YEAR in REVIEW 2018
<table>
<thead>
<tr>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
<tr>
<td>Clinical</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>Quality and Safety</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>Research</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>Global Health</td>
</tr>
<tr>
<td>14</td>
</tr>
<tr>
<td>Diversity</td>
</tr>
<tr>
<td>18</td>
</tr>
<tr>
<td>Philanthropy</td>
</tr>
<tr>
<td>19</td>
</tr>
<tr>
<td>Department Hail &amp; Farewell</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>New Faculty &amp; Residents</td>
</tr>
<tr>
<td>23</td>
</tr>
<tr>
<td>Peer Reviewed Publications</td>
</tr>
<tr>
<td>32</td>
</tr>
<tr>
<td>Active Research Grants</td>
</tr>
<tr>
<td>34</td>
</tr>
<tr>
<td>Alumni</td>
</tr>
</tbody>
</table>

Published by the UCSF Department of Anesthesia and Perioperative Care

500 Parnassus Avenue
MUE 4th Floor, Box 0648
San Francisco, CA 94143-0648
415/476-4244
https://anesthesia.ucsf.edu

Send all inquiries to UCSFAnesthesiaNews@ucsf.edu

DEPARTMENT CHAIR AND EDITOR-IN-CHIEF:
Michael Gropper, MD, PhD

EDITOR:
Morgen Ahearn

PRINCIPAL WRITER:
Andrew Schwartz

DESIGNER:
Laura Myers Design

PHOTOGRAPHERS:
Stephan Babuljak; Martin Backhauss; Elisabeth Fall; Elena Graham; Adam Jacobson; Susan Merrell; Afra Pourdad; Maurice Ramirez, Barbara Ries, Isobel Russell, MD, PhD; Marco Sanchez, UCSF Documents and Media; Richard Schlobohm, MD

©2019 The Regents of the University of California
Since the birth of our department in 1958, we have been pioneers in perioperative medicine, pushing the boundaries of our specialty and leading revolutions in health.

This Year in Review report provides an overview of our department’s efforts over our 60th year.

In the clinical realm, we discuss how integrated, interdisciplinary care that focuses on function, not pain scores, results in the best outcomes for our chronic pain patients, and describe some of our efforts to tackle the devastating opioid epidemic. We are also pleased to include an inspiring story of one young patient’s resilience and strength as they navigated their recovery with the help of the Integrated Pediatric Pain and Palliative Care team (IP3).

In research, we are questioning assumptions and uncovering new insights through the analysis of large health care data sets. We also describe our work to use real-time biostatistical analysis of the electronic health record and point of care data to transform and personalize individual patients’ care. We detail the history and current work of the White Mountain Research Station in the Eastern Sierras, where we have been performing studies elucidating the effects of hypoxia on humans for over 40 years.

With the creation of the “Anesthesia Education Day,” our Education Division has been working hard to improve the anesthesia resident educational experience, more than doubling the amount of protected resident education time and expanding beyond didactics to include innovative learning workshops, problem-based learning discussions, simulations, and a more robust focus on wellness. With more team members and educational opportunities, our Division of Global Health is also expanding, improving anesthesia care and advancing health worldwide.

As we move into our 7th decade as a department, we reaffirm our commitment to growing and refining our diversity and inclusion efforts. This has included the appointment of Dr. Jennifer Lucero as the Department’s first Vice Chair for Diversity and Inclusion, the creation of a multidisciplinary diversity committee with both staff and faculty representatives, as well as more focused work on the recruitment and retention of those underrepresented in medicine.

As always, thank you for reading. We look forward to your comments.

Sincerely,
Michael A. Gropper, MD, PhD
Chair, UCSF Anesthesia and Perioperative Care
Concerns about the dangers of opioid use, the need to effectively address acute pain, and the long-term health effects of experiencing chronic pain tend to be heightened when treating children. Among the complicating factors: Families and clinicians worry about the effects of both drugs and pain on the developing brain and, for clinicians, working effectively with concerned families is essential, but requires much more than technical expertise.

That’s why, in 2018 the UCSF Department of Anesthesia and Perioperative Care hired Amber Borucki, MD, as its dedicated pediatric pain director. Fellowship-trained in both pediatric anesthesiology and pediatric and adult pain management, Borucki says managing acute and chronic pain in children demands sensitive, multidisciplinary and coordinated care across inpatient and outpatient settings.

According to Mark Schumacher, MD, PhD, chief of the UCSF Division of Pain Medicine, Borucki’s presence is the culmination of a vision that began before UCSF Benioff Children’s Hospital moved to Mission Bay. With the support of Schumacher and the vision of Chief Medical Officer Stephen Wilson, MD, PhD, who helped launch the Integrated Pediatric Pain and Palliative Care (IP3) Service, clinicians from various disciplines cross-trained to create a group that today works collaboratively across UCSF Benioff Children’s Hospital San Francisco to address complex, chronic or life-limiting pain concerns, using everything from medication and regional pain procedures through integrative care and psychosocial support.

“Someone with Amber’s expertise can boost all of the foundational work that has come before,” says Schumacher.

Managing Concerns About Opioids

These days, addressing concerns about opioid use is often top-of-mind for pain management. Schumacher says that he and Borucki can help their clinical colleagues understand that, “A combination of alternative techniques can often reduce the requirement for opioids, making it much safer for our patients.”

To that end, when Borucki arrived, she became involved with the hospital’s opioid task force, which has taken a multi-faceted approach to ensuring responsible opioid management, including:

■ Implementing changes in the hospital’s electronic health record (EHR) to increase provider awareness of appropriate order sets.

■ Changing lectures to residents – who write many hospital orders – to include discussions of best practices for opioid prescribing.

■ Creating detailed clinical pathways for patients who enter the hospital with an acute pain crisis.

■ Developing guidelines for how to appropriately prescribe and administer opioids for children, including requiring opioid contracts for children and families, enrolling them in a prescription drug monitoring program and teaching parents about safely locking up medications.

Karen Sun, MD, chief of Pediatric Hospital Medicine at UCSF Benioff Children’s Hospital San Francisco and associate director of the IP3 service, adds, “We are also fortunate to have Amber join our team, because of her ability to do pediatric regional anesthesia, which can be an opioid-sparing modality.”

A Comprehensive Approach for Postoperative Pain

Sun and Borucki say that one of the IP3’s key functions is consulting with surgeons when patients are undergoing procedures likely to cause considerable postoperative pain. To that end, the team is helping to create enhanced recovery...
after surgery (ERAS) protocols for a number of common procedures in kids. “ERAS protocols are among the things we can do to optimize care and make sure opioids are given responsibly or that we use appropriate alternatives,” says Borucki. The protocols include pre- and intraoperative pain management. In some cases, such as when children undergo a total pancreatectomy, the procedures can be quite complicated with intravenous analgesics and radiologic placement of nerve infusion catheters and use of an infusion pump for postoperative pain control. In both cases, Borucki helps determine the right pharmacologic mix, which can range from opioids to low-dose ketamine and lidocaine.

The protocols also offer a full menu of integrative approaches, including having children and families work with the team’s psychologist on developing coping skills for pain, preoperative exercise regimens, massage therapy, acupuncture, mindfulness training and educational videos.

**The Oncology Overlap**

Pain management in kids can be especially complicated when they are undergoing treatment for cancer. Because survival rates for most childhood cancers are high, Schumacher says it’s especially important to pay attention to quality of life during treatment.

“Cancer pain management has many moving parts, including understanding complications from surgery and radiation, contraindications and the potential side effects of chemotherapy,” says the department’s Ann Shah, MD, a fellowship-trained pain specialist, who has undergone advanced training in cancer pain at both Memorial Sloan Kettering Cancer Center and the Dana-Farber Cancer Institute. In addition, she says, cancer patients often underreport their pain levels because they are worried the pain indicates that curative therapy has failed.

In general, she says, medication is typically offered first, sometimes along with integrative techniques, partly because both methods are easier to deliver and partly because patients and families tend to be less comfortable with interventional procedures for pain. Nevertheless, a number of things can change that mindset, from concerns about opioid use through situations where patients have not responded to pain medications or alternative therapies, or have experienced side effects from medication.

In those cases, says Shah, “Interventional procedures can be a way to decrease overall risk from medications. Most of the procedures are relatively safe and also have a better analgesic effect than oral medications.” The options include targeted nerve blocks or implantable devices such as neurostimulators or intrathecal pumps. The latter might deliver a single medication (typically an opioid or calcium channel inhibitor) or a combination of an opioid, local anesthetic and other medications. Such pumps are not only a more effective choice for pain relief, but may also have a significantly decreased risk for addiction than oral opioids.

Of course, deciding on the proper pain management approach involves a close collaboration with the treating oncologist. Shah and Schumacher are now working with oncology and palliative care to create a dedicated, interdisciplinary pain management resource for all cancer patients, including children.

