CHAPTER ELEVEN

UC Health

Photo: group of male pharmacy students from the Class of 1889 posing in front of College of Pharmacy building, San Francisco.

1873

Trustees of Toland Medical College in San Francisco transfer the institution to the Regents, thereby forming the Medical Department of the UC, the university's first professional school.

1881

UC establishes the first dental school west of the Mississippi River. The dental school would become one of the three Affiliated Colleges in the UC school of medicine, and later, part of UCSF.

UC HEALTH

History

When state assemblyman John Dwinelle prepared the charter for the University of California in 1868, he had the foresight to call for the formation of a college of medicine "and other like professional colleges." In 1873 the Toland Medical College of San Francisco joined the University and became the University's first professional school. In 1881, UC established the first dental school west of the Mississippi River. UC continued its expansion of medical and health professional schools through the end of the nineteenth century, all of the twentieth century and into the twenty-first century with the recent addition of a School of Nursing at Irvine in 2017.

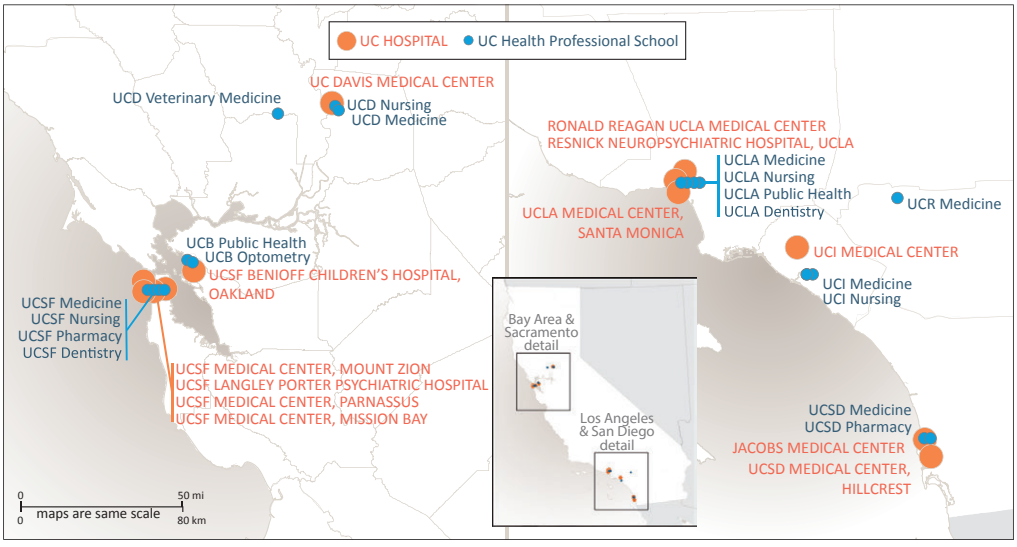
The scope of UC Health

Today, the University's 18 health sciences schools and five academic medical centers—organized as UC Health—are international leaders in the education of health professionals, in research that develops new cures and treatments, and in public service that provides health care for all Californians regardless of ability to pay.

In June 2017, the first students graduated from UC Riverside Medical School, the sixth medical school in the system.

UC's health sciences schools are:

- **Dentistry** (UCSF, UCLA)
- **Medicine** (UCD, UCSF, UCLA, UCR, UCI, UCSD)
- **Nursing** (UCD, UCSF, UCLA, UCI)
- **Optometry** (UCB)
- **Pharmacy** (UCSF, UCSD)
- **Public Health** (UCB, UCLA)
- **Veterinary Medicine** (UCD)



1913

The Hooper Foundation for Medical Research is established in San Francisco, the first U.S. medical research foundation to be incorporated into a university.

1955

Ten years after the UCLA School of Medicine is founded, the UCLA Medical Center opens, admitting its first patients on July 7.

UC's health science schools are among the best in the nation, according to U.S. News & World Report 2019 rankings.

US News & World Report's "Best of" Rankings as of 2019:

	UCSF	UCLA	UCSD	UCD	UCI	UCB	UCR
Best Medical Schools – Research	5	8	22	39	46		93
Best Medical Schools – Primary Care	2	4	17	10	77		
Best Nursing Schools – Masters	11	20		46	66		
Best Graduate Public Health		10				9	
Best Pharmacy Schools	3		25				
Best Veterinary Medicine Schools				1			

Note: USN&WR does not rank dental or optometry programs.

