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Professional Behavior and Value Erosion: A Qualitative Study of Physicians and the Electronic Health Record

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SUMMARY

Goal: Occurrences of physician burnout have reached epidemic numbers, and the electronic health record (EHR) is a commonly cited cause of the distress. To enhance current understanding of the relationship between burnout and the EHR, we explored the connections between physicians' distress and the EHR.

Methods: In this qualitative study, physicians and graduate medical trainees from two healthcare organizations in California were interviewed about EHR-related distressing events and the impact on their emotions and actions. We analyzed physician responses to identify themes regarding the negative impact of the EHR on physician experience and actions. EHR "distressing events" were categorized using the Accreditation Council for Graduate Medical Education (ACGME) Physician Professional Competencies.

Principal Findings: Every participating physician reported EHR-related distress affecting professional activities. Five main themes emerged from our analysis: system blocks to patient care; poor implementation, design, and functionality of the EHR; billing priorities conflicting with ideal workflow and best-practice care; lack of efficiency; and poor teamwork function. When mapped to the ACGME competencies, physician distress frequently

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stemmed from situations where physicians prioritized systems-based practice above other desired professional actions and behaviors. Physicians also reported a climate of silence in which physicians would not share problems due to fear of retribution or lack of confidence that the problems would be addressed.

Practical Applications: Physicians and administrators need to address the hierarchy of values that prioritizes system requirements such as those required by the EHR above physicians' other desired professional actions and behaviors. Balancing the importance of competing competencies may help to address rising burnout. We also recommend that administrators consider qualitative anonymous interviews as an effective method to uncover and understand physician distress in light of physicians' reported climate of silence.

INTRODUCTION

Health administrators and physicians have the common goal of delivering outstanding patient care while preserving the stability and well-being of the healthcare team, yet physician burnout has been occurring in epidemic numbers (Kumar, 2016). Previous work has theorized multiple predisposing factors, including encroachment on professional autonomy, an imbalance of professional and institutional values, moral distress, and moral injury (Dean et al., 2019; Dzeng & Wachter, 2020). In addition, prior research has documented associations between burnout and unprofessional behaviors (Dyrbye et al., 2010, 2020).

Surveys have found that electronic health record (EHR) use is a major contributor to physician distress (Ashton, 2018; Dietsche, 2019; Downing et al., 2018). Although these surveys have provided some insight, complete understanding and remediation of EHR-induced physician distress remain a challenge. Qualitative studies may be best positioned to identify the connections between EHR use and physician distress. A qualitative approach enables the exploration of actual physician-perceived problems, including the contextual roots of their distress, the resultant emotions, and the impact of distress on their values and behaviors. Few such studies exist. One qualitative study conducted in the primary care setting found that professional dissonance and feeling undervalued contributed to burnout (Agarwal et al., 2020). Research focusing on emotional response has supported a strong association between EHR and negative emotions but has left room for further inquiry into the mechanisms of this connection (Sittig, 2005). Understanding these deeper connections may lead to actionable approaches to improve both professional fulfillment and the healthcare delivery system.

For this study, we conducted in-depth qualitative interviews across two settings to assess how the EHR induces distress in physicians and its impact on their professional behaviors. We analyzed the reported effects on professional actions, as they relate to Accreditation Council for Graduate Medical Education (ACGME) core competencies (ACGME, 2021). We used this framework because the ACGME competencies represent the desired behaviors of physicians, reflect real-world representations of professional values, and

are embedded throughout the U.S. system of medical education. We hypothesized that institutional EHR requirements might impede professional behaviors related to these competencies and conflict with professional values, thus resulting in physician distress.

METHODS

We conducted our study in two healthcare organizations in Northern California—an academic medical center (Site A) and a community hospital (Site B). Both have residency programs, so we interviewed trainees and faculty at both sites. To cover the broadest viewpoint of physician distress, we recruited from a variety of medical and surgical specialties. Interviews were completed primarily by phone over a year and a half ($n_{\text{in-person}} = 1$; $n_{\text{phone}} = 49$); Site A interviews were collected from March 2017 to October 2017 and Site B interviews were collected from November 2018 to September 2019. The project was financially supported by the Stanford University School of Medicine and Stanford Health Care and was approved by the local institutional review boards.