**Transitional and Outpatient Care**

Borucki and Sun note that the focused attention on pain management does not and should not end when children leave the hospital. The UCSF Benioff Children’s Hospital’s Pediatric Pain Clinic – which includes Borucki, two pediatricians, a neurologist, rheumatologist, psychologist, physical therapist, massage therapist, acupuncturist and dietitian – provides an expert support network for patients and families post-hospitalization.

“We include all the disciplines and emphasize communication because there are often co-morbid conditions associated with pain,” says Borucki. “Psychiatry, for example, can be very important because pain can lead to depression – and depression or anxiety can increase pain levels.” Similarly, patients and families concerned about the side effects and long-term effects of drugs, might turn to alternatives like physical or massage therapy and other rehabilitation techniques. And when drugs are necessary, in some cases it makes more sense to turn to interventional procedures for administering them.

“Whether it’s cancer patients or those with non-malignant pain syndromes who have failed usual plans, chronic pain is not one more day of acute pain,” says Schumacher. “It’s rare anyone will find one single cause or treatment. Our goal is to provide a plan that minimizes side effects and which allows patients to regain meaningful function.”

“And one of the nice things about working with kids is that they can be more open-minded about the alternative therapies,” says Sun.

Borucki adds that effectively working with families can also make a tremendous difference. “It can take some time to build trust, but when you have a good relationship, things tend to go much better, especially when people focus on functioning, not pain scores. Is the child going to school? Engaged in activities? Spending time with friends? Recent literature says that function is a better predictor of outcomes.”

And improving outcomes is, of course, the end game of bringing Borucki – who clearly enjoys the work – aboard. She says, “Our team is wonderful and I’m so grateful to have met these patients and families and to have worked with them through tough times and seen their recovery.”

“Our goal is to provide a plan that minimizes side effects and which allows patients to regain meaningful function.”

— Mark Schumacher, MD, PhD

(pictured above, center)
Alex Gomez began experiencing chronic pain as a toddler. At 13, they were diagnosed with Crohn’s disease but the diagnosis offered little relief. Over the next five years, the pain, especially severe abdominal pain, forced Alex into a disheartening routine of medications, emergency department visits and hospital stays. Then, in 2016, Alex developed abscesses and fistulae that resisted healing. It ultimately lead to a total proctocolectomy in 2017, which caused a massive wound in their perineum. “No one could figure it out and I wound up back in the hospital,” they say. “I was there for about nine months and was bed bound for so long I lost my ability to walk. I was on so many opiates and nothing worked…. I was screaming 24 hours a day. Nurses were crying because they couldn’t do anything and the doctors started blaming me, telling me I should tough it out.” At that point, Alex’s insurer okayed their transfer to UCSF Benioff Children’s Hospital San Francisco, despite Alex having recently turned 19. “That first day at UCSF, doctors from almost every specialty showed up,” they say. A dermatologist quickly diagnosed pyoderma gangrenosum, a condition believed to be an autoimmune disease, which can lead to deep ulcers and chronic wounds – and the interdisciplinary team, including the Integrated Pediatric Pain and Palliative Care (IP3) team – initiated a new treatment regimen.

“It included autoimmune therapies, new methods for treating the physical wound and working toward getting Alex off the opioids, in part by integrating tools like physical therapy, massage, acupuncture, music and art,” says Amber Borucki, MD, pediatric pain director for the UCSF Department of Anesthesia and Perioperative Care.

Simultaneously, IP3 psychologist Cristina Benki, PhD, began working with Alex on their psychological wounds, which included post-traumatic stress disorder from a lifetime of pain and disability. “I felt like a car that needed to be in a junkyard and after experiencing all the trauma and malpractice in other places, trust was hard,” Alex says. “UCSF and Cristina changed that. It was huge for me, having somebody to talk to. I still have triggers – like when I have to come back to the hospital for a procedure – but I’m working hard with Cristina to develop coping mechanisms.”

After a five-month stay at UCSF, Alex returned home, where they continue to make progress. The wound is 60 percent healed, they are walking again, completely off hydromorphone and weaning off methadone. In addition, Alex has become a powerful advocate. They work closely with various groups and have served as an honored hero at a walk for the Crohn’s & Colitis Foundation. “UCSF encourages advocacy and don’t feel threatened by a patient who has knowledge or suggestions. I was part of the care team,” says Alex, who is planning to return to college and eventually make their way to medical school. “I’ve begun to believe I can accomplish all of the things I dream of.”
Clinical HIGHLIGHTS

Anesthesia and Perioperative Care Case Volume — UCSF Health

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission Bay Hospitals</td>
<td>12,397</td>
<td>15,704</td>
</tr>
<tr>
<td>Orthopaedic Institute</td>
<td>1,942</td>
<td>2,058</td>
</tr>
<tr>
<td>Parnassus Hospital</td>
<td>15,849</td>
<td>18,476</td>
</tr>
<tr>
<td>Mount Zion Hospital</td>
<td>5,789</td>
<td>5,997</td>
</tr>
<tr>
<td>Pediatric Cases</td>
<td>5,681</td>
<td>6,361</td>
</tr>
<tr>
<td>Total UCSF Health Clinical Cases</td>
<td>35,977</td>
<td>42,266</td>
</tr>
</tbody>
</table>

READ MORE ONLINE...

From left: William Ng, MBBS, Kathryn Rouine-Rapp, MD, and Hung Nguyen, MD, in the pediatric cardiac operating room. (Photo courtesy Isobel Russell, MD, PhD.)

UCSF Pediatric Cardiac Anesthesiology Team – Providing Expert Care for Little Hearts (tinyurl.com/Anesth18AR04)

Improving Patient Care at ZSFG with Enhanced Recovery after Surgery Pathways (tiny.ucsf.edu/Anesth18AR01)

Amber Borucki, MD, Director of Pediatric Pain at UCSF, Examines the Use of Functional Pain Scales for Pediatric Patients (tiny.ucsf.edu/Anesth18AR02)

Trauma Anesthesiology Society Annual Meeting (tiny.ucsf.edu/Anesth18AR03)

Inpatient Pain Services Leadership Announcement (tiny.ucsf.edu/Anesth18AR05)

Eula Lewis, BS, RRT, CTTS, AE-C Featured in AARC Times Magazine (tiny.ucsf.edu/Anesth18AR06)

Hung Nguyen, MD, Wins 2018 UCSF Exceptional Physician Award (tiny.ucsf.edu/Anesth18AR00)

READ MORE ONLINE...

Mario De Pinto and Team Win 2017-2018 Caring Wisely Award to Improve Care for Back and Neck Pain (tiny.ucsf.edu/Anesth18AR08)

Seema Gandhi, MD, Featured in Asparagus Magazine, “A Greener Bill of Health: UCSF’s Dr. Seema Gandhi Tackles Sleeper Pollutants in the Operating Room” (tinyurl.com/Anesth18AR12)

Congratulations for Anesthesia Resident-Led True North Leadership Rounds (tiny.ucsf.edu/Anesth18AR07)

UCSF Anesthesia and Perioperative Care 2018 Patient Safety Award Winners (tiny.ucsf.edu/Anesth18AR14)
As health care data sets continue to grow at astounding rates, they are enabling researchers to uncover new insights, both through secondary data analysis and through advances in statistical and analytical tools that could enable more timely and robust clinical decision support.

Yet the types of research that rely on so-called “big data” also generate concerns and skepticism. Three researchers from the UCSF Department of Anesthesia and Perioperative Care are trying to address the concerns, even as they advance their fields.

Questioning Assumptions About Surgery, Anesthesia and Cognitive Decline

Elizabeth Whitlock, MD, MS, is using secondary data analysis to examine the longstanding assumption that surgical procedures requiring general anesthesia accelerate cognitive decline. In one recent study, conducted in partnership with M. Maria Glymour, ScD, MS, an epidemiologist with a focus on cognition in late life, they compared the cognitive results of a control group – those who need catheterization due to heart disease – to those undergoing coronary artery bypass graft (CABG) procedures and found that those who underwent CABG did only marginally worse on measures of cognition post procedure – and that both groups saw a decline.

“Our results suggest that being acutely ill may be more of a factor in cognitive decline than the procedure,” says Whitlock. She says future studies will model how people were doing cognitively before the procedure and reveal how the two groups recover over, say, a five-year period. If the trajectories come back together, good surgical candidates who have been avoiding CABG for fear of cognitive decline might choose the procedure, which research has shown has longer lasting effects than catheter-delivered therapies for addressing heart disease.

To continue pursuing this line of inquiry, Whitlock intends to use data from the same study to examine whether chronic hip and knee pain is more of a predictor of cognitive decline than hip and knee replacement surgeries.

