

Growth, Relevance and Rigor

The UC San Francisco Department of Emergency Medicine

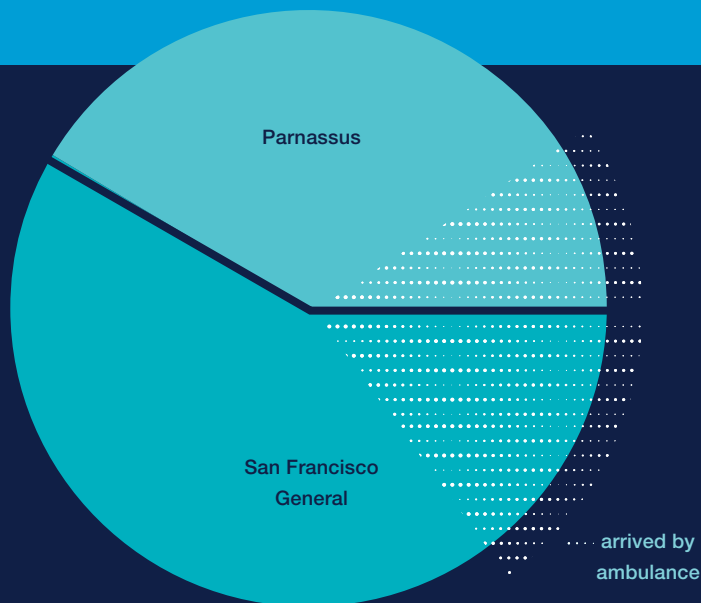
ANNUAL REPORT

2015

As **emergency medicine** assumes a more prominent role in health care delivery world-wide, UCSF's rapidly growing department is educating a new generation of leaders,

Delivering Care

Total patient census from
July 2014 to
June 2015: 113,353

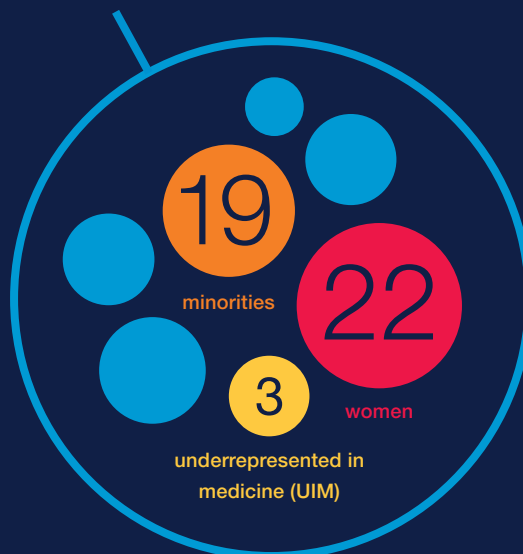


Educating Leaders



leadership positions
in the School of Medicine

47 full-time faculty in San Francisco



delivering increasingly high-value care
for diverse populations and **conducting
essential research** that is both rigorous and
relevant in the era of health care reform.

Conducting Research



14

faculty with
external
research
funding



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Letter from the Chair

With visits to emergency departments on the rise worldwide, there is dramatically increased demand for expert, time-sensitive treatment of acute conditions, such as trauma, stroke, heart attack and sepsis. Only emergency departments are available around the clock to provide such care.

The satisfaction of doing so explains the growth of emergency medicine and why the specialty has become increasingly attractive to many of the world's most promising and dedicated physicians. These physicians must rise not only to the challenge of increasing patient volumes and an aging population, but also to the increased complexity of medical care and the need to bend the curve on rising medical costs.

Our seven-year-old department is taking full advantage of this fertile time. In this annual report, we summarize key accomplishments in our "2015 Year in Review" and highlight our exemplary programs for the delivery of high-value care, pediatric emergency medicine, health policy, global health, emergency medical services and ultrasound. These programs are the brainchildren of talented and creative faculty members who are supremely dedicated to providing the best patient care and the best education for students and trainees, while forging important new areas of research in emergency medicine.

Yet there is much more to be done. We continue to seek ways to meet growing patient demand at our five separate clinical sites, while maintaining exceptional care and an outstanding patient experience. We've expanded our residency program; by 2018, we will have a cohort of 96 emergency medicine residents at our San Francisco and Fresno sites. In emergency medicine research, an area of great importance, we intend to continue our investments with the goal of racing to the front of the pack.

All of these important goals are linked closely with our full-bore effort to both unify and diversify our department.

Certainly, as any organization grows, it's essential that the people involved coalesce around a common purpose without inhibiting the space talented professionals need to pursue their own initiatives. In this regard, our multiple hospitals create a challenge and an opportunity. To meet the challenge, we are collaborating in a variety of ways to bridge the physical distance between our clinical sites. Equally important, we are leveraging the opportunities inherent in serving diverse populations by broadening our clinical skill sets, enriching the educational experience for our trainees and pursuing relevant research.

Doing all of this successfully depends on creating a culture that embraces diversity – diversity that goes far beyond clinical sites and subspecialties to include people from a broad range of races, ethnicities, religious beliefs and sexual orientations. Creating this culture of diversity, equity and inclusion is not some soft-minded abstraction; it is essential for better serving our patients. All of UCSF – all of society – is wrestling with this challenge, but we believe it is especially important in emergency medicine, where we treat a wonderfully diverse patient population.

