehensive assessment of health workforce needs undertaken by the University of California (UC) in more than two decades. This report, "*University of California Health Sciences Education: Workforce Needs and Enrollment Planning*" (HSC Report), was submitted to UC President Dynes as part of a major strategic planning effort for the health sciences and provided an in-depth review of state and national health workforce needs in dentistry, medicine, nursing, optometry, pharmacy, public health, and veterinary medicine. Based on these and other findings, profession-specific recommendations regarding the rationale for future enrollment growth in UC programs were identified.

Appointment and Charge to the Advisory Council

To inform decision-making regarding priorities for growth, UC President Robert C. Dynes appointed a special Advisory Council on Future Growth in the Health Professions (Council) in December 2005. Co-chaired by UC Provost Rory Hume and Regent Sherry Lansing, the Council was charged with reviewing the work of the HSC and developing a new system-wide health sciences enrollment plan, including recommended annual targets for growth, by profession, through the year 2020. The Council was also asked to provide guidance regarding priorities for growth and parameters for decision-making as the University prepares for system-wide enrollment growth across multiple health professions, in both existing and new locations.

The Council began its work by reviewing the HSC report, with a focus on its workforce findings and related enrollment recommendations. Major findings in the HSC report included:

- **Medicine:** California is expected to face a shortfall of up to 17,000 physicians by 2015. This shortage is due to overall population growth, aging of the current physician workforce, and the lack of growth in medical education programs in California (including UC) for nearly three decades. Regional shortages of physicians already exist and are expected to become more severe, particularly in areas that will have the most rapid rates of growth over the next decade.

- **Nursing:** California's nursing workforce crisis is serious and growing. The state currently ranks 49th in the nation in the number of nurses per capita. In 2005, predictions estimated that California would have a shortfall of 60,000 registered nurses by 2020. A more recent federal study issued in April 2006 predicts that California will face a shortfall of 47,600 nurses by 2010 and a shortfall of 116,600 by 2020. Significant shortages of nursing faculty are major barriers for increasing nursing school enrollments statewide. These shortages are expected to increase as growing numbers of current faculty plan to retire over the next 10 years.

- **Public Health:** In the face of increasing demand, due to new and emerging public health threats and demographic trends, recent studies have found that the public health workforce – in California and nationally – is seriously deficient in training, preparation, and size. California significantly lags other states in public health educational capacity. The state's public health agencies cite particular shortages of epidemiologists, environmental health scientists, and health educators while the private sector is in need of professionals trained in health services administration and management. It is estimated that only 20 percent of California's public health workforce has received formal training in public health.

- **Pharmacy:** California ranks 43rd in the nation in the number of pharmacists per capita. As the population grows and ages, and as the number of prescriptions written and dispensed continues to climb, the demand for pharmacists will continue to far outweigh supply. Growing needs for pharmacists within the pharmaceutical and biotechnology industries; increases in the number of new drugs and pharmacies; and a widening scope of practice will further increase demand for pharmacy services.

- **Veterinary Medicine:** Demand for veterinary services is increasing rapidly, yet the rate of increase in production of new veterinarians is not keeping pace, ranking California 49th in the nation in veterinarians per capita. Needs are increasing statewide, with unmet demand for services currently greatest in southern California. The demand for public practice veterinarians to ensure the health of food animals and the safety of food - and to collaborate with public health systems in the event of animal disease outbreaks - is also growing more rapidly than current educational programs can meet.

- **Dentistry and Optometry:** There appears to be no foreseeable statewide shortage of dentists or optometrists, yet many California communities have limited or no access to these health professionals. The state will have a steady need for new graduates (including new faculty) to replace those who are leaving practice to retire or pursue other activities.

In light of these and other findings, the HSC recommended increasing health sciences enrollments in: nursing (undergraduate and graduate students, including a focus on preparing future faculty); medicine (medical students and residents); public health (graduates in multiple degree programs); pharmacy (pharmacy students and residents); and veterinary medicine (veterinary medical students and residents); and maintaining enrollment levels in dentistry and optometry.

Council Observations and Approach to Work

The Council studied the HSC's 2005 report carefully and commended the Committee for its thorough and in-depth study. In some instances, however, the Council felt that workforce shortages called for enrollment increases beyond those called for in the HSC report. Four criteria were considered particularly important in determining the extent to which UC enrollments should grow. These included: evidence and magnitude of current or future workforce shortages; data indicating that educational opportunities within a profession are not sufficient for meeting future needs; consideration of the University's responsibilities for doctoral level education as defined by California's Master Plan for Higher Education; and campus interests and priorities relative to future growth.

Throughout its deliberations, the Council was also mindful of California's longstanding reliance on in-migration of physicians and other health professionals trained in other states and countries. The Council expressed particular concern about the negative health workforce effects that this has for many countries. In a February 2006 issue of the New England Journal of Medicine, experts agreed that the desire of physicians to seek better practice opportunities is understandable. Far less defensible, they argued, are the medical-education policies of other countries that fail to train a sufficient number of physicians to meet their own needs and then draw on the ambition of doctors educated elsewhere. The Council stated that in addressing California's health workforce needs, policymakers have an added responsibility to think about educational policies in terms of their statewide, national, and international ramifications for health outcomes.

Over the course of its work, the Council reviewed numerous state and national studies regarding current and future workforce shortages in five professions – medicine, nursing, pharmacy, public health and veterinary medicine. Where evidence of these shortages was clear, and where educational opportunities for students were considered insufficient based on national data (e.g., educational opportunities per capita, increasing student demand, number of California students required to leave the state to pursue educational opportunities elsewhere, etc.) the Council found a strong rationale for growth. Where these findings were consistent with the University's responsibilities for doctoral education under the Master Plan, and where they aligned with campus interests and priorities, the Council found an even more compelling case for growth.

Overall Profession-Specific Recommendations

Medicine: The Council recommends that medical school enrollment growth occur in a stepwise fashion, beginning with growth in existing UC schools and programs. The Council agrees that growth should begin with new Programs in Medical Education (PRIME) on all five medical school campuses. Each of these new programs focuses (or will focus) on the unique needs of one or more medically underserved group or community, including the Latino community (UC Irvine); rural health and telemedicine (UC Davis); urban health (UC San Francisco); health disparities/equity (UC San Diego); and a new program at UC Los Angeles, which is currently being planned.

The Council believes, however, that California's physician workforce needs will exceed those addressed by the PRIME initiative and therefore recommends that further enrollment growth at existing schools occur. This should begin with additional students who can be accommodated ***within existing campus infrastructure***; and continue, thereafter, at existing schools where campuses have expressed an interest, but where some level of ***new infrastructure*** will be required.

Specifically, the Council recommends a 34 percent increase in MD student enrollments between the University's 2005-06 budgeted enrollments and 2020. This would be equivalent to an increase from 2564 students to 3429 by 2020. The Council also recommends a comparable increase in medical resident enrollments over the same period. In assessing system-wide capacity to meet these goals, campus estimates suggest that by 2020, an enrollment increase of approximately 325 students (mostly enrolled in PRIME programs) could be accommodated within existing infrastructure, and an estimated 450 more students could be accommodated with some additional infrastructure required. These changes would increase UC's total medical student enrollment by approximately 775 new students system-wide (with approximately 180 new graduates annually).

Finally, because the magnitude of growth needed to address California's physician workforce needs exceeds the capacity of existing UC schools – even with new infrastructure – the Council recommends that planning continue toward the future establishment of at least one new UC school of medicine that would graduate its first class on or before 2020. The Council reviewed preliminary proposals for new schools from UC Merced and UC Riverside and agrees that workforce needs will continue to grow in both regions.

The Council believes that UCR's fifty-year history as a fully developed undergraduate and graduate campus, together with its thirty-year history with the joint UCR-UCLA medical program, forms a strong foundation for development of an independent medical school over the next 10-15 years. Assuming an entering class of 90 new medical students by fall 2016, the total systemwide increase across all locations would be approximately 270 additional graduates by 2020.

The Council believes that the continuing development of academic capability in the biomedical and health sciences at UCM will be of great value in meeting future workforce needs in the health professions. The Council is also aware of the University's longstanding partnership in medical education (through UCLA) with the Charles R. Drew University of Medicine and Science. The Council supports the University's partnership with Drew and encourages continued efforts by the UC system and UCLA campus in working with Drew to address current issues and future aspirations of the UCLA-Drew medical student educational program.

Nursing: The Council recommends substantial enrollment growth, with a focus on graduate education in nursing and the need to train increased numbers of future nursing school faculty. The Council also recommends that new programs at the undergraduate level be developed to increase educational opportunities for undergraduates and to help build the pool of students who will go on to graduate study. This should include growth in existing nursing schools and programs and creation of new ones at new locations.

Specifically, the Council recommends 50 percent increases in masters student enrollments between 2005-2010; and 25 percent increases between 2010-2015, and 2015-2020. This equals an increase from 773 to 1812 by 2020. The Council also recommends a 100 percent increase in doctoral student enrollments between 2005-2010; a 75 percent increase between 2010-2015, and a 50 percent increase between 2015-2020, in total equaling an increase from 80 students to 420 by 2020.

Pharmacy: In the face of the ongoing pharmacist workforce shortage, increasing demands of California's growing and aging population, and the expanding scope of pharmacy practice, the Council agreed that UC should expand enrollments in its pharmacy programs. The Council recommends a nearly 100 percent increase in PharmD student enrollments by 2020, or an increase from 596 students to approximately 1164 by 2020. The Council also recommends a similar increase over the same period in pharmacy resident enrollments, from 54 residents to 105 by 2020. The Council believes that this growth should include expansion of existing pharmacy schools and ultimately, creation of new programs at new locations.

Public Health: To respond to serious and growing deficiencies in the state and national public health workforce, UC should expand opportunities for preparing future public health professionals to work in settings and disciplines of greatest need. The Council recommends an increase of approximately 180 percent in masters student enrollments by 2020, from 648 students to 1823. The Council also recommends parallel increases in doctoral student enrollments from 279 students to 785 by 2020.

The Council believes that public health workforce needs will exceed current educational capacity at existing UC public health schools and recommends that new students be accommodated first within existing infrastructure and then at both campuses where there is interest but where some new level of infrastructure will be required. The Council believes that even with significant infrastructure support, unmet demand will warrant planning toward the future establishment of at least one new School of Public Health.

Veterinary Medicine: The Council recommends substantial enrollment growth in veterinary school enrollment to help meet the rapid increase in demand for veterinary services and to ensure that California's veterinary workforce remains competitive in number and quality. The Council recommends that the planned expansion of 29 new veterinary medical students per year (116 total new enrollments) begin as early as 2008, if possible. They also support the School's planned enrollment increase of 20 new veterinary residents per year (60 total new residents).

Specifically, the Council recommends a 95 percent increase in DVM student enrollments by 2020, equivalent to an increase from 524 students to 1023 by 2020. The Council also recommends a significant increase over the same period in veterinary resident enrollments, from 90 residents to 253 by 2020. Because the growth needed to address state needs substantially exceeds the capacity that currently exists at UCD's School of Veterinary Medicine (even with new infrastructure) the Council recommends that planning continue toward future establishment of a second comprehensive new UC veterinary medicine program or school.

Dentistry and Optometry: The Council recommends that current enrollments in UC schools of dentistry and optometry be maintained. Within current enrollments, however, the Council recommends that these schools pursue new strategies to increase the diversity of faculty and students; improve the distribution of practitioners; and increase the number of trainees preparing to become faculty.

Approach to Future Growth

The Council recommends that enrollment growth in the health professions occur in a phased, stepwise manner – contingent upon adequate resource support. It is recommended that growth occur by increasing enrollments in existing schools and programs, beginning with increases that can be accommodated within existing campus infrastructure. A second stage of growth should be pursued at those campuses where health professions programs or schools have a strong interest in further growth, but where some additional infrastructure investment will be required to accommodate new students. This approach represents a more expeditious (and cost-effective) means of addressing workforce needs, which is particularly important in professions such as medicine where the time from admission to practice requires seven to 10 years or longer.

Finally, because the magnitude of growth that will be needed in some professions exceeds that which can be accommodated by existing programs, even with new infrastructure, the Council recommends that planning for new programs at new sites begin immediately and that these be developed and phased in over time. When developing new programs and schools, the Council recommends that UC give careful consideration to addressing the needs of underserved regions, particularly those whose populations are projected to grow significantly.

In recommending substantial growth in five professions, the Council urges that these new expansions be viewed as opportunities for innovation. New educational models involving interdisciplinary training and team-based approaches to patient care should be developed. Efforts to significantly increase the diversity of all UC health professions faculty and students should be vigorously pursued, with stable funding provided to support best practices and model programs. Innovative approaches to teaching, including telemedicine, distance learning, and use of new technologies should be utilized and supported. In view of changing workforce needs, the Council encourages special effort and support for interdisciplinary training programs (e.g. MD-MPH, DVM-MPH) both because of societal need and student demand for such training. The Council believes such programs provide resource efficiencies for achieving enrollment growth and preparing a future workforce that will be well-qualified to meet state needs. In identifying priorities for growth, campuses should demonstrate that proposed new programs meet the quality standards of the University, and that each adds new value for students, the people of California, and the professions themselves. The Council advises that review of health professions workforce needs and assessment of UC's health sciences enrollments be undertaken on a systematic and regular basis to assure that the University's planning efforts are developed and aligned accordingly.

Introduction

This Report is submitted to UC President Robert C. Dynes by the UC Advisory Council on Future Growth in the Health Professions (Council) in response to his charge of December 2005. The Council was asked to begin its work by reviewing the findings and recommendations contained in a major study submitted to President Dynes in June 2005 by the university-wide Health Sciences Committee (HSC). This report, "*University of California Health Sciences Education: Workforce Needs and Enrollment Planning*," was prepared by the HSC as the first step in a multi-year strategic planning effort in the health sciences. The HSC report included an assessment of health workforce needs in dentistry, medicine, nursing, pharmacy, public health, optometry and veterinary medicine.

To build upon this work, and to inform decision-making regarding priorities for future enrollment growth, President Dynes charged the Advisory Council with developing a new system-wide enrollment plan, including recommended annual targets for growth, by profession, through the year 2020. The Council was also asked to provide guidance regarding priorities for growth and parameters for decision-making as the University prepares for system-wide enrollment growth across multiple health professions, in both existing and new locations.

This report responds to the President's charge and provides what the Council believes is a compelling case for growth in UC programs in medicine, nursing, pharmacy, public health and veterinary medicine. The report is organized in five sections as follows:

- Section I provides background information relevant to the Council's review, including an overview of the University's health sciences instructional program. The context for planning in the health sciences is discussed, followed by a summary of the major findings and recommendations cited in the HSC report.

- Section II summarizes the Council's approach to its work, describes its findings, and discusses the criteria the Council considered essential in developing recommendations for enrollment growth. These focus on current and future health workforce needs; the adequacy of existing educational opportunities; UC responsibilities under the Master Plan for Higher Education; and consideration of campus goals and priorities.

- Section III includes the Council's recommendations for enrollment growth. Profession-specific summaries are included.

- Section IV is organized by health profession; each profession begins with a "two-page" profile that includes profession-specific workforce findings; graphs showing the Council's recommendations for growth through the year 2020, and an enrollment plan summarizing recommended annual targets for growth.

- Section V contains concluding remarks.

I. Background and Context for Council Review

The UC Health Sciences Instructional Program

The University of California (UC) operates the largest health sciences instructional program in the nation, annually enrolling more than 13,000 students in fifteen schools on seven health sciences campuses. These include five schools of medicine and four smaller medical education programs (located in Berkeley, Fresno, Riverside, and at the Charles R. Drew University of Medicine and Science); two schools each of dentistry, nursing, pharmacy and public health; and one school each of optometry and veterinary medicine.

UC health sciences programs are long-standing leaders in teaching, research and clinical care. Collectively, these programs generate more than one billion dollars annually in research funding and provide health services to millions of Californians. In 2005 alone, UC hospitals and their associated clinics provided nearly 140,000 in-patient admissions and more than 3.7 million outpatient visits. Across the professions, UC programs are recognized nationally for their preparation of future faculty and leaders in research, industry, patient care and public service. UC faculty continue to earn national and international recognition for quality and innovation in the understanding and treatment of disease and the development of new technologies. Through these programs, UC plays a critically important role in preparing future health professionals and meeting the healthcare needs of the state.

Notwithstanding its size and contributions, enrollments in UC health professions programs have remained virtually flat for well over thirty years. With the exception of the new UC San Diego School of Pharmacy which admitted its first class of 25 students in 2002, and the new Program In Medical Education for the Latino Community (PRIME-LC) program at the UC Irvine School of Medicine, which admitted eight new first-year students in summer 2004, there has been essentially no growth (less than two percent) in UC health professions programs for roughly four decades. During the same period, California's population has increased by more than 16 million (i.e., approximately 81 percent) and UC undergraduate enrollments have increased by approximately 86,000 students, or 118 percent.

Context for Planning in the Health Professions

Enrollment planning in the health professions involves consideration of many of the same factors that apply to enrollment planning for undergraduate education and graduate academic programs in non-health sciences programs. These include issues regarding access to and student demand for higher education, admission of a diverse student body, as well as sufficient funding to support faculty and staff and to assure adequate space for teaching. In the health professions, there are several other factors that create a unique context for planning. These include, but are not limited to, society's need for health providers and a changing array of factors that drive the need and demand for health services. Within UC, planning must also assure sufficient resources (including infrastructure) in the basic and clinical sciences; access to an adequate patient care/clinical base for teaching; and the ability of campuses, schools, and patient care facilities to meet required accreditation and regulatory standards for health sciences education and patient care.

As the largest and most rapidly growing state in the nation, California faces distinct demographic challenges that will increase substantially over coming decades. These changes pose major challenges for UC and other educational institutions as they work to maintain high quality teaching and patient care programs, and as they adapt to change and plan for growth. As the largest health

sciences instructional program in the country, UC has significant responsibilities for providing culturally-competent health professionals who will meet the needs of the people of California. The shortages of health professionals that currently exist, together with the relative absence of growth in UC programs, provide clear challenges and opportunities as UC plans for the future.

The Health Sciences Committee Report: In June 2005, the university-wide Health Sciences Committee (HSC) completed the most comprehensive assessment of health workforce needs undertaken by UC in more than two decades. This report, "*University of California Health Sciences Education: Workforce Needs and Enrollment Planning*," was submitted to UC President Dynes as the first phase of a major planning effort for the health sciences. The report provided an in-depth review of state and national health workforce needs in dentistry, medicine, nursing, optometry, pharmacy, public health, and veterinary medicine.

The HSC report also reviewed the size and scope of existing UC programs, including recent achievements and current challenges in each profession. The HSC considered the University's responsibilities under the Master Plan for Higher Education, the roles of other public and private institutions, and issues related to educational opportunity for students. The 2005 report included enrollment and other recommendations regarding the University's role and capacity to respond. Among these, the HSC recommended increasing enrollments in: nursing (undergraduate and graduate students, with attention to preparing future faculty); medicine (medical students and medical residents); public health (students in multiple degree programs); pharmacy (pharmacy students and residents); and veterinary medicine (veterinary medical students and residents). The HSC recommended that current enrollment levels be maintained in dentistry and optometry. The full HSC report is available on line at: http://www.ucop.edu/healthaffairs/report.

Appointment and Charge to the Advisory Council: In December 2005, President Dynes appointed a special Advisory Council on Future Growth in the Health Professions. Co-chaired by UC Provost Rory Hume and Regent Sherry Lansing, the Council was charged with reviewing the findings and recommendations of the HSC and developing a new comprehensive health professions enrollment plan, including recommended annual targets for growth, by profession, beginning with 2005-06 enrollment levels and continuing through the year 2020.

To expedite its work, the Council appointed a Subcommittee, chaired by Cathryn L. Nation, UC's Executive Director for Academic Health Sciences. The seven-member subcommittee included several members of the Council, and others holding leadership positions in the health sciences. The Subcommittee and staff worked closely with the Council at each stage, and facilitated and enhanced the Council's work throughout the process. (A copy of President Dynes' charge letter and a roster of Council members and Subcommittee members are included as Appendices A, B, C, respectively.)

II. Advisory Council Findings

In keeping with its charge, the Council reviewed and studied the 2005 report carefully, and commended the HSC for its thorough and in-depth study. In some instances, however, the Council felt that California's workforce shortages call for enrollment increases beyond those recommended by the HSC. In making these determinations, the Council reviewed a variety of factors relevant to growth, four of which were regarded by the Council as essential for determining the extent to which enrollments should grow. These included: evidence of current or future workforce shortages; data indicating that California educational opportunities within a profession are not sufficient for meeting future needs; consideration of the University's responsibilities for doctoral level education as defined by California's Master Plan for Higher Education; and campus interests and priorities relative to future growth.