Studies like Whitlock’s illustrate how the large numbers involved in secondary data analysis can generate important insights and hypotheses for large, randomized clinical trials to confirm. “If you’re looking for a subtle effect like cognitive change, you need a large population. We also are particularly interested in long-term cognitive outcomes, and this population-based longitudinal data source is perhaps the only feasible way to study cognitive change in a large population across years or decades after surgery,” she says.

Researchers Rise To Challenge of Turning Data Into Insights

Catherine Chen, MD, MPH, uses secondary data analysis on large data sets to open new windows on a number of health services questions. In one arm of her work, she uses Medicare data to study the downstream consequences of preoperative testing for minor surgeries. Working with R. Adams Dudley, MD, MBA, from the UCSF Department of Medicine, Chen showed that despite randomized control data that clearly proved routine preoperative testing does not affect outcomes for cataract surgery, physicians were still ordering the tests. In follow-up work, Chen explored whether there is a link between the unnecessary tests, delays in surgery and an increased risk of falling due to patients’ compromised eyesight while awaiting surgery.

Because falls are not well documented in claims data, Chen relied on a previously published algorithm that uses specific claims occurring during emergency room encounters, primary
care visits, and hospitalizations as proxies for when a patient might have fallen. These claims include diagnosis and treatment codes for common fall-related injuries (such as a wrist fracture), as well as tests performed to evaluate injuries that may arise from a fall (such as wrist X-rays to rule out a fracture, even if a fracture did not actually occur).

“It’s not a perfect algorithm, but we looked at it using a few different ways and we believe the data shows that patients of doctors who use more preoperative tests have longer wait times before their cataract surgery and increased risk of falling,” says Chen.

In 2017, Chen also became one of seven researchers to win access to a proprietary claims and EHR database from OptumLabs, as part of a partnership with the University of California. Her winning proposal will use the data to study the impact of policies and new product introductions on postoperative prescribing of opioids, by looking at data that has not typically been part of the analyses surrounding the concerns about opioid use.

“Most studies focus on the last 5-10 years, but a lot of changes in prescribing patterns would have happened around the turn of century because Oxycontin was introduced in 1996, and because the Joint Commission identified pain as the fifth vital sign in 2001, increasing pressure on providers to better manage pain in the hospital,” she says.

**Can Individual Patient Data Improve Trauma Care in Real Time?**

Romain Pirracchio, MD, PhD, comes at big data from a different angle. His work combines electronic health record and other point-of-care data with biostatistical analyses in the hope of transforming and personalizing patient care at the bedside, in real time. He believes that the advent of cloud storage, increased interoperability and advanced analytics – especially in the field of machine learning – have created an inflection point for advancing this work, especially if people take advantage of opportunities for collaboration among clinicians, basic scientists, engineers, data scientists and biostatisticians.

The wealth of talent in those fields in the Bay Area drew him to UCSF in 2018. One of his first projects will draw on these resources to try to improve trauma care for patients with everything from acute lung injury to traumatic brain injury.

“If we collect blood samples from every trauma patient, produce proteomics and genomics to characterize each patient and then combine that with clinical data and physiological signals, we should be able generate predictive analytics and eventually prescriptive analytics to assist clinical decisions,” says Pirracchio.

The thinking is that the technological advances can draw on terabytes of information that characterize a patient more fully (e.g., heart rate, blood pressure and pulse oximeter readings, along with clinical notes), synthesize the patient data with what we already know about the general population and generate predictions of various therapeutic options in a way that no single physician could do him or herself in real time.

Pirracchio argues that while this may change how clinicians operate, it does not diminish their importance, because they are essential to identifying the clinically relevant questions that inform the algorithms – and because when the analyses arrive at the bedside, the clinicians remain the ultimate decisionmakers.

“That’s why we will have to be actively involved as these innovations occur,” says Pirracchio. One key role is to insist that clinical facilities subject these innovations to the same type of validation process as any new medication or medical device.

“The algorithms should work blindly in the background so we can test their results and stay safe,” he says. “My fear is that people are pushing to produce something as fast as possible and it could be like autonomous cars; people will see the first patient who dies due to an error, rather than the thousands of patients with improved outcomes.”

**Validation and Transparency Are Critical**

Similarly, Chen and Whitlock have concerns about people putting too much faith in the large numbers involved in secondary data analysis – without understanding the limitations.

“The large data sets we use can be hypothesis-generating because they show correlation, but they cannot show causation like a randomized, controlled trial,” says Chen. “In most cases, we can’t adjust for all the possible unidentified risks if a key variable is not collected in the original data set. Consumers of the research don’t always appreciate that.”

In addition, she notes that it’s incumbent upon each researcher to understand the limitations of their particular data set. “We will get different results depending on what we include and exclude, which is why it’s so important to be transparent about our methods and the definitions we’re using,” she says.

“Secondary data lends itself to people doing a whole bunch of analyses until they find one that looks significant, which can lead to spurious correlations,” says Whitlock. That’s why the community is moving toward setting commonly agreed upon standards, including having researchers commit to a pre-specified analysis plan before looking at the data, and to doing a follow-up or sensitivity analysis.

“The important thing is to be committed to sound methodology and an openness to whatever conclusion that methodology leads you to. That can keep us honest,” says Whitlock. “If we do this right, secondary data can harmonize well with randomized control trials and step in where the primary world fails.”

---

Catherine Chen, MD, MPH (above) and Romain Pirracchio, MD, PhD

---
Since 1958 when the legendary John Severinghaus, MD, of the UCSF Department of Anesthesia and Perioperative Care founded the UCSF Hypoxia Research Laboratory, faculty, fellows and residents from the department have been journeying to the University of California’s White Mountain Research Station – a multi-campus research unit – to study the effects of hypoxia on humans. Located in the Eastern Sierras, in one of California’s most beautiful and otherworldly landscapes – high desert dotted with ancient bristlecone pines – the station is among the highest altitude research labs in the world.

“We are lucky to have it right in our backyard,” says Philip Bickler, MD, PhD, the lab’s current director.

Researchers use the setting to study oxygen transport, oxygen measurement, and high-altitude physiology.

How it Works
Each summer, the researchers offer research subjects an all-expense, weeklong trip to the mountains. It begins with a drive that goes from sea level to 14,000 feet in a day. After taking a day to acclimate, the researchers typically put the subjects through various levels of exertion and test for physiological changes in such things as brain blood flow, tissue oxygenation and cognition.

“How humans adapt at high altitude has helped us understand processes of oxygen uptake in the lung, which for anesthesiologists is important, because we observe the human body physiologically through watching people breathe and stop breathing,” says John Feiner, MD, who has been part of the lab’s leadership team since the early 1990s.

“Lung physiology is the basis of so much critical care medicine,” says Bickler, noting for example, that understanding the cellular and molecular contributors to pulmonary edema can provide insights into critical care concerns ranging from pneumonia to sepsis.

And, in fact, the lab has contributed a steady and significant stream of research tracing back to seminal studies by Severinghaus and Norman Staub, MD – another department stalwart – who are considered among the founding fathers of lung physiology.

Acute Mountain Sickness
The lab is also one of the leading centers for understanding acute mountain sickness (AMS), which affects many more people than is commonly understood. “Primary care people get asked about it all the time, and millions of people actually live at high altitude,” says Feiner.

“Mostly, AMS is a temporary illness without lasting effects,” says Bickler. “But for people who live permanently at high altitude, there is a condition called chronic mountain sickness where their ability to adapt declines, there is
worsening hypoxia and heart failure, and the five-year mortality rate is very high.”

Understanding what drives AMS – one theory ties it to an overexpression of cytokines – had led some to believe that anti-inflammatories like ibuprofen could help address the condition. But in June 2018, the lab’s faculty published a study in *High Altitude Medicine & Biology*, which found that “ibuprofen, at the package-recommended adult dose, did not have a significant effect on altitude-related increases in cytokines, AMS scores, blood, or tissue oxygenation in a population of healthy subjects with a high incidence of AMS.”

**Combining Work and Fun**

For all of the serious work that takes place at the lab, the researchers and subjects also often treasure what can feel like a week at camp. There is an onsite cook, a variety of recreational activities and the excitement of waking up each morning in a uniquely stunning landscape. That’s what keeps many of them returning each year.

“It’s a great combination of science and fun,” says Feiner.