Nevertheless, fostering true diversity is easier said than done, as we're battling decades of conscious and unconscious bias and exclusion. Thus we are working together to address the challenge on many fronts, and I have appointed a director of diversity to lead us in this critical mission. I'm proud to note that fully half of our current intern class is from groups underrepresented in medicine and that we have engaged all of our physicians to create a culture of inclusion. We hope this will lead

to a similarly successful recruitment for our next set of interns, as well as for our faculty.

In this exciting time for emergency medicine, particularly at UCSF, we hope this report will convey how far we've come and how we plan to address the challenges ahead.



PETER E. SOKOLOVE, MD
CHAIR AND PROFESSOR
OF EMERGENCY MEDICINE



An Intensive Pursuit of High-Value Care

“ED observation units...will become more common as our health care system moves toward greater efficiency and higher-value care.”

ELIZABETH KWAN, MD

MEDICAL DIRECTOR OF THE CLINICAL
DECISION UNIT

Like colleagues across UCSF, our department devoted considerable energy this year to delivering more efficient, cost-effective care that improves patient outcomes and experience.



Observation Unit Preserves

Resources

In July 2015, we established an eight-bed Clinical Decision Unit at our Parnassus campus. Actively managed 24/7 by an advanced health practitioner with an attending emergency department (ED) physician supervising, the Clinical Decision Unit provides care to a subset of ED patients who need extended observation or treatment but are likely to be discharged within 24 hours. The goal is to provide efficient, high-quality care while freeing ED and inpatient beds. Multiple studies have shown that compared to inpatient hospitalization, protocol-driven ED observation units deliver comparable clinical outcomes at significantly lower cost, with shorter length of stay and increased patient satisfaction.

Major Study Finds Chest CTs

Avoidable for Blunt Trauma ED Cases

Robert Rodriguez, MD, professor of Emergency Medicine, was the lead author of a study published in *PLOS Medicine* in October 2015 that found use of chest CT scans for ED patients with blunt trauma could be reduced by more than a third without compromising detection of major injury. The multicenter study team, which included investigators from our Zuckerberg

San Francisco General Hospital (ZSFG) and UCSF Fresno campuses, developed and evaluated decision-making tools based on clinical criteria that clinicians can use to avoid unnecessary diagnostic imaging. By using the tools, EDs can safely reduce medical costs, shorten patient ED stays and reduce patients' exposure to potentially harmful amounts of radiation.

Preventing Overuse of CT Scans

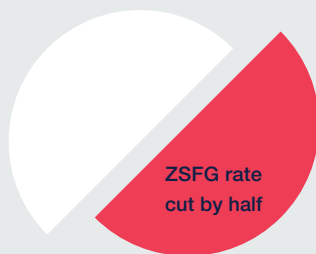
for Pulmonary Embolus

In response to nationwide concerns about overuse of CT scans in emergency departments, we combined a departmentwide education process with enhanced decision support in our electronic health record (EHR) system to improve compliance with current risk stratification rules that guide the use of CT scans for pulmonary embolus. Though data collection is still in the early stages, our yield has increased from 13.9 percent to 17 percent – without one reported safety incident. This is among the best yields reported nationally.

Faculty provided
hands-on care

24/7 to
113,400
patients

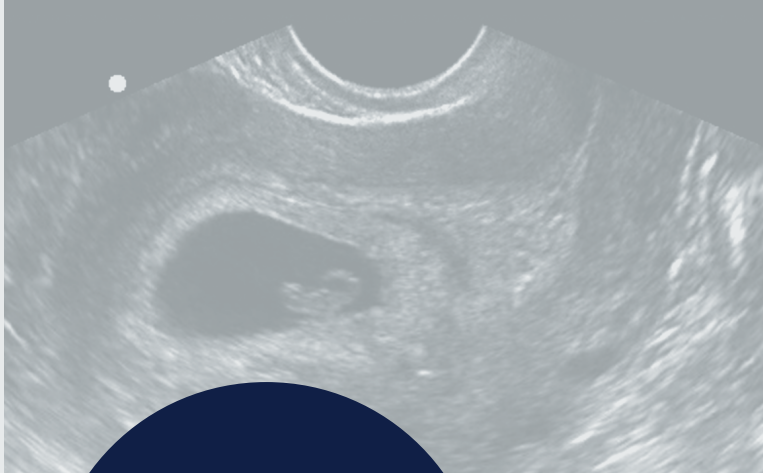
LWBS / left without being seen



Provider in Triage

Jump-Starts Care

To address the ongoing challenge of meeting emergency department demand that often exceeds capacity, we instituted a provider-in-triage program for high-volume days at UCSF Medical Center at Parnassus. The provider – a nurse practitioner, physician assistant or ED physician – evaluates patients and starts tests and treatment before the patient gets to an ED bed. The program adds another layer of safety and is expected to improve patient satisfaction, reduce the “left without being seen” (LWBS) rate and speed patient throughput. It builds on existing provider-in-triage programs that have successfully decreased LWBS rates at ZSFG (down by 50 percent and rapidly approaching the goal of 5 percent) and UCSF Fresno (3 percent).



