

SCHOOL OF PHARMACY
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Unleashing

Our Potential

STRATEGIC DIRECTION
2000 THROUGH 2005

University of California
San Francisco



School of Pharmacy

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February 2000

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Dean's Summary

Dear Friends:

There is no more exciting time than now for the School of Pharmacy at the University of California, San Francisco. Armed as never before with tremendous knowledge in chemistry, biology, technology, and clinical practice, the School has defined where it needs to go and what it needs to make that journey possible. Already, we are developing important new programs in areas such as pharmacogenomics, which will uncover individual genetic differences in our response to drugs, and integrated health information systems, which will manage, coordinate, and better evaluate the growing expanse of information about the health of individuals and groups.

A decade from now, these and other initiatives will have improved dramatically the effectiveness of drugs against disease.

Twenty years from now, the plans we implement today will lead to a world of drugs tailored to treat individual forms of disease in individual patients. These drugs will have the lowest risks and side effects, and they will challenge diseases that our colleagues in medicine will by then be able to predict and diagnose more precisely.

As we move into the future, the UCSF School of Pharmacy will be a primary force behind a new era of “smart” medicines that subordinate disease and sustain lifelong health. In this future, the School will shape the role of the pharmacist yet again to be that of health promoter, disease prevention specialist, health maintenance and chronic disease manager, and health information analyst.

Welcome to these pages, where I enthusiastically share with you the strategic direction for the UCSF School of Pharmacy for the years 2000 through 2005. We entitle it *Unleashing Our Potential* because, in the midst of an era of tremendous change, we clearly see the need to break free of our current ways of thinking and working in order to make real what we know is possible in pharmaceutical research, pharmacy clinical care, and professional and graduate education. To this end, this document summarizes the School's plans to:

- Develop major multidisciplinary research initiatives in the pharmaceutical sciences at the interfaces of chemistry, genomics, computer science, and clinical science – all of which exploit our strengths in these areas;

- Study the best ways for patients and consumers to make informed and safe decisions about increasingly complex regimens of prescription and nonprescription drugs and dietary supplements, and marry what we learn with constantly evolving information technologies and changing ways in which consumers best receive information;
- Grow new, cross-school PhD graduate programs in chemistry and chemical biology, pharmaceutical sciences and pharmacogenomics, and medical information science that will prepare tomorrow's new and farsighted leaders in science;
- Continue to assess and redefine the PharmD professional curriculum to ensure that our graduates are superb, innovative, and caring clinical pharmacists who will shape the future of pharmacy through policies, practices, and research that enhance the safe and effective use of drugs;
- Secure the requisite space and funding required to move forward;
- Create a unifying School culture that promotes respect, celebrates differences, and encourages maximum achievement at all levels; and
- Extend our impact beyond academia by learning from, partnering with, and sharing our expertise with key audiences in both the public and private sectors.

While each part of our plan is critical, identifying appropriate, consolidated space and funding to support new programs and attract new talent is paramount, for space and funding are prerequisites to transforming our aspirations into real discoveries, programs, products, and services.

We must take steps now to secure these resources; launch new research and education programs; use technology to maximize our communication and work; maintain the human-to-human contact that sustains the respect we must have for one another and that fosters creativity; increase the diversity among us; and share our expertise with the public. As we do these things, we will have a UCSF School of Pharmacy that continues to anticipate, innovate, and lead.

This is a daunting agenda, but we have a history of taking bold action. Looking back over the 30 years that have spanned my career in pharmacy at UCSF, I see countless examples of how academic courage led to a School widely recognized for its leadership.

One story is especially germane. When I began my studies at UCSF toward a PharmD professional degree, there was no such thing as a health care “team” approach to patient care. Then one day, School of Pharmacy basic science faculty



Mary Anne Koda-Kimble,
PharmD

members who were working with members of the School of Medicine clinical faculty proposed the radical idea that pharmacists – working as partners with physicians and nurses – could use their drug therapy expertise to advance rational drug therapy for patients. This idea turned into practice, and the pharmacist emerged from behind the pharmacy counter to the side of the patient’s hospital bed.

That notion of a clinical pharmacist has now become a national standard for professional excellence and patient care.

This document proposes a path for the School’s future that is similarly bold and courageous, and it defines the benchmarks for measuring our success. We will revisit the plan repeatedly during the next five years to assess our progress and alter our course as circumstances dictate. To succeed, we will need the commitment and help of many. I urge you, members of the School’s larger family, UCSF colleagues and administrators, and leaders in business and industry – all of you who advocate excellence in pharmacy – to embrace the School’s plan for the future, make it your own, and work with us to make it a reality.

Mary Anne Koda-Kimble

Mary Anne Koda-Kimble, PharmD

Dean

UCSF School of Pharmacy

February 2000

Community
Combining
New Leaders Resources
Reaching Out

Mission

The School of Pharmacy at the University of California, San Francisco is dedicated to maximizing human health and well-being. As a public graduate-level institution, the School educates pharmacy professionals and scientists, advances scientific discovery, cares for patients, serves the public, and advocates on the public's behalf. The School is committed to promoting within its ranks collaboration, diversity of thought, and mutual respect. The School takes seriously its specific responsibilities to:

- Educate PharmD professional students as compassionate, innovative, flexible leaders in the pharmaceutical care of individual patients and the community as a whole, clinicians who think independently while working collaboratively and who demonstrate a commitment to the lifelong learning required to remain experts in the safe and optimally effective use of drug products in patients;
- Educate PhD graduate students to understand and apply concepts, work collaboratively, and think beyond the scope of their specific disciplines in order to become accomplished scientists who are experts and leaders in drug discovery and development;
- Recruit and develop effective, dedicated, scholarly teachers who inspire their students to pursue lifelong learning in the health sciences and work in the service of human health;
- Conduct exceptional basic science, translational science, clinical science, health policy, and health services research, which leads to important scientific understandings, innovative drug products, effective clinical practices, and public policies that illuminate knowledge about drug action and advance human health;
- Provide the public and health system with the specialized clinical pharmacy care and information it needs to optimize the therapeutic use of drugs and reduce the risk of adverse drug events;
- Serve the community through public service activities that anticipate and meet the pharmacy information needs of the public, so that individuals can make more informed decisions about their own health;
- Catalyze and clarify new perspectives on pharmacy-related issues within academia, business, industry, health care, and government in order to advance the field of pharmacy for the benefit of the public;
- Teach health care providers about new developments in pharmacy that affect health sciences education, patient care, and the health of our communities;
- Defend the health of the public by sharing evidence-based opinions with policy-makers, health care providers, and health care system and industry leaders; and
- Champion interdisciplinary approaches to pharmacy questions in order to promote new scientific discoveries and to teach and care for the public more effectively and efficiently.

Forces

Profile

The energies of the School of Pharmacy at the University of California, San Francisco are focused on building programs today that will lead to a future where sophisticated and tailored medicines not only subdue disease but sustain lifelong health, and where the pharmacist is not only an expert in pharmaceutical care, but an expert as well in areas ranging from chronic disease management to disease prevention.

To this end, the School's faculty members are developing new science, clinical, and education initiatives that include a research nexus in pharmacogenomics, an evidence-based program for consumer information and education on prescription and nonprescription drugs and dietary supplements, three PhD graduate programs, and three PharmD professional program pathways.

Through these and other initiatives, the School's future contributions to improved health will echo those made in its past – contributions such as the development of a computer-based molecular docking program that calculates how potential drugs might attach to target molecules, the development of structure-based inhibitors of influenza and HIV, the training of PharmD professionals as drug therapy experts and essential members of the clinical health care team, and the growth of pharmacokinetics into what is now an essential field of pharmaceutical science.

Regardless of the specific initiative or the era from which it evolved, the energies and resources of the School have been and will remain focused on improving the health of the public through drug-related research, the education of PharmD professionals and PhD scientists, postgraduate education and training, public service, clinical care, and public policy. Indeed, public health has always been paramount, for this School is the only public graduate pharmacy school in the state.

While the School is organized administratively into three departments and an organized research unit, its work cuts across departments and disciplines and increasingly across health sciences schools campuswide.