---

**READ MORE ONLINE...**

Anesthesia Research Funding Awards (tiny.ucsf.edu/Anesth18ARre01)

Professor Isobel Russell, MD, PhD, Honored with The Edward A. Dickson Emeritus Professorship Award (tiny.ucsf.edu/Anesth18ARre02)

Assistant Professor in Residence Elizabeth Whitlock, MD, MS, Awarded NIH R03 Grant to Study Cognitive Change in Elderly after Cardiac Surgery (tiny.ucsf.edu/Anesth18ARre03)

Pain Medicine Fellow Neelesh Anand, MD, Wins First Place Poster at the 2018 North American Neuromodulation Society Meeting (tiny.ucsf.edu/Anesth18ARre04)

Professor Roland Bainton, MD, PhD, Receives PBBR Funding (tiny.ucsf.edu/Anesth18ARre05)

Vice Chair for Anesthesia Research, Dr. Judith Hellman, Appointed the Inaugural William L. Young Endowed Professor (tiny.ucsf.edu/Anesth18ARre20)

2018-2019 Severinghaus Assistant Professors (tiny.ucsf.edu/Anesth18ARre21)

Assistant Professor in Residence Catherine Chen, MD, MPH, First Author on Anesthesiology Online First Editorial (tiny.ucsf.edu/Anesth18ARre22)

Associate Professor Helen Kim, MPH, PhD, Appointed Director of the UCSF Center for Cerebrovascular Research (tiny.ucsf.edu/Anesth18ARre23)

Assistant Professor in Residence, Catherine Chen, MD, MPH, First Author on Article Featured in *JAMA* Weekly Highlights (tiny.ucsf.edu/Anesth18ARre24)

Professor Emeritus Adrian Gelb, MB ChB, First Author on *Canadian Journal of Anesthesia*’s Most Downloaded (7200) Article of 2018 (tinyurl.com/Anesth18ARre25)

Results of Dr. Elizabeth Whitlock’s Study of Cognitive Change after Cardiac Surgery Highlighted in a Society of Thoracic Surgeons News Release (tinyurl.com/Anesth18ARre26)

Assistant Professor in Residence Catherine Chen, MD, MPH, First Author on Anesthesiology Online First Editorial (tiny.ucsf.edu/Anesth18ARre11)

Assistant Professor in Residence, Catherine Chen, MD, MPH, First Author on Article Featured in *JAMA* Weekly Highlights (tiny.ucsf.edu/Anesth18ARre12)
Despite its well-earned reputation as one of the world's finest training grounds for anesthesia residents, the UCSF Department of Anesthesia and Perioperative Care found itself with a significant educational challenge in early 2017. Its residents were among those voicing concerns that the department's longstanding model for didactic education needed updating.

As the clinical environment became increasingly complex and challenging, residents had begun to feel that 90-minute, bi-weekly lectures before rushing off to a full day in the operating room (OR) were less than satisfying. They knew colleagues in other UCSF residency programs who had half- or full-day didactic sessions on a regular basis. In addition, many residents had become accustomed to a more active learning model than the traditional lecture.

The department's leadership heard the concerns and did not wait to act. They created Anesthesia Education Day (AED) – a full day of education programming that included clinical didactics and wellness education, as well as mentorship and advising. Because of the large size of the program, the department set aside two AED days per month, with each of the department's 75 residents relieved from clinical duties to participate in one AED monthly.

This teaching model is a rarity among the nation's anesthesia residency programs and there were significant logistical challenges to overcome, including the need to adapt resident, fellow and faculty responsibilities to provide continuous coverage in the OR and other clinical settings during each AED. But in just its first year of implementation, the change has received rave reviews from the participants and generated considerable interest from prospective residents.

“It's been night and day,” says Annie Park, MD, one of the department's two chief residents for 2017-2018. “You have time to focus on your own education and self-improvement. I can't quantify how important that is. We don’t have to think about anything else that day and the faculty work super hard to make sure we have an active, tailored experience. The residents are extremely excited and tremendously proud when talking to prospective applicants.”

**How It Works**

According to Manuel Pardo, MD, program director of the UCSF Anesthesia residency and the department's vice chair for education, the dramatically increased complexity and expectations of modern-day anesthesia and perioperative care have shifted residency from an apprenticeship model to one that demands more focused education and training.

In order to develop the structure of the AED, Pardo began by researching and speaking with representatives from the few anesthesia programs in the country that have expanded didactics for their residents. He then asked John Turnbull, MD – who is in charge of resident didactics – to lead the effort to create the AED.

Because the AED more than doubled the amount of protected education time for residents, the first major decision was how to allocate the major blocks of time. Approximately half is now dedicated to clinical didactics, and the increased time footprint has allowed for more use of novel teaching methods, such as workshops and problem-based learning discussions. (The department’s Joyce Chang, MD, received a grant to create a series of such discussions.) In addition, two hours of each AED focus on physician wellness, leaving the remainder of the time for feedback, mentoring and recognition of resident achievement.

“It was a big ask of all of us, because we not only needed more coverage but we needed faculty to teach and develop substantially more curriculum,” says Pardo. That plus the administrative aspect of coordinating the AED and clinical resident schedules created a new set of logistical challenges, for which Turnbull worked closely with administrative staff member Cindy Chin to manage.

The expanded workshops include dedicated time on ultrasound, regional airway procedures and lung isolation. One AED – at Priscilla Chan and Mark Zuckerberg San Francisco General Hospital and Trauma Center – drew on the expertise there in trauma care and high-fidelity simulation. Another innovation, an end-of-life curriculum, included simulations with standardized patients.
“We look at the ABA (American Board of Anesthesiology) content outlines, but we don’t just teach to the test and – more and more – we use a type of flipped classroom concept, says Turnbull. He notes, however, they are careful not to add too many time demands on the residents. “We also implemented a board review session for CA-1s.”

“And we carved out specific time for feedback from leadership to the residents, everything from career or fellowship advice to just generally checking in on how it’s going,” says Pardo.

The wellness curriculum – which Kevin Thornton, MD, and Kristina Sullivan, MD, developed – is a response to heightened concerns about job stress, burnout, depression and even suicide. “In the past, we would dedicate an hour or two a year to this topic; now we have a couple of hours of wellness-themed activities each month,” says Pardo. During most wellness sessions, groups work with others in their residency “houses” to provide a level of comfort and continuity in dealing with what are often challenging emotional topics.

**Applause from the Residents**

“This was the first truly protected education time we’ve had in residency and the response from all the residents has been overwhelmingly positive,” says Chief Resident Jason Lang, MD.

“The AED also builds community,” says Turnbull. “Informally, residents seem to socialize more after the day and it’s a very positive sign that they want to spend time together.”

“I’ve loved every single aspect of it,” says Park. “The department invested heavily in us and, as residents, we are so grateful and happy to be part of this.”

---

**Anesthesia Interest Group Skills Session 2018** (tiny.ucsf.edu/Anesth18ARedu6)

**Professor Mark Schumacher, MD, PhD, Discusses the Development of Chronic Pain Curriculum in the UCSF School of Medicine** (tiny.ucsf.edu/Anesth18ARedu2)

**UCSF Anesthesia and Perioperative Care at WARC 2018 Cindy Chin Wins School of Medicine Star Achievement Award** (tiny.ucsf.edu/Anesth18ARedu5)

**Professor Kristina Sullivan, MD, Appointed Director, UCSF Anesthesia Residency Program and Associate Chair, Anesthesia Education** (tiny.ucsf.edu/Anesth18ARedu13)

**Professor Kristina Sullivan, MD, Appointed the Sol Shnider Endowed Chair for Anesthesia Education** (tiny.ucsf.edu/Anesth18ARedu4)

**Assistant Professor Solmaz Manuel, MD, Selected to Serve on the UCSF School of Medicine Committee for Curriculum and Educational Policy** (tiny.ucsf.edu/Anesth18ARedu7)

**Vincent Lew Wins Excellence in Teaching Award from the UCSF Academy of Medical Educators** (tiny.ucsf.edu/Anesth18ARedu8)

**Fleet Week Peer to Peer Medical Exchange** (http://tiny.ucsf.edu/Anesth18ARedu9)

**Ask the Expert: Chief of Vascular Anesthesia Ahmed Shalabi, MD, Leads Session on Anesthesia for Emergent Endovascular Surgeries at 2018 ASA** (http://tiny.ucsf.edu/Anesth18ARedu10)

**Pain Medicine Fellow Neelesh Anand, MD, Wins First Place Poster at the 2018 North American Neuromodulation Society Meeting** (tiny.ucsf.edu/Anesth18ARedu11)

**William C.K. Ng, MBBS, Wins Chancellor’s Fund Award for Difficult Airway Course** (tinyurl.com/Anesth18ARedu12)
The fall was a busy and productive time for our Division of Global Health Equity. We have expanded training opportunities and our team. In September, our 6 Global Health Clinical Scholars residents (Ashley Sharp, Jared Brown, Chris Cosden, Sanjay Belani, Liz Liu, Amy Chen) completed our two-week introductory global health course. We also hosted multiple journal clubs and seminars on campus with excellent multidisciplinary attendance. In October we presented 5 abstracts and 3 podium presentations at the American Society of Anesthesiologists' (ASA) annual meeting, as well as hosted a global health social event with more than 60 colleagues from more than 20 countries.

