A 2023 study by Barata et al\(^1\) found that across 14 hospitals and 263 outpatient clinics, the volume of messages delivered via the electronic health record (EHR) secure chat platform increased by 29% from July 2022 to January 2023,\(^1\) highlighting the increasing use and centrality of these platforms as a communication tool for inpatient medical teams. With this context, the study by Small et al\(^2\) provides initial, tantalizing insight into the potential of using analysis of secure messaging platforms to gain insights into the functioning of inpatient care teams. Small et al\(^2\) demonstrate the feasibility of mining this data source to characterize the quantity of messages sent relative to inpatient encounters, patterns of messages sent and received, as well as the time course of messaging during a typical week and hospitalization.

The study by Small et al\(^2\) adds to a growing body of literature that leverages data from EHRs to understand patterns of clinician interactions with the EHR in outpatient\(^3\) and inpatient\(^4\) settings, as well as how that time is associated with outcomes for patients.\(^5\) While prior work has highlighted clinicians interactions with a diversity of EHR functions, the study by Small et al\(^2\) focused specifically on communication among team members. The study by Small et al\(^2\) highlighted that nurses sent the largest proportion of patient messages overall, but that per-person message volume was highest for residents, advanced practice clinicians, and attendings. While traditionally, understanding the sociology of clinical collaboration required direct observations or recordings of care delivery, the data presented by Small et al\(^2\) highlight the new opportunities provided by EHR logs for characterizing interactions among team members.

In addition to helping to elucidate who is part of a clinical team, analyses of patterns and content of secure messages could help facilitate at-scale identification of areas for improved team functioning, delivery of clinical care, and design of EHR tools. Opportunities for improved team functioning could range from opportunities to include additional relevant team members in a conversation to assessment of occasions for improved closed-loop communication. In the future, as analyses of secure messaging text become more prevalent, message content could be used as a basis for quality improvement efforts, such as identifying instances of unclear or ambiguous communication regarding orders or clinical decisions. Additionally, dynamic assessment of message patterns and quantity could elucidate which team members are bearing the greatest burden of the EHR in their clinical work and thus whom EHR optimization efforts should focus on at specific time points.

As depicted by the differential message density per patient across time points during an admission,\(^2\) analysis of message patterns also provides important insight into the workload of inpatient care. While the work of largely cognitive- and coordination-based specialties, such as hospital medicine, traditionally has been more difficult to quantify than the work involved in a surgery or procedure, the information provided by secure messaging logs has the potential to change this paradigm. Messaging logs can help identify the hundreds, if not thousands, of interactions that characterize a thorough and thoughtful admission and, ultimately, the hundreds, if not thousands, of interactions per patient that ensure a safe discharge. Over time, these data could help make an enhanced, data-driven case for the appropriate resources needed to shepherd patients with diverse medical profiles through a successful hospitalization.
Finally, the patterns and content of secure EHR messages have the potential to provide added insight into mechanisms for disparities in patient outcomes. There are known differential health care outcomes for racially and ethnically minoritized patients, such as eg Black or Hispanic patients, cared for in the hospital setting. The mechanisms for these differences are not well understood, and a study by Yan et al previously described that minoritized racial and ethnic groups at 2 academic medical centers were less likely to have high levels of engagement with their EHRs than White patients. In contrast, hospitalized patients of female physicians have been shown to have better outcomes, with the mechanisms for these differences also inadequately characterized. By providing detailed insight into clinical decision-making, care patterns, and clinical teams' attention, the cadence and content of secure EHR messaging logs have the potential to help us understand how these differences, which can have both positive and negative consequences, arise.

Overall, the work by Small and team is just the beginning. Complementing data from EHR audit logs, the insights derived from secure messaging could help us improve multiple facets of care delivery, from team functioning to team resourcing and disparities in care, if thoughtfully and strategically leveraged.

ARTICLE INFORMATION
Open Access: This is an open access article distributed under the terms of the CC-BY License. © 2023 Rotenstein LS et al. JAMA Network Open.

Corresponding Author: Lisa S. Rotenstein, MD, MBA, MSc, Center for Physician Experience and Practice Excellence, Division of General Internal Medicine, Brigham and Women's Hospital, 75 Francis St, Boston, MA 02215 (lrotenstein@partners.org).

Author Affiliations: University of California at San Francisco Health System, San Francisco (Rotenstein); University of California at San Francisco School of Medicine, San Francisco (Rotenstein); Center for Physician Experience and Practice Excellence, Division of General Internal Medicine, Brigham and Women's Hospital, Boston, Massachusetts (Rotenstein); Eisenberg Family Depression Center, University of Michigan, Ann Arbor (Sen); Molecular and Behavioral Neuroscience Institute, University of Michigan, Ann Arbor (Sen).

Conflict of Interest Disclosures: Dr Rotenstein reported receiving grants from Physicians Foundation, American Medical Association, and FeelBetter; personal fees from Phreesia; and serving on an advisory board for Augmedix AI outside the submitted work. No other disclosures were reported.

REFERENCES