Throughout its deliberations, the Council was also mindful of California's longstanding reliance on in-migration of physicians and other health professionals trained in other states and countries. The Council expressed particular concern about the negative health workforce effects that this has for many countries. In a February 2006 issue of the New England Journal of Medicine, experts agreed that the desire of physicians to seek better practice opportunities is understandable. Far less defensible, they argued, are the medical-education policies of other countries that fail to train a sufficient number of physicians to meet their own needs and then draw on the ambition of doctors educated elsewhere. The Council stated that in addressing California's health workforce needs, policymakers have an added responsibility to think about educational policies in terms of their statewide, national, and international ramifications for health outcomes.

Based upon its review, the Council found a compelling case for growth in UC programs in medicine, nursing, pharmacy, public health and veterinary medicine. While many of the factors supporting the need for growth are discussed in detail in the HSC report, an overview is included in this section (including excerpts from the HSC study) to underscore the Council's rationale for growth in each of the above professions.

California Demographics

Demographic Trends: One in eight Americans lives in California, making it the most populous state in the nation. By 2015, the U.S. population is expected to increase by 13.4 percent. California, by contrast, is expected to see 22.3 percent growth (nearly twice the national average). This growth will vary considerably by region (e.g., from nearly 10 percent in Los Angeles County to an estimated 40 percent increase in the Inland Empire).

The number of Californians age 65 and older is greater than any other state in the nation, and this number is expected to grow at more than twice the rate of the state's total population by the year 2020. By 2025, California is expected to have a 58 percent increase in people 65-74 years old, and a 49 percent increase in those 85 years and older. Because health needs typically increase as people age, the state's growing elderly population will significantly increase the demand for health services and health professionals to manage and provide their care.

California's population is racially and culturally more diverse than any other state in the nation. More than one in four Californians were born outside the United States – more than twice the national average of one in ten. Currently, the majority of Californians are non-Hispanic whites. By 2015, however, nearly 37 percent of the population will be of Hispanic/Latino origin, nearly 14

percent will be of Asian or Pacific Islander heritage, and six percent will be African American. Increasing the diversity and cultural and linguistic competence of the health workforce will remain a priority for meeting California's changing health needs.

Health Workforce Projections

Workforce Trends: California has existing shortages in many health professions, and looming shortages in others. These shortages are due to growth and aging of the state's population; absence of growth in educational opportunities in many fields; and the aging of the existing workforce in nursing, medicine, and other professions. Without effective intervention, existing regional shortages of providers are expected to worsen. Recent studies and findings include:

Medicine: Organizations including the American Medical Association, Council on Graduate Medical Education, Association of American Medical Colleges, American College of Physicians, and the U.S. Bureau of Health Professions have predicted an impending shortage of U.S. physicians. In California, two studies issued in 2004 project statewide shortages and severe unmet regional needs within a decade. One of these projects a statewide shortage of nearly 17,000 doctors (15.9 percent) by 2015. These and other studies recommend increasing medical student and resident enrollment as a strategy for meeting future needs.

Nursing: California's nursing workforce crisis is serious and growing. The state currently ranks 49th in the nation in the number of nurses per capita, and predictions forecast a shortfall of 47,600 nurses by 2010 and a shortfall of 116,600 by 2020. Significant shortages of nursing faculty are a major barrier for increasing nursing school enrollments statewide. Within the state's diminishing workforce, the average age of working nurses is steadily increasing, with nearly 50 percent of the workforce now over 50 years of age.

Public Health: Recent reports have noted that the state and national public health workforce is seriously deficient in preparation and size. In the face of increasing demand and new and emerging public health threats, California faces a significant and growing workforce shortage, and is critically lagging in public health educational capacity. California has – per capita - only 25 percent of the number of public health faculty and 25-50 percent of the number of public health students as comparable key states.

Pharmacy: California presently ranks 43rd in the nation in the number of pharmacists per capita. As the population grows and ages, and as number of prescriptions written and dispensed continues to climb, the demand for pharmacists will continue to far outweigh supply.

Veterinary Medicine: Statewide demand for veterinary services is increasing rapidly, yet the rate of growth of new veterinarians is not keeping pace, ranking California 49th of all states in the nation. Needs are increasing across the state, with unmet demand for services currently greatest in southern California.

Dentistry and Optometry: While shortages of dentists or optometrists are not projected over the coming decade, California will have a steady need for these professionals in order to meet ongoing demands and for new graduates (including new faculty) to replace those who are leaving practice (e.g., retiring, pursuing other activities). Regional shortages also exist and require new strategies for improving access.

Factors Affecting Need and Demand for Health Services

A wide range of factors drive need and demand for health services. These factors are relevant for national and statewide workforce planning and institutional decision-making regarding the size and scope of health professions education programs. Considerations relevant to statewide needs and enrollment planning for UC include:

Health Professional Shortage Areas. Fifty-one of California's 58 counties have at least one federally-designated Health Professional Shortage Area; two California counties (Alpine and Sierra)

have no physicians in residence and many lack sufficient numbers of other health care providers. These difficulties are expected to increase as the population grows and ages.

Access to Care. Gaps in access to care and in health outcomes are widening. Among Californians aged 19-64, 24 percent lack any form of health insurance, and 25 percent of California's children live below the federal poverty line ($15,577 annual income for a family of three). Disparities in health status between California's various ethnic groups are well documented.

Burden of Disease. California has high rates of infectious disease and faces new and emerging health threats. Growing numbers of chronic conditions such as diabetes, asthma, and mental illness impose still greater burdens on the state's health resources. Racial and ethnic minorities collectively experience a greater burden from these illnesses, due in large part to poorer access to care. In all age groups, California would benefit by new efforts to reverse trends in behaviors that are detrimental to health, including obesity, smoking, and illicit drug use.

Aging of the Workforce. In many professions (medicine, nursing, dentistry, public health, and veterinary medicine), the number of California practitioners expected to retire within the next 15 years is expected to significantly outpace the number entering the workforce.

Shortages and Maldistribution of Health Professionals. Managed care has increased demand for primary care doctors, and statewide there are both relative shortages of primary care physicians and emerging shortages of some specialists. In California and nationally, medical student interest in primary care is declining as graduates seek professions with higher incomes and more manageable work hours.

Changing Scope of Practice. Expansion of the scope of practice, and related changes in billing and payment rights have created, for some providers, (e.g., optometrists, pharmacists, nurse practitioners, physician assistants, and dental hygienists), opportunities to redefine the boundaries between professions that deliver similar services and to train an interdisciplinary workforce.

Rising Costs of Education and Effects on Service to the Underserved. The length of training and the cost of education – and increasing student debt load – affect student choices about both the level of education they will seek and the specialties they choose. These issues are particularly important for students from low- and middle-income families, and also bear on student interest in careers serving underserved populations.

Financing and Delivery of Health Services. Continuing changes in the organization, delivery, and financing of health care directly affect the preparation and practice of the health workforce. California's economy is the sixth largest in the world and the largest of any state, producing 13 percent of the total U.S. Gross Domestic Product (GDP). Despite recent improvements, California faces high levels of unemployment, consistently ranking in the top ten among states. Millions of Californians lack health insurance, and millions more lack adequate access to care.

Rising Costs of Health Services. The costs of providing health care continue to increase nationwide. California ranks 44th in the nation in state spending on health care services as a percentage of its Gross State Product (GSP) and 38th in per capita personal health expenditures (public and private spending combined). Health care costs and insurance coverage affect access to and utilization of care. Despite growing concern about the number of Californians who are uninsured – and evidence showing that uninsured patients delay treatment that then often requires more costly emergency room care – overall insurance coverage rates have been declining.

Technologic Innovation. As the pace of innovation increases, health professions training programs face continuing challenges in modifying their curricula to teach students about new pharmaceuticals, developing technologies and changing standards in clinical practices. As new technologies and treatment options become available, consumer demand for them increases. Advances in highly technical approaches to diagnosis and treatment contribute to improving health outcomes and drive societal expectations regarding access to these services. Telemedicine offers still further opportunities to bring specialty expertise to groups and communities that are geographically remote from specialty providers.

Educational Opportunities for Students

With few exceptions – totaling less than 200 students across all years, in all professions, on all campuses (or less than two percent) - system-wide enrollments in the UC health professions programs have not increased for approximately four decades. During the same period, California's population has increased by more than 16 million (i.e., by approximately 81 percent) and UC undergraduate enrollments have increased by approximately 86,000 students, or 118 percent. Educational opportunities for doctoral level education in the health professions rank in the bottom tier of the same professions where California is experiencing workforce shortages. Profession-specific examples include:

Medicine: In 2002, California had 15 medical school seats for every 100,000 individuals compared to a U.S. average of 27 seats. Population growth since then suggests that California now trains approximately half the per capita national average of MDs. In that same year, the state trained 24 residents per 100,000 people, compared to the U.S. average of nearly 48 per 100,000. According to the Association of American Medical Colleges, California ranks among the highest in the nation in the number of its students attending medical school outside the state, a number that has grown to more than three times the number enrolled in California schools.

Nursing: In California in 2005, 60 percent of qualified students were turned away because of lack of educational slots due in great part to lack of faculty. Nearly 75 percent of nursing schools responding to the 2005 survey pointed to faculty shortages as a reason for not accepting qualified

California's Nursing Education System

The Board of Registered Nursing lists 109 public and private nursing education programs in California offering four nursing degrees. 76 programs offer the associate (ADN) degree; 24 offer the bachelor's (BS/BSN) degree; nine offer master's (MSN) degrees; and two offer the Doctor of Philosophy (PhD). These programs educate only half of the nurses that are needed to meet state needs.

California Public Nursing Schools – Estimated Annual Graduates per Program, 2005

System, Number of Nursing Programs*, and Total Number of Campuses	ADN (Associate Degree in Nursing)	BS or BSN	ADN to BSN (and RN to BSN)	MS or MSN	PhD (Doctor of Philosophy)	Estimated Totals
CCC – 69/110	4500	0	0	0	0	4500
CSU – 17/23	0	1434	0	452	0	1886
UC – 2/10	0	0	22	266	27	315
Estimated Totals	4500	1434	22	718	27	6701

*** Note:** This Table contains estimated numbers of graduates in 2005. Not included in this table are new campus programs that began enrolling students this fall at UC Irvine and UCLA; also not included are new programs at the CSU San Marcos and CSU Channel Islands campuses, and some other possible increases within the CCC system.

applicants into the nursing program. A study by the American Association of Colleges of Nursing in 2005 states that 53.7 percent of faculty vacancies require a doctoral degree.

Pharmacy: The number of applications for admission to accredited U.S. schools of pharmacy has risen rapidly in recent years, from a 9.1 percent increase in 2001, to a 24.6 percent increase in 2002, and a 41.7 percent increase in 2003. For UC, these increases have been even greater. At UCSD, for example, a record 1,071 students applied for 30 available seats in fall 2004. Despite even greater increases in applications at the UCSF School of Pharmacy – the number one school in the nation – enrollments have been unchanged for more than 25 years.

Veterinary Medicine: The UC Davis School of Veterinary Medicine is also recognized as among the nation's premier training programs in veterinary science. Although workforce shortages are well-documented, opportunities for a veterinary medical education in California are among the lowest in the nation; the HSC report cited a rate of one DVM student per 263,295 population, compared with one per 115,763 nationally.

The Master Plan for Higher Education

Under California's Master Plan for Higher Education, the University of California is delegated exclusive responsibility in public higher education for doctoral level education. The only exception to this responsibility is the granting of the independent professional doctoral degree in education (EDD), which was also granted to the California State University system by the California Legislature and Governor on September 22, 2005. For the health professions, this means that UC is delegated exclusive responsibility in public higher education for the following professional degrees: DDS (Doctor of Dental Science), MD (Doctor of Medicine), OD (Doctor of Optometry), PharmD (Doctor of Pharmacy), and DVM (Doctor of Veterinary Medicine). In nursing and in public health, UC is responsible in public higher education for doctoral education leading to the following degrees: PhD (nursing); and PhD and DrPH (public health).

In view of the rapid and substantial growth of California's population, the Council believes that the lack of growth in UC health professions programs has not only contributed to workforce shortages, but also placed California significantly behind national averages in educational opportunities per capita for students. The state's limited educational capacity means that California relies heavily on in-migration of health professionals trained elsewhere to meet its workforce needs and that California is among the leaders of all states in the number of its students who must pursue their health professions training goals in other states or countries. In view of the state's changing demographic profile, and in light of UC responsibilities for public higher education in many health professions, the Council believes this is unwise.

Campus Interests and Priorities

To learn more about the potential for growth within existing UC programs, the Council requested and received detailed information from UC chancellors and health sciences deans regarding their current and future interests in growth. This included information about the level of growth that could be accommodated within the existing infrastructure on campus as well as growth that would require new investment and new infrastructure. The Council received detailed information from UC health sciences campuses in Berkeley, Davis, Irvine, Los Angeles, Riverside, San Diego, San Francisco; and expressions of interest in developing new programs from Merced. UC Santa Barbara and UC Santa Cruz responded to the Council's inquiry, but indicated that they had no current interests in planning new health professions programs or schools in the fields included in

the Council's planning efforts. This system-wide feedback was extremely helpful in gaining clear understanding about campus goals and priorities and infrastructure needs. The rationale for the Council's recommendations to increase enrollments within existing programs *and* to plan now for growth at new locations incorporates information from these campus plans.

III. Advisory Council Recommendations

Using the major criteria identified by the Council as essential for recommending growth, and considering a variety of other profession- and campus-specific issues, the Council developed enrollment recommendations and plans for each health profession through the year 2020. These begin with the 2005-06 academic year as baseline and go forward to 2020 (see Section IV for profession-specific information and detail).

Where evidence of current or future workforce shortages was clear, and where educational opportunities for students were considered insufficient based on national data (e.g., educational opportunities per capita, increasing student demand, number of California students required to leave the state to pursue educational opportunities elsewhere, etc.) the Council found a strong rationale for growth. Where these findings were consistent with the University's responsibilities for doctoral education under the Master Plan, and where they aligned with campus interests and priorities, the Council found an even more compelling case for growth.

Health Professions in Need of Enrollment Growth

The Council recommends increasing enrollment at existing UC schools of medicine, nursing, pharmacy, public health, and veterinary medicine; and developing new educational programs – and ultimately new schools - in four of these professions (all but pharmacy before the year 2020). The Council recommends, for at least the short term, maintaining approximately the same enrollments that currently exist in UC schools of dentistry and optometry. Overall recommendations for each profession are described below, with detailed information for each provided in Section IV, including recommended annual targets for growth through 2020.

Medicine

The Council recommends that medical school enrollment growth occur in a stepwise fashion, beginning with growth in existing UC schools and programs. The Council agrees that the priority for this growth should begin with new PRIME programs (Programs in Medical Education) on all five campuses. Each of these new programs addresses the needs of one or more of the state's medically underserved groups or communities. At the time the Council concluded its work, these included the following areas of focus for each campus: the Latino community (UCI); rural health and telemedicine (UC Davis); urban health (UCSF); health disparities/equity (UCSD); and a new program at UCLA, which is currently being planned.

Program(s) in Medical Education (PRIME) are comprehensive and innovative medical education programs designed to help meet the needs of California's medically underserved communities by offering specialized curricula and clinical experiences, mentoring, and service opportunities. These 5-year programs (where students earn both MD and Masters degrees) will prepare medical students as future clinicians, physician leaders, researchers, and policy makers. Collectively, these new UC programs will train cadres of clinician leaders who will work in their respective areas of expertise to improve health outcomes throughout California.

The Council believes that California's physician workforce needs will exceed those addressed by the PRIME initiative and therefore recommends a second phase of growth in enrollment at existing UC medical schools. This should begin with additional students who can be

accommodated ***within existing campus infrastructure***; and continue, in a subsequent phase, at existing schools where campuses have expressed an interest, but where some level of ***new infrastructure*** will be required. Campus estimates suggest that by 2020 enrollment increases could accommodate approximately 325 students (mostly enrolled in PRIME programs) within existing infrastructure, and an estimated 450 more students with some additional infrastructure required. These changes would increase UC's total medical student enrollment by approximately 775 new students system-wide (with approximately 180 new graduates annually).

Finally, because the magnitude of growth needed to address California's physician workforce needs exceeds the capacity of existing UC schools – even with new infrastructure – the Council recommends that planning continue toward the future establishment of at least one new UC school of medicine that would graduate its first class on or before 2020. The Council reviewed preliminary proposals for new schools from UC Merced and UC Riverside and agrees that workforce needs are – and will continue to be – substantial in both regions.

The Council also considered the University's long-standing partnership in medical education (through UCLA) with the Charles R. Drew University of Medicine and Sciences. The Council understands that Drew currently faces several major challenges resulting from the threatened withdrawal of federal funding for its primary teaching hospital, King-Drew Medical Center (KDMC). The Council supports the University's continued partnership with Drew in working to address current challenges and future institutional goals for growth, when and if such growth is possible. Additional background information regarding UC Riverside, UC Merced, and Drew with respect to growth and/or development of new medical education programs follows below. The Council's suggestions about next steps are also included.

Sites for Future Development/Expansion of Medical Education

UC Riverside: For more than 30 years, UCR has provided the first two years of medical student education to 24 students per year (or 48 students across the first two years of medical school). Students enrolled in the UCR-UCLA Thomas Haider Program in Biomedical Sciences then go on to the David Geffen School of Medicine at UCLA to complete their third and fourth years and to earn their Doctor of Medicine (MD) degrees. This history provides a strong foundation for development of a new four-year medical school.

Within the context of the campus and mission of the proposed new school, UCR's undergraduate student population is also ranked as among the most diverse in the nation for diversity among all public doctoral research universities. The diversity of the UCR student body could provide a valuable pipeline for achieving much-needed diversity in a new medical school.

The Council believes that UCR's fifty-year history as a fully developed undergraduate and graduate campus, together with its thirty-year history with the joint UCR-UCLA medical program, forms a strong foundation for development of an independent medical school over the next 10-15 years. Assuming an entering class of 90 new first-year medical students by fall 2016, the total systemwide increase across all locations would be approximately 270 new graduates by 2020.

UC Merced: In September 2005, UC Merced opened as the tenth campus of the University of California system and the first American research university to be built in the 21st century. Approximately 840 undergraduate students and 35 graduate students were admitted in fall 2005. In the current 2006-07 academic year, total student enrollment has grown to 1300. As part of the long-range plans for UC Merced, the campus is planning for the development of new programs in

the health sciences. As part of its review, the Council reviewed the preliminary proposal regarding the creation of a medical education program "leading to a school of medicine."

The Advisory Council recognizes that workforce shortages in the health professions now exist and that these are likely to grow substantially in the Merced area over the next 10 years and beyond. The Council believes that planning for development of health sciences programs at UC Merced should be encouraged and that the continuing development of academic capability in the biomedical and health sciences at UC Merced will be of great value in meeting future workforce needs in the health professions.

The Council believes that the establishment of an independent medical school requires a more fully developed academic and research infrastructure than presently exists in the basic and clinical sciences. As the campus plans for the future, attention to building the basic sciences is encouraged. To address both regional needs and student interests, possible future development of new programs in other health professions should also be considered, including perhaps programs in nursing and public health, where regional needs also exist. Continuing discussions with existing UC medical schools and participation in system-wide planning efforts should provide a useful framework for Merced's ongoing planning in these areas.

Charles R. Drew University of Medicine and Science: For more than 30 years, the UC system and the UCLA campus have had a productive and mutually beneficial partnership with the Charles R. Drew University of Medicine and Science. The most significant and well known result of this partnership is the Drew-UCLA medical student program, which enrolls 24 medical students per year. Students receive their first two years of medical school at UCLA and complete their required third-year clinical clerkships and many of their clinical electives at the Martin Luther King, Jr. County Hospital, also known as King-Drew Medical Center (KDMC).

Over recent years and months, a number of issues relevant to expansion of the Drew-UCLA program have been identified. Most significant among these is the recent decision (in September 2006) by the Centers for Medicare and Medicaid Services to terminate KDMC's Medicare contract. This is expected to result in a $200 million dollar loss in annual funding and places the immediate and longer term future of KDMC in serious jeopardy. In view of the challenges involving KDMC and future access to training sites for students currently enrolled, growth in enrollment in the near term does not appear to be realistic.