Elliot Wollner joined us as the 2018-19 Global Health Equity Fellow at ZSFG and spent a portion of the Fall in Uganda learning and teaching alongside collaborators. Dr. Will Booth has joined us for one year as a visiting scholar to conduct research with the division.

Tyler Law, 2017-18 Global Health Equity Fellow and now Assistant Professor at UCSF, presented at ASA as well as the Association of Anaesthesiologists of Uganda Conference, and Maytinee Lilaonitkul presented at the ASA, Society for Obstetric Anesthesia and Perinatology (SOAP) and helped teach the Anesthesia for Global Outreach Course in Boston, as well as the SAFE OR anesthesia course in Uganda and India. Michael Lipnick presented at the ASA and the College of Surgeons of East, Central and South Africa Annual Conference in Rwanda.

Global Health Fellowship Pathways

We have continued to expand our formal global health training opportunities with 3 pathways for anesthesia global health training post residency:

- The first pathway (the Anesthesia Global Health Equity Fellowship) is a non-ACGME fellowship pathway based at Zuckerberg San Francisco General Hospital and Trauma Center (ZSFG). Fellows are based clinically at ZSFG and are supported for up to six months per year to work on research, education and policy projects focusing on health equity at ZSFG or international partnering sites. This pathway can also be tailored to include a Master of Science in Global Health through the UCSF Institute for Global Health Sciences. Dr. Tyler Law completed the fellowship in 2018, followed by our current fellow Dr. Elliot Wollner.

- The second fellowship pathway is the Health, Equity, Action, Leadership (HEAL) Initiative. HEAL is a unique, fellowship opportunity designed for providers (from the US and abroad) who are passionate about global health equity and global health delivery. This fellowship is open to most healthcare disciplines, including physician anesthesiologists and CRNAs. The HEAL cohort includes 70 fellows who spend 2 years working in Native American reservations and international partner sites located in the poorest communities around the world.

- The third fellowship pathway offered by UCSF Anesthesia is done in partnership with the World Federation of Societies of Anaesthesiologists (WFSA). This program is available exclusively for anesthesia medical educators from low and middle-income countries. Fellows spend up to 2.5 months in San Francisco to complete intensive training on medical education and simulation methodology, then return to their home institutions to implement mentored education projects. In 2017 we hosted our first fellow Dr. Fred Bulamba (Uganda). The 2018 fellow is Dr. Cornelius Sendagire (Uganda) who is going on to pursue a PhD in medical education.
Global Health HIGHLIGHTS

READ MORE ONLINE...

Global Health Fellows at Bootcamp 2018

Adrian Gelb, MB, CHB

Team Additions

- New Faculty – Visiting Clinical Instructor and Global Health Fellow – Elliot Wollner
- Global Health Visiting Scholar – Will Booth
- WFSA-UCSF Anesthesia Simulation Fellow – Cornelius Sendagire

Global Health Grants

WFSA Fresenius Kabi Innovation Award given to Mazi Nourian (MS4 Univ Utah) and Michael Lipnick for research on novel methods of capnography designed for resource-constrained settings.

Global Health–Related Publications


With 7200 total downloads, this was the most downloaded article in the Canadian Journal of Anesthesia for 2018.


With 7200 total downloads, this was the most downloaded article in the Canadian Journal of Anesthesia for 2018.


A Determined, Multi-Pronged Approach to Improving Department Diversity

Despite well-meaning programs, individual efforts and increasing evidence that a diverse health care workforce contributes to health improvements, progress in the United States has often been slow. Determined to be an exception, the UCSF Department of Anesthesia and Perioperative Care is pushing hard to grow and refine its diversity and inclusion efforts.

Through an active diversity committee led by Jennifer Lucero, MD – who in 2018 became vice chair for diversity and inclusion – and support from department and university leadership, the most recent numbers show reasons for optimism and room for improvement. As of March 2018, individuals from groups underrepresented in medicine (UIM) made up 9.4 percent of department faculty and 10.3 percent of staff. For its 2018-2019 residency match, the department saw an uptick in the number of applicants and interviewees, with 24 percent of those matching coming from UIM groups.

Equally important, say committee members, an environment is taking shape within the department that they believe can inspire more individuals from UIM groups to come and build their careers at UCSF.

A Multi-Talented, Multi-Disciplinary Team

In assuming her position, Lucero has assembled a diverse team of advocates from across clinical sites who are committed to bringing UIM individuals to the department and, once they arrive, helping them navigate the unique environment of academic medicine. The committee focuses on five key areas: recruitment, retention, developing more health disparities research in anesthesia, career development, and infusing all aspects of resident education with an awareness of diversity and inclusion issues.

“With support from department leadership and the School of Medicine’s Office of Diversity, we’ve begun to move forward,” says Lucero, who grew up in southern California, a first generation college student from a Latino/Native American family.

“[Department Chair] Michael Gropper has been fantastic in explaining to the entire faculty why diversity and inclusion issues are important,” says Gabriel Sarah, MD, a first generation Syrian-American who grew up in Tucson, Arizona. “He wants our department to be on the forefront of change and understands it will take a committed effort from staff, faculty and learners.”

“It’s definitely a priority,” says Charlene Blake, MD, PhD. “Before I arrived, three years ago, there was only one black woman in the department. Since then, we’ve added three other young black faculty members, which is tough because there are not that many of us in anesthesia.”

Odi Ehie, MD, is one of those faculty members. Having grown up in Alabama, the daughter of Nigerian parents, Ehie attended the historically black college, Xavier, before moving on to medical school at the University of Wisconsin, Madison, residency at NYU and a fellowship at Stanford. When she was looking for the place where she could most comfortably begin a career, she says, “UCSF was the best fit for me. I felt they had a strong diversity outreach effort – the strongest of all the different institutions I’ve been in.”

An Emphasis on Resident Recruiting and Selection

One of the key measures of success for those seeking to create a more diverse health care workforce is the percentage of UIM residents a department is able to attract. Claire Harmon – staff lead on the diversity committee – manages trainee enrollment for the department’s National Institutes of Health T32 training grant; the resident pool is the main pipeline for T32 trainees.

“Every time we reapply [every five years], we need to include a plan to recruit and retain people from diverse backgrounds,” says Harmon. Thus, the department has become increasingly active in advertising in settings more likely to capture the attention of UIM applicants and sending representatives from the department to pertinent group meetings at UCSF and across the country, including those of the Student...
National Medical Association and the Latino Medical Student Association. Heather Hervey-Jumper, MD, is among those who have spoken at multiple forums where medical students of color congregate and is also involved with the anesthesia interest group at UCSF School of Medicine, because, she says, “I want to be one of the first faces that introduces them to the field, especially since there are not many women or people of color in anesthesia and I can help them see it’s a vibrant field with lots of opportunity.”

In addition to the outreach efforts, members of the committee are also working with the UCSF Graduate Medical Education committee to drum up support for moving toward standardizing the consideration of community activities, leadership roles, life experience, research involvement and other less numbers-based measures for screening applicants across all specialties.

“It’s a goal to look at UIM or other minority group applicants for residencies and fellowships through a different lens – consider all different parts of their application so we can increase our interview pool,” says Sarah. He says it is well documented why UIM students don’t always perform as well on numbers-based measures and that a more holistic look can open doors to students equally well-prepared to succeed than those who do well on tests. “And once we get these people into the interview process, we are helping to develop ways to fairly rank them so they can successfully match.”

Creating a Pipeline
Attracting those already in medical school is critically important, but more dramatic change will likely come when the pool of UIM applicants grows – an understanding that has the department speaking to UIM applicants in undergraduate science programs, as well as to those in high school and middle school.

For example, Lucero leads the undergraduate residency internship (URI) program in anesthesia, part of a broader program sponsored by the UCSF Department of Obstetrics, Gynecology and the Reproductive Sciences and Kaiser Permanente. URI offers undergraduate students from UC Berkeley mentorship, shadowing opportunities, research experience and a virtual handbook for how they can make it to and through medical school.

For her part, with the department’s full support, Blake designed and coordinated what will be an annual program for UIM high school students from San Francisco public schools, called UCSF SCORE (Students Capturing the Operating Room Experience). During the daylong program, young students interact with a diverse group of UCSF operating room clinicians and engage in simulation sessions where they gain hands-on experience with common procedures.

Keeping Sight of Staff
Harmon says that having UIM faces on staff is also an important factor in attracting more diverse faculty, residents and staff. “Our staff diversity recruiting had been quite good for some time. Martie Santos put in a lot of work going to job fairs and creating a recipe for success that has worked,” says Harmon. “But now that diversity efforts have become more centrally managed, it’s up to us to be accountable to ourselves for continuing the work of the past.”