4-
4.5
hours

90
minutes

Length of stay has improved dramatically for evaluations of symptomatic first-trimester pregnancy.

Expanded Use of Point-of-Care

Ultrasound

Our expanding use of ultrasound in the ED has decreased reliance on ancillary services, thus enabling us to more quickly confirm or rule out a range of diagnoses, from ectopic pregnancy and gallstones to potentially life-threatening conditions such as aortic emergencies and pericardial tamponade. For example, patients arriving after hours with a possible deep vein thrombosis would often have to wait until the morning for a study; now they receive a diagnosis in minutes. At ZSFG, we use ultrasound routinely to evaluate trauma patients, which enables faster critical management decisions and saves more lives. When being evaluated for symptomatic first-trimester pregnancy, patients used to have an average length of stay of four to four and a half hours; today it is 90 minutes.

“I consider the provider in triage the ambassador of the waiting room.”

STEVEN POLEVOI, MD

MEDICAL DIRECTOR OF THE EMERGENCY DEPARTMENT AT UCSF MEDICAL CENTER AT PARNASSUS

A Leap Forward for Pediatric Emergency Services

This year marked the formal establishment of a Division of Pediatric Emergency Medicine (PEM) within our department. We recruited a renowned researcher, educator and clinician as the division's chief and hired 10 new PEM faculty to meet an explosion in PEM services associated with the opening of UCSF Benioff Children's Hospital San Francisco and our new affiliation with UCSF Benioff Children's Hospital Oakland.

“Most places aim to give the best of today’s care; we aim to provide the best of tomorrow’s.”

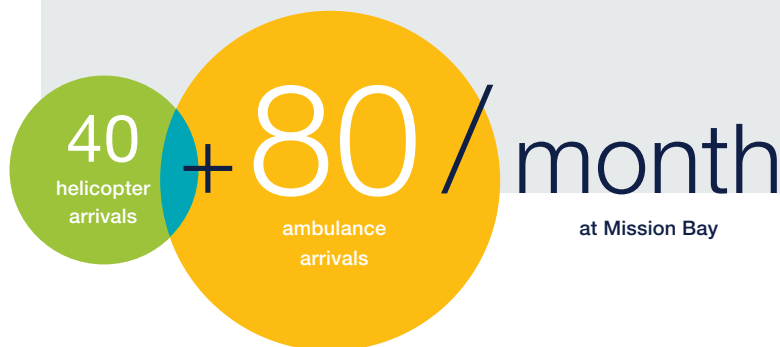
STEVEN BIN, MD

MEDICAL DIRECTOR OF THE
EMERGENCY DEPARTMENT AT
UCSF MISSION BAY

These changes enhance our ability to serve as an essential training ground for residents and fellows in emergency medicine and pediatrics. One example: the affiliation with Oakland has led to collaboration on fellowship training in pediatric emergency medicine.

Equally important, the changes have allowed us to build our

clinical capacity while delivering child-centered patient care with certified pediatric emergency physicians, pediatric emergency nurses, child life specialists and other professionals in state-of-the-art, child-friendly facilities. The 2016 opening of a new ED at ZSFG – with its dedicated pediatric space – will expand our expert PEM services to yet another location.



Compassionate, Hands-On

Care Improvements

The year's innovations to improve patients' and families' experiences include:

- **Bedside triage**, which speeds the time from arrival to being seen by a physician. With many of our nurses having become Certified Pediatric Emergency Nurses, we have been able to provide this for all patients.
- Implementation of **best-practice alerts in the electronic health record**, which facilitate early bedside interventions for deteriorating patients.
- **Patient-centered pain management**, including use of a needle-free injection system to numb the skin for painless IV starts.
- **Coordinated follow-up care** through the Family Information & Navigation Desk (FIND), where trained staff and volunteers routinely screen for basic social needs and then connect families to community resources.
- **Telemedicine capabilities** that enhance the ability of physicians at Mission Bay and Parnassus to consult with each other and other UCSF specialists.



Enhanced Transport Expands Patient Access

The new heliport at Mission Bay – San Francisco's first for pediatric emergency – and the expansion of rapid response transport services have enabled clinical staff to mobilize faster both for on-site rescues at remote locations and in the delivery of critically ill patients to UCSF tertiary care.

Research

We are determined that UCSF become a leader in the rapidly expanding area of pediatric emergency research. To that end, our ongoing research includes the following:

- We are participating in a multi-institution study to determine the most appropriate medications for treating prolonged seizures in children.
- Having already shown that the care of pediatric patients in the emergency department is enhanced by instituting an asthma care pathway, we are collaborating with UCLA on a study to increase the appropriate

dosage of inhaled glucocorticoids to children discharged from the ED with moderate to severe asthma.

- To reduce unnecessary radiological testing, we have embarked on a validation study of Pediatric Emergency Care Applied Research Network (PECARN)-derived rules about when it is appropriate to do advanced imaging for head and abdominal injuries in pediatric emergency patients.



(Top) Bear Force One lands at the new UCSF Benioff Children's Hospital San Francisco. (Bottom) The Pediatric Emergency Department.







