



UCSF Department of Medicine ZUCKERBERG SAN FRANCISCO GENERAL

RESEARCH AND EQUITY REINFORCED BY EPIC

ZSFG is home to world-class care teams and scientists, and the August 2019 launch of the Epic electronic health record (EHR) opened up new opportunities to improve patient care, health equity, and research. Epic replaced more than 20 older EHR systems, enabling clinicians to easily share notes, lab test results, and other information with others caring for the same patient across the San Francisco Health Network (SFHN).

Harvesting the EHR for Research and Innovation

Epic enables researchers to access powerful new tools as they work to innovate and promote health and health care. Implementing and optimizing Epic for this purpose is a huge team effort.

“In the past, researchers often found it challenging to launch a study,” said Liz Goldman, MD,



Liz Goldman, MD

Professor of Medicine in the ZSFG Division of General Internal Medicine and Director of Research and Evaluation Analytics for the San Francisco Department of Public Health (SFDPH) Office of Health Informatics. “It can be overwhelming to figure out what to do or who to talk to, and each researcher

felt like they had to recreate the wheel.”

She and her colleagues have been working closely with the Dean’s Office and SFDPH to create clear, transparent structures that support innovative research, while also ensuring that proposals are aligned with UCSF, SFDPH, and the Institutional Review Board (IRB), the committee that ensures research involving human subjects protects their rights and welfare. They are developing guidelines

clarifying who needs to approve each part of a proposal, and investigating ways to make the process more feasible. Dr. Goldman personally reviews every research proposal, offering advice and guidance to help teams navigate the process.

Part of Epic’s potential is the many built-in tools it offers. Dr. Goldman and her colleagues piloted the Epic Research Module with about 10 research teams when Epic launched in 2019. In November 2020, it expanded to about 200 clinical research coordinators, who starting this month will have access to self-service tools like Slicer Dicer and Reporting Workbench for IRB-approved projects. These enable researchers to run preliminary reports in Epic to get estimates of the number of people who may qualify for a research project. This can help them identify opportunities for quality improvement, shape grant proposals, or initiate a request to the data analytics team at UCSF Academic Research Systems (ARS) for a more in-depth report. “These self-service tools are one of the ways we can help expedite research,” she said.

Dr. Goldman’s group has also worked to create “read/write access” for research teams. This feature allows investigators to not only look at existing patient data in Epic, but also to document information in the EHR, such as what happened during a research encounter, or which tests the study team might recommend for an enrolled participant.

As a member of the SFDPH Legacy workgroup, Dr. Goldman also reviewed every prior EHR



Image: Xtelligent Media

system used by the SFHN. “We figured out what would go into Epic, and what would be archived for research – literally variable by variable,” she said. “Now we have rules and structures in place. That makes the data cleaner, which is better for research and clinical care.”

Dr. Goldman is energized to see how Epic supports better patient care. “It’s so fortunate that Epic launched the year before the pandemic,” she said. “It’s enabled DPH to set up COVID testing sites and whole networks of shelter-in-place hotels, and have them integrated in care.” Many of her highest-risk patients, such as unhoused elders, were placed in these hotels. Epic enabled her to identify patients as soon as they were eligible for vaccination. In collaboration with case managers who made site visits, she could talk directly with patients via a smartphone app to discuss the vaccine, schedule appointments, and include a note for the vaccination clinic certifying the patient’s eligibility. “It’s amazing!” she said.

“I love collaborating with teams to make complex systems work better,” said Dr. Goldman. “When you build trust across different groups, you work better and stronger together.”

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Bridging the Digital Divide

Prior to the pandemic, the San Francisco Health Network conducted few telemedicine visits via video or phone. “Our system has been really remarkable, converting all our visits for a while to telemedicine, and continuing to do a high level of telemedicine care,” said Courtney Lyles, PhD, Associate Professor in the ZSFG Division of General Internal Medicine. “Most of that has been via phone visits, but we’ve started the hard work of developing workflows and supporting patients who face digital literacy and access barriers to also try out video visits.” These are currently conducted via Zoom, but plans are underway to incorporate this feature into Epic.



Courtney Lyles, PhD

Fortunately, she and Elaine Khoong, MD, MS, Assistant Professor in the ZSFG Division of General Internal Medicine, had already started collaborating in December 2019 on a pilot project funded by the Donaghue Foundation with Malini Nijagal, MD, Associate Professor in the Department of Obstetrics and Gynecology. Before the pandemic hit, they had begun developing educational materials and mapping out workflows to make it easier for patients with high-risk pregnancies to access care through video visits. This became the foundation for rapidly scaling up telemedicine a year ago.