Participant Eligibility and Recruitment

Participants were recruited from five distinct provider groups at each of the participating organizations: outpatient primary care faculty, internal medicine hospitalists, surgeons, residents, and chief residents. We sampled from these physician groups to gather a wide range of perspectives. Approximately five members of each group participated from each organization.

Recruitment preserved participant anonymity, thus providing leaders an opportunity to encourage participation. Specifically, leaders of each physician group sent an initial e-mail to potential participants stating the study purpose: to learn more about physicians' perspectives regarding challenging aspects of the EHR. To preserve anonymity, the e-mail directed interested participants to contact the project interviewer directly. After the initial mass e-mail was sent, we also directly contacted potential participants in each group (arbitrarily every fifth person on the e-mail list) to further facilitate recruitment. To protect data collection, we did not record or store any identifiable information from participants. Interviews were scheduled and conducted by the two qualitative researchers on our research team.

Data Collection

In semistructured interviews, we asked participants to identify distressing experiences with the EHR during the prior 2 weeks. Data collection focused on the EHR trigger; the resulting emotional distress; and the professional behaviors, competencies, and values being challenged. Interviews also included discussion of what participants liked best about being physicians and the positive impact of the EHR (see Table 1 for interview protocol). Interviews were transcribed anonymously by a personal health information-compliant transcription service; participant identification was deleted after transcription. Anonymity was intended to maximize the honesty of responses and minimize risks.

The study applied an action research perspective to bridge the gap between systematic inquiry and practical results (McIntyre, 2005). Table 2 highlights

TABLE 1

Interview Protocol

Topic Area	Prompt(s)
Opening interview question	Tell me about how you use the EHR in your daily work.
Positive aspects of EHR	How is the EHR helping you? In patient care? In saving time? In fulfillment as a physician?
Emotion and trigger/source	Have you felt a negative emotion with an EHR activity over the past 2 weeks? What emotion were you feeling? or What aspect of the EHR increases your sense of stress as a physician?
	Identify the trigger activity that led to that negative emotion. What activity were you doing? Please be as specific as possible.
	Why did you have to do this activity? Who/what required it?
	Why do you think physicians, rather than others, are asked to do this activity?
	Who else could have completed this activity?
Validity of information entered/ honesty/ accuracy	In responding to documentation requirements, physicians may feel inclined to document things that were not actually performed, completed, or that are invalid.
	Have you had to do that? If yes, can you provide an example of such a situation?
	How often do you verify information (e.g., medicine reconciliation, allergies) without actually performing the task? How does this make you feel? What is driving you to complete this task without validation?
	Do you always perform the review of systems that you document as having completed? If not, why do you document the review of systems in this manner? How does this make you feel?
	Do you always perform the physical examination that you document as having completed? If not, why do you document the examination in this manner? How does this make you feel?
	How often are you documenting questionable information? How does this make you feel? What is driving you to document in this manner?
	Why do you feel the need to report unvalidated or inaccurate information in your documentation?
Meaningfulness/ purpose/impact of these activities	What is the impact of EHR documentation, in general, on your professional life/meaning? How is this process affecting your work?
	Although some EHR tasks can improve patient care, some may take you away from other more important activities. Do you feel this way?

