



Innovative Collaborations Optimize Emergency Care

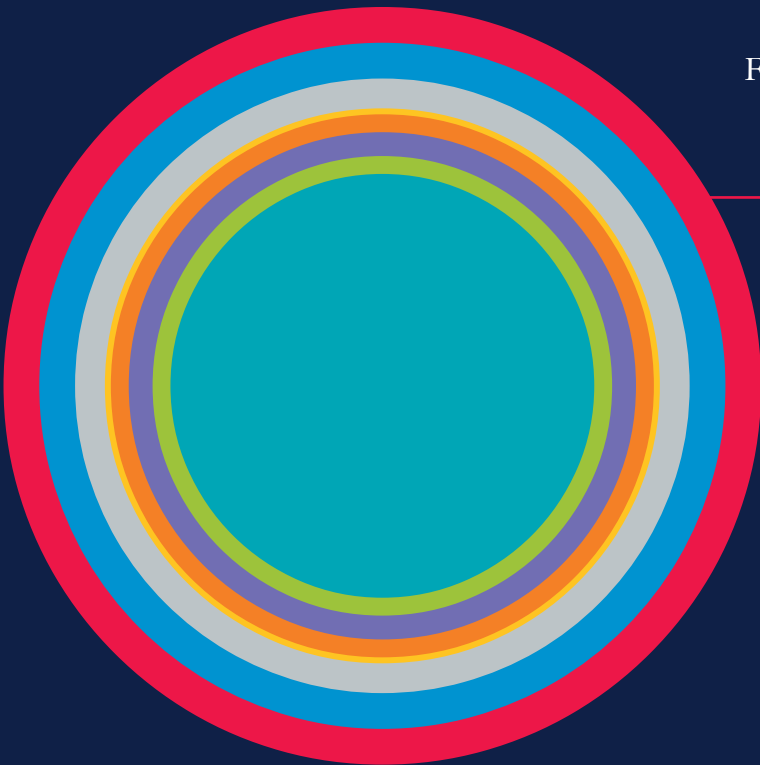
The UC San Francisco Department of Emergency Medicine

ANNUAL REPORT

Letter from the Chair

Over the past few years, the UC San Francisco Department of Emergency Medicine has undergone a remarkable transformation. We have hired more than 45 new faculty members, grown our residency program and created four new fellowships. Equally important, we have forged important collaborations with other specialties at UCSF, other emergency departments (EDs) throughout the area, the San Francisco Department of Public Health, and community providers and social service agencies throughout the city and beyond.

Full-time faculty
by year



2017	• 55
2016	• 49
2015	• 43
2014	• 38
2013	• 37
2012	• 34
2011	• 30
2010	• 27



Our growth and these alliances reflect our deep commitment to demonstrating how an academic department of emergency medicine can extend its expertise to many areas that affect the health of those we serve, both within our EDs and far outside their walls.

These rapid and dramatic changes also made 2017 an ideal time to bring our department together to strategically map our next five years. During a six-month-long effort, we gathered input from the entire department and from thought leaders across UCSF. We held a one-day retreat with our faculty, staff and representatives from our training programs to synthesize what we'd heard and agree on a shared vision. A diverse steering committee then molded the initial ideas into a formal plan.

Our department's vision is to be the leader in compassionate, innovative and equitable emergency care for all people at all times. To realize that vision, our strategic plan lays out seven clear goals:

- 1 Provide exemplary patient-centered, high-value care.
- 2 Educate and inspire exceptional, compassionate physician-leaders.
- 3 Pioneer innovative research to advance emergency care and transform health care delivery systems.
- 4 Improve access to emergency care locally and globally.
- 5 Foster a supportive working and learning environment.
- 6 Advance all dimensions of diversity and inclusion as essential components of departmental excellence.
- 7 Elevate the department's visibility, leadership and reputation across UCSF, regionally, nationally and globally.

As this report amply demonstrates, even before our plan was put into place, we had made significant strides toward achieving our goals. We developed effective new stroke protocols, in collaboration with prehospital providers, nursing staff and the departments of neurology, neurological surgery, and radiology and biomedical imaging. We worked with emergency providers throughout the city to implement the Emergency Department Information Exchange (EDIE) and the Whole Person Care Initiative. We forged an affiliation with a leading provider of urgent care services in the Bay Area. We grew significantly and improved pediatric emergency care at both Mission Bay and Priscilla Chan and Mark Zuckerberg San Francisco General Hospital and Trauma Center. We became a World Health Organization (WHO)/Pan American Health Organization (PAHO) Collaborating Centre for Emergency and Trauma Care – the first such designation in the United States and one of only two such centers in the world focused on emergency care. And we remained relentless in our efforts to create a more diverse, culturally appropriate system of emergency care, one that includes community involvement, prehospital care, ED care and collaboration with hospital specialists on a variety of emergent conditions.

We are proud of these accomplishments, but we are also fully aware of how much more we have to do. Our strategic plan provides a touchstone and a clear path; we have begun assigning champions, creating timelines and allocating resources to ensure success.

I can't wait for the stories we will have to share in next year's report.



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

Far-Reaching Collaborations Generate Real Care Improvements

In 2017, the UCSF Department of Emergency Medicine continued to advance significant innovations in clinical care, community outreach, research and education. Below, we highlight a few such innovations.

New Stroke Protocol Dramatically Reduces Time to Treatment

When emergency physician and neurocritical care specialist Debbie Madhok, MD, joined the UCSF Department of Emergency Medicine in 2015, she did so,

at Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG). It clearly defines roles along a continuum that runs from community education and prehospital care through the CT scanner and interventional radiology (IR) suites. Implemented at ZSFG in July

gist greets the patient at the ambulance bay to conduct an immediate evaluation. The emergency physician is the lead on stabilizing the patient and determining whether stroke-like symptoms may be due to another condition, such as an aortic dissection. Once the team determines the patient has suffered a stroke, it rushes the patient to a CT scanner to confirm the diagnosis and determine the type and extent of damage.

In cases of ischemic stroke, if appropriate, clinicians administer tPA while the patient is still on the CT table. If the clot is occluding a large artery, the patient is taken immediately to the neurointerventional radiology suite for mechanical thrombectomy (clot removal).

Madhok attributes the program's successful launch to the way all stakeholders have embraced collaboration – and to outstanding training at every level. “The day we launched, it was as though we had already been using the protocol for months,” she says.

She adds that the community education component makes it more likely that individuals will quickly recognize stroke symptoms for a condition in which every second counts. This can be especially important for a ZSFG patient population

that experiences significant disparities in stroke and other types of care. “When we protocolize medicine and speed care, there is less time for unconscious bias to occur, and we begin to treat people exactly the same,” says Madhok.