As part of that effort, Harmon completed the staff diversity and inclusion certificate program, which is coordinated by the UCSF Office of Diversity and Outreach. The program provides foundational knowledge about how to enhance diversity and inclusion programs. Her capstone project involves organizing a fall retreat for staff leadership, in which they will explore how to build on past successes, receive training on such things as how to become an ally for younger or newer staff members and deepen their understanding of concepts like privilege and social justice.

The Retention Challenge
Yet even as the department becomes more diverse, convincing people to stay can pose an even more difficult challenge. There are numerous factors, but two seem to predominate that are a challenge across UCSF. First, African Americans and Latinos are now only a small and shrinking part of the city, with the African American population in particular declining precipitously in recent years. And, second, the city has one of the country’s highest costs of living, but salaries in academic medicine are typically lower than they are in private practice and many people from UIM communities do not have the intergenerational wealth to compensate.

“We want people here who are diverse socioeconomically as well as UIM and while I hate to put those two together, it is disproportionately people from UIM communities that are also socioeconomically disadvantaged,” says Lucero.

She says that UCSF might consider looking at other health care institutions in the area that do a good job of addressing the area’s financial realities, through some combination of salary, stipends, scholarships and quality-of-life benefits. Yet because addressing the economics is extremely complex and not always something the School can fully control, the committee and department try to compensate by helping address quality of life concerns. In part, this is as simple as reminding people of the extraordinary beauty and culture of a world-class city like San Francisco, but it also means building a community for UIM individuals within the department.

That work occurs on many levels, both informal and formal. For Lucero, it began a few years back with a dinner she held in her home modeled on something she’d experienced at Yale: a dinner for medical students and residents from UIM populations.

“I decided to invite all UIM faculty and residents – my husband and I love to cook – and it was a lot of fun for all of us,” she says. When the department caught wind of it, they offered to support the dinners, which Lucero now tries to hold quarterly.

“My house is also used for a global welcome event, but we designed this UIM dinner to build community for people who need a safe space, where they can be among others who are not in the majority,” she says. “It’s especially important because this is a big department, spread across multiple campuses and it’s not always easy to connect with each other.”

Such events can have important, lasting effects, including creating a much-needed network for UIM communities to help each other, much as majority communities have done for years. “When I was looking at coming out here, I had questions,” says Hervey-Jumper. “Where do I live? Where do I put my kids in school?”
Who do I ask, because my children’s experience in school will not be the same as someone who is not underrepresented? Meeting other faculty of color in the department was very helpful."

Those connections and conversations can be particularly important for retaining residents — and can even be institutionalized to great advantage. Programs like the department’s newly instituted Anesthesia Education Day, for example, created more time for wellness discussions and mentorship, where all residents — including UIM residents — can ask questions that range from how to establish an academic career to balancing childcare with the demands of the job.

Creating an Open Environment

Other questions — ones that directly address the degree that everything from blatant racism to unconscious insensitivity exist and impact people’s daily lives — can be more difficult. Harmon notes that one of the challenges in creating a welcoming environment for UIM groups so they will choose to stay is figuring out how people can effectively talk about what are, by definition, thorny issues.

“It’s something I absolutely need to work on,” she says. “My default is to avoid the issue, but all of the training asks us to have the awkward, difficult conversations. How else will somebody know they offended you? We can’t expect to solve things in one conversation — we should expect non-closure — but it’s still important to listen to another person’s perspective, especially if you don’t share it...We all have to learn how to empathize.”

“And we all have to understand why it might not be as welcoming here as we perceive it to be,” says Sarah. “Medicine can be very rigid and slow to adapt...and it’s up to us who have been here to learn to be an ally — to understand how the system has hurt people and how we can use our power and our privilege to help bring everybody up.”

“To affect real change, we have to change the institution as well as individuals,” says Harmon. “What can we put on paper about the steps we must take for everything from routine hiring practices to how we will be accountable and to whom?”

Career Development Matters

That includes being accountable for creating genuine opportunities for all staff, faculty and residents.

For staff, Sarah says learning opportunities can be prohibitively expensive and if people can’t access opportunities for growth or lack department support for engaging in opportunities, they may well leave. For residents and faculty, Ehie believes it is extremely important for those people who have been recruited from UIM groups to be further supported in their attempts to find research opportunities and speaking engagements - the kinds of things that can make or break an academic career.

“Often times, we don’t find a lot of people who look like us and we know that for people who don’t have those connections, it can be challenging to find a mentor or sponsor,” says Sarah.

“That’s complicated by impostor syndrome — that you never feel like you’re good enough after being marginalized throughout your education, so you don’t ask for help or permission or funding.”

Lucero says this is part of the reason the diversity committee chose to make research one of its foci. Bringing more health disparities research into anesthesia could both raise awareness of some of the ways concepts like unconscious bias and micro-aggression come into play in clinical practice and research, while also creating more opportunities for minority researchers to make their mark.

“It’s a wonderful department.”

—Charlene Blake, MD, PhD (at left)
One Day at a Time
Throughout all of this work, the committee members recognize that the issues of how any culture deals with topics like race, ethnicity, and gender are extremely complex. “The concept of privilege is evolving,” says Sarah. “Somebody privileged in one situation may not be in another. I’m a doctor now, but my parents are immigrants from Syria, who did not speak English and I grew up in a community where a large number of people were hostile to who I am.”

That type of complexity can also make change painfully slow. “I am still coming to grips with that,” says Harmon. “I was born in 1959…and during the ‘70s, I felt a lot of optimism, but we’re still having many of the same conversations and same problems.”

Yet Hervey-Jumper notes that it’s also important to recognize what’s changed and what’s working, pointing, for example, to the presence of women in the department. “Women have a completely different experience in medicine and I like how we all come together, which I felt was lacking in previous places where I’d worked,” she says.

“It’s a wonderful department,” says Blake. “I love Lundy Campbell and the cardiothoracic group. The nine of us are family and a pretty diverse group…and eight other great individuals support me. Part of life is being fulfilled, being supported and loved and loving what you do.”

All agree, however, that there is much more that needs to be done, so it’s important to stay engaged, even though such engagement can impose demands on their time that add to already busy schedules. “I think about what’s changed over the last 50 years and what others have done to make it happen, and it makes me that much more committed,” says Ehie.

“The only way to ease our burden is to make sure that those of us who are here are present, so we can recruit more people and keep them here.”

“We have an imperative to advocate for each other,” says Lucero. “It can be exhausting, but there are great wins and when we reach out to new faculty or residents [the way some people reached out to me when I arrived], it can be very empowering to remind people that we all bring something different and deserve a voice.”
Anonymous Gift to Establish Patricia Sander Awards for Anesthesia Researchers

The Department of Anesthesia and Perioperative Care has received a $2,000,000 donation from an anonymous donor to establish an endowment that will fund the Patricia Sander Awards for Anesthesia Researchers. UCSF has long been a national leader in driving anesthesia research that improves the quality of patient care. Two Patricia Sander Awards will be given every two years—one for a junior faculty member and the other for a mid-career faculty member who are conducting promising research. Faculty will be invited to apply for the awards in a similar fashion as they do for the Department Research Awards. The Patricia Sander Award Committee members will be Drs. Helen Kim, Jacqueline Leung, Romain Pirracchio, and Michael Gropper. The Department and the donor are particularly interested in using the awards to help mitigate the challenges faced by early- and mid-career faculty members trying to balance the demands of work and home life. Supporting these individuals at this critical juncture of their academic careers will maximize their chances of academic success. We are very thankful that this donor has recognized and supports our academic mission.

Dr. Judith Hellman on How She Will Use the William L. Young Endowed Professorship Funds

“In addition to being a prolific researcher in his own right, Dr. Bill Young dedicated his career to developing clinical scientists in anesthesiology. He developed and implemented our department’s innovative Research Scholars Track of the Anesthesia Residency and Pathway of Scientific Independence, both of which are still going strong. I intend to use the William L. Young M.D. Endowed Professorship funds to continue to support the research training and career development of anesthesiologists in our department.”