TABLE 1

(Continued)

Topic Area	Prompt(s)
	If yes: Is the time you spend documenting in the EHR preventing you from spending time with your patients? Are the EHR tasks affecting your time/motivation to learn/read about your patient's disease? Are these tasks affecting your learning? How does this make you feel? Are there any aspects of the EHR that make you feel that you are doing the wrong kind of work? Or question being a physician?
Helplessness/acquiescence/hiding	Have you revealed your opinion about your experiences with the EHR? If so, to whom? If not, why not? Have you had errors or near misses in your practice? If yes, did you report these to the administration/risk authority or your superiors? If no, why not? Have you mentioned any of these concerns to the administration or your superiors? If yes, to whom? If no, why not? Do you feel comfortable bringing these feelings to the hospital administration? If no, why not? Do you think there could be negative repercussions of sharing your experience/opinion?
Solutions	Do you feel that you have a meaningful voice within the institution? Are physician voices valued by the administration? If yes, how is your opinion being heard? If no, what recommendations do you have for the institution regarding awareness and usefulness of physician input and experience? If you were to be able to have an impact on this type of activity—make it more effective, less difficult, etc.—how do you think you would like to share your recommendation with the administration, e.g., in person/focus groups/electronically?

Note. EHR = electronic health record.

how we included key elements of action research through exploration of lived experience; incorporation of issues of power, empowerment, and critical reflection; and adaptation of participation (Baum et al., 2006).

Data Analysis

Although the interviews identified positive EHR effects on physician work and professional behavior, our analysis intentionally looked for distressing events because the study's primary goal was to better

TABLE 2

Action Research Inclusion/Adaptation for Investigation of EHR and Physician Distress

Action Research Principle	Included/Excluded	Implementation in Current Study
Participation	Adapted	We addressed participation with a large advisory board of physicians. Including participants in analysis/interpretation was not feasible due to the highly sensitive nature of the interviews and the requirement of participating institutions to keep participant information anonymous.
Power/empowerment	Included	Empowerment of participating physicians underpinned the study. Our intent was to elicit and share physician experiences that would not normally be shared.
Lived experience	Core	See interview protocol (Table 1), meant to explore the lived experience of distress for physicians.
Critical reflection	Included	Critical reflection is woven throughout our analysis. Future work focuses on how the pipeline of physicians, from the undergrad and even high school emphasis on testing results, may contribute to the inability and learned helplessness of physicians to address issues of moral distress in the system.

understand the causes and effects of distress. Data analysis was initially informed by grounded theory approaches—that is, after data were collected, five transcripts were open-coded by two qualitative researchers to identify emergent themes, and these themes were refined by the research team. Three qualitative researchers performed qualitative coding for the full sample using constant comparative analysis and consensus validation to (1) compare ongoing coding against previous coding and (2) query interpretation across coders (Creswell & Poth, 2016). Interview transcripts were coded in Nvivo.

To explore the links between the distressing events and their related emotions and professional behaviors, we created an analytical matrix in Excel that was seeded with distressing event excerpts from Nvivo transcripts. In this matrix, we identified and related the distress trigger; the resulting emotion as expressed by participants if explicit or, if not explicit, as perceived by the researchers; and the corresponding ACGME competency that was challenged by the trigger (patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice). We used these competencies for our taxonomy of professional behavior because they form a key part of medical education across all

accredited medical schools in the United States and many other countries. Over the course of 6 months, we discussed approximately 50% of the total number of distressing events to ensure consistency of categorization, and each researcher reviewed the entire matrix.

RESULTS

Participants

Fifty physicians at the two healthcare organizations were interviewed, 25 from each site. In applying our intentional sampling strategy, we recruited from faculty in outpatient primary care ($n = 10$), hospital medicine ($n = 10$), and surgery ($n = 10$), as well as chief residents ($n = 9$) and residents ($n = 11$) across specialties.

Interview Results

Fifty interviews identified 123 distressing events and circumstances. Notably, every participant described at least one incident or issue connected to the EHR in the preceding 2 weeks. Table 3 outlines specific examples of distressing events and circumstances, the resulting emotion, and the ACGME competency related to the challenged professional values.

Initial Distressing Event

The five main themes and problem areas that emerged from physician interviews were:

1. system blocks to physicians providing patient care;
2. poor local implementation, design, and functionality of the EHR;
3. billing priorities at odds with ideal workflow and best practice care;
4. lack of efficiency; and
5. poor teamwork function.