The reception hallway and resuscitation room (opposite) in the Pediatric Emergency Department at the new UCSF Benioff Children's Hospital San Francisco.

New Health Policy Division Earns National Recognition



In its first year, the work of the Division of Health Policy Studies has garnered academic attention and influenced local initiatives.

Emergency medicine has a pivotal role in health policy because:

- A majority of US hospital admissions now originate in the emergency department.
- An aging population means emergency providers are seeing more elderly patients with complex chronic medical conditions, cognitive decline and end-of-life issues.
- EDs serve all patients – regardless of ability to pay or time of day – so they are in an important position to identify emerging health care delivery and health policy challenges.

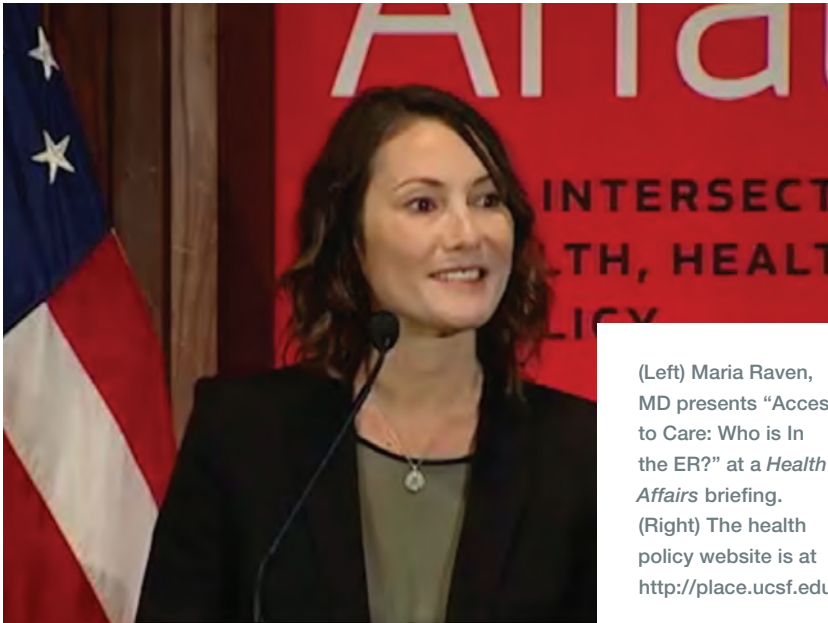
That's why we created a Division of Health Policy Studies, with Renee Hsia, MD, as director. Its mission is to perform rigorous translational research that can influence health policy and health care delivery. In its first year, health policy researchers examined everything from the types and number of emergency department visits to variations in hospital emergency charges and the effect of emergency department closures on access to care and mortality rates. That work appeared in a steady stream of prestigious academic journals, including *Health Affairs*, *Annals of Internal Medicine* and *The BMJ*, which led to attention from major media outlets, including the *Washington Post*, *Time*, CNN, the *Los Angeles Times* and *U.S. News & World Report*.

Division faculty members also played an increasingly important role in state and local initiatives designed to connect frequent users of the emergency department with alternative segments of the health care and social service systems.



“We are rigorous in our approach to health policy research, but aim to make it accessible and relevant for policymakers and the public.”

RENEE HSIA, MD
DIRECTOR OF THE DIVISION OF HEALTH POLICY STUDIES



(Left) Maria Raven, MD presents “Access to Care: Who is In the ER?” at a *Health Affairs* briefing. (Right) The health policy website is at <http://place.ucsf.edu>.

The PLACE

In 2016, the division will go live with its new website, called The PLACE@UCSF™ (Policy Lab for Acute Care and Emergencies). The site will make research that emerges from the division – and the researchers themselves – more accessible to policy-makers and health system leaders.



Study Finds ED Closures

Have Negative Rippling Effects on Access to Care

A significant amount of Dr. Hsia's research over the past year focused on documenting how hospitals and emergency departments that typically serve low-income populations have a higher risk of closure. When EDs close, their former patients have reduced access to emergency care and higher mortality rates. Fewer EDs also means more crowding in the remaining facilities.

Care Management for Frequent

Users of ED and Inpatient Services

Maria Raven, MD, began evaluating a program she helped design and implement for the San Francisco Health Plan (SFHP). The program deploys teams of “care coordinators” who draw on techniques that include harm reduction and motivational interviewing to (a) help frequent users of ED and inpatient services address

medical conditions and social determinants of health that contribute to their high use of acute health care services and (b) ensure these clients are connected with a primary care provider and other community services. Dr. Raven's evaluation looks at changes in ED utilization, inpatient admissions, bed days, pharmacy use, use of skilled-nursing facilities and mortality rates. Dr. Raven is now consulting with the Pacific Business Group on Health, the California HealthCare Foundation and the state of California as it prepares to participate in the Medicaid Health Home State Plan Option.

Pay for Success

Dr. Raven is also lead evaluator for Santa Clara County's innovative Pay for Success initiative, which is evaluating the impact of providing permanent supportive housing to chronically homeless individuals in Santa Clara County, who are frequent users of acute medical and psychiatric services – and frequently jailed as

well. Dr. Raven's randomized trial will evaluate the program's impact on community health concerns such as health services utilization, use of psychiatric emergency services, inpatient days and jail time.