READ MORE ONLINE...
(tiny.ucsf.edu/Anesth18ARre20)
Leadership Additions

As the department has grown to over 600 members, with well over 200 faculty, it has become clear that we need to increase the size of our leadership team. There are increasing administrative responsibilities related to our clinical and academic footprint, beyond what a single vice-chair or service chief can manage. To that end, we have put a lot of thought into how to better structure the department for the rapid growth of our missions, and we have asked the following faculty to assume the following leadership positions: Associate Chair for Education Kristina Sullivan, MD; Associate Chair for Finance Marc Steurer, MD, MHA; and Associate Chair for Clinical Services, UCSF Health, Christina Inglis-Arkell, MD. You can read more at: http://tiny.ucsf.edu/Anesth18ARd00

Ernest Guy, MD, Chief of Anesthesia at SFGH from 1959–1973, Has Passed Away (tiny.ucsf.edu/Anesth18ARd01)

Giant of Anesthesia – Ted Eger – Has Passed Away (tinyurl.com/Anesth18ARd04)

Former Anesthesia Department Chair and Vice Dean for UCSF Clinical Affairs, William K. Hamilton, Has Passed Away (tiny.ucsf.edu/Anesth18ARd02)

Anesthesia History Timeline (tiny.ucsf.edu/Anesth18ARd05)
NEW FACULTY & RESIDENTS

Career Faculty

Neelesh Anand, MD
Assistant Clinical Professor
Joined Faculty October 2018
MEDICAL SCHOOL:
University of Arizona College of Medicine
INTERNSHIP: Wayne State University – Crittenton Hospital
RESIDENCY: Anesthesiology, Brigham and Women’s Hospital
FELLOWSHIP: Pain Medicine, UCSF

Nandini Palaniappa, MD
Assistant Clinical Professor
Joined Faculty August 2018
MEDICAL SCHOOL:
Icahn School of Medicine at Mount Sinai
INTERNSHIP: General Surgery, Icahn School of Medicine at Mount Sinai
RESIDENCY: Anesthesiology, Icahn School of Medicine at Mount Sinai
FELLOWSHIP: Critical Care Medicine, UCSF

Ashish Agrawal, MD
Assistant Clinical Professor
Joined Faculty July 2018
MEDICAL SCHOOL: UCSF
INTERNSHIP: Anesthesiology, UCSF
RESIDENCY: Anesthesiology, UCSF
FELLOWSHIP: Research, UCSF

Katherine Shea, MD
Assistant Clinical Professor
Joined Faculty November 2018
MEDICAL SCHOOL:
SUNY Downstate College of Medicine
INTERNSHIP: Categorical, Brigham and Women’s Hospital
RESIDENCY: Anesthesiology, Brigham and Women’s Hospital
FELLOWSHIP: Obstetric Anesthesiology, Brigham and Women’s Hospital
PREVIOUS EMPLOYMENT:
Attending Anesthesiologist, Baptist Hospital of Miami

Andrew Bishara, MD
Assistant Clinical Professor
Joined Faculty July 2018
MEDICAL SCHOOL: Harvard Medical School
INTERNSHIP: Transitional, Beth Israel Deaconess Medical Center
RESIDENCY: Anesthesiology, UCSF

Angela Wight, MD
Clinical Instructor
Non-ACGME Advanced Clinical Fellow
Joined Faculty September 2018
MEDICAL SCHOOL:
David Geffen School of Medicine at UCLA
INTERNSHIP: Internal Medicine, Harbor-UCLA Medical Center
RESIDENCY: Anesthesiology, UCSF

Denise Chang, MD
Assistant Clinical Professor
Joined Faculty September 2018
MEDICAL SCHOOL:
Case Western Reserve University
INTERNSHIP: Anesthesiology, UCSF
RESIDENCY: Anesthesiology, UCSF
FELLOWSHIP: Pediatric Anesthesiology, UCSF

Peter Yeh, MD
Assistant Clinical Professor
Joined Faculty August 2018
MEDICAL SCHOOL:
Temple University School of Medicine
RESIDENCY: Anesthesiology, University of Pittsburgh Medical Center
FELLOWSHIP: Obstetric Anesthesiology, UCSF

Thomas “TJ” Krall, MD
Assistant Clinical Professor
Joined Faculty July 2018
MEDICAL SCHOOL:
Rutgers-New Jersey Medical School
INTERNSHIP RESIDENCY: Anesthesiology, UCSF
RESIDENCY: Anesthesiology, UCSF
FELLOWSHIPS: Critical Care Medicine, UCSF, Cardiac Anesthesiology, UCSF
Kristen Kiroff, MBBS
Visiting Assistant Professor
Joined Faculty August 2018
MEDICAL SCHOOL:
The University of Western Australia, Perth, WA
INTERNSHIP: Emergency Medicine, Neurology, General Surgery, High Dependency Unit, Plastic Surgery
Royal Perth Hospital
RESIDENCY: Anesthesiology, Royal Perth Hospital, Sir Charles Gairdner Hospital, Princess Margaret Hospital, King Edward Memorial Hospital, Fremantle Hospital
FELLOWSHIP: Upper Gastrointestinal Anesthesiology and Regional Anesthesiology
North Shore Hospital, Auckland (ANZCA approved)
PREVIOUS EMPLOYMENT: Locum Anesthetist, Whyalla, Australia

Ottilia Magnusson, MBBS
Visiting Assistant Professor
Joined Faculty August 2018
MEDICAL SCHOOL:
University of South Wales
INTERNSHIP: General Medicine, Surgery, Vascular, Emergency, Geriatrics
Fremantle Hospital, Perth
RESIDENCY: Royal Perth Hospital, Sir Charles Gairdner Hospital, Princess Margaret Hospital
FELLOWSHIP: Obstetric and Gynecologic Anesthesiology
King Edward Memorial Hospital for Women Simulation, Joondalup Health Campus, Perth

Elliot Wollner, MBBS, MPH
Visiting Clinical Instructor and Non-ACGME Global Health Fellow
Joined Faculty September 2018
ADVANCED DEGREE: MPH, Columbia University
MEDICAL SCHOOL:
University of Melbourne
INTERNSHIP: Western Health
RESIDENCY: Anesthesiology, Various hospitals, including: Royal Melbourne, The Austin, Peter MacCallum Cancer Centre, Royal Women’s, Royal Children’s

James Zeng, MBBS
Visiting Assistant Professor
Joined Faculty August 2018
MEDICAL SCHOOL:
University of Melbourne
RESIDENCY: Anesthesiology
Royal Melbourne Hospital, Western Health, Albury Wodonga Hospitals, Royal Children’s Hospital, Royal Women’s Hospital, Austin Health, Victorian Comprehensive Cancer Center
FELLOWSHIP: Clinical, Royal Children’s Hospital
New Residents
Class of 2021

Elliott Callahan
Christine Choi
Adam Daoud Gray
Willie Du
Nate Gamsky
Stephanie Gilbert
Kaveh Hemati
Sarah Jarjour
Jonathan Kim
Ed Labovitz
Man-Cheung Lee
Anthony Little
Genevieve Manahan
Hai Pham
Russell Romano-Kelly
Manoj Sekar
Kiran Sembhi
Shikha Sharma
Stew Smith
Norver Trinidad
Michelle Wang
Danielle Williamson
David Wong
PEER REVIEWED PUBLICATIONS


Roumbian NH, Hendrickson JE, Trulzi DJ, Gottschall JL, Michalkiewicz M, Chowdhury D, Kor DJ, Looney MR, Matthey MA, Kleinman SH, Brambilla D, Murphy EL, National Heart, Lung, and Blood Institute’s Severe Asthma Research Program- Investigators. ALX receptor ligands define a biochemical endotype for severe asthma. JCI Insight. 2018 Mar 22;3(6).

**ACTIVE RESEARCH GRANTS**

**Pedram Aleshi**  
Principal Investigator  
Anesthesia Dept, 7/1/2017–6/30/2019  
Anesthesia Department Research Award / $34,996

**Roland Bainton**  
Principal Investigator  
Program for Breakthrough Biomedical Research, 1/16/2018–1/15/2019  
Interrogating the Biologic Cost of Robust Chemoprotection of the Brain: Using ICA to identify Novel Genomic Markers of Neuroprotection and Age-Related CNS Pathogenesis / $121,793

**Philip Bickler**  
Principal Investigator  
Various Industry Sponsors, 9/1/1986–12/31/2018  
Accuracy of pulse oximeters with profound hypoxia / $150,000

**Catherine Chen**  
FAER, 1/1/2017–12/12/2018  
Unintended Consequences of Routine Preoperative Testing in Cataract Surgery Patients / $175,000

**Michael Bokoch**  
Principal Investigator  
Anesthesia Dept, 7/1/2017–7/31/2019  
Anesthesia Department Clinical Research Award / $39,990

**Michael Gropper**  
FAER, 1/1/2018–12/31/2018  
2018 Medical Student Anesthesia Research Fellowship Program / $6,200

**Zhonghui Guan**  
Principal Investigator  
Anesthesia Dept, 7/1/2016–6/30/2019  
Anesthesia Department Research Award / $80,000

**Monica Harbell**  
Principal Investigator  
Mt Zion Health Fund, 5/1/2017–9/30/2018  
Point-Of-Care Ultrasound (POCUS) Training for MZ Anesthesia Providers / $9,630

**Judith Hellman**  
Principal Investigator  
Massachusetts General Hospital, 8/8/2016–8/8/2019  
Species Inspired Research for Innovative Treatments (SPIRIT) / $541,000