All across the state, each of UC Health's academic medical centers has earned a place among U.S. News & World Report's "Best Hospital" rankings, as shown in the table below:

Best Hospitals - Nationally	#5 UCSF	#7 UCLA			
Best Hospitals - California	#1 UCSF	#2 UCLA	#5 UCD	#7 UCSD	#11 UCI

Residency programs — increasingly funded without federal support

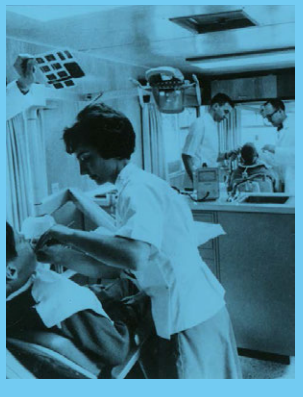
Graduate Medical Education (residency) programs provide in-depth training in specialties of medicine after graduation from medical school. All of UC's academic medical centers provide residency programs and fund an increasing number of them without traditional federal support. In the 1960s, Medicare began paying for a substantial portion of the cost of residency programs. In 1997, it limited the number of residencies that would be funded, and the 'cap' has not been revised upward despite a 30 percent increase nationally in the number of medical students and an aging population that needs more practitioners. As a result, UC medical centers began absorbing costs for residency training slots. In FY 2017–18, UC Health trained 5,540 residents through UC-sponsored and long-standing UC-affiliated family medicine programs–or approximately half of California's total. This includes 594 positions for which UC received no federal General Medical Education support and covered roughly $59 million in unreimbursed costs.

Medical Centers — clinical operations are self-supporting

UC Health's medical centers receive no state general funds. Clinical operations at the five academic medical centers—UC Davis Health, UCSF Health, UC Irvine Health, UCLA Health and UC San Diego Health—are supported by insurance reimbursements from governmental and commercial payers. Additionally, the medical centers provide financial support to UC Health Schools of Medicine to fund operating activities, clinical research, faculty practice plans and other programs. In FY 2017, the support was $457 million.

1956

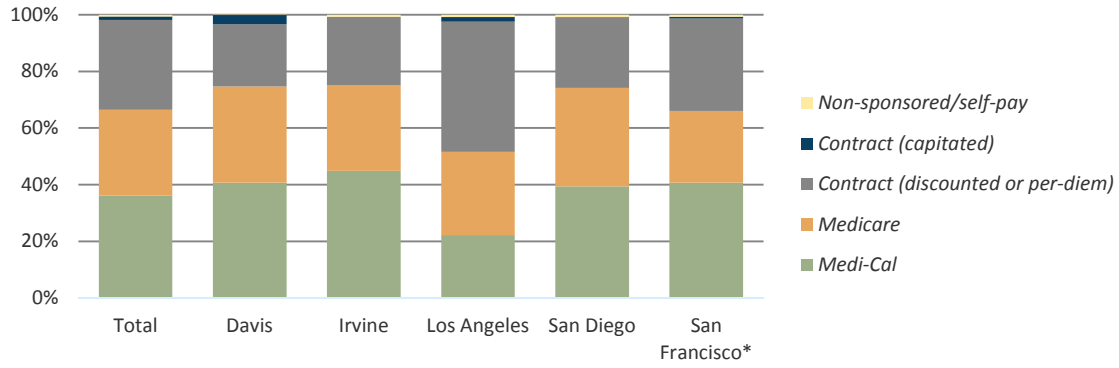
The first open-heart surgery in the western United States is performed at UCLA Medical Center one year after the medical center opens.



1965

Up-to-date medical facilities and techniques are made available to rural areas with the mobile clinic constructed and operated by UC Medical Center faculty and students in San Francisco.

Inpatient days by coverage type, FY 16-17



*San Francisco data includes UCSF Medical Center, Children's Hospital & Research Center Oakland (CHRCO), and the activities of UCSF Medical Group.
Source: UC Health

As shown above, coverage types for inpatient days across the system are 36 percent Medi-Cal, 30 percent Medicare and 32 percent commercial contracts, with the remainder uninsured or self-pay. Medi-Cal reimbursement covers an estimated 50 to 60 percent of the cost of care per patient, while Medicare covers 90 percent. Higher commercial insurance reimbursements help fill the funding gap.

Medi-Cal – the commitment to all Californians

UC Health hospitals provide primary care to managed Medi-Cal beneficiaries and provide for specialty services, reflecting the system's traditional strength in tertiary and quaternary care. Almost one-third of Californians are now covered by Medi-Cal. UC Health values the significant role Medi-Cal plays in preserving and improving the health of the state. UC Health hospitals comprise less than six percent of the licensed general acute care staffed hospital beds in California, yet are the third largest provider of inpatient days for Medi-Cal beneficiaries.

UC has less than 6% of the acute care beds in California but is the third largest provider of Medi-Cal inpatient care.

Non-UC bed

UC bed

Source: American Hospital Directory cites 74,925 non-federal, short-term, acute care staffed hospital beds in CA.

1968

Surgeons at the UC San Diego Medical Center perform the region's first kidney transplant. The Center for Transplantation has saved over 2,500 lives with successful organ transplants since 1968.

1983

UCSF's Jay Levy, MD becomes the third independent discoverer of the Human Immunodeficiency Virus (HIV), the virus that causes AIDS.

For outpatient care, UC Health's clinics are the fourth-largest provider of care in the state for Medi-Cal beneficiaries, with more than 750,000 visits per year.

The expansion of Medi-Cal in 2014 through the Patient Protection and Affordable Care Act (ACA) increased enrollment by nearly 60 percent. Expansion costs initially were borne almost entirely by the federal government, but by 2020, ten percent will be borne by the state. As financial responsibilities shift to California, this will present a financial challenge to the state and all safety net hospitals, including UC Health.

In FY 2017, UC Health provided more than $250 million in charity care and an additional estimated $914 million in uncompensated care for patients in publicly sponsored programs.

