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"SACCIA Safe Communication": Five core competencies for safe and high-quality care

Annegret F Hannawa

Abstract

Background: Communication has emerged as a critical component in delivering safe, high-quality care. The evidence is clear that health outcomes are enhanced when clinicians communicate well, and compromised when they interact poorly. It is important to understand the core aspects of interpersonal sense-making that hinder or foster favorable health outcomes. This study introduces an evidence-based "SACCIA Safe Communication" (**S**ufficiency, **A**ccuracy, **C**larity, **C**ontextualization, **I**nterpersonal **A**daptation) framework to fill this gap.

Method: Sixty narratives of patient safety events were coded using qualitative content analysis guided by the "Hannawa SACCIA Safe Communication" framework.

Results: The analyses yielded 367 communication errors. Of these errors, 160 related to unsafe encoding, 92 to unsafe decoding, and 115 to unsafe transactional communication. Sufficiency errors were most frequent (124), followed by communication errors of contextualization (117), accuracy (84), interpersonal adaptation (26), and clarity (16).

Conclusions: The Hannawa SACCIA Safe Communication framework identifies interpersonal communication processes that commonly compromise the safety and quality of care. Narrative excerpts from the cases in this study exemplify what these processes look like in daily care encounters. The framework bridges across contexts and interpersonal settings. Furthermore, it explains various types of patient safety events (e.g. patient falls; unsafe handoffs or surgeries; diagnostic and medication errors). Therefore, it serves as a useful approach to describe and understand interpersonal communication as a critical factor in the provision of safe and high-quality care.

Keywords

Continuing medical education, critical incident reporting, interpersonal communication skills, medical education, patient safety, root cause analysis, safe communication, safe practice

Introduction

Interpersonal communication is receiving increased attention in the medical literature, so much so that the German-speaking European countries dedicated their "International Patient Safety Day 2017" to communication. As a root cause of 25–80% of all adverse events in hospitals, communication has emerged as a critical component in defining safe, high-quality care.[1–4] The evidence is increasingly clear that health outcomes are enhanced when clinicians communicate well, and compromised when they interact poorly.[5–10] As a result, interpersonal communication is now considered a core educational objective and a "safe practice" competency for health professions.[6,7,11,12]

Communication research in healthcare has generally concentrated on message *frequency* and *clarity*. Several "communication improvement tools" have been developed for standardizing message content in specific contexts (e.g. TeamSTEPPS[13] with IPASS[14] and SBAR[15] for handoffs and critical situations, CANDOR[16] for adverse event disclosures, SPIKES[17] for giving bad news). However, communication

Center for the Advancement of Healthcare Quality & Patient Safety (CAHQS), Faculty of Communication Sciences, Università della Svizzera italiana (USI), Lugano, Switzerland

Corresponding author:
Annegret F Hannawa, Faculty of Communication Sciences, Università Della Svizzera italiana (USI), Via G. Buffi 13, Lugano, Ticino 6900, Switzerland.
Email: hannawaa@usi.ch

encompasses more than unidirectional message content. It is a complex process of co-constructed sense-making that occurs between care participants.[18,19] Thus, beyond optimizing the frequency and clarity of message content to avoid or minimize error, it is important to understand the core components of sense-making that commonly hinder or foster favorable health outcomes across contexts.

Last year, two books[6,7] provided a first empirically informed blueprint for "safe interpersonal communication" to optimize the safety and quality of care. Based on a communication science analysis of actual patient safety events, *safe communication* was defined as an interpersonal sense-making process that consists of "all verbal and nonverbal behaviors that, through adequate quantity (i.e. sufficiency) and quality (i.e. clarity, accuracy, contextualization, and interpersonal adaptation), optimize the likelihood of achieving the most appropriate and effective care outcomes."[6,7] These definitional components were summarized under the acronym "SACCIA" (**S**ufficiency, **A**ccuracy, **C**larity, **C**ontextualization and **I**nterpersonal **A**daptation), which are defined as follows:[6,7]

Sufficiency—the extent to which care participants convey, extract, and exchange a sufficient amount of information in order to arrive at a shared understanding.

Accuracy—the extent to which care participants convey correct information, interpret information correctly, and utilize their communication with each other to validate the accuracy of their communicated message content.