UCSF Helen Diller Medical Center Adopts and Adapts the Protocol

Already a primary stroke center, UCSF Helen Diller Medical Center at Parnassus Heights is adapting the Mission Protocol for its four-year effort to attain the rare and difficult designation of comprehensive stroke center, says emergency physician William Whetstone, MD.

“Our transfer times are among the shortest in the country, and one of the big changes we’ve made is doing the rapid hallway evaluation and then taking people directly to the CT scanner and administering tPA there, when appropriate,” says Whetstone. If thrombectomy is a consideration, UCSF Helen Diller Medical Center has sophisticated imaging software that precisely highlights areas of the brain still at risk.

Earning designation as a comprehensive stroke center is a demanding process, but the careful tracking and measuring for nearly every variable has helped the UCSF Helen Diller

“We believe, hands down, the Mission Protocol represents the most advanced stroke care in the world. It is not proprietary, and we hope the whole world adopts it.”

DEBBIE MADHOK, MD
ASSISTANT CLINICAL
PROFESSOR AND
NEUROCRITICAL CARE
SPECIALIST



in part, to achieve a goal: Reduce inequities and improve stroke care for all patients by significantly slashing the time from diagnosis to treatment.

The Mission Protocol is a Madhok-led collaboration between the departments of emergency medicine, neurology, and radiology and biomedical imaging

2017, the protocol has already cut mean door-to-needle time – the time to intravenous tPA (tissue plasminogen activator) administration – for treating ischemic stroke by 20 minutes.

Now, when prehospital providers call in a possible stroke, a ZSFG team jointly led by an emergency physician and a stroke neurolo-



WILLIAM WHETSTONE, MD
CLINICAL PROFESSOR

Medical Center team more efficiently define roles that improve patient care. Consider the emergency department's role in treating hemorrhagic strokes.

"For an emergency physician, bleeds are usually more of a challenge," says Whetstone. "It requires extraordinary coordination between us, neurology and

neurosurgery to address things like blood pressure control and the potential for airway difficulty. If a ruptured aneurysm is the

cause of the bleed, the team also can make decisions about coiling versus clipping to stop the aneurysm from further bleeding with extraordinary efficiency."

"We believe, hands down, the Mission Protocol represents the most advanced stroke care in the world," says Madhok. "It is not proprietary, and we hope the whole world adopts it."



Rosny Daniel, MD,
with a patient at
Helen Diller Medical
Center.

Helping Coordinate Care

Across Settings

The most advanced emergency departments believe that to deliver the best possible care, the ED must integrate with multiple points of care within and outside of the health care system. This is especially so when attending to those patients who arrive in the ED most often. That's the thinking behind two 2017 initiatives in San Francisco, for which faculty members Maria Raven, MD, MPH, and Hemal Kanzaria, MD, play important leadership roles.

The first involves implementation of a technology platform called EDIE (Emergency Department Information Exchange). "The EDIE platform enables emergency providers to have more transparency about where their patients are going and have been," says Raven.

She and Kanzaria championed the platform at UCSF Helen Diller Medical Center and ZSFG, respectively, and co-chair the Bay Area Consensus Commit-

tee on EDIE. As of this writing, eight hospitals in the city had signed on – with more expected in the ensuing months.

Once a patient meets a metric for frequent emergency department use, EDIE prompts an alert in the patient's electronic medical record. One click then gives providers access to dates and diagnoses from other EDs in the system, as well as an understanding of what services these patients may already have. The provider can now enter new care guidelines and link patients with social workers hired specifically to help with this population. Raven and Kanzaria expect the system will also eventually integrate with CURES (Controlled Substance Utilization Review and Evaluation System), a state of California electronic system for prescription data monitoring.

"It's a great tool to identify vulnerable patients, who often have fragmented care," says Kanzaria. "If someone who is frequently at ZSFG shows up at UCSF, the physicians might find contact information for a social



MARIA RAVEN, MD, MPH
ASSOCIATE PROFESSOR

worker or care manager at ZSFG who knows the patient well. This avoids duplication of effort, helps people reinforce existing connections with resources and, we hope, will lead to fewer ED visits for these patients."

At ZSFG, EDIE complements what is called the Whole Person Care Initiative, a \$160 million, five-year effort to help the city's homeless population. The project is funded jointly by the state of California and city of San Francisco. Raven and Kanzaria originally consulted on the effort and then, in January 2018, became co-principal investigators for the project's evaluation.

"San Francisco has dedicated a lot of resources to patients experiencing homelessness, but the resources are fragmented in traditionally siloed systems," says Raven. "So this initiative focuses on data sharing and data integration as tools to help with care coordination."

The project is in its early stages, but stakeholders hope to examine a number of pressing questions. Among them: How effectively can diverse systems – including behavioral health, community clinics, the ZSFG emergency department, jails and detox centers – integrate their data? Can doing so reduce unplanned acute care use? Can it improve systems of care coordination?

"We are hopeful both of these initiatives will lead to care improvements, as well as future opportunities for people in our department," says Kanzaria.

"It is so much better to have this holistic perspective – and it's been fun to collaborate across institutions," says Raven.

"If someone who is frequently at ZSFG shows up at UCSF, the physicians might find contact information for a social worker or care manager at ZSFG who knows the patient well. This avoids duplication of effort, helps people reinforce existing connections with resources and, we hope, will lead to fewer ED visits for these patients."

HEMAL KANZARIA, MD, ASSOCIATE PROFESSOR



Connecting with an Urgent Care Network

An important aspect of the department's mission is helping to ensure patients receive the right care at the right time in the right place. With that in mind, in 2017, UCSF Health and the department formalized an affiliation with Golden Gate Urgent Care, which has six clinics in the Bay Area: four in San Francisco, one in Marin County and one in Oakland.

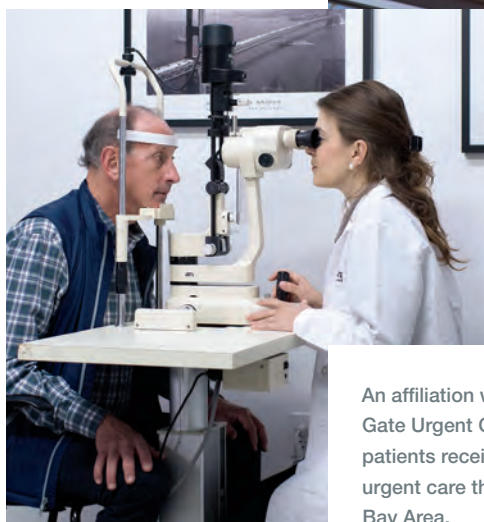
"Golden Gate's founders are pioneers in emergency medicine, and they have long believed that it would be mutually beneficial to affiliate with an academic department," says UCSF's medical director for Golden Gate Urgent Care, James Hardy, MD.