Growing affiliations — extending clinical care beyond UC's facilities

UC Health campuses are expanding their delivery networks through clinical affiliations with hospital systems or Federally Qualified Health Centers (FQHC). These efforts create opportunities to enhance clinical quality, provide direct patient care and advance the system's educational missions outside the walls of UC-owned facilities. UC residents at these facilities provide care to Medi-Cal, Medicare and commercially insured patients. Agreements for clinical coordination may include primary care and obstetrical services or specialized services such as oncology care, neurosurgery and liver transplantation.

The future — strategic plan and system integration

Health care is rapidly changing. To meet this challenge, the campus and system leadership of UC Health crafted a multi-year strategic plan (2017–2022) to advance the tripartite missions of public service clinical care, research and education. Integral to the plan is a recognition that the future requires collaboration across locations.

The world-class expertise at each campus—when connected to like-minded colleagues at other sites—holds great promise for Californians and people around the world. Some examples include:

More than $700 million in savings & counting—Leveraging Scale for Value
UC Health has a fiduciary responsibility to the state and system to manage scarce resources wisely. One of the earliest systemwide collaborations is the Leveraging Scale for Value initiative (LSfV), which works on supply chain, revenue cycle and information technology improvements. This project saved $182.5 million in FY 2015, $261 million in FY 2016, and $286 million in FY 2017 for cumulative savings of more than $729. The LSfV strategy also taps into site-specific expertise for the benefit of the system. For example, the information technology team at UCSD extended the same instance of EPIC electronic medical records (EMR) at UC Irvine Health.

Clinical & Research Collaboration—power of scale
While cost reduction is important in any organization, UC Health views its principal objective as leveraging the collective scientific acumen and learnings across the UC system to develop the clinical care standard for the future.

1989

J. Michael Bishop and Harold Varmus of UCSF are awarded the Nobel Prize in physiology or medicine for discovering the cellular origin of retroviral oncogenes, the cells that lead to cancer.

1992

UCLA pioneers the country's first Alternative Heart Transplant Program and performs the first bypass surgery in the U.S. on a donor heart prior to transplantation.

Below are a few examples.

UC BRAID—all UC clinical trials in one place
The University of California Biomedical Research Acceleration, Integration and Development program (UC BRAID) is recognized by the National Institutes for Health (NIH) as a cutting-edge consortium for conducting clinical and translational research. Its accomplishments include creating a master database of all Institutional Review Board (IRB)-approved clinical trials in the consortium, creating an easier way for patients and physicians to find trials regardless of location. UC BRAID also built a research exchange, UC ReX, to simplify access to more than 15 million de-identified patient records across the system, and streamlined approvals of multi-site biomedical research programs.

Cancer Center Consortium—five NCI-designated centers with a shared goal
In fall 2017, the cancer centers within UC Health joined forces in a consortium to accelerate research and improve patient outcomes. There are approximately 1,500 cancer centers in the U.S., but only 49 have achieved the highest designation—Comprehensive Cancer Center—meaning they demonstrate scientific leadership, provide early phase innovative clinical trials, operate substantial research programs and are a source of expertise. UC Health is the only health system in the nation with five NCI-designated comprehensive cancer centers.

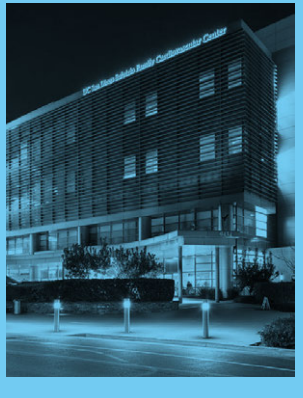
Each year, more than 170,000 Californians are diagnosed with cancer. Nearly 60,000 annually die from it. UC's Cancer Consortium is taking a leadership role by providing clinical trials using the latest experimental drugs, matching drugs to cancer subtypes and rare tumors, developing precision medicine technology, harnessing big data and working to reduce socioeconomic disparities in access to care.

Cardiothoracic Surgery—improving heart, lung and esophagus care
More than eight million Californians have some form of heart disease. The fourth leading cause of death in the state is lung disease. These and other medical conditions in the chest are tackled by cardiothoracic surgeons.

UC Health's cardiothoracic surgeons began a collaboration in 2012 to improve outcomes, reduce practice and outcome variability across the five medical centers, and reduce overall cost and cost variability at each center. Through performance dashboards, national benchmarking, best practice identification and data standardization and analysis with UC's Center for Health Quality and Innovation (CHQI), the results have begun to pay off. Post-surgical readmissions have decreased, blood utilization has improved and length of stays have decreased.

1998

Led by Dennis Slamon, UCLA researchers develop the revolutionary breast cancer drug Herceptin.



2011

UC San Diego Medical Center performs the West Coast's first implant of the world's only FDA-approved total artificial heart.

Looking ahead — a dynamic, competitive environment and moving forward through uncertainty

Actions at the federal level will reduce the number of people who have health insurance, placing an additional financial strain on the limited resources of public hospitals. Essential programs are under review at federal and state levels, potentially scaling back their scope or redirecting badly needed funds away from safety net hospitals.

