Communication failures and racial disparities in inpatient maternity care: a qualitative content analysis of incident reports

Rebecca Clark [1,2] Tamar Klaiman,[3] Kathy Sliwinski,[1] Rebecca Hamm,[4,5] Emilia Flores[6]

ABSTRACT

Background Severe maternal morbidity (SMM) and mortality disproportionality affect Black women in the USA. Communication failures are a leading cause of poor maternal outcomes. We examined incident reports to identify communication failures within inpatient maternity care and racial disparities therein.

Methods We analysed de-identified incident reports submitted by hospital staff working on antepartum, labour and birth, and postpartum in an urban, academic hospital between 2019 and 2022. Reports were linked to electronic health records to capture race and SMM outcome. We conducted qualitative content analyses using a constant comparative method and an inductive and deductive approach. We explored communication failures by race/ethnicity and SMM outcome. In vivo themes included equity and positive communication.

Results We identified 541 communication failures within a random sample (n=1006) of incident reports across the study period. Black women represented 28% of births during this time, but 38% of the incident reports. Most of the communication failures occurred within the healthcare team rather than with patients. Communication failures were, broadly, contextual (eg, audience, who was present), conceptual (eg, lack of shared understanding) or sociotechnical (eg, computer-human interface). Of the incident reports coded as contextual failures, errors of omission were the most common. Most conceptual failures were a lack of shared understanding. Sociotechnical failures were predominantly workflow and communication and internal organisational features.

Conclusions Our findings suggest that if we want to address communication failures as a root cause of maternal morbidity and mortality, we need to focus on the quality of communication within the healthcare team. These efforts should concentrate on decreasing omission and building shared understanding of responsibilities and processes, especially when teams are caring for Black women.

For numbered affiliations see end of article.

Correspondence to
Dr Rebecca Clark;
rrsclark@nursing.upenn.edu

BACKGROUND

The USA has the worst severe maternal morbidity and mortality (SMM) rates of any high-income country, driven by a persistent, widening racial disparity.[1] In 2020, the Black maternal mortality rate was almost three times higher than that for white women.[1–3] Most maternal morbidity and mortality occurs in hospitals and is preventable.[4] Communication is a leading root cause of preventable maternal mortality and morbidity.[5]

Although the reasons for SMM are multifactorial, communication failures have been consistently cited as a leading cause for poor maternal outcomes.[4] A significant body of literature indicates that communication between clinicians and Black women is a significant problem, with clinicians not listening to Black women or communicating in a respectful, person-centred manner.[6–13] The Agency for Healthcare Research and Quality identified communication breakdowns as contributing to adverse outcomes related to SMM and as a necessary focus for future research agendas.[14 15]

Researchers have demonstrated that prejudice and discrimination manifest in many ways—including disrespect and failure to

communicate options—and that common cognitive biases and communication challenges are associated with diagnostic errors and patient safety concerns.[16 17] Further, these studies have shown how labelling bias (eg, conversations within the healthcare team about a patient being a 'frequent flyer' or 'drug seeking') can affect or negatively influence how information is interpreted by the rest of the healthcare team, resulting in less responsiveness to patient complaints.[17] There is also evidence to suggest that communication within the healthcare team varies when caring for a Black patient.[18] Professional organisations and national stakeholders have developed guidelines to address poor communication, but there is a dearth of rigorous, evidence-based interventions to address racial disparities in communication.[19 20] Further, communication is a massive concept, and it can be difficult for healthcare teams or administrators to identify what specific communication challenges are problematic in their setting, let alone what evidence-based intervention would be best suited and effective for addressing their particular communication issues.