Participants said they were distressed by a variety of EHR-related causes such as documentation being prioritized over patient care, time for patient care activities reduced due to documentation requirements, unexpected changes in the EHR, query alerts regarding documentation, and multiple clicks or entries to complete a simple task. Some doctors were distressed by other team members being concerned with documentation even as critical life-saving activities were being completed.

Many distressing events centered on EHR design and implementation: lost notes, log-in issues, numerous alerts and pop-ups, hard stops that impede workflow, PDF scans filing, slow data entry, inaccurate data (e.g., “way too much noise in the note”), and unrealistic documentation expectations (e.g., queries, clarifications, and coding expectations). Other events were related to personal overload (e.g., excessive time on the computer and the feeling of not being able to keep up).

Emotions

Participants conveyed a range of negative emotional responses to their distressing experiences, including demoralization, underappreciation, and a sense of failure. One participant described their inability to simultaneously document in the EHR and deliver quality care in simple, stark terms: “I failed my patient.” Specifically, this provider outlined a scenario in which documentation requirements impeded intense patient psychosocial needs that required physician attention.

Types of emotions mentioned or reflected included a concern for patients and

TABLE 3

Example Distressing Event, Quote, Emotion, and Competency

Distressing Event	Example Quote	Associated Emotions	Core Competency (ACGME)
EHR dread: Anticipation of logging in. Risk/reward is high.	"If I log in, it is going to be a list of things to do."	Fear, anxiety, apprehension	Interpersonal and communication skills, professionalism, system-based practice
Computer replacing personal connection	"It is not rewarding to be dependent on the computer."	Depersonalization, negativity, burnout	Patient care
Redundant EHR notes for billing	"[Redundant work] is completely and utterly uninteresting. Essentially, most of what I do is just to be able to bill."	Frustration	Systems-based practice, professionalism
Collegial unprofessional behaviors	"Colleagues who abuse the template [enter coding that does not reflect actual work done]. I see somebody documenting and I know they haven't done it."	Frustration, annoyance, disgust	Professionalism, system-based practice
Constant nursing/pharmacy calls	"I start to lose my patience or try to move [pharmacists and nurses] along, and it's a constant reminder that I'm not being the professional that I aspire to be."	Anger, frustration, embarrassment	Interpersonal and communication skills, professionalism
Inflexible system reliant on EHR	"[When the internet goes down] there's no wind for the sail. We're dead in the water. You have to walk into the patient's room and say, 'Sorry, I have no idea.'"	Frustration, stress, embarrassment	Patient care, professionalism

Note. ACGME = Accreditation Council for Graduate Medical Education; EHR = electronic health record. Example quotes have been edited for clarity and space.

the profession, betrayal, guilt, stress, frustration, anger, misery, being overwhelmed, annoyance, anxiety, powerlessness, distraction, helplessness, discouragement, sadness, exhaustion, depersonalization, burnout, lack of appreciation, hardness, terror, and dread. Dread was attached to repetitive EHR requirements impeding professional efficiency and increasing risk to patients. Participants mentioned anger with the EHR inhibiting the ability to finish work ("it breaks you"). For some, self-doubt and anxiety were secondary to an inability to keep up with the workload. The high volume of inbox messages contributed to a "mental load of unfinished notes" that participants connected to negative effects on patient care and work–life balance.

Feelings of betrayal were associated with both colleagues and the healthcare system. Participants noted examples of poor communication and lack of collegiality, for instance, when other providers used EHR notes to express their dissatisfaction instead of addressing teamwork issues face-to-face. Other participants noted that colleagues documented work in the EHR that they did not actually complete. Such behaviors elicited emotional reactions of disgust and perceptions of "degradation of the professionalism of medicine." Participants also reported experiencing powerlessness to get anything fixed.