At the same time, California's population continues to climb. Yet UC's ability to meet the state's growing health care needs is hampered. Federal caps on the number of Graduate Medical Education residencies are a bottleneck to growing the number of physicians. Similarly, the ability to train tomorrow's nurses, optometrists, dentists, pharmacists, public health professionals and veterinarians is constrained by limited state support.

In August 2017, UC President Janet Napolitano, president of the UC system, and Lloyd Dean, president and CEO of Dignity Health, began co-chairing the California Future Health Workforce Commission to bring together policymakers, health care providers, educators and state and community leaders to develop recommendations for legislative and regulatory consideration. For the people of UC Health our three missions continue: educate and train the next generation of caregivers, develop new treatments and cures, and provide a public service to the people of California.

For more information

UC Budget for current operations: ucop.edu/operating-budget/_files/rbudget/2018-19budgetforcurrentoperations.pdf

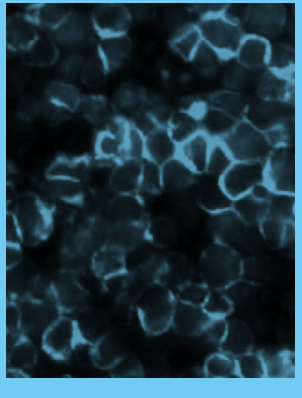
UC Information Center: universityofcalifornia.edu/infocenter

Medical Centers Annual Financial Report: finreports.universityofcalifornia.edu/index.php?file=med_ctr/16-17/Med-Centers-16-17-report.pdf

UC Health: health.universityofcalifornia.edu

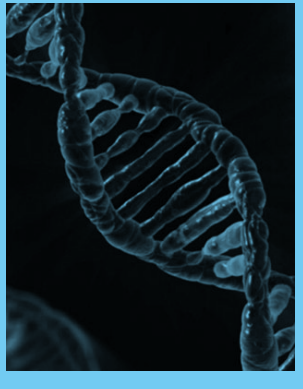
UC Health: At a Glance: ucop.edu/uc-health/_files/uchealth-at-a-glance.pdf

UC Health Topic Brief: ucop.edu/institutional-research-academic-planning/_files/UCHealth-a-century-of-health.pdf



2017

UCLA researchers create a new system to produce human T cells, the white blood cells that fight against disease-causing intruders in the body, using an artificial thymus developed at UCLA.

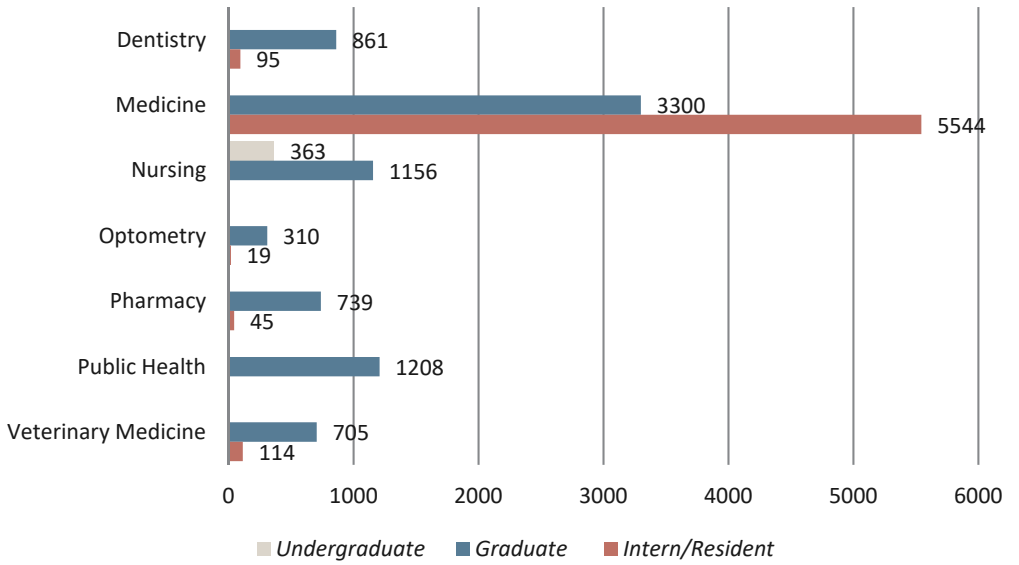


2017

A first: researchers at UCSF Benioff Children's Hospital Oakland administer gene editing therapy in a human body. The treatment is part of a clinical trial of genome editing therapy.

UC trains large numbers of health care professionals.