The Council supports the University's partnership with Drew and encourages continued efforts by the UC system and UCLA campus in working with Drew to address current issues with respect to medical student education. Notwithstanding the complex challenges that Drew faces, its historic commitment to meeting the needs of underserved communities makes eventual expansion of its medical education program an appropriate option if, and when, such growth is programmatically and financially feasible. (See Appendix E for additional information regarding Drew.)

Medical Residents: The Council recognizes that current limits on federal funding for graduate medical education pose practical restrictions for substantial enrollment growth in the short term. The Council recommends that UC join national efforts to review the potential for easing these restrictions, particularly in areas or circumstances of compelling need. Pending resolution of these matters, the Council believes that substantial growth in UC graduate medical education programs (GME) is needed. The Council had a brief discussion about the need to ensure that GME increases parallel those for medical students, and felt that appropriate increases in training of medical residents are needed to support increased training of medical students and to help build

California's future workforce. The Council recommends that a smaller UC committee pursue options and next steps in this area.

Nursing

The Council recommends substantial enrollment growth, with a special focus on graduate education in nursing and the need to train increased numbers of future nursing school faculty. The Council recommends that new programs at the undergraduate level be developed to increase educational opportunities for undergraduates and to help build the pool of students who will go on to graduate study. Because the demand for nurse educators and nurses will continue to outpace the supply, growth should be implemented in existing nursing schools and programs and include the creation of new ones at new locations.

Specifically, the Council recommends 50 percent increases in masters student enrollments between 2005-2010; and 25 percent increases between 2010-2015, and 2015-2020. This equals an increase from 773 students to 1160 by 2010, to 1449 by 2015, and finally to 1812 by 2020. The Council also recommends a 100 percent increase in doctoral student enrollments between 2005-2010; a 75 percent increase between 2010-2015, and a 50 percent increase between 2015-2020. This is equivalent to an increase from 80 students to 160 by 2010, to 280 by 2015, and finally to 420 by 2020.

Pharmacy

In the face of the ongoing pharmacist workforce shortage, increasing demands of California's growing and aging population, and the expanding scope of pharmacy practice, the Council agreed that UC should expand enrollments in its pharmacy programs. The Council recommends a nearly 100 percent increase in PharmD student enrollments by 2020. More specifically, the Council recommends 25 percent increases in PharmD student enrollments between 2005-2010, 2010-2015, and 2015-2020, that is, an increase from 596 students to 795 by 2010, to 931 by 2015, and finally to 1164 by 2020. The Council also recommends similar increases over the same period in pharmacy residency program enrollments. That is, an increase from 54 residents to 65 by 2010, to 84 by 2015, and finally to 105 by 2020.

Public Health

To respond to serious and growing deficiencies in the state and national public health workforce, UC should expand opportunities for preparing future public health professionals to work in settings and disciplines of greatest need. The Council recommends an increase of approximately 180 percent in masters student enrollments by 2020, or an increase from 648 students to 1823 by 2020. The Council also recommends parallel increases in doctoral student enrollments from 279 students to 785 by 2020.

Specifically, the Council recommends 50 percent increases in masters student enrollments between 2005-2010, and again between 2010-2015; and a 25 percent increase between 2015-2020. This equals an increase from 648 students to 972 by 2010, to 1458 by 2015, and finally to 1823 by 2020. The Council also recommends parallel increases in doctoral student enrollments, namely 50 percent between 2005-2010 and 2010-2015; and 25 percent between 2015-2020. This equals an increase from 279 doctoral students to 419 by 2010, to 628 by 2015, and finally to 785 by 2020.

The Council believes that public health workforce needs will exceed current educational capacity at existing UC public health schools and recommends that additional students be accommodated first

within existing infrastructure and then at both campuses where there is interest but where some new level of infrastructure would be required. The Council believes that even with significant infrastructure support, unmet demand will still warrant planning towards the future establishment of at least one new School of Public Health.

Veterinary Medicine

The Council recommends substantial enrollment growth in veterinary school enrollment to help meet the rapid increase in demand for veterinary services and to ensure that California's veterinary workforce remains competitive in number and quality. The Council recommends that the planned expansion of 29 new veterinary medical students per year (116 total new enrollments) begin as early as 2008, if possible. They also support the School's planned enrollment increase of 20 new veterinary residents per year (60 total new residents). The Council recommends a 95 percent increase in DVM student enrollments by 2020, equivalent to an increase from 524 students to 1023 by 2020. The Council also recommends a substantial increase over the same period in veterinary residency program enrollments, from 90 residents to approximately 250 by 2020.

More specifically, the Council recommends 25 percent increases in DVM student enrollments between 2005-2010, 2010-2015 and again between 2015-2020. This equals an increase from 524 students to 655 by 2010, to 819 by 2015, and finally to 1023 by 2020. The Council also recommends a 25 percent increase in veterinary resident enrollments between 2005-2010, and 50 percent between 2010-2015 and 2015-2020. This equals an increase from 90 residents to 113 by 2010, to 169 by 2015, and finally to 253 by 2020. Because the growth needed to address state needs substantially exceeds the capacity that currently exists at UCD's School of Veterinary Medicine (even with new infrastructure) the Council recommends that planning continue toward future establishment of a second comprehensive new UC veterinary medicine program or school.

Health Professions with No Enrollment Growth Recommended

Dentistry

The Council recommends that current enrollments in dentistry be maintained. To address the serious maldistribution of dentists and the shortage of dental school faculty, UCSF has proposed several new initiatives: 1) Within existing enrollment, 10 percent (eight students) of each new class will enroll in a special curriculum emphasizing community dentistry, and will receive a tuition waiver in return for which they will be required to work in an underserved area for five years; and 2) Thereafter, UCSF proposes to expand enrollment adding five to seven students per year to this program; and to increase the DDS/PhD class from two to five students (within the current class size of 80 DDS). The School also plans to expand current enrollment to accommodate an increase in the number of clinician-educators who spend at least 50 percent of their time as clinical teachers at UCSF, training five to seven new students per year in the clinician-educator path.

Optometry

The Council recommends that current enrollments in optometry be maintained. Although no enrollment increases are recommended in the OD (doctoral) program, the Council supports the interests of the UC Berkeley School of Optometry in increasing the number of resident positions in the School from the current five per year to a total of 15 per year by 2007 and 20 per year by 2010.

The Council recognizes that dentistry and optometry, like those professions in need of growth, share similar challenges with respect to increasing diversity; enhancing cultural competency; and developing new initiatives to prepare future faculty and to improve the geographic distribution of practitioners. The Council urges that new initiatives be undertaken to address these needs.

Approach to Growth at Campuses with Existing Programs

The Council recommends that enrollment growth in the health professions occur in a phased, stepwise manner. Contingent upon the provision of adequate resource support, growth is recommended to occur as follows:

- First, by increasing enrollments in existing schools and programs, beginning with increases that can be accommodated within existing campus infrastructure; and

- Next, through a second level or phase of growth at those campuses where health professions programs or schools have a strong interest in growth, but where some additional infrastructure investment is required to accommodate new students.

This approach represents a more timely (and likely cost-effective) means of increasing the education of new students, which is particularly important in professions such as medicine, where the time from admission to independent practice varies from seven to 10 years or longer depending upon the specialty. For health professions programs, the Council believes that the marginal cost of adding new students is less expensive and can be accommodated more rapidly by admitting additional students to existing programs. The Council recognizes, however, that this approach has limitations with respect to the scale of the overall, long term growth that is recommended.

Development of New Programs and Schools at New Locations

Because the growth that will be needed in some professions exceeds that which can be accommodated by existing programs, even with added new infrastructure, the Council recommends that planning for new programs (in medicine, nursing, public health and veterinary medicine) at new sites begin immediately and that it be phased in over time. This planning should begin now and continue on an ongoing, systemwide basis in light of the resource investments required to support existing programs and the significant investments that will be required to launch new programs and schools. This approach will enable campuses to develop and modify their plans to assure that they are aligned appropriately with statewide and regional needs, and to assure that they complement and enhance system-wide efforts in education and patient care. When developing new programs and schools, the Council recommends that UC give careful consideration to addressing the needs of underserved regions, particularly those that are projected to grow substantially.

III. Profession-Specific Information and Enrollment Plans

The following section includes two-page fact sheets for each profession, as well as tables and graphs summarizing, in detail, the enrollment recommendations of the Advisory Council and potential future plans/interests of the campuses as reported to the Council by UC Chancellors in Spring 2006. The section is divided into two parts: the first providing information for the five health professions where the Council recommends growth; and the second, for the professions where no enrollment growth is recommended.

The tables and graphs show potential increases in health professions enrollments as reported to the Council in Spring 2006. The Council requested that campuses identify and describe their plans and interests in three categories:

- Category A – includes plans to accommodate enrollment growth within existing programs, with no new infrastructure required
- Category B – includes plans to accommodate enrollment growth within existing programs, with some level of new infrastructure required
- Category C – includes plans to accommodate enrollment growth by creating new programs at new locations, with new infrastructure required

It is important to note that the Council based its recommendations on projections of workforce need and the University's capacity to respond. In some instances, campus projections and/or interests fall short of (e.g., nursing students) or exceed (e.g., medical students) the Council's recommendation. It is also important to note that campus plans involving development of new programs or schools, and including growth in existing programs, will be subject to customary review and approval processes and are contingent upon appropriate resource support for instruction and infrastructure.

The tables and graphs summarize campus interests relative to the Council's recommendation for each program (shown as an orange line on the graphs, and under an orange heading on the tables). In those instances where campus plans fall short of Council recommendations, opportunities for further growth are encouraged. In areas where plans exceed Council recommendations, further consideration will be needed. Future workforce needs and UC capacity will continue to be assessed on a systematic and regular basis.

Health Professions where Enrollment Growth is Recommended

Medicine
Nursing
Pharmacy
Public Health
Veterinary Medicine

Health Professions where Enrollment Growth is not Recommended

Dentistry
Optometry

MEDICINE

The Physician Workforce

Physicians are medical practitioners, researchers, teachers, and administrators. In these roles, they have been part of dramatic changes in the organization, delivery, and financing of health services that have occurred over the last decade. New knowledge, technologies, and models of care have been developed that allow physicians to better respond to the changing health needs of Americans throughout their lives.

Fundamental changes are reflected in the shift from solo and small-group practices and problem-focused care, to practices in a variety of clinical settings and increasing use of integrative, interdisciplinary disease management models.

Demographic Profile of Physicians

Of the approximately 93,000 active patient care physicians in California, the median age is 48 (42 for women, 51 for men). Close to 70 percent are men aged 45 years and older. Of those younger than age 35 years, 46 percent are women.

The majority of California's physicians (66 percent) are white, followed by Asian/Pacific Islander (22 percent), Hispanic (4.4 percent), African American (3 percent), and other races (3.9 percent). Compared with the California population, the diversity of the state's physician workforce differs significantly from that of the people it serves.

Workforce Need

There are approximately 780,000 professionally active physicians in the United States. In 2002, 105,000 physicians (including both those who were active and those who were retired) were licensed to practice in California.

The state's physician-to-population ratio is currently 265 per 100,000 people, which ranks California near the national average of 270 per 100,000 and in the middle one-third of all states.

State workforce studies predict that demand for physician services will continue to outpace the supply of physicians over the next 15 years. As a result, California could face a shortfall of up to 17,000 physicians by 2015.

Factors Affecting Demand for Physician Services

- Growth, aging, and increasing diversity of the California population
- Rising incidence of chronic illnesses
- Need for culturally and linguistically competent physicians to serve diverse groups and communities
- Access to physician services based on practice location and patients' insurance status
- Increasing public expectations about topics such as screening, prevention, wellness, and end-of-life and palliative care

Factors Affecting Supply of Physicians

- Aging of California's physician workforce
- Absence of growth in educational opportunities for medical students and residents, including virtually no growth in UC programs in more than 30 years
- Choice of professional activity (research, teaching, patient care) and discipline (generalist vs. specialist)
- In-migration of physicians trained outside of California and the U.S., and increasing shortages of physicians nationally

Educational Opportunity

In the U.S., 126 accredited allopathic medical schools enroll approximately 17,000 first-year students annually in four-year programs leading to the M.D. (Doctor of Medicine) degree. Twenty colleges of osteopathic medicine enroll a total of 2,534 first-year students in four-year programs leading to the D.O. (Doctor of Osteopathy) degree.

Medical Students - California's 10 medical schools annually admit 1,342 first-year students and maintain a total enrollment of 5,487. UC enrolls 629 first-year students, with a total enrollment of 2,540. The majority of UC students are Californians and are non-Hispanic whites or Asian Americans. Men and women are equally represented.

State medical student enrollment figures have changed only slightly in 30 years (<6 percent), most of which is the result of doubling enrollment in California's two colleges of osteopathic medicine. UC schools have seen no growth in state-funded enrollment in more than 30 years. In 2002, California had 15 medical school slots per 100,000 population, significantly below the U.S. average of 27.

Because of increasing numbers of applicants and limited enrollment capacity at California's medical schools, less than five percent of all applicants to any UC medical school ultimately enroll. Because UC and other California medical schools cannot accommodate growing numbers of Californians applying for training, more California students seek educational opportunities out of state than are trained in state.

Of the state's active patient care physicians, 75 percent attended medical school outside of California. Of the 25 percent who attended a California medical school, 62 percent graduated from a UC school. Nearly 60 percent of California's physicians completed their residency training in their principal specialty within the U.S.

Residency Training - An estimated 67 institutions in California sponsor more than 700 accredited residency programs. Through some 300 specialty-specific programs, UC trains medical residents in UC-based health care facilities and a network of over 100 UC-affiliated hospitals and clinics across the state. At these sites, UC faculty and residents provide much-needed health services for California's under- and uninsured patients.

Annually, UC enrolls approximately 1,000 first-year residents in residency programs from three to seven years duration. On average, about half of UC residents are enrolled in primary care training programs. The majority of residents are white (61 percent) or Asian/Pacific Islander (25 percent). A disproportionately low number are Hispanic, African American, or Native American. In surgical specialties and medical and surgical subspecialties, the majority of residents are men; primary care specialties enroll higher numbers of women. Upon completion of residency training, an estimated 70 percent of UC residents remain in California to practice. In-state retention rates are affected by specialty, job availability, cost of living, and plans for further professional training.

California Master Plan for Higher Education

Under California's Master Plan for Higher Education, the University of California is delegated exclusive responsibility in public higher education for doctoral level education. The only exception to this responsibility is the granting of the independent professional doctoral degree in education (EDD), which was also granted to the California State University system by the California Legislature and Governor in September 2005. For the health professions, UC has exclusive responsibility in public higher education for the following professional degrees: DDS (Doctor of Dental Science), MD (Doctor of Medicine), OD (Doctor of Optometry), PharmD (Doctor of Pharmacy), and DVM (Doctor of Veterinary Medicine). In nursing and in public health, UC is responsible in public higher education for doctoral education leading to the following degrees: PhD (nursing); and PhD and DrPH (public health).

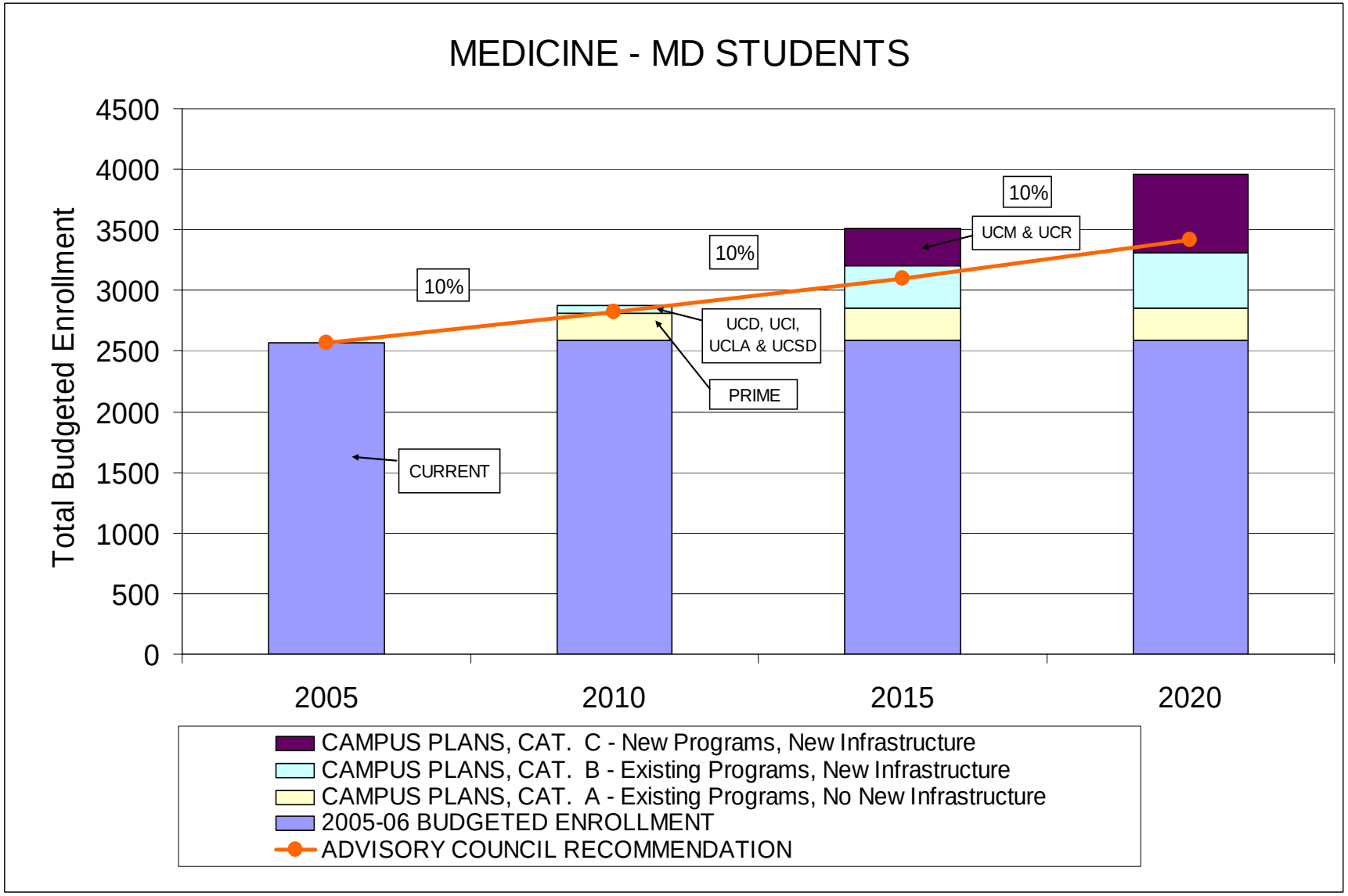
Advisory Council Recommendations

The Council recommends that medical school enrollment growth occur in a stepwise fashion, beginning with growth in existing UC schools and programs. The Council agrees that growth should begin with new Programs in Medical Education (PRIME) on all five medical school campuses.

The Council believes, however, that California's physician workforce needs will exceed those addressed by the PRIME initiative and therefore recommends that further enrollment growth at existing schools occur. Specifically, the Council recommends a 34 percent increase in MD student enrollments between the years 2005 and 2020. This would be equivalent to an increase from 2564 students to 3429 by 2020. The Council also recommends a comparable increase in medical resident enrollments over the same period. In assessing capacity to meet these goals, campus estimates suggest that by 2020, an enrollment increase of approximately 270 students (mostly enrolled in PRIME) could be accommodated within existing infrastructure, and an estimated 450 more students could be accommodated with some additional infrastructure required. These changes would increase UC's total medical student enrollment by an additional 720 students system-wide (with approximately 165 new graduates annually).