The affiliation is relatively new, and both entities are considering a number of ways they can work together, which include:

- Conducting case reviews to facilitate efficient screening and referrals from urgent care to other care settings.
- Creating efficient interoperability among the two organizations' electronic medical records.
- Delivering provider education.
- Developing patient care pathways and best practices, with a particular emphasis on pediatric urgent care. Pediatric emergency physician Israel Green-Hopkins, MD, is working with Golden Gate to establish standards of practice for common conditions, such as mild asthma, bronchiolitis, sore and strep throat and mild fractures.

"We've been so impressed with the leadership and providers at Golden Gate," says Green-Hopkins. "And our affiliation speaks to our mission of playing a role in the care of the entire Bay Area, far beyond the walls of our own EDs."

"We want to be a resource for the entire community," says Hardy.



An affiliation with Golden Gate Urgent Care helps patients receive better urgent care throughout the Bay Area.



"Golden Gate's founders are pioneers in emergency medicine, and they have long believed that it would be mutually beneficial to affiliate with an academic department."

JAMES HARDY, MD
ASSISTANT CLINICAL PROFESSOR



Making Diversity a Priority

“As the country’s health care safety net, emergency departments deal with the most diverse patient population,” says emergency physician Robert Rodriguez, MD, who for several years has served as the department’s director for diversity. “We *have* to reflect the makeup of – and be exquisitely sensitive to caring for – this population.”

Since its inception a decade ago, the UCSF Department of Emergency Medicine has vigorously pursued this vision. The percentage of faculty (14 percent) and residents (28 percent) who are from groups underrepresented in medicine (UIM) exceed national averages for emergency medicine, as do the 46 percent of the faculty and 45 percent of the department’s residents who are women. Seven of the nine most recent faculty hires were either women or from UIM groups, or both.

But the department knows it still has a long way to go.

Starr Knight, MD, is the department’s emergency ultrasound fellowship director, a UCSF John A. Watson Faculty Scholar and one of UCSF’s eight Diversity, Equity and Inclusion Training Ambassadors. “What separates a lot of people in our society are opportunities, not talent or skill,” she says. “We need to show people opportunities exist.”

To that end, Knight is among those exploring ways to advance diversity and inclusion as essential components of maintaining departmental excellence. The efforts range from working with local high schools through undergraduate and graduate education, medical school, residency, faculty recruitment and retention, and research.

Priming the Pipeline

In multiple ways, the department is actively involved in encouraging young people from UIM groups to pursue careers in emergency medicine. In a program founded by an emergency medicine trainee, residents regularly visit San Francisco high schools to speak with students about drugs and alcohol. As part of a collaborative effort among UCSF, the San Francisco Department of Public Health and the San Francisco Unified School District, Knight

represents the department in a Public Health Institute program called FACES for the Future. A two-year curriculum for high school students interested in medical professions, the program offers the students a variety of experiences. In San Francisco, emergency medicine is the only non-primary care specialty involved, and Knight supplements the curriculum by frequently exposing her students to point-of-care ultrasound.

The department also has an active outreach program for medical students who could be prospective residents, including providing visiting student scholarships and mentoring these students in a variety of ways. In 2017, for example, Rodriguez won UCSF’s Pathways to Discovery Short-Term Mentor Award for outstanding mentorship in the 2017 Summer Explore program.

Moreover, during the resident selection process, “Administration, faculty and residents do everything we can to advocate for UIM individuals,” says Christopher Fee, MD, the

department’s residency program director. The department trains selection committee members in concepts like implicit bias, while also explicitly identifying prospective residents who self-identify as UIM. The goal is to enrich the pool of potential applicants and make

This page, from the top down: Rosny Daniel, MD, Starr Knight, MD, and Robert Rodriguez, MD.

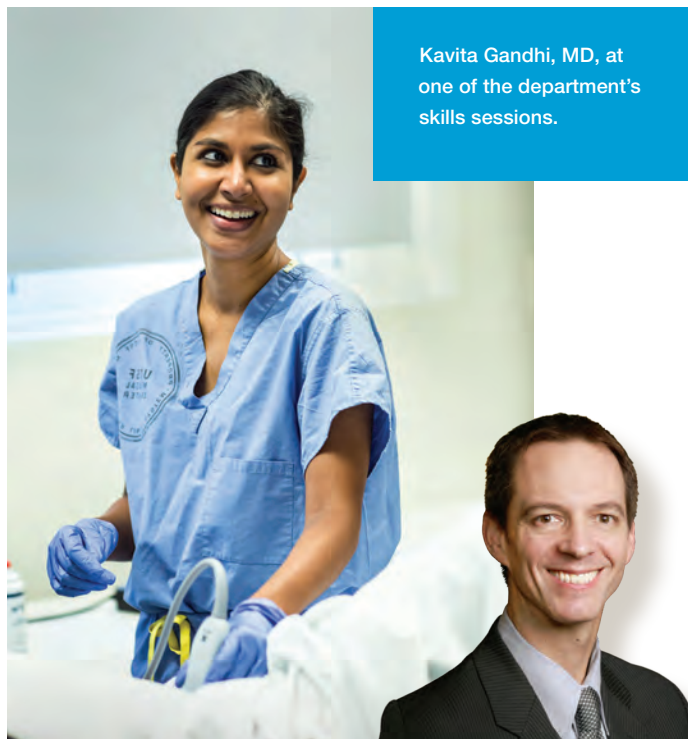


“I could see the commitment to diversity. People were passionate and vocal, and now I want to show [prospective residents] we are trendsetters, not just for the university, but for how all medical programs should be approaching diversity and multiculturalism.”

ROSNY DANIEL, MD, CHIEF RESIDENT OF THE UCSF-ZSFG EMERGENCY MEDICINE RESIDENCY PROGRAM



Residents gather for a public service day. Top row: Joseph Graterol, Brian Cheung, Tiffany Cobb. Bottom row: Lamarr Echols, Chloe Thomas, Jessica Chow, Gretchen Fuller.



Kavita Gandhi, MD, at one of the department's skills sessions.

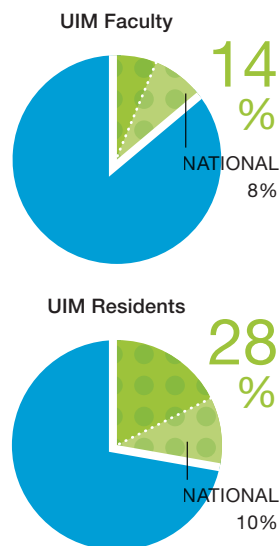
sure the committee is considering a wide range of factors that contribute to the making of a quality emergency physician. The department has also doubled its investment in its “second look” day, where it invites top-ranking UIM applicants back on the department’s dime.

In addition, an active residency diversity committee meets regularly to discuss ways to improve diversity in recruitment and retention. Rosny Daniel, MD, chief resident of the UCSF-ZSFG Emergency Medicine Residency Program, leads the

committee. He is also one of three 2017 recipients of the UCSF’s Chancellor Award for Dr. Martin Luther King, Jr. Leadership, which recognizes contributions toward advancing diversity, equity and inclusion – the first resident to ever receive that award.