Incident reporting systems, which are required by the Joint Commission, exist in every hospital. Specifically, incident reporting systems are typically electronic, separate from the electronic health record (EHR), and exist to identify and elevate safety concerns to management. These reports, therefore, vary from surgical instruments that are not appropriately clean, to emergency pagers not working, to unprofessional interactions between healthcare team members, in addition to poor patient outcomes. Reporting is not mandated, so what gets reported may vary for many reasons—particular incidents that a service line wants to track, a healthcare team member's awareness of something impacting care or being reportable, having the time to file a report, or a team member's perceptions of a hospital's safety culture (ie, being able to report without personal reprisal). These reports may be placed anonymously, though role is required. These reports are typically reviewed daily by pertinent clinical and quality leaders, with actions being taken as needed to address the issues raised in the reports. Incident reports are unique in being (1) voluntarily created by hospital staff, (2) potentially anonymous and (3) linkable with the EHR. As such, incident reports provide a perspective on the working of the healthcare team and the organisation that are not as readily captured by patient grievances or post-hospitalisation surveys such as the Hospital Consumer Assessment of Healthcare Providers and Systems or Press-Ganey. Further, due to the ability to link incident reports with the EHR, there is an ability to assess variation and disparities across patient populations or units. In other words, incident reports are, par excellence, the kind of data that learning health systems can leverage for quality and safety improvement.[21] The difficulty is in figuring out how best to leverage the rich data captured by incident reports to support the assessment and improvement of quality care.[22] In order to address communication as a leading cause of preventable maternal morbidity and

mortality, we need to know what kinds of communication challenges we are facing, and how they relate to poor patient outcomes and racial disparities. Precise identification of communication problems will allow clinical and administrative leaders to motivate and inform quality improvement in inpatient maternity care. Therefore, we were interested in understanding the array of communication failures experienced in inpatient maternity care, whether there was racially disparate variation in these failures, and how these were related to severe maternal morbidity outcomes.

METHODS
Study design
We performed a qualitative content analysis of incident reports using inductive and deductive approaches. Using this methodology, we identified communication challenges and explored the relationship between communication challenges and (1) maternal morbidity outcomes and (2) racial/ethnic disparities. This study was reviewed by the University of Pennsylvania Institutional Review Board. It was deemed exempt (Protocol #851773) since the data analysed did not contain identifiable information.

Setting
We extracted and analysed incident reports from maternity units (antepartum, labour and birth, postpartum) from a large, urban, academic hospital in the mid-Atlantic region with roughly 5000 births per year. These de-identified incident reports were submitted by hospital staff between June 2019 and February 2022. The incident reports were linked to patients' electronic health records to capture the patients' race/ethnicity, birth outcome and morbidity outcome. During the study period, women giving birth were 51.2% White, 28.3% Black, 11.1% Hispanic and 6.7% Asian.

Study population, including eligibility and exclusion criteria
We randomly sampled a third (n=1006) of the incident reports received. Two team members met and reviewed the incident reports together and determined whether each incident report included a communication challenge. Incident reports were included if the incident report described a communication challenge that occurred (1) within the healthcare team or (2) between the healthcare team and the patient and or their family member/support person. Disagreements were resolved in consultation with the broader study team. Three team members led the sampling and coding efforts. One of these team members was a qualitative research expert, a second brought maternity clinical and research expertise, as well as qualitative experience.

Qualitative analyses
Using a deductive approach, we combined codes from the work of Umberfield et al[15] and Singh and Sittig.[23] We also used an inductive approach as we were open to