Clarity—the extent to which care participants express and interpret verbal and nonverbal messages clearly (i.e. unambiguously) and utilize their interaction with each other to reduce uncertainty.

Contextualization—the extent to which care participants frame their interaction within local interactional circumstances such as hierarchies, time pressure, or discrepant goals that either facilitate or create barriers to shared understanding.

Interpersonal Adaptation—the extent to which participants respond to implicitly (i.e. nonverbally) and explicitly (i.e. verbally) expressed needs and expectations to maximize the likelihood of shared understanding.

Interpersonal communication entails encoding, decoding, and transactional (i.e. mutually negotiated) sense-making processes that lead participants to a shared understanding.[20–22] Thus, all actors in a given communication episode (1) encode (i.e. abstract) their own thoughts, feelings, and intentions into words and nonverbal actions, (2) decode (i.e. reassemble) received verbal and nonverbal messages in an effort to replicate the sender's intended thoughts, feelings, or intentions, and (3) engage in transactional communication (i.e. interactive sense-making) to generate a shared understanding. This paper aims to illustrate what a "SACCIA Safe Communication" practice looks like in terms of the specific encoding, decoding, and transactional practices that commonly trigger or hinder preventable patient safety events.

Methods

A sample of 60 preventable patient safety events from the two case studies books[6,7] comprised the data. The cases were supplied by clinicians from the United States and Germany ($n = 26$; written by five physicians and six nurses) and the AHRQ WebM&M[23] database ($n = 34$). The narratives were coded using qualitative content analysis, guided by the Hannawa SACCIA Safe Communication framework.[6,7] On a macro level, the cases were categorized based on their clinical and patient safety context (see Table 1). On a micro level, the narrative content was coded line-by-line, using the five SACCIA Safe Communication categories.

The Hannawa SACCIA framework was derived originally from actual cases and core principles of communication science. It identifies categories of interpersonal communication error across different types of patient safety events and traces the root causes of such errors to eight common misassumptions about

Table 1. Case descriptives: Clinical care context, severity, and patient safety topics.

Clinical care context				Severity		Patient safety topic			
Inpatient care	46	Acute care	48	Adverse event (AE)	23	Medication	21	Discharge	6
Outpatient care	13	Acute-on-chronic care	9	Harmless hit (HH)	16	Timeliness	19	Surgery	6
Primary care	1	Chronic care	1	Sentinel event (SE)	12	Diagnosis	13	Falls	3
		Routine/follow-up care	2	Near miss (NM)	9	Handoffs	13	Patient identification	1
						Resuscitation	7	Post-operative monitoring	1

Adverse event (AE): patient was harmed by unsafe care; Harmless hit (HH): unsafe care reached but did not harm the patient adversely; Sentinel event (SE): patient was harmed severely with long-term consequences; Near miss (NM): unsafe care occurred but did not reach the patient.

human communication.[6,7] Pursuant with this approach, the SACCIA events in this study were categorized by error type (i.e. encoding, decoding, or transactional communication error in one of the five SACCIA domains) and then interpreted in light of the *eight core principles of human communication* that were introduced in the original case studies books.[6,7]

Findings

The qualitative content analysis of the narratives revealed 367 SACCIA communication errors across the 60 cases. Of these errors, 160 related to unsafe encoding, 92 to unsafe decoding, and 115 to unsafe transactional communication. Sufficiency errors were most frequent (124), followed by communication errors of contextualization (117), accuracy (84), interpersonal adaptation (26), and clarity (16). Care participants' encoding of messages was unsafe predominantly because they did not engage in enough contextualization ($n = 56$; e.g. goal alignment, hierarchies, timeliness, timing, cultural differences) and sufficiency ($n = 53$; i.e. quantity of informational content). Decoding activities mainly lacked contextualization ($n = 41$; i.e. messages were not decoded within the frame of the given context of the interaction). Care participants' transactional communication was unsafe mostly because they did not utilize their interpersonal interaction with each other enough to ensure a complete exchange of information (sufficiency, $n = 47$) and to validate the accuracy of their exchanged message content ($n = 36$). The coding results are summarized in Table 2. Table 3 shows excerpts from the 60 cases that illustrate the five SACCIA categories of interpersonal behavior that triggered preventable patient safety events.

Viewing SACCIA errors in the context of eight principles of human communication

The following section discusses the SACCIA errors in light of their associated principles, ordered by their frequency of occurrence.