Because of the quality of its science, the School receives dramatically more research funding from the National Institutes of Health than any other pharmacy school in the nation. *U.S. News and World Report* ranks the UCSF School of Pharmacy as top in the nation.

The School is one of four professional schools – along with those of dentistry, medicine, and nursing – at UCSF, which is an exclusively graduate-level institution and the only one of the nine University of California campuses devoted solely to the health sciences. UCSF is home to major research enterprises in each school, a graduate division, a medical center, and Langley Porter Psychiatric Institute. The campus is also closely affiliated with San Francisco General Hospital Medical Center and the Veterans Affairs Medical Center, San Francisco.

UCSF evolved on 107 acres of donated land above Golden Gate Park, and it now encompasses several major sites in San Francisco. Ground was broken in 1999 for a new 43-acre UCSF research site in San Francisco’s Mission Bay district. Many School of Pharmacy scientists with expertise in the areas of structural and chemical biology and molecular design will be among the first wave of UCSF researchers to relocate to Mission Bay.

UCSF School of Pharmacy

DEAN

Mary Anne Koda-Kimble, PharmD

DEPARTMENTS

BIOPHARMACEUTICAL SCIENCES
Kathleen M. Giacomini, PhD
Chair

CLINICAL PHARMACY
Michael E. Winter, PharmD
Acting chair

Lloyd Young, PharmD
Chair (effective 6-00)

PHARMACEUTICAL CHEMISTRY
Thomas L. James, PhD
Chair

BASIC SCIENCE RESEARCH INSTITUTE

MOLECULAR DESIGN INSTITUTE (MDI)
Irwin D. Kuntz, PhD
Director

The MDI is an Organized Research Unit (ORU) of the University of California, San Francisco

SELECT AREAS OF EXPERTISE

Bioinformatics
Bioorganic chemistry
Clinical pharmacy
Computational chemistry
Drug delivery systems
Drug design and delivery
Drug information systems
Drug metabolism and transport
Education and training methodology

Gene delivery/therapy
Mass spectrometry
Molecular targeting
Nuclear magnetic resonance
Pharmaceutical economics, outcomes, and policy
Pharmaceutical technology
Pharmacogenomics and toxicogenomics
Pharmacokinetics/pharmacodynamics
Pharmacy administration and practice modeling
Protein engineering
Structural biology
Toxicology

ACADEMIC PROGRAMS

PROFESSIONAL PROGRAM
Doctor of Pharmacy (PharmD) degree with pathways in:
Pharmaceutical care
Pharmaceutical policy and management
Pharmaceutical science

GRADUATE PROGRAM
Doctor of Philosophy (PhD) degrees in:
Chemistry and chemical biology (approval pending)
Medical information science (approved)
Pharmaceutical chemistry (program ending)
Pharmaceutical sciences and pharmacogenomics (approval pending)

POSTDOCTORAL PROGRAMS

POSTDOCTORAL PROFESSIONAL RESIDENCIES IN:
Ambulatory care
Community pharmacy
Drug information analysis

Hospital pharmacy administration
Infectious disease
Oncology
Pharmacy practice
Pediatrics
Women’s health

POSTDOCTORAL FELLOWSHIPS
VISITING PROFESSORSHIPS

CONTINUING EDUCATION PROGRAMS

MAJOR RESEARCH FACILITIES

Computer Graphics Laboratory
Confocal Microscopy Facility
Magnetic Resonance Laboratory
Mass Spectrometry Facility
Protein and Nucleic Acid Sequencing Analysis and Oligomer Synthesis Laboratory

MAJOR INSTRUCTIONAL FACILITIES

Basic Science Instruction Center
Thomas A. Oliver Informatics Resource Center

SELECT ESTABLISHED PROGRAMS

California Poison Control System
The Cochrane Collaboration
Corporate Scholars Program
Drug Information Analysis Service
Drug Products Service Laboratory
Drug Research Unit
Drug Studies Unit
Pharmaceutical Economics and Policy Studies
International Program in Clinical Pharmacy Education with Tokyo University of Pharmacy and Life Sciences

NUMBERS*

FACULTY
Paid 84
Voluntary 627
STUDENTS
PharmD 478
PhD 119
POSTDOCTORAL
Fellows 84
Residents 22
Visiting professors 2
STAFF 277
ACADEMIC APPOINTEES 62
ALUMNI
PharmD (includes BS) 5,328
PhD 446

**As of January 2000*

Community Combining New Leaders Resources Reaching Out

THE SIX ISSUES

This document summarizes how the School of Pharmacy at the University of California, San Francisco will focus its energies over the next five years – and why. The School has identified the five most critical issues it faces and has posed them as questions. Resolution of these issues is addressed through specific goals and objectives. Each objective incorporates concrete action steps and will be implemented by specific individuals within the School.

Many overt and subtle relationships exist among the issues presented here. Common underlying themes in this document are those of space and funding. If the School is to carry out its mission and make important leaps in research, education, patient care, and public service, it must have adequate, contiguous, well-planned space and appropriate funding.

The School approaches the future with aspirations that are clear and concrete and with the understanding that the routes to reaching its goals must necessarily be flexible. The School's Leadership Group will recommend adjustments to the School's strategic direction as time, circumstances, and new opportunities dictate. At each of the next five fall faculty meetings, the Leadership Group will report on the School's progress toward reaching specific goals and on any alterations in plans.

In terms of the deadline dates that appear on the following pages, reference to a given year ("By 2001," for example) means by January 1 of that stated year.

A glossary of terms used in this document is provided as an addendum on pages 25-27.

Scores of committed people contributed to crafting this roadmap to the School's future. A diagram of the planning process and a list of the planning participants appear on pages 23-24.

Forces Combining Forces

How will the UCSF School of Pharmacy develop and implement new, collaborative research initiatives that address emerging drug-related research questions of critical importance to the public?

Current Situation

By any measure, the UCSF School of Pharmacy is a leader in research. Historically, the School's faculty members have played prominent roles in defining the fields of clinical pharmacy, pharmacokinetics, drug development, biotechnology, and molecular drug design. In the 1970s the School pioneered the field of pharmacokinetics. In 1993, the School established the Molecular Design Institute (MDI) to promote and coordinate research and education in the broad area of molecular design, with particular emphasis on the discovery, design, and delivery of unique drugs.

The School is spearheading – with faculty members in schools campuswide – the development of three important new areas of research at UCSF:

- Chemical biology, which involves the study of the molecules engaged in both normal and pathologic biological processes. The goal of this research is to disrupt disease-causing biological processes.

- Pharmacogenomics, which involves the application of genetics and genomics to the discovery, development, and therapeutic use of drugs. This rapidly growing research field, fueled by advances in the Human Genome Project, will soon prove drug-genotype interactions to be as important to therapeutics as drug-drug interactions.

- Bioinformatics, which involves the collection and organization of information about genes and related biological structures and processes using

computational and statistical methods. High-speed, sophisticated ways of accessing, comparing, and applying the overwhelming amount of biological information being generated will yield new ways to effectively prevent, treat, and cure disease.

Members of the School's faculty are also leading new research initiatives within the areas of pharmacokinetics, pharmacodynamics, drug delivery, health services, clinical pharmacy, pharmaceutical outcomes, and health and pharmaceutical policy. And they continue to develop enabling technologies, including software, which are used to advance science and drug discovery in hundreds of laboratories worldwide.

It is not surprising that many of the School's new research plans cut across departments and schools, for this approach to solving scientific problems is deeply rooted in UCSF's culture. Over the years, UCSF scientists have consistently defied traditional basic science department boundaries and have exploited insights shared across disciplines. These collegial, coordinated explorations have accelerated the speed of scientific discoveries.

The interdisciplinary basic science model is now expanding to include the perspectives of clinical scientists, health care providers, health policy researchers, and educators among all UCSF health sciences schools. Partnerships with business and industry, governmental agencies, and scientific and professional organizations will broaden further the reach of this expanded model of collaboration and will advance and promote the transfer of academic

insights into the public domain. A number of what are becoming known as “collaborative centers” at UCSF already are emerging as vanguards of this new, all-encompassing approach.