11.1.1 Health sciences students by discipline

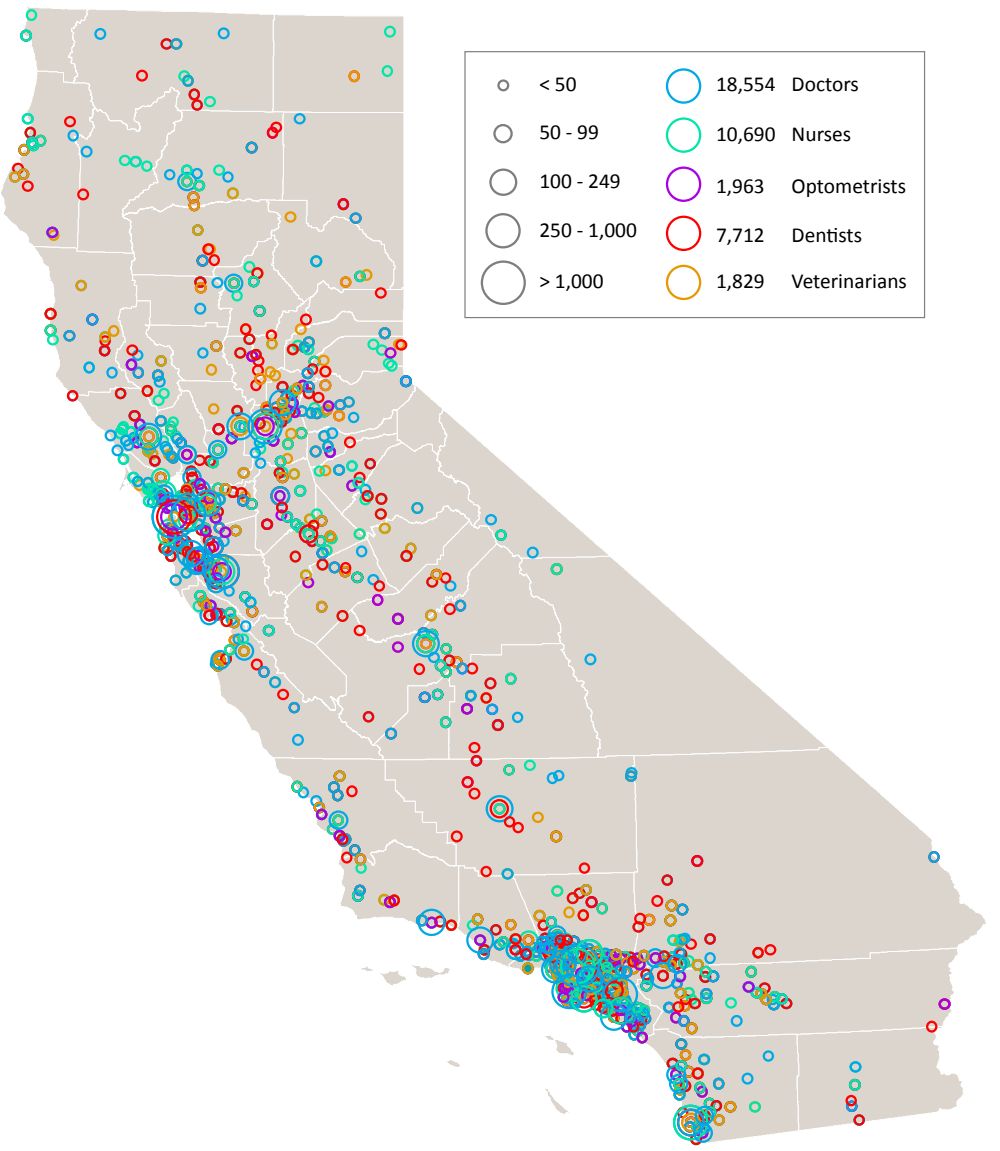


Source: UC Information Center Data Warehouse

Nearly 15,000 students are enrolled in UC Health's health sciences schools or residency programs. This next generation of caregivers is an important part of California's future as its population grows, ages and becomes more diverse.

UC-trained health sciences professionals remain in California in high numbers.

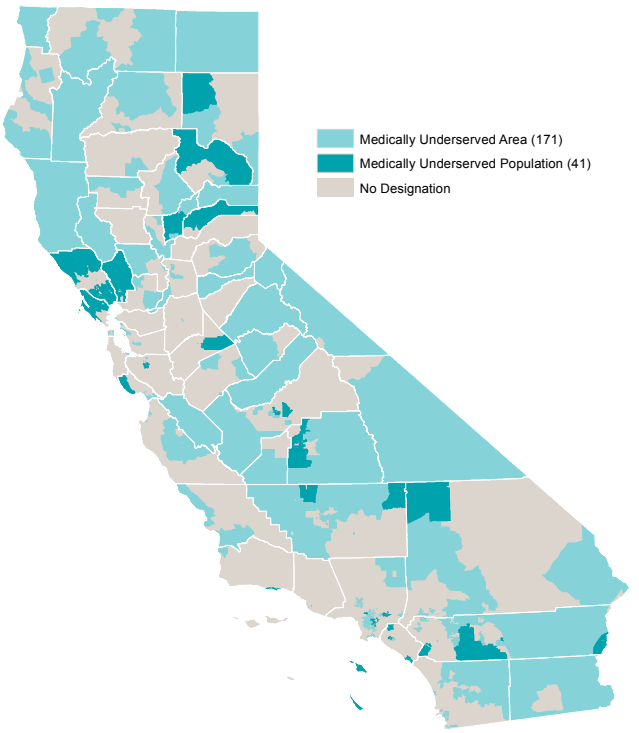
11.1.2 Location of doctors, nurses, dentists, optometrists and veterinarians trained by UC since 1999 and currently licensed in California.