**Seema Gandhi**  
Principal Investigator  
City & County of San Francisco, 1/1/2018–12/31/2019  
Health Waste Diversion Program (Zero Waste Grant) / $85,000

**Adrian Gelb**  
Principal Investigator  
UCSF Academic Affairs, 7/1/2017–6/30/2019  
Fostering Quality and Safety in Anesthetic Practice in the Developing World / $10,000

**Irfan Kathiriya**  
Principal Investigator  
Anesthesia Dept, 7/1/2018–6/30/2019  
Anesthesia Department Research Award / $60,000

**Helen Kim**  
Principal Investigator  
NIH/NINDS, 7/1/2013–6/30/2019  
Predictors of spontaneous cerebral AVM hemorrhage / $2,297,210

**Monica Harbell**  
Principal Investigator  
Mt Zion Health Fund, 5/1/2017–9/30/2018  
Point-Of-Care Ultrasound (POCUS) Training for MZ Anesthesia Providers / $9,630

**Jens Krombach**  
Principal Investigator  
Anesthesia Dept, 7/1/2017–6/30/2019  
Anesthesia Department Clinical Research Award / $40,000

**Anne Donovan**  
Principal Investigator  
Anesthesia Dept, 7/1/2016–6/30/2019  
Anesthesia Department Clinical Research Award / $27,052

**Sakura Kinjo**  
Principal Investigator  
Anesthesia Dept, 7/1/2017–6/30/2019  
Anesthesia Department Clinical Research Award / $34,702

**Phil Kurien**  
Principal Investigator  
Anesthesia Dept, 7/1/2018–6/30/2019  
Anesthesia Department Research Award / $38,000

**Alain Larigue**  
Principal Investigator  
Anesthesia Dept, 1/1/2018–12/31/2019  
Anesthesia Department Clinical Research Award / $39,982

**Jae-Woo Lee**  
Principal Investigator  
Merck, 7/1/2017–2/13/2023  
A Double-Blind, Randomized, Crossover Design Study to Compare the Rocuronium Reversal by Sugammadex to Succinylcholine for Electroconvulsive Therapy (ECT) / $359,809

**Michael Lawton**  
Principal Investigator  
NIH/NINDS, 9/30/2014–7/31/2019  
Brain Vascular Malformation Consortium: Predictors of Clinical Course / $6,179,248

**Chanhung Lee**  
Principal Investigator  
UCSF REAC, 7/1/2017–6/30/2019  
PET Characterization of Inflammation in Patients with Cerebral Cavernous Malformations / $50,000

**Jens Krombach**  
Principal Investigator  
Anesthesia Dept, 7/1/2017–6/30/2019  
Anesthesia Department Research Award / $40,000

**Anne Donovan**  
Principal Investigator  
Anesthesia Dept, 7/1/2016–6/30/2019  
Anesthesia Department Clinical Research Award / $27,052

**Philip Kurien**  
Principal Investigator  
Anesthesia Dept, 7/1/2018–6/30/2019  
Anesthesia Department Research Award / $38,000

**Alain Larigue**  
Principal Investigator  
Anesthesia Dept, 1/1/2018–12/31/2019  
Anesthesia Department Clinical Research Award / $39,982

**Michael Lawton**  
Principal Investigator  
NIH/NINDS, 9/30/2014–7/31/2019  
Brain Vascular Malformation Consortium: Predictors of Clinical Course / $6,179,248

**Chanhung Lee**  
Principal Investigator  
UCSF REAC, 7/1/2017–6/30/2019  
PET Characterization of Inflammation in Patients with Cerebral Cavernous Malformations / $50,000

**Jae-Woo Lee**  
Principal Investigator  
NIH/NHLBI, 5/1/2017–1/31/2021  
Human Mesenchymal Stem Cell Microvesicles for the Treatment of Acute Lung Injury / $2,219,549
<table>
<thead>
<tr>
<th>Principal Investigator</th>
<th>Title</th>
<th>Institution</th>
<th>Start Date</th>
<th>End Date</th>
<th>Funding Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bin Liu</td>
<td>Site-Specific Immune Activation by Novel Antibody</td>
<td>University of Virginia</td>
<td>6/1/2018–5/31/2023</td>
<td>$1,320,422</td>
<td></td>
</tr>
<tr>
<td>Claus Niemann</td>
<td>Translating Preclinical Pathophysiologic Mechanisms into Therapies for Postoperative Cognitive Decline</td>
<td>Oregon Health &amp; Science University</td>
<td>1/1/2016–12/31/2018</td>
<td>$150,000</td>
<td></td>
</tr>
<tr>
<td>Jonathan Pan</td>
<td>Be Brave for Life</td>
<td>Vivace Therapeutic</td>
<td>12/1/2017–11/30/2019</td>
<td>$518,000</td>
<td></td>
</tr>
<tr>
<td>Ludmila Pawlikowska</td>
<td>Circulating Exosomal MicroRNA as a Potential Biomarker of Cerebral cavernous malformation severity</td>
<td>Be Brave for Life</td>
<td>4/18/2018–4/17/2019</td>
<td>$20,000</td>
<td></td>
</tr>
<tr>
<td>Martin London</td>
<td>Bispecific Antibody for Cancer Immunotherapy</td>
<td>Vaive Therapeutic</td>
<td>12/1/2017–11/30/2019</td>
<td>$100,000</td>
<td></td>
</tr>
<tr>
<td>James Marks</td>
<td>Generation of therapeutic antibodies for serotype F botulinum</td>
<td>NIH/NIAID</td>
<td>2/1/2013–9/30/2018</td>
<td>$5,448,316</td>
<td></td>
</tr>
<tr>
<td>Arun Prakash Budde</td>
<td>A Post-Approval Study to Evaluate Targeted SCS (DRG) Stimulation for the Management of Moderate to Severe Chronic, Intractable, Pain of the Lower Limbs due to CRPS types I and II (TARGET)</td>
<td>NIH/NIAID</td>
<td>3/1/2017–3/31/2019</td>
<td>$272,325</td>
<td></td>
</tr>
<tr>
<td>Lawrence Poree</td>
<td>A Double-blind, Randomized and Placebo-controlled Study to Evaluate the Safety and Efficacy of T89 in Preventing Acute Mountain Sickness (AMS) During Rapid Ascent</td>
<td>UCSF School of Medicine</td>
<td>2/1/2018–1/31/2019</td>
<td>$3,451,755</td>
<td></td>
</tr>
<tr>
<td>Jeffrey Sall</td>
<td>Testosterone’s role in sex-specific outcomes after early anesthesia</td>
<td>Tasy Pharmaceuticals, Inc</td>
<td>8/17/2018–7/31/2020</td>
<td>$2,72,325</td>
<td></td>
</tr>
<tr>
<td>Jeffrey Sall</td>
<td>Antigen NaPi2b Internalizing and Cross-Reactive Human mAbs to Tumor Associated Internalizing human antibody-targeted nanosized siRNA therapeutics</td>
<td>Oregon Health &amp; Science University</td>
<td>4/1/2018–3/31/2019</td>
<td>$1,582,037</td>
<td></td>
</tr>
<tr>
<td>Martin London</td>
<td>Bispecific Antibody for Cancer Immunotherapy</td>
<td>UCSF Parker Institute for Cancer Immunotherapy</td>
<td>7/1/2017–6/30/2019</td>
<td>$791,646</td>
<td></td>
</tr>
<tr>
<td>Eunice Zhou</td>
<td>Internalizing and Cross-Reactive Human mAbs to Tumor Associated Antigen NaPi2b</td>
<td>Immunogen, Inc</td>
<td>4/1/2018–3/31/2019</td>
<td>$50,000</td>
<td></td>
</tr>
<tr>
<td>Wei Zhou</td>
<td>The Roles and Applications of Orexin/Hypocretin System in Anesthesia</td>
<td>International Anesthesia Research Society</td>
<td>7/1/2016–6/30/2019</td>
<td>$150,000</td>
<td></td>
</tr>
</tbody>
</table>

**YEAR IN REVIEW 2018**
Connecting with Friends and Colleagues – The 2018 ASA Alumni Reception

The 2018 Department of Anesthesia and Perioperative Care Alumni Reception at the American Society of Anesthesiologists’ Meeting was well attended, bringing both old and new friends together. Held at Perbacco in San Francisco, the event was a wonderful chance for more senior department members to connect with current trainees, for old colleagues to reconnect, and for all attendees to enjoy a taste of San Francisco’s vibrant food and wine culture.

Photos courtesy Martin Backhauss. See more photos at tinyurl.com/Anesth18ARasa
Upcoming Department Events:
https://anesthesia.ucsf.edu/events/upcoming
Pioneers in Perioperative Medicine

Dedicated to healing, teaching, and discovering for sixty years.