Study Uncovers Important Data

About Return ED Visits

Reena Duseja, MD, published a study in the *Annals of Internal Medicine* that found nearly 1 in 12 patients who visited an ED in six states returned to an acute care setting within three days, and that 30 days after that first emergency visit, the revisit rate to acute care settings rose to nearly 1 in 5 patients. This return rate is more frequent than previously reported. By capturing revisits outside the index institution – something not typically done in previous studies – Duseja's research has important clinical and financial implications around issues like duplication of services and care transitions.

Global Health Division Embraces New Challenges



In March 2015, Teri Reynolds, MD, PhD – the inaugural director of Global Health for the Department of Emergency Medicine – became the first leader of the World Health Organization (WHO)'s newly established Emergency, Trauma, and Acute Care program. The appointment reflects growing understanding of the essential role of prehospital and facility-based emergency care in health systems worldwide. Andrea Tenner, MD, and Renee Hsia, MD, have already collaborated on program efforts, and UCSF emergency medicine residents are scheduled for WHO internships in the coming year.

Tanzania Residency Successfully Moves to a New Phase

Since 2011, we have led a consortium of US, South African and Canadian universities in supporting an emergency medicine residency at Muhimbili National Hospital in Dar es Salaam, Tanzania. This year, as planned, we successfully transitioned this effort to local leadership while providing for the development needs of recent graduates and pursuing numerous collaborative research projects.



These efforts include working with local providers to devise methods for training and emergency care delivery, maintaining emergency care registries and supporting research and leadership training activities. We also continue to host Muhimbili emergency medicine residents at UCSF each year for six-week externships focused on quality-of-care improvement initiatives.

The teaching and supervision of residents at Muhimbili has been a model for medical education, and now every medical student at Muhimbili does an emergency medicine rotation; more than 100 will complete the rotation this year. In addition, Muhimbili providers created the Emergency Medicine Association of Tanzania, a national professional society with a range of programs, including emergency care outreach trainings at hospitals and health centers across the country.

“After medical school, I was posted to a public government hospital where a lot of lives were not saved because there were no emergency services or equipment or a clinician with skills to do emergency interventions. When I came to Muhimbili Hospital as a general practitioner, I was so impressed with what is done at the emergency department that I decided to do the emergency medicine residency.... [The residency and emergency department] have done so much for the city and the country; current local data shows that Muhimbili Hospital mortality has been decreasing significantly since the establishment of the ED.”

CATHERINE REUBEN, MD MUHIMBILI NATIONAL HOSPITAL



Battling Ebola in

Sierra Leone

From January through March 2015, with the enthusiastic support and sponsorship of the department and UCSF administration, Dr. Tenner put her training in humanitarian crisis and tropical infectious diseases to work by overseeing the International Rescue Committee's Ebola isolation units in Sierra Leone. By addressing the need to keep potentially infected patients quarantined and under observation while they were being tested for Ebola, the observation units played an important role in containing the epidemic while helping to keep dedicated treatment beds available for those with confirmed disease.

“It was a unique marriage of emergency medicine and global health disaster skills.”

ANDREA TENNER, MD

ASSISTANT CLINICAL PROFESSOR OF
EMERGENCY MEDICINE



New Institute for Global Emergency

Care Gears Up in Uganda

In 2014, UCSF and our department formalized an agreement to establish the Institute for Global Emergency Care, a collaboration between UCSF, University of Cape Town and Stellenbosch University (both in South Africa). This was an extension of our long-standing partnership with the African Federation for Emergency Medicine (AFEM), which will serve as the implementation arm of the new institute.

This year, through the institute, UCSF will support the efforts of Makerere University to establish an emergency medicine residency at Mulago



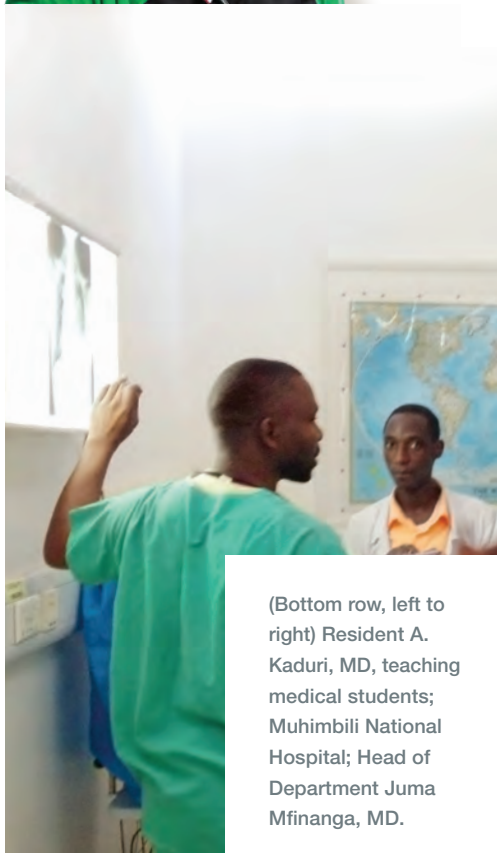
National Referral Hospital, in Kampala, Uganda, based on lessons learned in Tanzania and on the AFEM curriculum co-created by Dr. Reynolds. In addition, at the request of the Ugandan Ministry of Health, the institute will assist in the development of the Ugandan national plan for emergency care delivery.