This model is not only one of intellectual collaboration – it is also one of physical proximity. While programs without walls have existed at UCSF for years due to the lack of space, it is clear that the new and emerging collaborative centers at UCSF require contiguous space. For it is when faculty members physically meet each other in hallways or in coffee rooms that their insights and ideas often collide as well, leading to novel approaches to solving health sciences problems.

Goals and Objectives

To unleash its full potential, the UCSF School of Pharmacy faculty must continue to launch and nurture new research and academic initiatives. By assessing the School’s core strengths, applying them in new ways to address emerging issues, and melding them with the rich faculty resources within UCSF, the School is poised to lead the way in successful new research activities from which the public ultimately will benefit. These activities will take various forms, from interdisciplinary programs to expanded, full-scale campuswide collaborative centers encompassing basic science, translational science, clinical science, patient care, education, and public policy.

Essential to the success of these new scientific explorations is the space required to physically bring together a wide range of faculty members and their staffs in laboratories, offices, and seminar rooms. Essential as well is the ongoing requisite funding to recruit and retain faculty; to acquire state-of-the-art research equipment; to hire

essential administrative and support staff; and to furnish, maintain, and update laboratory, office, and seminar spaces. The School sees, as well, a growing need to bring to the attention of the broader health sciences community – from academia to industry – the emerging trends and visions of pharmaceutical sciences research, education, and care that will help shape the School’s future.

Goal 1: Establish a fully functioning collaborative research Center for Bioinformatics and Quantitative Biology.

Objectives

- A.** By 2002, identify a core group of faculty members for the center; complete a comprehensive center plan proposal, and submit for review and approval.
- B.** By 2002, secure a campus administrative commitment for a minimum of 20,000 to 30,000 square feet of laboratory space at UCSF Mission Bay to house a bioinformatics and quantitative biology core facility and research space for six to 10 faculty members.
- C.** By 2002, establish symposia, seminars, and related activities for the center.
- D.** By 2002, recruit two to five new faculty members in bioinformatics and quantitative biology to be housed at Parnassus until UCSF Mission Bay space becomes available.
- E.** By 2002, establish state-of-the-art computational facilities.
- F.** By 2003, attract a minimum of 35 graduate students to work with center faculty members.
- G.** By 2003, secure a minimum of \$5 million to fund ongoing center operations and activities.
- H.** By 2004, occupy the new space at UCSF Mission Bay.

I. By 2004, complete the recruitment of three to four new faculty members in bioinformatics and quantitative biology.

J. By 2005, review center progress to assess the impact of center research on contemporary problems in biological, chemical, and pharmaceutical sciences.

Goal 2: Establish a fully functioning collaborative research Center for Chemistry and Disease.*

Objectives

A. By 2001, fully engage center core faculty members in center planning; complete a comprehensive center plan proposal, and submit for review and approval.

B. By 2001, engage center core faculty members and affiliated faculty members in center-driven research, and sponsor scholarly symposia, seminars, and related activities.

C. By 2003, establish state-of-the-art chemical and structural biology core research laboratories for center personnel that house parallel and combinatorial synthesis technologies, expression array technologies, and analytical facilities.

D. By 2003, attract a minimum of 60 graduate students to the center and provide support for 12 to 15 graduate students via a training grant associated with the center.

E. By 2003, secure a minimum of \$5 million for the core funding needed to outfit facilities and for ongoing center operations and activities.

F. By 2004, recruit four to five new faculty members in chemical and structural biology.

G. By 2005, review center progress to assess the impact of center research on the use of chemical biology to understand the molecular interactions involved in disease pathology and treatment, and on the application of these findings to the development of effective therapeutics.

Goal 3: Establish a fully functioning collaborative research Center for Pharmacogenomics.

Objectives

A. By 2001, identify a core group of faculty members for the center; complete a comprehensive center plan proposal, and submit for review and approval.

B. By 2001, secure a campus administrative commitment for a minimum of 20,000 to 30,000 square feet of laboratory space at UCSF Mission Bay to house a pharmacogenomics core facility and laboratories for six to 10 faculty members.

C. By 2001, establish symposia, seminars, and related activities for the center.

D. By 2002, recruit two new faculty members in pharmacogenomics to be housed at Parnassus until UCSF Mission Bay space becomes available.

E. By 2002, establish a state-of-the-art pharmacogenomics core research facility that houses sequencing technologies, expression array technologies, and model organism facilities.

F. By 2002, establish a free-standing UCSF research unit that links academic activities of the center to pharmaceutical and biotechnology industries; this linking research unit will be housed off campus and ultimately will be sited at UCSF Mission Bay as part of the industrial rim development.

G. By 2003, attract a minimum of 35 graduate students to work with center faculty members.

* Name not final.

H. By 2003, secure a minimum of \$5 million to fund ongoing center operations and activities.

I. By 2004, occupy the new space at UCSF Mission Bay.

J. By 2004, complete the recruitment of three to four new faculty members in pharmacogenomics.

K. By 2005, review center progress to assess the impact of center research on the therapeutic use of drugs, and on drug discoveries and development.

Goal 4: Establish a fully functioning, evidence-based Center for Responsible Consumer Self Care.

Objectives

A. By 2001, complete a comprehensive center plan proposal and submit for review and approval.

B. By 2001, identify a center director.

C. By 2002, secure a minimum of \$5 million to fund ongoing center operations and activities.

D. By 2002, fully engage center core faculty members and affiliated faculty members in center-driven research, consumer information, education, public outreach, and related activities.

E. By 2003, establish a funded communications vehicle that provides to consumers objective, evidence-based information about prescription and nonprescription drugs and dietary supplements.

F. By 2003, recruit two to three new faculty members who specialize in self care research areas.

G. By 2004, demonstrate the direct and positive impact of center activities on consumer decision-making and public policy.

Goal 5: Consider, develop, and prioritize major School-led research initiatives over the next five years.

Objectives

A. By 2001, determine the criteria and scope of candidate initiatives.

B. By 2001, determine the School review, approval, and prioritization process for these initiatives.

C. By 2001, identify the amount and location of space and funding and the partnerships needed to allow new initiatives to proceed and succeed.

Goal 6: Serve as a catalyst within the greater health sciences arena for promoting new ways to define and creatively address pharmaceutical policy, pharmacy practice, and pharmacy education.

Objectives

A. By 2003, establish regular roundtable discussions among academic, business, industry, and government leaders to identify trends and forecasts related to the future of pharmacy-related issues, facilitate the exchange of ideas, and spark future collaborations.

B. By 2004, initiate at least three meaningful educational collaborations among California schools of pharmacy.

C. By 2004, create at least three new multidisciplinary, interschool approaches to teaching primary care subjects to health professional students.

D. By 2004, support at least five community health initiatives led by School of Pharmacy students that bring together students from other disciplines or schools of pharmacy to benefit public health.

E. By 2006, establish two formal, ongoing partnerships with international educational or research institutions that advance pharmacy education, practice, and research worldwide.

New Leaders

How will the UCSF School of Pharmacy educate tomorrow's pharmacy researchers and practitioners to be the most proficient, most marketable, and most farsighted leaders in their fields?

Current Situation

Education is the very heart of the UCSF School of Pharmacy. The brightest potential PhD graduate students and PharmD professional students apply to this School, and the School's expectations of its students are constantly being raised to reflect the demands of tomorrow.

Not surprisingly, the UCSF School of Pharmacy faculty is known for its penchant for forging new directions in education. Many of the School's innovations have been adopted by academic institutions throughout the world. In 1955, the School was one of the first in the nation to offer the PharmD professional degree. Beginning in the mid-1960s, the professional curriculum was reshaped dramatically to teach pharmacists the specialized clinical skills needed to participate fully in patient care.

In the mid-1990s, tumultuous and fast-paced changes in health care delivery and scientific discovery inspired the faculty to once again redesign the School's curriculum. Along with unprecedented advances in drug discovery, the rapid spread of managed care in California and throughout the nation presaged new and emerging roles for pharmacists in health services and clinical research, drug policy development, and drug therapy management. In response, the faculty has created a dynamic new PharmD professional curriculum that retains the core elements of its clinical curriculum, while giving students the

opportunity to enhance their skills and knowledge in one of three areas of emphasis: pharmaceutical care, pharmaceutical policy and management, or pharmaceutical science. Because of these new pathways, the faculty is further challenged to integrate and coordinate courses, use teaching methods that engage students in active learning, and experiment with new approaches to post-graduate education. That challenge will only grow as advances in science result in ever more complicated drug choices and highly individualized drug regimens.