When he chose UCSF, Daniel says, “I could see the commitment to diversity. People were passionate and vocal, and now I want to show [prospective residents] we are trendsetters, not just for the university, but for how all medical programs should be approaching diversity and multiculturalism.”

Underrepresented in Medicine in the Department



CHRISTOPHER FEE, MD
PROFESSOR, ASSOCIATE CHAIR
FOR EDUCATION AND RESIDENCY
PROGRAM DIRECTOR

According to Fee, Daniel has done just that. “He has not only left an indelible mark on our residency as evidenced by a demonstrable improvement in diversity among our residents, but also in the School of Medicine more broadly, where he is a highly regarded mentor for those who follow in his footsteps.”

Our Diverse Patient Population



Creating a Supportive Learning Environment

A number of efforts are underway to optimize the experience of residents after they arrive. The diversity committee organizes formal and informal social events. As part of her work as a John A. Watson Faculty



JOHN BROWN, MD
ASSOCIATE CLINICAL PROFESSOR

Scholar, Knight has developed a speaker series, and organizes dinners every two to three months throughout the year.

The department also continues to incorporate diversity concerns directly into the residency curriculum. As early as 2008, faculty member John Brown, MD, developed a curriculum to help residents better understand how to address LGBTQ (lesbian, gay, bisexual, transgender and queer) health in emergency medicine. Today, the curriculum regularly and formally addresses issues that include cultural humility, a concept aimed at delivering better care for women and for races and ethnicities that regularly experience health inequities.

"We have always talked about how patient management differs from one culture to another, but we haven't always called it out specifically," says Fee. "Now we are working toward building cases and simulations around diversity issues. For grand rounds, bringing in outside speakers who talk directly to diversity. Bringing diversity-related articles to our journal clubs. We have to keep having these conversations."

Supporting Diverse Faculty

Despite, Knight says, "having done incredibly well increasing our numbers, especially for a department that is relatively young," faculty diversity remains an ongoing challenge. It's hard enough to attract people to academic emergency medicine in an expensive city like San Francisco, but perhaps even more difficult to attract those who come from traditionally underserved populations. And without a faculty and leadership that represent the people you're trying to attract, it can be more challenging to create a supportive environment once people arrive.

Part of the department's success to date is attributable to an active mentoring program for junior faculty. "I was fortunate to have a great education, and



MARIANNE JUAREZ, MD
ASSISTANT CLINICAL PROFESSOR



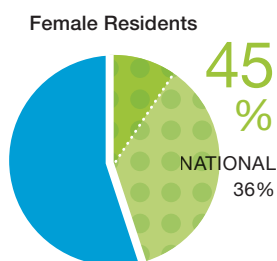
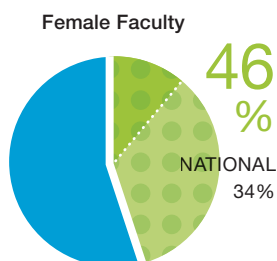
JILLIAN MONGELLUZZO, MD
ASSISTANT CLINICAL PROFESSOR

giving back by mentoring others has been extremely rewarding in every way," says Rodriguez.

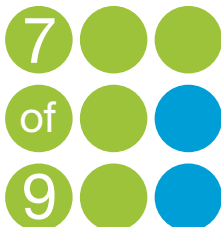


A meeting of the Women in Emergency Medicine group.

Women in the Department



Of the last 9 faculty hires



were either women or from UIM groups, or both.

- Meeting regularly to hear about and address the needs of female faculty
- Promoting women for leadership positions
- Creating more mentoring opportunities
- Nominating female department members for national awards

A Listserv, quarterly meetings, social events and workshops with prominent guest speakers all work toward advancing these goals.

More Diverse Researchers, More Diverse Research

Another aspect of faculty retention is support for UIM and female researchers. Their presence in the research community offers a perspective too often missing from many research efforts.

"There is a general movement across the country, in the NIH [National Institutes of Health] and within the university to bring underrepresented researchers through the pipeline," says Renee Hsia, MD, MSc, the department's associate chair for health services research.

In 2017, this movement presented an opportunity to foster the career of Juan Carlos

Montoy, MD, who joined the faculty last year, after completing the department's first research fellowship program. With Hsia already principal investigator on an R01 grant from the NIH, she was able to sponsor Montoy to become part of the grant.

"Receiving NIH funding is a great career builder," she says.

Montoy is examining how cardiac care regionalization – specifically, hospitals offering percutaneous

coronary intervention to treat an ST-elevation myocardial infarction (STEMI) – may have unintended consequences for the care of patients with non-STEMIs. This work has implications for patients, as well as for how we think about systems of care.

"I'm proud that our department was successful getting a diversity supplement on the first try," says Hsia. "It speaks to the quality of the work we do."



RENEE HSIA, MD, MSc
PROFESSOR AND ASSOCIATE CHAIR
FOR HEALTH SERVICES RESEARCH



JUAN CARLOS MONTROY, MD
ASSISTANT PROFESSOR

An Ongoing Effort with Many Rewards

The department's commitment to all aspects of diversity also speaks to research that has found diverse, culturally sensitive providers are important for addressing health inequities and improving care. So the department remains committed to creating opportunities and fostering a community that supports success for UIM individuals.

For the UIM groundbreakers, this is not always easy; it can come with added pressures, added responsibilities. "But I feel it's necessary to give back," says Knight. "It's also enjoyable and rewarding. I have learned to say no to certain things, to balance my work with pleasure, but I always remember that every opportunity I've had has been because someone took a chance on me."

In addition, in 2017, the department's Women in Emergency Medicine group expanded its activities after forming in 2016, under the leadership of Marianne Juarez, MD, and Jillian Mongeluzo, MD.

"There's been a movement in emergency medicine with women coming forward to promote each other, and we are part of that," says Juarez. In 2017, the group committed to, among other things:



Pediatric Emergency Medicine

Rapid Growth and Growing

The opening of UCSF Benioff Children's Hospital San Francisco, the affiliation with UCSF Benioff Children's Hospital Oakland and the opening of a dedicated pediatric ED at Zuckerberg San Francisco General Hospital and Trauma Center have elevated awareness of the importance of pediatric emergency medicine.

To help reach the next level, in 2017 the department successfully recruited Jacqueline Grupp-Phelan, MD, MPH, to become chief of the Division of Pediatric Emergency Medicine (PEM) and vice chair of the department. She arrived from Cincinnati Children's Hospital Medical Center with a distinguished record of conducting mental health services research within the pediatric emergency department setting and as an active and prominent member of the Pediatric Emergency Care Applied Research Network (PECARN), where she is principal investigator on a major suicide screening study.