Finally, because the magnitude of growth needed to address California's physician workforce needs exceeds the capacity of existing UC schools – even with new infrastructure – the Council recommends that planning continue toward the future establishment of at least one new UC school of medicine that would graduate its first class on or before 2020. Assuming an entering class of 90 new first-year medical students by fall 2016, the total systemwide increase across all locations would be approximately 255 new graduates by 2020.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN – PROJECTED INCREASES



NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN - PROJECTED INCREASES

MEDICAL STUDENTS

CURRENT BUDGETED ENROLLMENTS	
Current total students	2564
Program length	4 years
UCD 1st year class	93
UCI 1st year class	104
UCLA 1st year class	121
UCSD 1st year class	122
UCSF 1st year class	141
UCB 1st year class	12
UCR 1st year class	24
UCLA/Drew 1st year class	24

ADVISORY COUNCIL RECOMMENDATIONS

Increase 10% by 2010 (from 2564 to 2834); increase another 10% by 2015 (from 2834 to 3117); and increase another 10% by 2020 (from 3117 to 3429)

YEARLY ENROLLMENT PLANS AND RECOMMENDATIONS

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2005-06 Budgeted Enrollment ("Baseline")																
UCD	372	372	372	372	372	372	372	372	372	372	372	372	372	372	372	372
UCI	388	400	412	412	412	412	412	412	412	412	412	412	412	412	412	412
UCLA	636	636	636	636	636	636	636	636	636	636	636	636	636	636	636	636
UCSD	488	488	488	488	488	488	488	488	488	488	488	488	488	488	488	488
UCSF	596	596	596	596	596	596	596	596	596	596	596	596	596	596	596	596
UCB	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
UCR	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
TOTAL BASELINE	2564	2576	2588	2588	2588	2588	2588	2588	2588	2588	2588	2588	2588	2588	2588	2588
Campus Plans, Category A - Additional MD Students, Existing Programs, Existing Infrastructure																
UCD	0	0	12	24	49	74	99	112	112	112	112	112	112	112	112	112
UCI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UCLA	0	0	0	16	32	48	64	80	80	80	80	80	80	80	80	80
UCSD	0	0	12	24	36	48	60	60	60	60	60	60	60	60	60	60
UCSF	0	0	6	17	28	49	63	63	63	63	63	63	63	63	63	63
UCB	0	0	4	8	12	12	12	12	12	12	12	12	12	12	12	12
UCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL CAT. A	0	0	34	89	157	231	298	327	327	327	327	327	327	327	327	327
Campus Plans, Category B - Additional MD Students, Existing Programs, New Infrastructure																
UCD	0	0	0	0	0	50	100	150	200	200	200	200	200	200	200	200
UCI	0	0	0	0	0	12	24	36	48	48	60	72	84	96	96	96
UCLA	0	0	0	0	0	0	0	0	0	0	24	48	72	96	96	96
UCSD	0	0	0	0	0	0	0	20	40	60	60	60	60	60	60	60
UCSF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UCB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL CAT. B	0	0	0	0	0	62	124	206	288	308	344	380	416	452	452	452

NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN - PROJECTED INCREASES

MEDICAL STUDENTS

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Campus Plans, Category C - Additional MD Students, New Programs, New Infrastructure																
UCM	0	0	0	0	0	0	0	32	64	96	128	160	192	224	256	288
UCR	0	0	0	0	0	0	0	64	80	128	176	208	240	288	336	360
TOTAL CAT. C	0	0	0	0	0	0	0	96	144	224	304	368	432	512	592	648
Advisory Council Recommendation																
TOTAL AC REC.	2564	2576	2641	2705	2770	2834	2891	2948	3004	3061	3117	3179	3241	3304	3366	3429
ENROLLMENT PLANS PER CAMPUS																
UCD	372	372	384	396	421	496	571	634	684	684	684	684	684	684	684	684
UCI	388	400	412	412	412	424	436	448	460	460	472	484	496	508	508	508
UCLA	636	636	636	652	668	684	700	716	716	716	740	764	788	812	812	812
UCM	0	0	0	0	0	0	0	32	64	96	128	160	192	224	256	288
UCSD	488	488	500	512	524	536	548	568	588	608	608	608	608	608	608	608
UCSF	596	596	602	613	624	645	659	659	659	659	659	659	659	659	659	659
UCB	36	36	40	44	48	48	48	48	48	48	48	48	48	48	48	48
UCR	48	48	48	48	48	48	48	112	128	176	224	256	288	336	384	408
TOTAL CAMPUS PLANS	2564	2576	2622	2677	2745	2881	3010	3217	3347	3447	3563	3663	3763	3879	3959	4015

NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

NURSING

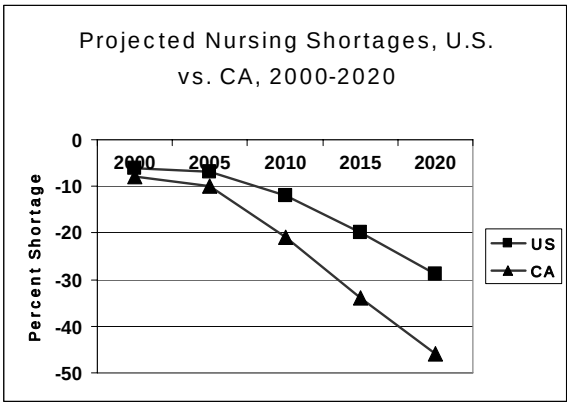
The Nursing Workforce

"Licensed nurses constitute the single largest occupation in the healthcare industry. The majority of licensed nurses work in hospitals; others work in homes, schools, clinics, physicians' offices, long-term care facilities, and public health agencies. Nurses play a critical role in the provision of health care because their scope of practice places them in direct contact with patients in most health care environments. Patients rely on licensed nurses to assess, treat, and monitor their diseases and conditions, and to educate them about maintaining health and managing chronic illness."

- UCSF January 2004

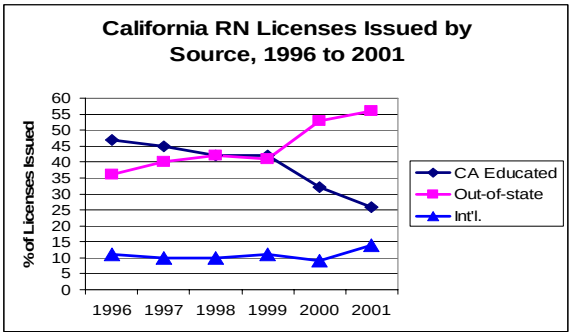
Workforce Need

The most recent national statistics show California to be 49th among the states in nurses per capita. In 2000, California had 542 nurses per 100,000 population, versus the U.S. average of 780 per 100,000. State statistics indicate that 293,493 registered nurses are currently in active practice, and – despite steady growth of the RN population since the early 1990's - studies predict California will need over 116,000 additional nurses to meet demand in 2020.



Source: U.S. Bureau of Health Professions

California's 100 nursing programs educate approximately half of the RNs needed to meet the state's demand. In recent years, the proportion of newly-licensed nurses in California who were educated out-of-state has been increasing. The percent of new licenses issued to internationally educated nurses has increased in response to the current nursing shortage.



Source: California Board of Registered Nursing

Factors Affecting the Demand for Nurses

- Overall population growth and increased proportion of persons over age 65, many with chronic illnesses
- New nurse staffing ratios for CA hospitals
- Geographic maldistribution
- New national accreditation standards limiting the number of hours medical residents can work

Factors Affecting the Supply of Nurses

- Aging of the nursing workforce
- Faculty shortages limiting enrollment growth and the number of qualified applicants who can be accepted into California nursing programs
- Enrollment caps related to budget concerns
- Minimal federal funding for RN education
- Reliance on diminishing in-migration
- Multiple paths to RN certification

Educational Opportunity

Registered nurses (RNs) take their licensure exam after completing a diploma nursing program, an associate degree, or a baccalaureate degree. Ten percent of the 2.7 million registered nurses in the United States hold masters and/or doctoral degrees. Graduate degrees prepare nurses to be nurse educators, administrators, researchers, or clinicians in advanced practice. Advanced practice nurses become certified as nurse practitioners, anesthetists, midwives, and clinical nurse specialists, often caring for underserved and disadvantaged populations.

RN educational programs are categorized as either pre-licensure or post-licensure. California has 100 pre-licensure programs, 23 of which

offer the baccalaureate of science in nursing (BSN), and five that offer an entry-level master's (ELM) degree where students who already have a bachelors degree can meet the requirements to take the RN examination and earn a masters of science degree in three to four years. 15 entry-level RN programs are offered by private colleges; the overwhelming majority of others are offered by community colleges, the California State University system, and the UC system. Publicly-funded institutions educate 86 percent of the state's RN graduates. Each program has its own prerequisites, graduation requirements, and curricula, although the community college nursing programs are currently attempting to standardize prerequisites.

In the 2001-2002 academic year, 14,260 students were enrolled in pre-licensure programs (63 percent in Associates Degree programs; 34 percent in BSN programs; and three percent in entry-level masters programs.) Roughly 6000 of these will be expected to graduate each year, but there will still be a shortfall of 10,000 per year. The number of students enrolled in RN programs has remained relatively steady over the past ten years, but did begin to increase slightly beginning in 1999. The number of students enrolled in RN programs has increased slightly over the last seven years, but in 2005, 60 percent of qualified students were turned away because of lack of educational slots.

Enrollment growth is limited by a major statewide shortage of nursing faculty, enrollment caps, and budget concerns regarding the costs of developing new programs. Approximately 26 percent of RNs in California receive additional educational degrees after completing their primary nursing education.

UC's two Schools of Nursing offer pre- and post-licensure RN education Both are ranked among the nation's top nursing schools. In addition, UC Irvine recently established a new undergraduate bachelor's degree program, and is planning the creation and expansion of masters and doctoral degree programs.

Finally, although more diverse than other health professions, the ethnicity of UC nursing students does not reflect the ethnicity of California's population.

California Master Plan for Higher Education

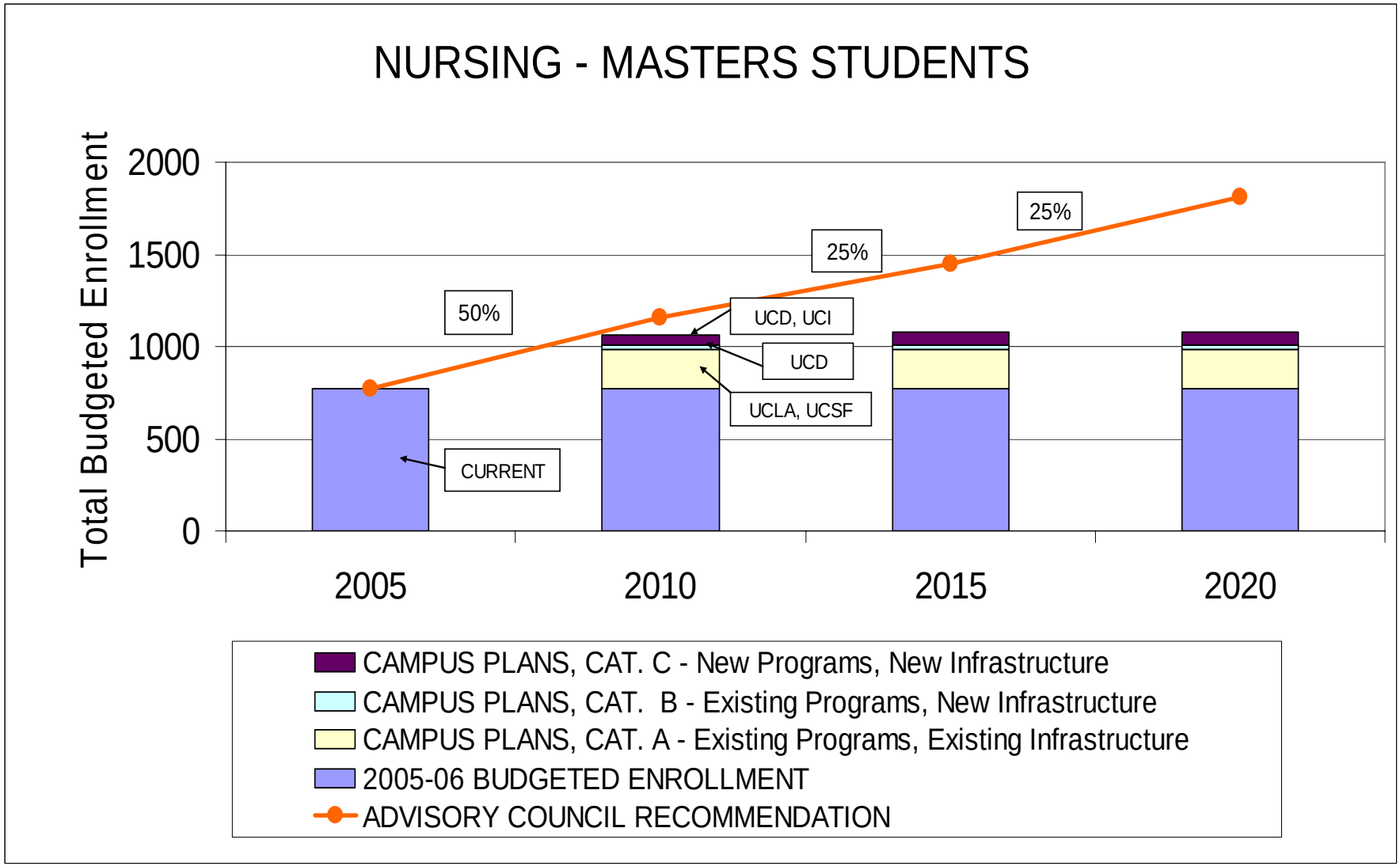
Under California's Master Plan for Higher Education, the University of California is delegated exclusive responsibility in public higher education for doctoral level education. The only exception to this responsibility is the granting of the independent professional doctoral degree in education (EDD), which was also granted to the California State University system by the California Legislature and Governor in September 2005. For the health professions, UC has responsibility in public higher education for the following professional degrees: DDS (Doctor of Dental Science), MD (Doctor of Medicine), OD (Doctor of Optometry), PharmD (Doctor of Pharmacy), and DVM (Doctor of Veterinary Medicine). In nursing and in public health, UC is responsible in public higher education for doctoral education leading to the following degrees: PhD (nursing); and PhD and DrPH (public health).

Advisory Council Recommendations

The Council recommends substantial enrollment growth across all degree programs, including a focus on graduate education in nursing and the need to train increased numbers of future nursing school faculty. The Council also recommends that new programs at the undergraduate level be developed to increase educational opportunities for undergraduates and to help build the pool of students who will go on to graduate study. This should include growth in existing nursing schools and programs in addition to the creation of new ones at new locations.

The Council recommends a more than 130 percent increase in masters student enrollments between the years 2005 and 2020. This would be equivalent to an increase from 773 students to approximately 1812 by 2020. The Council also recommends a 425 percent increase in doctoral student enrollments over the same period. This is equivalent to an increase from 80 students to a total of 420 by 2020.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN – PROJECTED INCREASES



NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN - PROJECTED INCREASES

NURSING - MASTERS STUDENTS

CURRENT BUDGETED ENROLLMENTS	
Current total	773
Program length	2 years
UCD 1st year class	50
UCLA 1st year class	128
UCSF 1st year class	209

ADVISORY COMMITTEE RECOMMENDATIONS

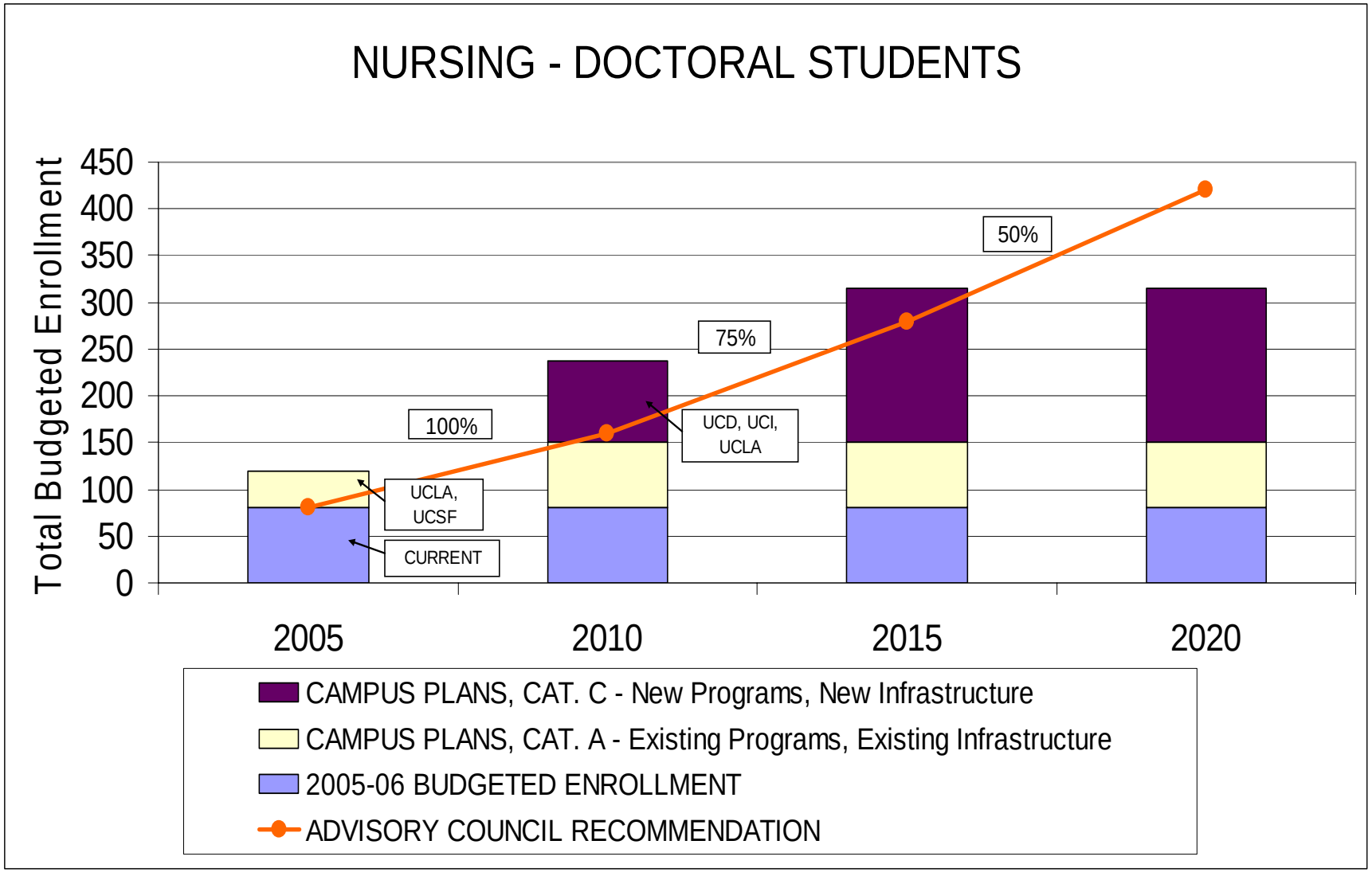
Increase 50% by 2010 (from 773 to 1160); increase another 25% by 2015 (from 1160 to 1449); increase another 25% by 2020 (from 1449 to 1812)

YEARLY ENROLLMENT PLANS AND RECOMMENDATIONS

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2005-06 Budgeted Enrollment ("Baseline")																
UCD	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
UCLA	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255
UCSF	418	418	418	418	418	418	418	418	418	418	418	418	418	418	418	418
TOTAL BASELINE	773	773	773	773	773	773	773	773	773	773	773	773	773	773	773	773
Campus Plans, Category A - Additional Masters Students, Existing Programs, Existing Infrastructure																
UCLA	0	25	50	83	108	108	108	108	108	108	108	108	108	108	108	108
UCSF	0	10	50	90	100	100	100	100	100	100	100	100	100	100	100	100
TOTAL CAT. A	0	35	100	173	208	208	208	208	208	208	208	208	208	208	208	208
Campus Plans, Category B - Additional Masters Students, Existing Programs, New Infrastructure																
UCD	0	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30
TOTAL CAT. B	0	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30
Campus Plans, Category C - Additional Masters Students, New Programs, New Infrastructure																
UCD	0	0	0	8	16	24	24	24	24	24	24	24	24	24	24	24
UCI	0	0	0	10	20	30	40	45	45	45	45	45	45	45	45	45
TOTAL CAT. C	0	0	0	18	36	54	64	69	69	69	69	69	69	69	69	69
Advisory Council Recommendation																
TOTAL AC REC.	773	850	927	1004	1081	1160	1218	1276	1334	1392	1449	1522	1595	1668	1741	1812
ENROLLMENT PLANS PER CAMPUS																
UCD	0	0	0	38	46	54	54	54	54	54	54	54	54	54	54	54
UCI	0	0	0	10	20	30	40	45	45	45	45	45	45	45	45	45
UCLA	255	280	305	338	363	363	363	363	363	363	363	363	363	363	363	363
UCSF	418	428	468	508	518	518	518	518	518	518	518	518	518	518	518	518
TOTAL CAMPUS PLANS	673	708	773	894	947	965	975	980	980	980	980	980	980	980	980	980

NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN – PROJECTED INCREASES



NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN - PROJECTED INCREASES

NURSING - DOCTORAL STUDENTS

CURRENT BUDGETED ENROLLMENTS	
Current total	80
Program length	4 years
UCLA 1st year class	3
UCSF 1st year class	18

ADVISORY COUNCIL RECOMMENDATIONS

Increase 100% by 2010 (from 80 to 160); increase another 75% by 2015 (from 160 to 280); increase another 50% by 2020 (from 280 to 420)

YEARLY ENROLLMENT PLANS AND RECOMMENDATIONS

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2005-06 Budgeted Enrollment ("Baseline")																
UCLA	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
UCSF	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
TOTAL BASELINE	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Campus Plans, Category A - Additional Doctoral Students, Existing Programs, Existing Infrastructure																
UCLA	40	40	45	50	50	50	50	50	50	50	50	50	50	50	50	50
UCSF	0	0	5	10	20	20	20	20	20	20	20	20	20	20	20	20
TOTAL CAT. A	40	40	50	60	70	70	70	70	70	70	70	70	70	70	70	70
Campus Plans, Category C - Additional Doctoral Students, New Programs, New Infrastructure																
UCD	0	0	0	0	0	24	24	24	24	24	30	30	30	30	30	30
UCI	0	0	0	13	13	13	85	85	85	85	85	85	85	85	85	85
UCLA	0	0	0	0	50	50	50	50	50	50	50	50	50	50	50	50
TOTAL CAT. C	0	0	0	13	63	87	159	159	159	159	165	165	165	165	165	165
Advisory Council Recommendation																
TOTAL AC REC.	80	96	112	128	144	160	184	208	232	256	280	308	336	364	392	420
ENROLLMENT PLANS PER CAMPUS																
UCD	0	0	0	0	0	24	24	24	24	24	30	30	30	30	30	30
UCI	0	0	0	13	13	13	85	85	85	85	85	85	85	85	85	85
UCLA	40	40	45	50	100	100	100	100	100	100	100	100	100	100	100	100
UCSF	70	70	75	80	90	90	90	90	90	90	90	90	90	90	90	90
TOTAL CAMPUS PLANS	110	110	120	143	203	227	299	299	299	299	305	305	305	305	305	305

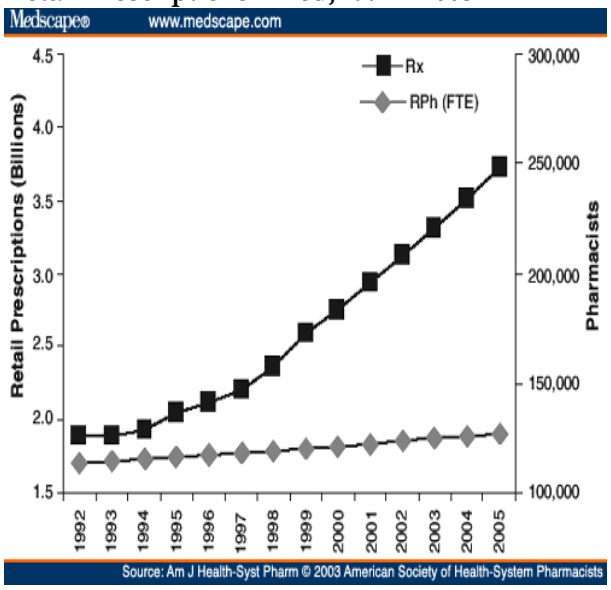
NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

PHARMACY

The Pharmacy Workforce

Licensed pharmacists play active roles in the health care system, and in the biotechnology and pharmaceutical industries. In hospitals, clinics, and retail pharmacies, Doctors of Pharmacy (PharmDs) dispense medication prescribed by doctors and dentists; participate actively in drug monitoring and disease management; and advise patients and prescribers about potential drug interactions. As researchers, PharmDs participate in drug discovery and development, and evaluate drug efficacy by conducting clinical trials. Career opportunities have expanded greatly due to growth in the biotechnology and pharmaceutical industries, and to steady increases in the number of prescriptions written and dispensed.

Growth in Numbers of Pharmacists and in Retail Prescriptions Filled, 1992 - 2005



Training and Degrees Offered

Pharmacists must graduate with a Doctor of Pharmacy (PharmD) degree from an accredited college of pharmacy (typically a four-year program), and pass a state examination in order to earn the required state license.

Workforce Need

In 2000, 22,470 pharmacists served 34 million Californians (i.e., a ratio of 66 pharmacists per 100,000 population) ranking California 43rd in the nation in pharmacists per capita. Critical pharmacy workforce shortages in the state are expected to continue.

Federal estimates predict that by 2014, the number of pharmacists nationally will need to grow by 17 percent to meet demand. A recent study, however, names California as one of five states with the greatest unmet demand (i.e., number of unfilled positions) for licensed pharmacists, underscoring the need to increase the training and recruitment of these professionals.

Educational Opportunity

The eighty-seven currently accredited schools of pharmacy in the U.S. enroll approximately 42,000 students in four-year programs leading to the PharmD degree. Of these 87 schools, 66 also offer other graduate programs in the pharmaceutical sciences, and enroll nearly 500 Masters and 400 PhD degree candidates yearly.

The number of applications for admission to PharmD programs rose rapidly between 2000 and 2003, increasing 9.1 percent between 2000 and 2001; 24.6 percent in 2002; and 41.7 percent in 2003. The majority of applicants in 2003 were white (48 percent) or Asian/Pacific Islander (28 percent); women represent 65 percent of the applicant pool. Admission is highly competitive, with an average 4.8 applications for each available student position. From 2002 to 2003, total enrollment in first-professional degree programs in U.S. pharmacy schools increased by almost 11 percent.

Reflecting national trends, the number of applicants to California's six PharmD programs continues to rise steadily.

Applicants to California PharmD Programs in 2003 and 2004

	Loma Linda	UCSF	UCSD	USC	Western Univ	U of Pacific
Positions	55	122	30	185	120	200
Apps 2003	235	854	496	737	647	1277
Apps 2004	475	1236	1071	1300	1053	1875

Total enrollment in California's PharmD programs is currently approximately 2,400 students. As plans go forward to increase

enrollment at Loma Linda University and the UCSD campus, California will add approximately 4,500 new graduates to the pharmacy workforce by 2010. Despite this gain, the total number of pharmacists will still fall short of projected need resulting from expected population growth and aging, and statewide health care utilization trends.

Completion of residency training is also required for inpatient pharmacy practice and leadership positions in academic health centers. Only UC and USC offer advanced-level clinical training through their residency and fellowship programs.

In both UC schools of pharmacy, the majority of PharmD enrollees are women. The percentage of all enrolled students from underrepresented minority groups in California (including Black/African American, American Indian/Alaskan Native, and Mexican Americans) is less than 10 percent (43 of 477) at UCSF and less than four percent (2 of 51) at UCSD.

UC schools express major concerns regarding their ability to increase enrollments in light of current funding arrangements and long-standing student-faculty ratios that no longer reflect current requirements of pharmacy education and practice.

California Master Plan for Higher Education

Under California's Master Plan for Higher Education, the University of California is delegated exclusive responsibility in public higher education for doctoral level education. The only exception to this responsibility is the granting of the independent professional doctoral degree in education (EDD), which was also granted to the California State University system by the California Legislature and Governor in September 2005. For the health professions, UC has exclusive responsibility in public higher education for the following professional degrees: DDS (Doctor of Dental Science), MD (Doctor of Medicine), OD (Doctor of Optometry), PharmD (Doctor of Pharmacy), and DVM (Doctor of Veterinary Medicine). In nursing and in public health, UC is responsible in public higher education for doctoral education leading to the following degrees: PhD (nursing); and PhD and DrPH (public health).

Factors Affecting Demand for Pharmacy Services

- Growth and aging of California's population
- Widening scope of pharmacy practice in clinical and research settings
- Expanding career opportunities in biotechnology and pharmaceutical industries
- Growing need for culturally and linguistically competent pharmacists to serve California's diverse communities
- Steady and dramatic increases in prescriptions written and dispensed

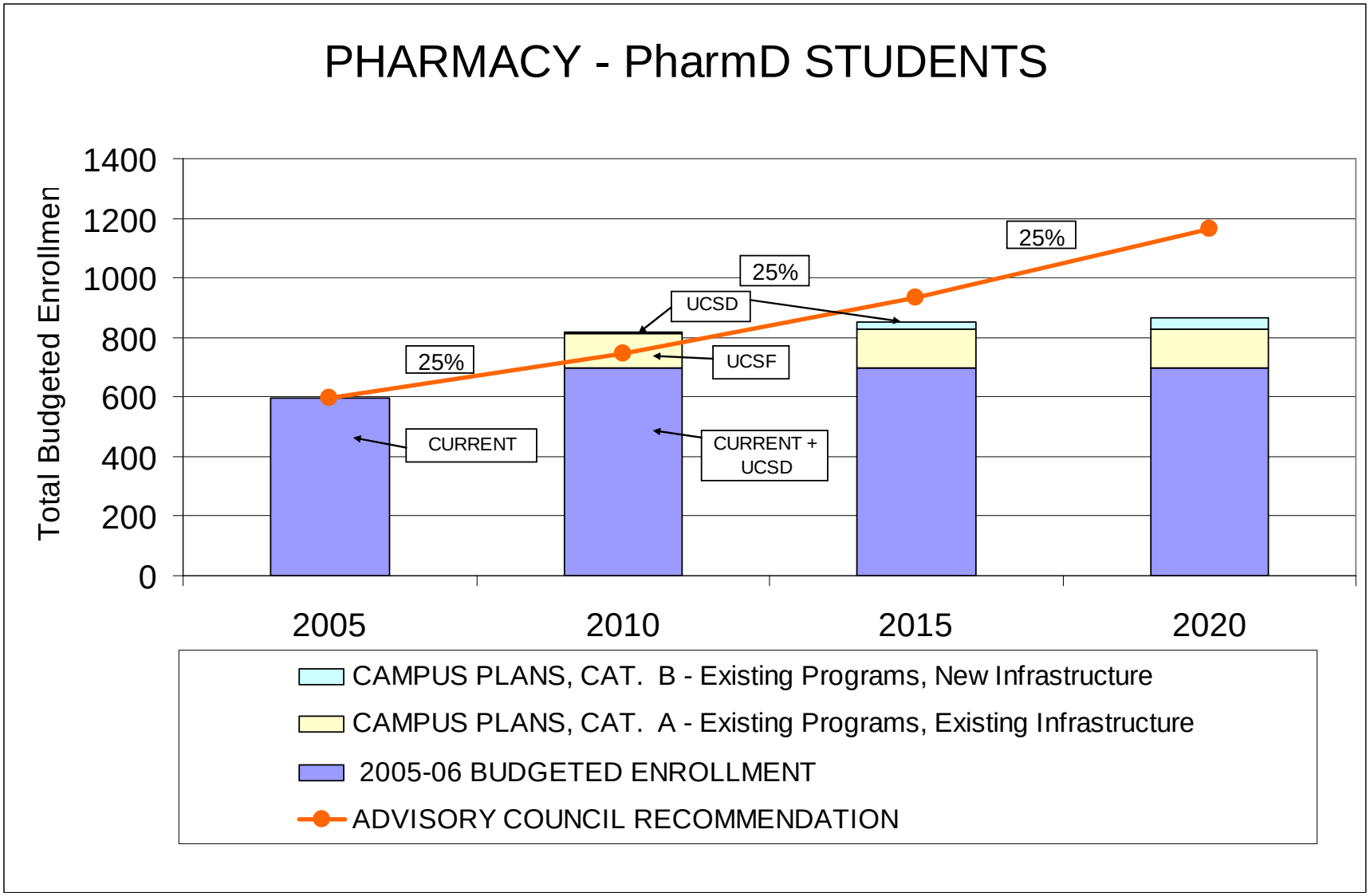
Factors Affecting Supply of Pharmacists

- Revised educational requirements and standards for pharmacy licensure
- Historic requirement of a California-specific pharmacist licensure examination
- Limited educational opportunities for pharmacy students and residents
- Expanding career options for licensed pharmacists (e.g., practice vs. research)
- Changing work habits and interests by some professionals in working fewer hours and retiring at earlier ages
- Growing availability of pharmacy technicians to work in a variety of new settings

Advisory Council Recommendations

In the face of the ongoing pharmacist workforce shortage, increasing demands of California's growing and aging population, and the expanding scope of pharmacy practice, the Council agreed that UC should expand enrollments in its pharmacy programs. The Council recommends a nearly 100 percent increase in PharmD student enrollments by 2020, equivalent to an increase from 596 students to approximately 1164 by 2020. The Council recommends an increase of approximately 100 percent over the same period in pharmacy residency program enrollments, from 54 residents to 105 by 2020.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN – PROJECTED INCREASES



NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN - PROJECTED INCREASES

PharmD STUDENTS

CURRENT BUDGETED ENROLLMENTS	
Current total	596
Program length	4 years
UCSD 1st year class	60
UCSF 1st year class	117

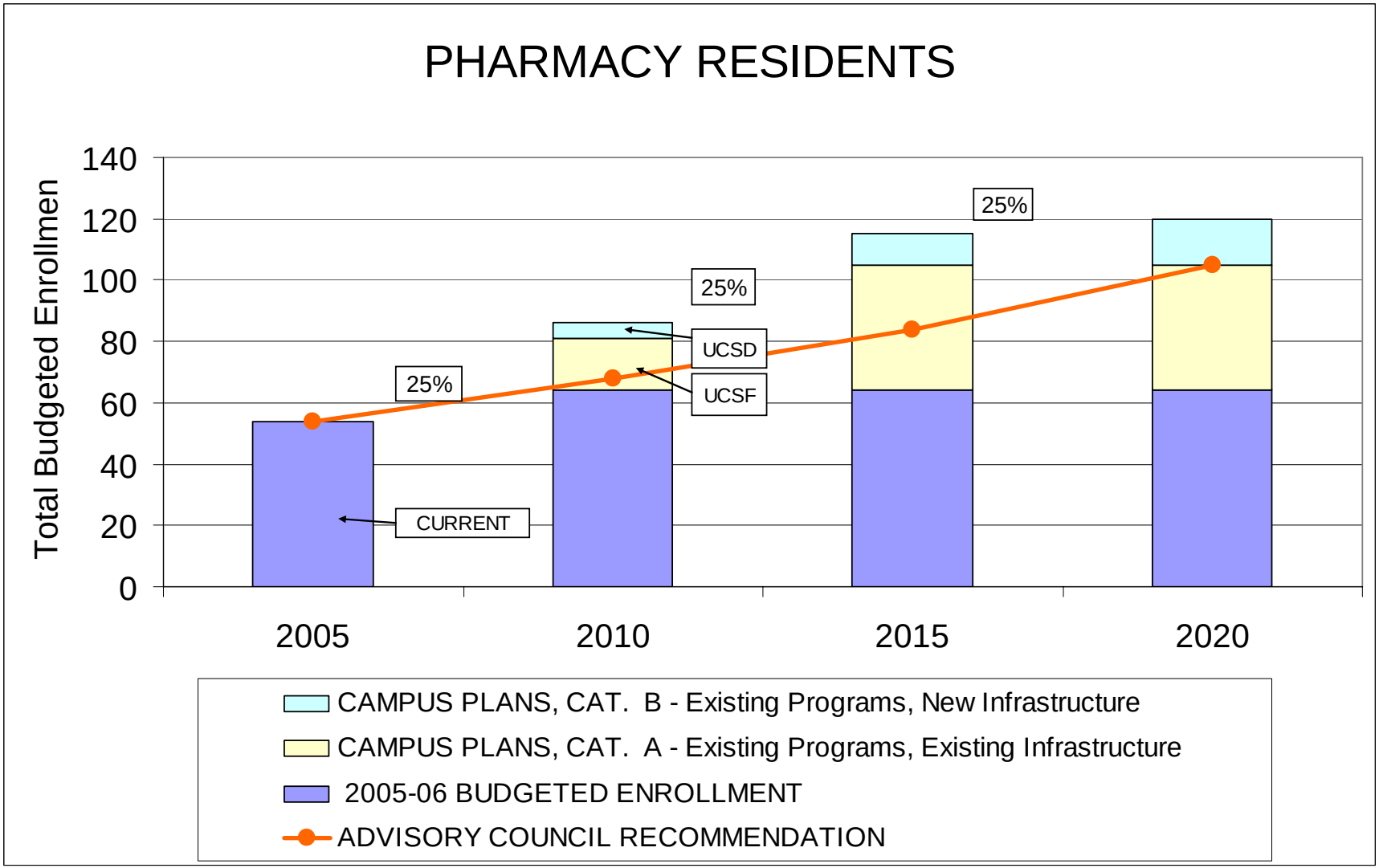
ADVISORY COUNCIL RECOMMENDATIONS

Increase 25% by 2010 (from 596 to 745); increase another 25% by 2015 (from 745 to 931); increase another 25% by 2020 (from 931 to 1164)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2005-06 Budgeted Enrollment ("Baseline")																
UCSD	140	140	175	210	240	240	240	240	240	240	240	240	240	240	240	240
UCSF	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456	456
TOTAL BASELINE	596	596	631	666	696	696	696	696	696	696	696	696	696	696	696	696
Campus Plans, Category A - Additional PharmD Students, Existing Programs, Existing Infrastructure																
UCSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UCSF	0	0	16	49	82	115	132	132	132	132	132	132	132	132	132	132
TOTAL CAT. A	0	0	16	49	82	115	132	132	132	132	132	132	132	132	132	132
Campus Plans, Category B - Additional PharmD Students, Existing Programs, New Infrastructure																
UCSD	0	0	0	0	0	5	10	15	20	20	25	30	35	40	40	40
TOTAL CAT. B	0	0	0	0	0	5	10	15	20	20	25	30	35	40	40	40
Advisory Council Recommendation																
TOTAL AC REC.	596	626	656	686	716	745	782	819	856	893	931	978	1025	1072	1119	1164
ENROLLMENT PLANS PER CAMPUS																
UCSD	140	140	175	210	240	245	250	255	260	260	265	270	275	280	280	280
UCSF	456	456	472	505	538	571	588	588	588	588	588	588	588	588	588	588
TOTAL CAMPUS PLANS	596	596	647	715	778	816	838	843	848	848	853	858	863	868	868	868

NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN – PROJECTED INCREASES



NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN - PROJECTED INCREASES

PHARMACY RESIDENTS

CURRENT BUDGETED ENROLLMENTS	
Current total	54
Program length	1 yr.
UCSD 1st year class	20
UCSF 1st year class	34

ADVISORY COUNCIL RECOMMENDATIONS

Increase 25% by 2010 (from 54 to 68); increase another 25% by 2015 (from 68 to 84); increase another 25% by 2020 (from 84 to 105)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2005-06 Budgeted Enrollment ("Baseline")																
UCSD	20	20	25	25	30	30	30	30	30	30	30	30	30	30	30	30
UCSF	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
TOTAL BASELINE	54	54	59	59	64	64	64	64	64	64	64	64	64	64	64	64
Campus Plans, Category A - Additional Pharmacy Residents, Existing Programs, Existing Infrastructure																
UCSF	0	0	0	0	0	17	17	17	17	17	41	41	41	41	41	41
TOTAL CAT. A	0	0	0	0	0	17	17	17	17	17	41	41	41	41	41	41
Campus Plans, Category B - Additional Pharmacy Residents, Existing Programs, New Infrastructure																
UCSD	0	0	0	0	0	5	5	5	5	5	10	10	10	10	10	15
TOTAL CAT. B	0	0	0	0	0	5	5	5	5	5	10	10	10	10	10	15
Advisory Council Recommendation																
TOTAL AC REC.	54	57	60	63	66	68	71	74	77	80	84	88	92	96	100	105
PER CAMPUS ENROLLMENT TOTALS																
UCSD	20	20	25	25	30	35	35	35	35	35	40	40	40	40	40	45
UCSF	34	34	34	34	34	51	51	51	51	51	75	75	75	75	75	75
TOTAL CAMPUS PLANS	54	54	59	59	64	86	86	86	86	86	115	115	115	115	115	120

NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

PUBLIC HEALTH

The Public Health Workforce

Public health has been defined as the science and art of promoting health, preventing disease, prolonging life, and improving quality of life for the general population. The principal areas of focus of the public health system are health surveillance, protection, and promotion; policy development, and regulation; and the organization, delivery, and evaluation of health services delivered to individuals and populations.