Professional Competencies

The issues of distress were consistently related to a compromise in professional values and desired professional actions. When these issues were mapped to the ACGME core competencies, our participants reported distressing events that primarily blocked or eroded patient care, communication, and professionalism. These competencies seemed to conflict with institutional documentation requirements, which ought to support the ACGME competency of systems-based practice; however, physicians reported that completing system-required documentation (i.e., system-based practice) took time away from activities related to other professional values such as patient care, medical knowledge acquisition, communication, practice-based learning, and professionalism.

Patient Care. Perceived compromises to patient care and safety commonly underpinned reported distress. For example, one participant related that onerous EHR rules or software glitches inhibited the ability to place critical orders: "We had a gentleman, very, very sick . . . . [So we] put in all of these orders that we had no idea how to put in. . . . IT people [were called in] to figure [it] out . . . It took way, way, way too long."

Providers noted the opportunity cost of EHR's billing requirements that detract from the ability to provide patient care. As one participant noted, "When you've got really sick patients, and you really need to be calling consults, calling your specialists, doing so many other things . . . you're just sitting at a computer writing notes upon notes upon notes because we need it for billing."

There were also the patient safety dangers of what the physicians called a "bloated chart" populated by lengthy, templated, or copy-and-pasted notes full of unnecessary information. As a physician explained, "It's like looking for the needle

in the haystack. . . . You have 50 notes that have 10 pages each, and one of them happens to say something really important, but you missed it."

Communication. Unprofessional temper flare-ups had an impact on the physicians' self-assessments of professional behavior as well as communication and teamwork: "[With] the constant interruptions [generated by the EHR] . . . anger and frustration building, and me not being able to keep up . . . my temper has become short, and . . . the nurses bear the brunt of everyone's anger."

EHR also was reported to interrupt the patient–provider connection. As a physician explained, "It sours your . . . interaction with the patient." In addition, team communication was reported to be slowed by the EHR as providers forwarded work to each other rather than use direct conversation. This depersonalization was reported to degrade trust.

Professionalism. Participants frequently mentioned issues related to the responsibility and commitment to ACGME's competency of professionalism. With so many demands on the physicians' time, extra clicks and faulty programs clearly violated their professional values of accountability, efficiency, streamlined operations, and reliability. Participants reported that professionalism could also be undermined by billing requirements. One made the point with these words: "I think I could probably write a note summarizing my encounter with a patient in 5 minutes, but instead it takes 20 [to satisfy billing needs]."

System-based care. Physicians expressed the desire for their work to be coordinated and synergistic with other aspects of the healthcare system. They noted that EHR documentation can be useful for effective physician communication with patients, colleagues, and the entire healthcare system. Some system-based requirements of the EHR (e.g., billing processes), however, intensify challenges for physicians as they try to effectively implement other aspects of their role. As one explained, "Bad technology can sink the system."

A Climate of Silence

Our participants expressed pessimism, as they put their distress in the broader context of (a lack of) communication with healthcare system's administrators. Although they acknowledged positive institutional efforts to address challenges, they also described a climate of silence reflecting physicians' hesitancy to report. They mentioned various reasons for not sharing information about their distress with peers or administrators, including powerlessness, futility, and fear. As one said, "We know what needs to be done to improve patient care. . . . but you have no ability [with the current system]. You feel helpless in your ability to actually achieve it . . . powerless to change the system."

Some special cases emerged with respect to the climate of silence. Issues related to the validity of EHR data, for example, were likely to not be reported because of fears of legal or professional repercussions for the physician.

DISCUSSION

This study adds to research that has confirmed the real and serious issue of EHR-induced physician distress (Downing et al., 2018; Dzeng & Wachter, 2020; Stack,

2004; Tierney et al., 2013). Eliciting physicians' perspectives can reveal the human sadness, anger, embarrassment, devaluation, worthlessness, and feelings of failure, and underscore the value of qualitative analysis of physicians' commentaries about the sources of their distress (Agarwal et al., 2020). The depth of these emotions elucidates the negative impact of these triggers on the medical profession, making burnout rates even easier to understand.