Approximately 86 percent of UC health sciences students and 77 percent of UC medical residents are expected to remain in the state after completing training or education, based on historical patterns. This high rate of retention makes UC Health one of the principal sources for the training of health professionals for California.

UC is addressing medical needs in California's underserved communities.

11.2.1 Medically underserved areas and populations



Source: OSHPD, Workforce Development Division, 2018

UC is filling gaps in underserved communities. California is a vast state, and physician distribution is uneven. The state averages 72 primary care[1] physicians per 100,000 population overall, but some regions such as the San Joaquin Valley and Inland Empire have much lower ratios: 39 and 35 respectively[2]. As many providers age, and the state's population expands, the potential for a primary care physician shortage intensifies. All of UC Health's schools emphasize public service and caring for the underserved. These programs include:

PRIME: In 2004, UC launched a systemwide medical education program intended to address state needs. Referred to as "Programs in Medical Education," or PRIME, the program includes innovative training programs focused on meeting the health needs of California's underserved populations, by combining specialized coursework and clinical training experiences designed to prepare future clinician experts, leaders and advocates for the communities they will serve. As of 2017–18, UC Health enrolled 361 medical students in PRIME, with more than 60 percent coming from underrepresented groups in medicine.

UC Riverside: Persistent shortages also led to the creation of a different kind of medical school at UC Riverside in 2013. It focuses on medical specialties with significant shortages. Rather than relying on an academic medical center, UC Riverside embeds its students and residents in community based health organizations. Additionally, the school uses funds from foundations and individual donors to waive tuition and fees for graduates who agree to practice medicine in the area for five years.

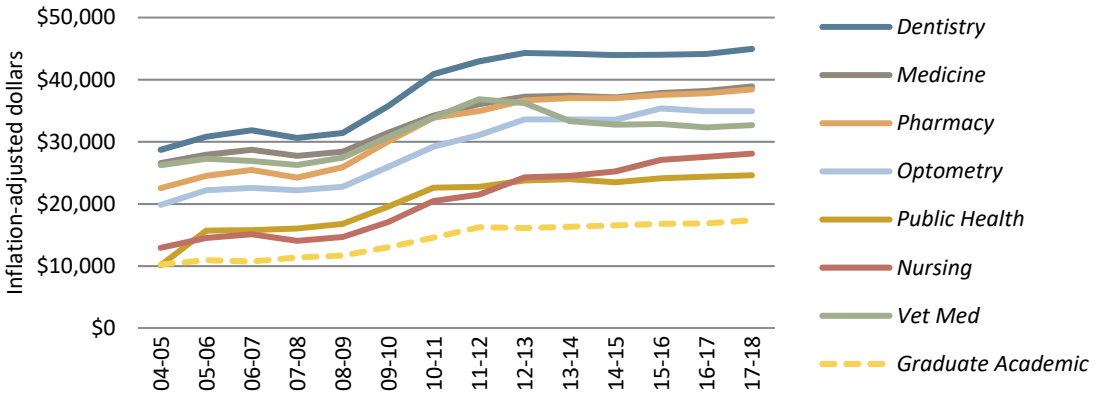
UCLA International Medical Graduate (IMG) program: The pre-residency training program is for U.S. citizens and permanent residents who received medical education in Latin America and who are fluent in Spanish and English. These graduates undergo intensive, standardized professional instruction and clinical clerkships. In return, they agree to serve for 24-to-36 months in medically underserved communities in California after completing their Family Medicine residencies. This is the only program of its kind in the nation.

[1] https://www.ucop.edu/uc-health/_files/uc-sjv-final-report-april-2018.pdf

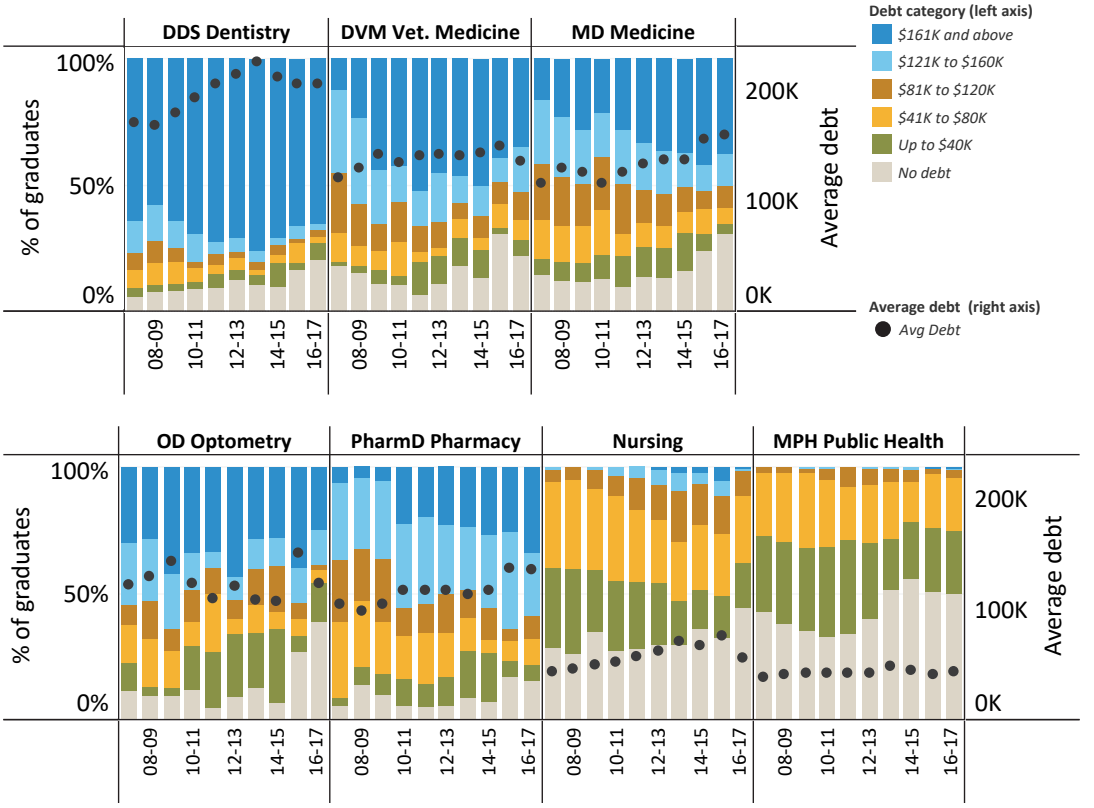
[2] https://www.chcf.org/wp-content/uploads/2017/12/PDF-CaliforniaPhysiciansWhoTheyAre2017.pdf