Three Questions for Jacqueline Grupp-Phelan, MD, MPH

Q What drew you to UCSF?

A This department is in a very steep growth phase, and I love to build programs, especially when there is a foundation like we have here. The pediatric emergency medicine faculty is fabulous – talented, well trained and motivated – and because we are housed within the Department of Emergency Medicine, our colleagues really understand what we do. I hope I can provide direction and vision to provide the best in pediatric emergency care and innovation.

I'm also excited by the affiliation with Oakland; the sky is the limit in terms of having two centers highly committed to taking care of kids – one more of a quaternary, incubator type of

place, the other a population health-focused, highly diverse program, where we can truly test how to best implement all that we're learning.

Q What are the most exciting developments in your first months here?

A There are many, but I'm particularly excited that we've been given philanthropic grants to create research infrastructure at both Oakland and Mission Bay. We've hired a full-time research coordinator, and our first focus at Mission Bay will be addressing disparities in asthma care. Part of the grant is also aimed at improving and increasing resources for the academic and research productivity of our pediatric emergency medicine

g Ambitions

fellows, which is great timing since we've just added a fourth fellow in the program we share with Oakland.



What are a few of your priorities moving ahead?



My first is making sure Mission Bay has the right mix of providers to deal with our rapid growth. Patient volumes grew by seven percent in this past year, and we think patients are arriving because they and their pediatricians understand the added value that a pediatric emergency department brings to treating kids with complex and critical problems, given our Child Life specialist, expert pediatric pain control, specially trained nurses and more. Once a patient and their family interact with us, they are very likely to come back.

Ultimately, I want our patients to benefit from their visit to the ED in a way that goes above and beyond what brings them there. Whether it's high-risk screening or making sure kids have the resources they need once they leave, part of my vision is that the actual visit is only a small part of what we provide. We should make sure we do things that improve every patient's health – empathetic, culturally sensitive care for diverse populations that decreases the likelihood that people will come back and see us.



JACQUELINE GRUPP-PHELAN, MD, MPH
CHIEF OF PEDIATRIC EMERGENCY MEDICINE

Bringing Child-Friendly Emergency Care to ZSFG

"Until the new hospital opened in May 2016, our ED was a difficult place for a child, with an environment dominated by very sick adults," says Rajesh Daftary, MD, MPH, medical director for pediatric emergency medicine (PEM) at ZSFG.

In contrast, the new hospital includes a dedicated pediatric ED, which, perhaps, explains the 25 percent to 30 percent increase in pediatric ED volumes since the opening. "Additionally, we've also seen a high degree of satisfaction with care," says Daftary.

He says in the past year, the pediatric emergency medicine team made important strides in many ways, but focused on three primary areas.

1 Developing the physical space to be child-friendly. In

addition to its quieter environs and close access to resuscitation, the area now boasts a large mural by the artist Sirron Norris, as well as framed artwork in six patient rooms and the pediatric waiting room.

2 Expanding access to pediatric-appropriate equipment, training and staff. The PEM team

consolidated and standardized access to pediatric airway supplies – a critical piece of

Rajesh Daftary, MD, MPH, with a patient, and new murals by Sirron Norris at ZSFG (below).



equipment for the emergent care of children. Nurse-educators are providing continuous training of all nursing staff in pediatric emergency care, while physicians are creating simulations for all providers. And as of this writing, the department was hiring a Child Life specialist, thanks to a contribution from the Tony Bennett Fund for Emergency Pediatric Care.

3 Expanding the presence of board-certified pediatric emergency physicians, who are now on-site for the majority of hours each week.

"What's made this first year and a half so successful is the shared buy-in of multiple departments," says Daftary. "Pharmacy is pro-

viding more efficient and safer pediatric dosing guidelines. Nurses and respiratory therapists are embracing increased training in pediatric-specific care. All of this reflects a department-wide commitment to developing expertise in pediatric emergency care."

Creating a Powerful Research and Quality Improvement Enterprise

The rapid growth in research and quality improvement (QI) efforts in PEM has accelerated with Grupp-Phelan's arrival. "Our ultimate goal is to set up a busy and well-supported research infrastructure in both San Francisco and Oakland," she

says. This will include support for QI science.

Grupp-Phelan's particular research path involves suicide prevention and addressing mental health concerns that often first come to the attention of the health care system in the ED. She is co-principal investigator (PI) on a PECARN study that is validating an adaptive ED screen for suicide risk in children, and has another grant to test whether ED personnel can conduct brief interviews to motivate patients and families to connect with behavioral health services, thereby decreasing the likelihood of suicide attempts.

She adds that there are also exciting pediatric emergency research efforts in global health

and in the use of simulation to teach pediatric emergency medicine to medical students, residents, faculty and fellows who may not train in pediatric emergency medicine but will likely have pediatric patients in need of emergent care. And she points, as well, to a robust quality improvement program at UCSF Benioff Children's Hospital San Francisco, under the leadership of Israel Green-Hopkins, MD. He is creating disease-specific metrics and data sets aimed at devising evidence-based care pathways for a variety of conditions that present in the ED.

"We're looking at conditions such as asthma, bronchiolitis, sickle cell disease and sepsis,"

says Green-Hopkins. "How can we effectively measure how we're doing, and what can we do to improve our care? We want to ensure our care is consistent regardless of race, ethnicity or socioeconomic status."



ISRAEL GREEN-HOPKINS, MD
ASSISTANT CLINICAL PROFESSOR

"Because we are committing the resources – and developing the necessary curriculum and strategies – we are training the next generation of leaders in pediatric emergency medicine – the individuals who will improve emergency care for children, locally, regionally, nationally and internationally."

KARIM MANSOUR, MD
PEDIATRIC EMERGENCY MEDICINE
FELLOWSHIP DIRECTOR



He says the key to moving forward is the data, analytics and engagement platforms that enable care teams to understand what they need to do to drive effective change. There is now a dedicated QI area where engaging graphic formats display relevant data, and daily huddles, in which a charge nurse leads clinical teams in a review of the data and brainstorming aimed at devising ways to improve care.

"The data awareness and staff engagement can help ensure we have outstanding care at the right time for all of our patients," says Green-Hopkins.

He notes that sometimes relatively simple interventions can make an enormous difference, pointing to the creation of a checklist template for working with children who arrive in the emergency department agitated because of significant behavioral health conditions. By guaranteeing that providers understand these children's home medications, which are part of the checklist – and are prescribing them when appropriate – the team at UCSF Benioff Children's Hospital San Francisco has been able to decrease the use of physical and chemical restraints.

"This is really important work," says Grupp-Phelan. "When people see UCSF on the door, it should mean highly trained and reputable providers working from evidence-based pathways, so all patients get the same level of care no matter where they receive it."