In science, distinctions among traditional disciplines have become blurred as cellular biology, molecular biology, and genetics have begun to merge with the fields of physical, synthetic, and computational chemistry. Increasingly, pharmaceutical science is demanding knowledge of cellular and molecular biology – as well as genetics and genomics – for optimal drug discovery, drug development, and drug delivery. To help shape and lead this expanded view, the School is now looking beyond the traditional scope of pharmaceutical chemistry toward a new academic mosaic that encompasses all of chemistry and biology, as well as the emerging fields of informatics and genomics.

Repeated success at UCSF has shown that multidisciplinary PhD graduate programs are key ingredients for stimulating research across disciplines and across schools. The School of Pharmacy already actively participates in School of Medicine-based graduate programs in biophysics,

bioengineering, and biological sciences. The School of Pharmacy faculty has now embarked on a journey to reformulate the School's single graduate program in pharmaceutical chemistry, which is viewed as the best in the country, into three new multidepartmental graduate programs: one in chemistry and chemical biology, another in pharmaceutical sciences and pharmacogenomics, and a third in medical information science. This expansion in the graduate program will better prepare young researchers for the dramatic changes under way in science. The graduate program in medical information science has received academic approval. It is anticipated that the graduate programs in chemistry and chemical biology and in pharmaceutical sciences and pharmacogenomics will soon be approved.

These new programs require space and funding, both of which are inadequate to meet the School's need for academic growth. The cost of living in the San Francisco Bay Area is another major deterrent to the further development of the School's professional and graduate programs and, in fact, to all of the School's programs whose future relies on the recruitment of talented and vigorous new faculty, postdoctoral fellows and residents, and students.

Goals and Objectives

To succeed, the UCSF School of Pharmacy's academic programs must remain as dynamic as pharmacy itself. The School must implement the curricular innovations it has designed to date, systematically evaluate their outcomes, and modify their approaches. At the same time, it must constantly prepare PharmD professionals and PhD scientists to become tomorrow's new leaders in their fields. The development of new academic programs requires intellectual foresight, and it demands resources. New and expanded education programs require additional, exceptional faculty

members. Yet such new talent can be recruited only if the School successfully addresses the cost of living in the Bay Area, especially the cost of housing, and has the funds to support the salaries and start-up costs of new faculty members and the space for them to carry out high-caliber research and teaching.

Goal 1: Continue to refine and implement a PharmD professional curriculum that prepares students for the ever-changing field of clinical pharmacy.

Objectives

- A.** By 2002, determine the final requisite competencies for the core PharmD curriculum, as well as for each of the three PharmD pathways.
- B.** By 2002, determine the final curriculum for each PharmD pathway, and design and implement the courses included in each of those pathways.
- C.** By 2003, fully integrate the content of all courses within the core PharmD curriculum and within the curriculum of each of the three pathways by establishing ongoing, formal methods by which faculty members exchange course content, learning objectives for each course, teaching methods applied in each course, and student assessments of course effectiveness.

Goal 2: Implement high-caliber PhD graduate programs in which students benefit from the research strengths of the School and examine problems from multidisciplinary perspectives.

Objectives

- A.** By 2001, receive approval for and implement a new graduate program in chemistry and chemical biology with emphasis on education in synthetic chemistry, computational chemistry, structural biology, and molecular and cellular biology in the context of investigating important biological questions.

B. By 2001, receive approval for and implement a new graduate program in pharmaceutical sciences and pharmacogenomics with an emphasis on molecular pharmacology, drug discovery, drug delivery and development, pharmacogenomics, and toxicogenomics.

C. By 2002, recruit a minimum of five new faculty members to enable a subsequent increase in student enrollment to 40 for an expanded graduate program in medical information science.

Goal 3: Teach courses using practices, methods, and technologies that enhance student learning.

Objectives

A. By 2001, implement programs to improve how the faculty and students use technology for teaching and learning across distances.

B. By 2003, adapt all courses to one or more innovative teaching methods.

C. By 2006, have in place a fully functioning School program that promotes and rewards the art and science of teaching.

Goal 4: Evaluate the PharmD professional curriculum and PhD graduate program courses of study to ensure that they are effective in preparing highly skilled future clinicians and scientists to become leaders in their fields.

Objectives

A. By 2002, institute an annual comprehensive curriculum assessment program that reviews how and what PharmD students are learning.

B. By 2003, begin to conduct, every two years, outcome assessment surveys of the School's graduates to provide feedback to the Educational Policy Committee and the Leadership Group.

C. By 2004, initiate an employer-based review system for determining the strengths and weaknesses of the School's PharmD and PhD graduates.

Goal 5: Create continuing education programs that give seasoned professionals the new skills they need to master changes in science, therapeutics, health delivery, management, and policy.

Objective

A. By 2004, ensure that 50 percent of all individuals who complete the School's continuing education courses apply new skills.

Goal 6: Increase the number of PharmD professional students trained in basic science, clinical, and health services research.

Objectives

A. By 2002, revitalize and implement a streamlined joint PharmD/PhD program in pharmaceutical sciences that attracts five to eight students per year.

B. By 2003, establish a postdoctoral fellowship in which PharmD professionals can obtain research training in pharmaceutical or health services research.

C. By 2003, develop a more formal relationship with colleagues in other UCSF schools to create a training program that prepares PharmD professional students to conduct high-quality clinical research.

Goal 7: Find practical solutions to the cost-of-living barriers to attracting talented new faculty members, postdoctoral fellows and residents, and students to the School.

Objective

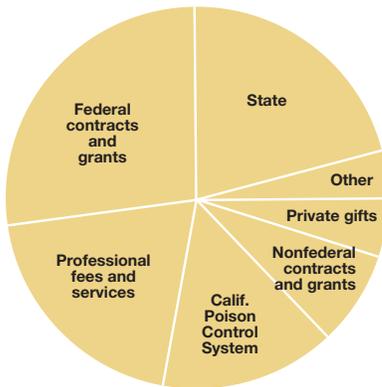
A. By 2002, participate in a campuswide task force whose goals are to evaluate cost-of-living barriers to recruitment and propose reasonable and effective solutions to the campus.

Resources

How will the UCSF School of Pharmacy secure the space and funding it requires to fully apply its expertise and to create dynamic new programs in the best interest of public health?

Current Situation

As with the University of California in general, the UCSF School of Pharmacy is state-assisted, rather than fully state-funded. Of the School's approximately \$43 million fiscal year 1999 budget:



SOURCE OF FUNDS

UCSF School of Pharmacy
Fiscal 1999-2000
TOTAL: \$43 million

- 21 percent came from the state;
- 27 percent came from federal contracts and grants;
- 20 percent derived from professional fees and services;
- 15 percent came from special funding for the California Poison Control System;
- 8 percent was received from nonfederal contracts and grants;
- 5 percent was donated through private gifts; and
- the remaining 4 percent came from indirect cost recovery funds, clinical trials, and professional student fee revenue.

The School's state budget allocation is calculated by ratios of a set number of students per individual faculty member. These ratios vary by academic program. In the case of the School of Pharmacy PharmD professional program, that ratio is 11 PharmD professional students to one faculty member. While this ratio might have been appropriate in the 1950s, when large lecture and

laboratory classes were the norm, today's teacher-intensive, clinical experience-driven curriculum dictates that there be far fewer students per faculty member. Due to this unfavorable ratio, the state budget allocation for the PharmD professional program falls far short of the School's actual cost for instruction of PharmD students. The School's resources are stretched thin as it strives to sustain its highly successful clinical approach to pharmacy education with a desperately inadequate number of faculty members per student. The faculty is at a breaking point. It can stretch no more. Decreases in projected funding from the sources described below will result in a budget deficit by 2001.