Health science professional degree fees have leveled off after incurring sharp increases during years of declining state support. Average debt levels are increasing.

11.3.1 Average total charges for health professional degree students, Universitywide, 2005–06 to 2017–18



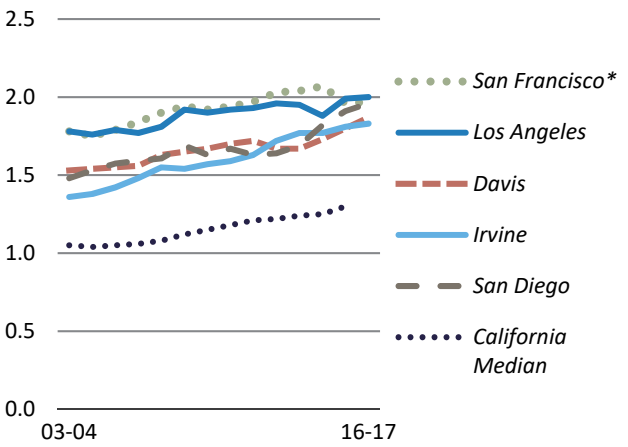
11.3.2 Health sciences professional degree students debt at graduation, Universitywide, 2007–08 to 2016–17



Over the years, the rising cost of graduate education has not been matched by increases in state support. In fact, state support for UC health sciences schools declined significantly during recurring state fiscal crises, which caused the University to increase tuition, campus-based fees and professional degree supplemental tuition. This cost-shifting has caused students to take on increasing amounts of debt. At least one-third of the revenue raised from professional school fees is used to provide financial aid to current students.

As academic medical centers and safety net hospitals, UC Health hospitals are destinations for some of the most critically ill patients in the state.

11.4.1 Patient complexity (Case Mix Index)

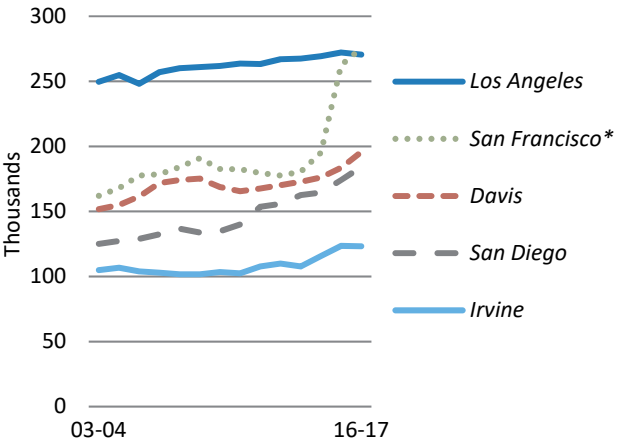


*San Francisco data includes UCSF Medical Center, Children's Hospital & Research Center Oakland (CHRCO), and the activities of UCSF Medical Group.

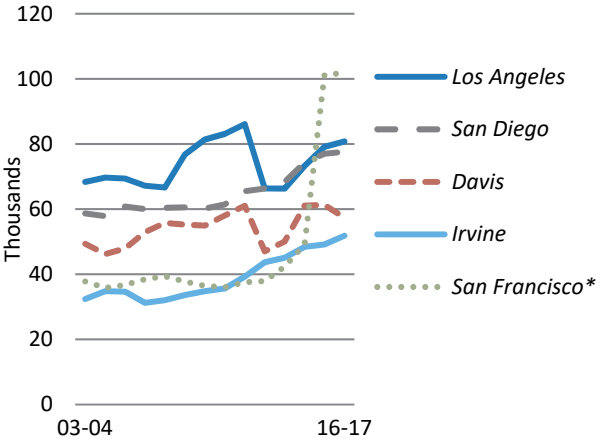
One way to understand the health needs of hospitalized patients is the Case Mix Index (CMI). Indexes above 1.0 indicate increasingly poor health. In most acute care hospitals in California CMIs are between 1.1 and 1.5. The CMI at UC Health hospitals ranged from 1.83 - 2.00 in 2017. Case mix index is calculated at the patient level and is not determinable systemwide.