Strengthening PEM Rotations and Fellowships

Because nationwide there is still a gap between the demands for pediatric emergency care and the supply of those prepared to provide that care, the department has deepened its commitment to growing its fellowship program and improving the educational experience for its fellows, as well as for the emergency medicine and pediatric medicine residents who go through the department's pediatric emergency medicine rotation.

"We're changing the curriculum and makeup of the residency rotation, which is highly sought after," says Grupp-Phelan. "Our physicians get very high marks for how we teach."



The expanding fellowship program now includes four fellows, who work with more than two dozen highly skilled faculty members across four clinical sites – including UCSF Benioff Children's Hospital Oakland, an American College of Surgeons-certified Level I Pediatric Trauma Center. The fellows are involved in everything from advocacy efforts for teen reproductive health and developing global pediatric

emergency medicine opportunities through research on alternative pain management for patients with sickle cell disease and managing concussions in children.

Department Is First-of-Its-Kind WHO/PAHO Collaborating Centre in U.S.

2017 marked the UCSF Department of Emergency Medicine's designation as a World Health Organization (WHO)/Pan American Health Organization (PAHO) Collaborating Centre for Emergency and Trauma Care – the first such designation in the United States and one of only two such centers in the world focused on emergency care.

Department faculty members Andrea Tenner, MD, MPH, and Renee Hsia, MD, MSc, led the rigorous effort to achieve this designation through collaborative work aimed at improving emergency care around the world. The WHO is committed to strengthening global emergency care, given that more than half of the approximately 45 million deaths each year in low- and middle-income countries are due to conditions that prehospital and emergency care systems can address.

"In many countries, an organized emergency care system that gets you from the site of illness or injury to high-quality care is still a new concept," says Tenner.

"Part of our work is getting people to see that if you don't provide access to care when people need it, people die," says Hsia.

Emergency Medicine Residency in Dar es Salaam

28

graduates

35

residents in training



ANDREA TENNER, MD, MPH
ASSISTANT PROFESSOR AND
DIRECTOR OF THE GLOBAL
HEALTH FELLOWSHIP PROGRAM

Bringing Emergency Care to Diverse Settings

Hsia and Tenner worked with colleagues in the UCSF Department of Surgery, UCSF School of Nursing and UCSF Center for Global Health Delivery and Diplomacy to achieve the designation, which recognizes the department's expertise in supporting global emergency care development. In turn, the department can expand its work aimed at improving emergency care in low-resource settings.

That work began in Tanzania, in 2011, with the department playing a lead role in the development of an emergency medicine residency at Muhimbili National Hospital (MNH) in Dar es Salaam. Tanzanian Hendry Sawe, MD, was one of that program's first graduates and now leads the MNH residency. To date, there have been 28 graduates, and 35 residents are currently in training.

"The graduates have done an amazing job of becoming champions for emergency care,"

says Tenner. Many are developing emergency care at hospitals in Tanzania and beyond. But training in emergency care is not just happening at the medical specialist level in Tanzania. All medical students at the Muhimbili University of Health and Allied Sciences (MUHAS) now complete a rotation in the emergency department, and



Clockwise from top: Kevin Padrez, MD, with patients in Haiti, graduates with Ellen Weber, MD, in Tanzania, and emergency medicine students in Mexico.

nurses in the MNH Emergency Medicine Department also receive extensive training in emergency care.

Small studies of individual sites that have implemented emergency care have shown 15 percent to 25 percent reductions in mortality. This was part of the motivation for the WHO's work to develop tools that facilitate implementation of emergency care, and led to creation of the WHO Basic Emergency Care (BEC) course. Tenner was a part of the team



“The story of our role at Muhimbili is about giving somebody a fishing pole and teaching them to fish.”

PROFESSOR EMERITA ELLEN WEBER, MD,
WHO CONTINUES TO PROVIDE MENTORSHIP AND EDUCATION FOR THE PROGRAM AND ITS GRADUATES

at WHO that developed the course and gathered contributions from emergency care experts from around the globe; several faculty, fellows and residents from the department served as reviewers and contributors. “The course is open access and available to organizations and individuals around the world. It is already being implemented in several countries in Africa and the Pacific,” says Tenner.

At the same time, the global health group’s work in sub-Saharan Africa continues, boosted by the Collaborating Centre designation.

- The department’s Collaborating Centre is helping to create, assess and implement the WHO standardized emergency care chart to help ensure a consistent clinical approach to acutely ill or injured patients throughout sub-Saharan Africa.

- In Tanzania, Tenner and Sawe are principal investigators on a pilot study evaluating predictors of sepsis in sub-Saharan Africa – an effort to understand why previous studies have suggested that Western protocols for fluid resuscitation in the treatment of children and adults with shock and life-threatening infections in resource-limited settings could be harmful.

- The group is supporting the government of Uganda’s efforts to establish an emergency care residency and emergency care system. “Collaborating with local experts to identify gaps in care – and using some of the WHO tools for emergency care system development – will optimize our ability to support Uganda’s efforts to establish its own emergency system,” says Tenner.

- Kayla Enriquez, MD, MPH, is completing work in Liberia to help improve triage systems, teach basic emergency care principles and improve infection control practices.

- Carol Chen, MD, and Tenner are leading efforts to develop a pediatric emergency care curriculum for the African Federation for Emergency Medicine. Several members of the department’s PEM faculty are contributing to this effort.



CAROL CHEN, MD
ASSISTANT CLINICAL PROFESSOR

CME Course Attracts
Emergency Physicians
Interested in Global Health

“People interested in global emergency medicine need help accessing a network that can provide tools and resources, and understanding how to be ethical and effective once they are working in other countries,” says pediatric emergency physician Carol Chen, MD. “That was the idea behind creating our CME [continuing medical education] course.”

Chen originally piloted the idea with a group of fellows in 2016, while still on the faculty at Baylor College of Medicine, in Houston. When she arrived at UCSF, she and her colleagues here expanded the conference to include early-career faculty, as well as more experienced faculty interested in making a shift to global health. In March 2017, the day-and-a-half CME course attracted more than 50 attendees from around the country.

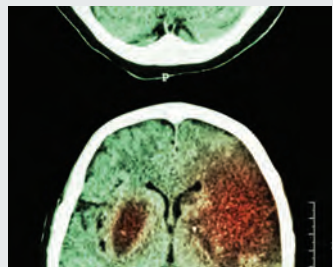
“We want to be part of the global health solution,” says Chen.

2017 Year in Review

In many ways, 2017 was a seminal year for the UCSF Department of Emergency Medicine. As our rapid growth continued, our influence grew both locally and globally. In response, we engaged in a thorough strategic planning process to guide our growth and further extend our influence over the next five years.