in vivo codes arising from the data. Most of the in vivo codes were focused on issues related to equity in communication, demonstrating a critical gap in codebooks used in previous work. The finalised codebook (table 1) contained four themes: contextual failures, conceptual failures, sociotechnical dimensions and in vivo, including equity and positive communication. Contextual failures, which focused on the physical context of communication or what was explicitly communicated or omitted) included six codes ranging from audience (who was present for the communication) to omission (something that needed to be communicated was not) and inappropriate. Conceptual failures, which focused more on the process of communication, included two codes: transfer of information and lack of shared understanding. Sociotechnical dimensions, which involved technological and organisational components of communication, included six codes. Three team members met weekly to code the incident reports. Questions and concerns were brought back to the larger group. Codes were not mutually exclusive, and we allowed for coding of multiple themes in one incident. Patients' race/ethnicity and SMM outcomes were hidden while coding to decrease any potential biases. The SMM outcome was a binary (SMM present or not) based on the Centre for Disease Control and Prevention's SMM definition excluding transfusion.[24] We used the Atlas.ti[25] software to conduct qualitative content analyses using constant comparative methods. Memos within the Atlas.ti[25] software were used to track our decisions and any conflicts that arose during coding, to maintain an audit trail and increase rigour. We evaluated the incidence of failure types, whether failure types co-occurred, and which affected different racial/ethnic groups. More detailed information about the methods used in this study is published elsewhere (citation redacted for review). Due to the sensitive nature of the data, quotes are not presented in the text and the examples given are relevant but not specific. It was not appropriate or possible to involve patients or the public in the design, or conduct, or reporting, or dissemination plans of our research.

RESULTS

Of 1006 incident reports, we identified 541 as involving communication failures. Table 1 includes each of the themes and subthemes as well as how we defined them for this analysis. Five themes and 21 subthemes were applied to the data in our sample. In addition to the a priori themes of contextual, conceptual and sociotechnical failures, we inductively identified two themes: equity-focused codes and positive communication. Most of the communication issues occurred within the healthcare team and did not directly involve the patient or family members/friends. The one exception to this was communication failures coded as 'equity' which were more likely to involve patients or family members. Black women were disproportionately represented among the incident reports, representing 28% of births during the study period but

37.5% of the incident reports. Further details on the proportion of communication failures across patients of different racial and ethnic identities are shared in table 2.

Among contextual failures, errors of omission were the most common. Errors of omission might look like the following: a postpartum patient with otherwise normal blood pressures during admission now with severe-range blood pressures that were not reported to a midwife or physician. Other frequently coded contextual failures included 'inappropriate' (eg, offensive comments) and 'purpose' (eg, request or question from healthcare team or patient being overlooked, ignored or misunderstood by another member of the team). Black women were disproportionately represented compared with white women among the different contextual failures (39% vs 41% when the proportion of births was 28% vs 51%, respectively).

Of the conceptual failure types, a lack of shared understanding was the most common. Lack of shared understanding might look like anaesthesia waiting for a pending COVID-19 test to place an epidural for a patient, despite protocols for epidural insertion if the patient had an unknown or positive COVID-19 status. Transfer of information, the other conceptual failure, also occurred frequently. Black women were disproportionately represented among these failures compared with white women (43% vs 40% when the proportion of births was 28% vs 51%, respectively).

Sociotechnical failures were predominantly workflow and communication and internal organisational features. Workflow and communication, which focused on processes for patient care, might include a patient with multiple health concerns being sent to the postpartum floor without notifying the charge nurse for a bed request. Internal organisational features, which included policies, protocols, work environment and culture, might include a patient's family member using their hospital badge to enter the unit where they did not work. Black women's incident reports were disproportionately overrepresented compared with white women (39% vs 43% when the proportion of births was 28% vs 51%, respectively). Communication failures related to technology (hardware, software, etc), such as not receiving pager messages, were minimal. Lack of shared understanding, internal organisational features, and workflow and communication co-occurred the most.

The equity theme included a few codes: 'against medical advice' (AMA), 'authority', 'blame shifting' and 'language translation.' One observation of these incident reports is that there was a characteristic of women not choosing to leave but needing to leave (eg, to get home to take care of a child when no other childcare was available) and not receiving support to do so in a safe manner. 'Authority' was used to code incident reports when a situation was escalated and an authority figure, such as a charge nurse, nurse manager or attending physician, was invoked (eg, a charge nurse was notified because a patient was transferred without notification or