With their colleagues, including Triveni DeFries, MD, Assistant Professor in the ZSFG Division of General Internal Medicine and Associate Medical Director of the Richard Fine People’s Clinic, they also surveyed more than 200 patients. “We found that patients are definitely interested in video visits, but had a number of challenges, including not having a smartphone, tablet, or broadband access, and not having the digital literacy to download and use Zoom,” said Dr. Khoong.

Dr. Lyles has studied ways to assess and overcome these barriers. She has helped pinpoint the best questions to determine interest and obstacles to telemedicine, identified programs that subsidize devices and broadband, and developed educational resources to help patients use technology.

With grant support from the Center for Care Innovations, she collaborates with Dr. DeFries, George Su, MD, Professor in the ZSFG Division of Pulmonary and Critical Care Medicine and Medical Director of the San Francisco Health Network Telehealth Program, and Delphine Tuot, MD, MAS, Associate Professor in the ZSFG Division of Nephrology and Associate Chief Medical Officer for specialty care and diagnostics, to help clinics develop telemedicine workflows.

Currently, only about 15 percent of patients are enrolled in the MyChart patient portal; through a grant from the San Francisco General Hospital Foundation, Dr. Lyles is working to increase MyChart enrollment to facilitate telehealth access. She also collaborates citywide to promote digital equity, serving as a member of the Mayor’s Office for Housing and Community Development’s San Francisco Digital Equity Advisory Committee, the San Francisco Public Health Foundation, and the Learning and Access workgroup of the San Francisco Tech Council.

“The goal is not to force everybody to do video visits,” said Dr. Khoong. “It’s to make them available if it’s better for patients. For example, one of my patients is oxygen dependent and has transportation challenges. It’s really hard for him to make in-person appointments, but he always answers my calls. Now we can check in on many things we couldn’t before.”

Future Connections

Virtual visits are just one facet of Epic’s potential to support better patient care. For example, some of the most vulnerable patients might move through multiple health systems and settings, such as Primary Care, the Emergency Department, Inpatient Care, Behavioral Health and sometimes Jail Health. Before, these systems couldn’t easily communicate. “It was hard to know what happened to a patient,” said Dr. Khoong. “Having a central location for the data that is organized in a consistent format helps provide more coordinated care.”

She is excited about Epic’s potential to promote better individual and population health. “We currently have questionnaires about housing, food insecurity and transportation, but they are filled out at very low rates,” said Dr. Khoong. Sometimes

that information is in the EHR, but buried in a physician’s note. “If we reliably screened everyone for social determinants of health, and stored the responses in structured data fields that can be analyzed, that would be a really robust source of very important information for both clinical care and research,” she said.

Dr. Khoong is also enthusiastic about how Epic could enable development of low-cost, tailored in-



Elaine Khoong, MD

terventions. “Tech companies have been doing A/B testing for a long time, developing microtargeted strategies,” she said. “Did this intervention work or not? If it didn’t, I’m going to try something else. We can use data science to help us match the best treatment to each patient in a more nuanced way.”

She notes that while Epic is a powerful tool, it cannot transform health care by itself. “It’s easy to turn a feature on, but harder to employ it in a thoughtful way,” said Dr. Khoong. “Really great health systems distinguish themselves by thinking through implementation details like workflows, human training, and equity. I’m excited about Epic’s potential to improve the quality and equity of the care we deliver.”

Elizabeth Chur

Editors: Neil Powe, Laurae Pearson, Brooks Bigart

SPOTLIGHT

Faculty Honors, Announcements, and Events

Larissa Thomas, MD, Division of Hospital Medicine, was appointed to the Academy Chair in the Scholarship of Teaching and Learning.

UCSF S.O.L.V.E. Health Tech, co-founded by **Courtney Lyles, PhD** and **Urmimala Sarkar, MD**, both in the Division of General Internal Medicine, hosts the Digital Health Equity Summit: “Leveraging Transformation from COVID-19 into the Future,” on April 30, 9:30 AM- 12 PM. Information and registration link is available at: <https://solvehealthtech.ucsf.edu/upcoming-events>

Amy Ou, MD, Division of Hospital Medicine, was announced as ZSFG Department of Care Coordination (DoCC) Associate Medical Director, starting July 1st, 2021.

Alicia Fernandez, MD, Division of General Internal Medicine, received the UCSF Dr. Thomas N. Burbridge Award for Public Service.

Jessica Holtzman, MD; **Veronica Manzo, MD**; and **Catherine Crawford, MD** were announced as ZSFG DOM chief residents for the 2022/23 academic year.