Principle 1. Communication is contextual

The first principle postulates that the meaning of a message is always influenced by the context in which an interaction takes place. Such context is multilayered and includes interactants' goals, history of relationships, hierarchical status differences, timing and timeliness of the communication, environmental setting, and sociocultural norms.[6,7] These contextual dimensions often hinder the achievement of shared understanding. SACCIA communication errors were ascribed to this principle in 53 of the 60 cases, suggesting that insufficient contextualization is a frequent cause of preventable patient safety events.

Principle 2. Redundancy in content and directness in channel enhance accuracy

This principle postulates that the likelihood of attaining shared understanding increases when care participants repeat message content appropriately (i.e. not too seldom and not too often) through direct rather than indirect (i.e. face-to-face rather than mediated) means.[6,7] Care participants' insufficient recognition of the importance of appropriate message redundancy and channel use contributed to preventable patient harm in 34 of the 60 cases.

Principle 3. Communication is a nonsummative process

This principle states that communication is an interactive process whose goal in healthcare is to reach a state of shared understanding. The interpersonal sensemaking process that undergirds this principle is holistic—shared meaning emerges as a co-production, unlike a telegram that is sent and received independently. Therefore, it differs from the meaning a single actor may have in mind.[6,7] Care participants' failure to extend their communication beyond their own perspectives contributed to unsafe communication in half (30) of the 60 cases.

Principle 4. Preconceptions and perceptions vary among communicators

This principle of human communication states that care participants enter any given care episode with different preconceptions and will perceive their communication differently.[6,7] This leads to differences with respect to their expectations and interpretations and a common, but mistaken, assumption that others "will know" or "understand" what is implied by what they

Table 2. Frequencies of the SACCIA errors by communication process.

	Sufficiency	**A**ccuracy	**C**larity	**C**ontextualization	**I**nterpersonal **a**daptation
Encoding	53	25	9	56	17
Decoding	24	23	1	41	3
Transactional	47	36	6	20	6

Table 3. Examples of SACCIA Safe Communication deficiencies that contributed to preventable patient safety events in the 60 analyzed cases.

	Interpersonal communication processes		
	Encoding	Decoding	Transactional
SACCIA Safe Communication dimensions			
Sufficiency	A transferring nurse provided insufficient clinical information about the patient during inter-institutional handoff (**sentinel event**).	A certified registered nurse anesthetist (CRNA) did not access and decode newly added information on the patient's chart (**adverse event**).	An anesthesiologist and his patient did not verify the receipt and understanding of the information the patient had handwritten on a consent form (**adverse event**).
	A float nurse did not notify the physician on call and the regular nursing staff about an infection control alert (**adverse event**).	An on-call internist did not access the electronic health record (EHR) of a patient (**near miss**).	A physician and a nurse did not engage in sufficient communication with one another to establish a shared understanding of revised medication procedures (**harmless hit**).
	A nurse did not contact the surgeon or cardiologist under her incorrect assumption that the intensive care unit (ICU) attending was already communicating with the surgeon (**sentinel event**).	An internist merely glanced over his patient's medical chart instead of reviewing it thoroughly (**harmless hit**).	An anesthesiologist and a nurse relied on the information in the electronic health record (EHR) without verifying its completeness with the floor clinicians and nursing staff (**harmless hit**).
Accuracy	An emergency department (ED) triage nurse inaccurately wrote on a patient's home medications list that the patient was taking Toprol-XL 75 mg po daily (instead of 25 mg po daily; **adverse event**).	An admitting nurse picked up the admission papers and chart that belonged to another patient (**near miss**).	An admitting resident did not validate the accuracy of provided medication labels with the primary care physician and the family (**harmless hit**).
	An admitting nurse inaccurately recorded "no known allergies" (NKA) for a patient (**harmless hit**).	Nurses misinterpreted the fact that a patient was receiving Vancomycin as an indication that the physician had already been notified about the patient's *Clostridium difficile* infection (**adverse event**).	A patient did not correct the nurse's wrong use of her name (**near miss**).
	A nurse stated during transfer that the patient had "sufficient central line access." In saying so, she mistakenly referred to an external jugular vein (**harmless hit**).	A nurse misinterpreted the resident being on the phone as an indication of the surgeon and the cardiologist being informed (**sentinel event**).	A pharmacist did not contact the obstetrician to validate the accuracy of his reading of the illegibly handwritten prescription label (**adverse event**).
Clarity	An admitting nurse was not precise enough in her question whether the patient was "allergic to any medications." She should have asked the patient whether he has "*any* known allergies" (**harmless hit**).	An intern ignored her uncertainty about the patient needing a VTE prophylaxis and simply skipped over the prompt in the electronic health record (**near miss**).	An admitting nurse and a patient did not engage in enough communication with one another to clarify that the patient had an iodine allergy (**harmless hit**).
	A physician ordered a prescription via illegible handwriting (**adverse event**).		A nurse and her patient's mother did not engage in direct follow-up communication with one another to reduce their uncertainty about a mentioned allergy alert (**harmless hit**).

