



# UCSF Department of Medicine ZUCKERBERG SAN FRANCISCO GENERAL

## PHDS: PARTNERS IN PUBLIC HEALTH

Our PhDs are an integral part of the vibrant academic community in the ZSFG Department of Medicine. Steeped with training in fields such as behavioral science, biochemistry, biophysics, environmental health, epidemiology, genetics, health services, infectious diseases, immunology, microbiology, molecular and cell biology, statistics and toxicology, they push the boundaries beyond what we currently know about science. With astounding creativity they are making impactful contributions to human knowledge and health. In this edition, we highlight three of the many impressive PhDs in our department.

### Finding Buried Treasure

When Cheryl A. Stoddart, PhD, was 12 years old, she was spellbound by the sci-fi thriller “The Andromeda Strain,” in which a satellite crashes in a rural town and an alien organism kills all but two residents.

“I always wanted to write [author] Michael Crichton saying that’s what inspired me to become a virologist,” said Dr. Stoddart, Professor in the ZSFG Division of Experimental Medicine. “I wondered, how could something that’s so small be so deadly? The study of that is incredibly fascinating.”

She gained expertise testing antiviral compounds at the Gladstone Institute of Virology and Immunology and in private industry, and joined the ZSFG Department of Medicine faculty in 2006. Dr. Stoddart is a world expert on a highly specialized animal model first developed by her mentor and Division of Experimental Medicine colleague, Joseph “Mike” McCune, MD, PhD, in which human thymus and liver tissue is grown in mice. This approach allows her group to test new HIV drugs in conditions that closely mirror the human body. For 18 years, Dr. Stoddart has held a contract with National Institutes of Health (NIH), using this humanized mouse model to test promising drug candidates. “Drug discovery is like searching for buried treasure,” she said. There are far more duds



Cheryl Stoddart, PhD, Professor of Medicine, ZSFG

than successes. But in 2013, her lab struck gold. A new compound called EFdA demonstrated off-the-charts potency with very few side effects. If it successfully goes through clinical trials, EFdA could be a game-changer in preventing HIV transmission and keeping HIV+ people healthy. Unlike Truvada, which requires patients to take daily pills, EFdA could possibly be injected once every 6 or 12 months.

In addition to her animal model work, Dr. Stoddart also works on heat shock protein, a protein that HIV appears to love, and which may play an important role in helping the virus replicate.

After experiencing industry market forces, where she sometimes felt pressured to frame results of laboratory experiments in a positive light, Dr. Stoddart relishes being an honest broker of science. “I love being at ZSFG, doing what I do in an unbiased academic environment,” she said. “Here, I’ve been able to work with dozens of companies and test everybody’s best compounds. That’s exactly what I want to be doing.... I can only do this work at ZSFG.”

### Fighting Tobacco, Together

Cigarette smoking claims 480,000 U.S. lives annually, yet much remains to be discovered about how to best fight this public health challenge. There are so many factors that contribute to smoking. “The tobacco control community at UCSF is probably the strongest in the nation, and very interdisciplinary,” said toxicologist Gideon St.Helen, PhD, Assistant Professor in the ZSFG Division of Clinical Pharmacology.



Dr. Gideon St.Helen

PhD, Assistant Professor of Medicine

Dr. St.Helen studies tobacco’s effects on the human body, using biomarkers to understand what increases vulnerability to tobacco-related disease. “For example, while African Americans smoke at similar rates as whites, they have a higher risk of lung cancer,” he said. “We’re trying to see what contributes to these different susceptibility levels.”

He also studies e-cigarettes and what factors contribute to their relative risk or safety. One of Dr. St.Helen’s important findings is that unlike conventional cigarettes, which are fairly standardized, the plethora of new devices are all over the map. “The amount of nicotine and toxicants that you get depends on the device characteristics and how the product is used,” he said. “It makes e-cigarettes so variable, and presents a big

challenge when it comes to regulating them.”

Many factors make ZSFG and UCSF one of the best places in the country for Dr. St.Helen to do research. “I’m really fortunate to work with my mentor, Neal Benowitz, MD, who is so well-respected and is the guru in the field of nicotine pharmacology,” he said. “We also have one of the best tobacco biomarker labs in the country, headed by Dr. Benowitz and Peyton Jacob, PhD.”

In addition, he appreciates conducting his research in the clinical research unit, 5B of Building 5. It enables him to conduct multiple-day studies of people who smoke or vape, monitoring their cardiovascular function and collecting urine and blood samples. This allows their group to study the physiological effects of nicotine at a depth matched by few other centers.