In accordance with University of California Regental policy, the School instituted a PharmD professional student fee, beginning with the class entering in the fall of 1996. The approved plan, upon which the School's budget projections were made, called for gradual fee increases per student per class over four years. Ultimately, each student in each class would pay \$5,000 per year. The fee increases were unexpectedly frozen at \$3,000 by the state in 1998. The School, which ramped up its faculty recruitment efforts based upon the implementation of a full-fee schedule, now is canceling recruitment plans and trimming a budget that already is minimal at best.

The state budget cuts of the 1990s also have weakened the School's funding position. Those cuts have not yet been restored. The state's overall allocation falls far short of the cost of instruction.

The School has supplemented the instruction budget with revenue from a service contract with UCSF Medical Center. These funds help to pay for faculty salaries. However, these funds are now at risk due to UCSF Medical Center budget cuts.

Federal contract and grant funding, which is a significant portion of the School's budget, is unlikely to increase unless resources are found to recruit new faculty members, develop new research programs, and significantly expand research space. The same is true for nonfederal contract and grant funding.

The School is critically short of space. The unfulfilled promise of research space at Laurel Heights has left School scientists woefully cramped. School of Pharmacy scientists continue to receive research funding comparable to that received by their campus peers, yet they work in two-thirds of the laboratory space held by those same peers. Many faculty members do not have individual offices in which to concentrate on their work and prepare to teach, and there is no space for the additional faculty members needed to develop new curricula and programs. PhD graduate and PharmD professional students do not have adequate space from which to launch public service programs or in which they can congregate informally for intellectual discussions or debates.

Furthermore, existing School space is scattered, which makes it difficult for people to personally identify with the School as a whole. While some programs function well on the physical frontier of the campus or in isolated locations across San Francisco, others – such as emerging collaborative centers – suffer greatly if isolated.

Private giving has not increased steadily over the past several years, and it will not do so in the future without a carefully crafted, aggressively implemented development plan for private support. Furthermore, recruitment of new faculty members will be a challenge, and seasoned members of the faculty will not remain at UCSF –

regardless of the School's excellence – without space in which to work or the funding necessary to expand the limits of discovery, clinical care, and education.

Goals and Objectives

The resource picture for the UCSF School of Pharmacy is bleak. Space and funding shortages are at crisis points, and the extent to which these crises are resolved will dictate the School's future. Over the decades, the academic and clinical programs of the School have been increasingly underfunded. The School has been forced to creatively juggle its budgets and its approaches to supporting its academic and clinical programs in order to ensure their viability. The full research potential of the School's scientists is stymied by the simple lack of room. To maintain the status quo, let alone unleash the School's full potential, the School must secure adequate space and adequate ongoing funding to excel in its mission.

Goal 1: Increase and consolidate the School's space and modernize the existing physical infrastructure.

Objectives

A. By 2002, secure a campus commitment of 120,000 assignable square feet of space – the majority of which is new construction – on the Parnassus campus under the control of the School of Pharmacy to help recoup space lost at Laurel Heights and to help accommodate growth since the Laurel Heights expansion was first planned.

B. By 2001, secure a campus commitment for appropriate space in building 24C at UCSF Mission Bay for the new collaborative research Center for Pharmacogenomics. (See Combining Forces, Goal 3.)

C. By 2002, secure a campus commitment for appropriate space at UCSF Mission Bay for the new collaborative research Center for

Bioinformatics and Quantitative Biology. (See Combining Forces, Goal 1.)

D. By 2002, create an interim, consolidated School of Pharmacy administrative and cultural hub on the first-floor corridor of the Clinical Sciences Building.

E. By 2003, replace and upgrade 50 percent of the School's shared instrument facilities.

F. By 2005, renovate 20 percent of all laboratory and office space.

G. By 2005, complete the physical reunion of as much current, noncontiguous School space on Parnassus as possible, including administrative and office space, laboratory space, teaching space, and space for professional and graduate student use.

Goal 2: Increase the permanent allocation of state funds from the University of California Office of the President.

Objectives

A. By 2005, restore state funding from the general fund to inflation-adjusted 1992 figures.

B. By 2005, obtain additional funding, equivalent to a 3.5:1 student-faculty ratio, for the PharmD professional program.

C. By 2005, obtain state funds for an additional eight clinical pharmacy residents.

Goal 3: Increase extramural contracts and individual grants, center and program project grants, and training grants.

Objectives

A. By 2004, increase total dollar amounts of individual contracts and grants by a minimum of 10 percent.

B. By 2004, obtain at least two more School-led center or program project grants.

C. By 2004, obtain at least one additional graduate student training grant.

Goal 4: Increase revenue-generating professional fee and service activities that are consistent with, and supportive of, the School's priorities.

Objective

A. By 2003, initiate professional fee and service activities, which are based within the School, to double the dollar amounts of fiscal year 1999.

Goal 5: Increase private support from individuals, corporations, and foundations for the School's new and ongoing fundraising priorities.

Objectives

A. By 2001, identify, qualify, and actively cultivate each year a minimum of five new donor prospects who have both the capacity and inclination to give \$1 million or more to the School.

B. By 2006, increase the total current funds raised from private support by 20 percent per year beginning in the year 2000, and increase the total endowment funds raised from private support to \$60 million during the same five-year time span.

C. By 2006, achieve the following participation rates of giving to the School: 100 percent faculty giving rate, 40 percent alumni giving rate, and 100 percent student giving rate.

Goal 6: Provide an infrastructure that will anticipate and meet the administrative needs of a rapidly growing and developing School.

Objectives

A. By 2002, increase the number of administrative staff members in the School, based upon the results of a comprehensive assessment of need.

B. By 2003, implement Schoolwide systems to simplify and streamline administrative work.

C. By 2003, have in place a fully functioning, coordinated information technology support unit that anticipates and meets the computer-related and associated needs of the School.

Community

How can the UCSF School of Pharmacy build a unifying organizational culture that enhances collegiality, promotes diversity and respect, and heralds achievement at all levels?

Current Situation

Keeping all members of the UCSF School of Pharmacy family interconnected in a meaningful way is a complex, but important challenge.

The School is a community that includes faculty members and academic appointees, administrative and research staffs, PharmD professional students, PhD graduate students, clinical pharmacy residents, postdoctoral fellows, and alumni. While each of these groups has an affinity to a discrete School unit – most often a research laboratory, clinical practice site, or department – each group may be more or less out of touch with the School as a whole and unfamiliar with its mission. Two obstacles to widespread esprit de corps within the School are fragmentation of interests and the physical fragmentation caused by inadequate and scattered space.

Numerous factors have exacerbated a lack of cohesion among members of the faculty in particular. While most faculty members teach PharmD professional students, their research interests are disparate. The need for each individual faculty member to communicate outside of his or her own circle has not been a high priority because the School has not effectively expressed and embraced a common purpose, shared a common body of knowledge about the School, or actively engaged the School's extended family as a whole in planning together for the future.

Woefully inadequate space has fractured the School in visible and invisible ways. The dashed hope of Laurel Heights as a nexus for School of

Pharmacy people and programs left the School without a physical or cultural pivot point. There is now no space that can be pointed to as “the School of Pharmacy.” People within the School are dispersed throughout the Parnassus campus, Laurel Heights, Oyster Point, UCSF Mount Zion Medical Center, San Francisco General Hospital Medical Center, and a number of off-campus rental spaces. People are dispersed as well in satellite pharmacy practice sites located in San Diego, Los Angeles, and Sacramento. The eagerly anticipated expansion at UCSF Mission Bay will further spread many of the School's basic science faculty members and academic appointees, staff members, PhD graduate students and postdoctoral fellows to yet another site.

While the work and expertise of the School's family are indeed diverse, the School is not diverse by other measures. For example, too few female faculty members hold tenure-track positions in the department of pharmaceutical chemistry. Too few faculty members – male and female – are Hispanic, black/African-American, or American Indian. Hispanics, blacks/African-Americans, American Indians, whites, and males are under-represented in the PharmD student body. The problem is compounded by the fact that the pools from which the School recruits its faculty, students, and staff do not themselves reflect the diversity of the general population. The School and the University leadership are therefore challenged to use extraordinary measures to ensure that the applicant pools from which the School selects its

students and recruits its faculty members, academic appointees, and staff members are as qualified and diverse as possible.