(continued)

Table 3. Continued.

	Interpersonal communication processes		
	Encoding	Decoding	Transactional
Contextualization			
Functional	An on-call internist ordered a medication that was unsafe given the patient's pregnancy (**near miss**).	An admitting nurse did not notice the discrepancy between her patient's name on the wristband and name on the chart (**near miss**).	A nurse did not raise her concern to the physician that his ordered dose of Toradol could be nephrotoxic for the patient, given that the patient had only one kidney and a history of renal cell cancer (**harmless hit**).
	A primary care physician placed his patient into home hospice care in disregard of the context of the patient having expressed previously that he does not feel ready for home hospice care (**adverse event**).	A primary care physician and ward nurse decoded the family's request within insufficiently within the context of their potentially facilitating function, given that they know the patient well (**adverse event**).	A nurse did not communicate with the night float resident to make sure that he had viewed a patient's X-ray, given that there were two X-rays of the patient taken on the same day (**harmless hit**).
	A surgeon made contact with the patient's mother-in-law instead of the patient's husband, encoding the instructions to the wrong receiver (**adverse event**).		
Relational	A nurse did not dare to question the physician's prescription order from her hierarchically inferior position (**harmless hit**).	A nurse assumed (rather than verified), based on her experience with the patient during prior ED visits, that the patient was again hypoglycemic (**adverse event**).	A nurse, physician and patient did not communicate enough about a home care decision in the context of the patient not wanting to be a burden on his wife (**adverse event**).
	A floor nurse did not question the post-anesthesia care unit (PACU) nurse's incorrect assertion that the child's jerking was "just hiccups," because of her perceived hierarchical inferiority to the PACU nurse (**sentinel event**).	A nurse failed to interpret the patient's mother's expressed concern in the safety-facilitating context of the mother knowing the patient well (**sentinel event**).	An anesthesiologist and a nurse established an insufficient shared understanding of surgical procedures, because they did not pay attention to the context of the anesthesiologist being new to the team (**adverse event**).
Chronological	A surgeon gave his patient postoperative instructions *prior* to surgery, disregarding that the information may change due to possible changes during the surgery (**adverse event**).	A nurse did not take the time, given her busy schedule, to compare the patient's name on the wristband with the name on the chart (**near miss**).	A nurse and a physician failed to establish a shared understanding with one another that a patient's critical condition requires immediate visitation at the bedside (**sentinel event**).
	A patient and his wife waited too long (two weeks, until an accident happened) to inform their clinicians that the patient was not doing well in home hospice care (**adverse event**).	A nurse accessed the patient's health records too late to realize that the physician had reduced the medication dosage for the intravenous (rather than intramuscular) infusion (**harmless hit**).	A surgery fellow and a surgeon did not discuss a surgical procedure in the context of the fellow no longer being at the institution at the time of the planned surgery (**near miss**).
	A nurse at the residential facility called the patient's primary care physician too late to confirm which medications the patient should be taking (**harmless hit**).	A physician did not check the patient's health records for lab results, assuming that they were not yet available (**sentinel event**).	

(continued)

Table 3. Continued.