“The Global Health fellowship will help shape future leaders who understand the complexity and sensitivities of global health work.”

ANDREA TENNER, MD
DIRECTOR OF THE DEPARTMENT
OF EMERGENCY MEDICINE
GLOBAL HEALTH FELLOWSHIP



EMD nurses
Alice Otieno (left)
and Tracie Walser
(right). Battling
Ebola in Sierra
Leone (below).



(Bottom row, left to right) Resident A. Kaduri, MD, teaching medical students; Muhimbili National Hospital; Head of Department Juma Mfinanga, MD.



2015

UGANDA

NICARAGUA

MEXICO

HAITI

TANZANIA

INDIA

(the newest addition to
the Global Health Division)

In response to increasing global demand, the Institute for Global Emergency Care, in ongoing collaboration with AFEM and WHO, will serve to coordinate UCSF's continued and expanding efforts to disseminate and monitor emergency care systems worldwide.



Emergency Medical Services Expands Its Impact

In 2014, the American Board of Emergency Medicine made emergency medical services (EMS) its newest subspecialty. Our department's EMS and Disaster Medicine faculty were intimately involved in creating that curriculum and were among the first board-certified EMS physicians in California.

This year, our department continued to play an important EMS leadership role in multiple settings.

- Between Parnassus, ZSFG and Mission Bay, we handled approximately half of the ambulance traffic in San Francisco.
- Our faculty members continued to serve as medical directors for critical EMS services in San Francisco and surrounding counties, including two of three San Francisco 911 response services, the county EMS regulatory agency, the dispatch center and the base hospital.
- We worked closely with local, state, national and global organizations to consult on EMS and disaster medicine for a range of scenarios.
- We are working with California state EMS leaders to develop evidence-based practice protocols to treat critical prehospital conditions such as shortness of breath, chest pain and trauma.
- The Fresno faculty supplies EMS medical direction for the four-county region of the Central California EMS Agency, as well as two nearby national parks, Sequoia and Kings Canyon.
- We provided several emergency medicine educational opportunities, including a two-year Accreditation Council for Graduate Medical Education (ACGME)-accredited EMS fellowship, an elective EMS rotation for fourth-year medical students and an EMS/Disaster Medicine rotation for all fourth-year emergency medicine residents.
- We continued to develop disaster preparedness training programs for the San Francisco Department of Public Health's workforce.
- We participated in the San Francisco CPR Consortium with community groups, city departments and the American Heart Association on initiatives to improve survival from cardiac arrest in the city.
- We collaborated with the San Francisco Unified School District, EMS providers and other community partners to develop a CPR training program for all ninth-graders.
- We continued to create mini EMS systems for special events in the city, from the San Francisco Pride celebration to large-scale concerts and the Bay to Breakers footrace.



Clement Yeh, MD, (right) consults with health outreach workers before heading out into the field.

Mobile Integrated Health Care

In his capacity as medical director of the San Francisco Fire Department, Clement Yeh, MD, began advising on the creation of a coordinated, integrated health care team aimed at helping San Francisco's underserved populations use a better mix of emergency and other health care services. During an EMS encounter with a frequent user of emergency services, the team will attempt to link these individuals to primary care and identify if they are candidates for sobering services or outpatient psychiatric care. The city-funded program will also partner with a homeless outreach team.

Research

This year our EMS group published in leading emergency medicine journals, including *Annals of Emergency Medicine*, *Academic Emergency Medicine* and *Prehospital Emergency Care*. Topics ranged from health disparities to regionalization of care and pressing clinical concerns in prehospital care. For example, in one important publication, our EMS and health policy faculty analyzed more than 40,000 adult EMS encounters in San Francisco to identify characteristics of EMS "superusers." These findings will target health service interventions to better care for this high-need population.



**of all San Francisco
ambulance patients
are handled
by UCSF hospitals**

Leading the Way in Point-of-Care Ultrasound

In the past year, emergency physicians at our San Francisco sites completed more than 8,000 point-of-care ultrasound studies. As one of UCSF's earliest adopters of these studies, our department works closely with the Department of Radiology and Biomedical Imaging and the Department of Medicine's Division of Cardiology, whose expertise has been instrumental in developing our program. We also carefully credential all emergency department physicians in ultrasound and have an active and evolving quality improvement/quality assurance program.

On the education front, our ultrasound faculty members continue to train residents from the Department of Medicine and fellows in Pulmonary and Critical Care Medicine – and run two national CME courses on emergency department ultrasound. We also conduct a rigorous four-year ultrasound curriculum for emergency

medicine residents and a monthlong advanced ultrasound elective for fourth-year residents. Finally, Nathan Teismann, MD, who is the director of Emergency Ultrasound at UCSF Medical Center at Parnassus, is helping to develop an ultrasound curriculum for all first- and second-year medical students.

Research to Appropriately Extend

Ultrasound Use

The department continues to pursue clinical and translational research on the use of ultrasound in the emergency department.