Goals and Objectives

It is the people within the UCSF School of Pharmacy who animate and carry out the School's mission of discovery, clinical care, education, and public service. These are people who pose and test hypotheses, make discoveries, teach professional and graduate students, care for patients, administer programs, file documents, answer phones, arrange meetings, deliver mail, and track budgets. In order for these people to unleash their full potential, the School must do everything it can to put into place the social and physical prerequisites for success. The School must herald diversity. The School must help underrepresented minorities become more competitive within the School's applicant pools. The School must nurture the individual within the context of a broadly articulated and shared purpose and vision for the future. The School must practice collegiality and interdepartmental cooperation and appreciation within its ranks. The School must have the funding necessary for the continual professional development and training of its faculty members and academic appointees, its staff members, students, and administrators. And the School must provide the contiguous physical spaces in which its scientists, clinicians, students, and staff can excel in their work.

Goal 1: Create a culture within the School that is characterized by cooperation and mutual respect, where everyone within the School shares a common body of knowledge about the School, its mission, its plans, and the roles that each of them play in the School's success.

Objectives

A. By 2002, institute at least one School townhall

meeting per year in which detailed information about the School's mission, organization, history, accomplishments, and future plans is shared.

B. By 2002, establish regular venues for Schoolwide intellectual and social exchange.

C. By 2003, have in place information networks that regularly update everyone within the School about School news and that provide forums for those same people to express their opinions, ideas, and concerns.

Goal 2: Create an identifiable and prominent physical presence for the School that serves as an interdepartmental crossroads for the School's family and as a physical symbol of the School to others within and outside the UCSF community.

Objective

A. See Resources, Goal 1.

Goal 3: Champion diversity within the School in all possible ways.

Objectives

A. By 2002, implement initiatives intended to address and resolve current inequities in diversity and to improve the competitiveness of underrepresented minorities within the School's applicant pools.

B. By 2004, double the current fraction of underrepresented groups in the applicant pools for the PharmD professional, PhD graduate, and clinical residency programs.

C. By 2006, ensure that the diversity of the School's PharmD professional students and PhD graduate students reflects the diversity of associated applicant pools statewide and nationwide.

D. By 2006, ensure that the diversity of the School's faculty reflects the diversity of associated applicant pools statewide and nationwide.

E. By 2006, ensure that the diversity of the School's staff more closely reflects the diversity of the qualified applicant pool within the San Francisco Bay Area.

Goal 4: Establish meaningful two-way School communications with alumni, volunteer faculty members, parents, and friends.

Objectives

A. By 2002, establish a routine mechanism for preparing and distributing information about the

School to alumni and for receiving their comments, questions, and concerns.

B. By 2003, establish a routine mechanism for preparing and distributing information about the School to volunteer faculty members and for receiving their comments, questions, and concerns.

C. By 2003, implement an annual homecoming event attended by a majority of alumni, students, parents, and paid and volunteer faculty members.

Reaching Out

How can the UCSF School of Pharmacy extend its reach beyond academia to improve more effectively the health and well-being of the public and to encourage mutually beneficial partnerships?

Current Situation

For the UCSF School of Pharmacy to flourish, it must maintain its competitive edge and influence in an environment where budgets are tighter, the need for program support is greater, competition for donor dollars is keener, and the recruitment and retention of the world's most eminent faculty members are more challenging than ever. And for the School of Pharmacy to best serve the public, it must involve itself with the public it serves. It must also share the benefit of its combined expertise and leadership with influential groups, from professional organizations to public policy committees.

Although the concept of marketing has not been widely embraced by academicians, more and more leaders of higher education across the nation are realizing that the prosperity of their institutions is increasingly tied to it. It simply is not good enough to presume that the School's audiences

understand that its intellectual capital, educational programs, research, and public service initiatives have value, add value, and are invaluable to improved public health and well-being.

To date, the School has been disorganized and disconnected in its efforts to engage a broader audience and communicate a purpose and vision. There has been no evidence-based understanding of how others view the School and no plan to increase visibility of the School and its mission beyond academia.

In reality, School of Pharmacy faculty members and academic appointees, administrative and research staffs, PharmD professional students, PhD graduate students, clinical pharmacy residents, postdoctoral fellows, and alumni are engaged each day in marketing the School. Whenever a department chair meets with a prospective donor or funding agency, whenever a member of the faculty presents his or her research or testifies

before a governmental body, whenever a student participates in a community health fair, whenever an alumnus recommends the School to a prospective student, whenever a volunteer introduces the dean to a business leader who might become important to the School's future – marketing is in play.

These unwitting marketing activities can no longer meet the needs of the School, nor help to answer the questions posed in this document. One key factor in discovery, education, cultural cohesion, and resource procurement is the ability of the School to effectively bring about voluntary exchanges among target audiences that move the School forward. The purpose of marketing the School is to do just that.

Goals and Objectives

While holding fast to its roots in the academic arena, the UCSF School of Pharmacy understands the need to be both nimble and savvy in the marketplace arena if it is to influence its constituents to act – to apply to the PharmD professional, PhD graduate, and postgraduate programs, to fund people and programs, to support legislation, to form partnerships – in ways that help the School reach its full potential. In order to help foster new ideas for collaborations with others on campus, it is clear that the full depth and breadth of the School's expertise and potential must be made known within UCSF as well. To help achieve its own success, the School must create organized, integrated, and comprehensive marketing efforts designed to promote its mission and help meet the challenges outlined in this document. To be most effective, these plans should integrate closely with and benefit from UCSF campuswide marketing initiatives. Focused marketing efforts will require the investment of precious School discretionary funds, which are in very short supply.

Goal 1: Increase the visibility of the School among defined internal and external audiences in order to further the School's mission and its strategic directions.

Objectives

- A.** By 2001, develop and implement a comprehensive, targeted marketing communications plan for the School in support of the School's strategic directions.
- B.** By 2001, establish a regular means of sharing information about School activities, advances, and plans with the UCSF Office of Public Affairs.

Goal 2: Increase the depth and breadth of the School's influence in professional and public policy-related forums.

Objectives

- A.** By 2001, develop and implement a comprehensive external relations plan for the School targeted at the professional and public policy arenas.
- B.** By 2001, establish a regular means of sharing information about pharmacy- and health-related public policy issues with the UCSF Office of Community and Governmental Relations.

Goal 3: Develop and institute a comprehensive, aggressive recruitment plan to attract the nation's brightest, most articulate, creative, and diverse applicants to its PharmD professional, PhD graduate, and postdoctoral programs.

Objectives

- A.** By 2003, increase by 25 percent the number of exceptionally qualified PharmD, PhD, and postdoctoral applicants to the School.
- B.** See Community, Goal 3.

Timeline

Studied — School's Potential and Possible Futures Dean	October 1998 – April 1999
Scanned — Changing Environment of Pharmacy Board of Overseers	April 1999
Revised — Mission Statement Leadership Group	Spring – Winter 1999
Set — Planning Process Leadership Group	May 1999
Assessed — School's Current Situation Paid Faculty, Staff, Administrators	May 1999
Determined — Critical Issues Facing School School Retreat Attendees	May 1999
Created — 1st Strategic Direction Draft with Issues, Situations, Goals Expanded Leadership Group	May – July 1999
Reviewed — 1st Draft School Retreat Attendees	July 1999
Revised — 2nd Draft with Objectives Expanded Leadership Group	August – September 1999
Reviewed — 2nd Draft School Retreat Attendees	October 1999
Revised — 3rd Draft with Mission, Planning Process Leadership Group	October 1999
Reviewed — 3rd Draft Board of Overseers , Alumni Board of Directors, Select School Volunteer Faculty, Administrators, Staff, Student Leaders, Select Campus Administrative Units	October – December 1999
Revised — 4th Draft with Supporting Copy Leadership Group	December 1999
Reviewed — 4th Draft Campus Leaders	February 2000
Revised and Finalized — 5th Draft Leadership Group	February 2000
Distributed — Final Document Dean	March 2000
Implemented and Continually Assessed — Final Document Leadership Group	2000 through 2005

Note: While five major drafts of this document were circulated for review, many more versions of the copy were considered by the Leadership Group between major draft reviews.