Table 1 Codebook table

Code	Meaning	CFIR domain
Contextual failures[34 35]		
Audience	Refers to the participants present during an exchange; gaps in the composition of the group engaged in the communication Reflected situations in which a communicative exchange excluded a key person Appropriate individuals were not participating	Human Equality-Centeredness
Content	Content consisted of communicative exchanges that contained incomplete or inaccurate information Information in the message was inaccurate, missing or unclear	Communication
Omission	Necessary communication was absent	Communication
Occasion	Refers to the physical and temporal situation of an exchange; Problems in the situation or context of the communication event Occasion included problems related to time and space.	Human Equality-Centeredness
Purpose	Refers to the goals, implicit or explicit, of the communication; Communication events in which purpose is unclear, not achieved or inappropriate Included situations in which questions were asked by one team member but not responded to by the team, prompting repeated and increasingly urgent requests. Also includes patient requests being overlooked or ignored	Communication
Inappropriate	Offensive remarks (in exchange or in incident report) or unreasonable requests (can be coded with more than one contextual failure)	Communication (or relational connections)
Conceptual failures[34 35]		
Transfer of information	When the information exchange between communicators was ineffective or insufficient; poor or unsuccessful information exchange	Access to Knowledge & Information (this is specific to implementation and/or delivery of the innovation) → this might by Inner Context: Communication
Lack of shared understanding	Shared understanding occurs when communication integrates multiple perspectives and gets communicators on the same page. A lack of shared understanding occurs when the communication is ineffective or insufficient in integrating the perspectives of those involved in the communication; failure to integrate multiple perspectives. Two parties are not aligning in their understanding of something	Access to Knowledge & Information (see above, this might be relational connections)
Sociotechnical dimensions[23]		
Clinical content	The text, numeric data and images that constitute the 'language' of clinical applications	Work Infrastructure
Hardware and software	Computing infrastructure used to support and operate clinical applications and devices	IT Infrastructure
Human-computer interface	All aspects of technology that users can see, touch or hear as they interact with it	IT Infrastructure
Internal organisational features	Policies, procedures, work environment and culture Policy not followed or lack of policy	Mission alignment Culture
Workflow and communication	Processes to ensure that patient care is carried out effectively	Culture
People	Everyone who is involved with patient care and/or interacts in some way with healthcare delivery (including technology). This would include patients, hospital personnel that are not direct caregivers, information technology (IT) developers and other IT personnel and informaticians	Individuals
In vivo		

Continued

Table 1 Continued

Code	Meaning	CFIR domain
Against medical advice	Against medical advice; penalisation ('non compliant')	Inner Context: Culture (Human Equality-Centeredness)
Authority	When an authority figure is called to deal with a patient issue (security, management, etc) OR when authority should have been called and was not.	Individual (Mid-Level Leaders)
Blame shifting	Placing blame on others	Culture
Language translation	Issues around language interpretation	Work Infrastructure
Technical	We are defining this as related to technology (ie, omnicell)	Information Technology Infrastructure
Prescription release	When wrong order set gets released	Information Technology Infrastructure
Positive communication	Examples of effective communication	Communication

CFIR, Consolidated Framework for Implementation Research.

because a family member was disruptive, as perceived by the person filing the report). Black women represented 40.8% of incident reports which were coded 'Authority,' while White women represented 32.6% of the same. In the 138 reports which we coded "blame shifting," 37.7% involved Black women and 40.6% White women, respectively. Blame shifting typically did not involve naming specific individuals; rather, it involved rejecting responsibility or shifting it to another professional group or shift. When specific individuals were reported, the individual was frequently in a support role (eg, technician) or part of an external provider group such as a contracted anesthesiologist. Of the 10 incident reports coded 'language translation,' 70% involved Hispanic women.

Positive communication was our second in vivo theme. These incident reports were characterised by healthcare team members speaking with each other and sharing information quickly and accurately in emergent situations. This might look like having a patient tell the nurse her bleeding had increased, the nurse acting on the patient's report and beginning the examination and intervention protocol, calling for additional help, having that help show up promptly, and working together to address the clinical problem. White women had incidents of positive communication at twice the rate of Black women (see table 2).