UC Health operates twelve hospitals across five academic medical centers totaling 3,912 beds. UC Health hospitals admitted 171,447 patients in FY 2017, an increase of 3.9 percent compared to FY 2015. The average length of stay was 6.1 days. Supplementing its inpatient capacity, UC Health provides robust outpatient services. In FY 2017, the hospitals had 5.1 million outpatient visits, an increase of 13.2 percent compared to FY 2015. Emergency department visits added another 369,502 encounters, a 3.7 percent increase from FY 2015.

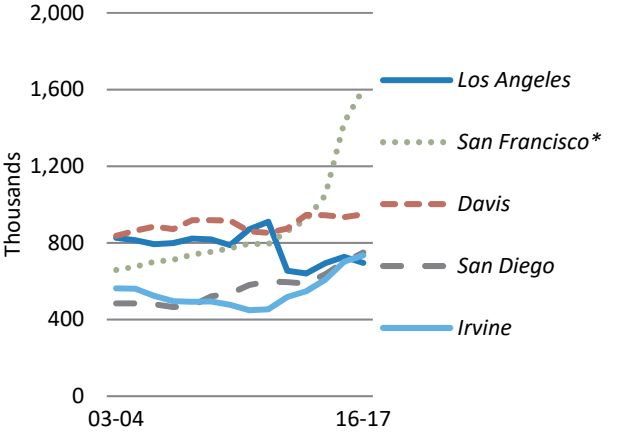
11.4.2 Hospital Inpatient Days, UC Medical Centers



11.4.3 Outpatient Emergency Visits, UC Medical Centers

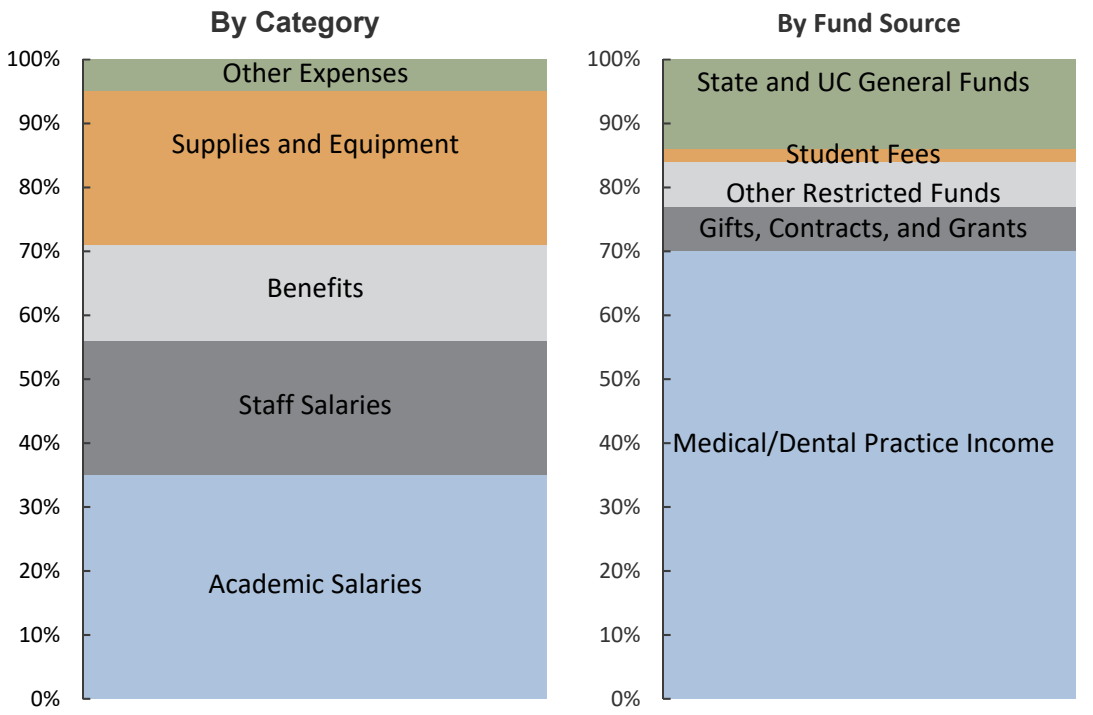


11.4.4 Outpatient Visits: hospital clinics, primary care network, home health and hospice



Medical and dental practice income supported over half of the instructional expenditures in the health sciences in 2016–17.

11.5.1 Health sciences instructional expenditures by fund source, 2016–17



Source: UC Budget for Current Operations

Although part of the University of California, only a small portion of UC Health's funding comes from the state's General Fund. The overwhelming majority comes from reimbursements and payments for clinical services.

More than half of the instructional expenditures at the health sciences schools are supported by medical and dental practice income. State and UC general funds only provide about 15 percent of revenue.