Public health professionals are educated in public health or a related discipline and are employed to improve health through a population focus. Much of the public health workforce has no formal public health training. The workforce includes clinicians (physicians, nurses, dentists); occupational and environmental health specialists; epidemiologists and biostatisticians; health program administrators and health educators; and health economists, planners, and policy analysts.

The public health workforce includes workers in:

- Governmental agencies (federal, state, county, and local health departments)
- Non-governmental organizations (community-based social service organizations and advocacy groups)
- Health care financing and delivery systems (hospitals, health plans, medical groups)
- Academic and research institutions
- Private organizations (disease management, information technology, and biotechnology firms)

Workforce Need

Estimating the size, demographics, and competencies of the public health workforce is complicated by limited data accounting for all workforce sectors and lack of a verifiable number or formula defining an adequate public health workforce. Frequently cited estimates put the national public health workforce at nearly 450,000 paid, full-time workers, with an estimated 45 percent employed in governmental settings.

Nationwide, the greatest demand is for public health nurses, environmental scientists, health educators, epidemiologists, and administrators. In California, particularly in rural counties, the greatest need is for clinicians, microbiologists, program administrators, and dieticians.

Factors affecting demand for public health workers include: new diseases (e.g., SARS) and recurrence of known ones (e.g., tuberculosis); widened scope of professional activities (involving biological, environmental, social and behavioral factors affecting public health); growth, aging, and increasing diversity of California's population

Educational Opportunity

Nationwide, 36 accredited schools of public health at 10 private and 26 public universities offer masters degrees, including the Master of Public Health (MPH), the most common professional degree. Some also offer doctoral degrees, including the Doctor of Public Health (DrPH), Doctor of Science (ScD), and Doctor of Philosophy (PhD) degrees; and joint degree programs, most often an MPH combined with an MD, MSW, MBA, or JD).
In 2003, student enrollment in public health degree programs totaled 19,000 students nationwide, an increase of six percent from 2002 and of 31 percent since 1993. Accredited public health programs at USC and five California State University campuses offer MPH degrees, most of which focus on environmental and occupational health, health administration, and community health education and promotion.

Among the nation's top ten schools of public health, UCB is the smallest and UCLA is the third smallest in total enrollment. In California, however, they are the largest, training more than 65 percent of masters' and 80 percent doctoral candidates enrolled in schools and programs of public health in the state.

Public Health Training in California

Students	UC Berkeley	UCLA	Loma Linda	SDSU
Total	474	709*	306	336
Masters'	319	460	246	304
Doctoral	155	249	60	32

The number of applications for admission to public health schools has risen 48 percent

nationwide since 1992. Applications to California's four schools and six accredited programs in public health show similar upward trends.

UC schools are among the most selective in the country, enrolling roughly 25 percent of applicants each year. Although most students nationwide are white women, in 2002, 9.5 percent of students at UCB and 18.5 percent of UCLA students were from underrepresented minority groups.

UC schools of public health differ from national statistics in the virtual lack of growth in enrollment over the last 10 years, due to space constraints and limits in the number of faculty FTE. Located in densely populated urban areas, UC schools face major constraints with regard to classroom, office, and laboratory space.

The research and teaching excellence of UC faculty is well recognized. Opportunities for collaborative research and learning across disciplines, and joint degree offerings with medicine, business, public policy, law, social welfare, and social studies, yield graduates who are well equipped to enter and contribute significantly to a variety of workplace settings. New advanced degree programs within the UC Davis Schools of Medicine and Veterinary Medicine and also at UC Irvine within the School of Social Ecology will increase opportunities for interdisciplinary training.

Factors Affecting Demand

- New diseases and public health challenges
- Widened scope of professional activities to include biological, environmental, and social and behavioral factors
- Growth and aging of the overall population
- Increasing diversity of California's population

Factors Affecting Supply

- Aging of the public health workforce in California and nationally
- Educational opportunities to accommodate growing numbers of prospective public health professionals
- Shortages of professionals in other health disciplines
- Lack of formal training of existing public health workforce
- Choice of professional activity (governmental vs. non-governmental agency or organization)

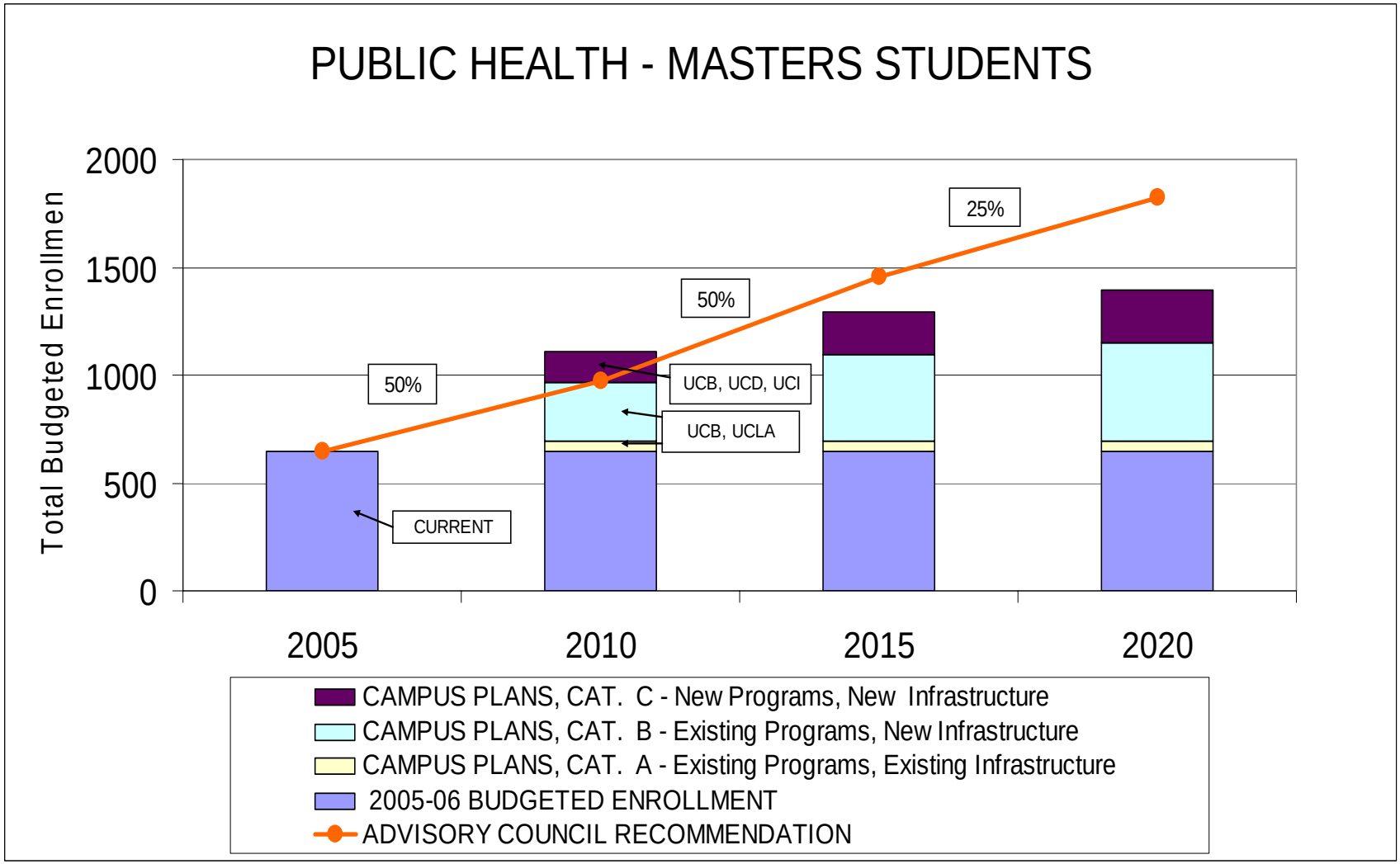
California Master Plan for Higher Education

Under California's Master Plan for Higher Education, the University of California is delegated exclusive responsibility in public higher education for doctoral level education. The only exception to this responsibility is the granting of the independent professional doctoral degree in education (EDD), which was also granted to the California State University system by the California Legislature and Governor in September 2005. For the health professions, UC has exclusive responsibility in public higher education for the following professional degrees: DDS (Doctor of Dental Science), MD (Doctor of Medicine), OD (Doctor of Optometry), PharmD (Doctor of Pharmacy), and DVM (Doctor of Veterinary Medicine). In nursing and in public health, UC is responsible in public higher education for doctoral education leading to the following degrees: PhD (nursing); and PhD and DrPH (public health).

Advisory Council Recommendations

To respond to serious and growing deficiencies in the state and national public health workforce, UC should expand opportunities for preparing future public health professionals to work in settings and disciplines of greatest need. The Council recommends an increase of more than 180 percent in masters student enrollments by 2020, an increase from 648 students to 1823 by 2020. The Council also recommends parallel increases in doctoral student enrollments from 279 students to 785 by 2020.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN – PROJECTED INCREASES



NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN - PROJECTED INCREASES

PUBLIC HEALTH - MASTERS STUDENTS

CURRENT BUDGETED ENROLLMENTS	
Current total	648
Program length	2 years
UCB 1st year class	135
UCD 1st year class	15
UCLA 1st year class	169

ADVISORY COUNCIL RECOMMENDATIONS

Increase 50% by 2010 (from 648 to 972); increase another 50% by 2015 (from 972 to 1458); and increase another 25% by 2020 (from 1458 to 1823)

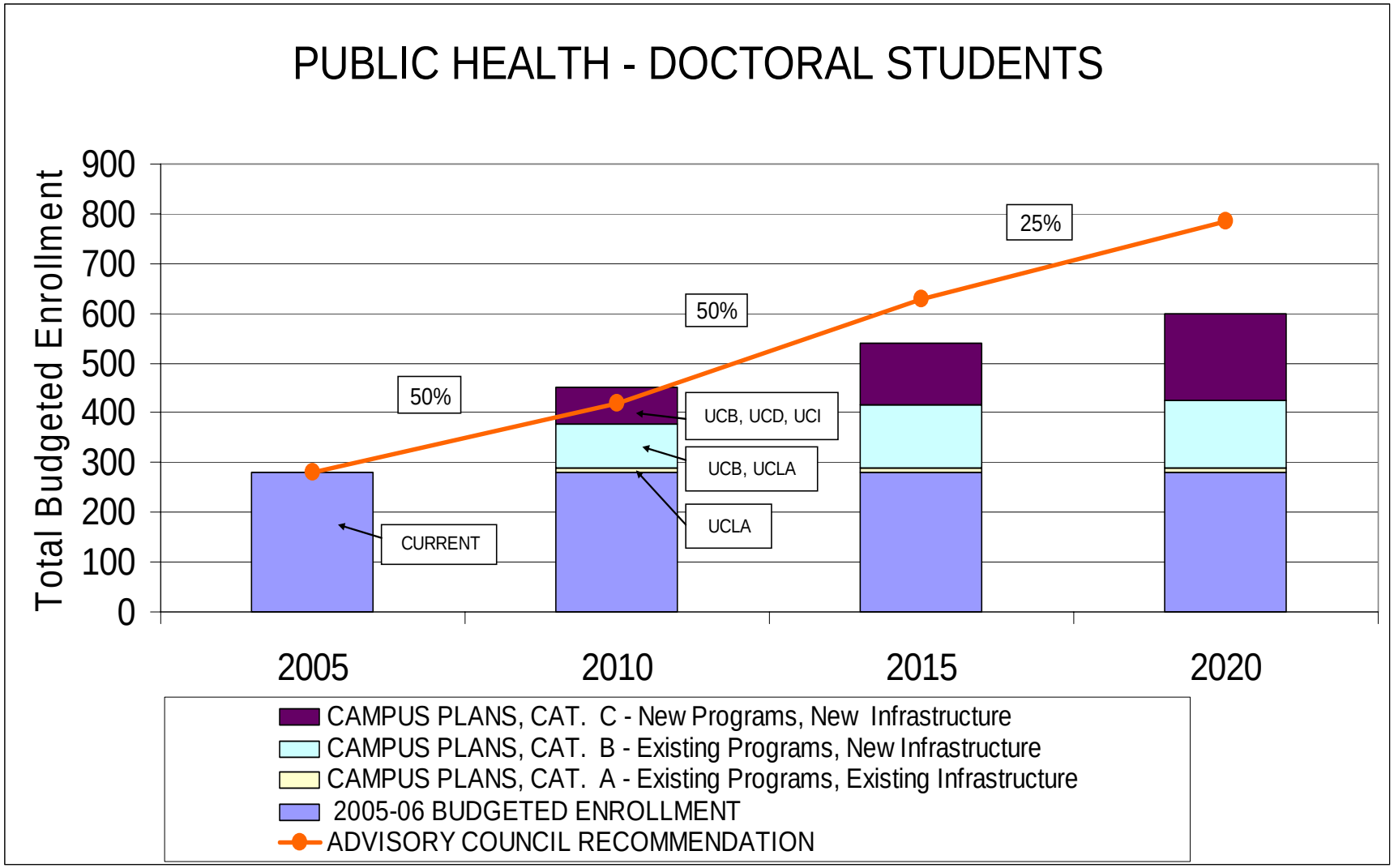
p

YEARLY ENROLLMENT PLANS AND RECOMMENDATIONS

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2005-06 Budgeted Enrollment ("Baseline")																
UCB	281	281	281	281	281	281	281	281	281	281	281	281	281	281	281	281
UCD	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
UCLA	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337
TOTAL BASELINE	648	648	648	648	648	648	648	648	648	648	648	648	648	648	648	648
Campus Plans, Category A - Additional Masters Students, Existing Programs, Existing Infrastructure																
UCB	0	0	7	7	7	15	15	15	15	15	15	15	15	15	15	15
UCLA	0	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30
TOTAL CAT. A	0	0	37	37	37	45	45	45	45	45	45	45	45	45	45	45
Campus Plans, Category B - Additional Masters Students, Existing Programs, New Infrastructure																
UCB	0	0	0	0	0	24	24	24	24	24	74	74	74	74	74	124
UCLA	0	0	0	165	165	250	250	250	250	250	330	330	330	330	330	330
TOTAL CAT. B	0	0	0	165	165	274	274	274	274	274	404	404	404	404	404	454
Campus Plans, Category C - Additional Masters Students, New Programs, New Infrastructure																
UCB	0	0	0	0	0	25	25	25	25	25	25	25	25	25	25	25
UCD	0	0	0	0	0	100	100	100	100	100	150	150	150	150	150	200
UCI	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20	20
TOTAL CAT. C	0	0	0	0	20	145	145	145	145	145	195	195	195	195	195	245
Advisory Council Recommendation																
TOTAL AC REC.	648	712	776	840	904	972	1067	1162	1257	1352	1458	1530	1602	1674	1746	1823
ENROLLMENT PLANS PER CAMPUS																
UCB	281	281	288	288	288	345	345	345	345	345	395	395	395	395	395	445
UCD	30	30	30	30	30	130	130	130	130	130	180	180	180	180	180	230
UCI	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20	20
UCLA	337	337	367	532	532	617	617	617	617	617	697	697	697	697	697	697
TOTAL CAMPUS PLANS	648	648	685	850	870	1112	1112	1112	1112	1112	1292	1292	1292	1292	1292	1392

NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN – PROJECTED INCREASES



NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN - PROJECTED INCREASES

PUBLIC HEALTH - DOCTORAL STUDENTS

CURRENT BUDGETED ENROLLMENTS	
Current total	279
Program length	4-5 years
UCB 1st year class	47
UCLA 1st year class	15

ADVISORY COUNCIL RECOMMENDATIONS

Increase 50% by 2010 (from 279 to 419); increase another 50% by 2015 (from 419 to 628); and increase another 25% by 2020 (from 628 to 785)

NOTE: Public Health enrollments include both Academic and Professional degree programs.

YEARLY ENROLLMENT PLANS AND RECOMMENDATIONS

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2005-06 Budgeted Enrollment ("Baseline")																
UCB	213	213	213	213	213	213	213	213	213	213	213	213	213	213	213	213
UCLA	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
TOTAL BASELINE	279	279	279	279	279	279	279	279	279	279	279	279	279	279	279	279
Campus Plans, Category A - Additional Doctoral Students, Existing Programs, Existing Infrastructure																
UCLA	0	0	10	10	10	10	10	10	10	10	10	10	10	10	10	10
TOTAL CAT. A	0	0	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Campus Plans, Category B - Additional Doctoral Students, Existing Programs, New Infrastructure																
UCB	0	0	0	0	0	18	18	18	18	18	26	26	26	26	26	35
UCLA	0	0	0	35	35	70	70	70	70	70	100	100	100	100	100	100
TOTAL CAT. B	0	0	0	35	35	88	88	88	88	88	126	126	126	126	126	135
Campus Plans, Category C - Additional Doctoral Students, New Programs, New Infrastructure																
UCB	0	0	0	0	0	5	5	5	5	5	5	5	5	5	5	5
UCD	0	0	0	0	50	50	50	50	50	50	100	100	100	100	100	150
UCI	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20	20
TOTAL CAT. C	0	0	0	0	70	75	75	75	75	75	125	125	125	125	125	175
Advisory Council Recommendation																
TOTAL AC REC.	279	279	279	279	279	419	419	419	419	419	628	628	628	628	628	785
ENROLLMENT PLANS PER CAMPUS																
UCB	213	213	213	213	213	236	236	236	236	236	244	244	244	244	244	253
UCLA	66	66	76	111	111	146	146	146	146	146	176	176	176	176	176	176
UCD	0	0	0	0	50	50	50	50	50	50	100	100	100	100	100	150
UCI	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20	20
TOTAL CAMPUS PLANS	279	279	289	324	394	452	452	452	452	452	540	540	540	540	540	599

NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

VETERINARY MEDICINE

The Veterinary Workforce

The veterinary health system includes teams of veterinarians, veterinary technicians, veterinary assistants, adoption and grief counselors, kennel workers, and volunteers. Their efforts focus on protecting the health and welfare of animals and people.

Approximately 75 percent of all U.S. veterinarians work in private practices. Of those, about 58 percent are engaged in exclusively small animal practice; nearly 18 percent limit their practice to the care of farm animals or horses. Another 19 percent of veterinarians work in mixed animal practices that provide care to all types of pets, horses, and livestock. According to the California Veterinary Medical Association (CVMA), approximately 94 percent of California's veterinary members are engaged in private practice.

Demographic Profile of Veterinarians

The average age of a practicing veterinarian in the U.S. is 45 years (49 for men; 40 for women). Since the mid-1970's, the number of women accepted to veterinary schools has steadily increased. The number of practicing women veterinarians in the profession is expected to outnumber men in the near future.

The veterinary workforce is among the least diverse of the health professions. Efforts within the profession and veterinary schools, to increase diversity have produced modest results, but at a slower pace than desired. Approximately 90 percent of students enrolled in veterinary colleges are White. Only three percent are Asian, three percent are Latino, and two percent are African American.

Workforce Need

There are 76,291 professionally active veterinarians in the U.S. and approximately 5,860 working in California. The national average veterinarian-to-population ratio is currently 27 veterinarians per 100,000 population. By contrast, the average ratio in California is 17:100,000 (63 percent of the national average). Twenty counties in California, almost half, are at or below this level, which underscores the need to increase the supply of veterinarians. Currently the UC Davis School of Veterinary Medicine graduates 122 new veterinarians each year. Since 1995, an average of approximately 230 veterinarians trained outside of the state are licensed each year to practice in California. If the state were to meet the current national average, an additional 3,367 California veterinarians would be needed.

Relative growth in the number of California veterinarians (about one percent per annum) ranks 49th in the nation as evidenced by significant regional shortages identified in some areas of the state. Since only 27 states in the U.S. offer veterinary education to fulfill the veterinary healthcare needs, their responsibility extends beyond state and regional boundaries. To address the need for veterinarians to meet national demand, and acknowledging an estimated retirement rate of 2.8 percent per year, an additional 725 new veterinarians in California would be needed each year.