	Interpersonal communication processes		
	Encoding	Decoding	Transactional
Environmental	A nurse did not communicate with the night float resident to make sure that he had viewed the X-ray, given the context that the resident had an unusually busy night shift (**harmless hit**).	A discharge nurse did not decode a patient's husband's nonverbal expression of "feeling overwhelmed" in the context of the husband having stated previously that he was concerned about not being able to take care of his wife at home (**adverse event**).	A transferring nurse, a transferring physician, and the receiving nurse at a Skilled Nursing Facility (SNF) did not utilize their communication with each other enough to establish a shared understanding of the patient's complete health condition, in the context of the extensive length of the patient's health record (**adverse event**).
Cultural	A patient's daughter did not qualify in her communication with a nurse that given her nonmedical background, she is not absolutely sure that "Plaxil" is the correct name of her mother's home medication (**harmless hit**). A thoracic surgery fellow framed his postoperative care orders insufficiently within the context of being new to the institution and thus needing to adjust his communication to the institution's standards (**near miss**).	A nurse overly decoded medication information within the context of the patient's daughter not being a clinician, assuming (rather than verifying) that the daughter was stating a wrong (sound-alike) medication label (**harmless hit**).	An anesthesiologist and a nurse did not establish a shared understanding of the surgical procedure within the context of the anesthesiologist being new to the team and thus requiring information about the hospital's standard procedures (**adverse event**).
Interpersonal **A**daptation	An attending anesthesiologist inappropriately referred to the patient as "the subject" in his conversation with the resident, thereby intimidating the patient from intervening with a wrong-site surgery (**sentinel event**). A nurse and a pharmacist did not adapt their communication with the patient to the fact that the patient was blind and lived alone (**near miss**). A floor nurse failed to react to a patient's mother's expressed anxiety about her observation that "something was not right" about her daughter's behavior (**sentinel event**).	ED nursing staff insufficiently embraced the patient's need to be treated quickly because further delays in his treatment would cause him to faint (**harmless hit**).	A nurse and a primary care physician did not engage in enough communication with the patient and his wife to establish a shared understanding of an optimal treatment plan that accommodates and coordinates both of their needs and expectations (**adverse event**). A nurse and a pharmacist did not adapt their medication instructions to their patient's displayed ad hoc needs to make sure that the patient fully understands their instructions and knows how to apply them in the context of his daily life routine (**near miss**). A nurse did not adapt her discharge communication to the patient's husband's needs, in response to the husband's nonverbal expression that he did not seem to feel able to implement the discharge instructions on his own at home (**adverse event**).

say or express. Fifty-four SACCIA communication errors were ascribed to this principle in 25 of the 60 cases.

Principle 5. Communication entails factual and relational information

This principle postulates that communication always conveys both factual and relational information. In other words, whatever is said or done, even if it entails objective facts only, can alter the meaning of the information and affect the relationship between the participants.[6,7] For example, in one of the cases, an anesthesiologist's nonverbal demeanor kept a patient from speaking up to prevent a wrong-site hip replacement. This principle was associated with 22 SACCIA communication errors that compromised the safety of care in 10 of the 60 scenarios.

Principle 6. Communication varies between thought, symbol, and referent

Humans "make meaning" through the creation and use of symbols (e.g. words, gestures, sounds, images, artifacts). This process is construed through triangular associations: A referent (e.g. an antibiotic) is connected to a thought (i.e. association with a particular kind of an antibiotic), which is represented by a chosen vocalization (e.g. the word "penicillin").[24,25] "Proof" of the relationship is accomplished through successfully achieving shared understanding. In essence, communication is the vehicle people use to create agreement and a shared reality. Miscommunication occurs when interactants fail to generate a sufficient overlap of their triangular associations. In healthcare, such miscommunication can lead to severe patient safety events, particularly in the context of medication errors (e.g. when care participants associate different labels with a medication they have in mind).[6,7] This human communication principle was associated with nine SACCIA communication errors in 7 of the 60 cases.

Principle 7. Communication is more than words

In face-to-face communication, verbal messages are always accompanied by nonverbal behaviors or expressions that include visible and vocal cues, such as gestures or the inflection of one's voice. Interpersonal communication typically engages multiple nonverbal communication channels in addition to words. Thus, shared understanding rests not only on *what* is said but also on *how* it is said.[6,7] Insufficient attention to this principle accounted for 13 SACCIA communication errors in 7 of the 60 patient safety events.

Principle 8. Communication is functional

This principle states that humans use interpersonal communication to achieve a variety of ends and these are not necessarily compatible with achieving shared understanding. Other functions include, for example, making an impression, reducing uncertainty, persuading others, maintaining a relationship, avoiding or resolving conflict, managing privacy, and many more.[6,7] In two of the 60 cases, this principle was associated with two SACCIA communication errors; one triggered an adverse event, the other a sentinel event.