We also examined patterns of communication failures around SMM events. Of 38 instances of SMM in the sample, there were patterns of communication difficulties. Omission was the most coded contextual failure (23 times). Both lack of shared understanding and transfer of information occurred regularly (19 and 20 times each), as did blame shifting (14). Among the sociotechnical codes, workflow and communication occurred 26 times, while internal organisational features occurred 16 times. Other codes were used far less frequently or not at all.

To better understand relevant parts of the healthcare system that may be impacting patient care, we mapped

Table 2 Proportion of communication failure types by patient race/ethnicity

Communication failure type	Black	White	Asian	Hispanic
Proportion of births during study period	28%	51%	7%	11%
Overall	38%	41%	5%	14%
Contextual	39%	41%	5%	13%
Conceptual	43%	40%	5%	12%
Sociotechnical	39%	43%	5%	13%
Equity	38%	40%	4%	16%
Against medical advice	40%	40%	5%	15%
Authority	41%	33%	6%	20%
Blame shifting	38%	41%	5%	16%
Language translation	11%	0%	11%	78%
Positive communication	28%	56%	0%	16%

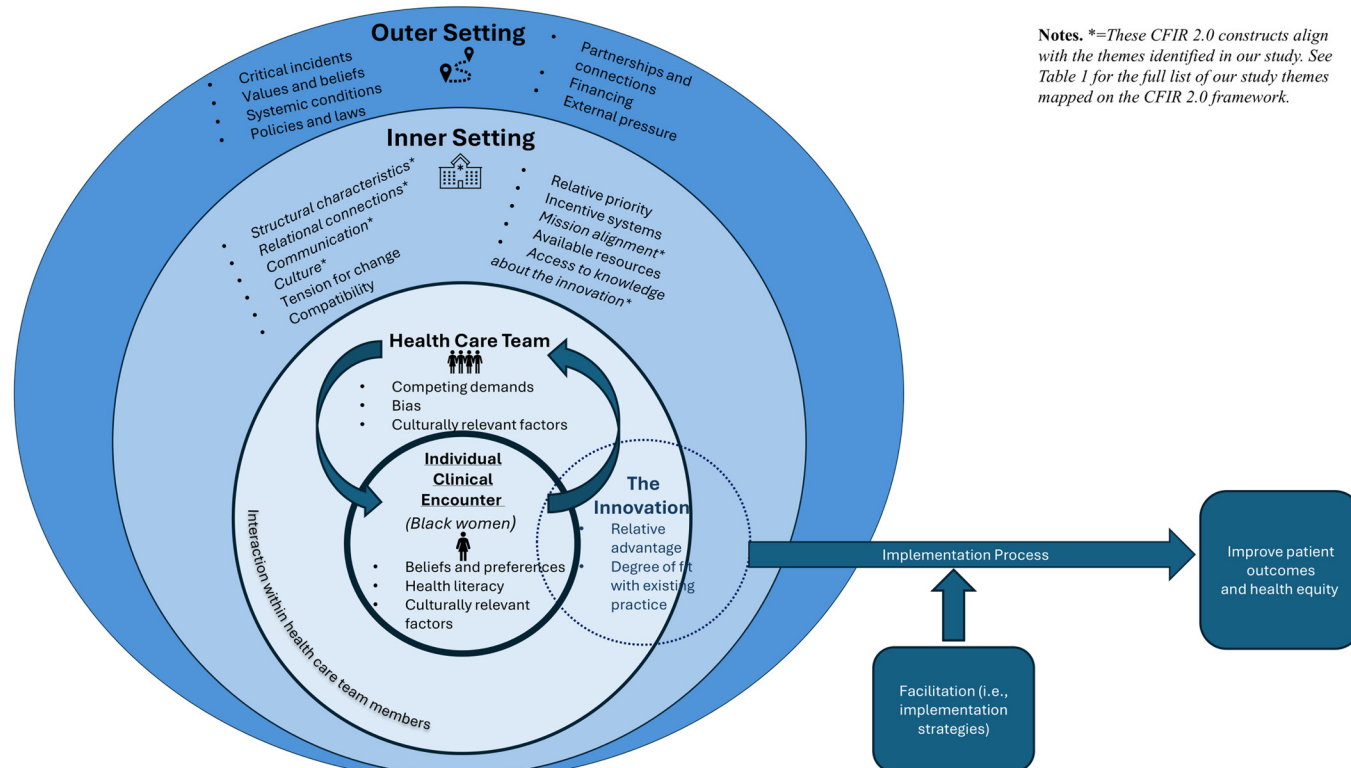Note: Values in this table were rounded to the nearest whole number.