Factors Affecting Demand for Veterinary Services

- Growth of the California population and in the total number of pets per household
- Increased demand for veterinary livestock services to ensure agriculture and food safety
- Increased security against emerging diseases and bioterrorism/agroterrorism
- Greater demand for more sophisticated diagnoses and treatments

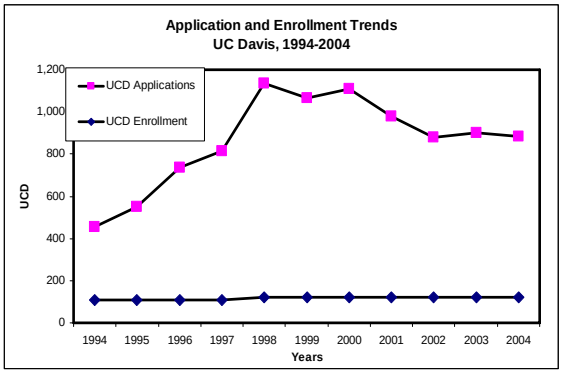
Factors Affecting Supply of Veterinarians

- Downward shifts in productivity due in part to desired lifestyle changes (e.g., reducing work hours)
- Aging of the veterinary workforce
- Faculty shortages
- Limited educational opportunities available in veterinary medicine

Educational Opportunity

Currently, 28 accredited schools of veterinary medicine in the U.S. enroll approximately 9,600 Doctor of Veterinary Medicine (DVM) students across a four-year curricular period. Approximately 2,400 of these students graduate each year.

Two veterinary medical schools in California, the University of California Davis (UCD) and the Western University of Health Sciences (WUHS), enroll approximately 570 DVM students annually. The number of applications consistently exceeds the capacity of California's training programs. Access for a veterinary education in California is severely limited.



Applicant and Enrollment Trends for California

California Master Plan for Higher Education

Under California's Master Plan for Higher Education, the University of California is delegated exclusive responsibility in public higher education for doctoral level education. The only exception to this responsibility is the granting of the independent professional doctoral degree in education (EDD), which was also granted to the California State University system by the California Legislature and Governor in September 2005. For the health professions, UC has exclusive responsibility in public higher education for the following professional degrees: DDS (Doctor of Dental Science), MD (Doctor of Medicine), OD (Doctor of Optometry), PharmD (Doctor of Pharmacy), and DVM (Doctor of Veterinary Medicine). In nursing and in public health, UC is responsible in public higher education for doctoral education leading to the following degrees: PhD (nursing); and PhD and DrPH (public health).

Enrollment Capacity of California Schools

The UCD School of Veterinary Medicine (SVM) received a permanent annual budget augmentation of $2.5 million, beginning in fiscal year 1998-1999, which was used to fund a modest level of enrollment expansion. This expansion was phased in over the last several years. As planned, this augmentation was used to support:

- an increase in the enrollment of DVM students from 23 to an eventual 131 students per class per year
- an increase in the enrollment of DVM specialty residents by an additional 30 trainees, for a total resident enrollment of 90 trainees across all years of training.
- administrative and technical needs to establish a veterinary presence in southern California.

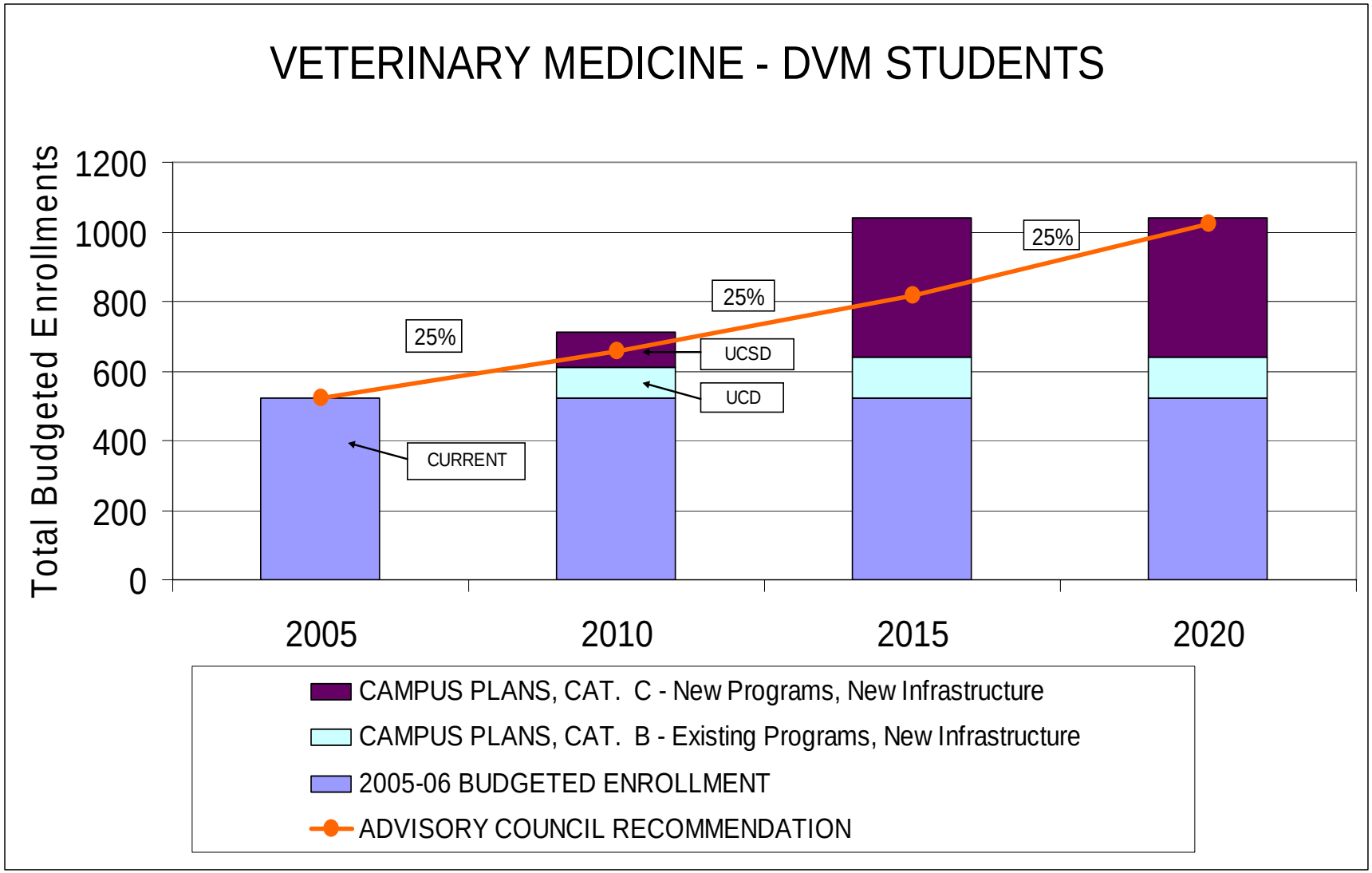
At full operation, the WUHS proposed a class size of approximately 90 students per year. The School admitted its Charter class of 85 students in the Fall of 2003.

Advisory Council Recommendations

The Council recommends substantial growth in veterinary school enrollment to help meet the rapid increase in demand for veterinary services and to ensure that California's veterinary workforce remains competitive in number and quality. Based upon the capacity for growth at UC Davis, the Council recommends a 95 percent increase in DVM student enrollments by 2020, from 524 students to 1023. The Council also recommends a more than 180 percent increase in veterinary resident enrollments over the same period. This equals an increase from 90 students to 253 by 2020.

Because the growth needed in veterinary medicine to address state needs substantially exceeds UC's current capacity– even with new infrastructure – the Council recommends that planning actively continue toward future establishment of a second comprehensive UC veterinary medicine program or school. Assuming an entering class of 100 first-year veterinary students by fall 2010, the total number of UC graduates would nearly double from 130 currently to approximately 260 annually by 2020. The Council also recommends that the new program or school eventually enroll 30 first-year residents per year (90 total new residents).

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN – PROJECTED INCREASES



NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN - PROJECTED INCREASES

VETERINARY MEDICINE - DVM STUDENTS

CURRENT BUDGETED ENROLLMENTS	
Current total	524
Program length	4 years
UCD 1st year class	131

ADVISORY COUNCIL RECOMMENDATIONS

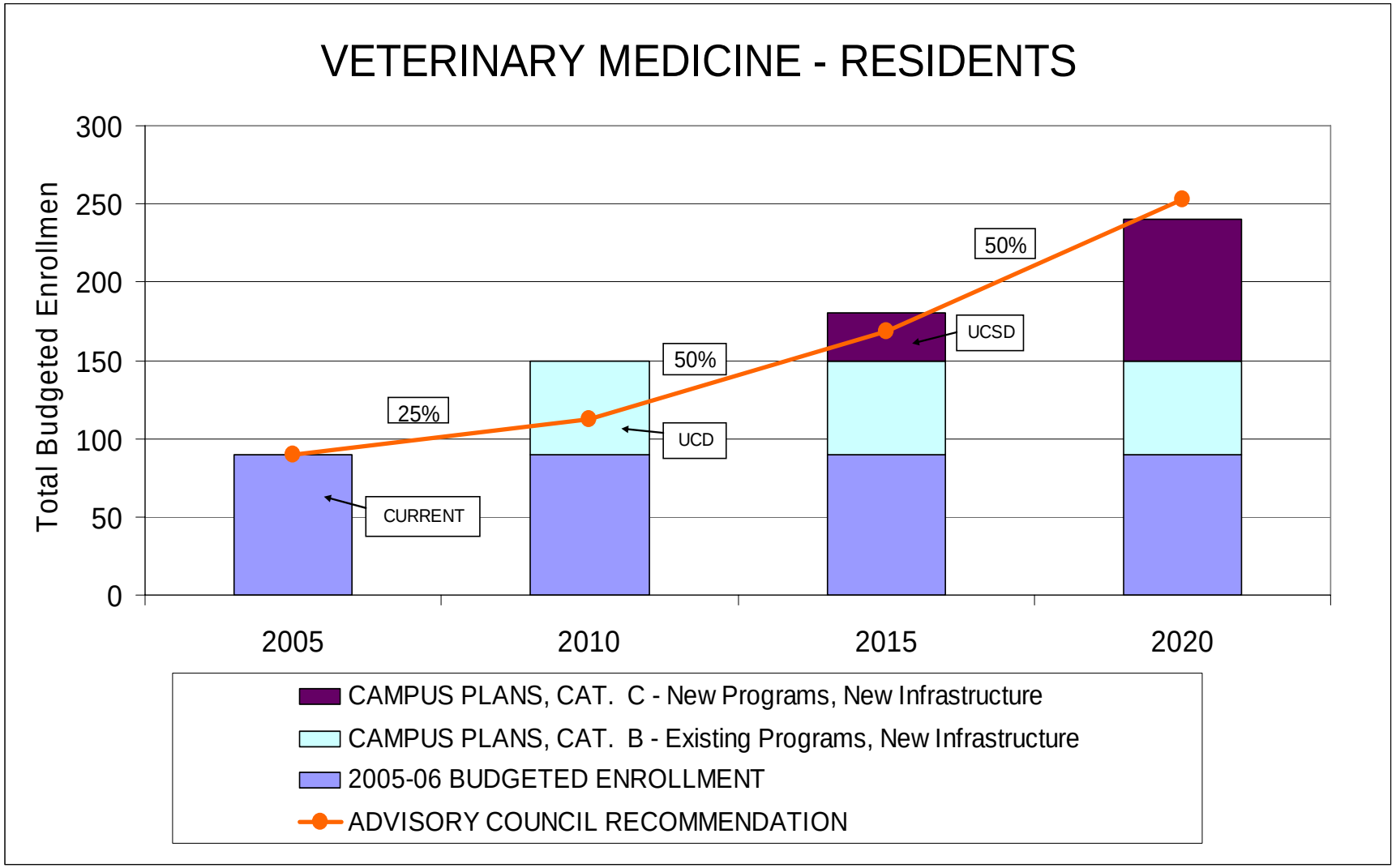
Increase 25% by 2010 (from 524 to 655); increase another 25% by 2015 (from 655 to 819); and increase another 25% by 2020 (from 819 to 1023)

YEARLY ENROLLMENT PLANS AND RECOMMENDATIONS

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2005-06 Budgeted Enrollment ("Baseline")																
UCD	524	524	524	524	524	524	524	524	524	524	524	524	524	524	524	524
TOTAL BASELINE	524	524	524	524	524	524	524	524	524	524	524	524	524	524	524	524
Campus Plans, Category B - Additional DVM Students, Existing Programs, New Infrastructure																
UCD	0	0	0	29	58	87	116	116	116	116	116	116	116	116	116	116
TOTAL CAT. B	0	0	0	29	58	87	116	116	116	116	116	116	116	116	116	116
Campus Plans, Category C - Additional DVM Students, New Programs, New Infrastructure																
UCSD	0	0	0	0	0	100	200	300	400	400	400	400	400	400	400	400
TOTAL CAT. C	0	0	0	0	0	100	200	300	400	400	400	400	400	400	400	400
Advisory Council Recommendation																
TOTAL AC REC.	524	524	524	568	611	655	688	721	754	786	819	860	901	942	983	1023
ENROLLMENT PLANS PER CAMPUS																
UCD	524	524	524	553	582	611	640	640	640	640	640	640	640	640	640	640
UCSD	0	0	0	0	0	100	200	300	400	400	400	400	400	400	400	400
TOTAL CAMPUS PLANS	524	524	524	553	582	711	840	940	1040	1040	1040	1040	1040	1040	1040	1040

NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN – PROJECTED INCREASES



NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

UNIVERSITY OF CALIFORNIA HEALTH SCIENCES
ENROLLMENT PLAN - PROJECTED INCREASES

VETERINARY RESIDENTS

CURRENT BUDGETED ENROLLMENTS	
Current total	90
Program length	3 years
UCD 1st year class	30

ADVISORY COUNCIL RECOMMENDATIONS

Increase 25% by 2010 (from 90 to 113); increase another 50% by 2015 (from 113 to 169); and increase another 50% by 2020 (from 169 to 253)

YEARLY ENROLLMENT PLANS AND RECOMMENDATIONS

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2005-06 Budgeted Enrollment ("Baseline")																
UCD	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
TOTAL BASELINE	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Campus Plans, Category B - Additional Veterinary Residents, Existing Programs, New Infrastructure																
UCD	0	0	0	20	20	20	60	60	60	60	60	60	60	60	60	60
TOTAL CAT. B	0	0	0	20	20	20	60	60	60	60	60	60	60	60	60	60
Campus Plans, Category C - Additional Veterinary Residents, New Programs, New Infrastructure																
UCSD	0	0	0	0	0	0	0	0	0	0	30	30	30	90	90	90
TOTAL CAT. C	0	0	0	0	0	0	0	0	0	0	30	30	30	90	90	90
Advisory Council Recommendation																
TOTAL AC REC.	90	90	90	90	90	113	124	135	146	158	169	186	203	220	236	253
ENROLLMENT PLANS PER CAMPUS																
UCD	90	90	90	110	110	110	150	150	150	150	150	150	150	150	150	150
UCSD	0	0	0	0	0	0	0	0	0	0	30	30	30	90	90	90
TOTAL CAMPUS PLANS	90	90	90	110	110	110	150	150	150	150	180	180	180	240	240	240

NOTE: See p.21 re: sources. All campus plans subject to customary approval processes and contingent upon adequate resource support for instruction and infrastructure.

DENTISTRY

The Dental Workforce

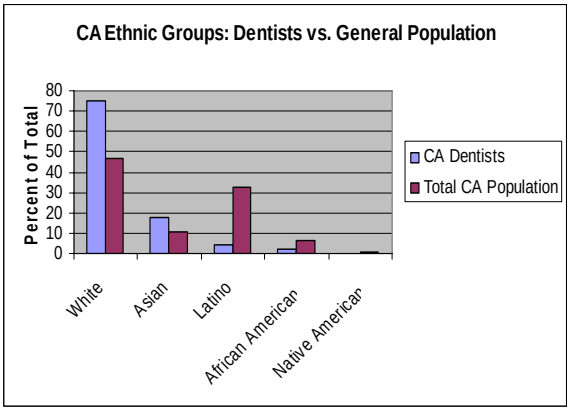
The oral health system includes teams of dentists, dental hygienists, and dental assistants who deliver services in independent practices and clinics. Their efforts focus on the diagnosis, prevention, and treatment of oral diseases.

Approximately 93 percent of professionally active dentists work in private practices. Public health clinics, dental and dental hygiene schools, hospitals, nursing homes, and mobile van and school-based programs also serve as primary sources of care for many who would otherwise have no access to care. The current dental practice model is structured to serve insured patients or those who are able to pay cash for care they receive. Since 1960, these two sources have financed more than 90 percent of all dental expenditures. It is estimated that 40 percent of Californians have no form of dental coverage.

Demographic Profile of Dentists

The average age of a practicing dentist in California is 48 years. Although women represent only 11 percent of California dentists over age 40, they now account for 34 percent of dentists under age 40, reflecting the growing number of female graduates in recent years.

The dental workforce is among the least diverse of the health professions. An estimated 13 percent of dentists nationwide are nonwhite compared with 29 percent of the U.S. population. Among dental practitioners, only 6.8 percent are underrepresented minorities compared with 24.8 percent of the U.S. population.



Ethnic Profile of Dentists in CA (2001)

Workforce Need

There are approximately 165,000 professionally active dentists in the United States. The number of dentists has been increasing for the past 20 years, however, it has not kept pace with overall population growth, resulting in a declining dentist-to-population ratio. This ratio is expected to drop from 60.4 to 53.7 per 100,000 over the next 15 years, due to the increasing rates of retirement of older dentists and the absence of an increase in graduates entering the workforce to replace them.

In 1999, approximately 23,000 dentists were licensed to practice in California. This total was equivalent to 68.3 dentists per 100,000 population, which exceeds the 1999 national average of 60.4 per 100,000. Nearly 60 percent of licensed dental practitioners in California received their dental degree at one of the five dental schools in California. California's five dental schools train more dentists than most other states and the supply currently appears to be adequate. However, the challenges linked to maldistribution of dentists remain unsolved. By federal standards, 20 percent of California communities have a shortage of dentists. More troubling still are the 32 Medical Service Study Areas in the State with no dentist at all.

Factors Affecting Demand for Dental Services

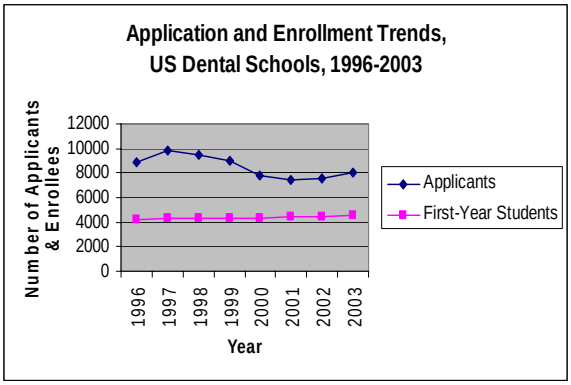
- Growth of the aging population
- Growth of the pediatric population
- Geographic maldistribution of oral health providers across the state
- Few California communities have fluoridated water supplies
- Rise in popularity of cosmetic dental procedures and new technologies

Factors Affecting Supply of Dentists

- Financial considerations such as high training costs, increased debt loads, lack of dental insurance, and high operational costs of dental practice
- Aging of the dental workforce
- Increasing shortages of faculty
- Expanded use of allied professionals

Educational Opportunity

Currently, 56 accredited dental schools in the U.S. enroll approximately 17,800 pre-doctoral students across a four-year educational period. Five dental schools in California enroll approximately 2,200 students annually. The number of applications consistently exceeds the capacity of California's training programs.



Dental Education "Fast Facts"- California (2005)

School	UCLA	UCSF	UOP	USC	LLU
Applications	1191	1231	1764	1622	1110
URM Applications	107	103	122	116	77
First-Year Enrollees	88	80	156	144	104
URM First-Year Enrollees	4	12	10	4	7
Total Enrollment	366	351	444	625	395
Total URM Enrollment	20	39	25	24	36
DDS Graduates	86	100	150	174	103
URM Graduates	1	15	6	2	5
First-Year Residents	45	26	18	35	20
Total Residents	79	72	25	97	46
Total Faculty FTEs	185	207	210	n/a	390
Total URM Faculty FTEs	1	15	6	2	5
Degrees Offered	DDS MS PhD MBA	DDS MS PhD	DDS	DDS MS MBA	DDS MS PhD

California Master Plan for Higher Education

Under California's Master Plan for Higher Education, the University of California is delegated exclusive responsibility in public higher education for doctoral level education. The only exception to this responsibility is the granting of the independent professional doctoral degree in education (EDD), which was also granted to the California State University system by the California Legislature and Governor in September 2005. For the health professions, UC has exclusive responsibility in public higher education for the following professional degrees: DDS (Doctor of Dental Science), MD (Doctor of Medicine), OD (Doctor of Optometry), PharmD (Doctor of Pharmacy), and DVM (Doctor of Veterinary Medicine). In nursing and in public health, UC is responsible in public higher education for doctoral education leading to the following degrees: PhD (nursing); and PhD and DrPH (public health).