Planning Process

Participants

UCSF School of Pharmacy Board of Overseers

Bruce Bodaken
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Robert C. Johnson
Nancy U. Kamei, PharmD
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Raymond J. Townsend, PharmD
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UCSF School of Pharmacy Leadership Group

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Planning and Communications,
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Michael E. Winter, PharmD
*Acting Chair,
Department of Clinical Pharmacy,
School of Pharmacy*

UCSF School of Pharmacy Retreat Attendees

Paid faculty
School administrators
and academic appointees
Select volunteer UCSF School of
Pharmacy faculty members, staff
members, students, alumni, friends,
members of the Board of Overseers,
and staff from the UCSF offices of
public affairs and development and
alumni relations

UCSF School of Pharmacy Expanded Leadership Group

*Leadership Group plus the following at
various points in the planning process:*

Lisa A. Bero, PhD
*Chair, Faculty Council,
School of Pharmacy*

Christopher Cullander, PhD
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School of Pharmacy*

UCSF School of Pharmacy Alumni Board of Directors

Dennis Adair, PharmD, PhD
Vince Angell, BS
Steve Bacon, PharmD
Bret Brodowy, PharmD
Wayzell Fuller, PharmD
Robert Gibson, PharmD
Toby Herfindal, PharmD
Joseph Hirschmann, PharmD
Nelson Kobayashi, PharmD
Winston Lee, PharmD
Louise Lu, *Student Representative*
Kejia Min, *Student Representative*
Christopher Oliva, PharmD
William Peterson, BS
Cooky Quandt, PharmD
Rick Satitpunwaycha,
Student Representative
Denise Takahashi, PharmD
Geraldine Vayson, PharmD, *President*
John Young, BS

UCSF School of Pharmacy Student Leaders

PharmD Professional Students

Deborah Anderson
Jason Belk
Christian Choi
Tim Cutler
Louise Lu
Conan MacDougall
Keija Min
Katie Nguyen
Katherine Ramos
Rick Satitpunwaycha
Tonya Tran
Denise Wong

PhD Graduate Students

Elizabeth Bennett
James Buckman
Lara Mangravite
Michael Oakley
Carolina Reyes

Select UCSF Campus Administrative Units

Academic Affairs
Administration and Finance
Campus Planning
Community and Governmental Relations
Development and Alumni Relations
Public Affairs
Research

UCSF Campus Leaders

C. Cliff Attkisson, Jr., PhD
*Associate Vice Chancellor,
Student Academic Affairs, UCSF;
Dean, Graduate Division*

Dorothy F. Bainton, MD
Vice Chancellor, Academic Affairs, UCSF

Steve J. Barclay
*Vice Chancellor,
Administration and Finance, UCSF*

Charles N. Bertolami, DDS, DMedSc
Dean, School of Dentistry

J. Michael Bishop, MD
Chancellor, UCSF

Haile T. Debas, MD
*Vice Chancellor, Medical Affairs, UCSF;
Dean, School of Medicine*

Kathleen A. Dracup, RN, FNP, DNSc,
FAAN
Dean (effective 3-00), School of Nursing

Zach W. Hall, PhD
Vice Chancellor, Research, UCSF

Bruce W. Spaulding
*Vice Chancellor, University
Advancement and Planning, UCSF*

Glossary

Glossary of Terms

Academic appointees: paid academic professionals, other than paid faculty and postdoctoral fellows, such as academic administrators, professional researchers, specialists, and career postgraduate researchers

Biology: scientific study of living organisms

■ **Cellular biology:** cells, their components, and how they function

■ **Chemical biology:** composition, structure, properties, and interactions of chemicals within living organisms

■ **Molecular biology:** biochemical processes at the molecular level

■ **Structural biology:** structure of molecules within cells and how these molecules interact and function

Biopharmaceutical sciences: scientific field focused on studying the molecular, cellular, and genetic principles underlying drug development and therapy

Biotechnology: industrial use of biological techniques or products developed through basic research

California Poison Control System: highly integrated system directed by the UCSF School of Pharmacy that provides both an immediate emergency 24-hour telephone advice line for poisoning exposure and a program to educate the public and health care professionals about poisoning treatment and exposure

California schools of pharmacy:
Public — University of California, San Francisco
Private — University of the Pacific, University of Southern California, Western University of Health Sciences

Center for Bioinformatics and Quantitative Biology: emerging collaborative research center created by the UCSF School of Pharmacy's department of biopharmaceutical sciences, in conjunction with other UCSF schools and departments, to study problems in quantitative biology and bioinformatics as well in the structure management of DNA and protein sequence informatics

Center for Chemistry and Disease: emerging collaborative research center created by the UCSF School of Pharmacy's department of pharmaceutical chemistry to study the molecular interactions involved in disease pathology and treatment using the techniques of chemical biology and to apply new knowledge to alter specific molecules to disrupt pathologic biological processes with minimal effects on healthy biological processes

Center for Pharmacogenomics: emerging collaborative research center created by the UCSF School of Pharmacy's department of biopharmaceutical sciences with the School of Medicine's Program in Human Genetics to study the genetic variability of drug response in individuals and to use that knowledge to ultimately improve drug development and research, and to design more effective drugs with fewer side effects

Center for Responsible Consumer Self Care: emerging evidence-based center created by the School of Pharmacy's department of clinical pharmacy to foster smart and effective consumer decision-making relative to prescription and nonprescription drugs and dietary supplements through programs in targeted research, education, patient care, and public service

Chemistry: scientific study of the composition, structure, and properties of substances and the changes they undergo

■ **Biorganic chemistry:** use of chemical synthesis to study biological systems

■ **Biophysical chemistry:** use of chemical theory and instruments to study biological materials

■ **Computational chemistry:** use of computers to study the general principles of chemical structures and reactions

■ **Pharmaceutical chemistry:** chemical disciplines important to the study and development of pharmaceuticals, including biorganic chemistry, biophysical chemistry, computational chemistry, structure determination, mechanistic enzymology, and studies of metabolism and toxicity

■ **Physical chemistry:** application of physical theories or laws to explain results of chemistry experiments

■ **Synthetic chemistry:** deliberate manufacture of pure substances of defined structure

Clinical pharmacy: pharmacy practice philosophy that has shifted the focus of pharmacists from drug products themselves to the safe and optimally effective use of drug products in patients; this philosophy positions pharmacists as active members of the health care team, working side by side with physicians and nurses, to provide direct care to patients and consultation to patients' families

Clinical pharmacy care: direct health care and consultation provided by clinically trained pharmacists to patients and consumers about prescription and nonprescription drugs, and related products

Clinical pharmacy residents: post-PharmD professionals training in general pharmacy practice and/or specialty areas, such as oncology and pediatrics

Clinical scientists: clinicians who conduct research on the effects of drugs and other interventions in humans

Clinical trials: prospective studies in humans that compare the effectiveness and value of a potential new drug or therapy in one group against a control group before the drug or therapy is made available to the general population

Contracts: legally defined vehicles that acquire, usually by purchase, property or services for the direct benefit of the sponsoring agency

Drug design and delivery: see molecular drug design and drug delivery systems

Drug delivery systems: methods of transporting drugs into the body or to specific sites of action in the body

Drug development: research process following drug discovery that takes a molecule with desired biological effects in animal models and prepares it as a drug that can be used in humans

Drug discovery: research process that identifies molecules with desired biological effects in animal models, and thus have promise as new therapeutic drugs in humans

Drug information systems:

organized programs or services that develop rational, evidence-based answers to questions regarding drugs or the use of drugs

Drug metabolism and transport:

how drugs are processed, broken down, and moved within the body

Drug policy: any policy that affects the use and application of drugs, including legislative drug policies, insurance company drug policies, and hospital drug policies

Drug therapy management:

management by pharmacists of the range of factors, such as drug dose, method of delivery, toxicity, and cost, that can affect the access to and effective use of drugs by patients

Educational Policy Committee:

School of Pharmacy faculty committee charged with studying the PharmD professional curriculum as it relates to the needs of the community and the profession of pharmacy, and with continually assessing the PharmD professional curriculum