Figure 1 Conceptual framework based on work by Damschroder *et al*,[26] Woodward *et al*[27] and Malawa *et al*.[28]

identified themes to the updated Consolidated Framework for Implementation Research (CFIR) domains which we integrated with the Health Equity Implementation Framework.[26 27] Figure 1 describes the relationships between the CFIR[26] and Health Equity[27] domains in this context. We centred Black women, guided by the framework that improving care quality and equity for Black women is central for improving maternity care and outcomes.[28] Most themes, particularly those that were coded most frequently, reflected the Inner Setting Domain of CFIR, particularly structural characteristics, relational connections, communication, culture, mission alignment and access to knowledge about the innovation. The Healthcare Team—situated within the Inner Setting—is impacted by competing demands, bias and culturally relevant factors that influence individual interactions.

DISCUSSION

Communication is a leading root cause of preventable SMM, a burden borne predominantly by Black women in the USA. Hence, we were interested in understanding what incident reports could tell us about communication challenges, and the relationship of these to SMM outcomes and racial disparities. In this work, we found that communication issues reported in incident reports were predominantly interpersonal within the healthcare team and rarely involved patients or technology. The most coded themes included errors of omission, lack of shared understanding, workflow and communication,

and internal organisational features; all highly actionable communication issues. In addition to the deductive codes, equity-related and positive communication codes arose from the data. Black women were disproportionately represented among the incident reports, compared with the proportion of births during the study period, but were not necessarily the focus of the reports. That is, the healthcare team had more communication challenges around Black women, with the women themselves not being a direct part of the incident.

Lack of shared understanding, internal organisational features, and workflow and communication co-occurred most. This suggests that communication challenges within the healthcare team may revolve most heavily around not having the same understanding or roles, responsibilities, processes, policies and procedures. While naming specific individuals was less common, blame shifting—which suggests a lack of psychological safety—was not. When individuals were named, they were more likely to be part of an external provider group or, if part of the internal group, more likely to be in a support role. This suggests power dynamics in who is reported by whom, which is not surprising, but an important element that requires cultural change to address.

Umberfield *et al*[15] used incident reports to understand communication challenges in an inpatient medical-surgical setting. They used incident reports to identify specific types of communication failures. Similarly to our own findings, errors of omission were the most common contextual failures and lack of shared understanding

was the most common conceptual failure. Umberfield *et al*[15] did not include sociotechnical dimensions, allow for inductive codes or discuss disparities in communication failures. Nevertheless, the similarities with regard to errors of omission and lack of shared understanding support the transferability of these findings to understanding and addressing communication failures in healthcare.