- In 2014 and 2015, Ralph Wang, MD, published a number of studies on the overuse of CT imaging, the impact on patients and health care systems and the potential solutions available to emergency physicians, including clinical decision rules and point-of-care ultrasound. He was one of the co-authors on a multicenter comparative effectiveness trial, published in the *New England Journal of Medicine*, which found that in hospital emergency departments, CT scans are no better than less-often-used ultrasound exams to diagnose kidney stones.
- We continued our collaborative work with UCSF neuro-ophthalmologists in an effort to identify the best point-of-care ultrasound technique for assessing the optic nerve for optic disc edema. The goal is to rapidly detect elevated intracranial pressure, inflammatory diseases, infection, infiltrative conditions and microvascular infarction without needing to resort to a CT scan.
- At UCSF Benioff Children's Hospitals, Aaron Kornblith, MD, is studying how point-of-care ultrasound is best used in children. His article in the March 2015 issue of *Pediatric Emergency Care* found that pediatric critical care providers have limited confidence in several bedside ultrasound applications that they perceive as useful and, so, are probably motivated to learn these applications.



R. Starr Knight, MD, uses ultrasound at ZSFG.



Department Achievements

21

faculty awards and honors,
including 17 teaching awards
(3 from the Academy of
Medical Educators)

Academics

44 international
and national
faculty leadership
positions in



24 organizations
(including Institute
of Medicine,
Residency Review
Committee,
American Board
of Pediatrics)

890 students
enrolled in



17 EM courses
in the School of
Medicine

Awards

Excellence in Teaching
Award, Haile T. Debas
Academy of Medical
Educators

**JAMES HARDY, R. STARR
KNIGHT, CRAIG SMOLLIN**

Faculty Teaching
Award, Department of
Pediatrics

STEVEN BIN

Honorary Fellowship in
the Royal College of
Emergency Medicine

ELLEN WEBER

Excellence and
Innovation in Graduate
Medical Education
Award for Program
Director

AND

Boyden Staff Service
Award, Haile T. Debas
Academy of Medical
Educators

EVE DINH

Journals

2
editors in
chief

15
faculty editorial
leadership
positions

40
peer-reviewed journals
provided with review

10
faculty on editorial
boards

Zuckerberg San Francisco General Hospital and Trauma Center Prepares for a 21st-Century ED



ZSFG, San Francisco's only Level I Trauma Center, will open a new hospital and emergency department in spring 2016. The seismically safe ED will contain more than three times the square footage of the current ED, allowing for an increase from 27 exam spaces to 59 state-of-the-art exam rooms, which include:

- Six dedicated resuscitation rooms
- One Rape Treatment Center room (with a dedicated shower) to evaluate sexual assault victims
- Three isolation rooms with their own antechambers
- A dedicated room equipped to treat eye, ear, nose and throat emergencies
- An 8- to 10-room observation area
- Our first-ever pediatric ED, which will have 8-10 rooms and its own dedicated waiting room and will be staffed by PEM specialists



“By studying our workflows and the data we have derived from our observations, we are developing processes to more effectively streamline patient flow while improving outcomes and patient-centered care.”

MALINI SINGH, MD, MPH
INTERIM CHIEF OF EMERGENCY MEDICINE AT
ZUCKERBERG SAN FRANCISCO GENERAL

Each room is outfitted with two sets of oxygen and air outlets, and emergency power to accommodate two patients, which allows us to have a surge capacity of 120 patients in the event of a major disaster. In the

event of a chemical disaster, we will have 18 decontamination showers, which will enable us to more readily respond and contain this type of disaster. We will also have two CT scanners and X-ray rooms in the ED dedicated exclusively to the evaluation of ED patients, as well as portable ultrasound and X-ray machines.

In preparation for this exciting move, we've hired new faculty, completed ED value-stream mapping (a management technique used to document, analyze and streamline the flow of patients) and participated in a series of simulations and Lean workshops.

Fresno
Patients:

115,000
per year

315
per day

47,000
by ambulance

UCSF Fresno Gains an Endowed Chair

Because of its volume and diverse population, UCSF Fresno is an essential clinical facility that serves people in a broad swath of the Central Valley, including the area's underserved Latino and Hmong populations. Its high volumes, diversity of cases and expert faculty also make it an invaluable partner for both training and research.

Thus it was particularly exciting this year when Fresno Chief of Emergency Medicine Gregory Hendey, MD, became the first Gene W. Kallsen, MD, Endowed Chair in Emergency Medicine. The honor is well deserved.

This year, Dr. Hendey built on his already distinguished career in academic emergency medicine by partnering with Robert Rodriguez, MD, from ZSFG on a multicenter study examining the factors that should determine the use of radiology for blunt trauma (see page 4). Dr. Hendey also became California's emergency medicine PI, or principal investigator – partnering with UCSF critical care specialist Michael Matthay, MD – on

the multicenter, National Heart, Lung, and Blood Institute (NHLBI)-funded Clinical Trials Network for the Prevention and Early Treatment of Acute Lung Injury (PETAL). This network aims to determine if physicians can quickly recognize patients at risk for acute respiratory distress syndrome in the ED, as part of an effort to lessen the risk and initiate treatment as soon as possible.