Clinical Care

Earlier in this report, we documented a number of exciting clinical initiatives our faculty lead, which are improving the health of patients throughout the San Francisco Bay Area. These include:



- The development and implementation of innovative, team-based stroke protocols that are cutting time to treatment for stroke patients at both ZSFG and UCSF Helen Diller Medical Center
- The implementation of a technology platform called EDIE (Emergency Department Information Exchange) and a leading role in San Francisco's Whole Person Care Initiative
- The affiliation agreement with Golden Gate Urgent Care

In addition, Jacqueline Nemer, MD, became medical director for Clinical Documentation Integrity for UCSF Health. In this new leadership role, she works in the UCSF Department of Quality to lead and oversee a multidisciplinary team engaged in clinical documentation improvement. And with a proposal that won the 2017 UCSF Caring Wisely Award, James Hardy, MD, received a grant through the University of California Office of the President for a project aimed at reducing ED boarding times for patients with psychiatric/substance abuse issues while

patients out of the hospital. We also implemented a Child Life services program, which will help make the care of pediatric patients and their families more child-friendly, began a new pediatric sepsis initiative and expanded the hours of coverage by our PEM faculty.

At UCSF Benioff Children's Hospital San Francisco, we expanded our discharge coordinators program and initiated double provider coverage during peak times. In addition, as highlighted earlier in this report, we began developing evidence-based care guidelines and clinical care pathways for a number of common conditions, including asthma.



Jim Comes, MD, became chief of Emergency Medicine at UCSF Fresno and vice chair of the department.



also improving outpatient care for these patients.

At ZSFG, Hemal Kanzaria, MD, leads the implementation of Social Medicine Consults, a program that coordinates care among social work, case management, utilization management and providers to help keep

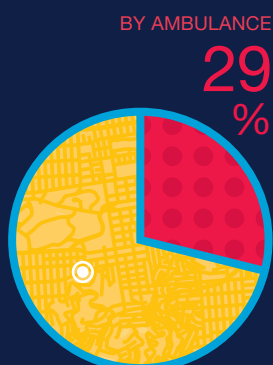
At the Community Regional Medical Center ED in Fresno, we are establishing a data-driven improvement program to reduce the length of stay (LOS) without negatively impacting quality.

JIM COMES, MD
CHIEF OF EMERGENCY MEDICINE, UCSF FRESNO

2017 by the Numbers

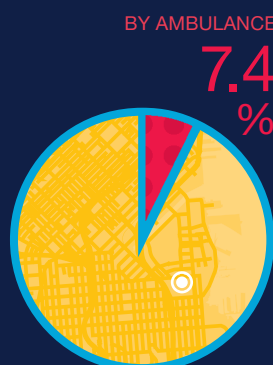
UCSF Helen Diller Medical Center

The emergency
department had
44,552
patient visits.



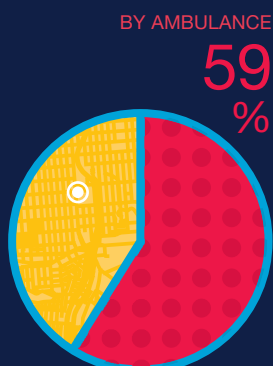
UCSF Benioff Children's Hospital San Francisco

The emergency
department had
15,844
patient visits.

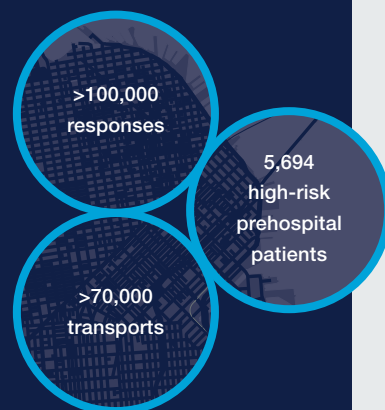


Zuckerberg San Francisco General Hospital

The emergency
department had
76,946
patient visits.

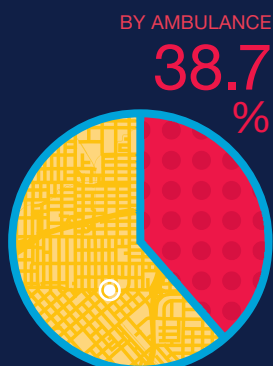


In addition, ZSFG is the
emergency medical
services (EMS) base
hospital for the City and
County of San Francisco
and northern San Mateo
County; in this
capacity, our ZSFG
faculty provided medical
direction for:



Central Valley

The Community
Regional Medical Center
emergency department
in Fresno had
113,469
patient visits.



In the four-county
region it serves
(Fresno, Kings, Madera
and Tulare), the Central
California Emergency
Medical Services
Agency, which two
of our faculty oversee,
managed:



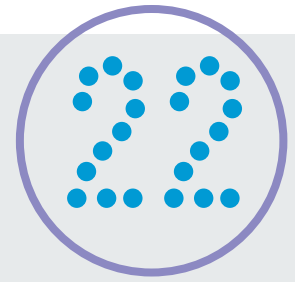
Education

This year we took particular pride in the continued successes of our residency program – especially our ability to attract an increasingly diverse group of trainees and a curriculum that clearly values the role diversity plays in delivering exemplary

emergency care. Much of that work is highlighted in the section on diversity earlier in this report.

In addition, we continue to offer our thriving array of emergency medicine fellowships in seven subspecialties: Emergency Ultrasound, EMS and Disaster Medicine, Global Health, Medical

Education, Medical Toxicology, Pediatric Emergency Medicine, and Research. We teach in 22 courses in the School of Medicine, including a number of popular electives. Our faculty also provides substantial research mentorship and career guidance for many UCSF students, including students with UIM backgrounds through the PROF-PATH Fellows program. We now have three student coaches in the UCSF Bridges Curriculum: Steven Polevoi, MD; Eric Isaacs, MD; and Christopher Peabody, MD, MPH.



Number of
medical school
courses our
faculty teaches.

Our dedication to all aspects of our teaching mission is reflected in the recognition so many of our faculty members and trainees receive.

- The International Conference on Residency Education (ICRE) and the Royal College of Physicians and Surgeons of Canada named Michelle Lin, MD, their 2017 International Residency Educator of the Year.
- Aaron Kornblith, MD, received the 2017 American College of Emergency Physicians (ACEP) National Emergency Medicine Junior Faculty Teaching Award at the annual ACEP Scientific Assembly.
- Kayla Enriquez, MD, MPH, received the Haile T. Debas Academy of Medical Educators Cooke Award for the Scholarship of Teaching and Learning.
- At the 2017 Society for Academic Emergency Medicine Annual Meeting, Taylor Nichols, MD, received the Resident of the Year award from the Emergency Medicine Residents' Association.



Doctors practice and learn at the department's regular skills sessions.