Racial disparities in communication are a well-known phenomenon in healthcare, and maternity care specifically.[4 14] While attention has focused on communication failures between the healthcare team members and patients, less has been paid to how racism—or other forms of bias—function in communication within the healthcare team.[29 30] This biased communication can occur within the healthcare team towards another member of the team, as well as within the healthcare team surrounding a patient. What is notable is that this communication may not be—is likely not—explicitly racist (eg, people being called slurs), but it furthers racist ways of being. For instance, a Black healthcare team member may be held to a different standard than other members of the team, or not be extended the same 'benefit of the doubt', or be gaslit (ie, having the truth of their words called into question in ways that are personally undermining). None of these things are explicitly racist, but when applied in a racially disparate manner, are means by which racism is enforced. Within the healthcare team surrounding the patient, others have also noticed disparities in how patients are described in the medical record by individual providers.[18] What is perhaps less well documented is how communication failures within the healthcare team might occur in a disparate manner. For example, that a healthcare team taking care of a Black woman might find their communication failing more frequently—whether that might be omitting necessary information in report or having a lack of shared understanding about the care plan. While racist disparate communication with patients exists (eg, calling security on a Black mother who is upset, or forcing a Latina mother who needs an early discharge for family responsibilities to sign out against medical advice), the failures within the healthcare team to communicate with each other around patient care were more pervasive and offer an opportunity for system-level intervention. Both must be addressed within the healthcare team to improve care quality and safety.

Implications and future research

Communication has been named a root cause of preventable perinatal[5] and maternal mortality,[31] and three of the top 10 recommendations from maternal mortality review committees involve communication.[4] Many interventions to improve communication exist,[32 33] but there is gap in understanding what specific communication problems are and targeting them accordingly, especially when racial disparities are involved. Incident reports provide an opportunity for health systems to leverage their data to more accurately pinpoint opportunities for improvement. Our findings suggest that to achieve equity and address disparities, we can focus on improving communication within the healthcare team, especially around caring for patients from vulnerable communities. Efforts to improve healthcare team communication might include regular multidisciplinary review of policies and procedures to increase shared understanding, simulation of communication in emergency and hand-off situations, and standardisation of clinical procedures. At the organisation level, these efforts might also include ongoing work to improve the work environment and safety culture, as well as continual work to identify communication failures and opportunities for improvement therein. In future work, we are interested in developing a tool to support other clinical and quality improvement leaders in using their incident report data to do similar work more rapidly. Future work should also create communication intervention maps to help leaders effectively choose evidence-based interventions that match their health system or unit's particular communication needs.

Limitations

One of the limitations of using incident reports is that we are not able to provide exemplar quotes. We tried to address this concern for rigour by creating composite cases and by having three members of the research team code the incident reports. While we think this process of using incident reports to identify communication challenges is highly transferable, and while every healthcare setting has communication challenges, the specific challenges may vary. The time frame of the research study includes the COVID-19 pandemic. While this was a remarkable, prolonged event that put extraordinary pressure on healthcare teams, we would argue that this is an even more important time to look at healthcare communication for revealing the fault lines that we all have in communicating with each other. While some aspects of the incident report are pertinent to the pandemic, for example, refusal to enter a room until COVID-19 results were available, the overarching communication failure themes are evergreen (ie, lack of shared understanding).

CONCLUSION

Communication is a leading root cause of preventable maternal morbidity and mortality and is a significant means by which disparities in maternal outcomes are perpetuated. Incident reports offer an opportunity for health systems and healthcare teams to identify specific, system-level opportunities to improve the quality of their communication, especially for women from vulnerable communities. Our work also suggests the need for an equity-focused approach to understanding and improving healthcare communication.

Author affiliations
[1]Center for Health Outcomes and Policy Research, Department of Family and Community Health, University of Pennsylvania School of Nursing, Philadelphia, Pennsylvania, USA
[2]Nursing Education, Pennsylvania Hospital, Philadelphia, Pennsylvania, USA

3Center for Health Incentives and Behavioral Economics and the Palliative and Advanced Illness Research Center, Univerity of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA
4Obstetrics and Gynecology, University of Pennsylvania Perelman School of Medicine, Philadelphia, Pennsylvania, USA
5Obstetrics and Gynecology, University of Pennsylvania Health System, Philadelphia, Pennsylvania, USA
6Center for Evidence-Based Practice, University of Pennsylvania Health System, Philadelphia, PA, USA

X Tamar Klaiman @tklaiman

ORCID iD
Rebecca Clark http://orcid.org/0000-0001-7284-3523

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