“The establishment of an endowed chair shows UCSF’s commitment to sustaining serious academic medicine at the Fresno campus.”

GREGORY HENDEY, MD, CHIEF OF EMERGENCY MEDICINE AT UCSF FRESNO

2015 Year in Review

In less than a decade as an academic department, the UCSF Department of Emergency Medicine has become an important presence in a discipline increasingly central to the delivery of accessible, high-value care at UCSF, across the US and around the world. In 2015, we continued to expand and enhance our presence in clinical care, education and research.

Clinical Care

At five sites – UCSF Medical Center at Parnassus, Zuckerberg San Francisco General Hospital, both UCSF Benioff Children's Hospitals and the Community Regional Medical Center in Fresno – our department provides clinical care to growing volumes of patients from diverse backgrounds, who pose nearly every imaginable health challenge.

In 2015, our San Francisco faculty provided hands-on care 24/7 to 113,400 San Francisco patients. Ambulance volumes were 23 percent of census at Parnassus and 26 percent at ZSFG. At Fresno, we saw 115,000 patients, approximately 41 percent by ambulance.

Moreover, since ZSFG is the base hospital for the City and County of San Francisco, this year our ZSFG faculty provided thousands of phone consultations for prehospital care

when paramedics encountered difficulties in the field. With our EMS fellows and faculty providing direct patient care while riding with paramedic supervisors, we increased our physician field coverage this year to between 40 and 60 hours per month.

As for trauma care, total trauma activations increased to nearly 4,300 at ZSFG, the city's only Level I Trauma Center. To further streamline trauma care, achieve less practice variation and improve patient outcomes, we continued to collaborate with our colleagues in trauma surgery and anesthesia to review all aspects of trauma care and create standardized, evidence-based protocols.

To address our growing volumes and evolving case mix, we've established a number of other programs – many of which are highlighted in this report – to help unclog emergency departments, improve our LWBS rate, facilitate the use of evidence-based clinical guidelines and improve patient outcomes and experience. These programs include a new observation unit at Parnassus, provider-in-triage programs in multiple locations and enhancements to our use of ultrasound, electronic health records and other medical technology. In addition, our faculty is involved in efforts to help frequent users of ED services find a better solution by connecting them with other services more tied to their needs.

Moreover, our vision does not stop at the borders of our city or our country. The World Health Organization (WHO) appointed Teri Reynolds, MD, PhD, our department's director of Global Health, as the first leader of its newly formed Emergency, Trauma, and Acute Care program. We are prominently involved in efforts to create teaching, clinical and prehospital emergency medicine programs in six countries around the world.

Education

We continue to enhance our educational enterprise with a faculty that boasts eight members – approximately 10 percent of our full-time faculty – in the Haile T. Debas Academy of Medical Educators. Our department's James Hardy, MD, R. Starr Knight, MD, and Craig Smollin, MD, all received Excellence in Teaching Awards from this prestigious academy in 2014.

For our growing emergency medicine residency training program in San Francisco, we named Christopher Fee, MD, program director and Eric Silman, MD, and Evelyn Porter, MD, as assistant directors. In San Francisco, our cohort of residents will increase to 56 by 2018; when this is combined with our Fresno program, we will soon be training some 96 emergency medicine residents each year.



We also offer a thriving array of emergency medicine fellowships in EMS and Disaster Medicine, Global Health, Medical Education, Pediatric Emergency Medicine, Toxicology and Ultrasound. This year we named Andrea Tenner, MD, director of the Global Health Fellowship and added the Pediatric Emergency Medicine Fellowship through our affiliation with Oakland.

We teach in 17 courses in the School of Medicine, including a number of popular electives, and this year, we began teaching a new point-of-care ultrasound course for UCSF medical students. Our faculty provides substantial research mentorship and career guidance for many UCSF students, including students with Underrepresented in Medicine (UIM) backgrounds through the PROF-PATH Fellows program.

Research

We continued to invest in and mentor our growing research faculty. As this report highlights, their studies have appeared in a number of prestigious journals, including the *New England Journal of Medicine*, *The Lancet Respiratory Medicine*, *Annals of Internal Medicine*, *Health Affairs* and many others. A full list of publications follows this summary.

Coverage of our research in many general news publications with national and international reach speaks to the relevance of our work in this time of health care reform. Already, we are seeing our investments in research – including the hiring this year of a PhD health economist – having an important and positive impact on both health care delivery and health care policy. Our new Division of Health Policy Studies has produced widely respected studies on everything from

the types and number of emergency department visits to variations in hospital emergency charges and the effect of emergency department closures on access to care and mortality rates. One of our new faculty members, Jennifer Wilson, MD, was lead author of a study in *The Lancet Respiratory Medicine* on the use of mesenchymal stem (stromal) cells for treatment of acute respiratory distress syndrome.

In short, this year, we continued to realize our vision for a department characterized by a dynamic faculty that delivers outstanding clinical care and community service, while educating emergency medicine's future physician leaders and producing important, rigorous and relevant research.

Publications

Original Scientific Articles (Peer-Reviewed)

164

peer-reviewed studies

+

26

textbook
chapters

2014 < 2015

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