“Another plus of being at UCSF is its focus on team science,” said Dr. St.Helen, noting his work with the UCSF Center for Tobacco Control Research and Education. “It’s like being at a liberal arts college, studying many different subjects. I focus on pharmacology and toxicology, but I’m learning about economics, psychology and sociology. It’s a complicated problem, and we have to look at all these variables. Otherwise, we could collect some really interesting data with no policy implications. Our goal is to inform public health policy.

### Reducing Health Disparities with Technology

In college, Courtney Lyles, PhD, read the Institute of Medicine’s landmark report, “Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care,” sparking a lifelong passion. “I’m interested in how patients and providers communicate, how that relates to differences in treatment, and how technology could alleviate health disparities,” said Dr. Lyles, Assistant Professor in the ZSFG Division of General Internal Medicine and a health services expert.

**Follow us on:**



@Neil\_R\_Powe



/ZSFGDOM



**Dr. Courtney Lyles**  
*PhD, Associate Professor of Medicine*

and administrative leaders to expand patients’ access to health information and deepen their engagement in care. For example, she partners with the ZSFG Library and community technology nonprofits to teach patients how to navigate their electronic medical record. She also develops text messaging and automatic phone call systems to encourage patients with depression and diabetes to exercise.

Dr. Lyles uses a team science approach, bringing together patients, clinicians, information technology specialists and Dr. Lyles and her team pilot ways to use tablets in waiting rooms to help patients prepare for their visit with the doctor by identifying their most pressing issues upfront. “We want to maximize that 20 minute appointment and orient the team to patient priorities, to avoid the hand-on-the-door knob situation at the end of the visit when a patient says, ‘I had all these other things I wanted to talk about today,’” said Dr. Lyles.

While there is no shortage of health apps coming out of Silicon Valley, Dr. Lyles and her colleagues focus on developing technology tools that are simple, clear, and easy for safety net patients to use. “Resource constraints can be the creator of innovation,” she said. “Not only can we develop things our patients can use, they could be accessible to people like my parents, who didn’t grow up with technology. At ZSFG, we’re really good at implementing innovations, matching them to our patients’ needs, and making them available to others.”

She appreciates partnering with clinicians and patients, gathering real-world input from them while contributing her expertise in implementation science. “Together, we conduct research that is both deep and clinically relevant,” said Dr. Lyles. “It allows us to generate peer-reviewed publications to share key nuggets that can help other systems improve.”

“UCSF, and ZSFG specifically, are very well known

### PhDs in the ZSFG Department of Medicine

**Laura Bull**, Professor, GI; **Som Chatterjee**, Assistant Professor, HIV/ID; **Binh Diep**, Associate Professor, HIV/ID; **Walter Eckalbar**, Assistant Professor, Lung Biology; **Elizabeth Fair**, Associate Professor, Pulmonary; **Catherine Gleason**, Assistant Professor, Nephrology; **Judith Hahn**, Professor, HIV/ID; **Carisa Harris-Adams**, Assistant Professor, Occupational and Environmental Medicine; **Teri Liegler**, Professor, HIV/ID; **Courtney Lyles**, Assistant Professor, DGIM; **Jeffrey Milush**, Associate Professor, Experimental Medicine; **Kimberley Kartika Palar**, Assistant Professor, HIV/ID; **Nynikka Palmer**, Assistant Professor, DGIM; **Patrick Phillips**, Assistant Professor, Pulmonary; **Elise Riley**, Professor, HIV/ID; **Suzaynn Schick**, Associate Professor, Occupational and Environmental Medicine; **Jean-Marc Schwarz**, Professor, Endocrinology and Metabolism; **Gideon St.Helen**, Assistant Professor, Clinical Pharmacology; **Cheryl Stoddart**, Professor, Experimental Medicine; **Marquitta White**, Assistant Professor, Lung Biology; **Noah Zaitlen**, Assistant Professor, Lung Biology

for their work in addressing health disparities,” said Dr. Lyles. “We have innovation, amazing clinical care, and a mission-driven orientation. Everyone chooses to be here because of their passion and drive. All those reasons make it the right place for me.”

Courtney has also been collaborating with Margaret Handley, PhD, to organize an affinity group of PhD/DrPH faculty appointed in clinical divisions. This group will facilitate networking and sharing of lessons learned from various research and administrative roles among faculty who are often dispersed across our campus. If you are interested in participating please email Courtney or Margaret directly at courtney.lyles@ucsf.edu or margaret.handley@ucsf.edu.

*Elizabeth Chur*  
*Editors: Neil Powe, Laurae Pearson*