- Hemal Kanzaria, MD; Mary Mercer, MD; Rawnica Ruegner, MD; Barry C. Simon, MD; Nathan Teismann, MD; Jeffrey Uller, MD; and Charlotte Wills, MD, received the 2017 Excellence in Teaching Awards from the Haile T. Debas Academy of Medical Educators.
- Robert Rodriguez, MD, won UCSF's Pathways to Discovery Short-Term Mentor Award for outstanding mentorship in the 2017 Summer Explore program.
- John Brown, MD, received the 2017 Charlotte Baer Memorial Award from the UCSF Volunteer Clinical Faculty Advisory Board, presented annually to a member of the volunteer clinical faculty at the UCSF School of Medicine in recognition of distinguished service.
- Sonny Tat, MD, received the Faculty Teaching Award from the UCSF Department of Pediatrics.
- Christopher Fee, MD, received the Excellence in Teaching Award for Clinical Faculty from the UCSF School of Medicine Class of 2017. Fee also received the Department of Emergency Medicine Outstanding Faculty Medical Student Educator Award from medical students who rotate in the ED.

Research

To support the continued growth of our research enterprise, this year we named Renee Hsia, MD, MSc, associate chair for health services research and Robert Rodriguez, MD, associate chair for clinical research.

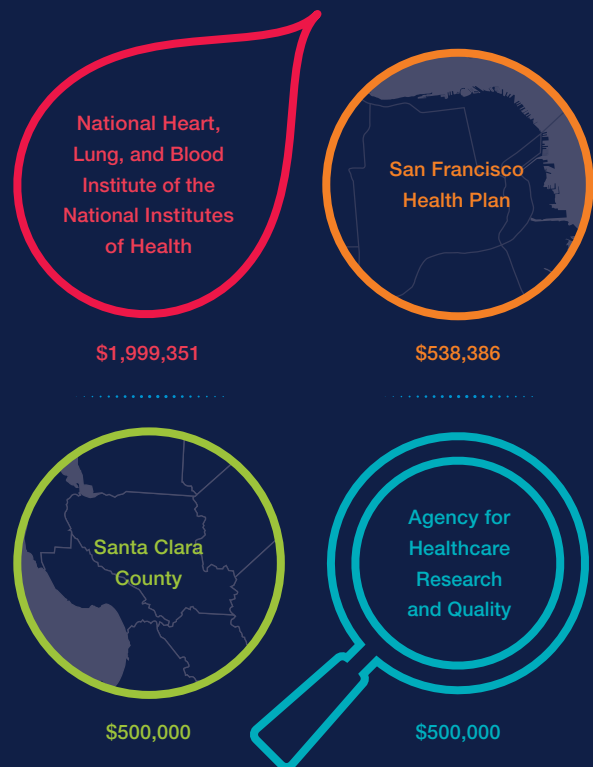
In 2017, our faculty, fellows and residents published 142 articles in peer-reviewed journals, including nearly every prominent journal for emergency medicine, as well as articles in *The BMJ*, *Health Affairs*, *Health Services Research Journal* and *JAMA Internal Medicine*.

In addition, says Hsia, "We've been trying to expand what we're doing to support faculty who may not be traditional researchers. For example, we have a very strong EMS section, and combining that with our methods expertise, we've been able to start collaborations to identify fairly unique data sources that can get at some important, unanswered questions."

That type of work – an emphasis on projects that can make a difference for end users of hospital emergency care – is a distinguishing characteristic of the department's research, says Hsia. "We aim to provide the data and evidence that change policies or change clinical practice. We're not just publishing to publish," she says.

An Expanding Research Enterprise

In 2017, department faculty members had a number of new and ongoing government, nonprofit foundation and industry grants to conduct various types of research. Grants and funders included:



The range of local and federal funders attests to how the department engages with local stakeholders to tackle deep-seated health care issues that are among the nation's top priorities.

Thus it was a remarkably exciting year for the department. We can take pride not only in our many extraordinary accomplishments, but also in our role as part of UCSF's continuous quest to better meet the needs of our patients. A demanding process of self-reflection and planning aimed at optimizing our strengths and building our capacity should lead to furthering our mission in the future.

Selected Publications

In 2017, department faculty, fellows and residents had 142 peer-reviewed publications, which speaks to our growing influence on the practice of emergency medicine. What follows is a small selection of our most impactful publications.

Shared decisionmaking in the emergency department: a guiding framework for clinicians.

Probst MA, **Kanzaria HK**, Schoenfeld EM, Menchine MD, Breslin M, Walsh C, Melnick ER, Hess EP. *Annals of Emergency Medicine*. 2017 Nov; 70(5):688-95.



Ketamine as a first-line treatment for severely agitated emergency department patients.

Riddell J, Tran A, **Bengiamin R**, Hendey GW, **Armenian P**. *American Journal of Emergency Medicine*. 2017 Jul; 35(7): 1000-4.



Amanita phalloides mushroom poisonings – Northern California, December 2016.

Vo KT,[†] Montgomery ME, Mitchell ST, Scheerlinck PH, Colby DK, Meier KH, Kim-Katz S, Anderson IB, Offerman SR, Olson KR, **Smollin CG**. *Morbidity and Mortality Weekly Report (MMWR)*. 2017 Jun 2; 66(21):549-53.



The patient's dilemma: attending the emergency department with a minor illness.

Weber EJ, Hirst E, Marsh M. *BMJ*. 2017 Apr 27; 357:j1941.



Effect of tamsulosin on stone passage for ureteral stones: a systematic review and meta-analysis.

Wang RC, Smith-Bindman R, Whitaker E, Neilson J, Allen IE, Stoller ML, **Fahimi J**. *Annals of Emergency Medicine*. 2017 Mar; 69(3): 353-61.e3.



Peer-Reviewed Publications

Fentanyl and a novel synthetic opioid U-47700 masquerading as street “norco” in Central California: a case report.

Armenian P, Olson A, **Anaya A**,^{*} **Kurtz A**,^{*} **Ruegner R**, Gerona RR. *Annals of Emergency Medicine*. 2017 Jan; 69(1):87-90.



Adverse effects from counterfeit alprazolam tablets.

Arens AM,[†] van Wijk XM, **Vo KT**,[†] Lynch KL, Wu AH, **Smollin CG**. *JAMA Internal Medicine*. 2016 Oct 1; 176(10):1554-5.



Emergency department length-of-stay for psychiatric visits was significantly longer than for nonpsychiatric visits, 2002-11.

Zhu JM, Singhal A, **Hsia RY**. *Health Affairs (Millwood)*. 2016 Sep 1; 35(9):1698-706.



Racial-ethnic disparities in opioid prescriptions at emergency department visits for conditions commonly associated with prescription drug abuse.

Singhal A, Tien Y, **Hsia RY**. *PLoS One*. 2016 Aug 8; 11(8): e0159224.



^{*}Resident. [†]Fellow.

Altmetric scores captured on May 1, 2018.



Pediatric Emergency
Department at Mission Bay.

emergency.ucsf.edu

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Department of
Emergency Medicine

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