Advisory Council Recommendations

The Council recommends that current enrollments in UC schools of dentistry be maintained. Within current enrollments, however, the Council recommends that UC programs pursue new strategies to increase the diversity of faculty and students; improve the distribution of practitioners; and increase the training of future faculty.

To address the serious maldistribution of dentists and the shortage of dental faculty, UCSF has proposed new initiatives that are responsive to these needs: 1) Within existing enrollment, 10 percent (eight students) of each new class will enroll in a special curriculum emphasizing community dentistry, and will receive a tuition waiver in return for which they will be required to work in an underserved area for five years after they graduate; thereafter, UCSF proposes to expand enrollment adding five to seven new students per year to this program. 2) To increase the DDS/PhD class from two to five students (within the current class size of 80 DDS students). They also plan to expand their current enrollment to accommodate an increase in the number of clinician-educators who spend at least 50 percent of their time as clinical teachers at UCSF. This proposed increase would train five to seven new students per year in the clinician-educator path.

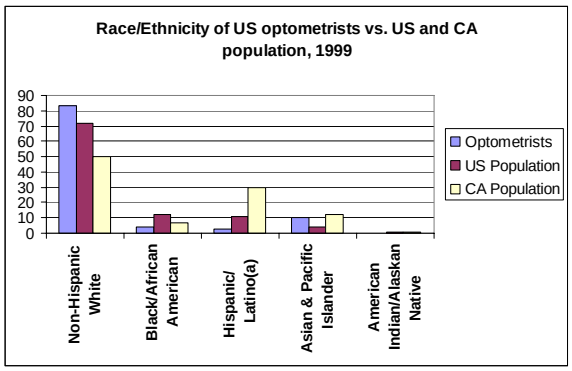
UCSF has great interest and innovative plans for expanding its enrollment to meet the state's educational and dental workforce needs, however these efforts will require new infrastructure, both in UCSF campus facilities and in off-campus, UCSF-affiliated community settings.

OPTOMETRY

The Optometry Workforce

Optometrists provide an estimated 70 percent of eye care for Americans, and serve as the "primary care" providers of vision care nationwide -- providing diagnosis, prevention, and treatment of vision diseases and disorders to millions of Americans.

Approximately 31,000 optometrists practice in the U.S. (two-thirds in private practice), providing an estimated 70 percent of eye care nationwide. Approximately 4,000 optometrists practice in California, ranking the state 9th in the nation, with 11.1 optometrists per 100,000 population vs. the U.S. average of 8.7. As is the case in other health professions, the ethnicity of optometry workforce does not reflect that of the state or U.S. population.



Workforce Need

U.S. Department of Labor projections indicate that employment of optometrists will grow by 10 percent to 20 percent between 2002 and 2012, or "as fast as the average for all occupations," and that workforce needs will vary by census region. The greatest needs will be in the areas of pediatric and geriatric optometry, and rural care. There is also an increasing need for teaching and research faculty nationwide.

Educational Opportunity

Optometrists graduate with a Doctor of Optometry (OD) degree from an accredited college of optometry (typically a four-year program), and pass a national examination in order to earn the required state license.

There are 17 accredited schools and colleges of optometry in the U.S. and Puerto Rico, including two schools in California: UCB and the (private) Southern California College of Optometry. Approximately 69 percent of UCB applicants – and 80 percent of first-year students - are California residents. The majority of applications come from graduates of UC schools, most often from Berkeley, Davis, Irvine, Los Angeles, and San Diego.

The average scores of UCB students on the Optometric Admissions Test (OAT) are consistently among the highest of all programs in the nation; for many years, close to 100 percent of graduates pass licensure examinations.

UCB leads the nation in research grants from the National Eye Institute/National Institutes of Health, ranking first among optometry schools, and first for all optometry and ophthalmology departments in the UC system for both the number of faculty that receive NIH funding, and the research dollars awarded. Since 2000, the school has received $52 million in NIH support.

Beyond training OD, MS and PhD students, UCB trains approximately 15 postdoctoral fellows and an average of four residents each year (attracting an average of 4.5 applicants for each residency position compared to a national average of 1.2).

As faculty shortages materialize at many U.S. optometry schools, ODs with specialized residency training will be in high demand to fill faculty vacancies.

California Master Plan for Higher Education

Under California's Master Plan for Higher Education, the University of California is delegated exclusive responsibility in public higher education for doctoral level education. The only exception to this responsibility is the granting of the independent professional doctoral degree in education (EDD), which was also granted to the California State University system by the California Legislature and Governor in September 2005. For the health professions, UC has exclusive responsibility in public higher education for the following professional degrees: DDS (Doctor of Dental Science), MD (Doctor

of Medicine), OD (Doctor of Optometry), PharmD (Doctor of Pharmacy), and DVM (Doctor of Veterinary Medicine). In nursing and in public health, UC is responsible in public higher education for doctoral education leading to the following degrees: PhD (nursing); and PhD and DrPH (public health).

Advisory Council Recommendations

The Council recommends that current enrollments at the UC Berkeley School of Optometry be maintained. Within current enrollments, however, the Council recommends that UC pursue new strategies to increase the diversity of faculty and students; improve the distribution of practitioners; and increase the training of future faculty.

Residency training is a vital part of UCB's teaching and clinical mission, yet the program receives no state contribution to support resident salary and benefits which keeps the school from benefiting from many teaching and clinical care activities that a larger program would allow.

Although no enrollment increases are recommended in the OD (professional doctoral) program, the Council supports the interests of the UC Berkeley School of Optometry increasing the number of resident positions in the School from the current five per year to a total of fifteen per year by 2007 and twenty per year by 2010 to expand patient care services and increased preparation of specialists and new faculty.

V. Concluding Comments

As the Council submits recommendations for substantial enrollment growth in the health professions, it urges that opportunities for growth be viewed and pursued as opportunities for innovation. New educational models involving multi- and inter-disciplinary training, and team-based approaches to patient care should be developed. In view of changing workforce needs, the Council encourages special effort and support for interdisciplinary training programs (e.g. MD-MPH, DVM-MPH) both because of societal need and student demand for such training. The Council believes such programs provide resource efficiencies for achieving enrollment growth and preparing a future workforce that will be well-qualified to meet state needs.

Efforts to increase substantially the diversity of all UC health professions faculty and students should be vigorously pursued, with stable funding provided to support best practices and model programs (see Appendix F). The Institute of Medicine report, In the Nation's Compelling Interest: Ensuring Diversity in the Health Care Workforce (2004), confirms that "diversity is associated with improved access to care for racial and ethnic minority patients, greater patient choice and satisfaction, and better educational experiences for health professions students, among many other benefits".

The Council recognizes that the length of training and increasing student debt loads will affect student choices about both the level of education they will seek and the specialties they will choose. These issues are frequently major considerations for students from low- and middle-income families, and often influence student interest in careers serving medically underserved populations. The Council urges the University to give further attention to and careful study of these matters.

The Council agreed that innovative approaches to teaching, including telemedicine, distance learning, and use of new technologies should be encouraged and explored. In identifying priorities for growth, campuses should demonstrate not only that proposed new programs meet the quality standards of the University, but that each adds new value for students, the people of California, and the professions themselves.

The Council recognizes that pursuing enrollment growth in five professions, on at least seven campuses, will require time, patience and the investment of new resources. The Council urges that these changes be pursued, with careful attention to the needs of existing programs, as well as the relatively greater resource investments that will be required to launch new programs. The Council appreciates the opportunity to contribute and concludes its work by concurring with the HSC's recommendation that review of state and national workforce data and related educational issues occur on a regular and systematic basis to assure that the University's strategic planning efforts are developed and aligned accordingly.

* * * * *

APPENDIX A – Council Charge

UNIVERSITY OF CALIFORNIA

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

OFFICE OF THE PRESIDENT

Robert C. Dynes
President

1111 Franklin Street
Oakland, California 94607-5200
Phone: (510) 987-9074
Fax: (510) 987-9086
http://www.ucop.edu

December 19, 2005

MEMBERS, ADVISORY COUNCIL ON FUTURE GROWTH
IN THE HEALTH PROFESSIONS

Dear Colleagues:

Thank you for agreeing to serve on the newly appointed *Advisory Council on Future Growth in the Health Professions,* which will be co-chaired by Regent Sherry Lansing and Acting Provost Wyatt R. Hume. I enclose a membership list for your information. The work of the Advisory Council will play a critical role in guiding the future of the University's health professions programs and in creating a plan for enrollment growth that responds to California's workforce needs.

The University of California operates the largest health sciences instructional program in the nation, enrolling more than 13,000 students annually on seven UC campuses. Seven professional fields are represented in fifteen schools, which include five schools of medicine and four medical education programs; two schools each of dentistry, nursing, pharmacy, and public health; and one school each of optometry and veterinary medicine.

To inform decision-making about the need for future enrollment growth in the health sciences, then-President Richard Atkinson initiated a comprehensive planning process to analyze California's needs for health professionals. This effort culminated in a report issued by the Universitywide Health Sciences Committee in June 2005, entitled "Health Sciences Education: Workforce Needs and Enrollment Planning." This report, which includes an overall summary and seven profession-specific studies, is enclosed and is also available online at:
http://www.ucop.edu/healthaffairs/reports.

California's health needs are rapidly increasing and will continue to be driven by the growth, aging, and increasing diversity of the population. While these demographic changes are well known to most Californians, the report underscores the fact that, with few exceptions, there has been virtually no growth in UC's health professions programs for more than 25 years. This lack of growth has contributed

to existing shortages of physicians, nursing faculty, public health professionals, and others. The report, accordingly, makes a compelling case for growth in some areas.

As an integral component of our efforts to develop a comprehensive strategic plan for all UC academic programs, I have asked Acting Provost Hume to develop a multi-year enrollment plan for growth in the health professions. The plan will be built on the findings and recommendations in the Universitywide Health Sciences Committee's June 2005 workforce report, and will involve ongoing consultation with health sciences Deans and faculty, Chancellors and Executive Vice Chancellors, and the Academic Senate. Because of the magnitude of this endeavor and its importance to UC and the state, the contributions of this Advisory Council will be essential for its ultimate success. I am, therefore, asking that you assist us by meeting the following charge:

- Provide advice about the extent to which the enrollment recommendations contained in the June 2005 workforce report should be included in the new systemwide plan for enrollment growth in the health sciences, including an assessment about whether or not the recommendations are sufficient in scope, or whether they should be taken in whole or in part;

- Provide guidance and advice on the development of the new health sciences enrollment plan, which Acting Provost Hume will present in draft form to the Advisory Council as part of its deliberations. This multi-year plan should begin with 2005-06 enrollment levels and should include annual targets for enrollment growth, by campus and profession, through the year 2020. The plan should take into account existing capacity for growth, as well as existing or required clinical or academic infrastructure needs. Guidance and advice regarding planning priorities, parameters for decision-making about the levels, professions, and locations for growth should be part of these considerations; and finally,

- Provide guidance about the consultation process and communication strategies that will be needed, both internally and externally, as we work toward successful implementation of the new plan.

I have asked Regent Lansing and Acting Provost Hume to submit a report from the Advisory Council and the proposed enrollment plan by September 30, 2006. This marks an exceptional opportunity to ensure that UC's health sciences enrollment

plan is aligned to respond to California's needs for health professionals. Please accept my gratitude for this important service that will make a difference for many years to come.

Sincerely,

Robert C. Dynes

Enclosures

cc: Regent Lansing
Chancellors
Acting Provost Hume
Senior Vice President Darling
Vice President Hershman
Academic Council Chair Brunk
Health Sciences Deans

APPENDIX B – Council Roster

Advisory Council On Future Growth In The Health Sciences
Wyatt R. Hume, DDS, PhD (Co-chair)
Regent Sherry L. Lansing (Co-chair)

ANTHONY J. ADAMS, OD, PhD
Professor-School of Optometry
University of California, Berkeley

KAY BAKER, RN, MN
Associate Dean of Student Affairs
University of California, Los Angeles

THOMAS CESARIO, MD
Dean, College of Medicine
University of California, Irvine

MARSHA A. CHANDLER, PhD
Senior Vice Chancellor
University of California, San Diego

REGENT RUSSELL GOULD
Secretary of The Regents
University of California

WYATT R. HUME, DDS, PH.D
Vice President—Health Affairs
University of California

REGENT SHERRY L. LANSING
The Sherry Lansing Foundation
Los Angeles, California

MARK LARET
Chief Executive Officer
University of California, San Francisco

JOHN MATSUI, PhD
Biology Scholars Program Director
University of California, Berkeley

JOHN OAKLEY, JD
Chair—Academic Senate
University of California

BENNIE I. OSBURN, DVM, PhD
Dean, School of Veterinary Medicine
University of California, Davis

LINDA ROSENSTOCK, MD, MPH
Dean, School of Public Health
University of California, Los Angeles

REGENT FRED RUIZ
Ruiz Foods, Inc.

DENISE SEGURA, PhD
Chair, Academic Senate
University of California, Santa Barbara

Ex-Officio

DAVID CARLISLE, MD, PhD
Director, Office of Statewide Planning and Development
Sacramento, California

CATHRYN L. NATION, MD
Executive Director—Academic Health Sciences

Staff

GWEN M. ALLAMBY
Administrative Specialist, Health Affairs

DENA BULLARD, MHS
Senior Analyst, Health Affairs

ANDREA GERSTENBERGER, ScD
Senior Policy Consultant, Health Affairs

LINDA KANE
Executive Secretary

APPENDIX C – Subcommittee Roster

Subcommittee on Health Professions Enrollment Growth
Cathryn L. Nation, MD (Chair)

DAVID N. BAILEY, MD
Deputy Vice Chancellor for Health Sciences, and
Dean, Faculty and Student Matters
University of California, San Diego

KAY BAKER, RN, MN
Associate Dean of Student Affairs
University of California, Los Angeles

MARY ANNE KODA-KIMBLE, Pharm.D
Dean, School of Pharmacy
University of California, San Francisco

JOHN MATSUI, PhD
Biology Scholars Program Director
University of California, Berkeley

CATHRYN L. NATION, MD
Executive Director--Academic Health Sciences
University of California

THOMAS NESBITT, MD
Professor of Medicine
University of California, Davis

LINDA ROSENSTOCK, MD, MPH
Dean, School of Public Health
University of California, Los Angeles

APPENDIX D – Overall HSC Recommendations

- Increase health sciences enrollments in: nursing (undergraduate and graduate students, including a focus on preparing future faculty); medicine (medical students and medical residents); public health (graduates in multiple degree programs); pharmacy (pharmacy students and residents); and veterinary medicine (veterinary medical students and residents); and maintaining enrollment levels in dentistry and optometry.

- Expand efforts to address the needs of California's underserved groups and communities through a variety of strategies, including increased recruitment of students with a record of service and commitment to caring for the underserved and improved training to prepare students for such service;

- Increase student and faculty diversity in the health sciences;

- Develop new curricula and teaching methods reflecting innovative educational practices and state-of-the art clinical services in a variety of patient care settings;

- Improve efforts to recruit and retain health sciences faculty;

- Identify new plans and alternatives for funding capital and infrastructure needs; and

- Review health workforce needs on a systematic basis as part of the University's ongoing planning and coordination in the health sciences.

APPENDIX E:

Charles R. Drew University of Medicine & Science

Background

The Charles R. Drew University of Medicine and Science (Drew) is a private nonprofit educational institution (founded in 1966) with its own Board of Trustees. Drew conducts educational and research programs in the medically underserved Watts Willowbrook section of south Los Angeles. Many of these programs are conducted in collaboration with Martin Luther King, Jr. County Hospital, also known as King-Drew Medical Center (KDMC). State funds are provided to Drew under two separate contracts, each administered by UC.

The mission of the Charles R. Drew University of Medicine and Science is "to conduct education and research in the context of community service in order to train physicians and allied health professionals to provide care with excellence and compassion, especially to underserved populations."

Drew-UCLA Partnership in Medical Student Education

The Drew-UCLA medical student program is part of the UCLA School of Medicine, which is accredited by the Liaison Committee on Medical Education. The Charles R. Drew University of Medicine and Science is accredited by the Western Association of Schools and Colleges (WASC) and is designated both a historically Black and a Hispanic Serving Health Professions School based on its mission, student enrollment, and faculty. Drew is the only school in the nation to have both of these designations.

For more than 30 years, the UC system and the UCLA campus have had a productive and mutually beneficial partnership with Drew. This relationship is based upon Senate Bill 1026 (authored by then Senator Mervyn Dymally and approved by Governor Reagan in 1973) and a series of written agreements between the two institutions, including but not limited to the 1973 "Drew-UCLA Agreement," the 1978 "Undergraduate Medical Education Agreement," and the 1998 renewal of those agreements. These documents provide the basis for UC's affiliation with Drew for various educational purposes.

The most significant and well known of these is the Drew-UCLA medical student program, which enrolls 24 students in each of four years of the required MD curriculum. Students receive their first two years of medical school at UCLA and complete their required third-year clinical clerkships and many of their clinical electives at KDMC.

The UC system and UCLA campus support the Drew mission and recognize the importance of training doctors and other health professionals to meet the needs of underserved populations. The University is also aware of Drew's long-standing interests in eventual enrollment growth and pursuing a future path toward establishment as an independent four-year medical school.

Over recent years and months, a number of major issues relevant to expansion of the Drew-UCLA program have been identified. Most significant among these is the recent decision (in September 2006) by the federal Centers for Medicare and Medicaid Services to terminate KDMC's Medicare contract. This is expected to result in a $200 million dollar loss in annual funding and places the immediate and longer term future of KDMC in serious jeopardy. Although the Los Angeles County Board of Supervisors is working to address options for assuring alternative access to

essential patient services, this action seriously threatens KDMC's ability to continue (at least in the short term) as an inpatient teaching hospital. To address the needs of currently enrolled medical students, Drew and UCLA are now working to identify new sites for teaching.

In thinking about longer term options relative to growth, the University recognizes the essential need to assure that sufficient resources – including faculty in the basic and clinical sciences, space, and appropriate sites for clinical instruction – are available to support and maintain high-quality patient care and educational programs. In light of the serious challenges involving KDMC and future training sites for students, enrollment growth in the immediate term does not appear to be realistic. Notwithstanding the current challenges, Drew's historic commitment to meeting the needs of underserved communities makes expansion of its medical education programs an appropriate option if, and when, such growth is programmatically and financially feasible.

APPENDIX F – Model Programs for Promoting Diversity within the Health Sciences

The recent Institute of Medicine report, In the Nation's Compelling Interest: Ensuring Diversity in the Health Care Workforce (2004), confirms that "diversity is associated with improved access to care for racial and ethnic minority patients, greater patient choice and satisfaction, and better educational experiences for health professions students, among many other benefits".

In view of this evidence, and to address concerns regarding the need to increase diversity in UC health professions schools, the University of California (UC) currently offers several innovative programs that share the goal of helping to produce more competitively eligible low income/first generation students to fill newly created slots in our health science programs. The need to increase diversity within all of UC's health professions schools has been an urgent one for years, and various schools have developed a range of initiatives to recruit and prepare students for careers in the health professions.

These initiatives focus on two key points at which students can be assisted: prior to applying to health sciences schools, and once students have been granted "conditional admission" (i.e., a status where they must successfully complete prerequisite courses and/or score above a threshold on standardized admission tests such as the MCAT).

An important example of successful work at the undergraduate level is the Biology Scholars Program (BSP). Established at UC Berkeley in 1992, BSP has helped low-income/first generation Berkeley students to: 1) graduate with GPAs and biology degrees at parity with more well prepared majority Berkeley undergraduates, and 2) gain admission to health science programs at higher rates than the overall campus (e.g., in 2006, 90% of underrepresented minority BSP participants were admitted to medical school vs. 50% of all non-BSP applicants from UC Berkeley).

Another successful undergraduate diversity program is the Biology Undergraduate Scholars Program (BUSP) at UC Davis - an intensive enrichment program for disadvantaged and underrepresented undergraduates who are interested in careers in the life sciences. As with BSP, BUSP students graduate with GPAs in biology equivalent to non-program participants.

Successful Conditional Admission programs also exist in several of UC's medical and dental schools, but have yet to be developed at other schools and in other professions.

At a time when many of UC's health professions programs and schools are slated to grow for the first time in a generation, and all struggle with a lack of diversity within their student bodies, these innovative programs are designed to address the critical need to increase diversity within UC's health sciences schools and are worthy of being replicated on other UC undergraduate campuses. The Council urges that programs with proven track records be adequately funded and replicated where necessary.