Fellows (fellowships): see post-doctoral fellows (fellowship)

Fiscal year: July 1 through June 30 of any given year

Gene delivery: development of methods to deliver genes to cells

Gene therapy: use of genes to treat disease

Genetics: study of the genetic composition, heredity, and variation of organisms

Genomics: study of the structure and function of the genetic information that belongs to a cell or organism

Genotype: entire genetic contribution of an individual

Graduate program: PhD-related academic program

Grants: awards of financial assistance to support proposed research, training, or public service programs

Health care providers: health professionals, such as physicians, pharmacists, registered nurses, nurse practitioners, and dentists, who provide patient care

Health delivery: direct delivery of health care to patients

Health policy: plans and actions of government and other organizations designed to maintain and improve public health

Health policy researchers:

researchers who investigate health policy-related questions

(U.S.) Human Genome Project:

national effort coordinated by the U.S. Department of Energy and the National Institutes of Health to identify all the approximately 100,000 genes in human DNA, determine the sequences of the 3 billion chemical bases that make up DNA, store this information in databases, develop tools for data analysis, and address the ethical, legal, and social issues that may arise from the project; to help achieve these goals, researchers are also studying the genetic makeup of several nonhuman organisms

Indirect cost recovery funds:

School allocation of overhead funds that are assessed on each dollar of direct contract and grant award funding to cover the costs of using the award funding, such as the costs associated with building maintenance, utility bills, and accounting; the state of California, the University of California Office of the President, and UCSF receive portions of the overhead fund totals

Informatics: collection and organization of information using computers and statistical methods

■ **Bioinformatics:** information about human and other animal genes and related biological structures and processes

■ **Medical informatics:** information about diseases, patients, drug use, and drug interactions

Laurel Heights: approximately 362,500 gross square foot building and annex acquired by UCSF in 1985 originally for use as administrative offices and later for housing School of Pharmacy academic programs in research, including basic science research laboratories; in 1986, the University of California Regents reviewed and certified an environmental impact report (EIR) on the relocation of the School of Pharmacy to Laurel Heights; legal challenges to the 1986 EIR and to a 1990 EIR continued until 1995, when a Revised Laurel Heights Plan EIR — which covered UCSF occupancy of the site with a critical mass of campus administrative offices and office-based instruction and

research programs, including those in health psychology and medical anthropology — was certified

Managed care: procedures used by organizations that assume risk for health services to control or influence variables in those services for a defined population; variables include cost, price, quality, and accessibility

Mass spectrometry: study of the structure of molecules by using the mass of their basic constituents

Medical information science (MIS): graduate program in medical informatics and bioinformatics at UCSF

Molecular design: design of molecules, including pharmaceuticals

Molecular Design Institute (MDI): research institute at UCSF that promotes and coordinates research and education in the broad area of molecular design with particular emphasis on the discovery, design, and delivery of novel pharmaceutical agents; the MDI is an Organized Research Unit (ORU) of the University of California, San Francisco

Molecular docking program: computer program that simulates fitting potential drugs into target receptor molecules much like a key fits into a lock

Molecular drug design: design of pharmaceuticals based upon the application of chemistry, biology, mathematics, and computer science

Molecular pharmacology: molecular approaches to the study of drug action

Molecular targeting: developing a drug directed at a specific biological target

Nuclear magnetic resonance: spectroscopic technique that enables scientists to determine the structure and dynamics of molecules and if, where, and how drugs might bind to those molecules

Pharmaceutical: of or relating to drugs

Pharmaceutical care: direct involvement of the pharmacist in the design, implementation, and monitoring of a therapeutic drug plan to produce a specific therapeutic outcome

Pharmaceutical chemistry: synthesis, development, and study of molecules used in medicine and their interactions with biological agents

Pharmaceutical economics: application of the tools of economics to the study of pharmaceutical issues whereby the costs and benefits of different choices are studied and evaluated

Pharmaceutical outcomes: results of pharmaceutical care defined as the measurable effects of drug, or nondrug, usage on a patient; intermediate pharmaceutical outcomes, such as cost and time, can also be identified and measured

Pharmaceutical policy: any policy that is designed to improve or regulate the efficiency, effectiveness, safety, development, or promotion of pharmaceuticals, including drugs and devices

Pharmaceutical sciences: all of the sciences, including chemistry and biology, that play roles in the discovery and development of drugs

Pharmaceutical technology: all of the technologies involved in the development and use of drugs

Pharmacogenomics: study of the effects of individual genetic variations on drug response; aimed at the prescription or development of drugs that maximize benefit and minimize side effects in individuals

Pharmacodynamics: quantitative study of drug action

Pharmacokinetics: quantitative study of how drugs are taken up, biologically transformed, distributed, metabolized, and eliminated from the body

Pharmacy administration: management of the systems that affect all pharmacy-related clinical events, from the formulation of a drug prescription to the actual administration of a drug to a patient

Pharmacy practice modeling: identification and creation of new ways to apply the pharmacy profession in practice situations and to evaluate their effectiveness

PharmD pathways at the UCSF School of Pharmacy: pathway options in the revised PharmD professional curriculum instituted in academic year 1998-1999; students take a core clinical pharmacy curriculum and choose one of three pathways — pharmaceutical care, pharmaceutical policy and management, or pharmaceutical science

PharmD (professional) student: graduate student pursuing a doctor of pharmacy professional degree; students who successfully complete the program are eligible for licensure as pharmacists

PhD degrees at the UCSF School of Pharmacy: graduate degrees in the following areas of scientific research — chemistry and chemical biology (approval pending), pharmaceutical chemistry (program ending), pharmaceutical sciences and pharmacogenomics (approval pending), medical information science (approved)

PhD (graduate) student: graduate student pursuing a doctor of philosophy degree; School of Pharmacy PhD students are pursuing graduate degrees in scientific research

Postdoctoral fellows (fellowship): scientists who have already earned a PhD degree and have received an award (fellowship) in support of gaining additional experience and training in a focused area of research at UCSF

Postdoctoral residents (residency): pharmacists who have already earned a PharmD degree and have been accepted at UCSF for additional clinical training (residency) in a focused area of interest

Postgraduate professional education and training: continuing education for professional pharmacists and other interested health care professionals

Private gifts: gifts, including cash, appreciated securities, and property, from individuals, corporations, and foundations

Professional program: PharmD-related academic program

Professional fees and services: revenue-generating activities, including consulting, clinical work, and services

Professional student fee (revenue): University of California Regents-approved fee charged to PharmD professional students beginning in the 1996-1997 academic year; its purpose is to help offset the high cost of professional, clinically driven instruction and to enable the School to implement its new PharmD professional curriculum

Protein engineering: technique for isolating and studying proteins and creating tailor-made proteins by altering the genes that direct their composition

Rational use of drugs: method of drug use that considers the balance among drug cost, clinical outcome, and the patient's quality of life

Research: investigation and experimentation aimed at discovery, interpretations, and application of scientific data

■ **Basic science research:** studies that pursue knowledge about the most fundamental processes of life, such as how cells work

■ **Clinical science research:** studies involving humans, usually carried out in hospital or clinical settings, aimed at understanding the diagnosis and treatment of diseases and disorders

■ **Health policy research:** studies of the health care system and health policy-making processes

■ **Health services research:** studies of the organization, delivery, and financing of health care

■ **Pharmaceutical research:** basic science studies related specifically to the discovery, development, and use of drugs

■ **Translational science research:** studies involving the translation of basic science research findings into applications that benefit people

Residency (residencies): see postdoctoral residents (residencies)

Therapeutic: referring to the cure or management of a disease

Toxicogenomics: application of genetic and genomic methods to the study of toxicology

Toxicology: study of poisonous substances in terms of their chemistry, effects, and treatments

UCSF Mission Bay: UCSF's emerging 43-acre campus, which is located in the Mission Bay district of San Francisco; one-half of the program space there will be devoted to basic science research and one-half to academic, support, campus administration, and community uses; development will be phased in over 15 to 20 years

Visiting professor: senior scientist, who is often from a foreign country, conducting research at UCSF in a specific field of study

Unleashing Our Potential

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Our Potential

Unleashing

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