Center for Clinical Informatics and Improvement Research

A Letter from the Director: Julia Adler-Milstein, PhD

Over the past year, CLIIR entered a new phase of maturity. We are now a multi-investigator Center supported by a top-tier team of project managers and analysts. I am incredibly proud of the volume of timely, high-impact work that we are producing. Indeed, it was quite hard to select only six projects to feature below in this end-of-year highlight!

Looking back over the past year, two research milestones stand out. We published our first multi-site study using EHR audit log derived measures that illustrates their ability to bring new insights to patient outcomes. Specifically, across UCSF, Stanford, and Kaiser Northern CA, door-to-needle time for patients experiencing an acute ischemic stroke was significantly lower when their care team had more prior experience working together (as measured using audit logs). The paper is available here and is an important validation of CLIIR's investment in audit log data.

Second, we dramatically expanded our work to advance understanding of how to build an age-friendly health system – including evaluation of UCSF's age-friendly ED and a national study of implementation of the 4Ms age-friendly framework. This work complements our multiple R01s from NIA that specifically examine how health IT is supporting age-friendly care for patients with Alzheimer's disease and related dementias. While many dimensions of our healthcare system need improvement, focusing our efforts on this vulnerable population is critical.

Ongoing collaborations with a diverse set of UCSF and external colleagues continue to be the joy in my day. In the coming year, I hope to expand these collaborations and seek new opportunities for CLIIR.

Our Year In Review:

33 PUBLICATIONS

9 NEW GRANTS

$12.4M AWARDED IN 2022

CLIIR has continued to advance generation of new knowledge in our three priority areas:

Clinician EHR Use and Audit Log Data

Examining clinician and team behaviors in the EHR to understand where digital tools are meeting needs and where they fall short.

Assessing the Effect of Telemedicine on Physician EHR Work, Cognition, and Process Outcomes (ASPIRE)

Funded by the National Library of Medicine

In this 4-year R01, we are characterizing the differences in EHR-based activities in telemedicine and face-to-face encounters. We are also assessing the cognitive effort of these activities and the downstream impact on clinical decision making and errors. This work will be pivotal in understanding changes in EHR practice patterns driven by the expanded use of telemedicine and will lay the foundation for future improvements in EHR design and workflows to better support telemedicine delivery.

Assessing the Impact of the COVID-19 Shift to Telemedicine on Physician Work via Electronic Health Record Audit Log Data

Funded by the American Medical Association

In this recently-concluded project, we used national Epic audit log data to assess the impact of the COVID-19 shift to telemedicine on physician EHR use. Across more than 1,000 physicians, we found that EHR time during scheduled hours, EHR time outside of work, and the volume of patient messages all increased significantly post-COVID when telemedicine use expanded. In particular, physicians with a higher proportion of telemedicine encounters had more EHR time during scheduled hours.

Audit and Feedback to Improve Clinical Performance

Providing clinicians feedback about their performance to improve how they learn from prior experiences.

Development of a Trainee Digital Growth Chart

Funded by the Haile T Debas Academy of Medical Educators and the National Board of Medical Examiners

We are leveraging EHR audit logs to passively measure EHR *information gathering activities* performed by residents. By sharing measures with residents and attending physicians over the course of residency, these "growth charts" provide objective performance data on a foundational skill in clinical decision making. We have built the queries that pull and aggregate these data and have created dynamic charts in Tableau for use by residents and attending physicians. We will be launching a pilot to study its effects in academic year 2023.

Moving Health Systems Towards Excellence: Development and Dissemination of a Diagnostic Feedback Toolkit

Funded by the Gordon and Betty Moore Foundation

We are developing a publicly available, searchable online library (GoodDx.org) that features scalable resources and to support diagnostic performance feedback to frontline clinicians. This project engages national subject matter experts and senior healthcare executives who we hosted for an onsite conference in September 2022. GoodDx.org, scheduled to launch in the spring of 2023, will allow organizations to more easily identify resources to implement and will ultimately drive more widespread adoption of diagnostic performance feedback.

Interoperability Adoption, Use, and Impact

Examining policy strategies to enable seamless exchange of health data across our healthcare system.

CalAIM Health IT Landscape Assessment

Funded by the CA Department of Health Care Services and the CA Health Care Foundation

CalAIM, a major MediCal transformation, will soon require the electronic exchange of health information among a vastly-expanded set of stakeholders across the medical and social care continuum. We collected primary data across these stakeholders – including managed care organizations, continuum of care programs, behavioral health, jail health, school-based health centers, and more – in order to characterize the current state of health information technology systems to support health information exchange.

Assessing Digital Health Company Experiences with EHR APIs

Funded by the CA Health Care Foundation, in collaboration with ScaleHealth and the Office of the National Coordinator for Health IT

The ability to extract data from EHRs is foundational to a thriving digital health ecosystem. We recently conducted a national survey of digital health companies to capture their experiences working with newly-required EHR vendor application program interfaces (APIs) intended to ease data access and third-party software integration. A preview of results including responses from over 100 companies is available here.

To learn more about the many other current projects underway, please visit our website: https://cliir.ucsf.edu/. As always, if you are interested in collaborating in these or other relevant areas, please reach out!