Discussion

"Poor communication" has been identified as a frequent root cause of patient safety events. The SACCIA framework adds a number of insights to the existing literature on healthcare communication. First, it casts a bridge between theory and practice by attaching the five definitional components of "safe communication" (SACCIA) to concrete behavioral representations that occurred in actual patient safety events (see Table 3). These practice exemplars can be referenced by educators and care providers to enhance the safety of their daily clinical encounters. Second, grounded in a communication science perspective, the SACCIA framework focuses on participants' joint construction of "shared understanding" as a *fundamental requirement* for successful care provision. Third, SACCIA explains communication processes independently of the clinical context and interpersonal setting, thus bridging research camps that have focused separately on "interprofessional" versus "provider-patient" interactions. Based on the study findings, these camps should not be divided because both share sense-making and common understanding as the underlying processes driving these interactions, regardless of context or professional roles. Fourth, SACCIA can explain many different types of patient safety events, including patient falls, medication errors, diagnostic errors, handoffs and unsafe surgeries, as manifestations of unsafe communication. This suggests that these events should not be studied separately—instead, the *processes* that *lead* to safe or unsafe care ought to be better understood.

Another strength of the SACCIA framework lies in its ability to relate unsafe communication (i.e. SACCIA errors) to eight core misassumptions about human communication.[6,7] Thus, in addition to labeling communication errors, the SACCIA framework traces these errors to core misassumptions that care participants commonly hold about interpersonal communication, which *enable* the SACCIA communication errors to occur. Most incidents in this study, for example,

occurred because care participants did not use their communication with each other to neutralize contextual barriers, such as discrepant goal alignments, time-related factors, challenging interpersonal constellations or cultural differences. They also did not use communication as an accuracy-validating process, nor did they extend their mindsets to the space *between* them—which is the space in which interpersonal sense-making occurs. As a result, they often *assumed* that they communicated, but communication never took place.

Limitations

This study has three limitations. First, it is based on written case reports, which are subject to hindsight bias and inaccurate reporting. Second, although the cases were drawn from several sources, there is no way of knowing how representative they are of all patient safety events. Therefore, the conclusions must be treated as provisional, awaiting scientific validation in larger, more representative samples. Third, this was a feasibility study. Future studies will have to test the efficacy, effectiveness and cost of using the SACCIA framework in day-to-day practice settings.

Implications and conclusions

In this paper, critical incident narratives (like those provided in CIRS) were a useful resource for identifying unsafe interpersonal communication processes that commonly contribute to patient safety events. Systematic SACCIA-coding of such reports can provide an understanding of one of the most critical and common "root causes" that account for up to 80% of sentinel events.[3,4] SACCIA-coding CIRS cases can help practitioners and institutions identify specific weaknesses in their institutions' communication practices and provide the evidence base for sustainable, measurable practice improvements in everyday care.

At the same time, the "Hannawa SACCIA Safe Communication" framework can be used to establish five core competencies of "safe communication"—because the flipside of errors are targeted *competencies* that avoid them. If these competencies and the eight common misassumptions about human communication were to be taught to health professionals, this educational intervention might contribute to an effective "root cause" reduction of many communication problems and, thereby enable sustainable patient safety improvements.

In summary, given its broad application and explanatory potential, SACCIA Safe Communication is an important and novel approach to help describe and understand safe and high-quality care. Because in the end, healthcare in its essence, will always remain an interpersonal encounter, no matter how advanced it becomes. And it is that encounter, where patient, nurse and physician meet, that ultimately decides whether safety or harm occurs. The SACCIA Safe Communication framework identifies five communication weaknesses that commonly threaten the safety of that encounter. It mirrors these weaknesses with five "safe communication" competencies that can help care participants make that encounter more resilient to failure. In light of the existing literature, an application of this framework can contribute to preventing up to 80% of avoidable patient harm in a nonelaborate, uncostly way—it merely involves educating care participants in-house about eight common misassumptions and alerting them of five common communication fallacies they ought to avoid. A direct effect of such a simple pedagogical intervention could be that every few seconds, a patient's life is saved thanks to more successful interpersonal sense-making: A minor behavioral change for care providers, but a huge improvement for patient safety.

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