Our study focused on distress related to EHR requirements. Broadly stated, the most important finding is that physicians may acquiesce to administrative requirements that compromise professional values and work behaviors. This finding, along with a secondary finding related to the negative impact of billing and insurance requirements, reflects the emmeshed nature of the healthcare system. Physicians rely on organizations led by administrators, while administrators and organizations are highly influenced by national policies and insurance plans. In short, three major components of healthcare delivery—physicians, organization administrators, and policymakers and insurers—are inseparable, and their efforts to standardize EHR requirements may unintentionally cause injury to healthcare workers and patients.

Physicians

This study implicates physician compromises in professional values as a major reason for EHR-induced distress. Physicians in this study frequently pointed out that the time taken to fulfill EHR requirements impeded their ability to provide patient care. This finding may point to an opportunity for administrators to reduce physician distress through interventions that not only minimize impediments but also, and maybe more importantly, enable desired professional behaviors of physicians.

Our study's findings build on other research relating burnout to professional and moral values. Prior literature associates burnout with both moral distress (Dzeng & Wachter, 2020; Førde & Aasland, 2008) and unprofessional behaviors regarding cost stewardship (Dyrbye et al., 2010, 2020). Burnout's association with value compromise and moral distress may explain the highly negative emotions in individual physicians and also systemically affects healthcare (Lamiani et al., 2017; Moreland et al., 2015). Another qualitative evaluation of professional dissonance in primary care providers highlighted similar concerns about workload, work–life balance, and reimbursement (Agarwal et al., 2020). Our report extends these observations, documenting how distress occurs across specialties and from trainees to practicing professionals.

By categorizing the negative effects according to the ACGME core competencies, we found that EHRs challenge not only physician emotions and professional values, but they do so by skewing physician work toward competencies of systems-based practice and away from other crucial competencies such as interprofessional communication, knowledge acquisition, and patient care. When required physician activities are at odds with the major thrust of their professional values—quality patient care—the occurrence of moral distress, injury, and burnout becomes much more understandable.

Physician Relationship With Organizations

Our interviews revealed cultural factors that may compound physician distress: (1) a climate of silence (Ozkan et al., 2015), (2) learned helplessness (Moreland et al., 2015), and (3) a hierarchy of values that prioritizes system-focused and system-measured values over other professional values (Agarwal et al., 2020).

When explaining their reticence to discuss EHR distress, interview participants described the fear of being viewed by the organization and administrators as a complainer. Participants also showed signs of learned helplessness, stating that expressing concerns in the past had not yielded desired organizational results. Finally, physicians may be particularly responsive to requirements that are measured, such as documentation requirements like the number of items listed in a review of systems, and that can be used for evaluation and rewards. Physician behaviors that focus on externally defined measurements may be extensions of habits they have learned in an educational system that rewards students and trainees with success measured by organizationally defined criteria such as test scores.

Administrators recognize the need to understand issues facing their team and therefore include important institutional groups in the decision-making processes—having physicians and nurses on hospital committees, for example. However, professional compromises in patient care because of documentation for billing purposes are unlikely to be revealed in these meetings. Other methods such as anonymous interviews may be needed. Considering the depth of distress documented in our study, we believe that physicians and administrators will need additional reframing to address the hierarchy of values that prioritizes system requirements above other pursuits. Moreover, capitalizing on the other professional values of physicians may yield new approaches to make healthcare more fulfilling and improve patient care.

National Policy and Insurance

Through discussions of EHR billing requirements, we observed issues related to the role of important partners in the U.S. healthcare ecosystem: policymakers and insurers. Fortunately, there have been some efforts to address these issues. For example, in early 2021, some documentation requirements for billing were simplified at the national level through initiatives such as the Medicare Patients Over Paperwork initiative. Ideally, ongoing communication from administrators and physicians that highlights the pros and cons of documentation requirements can help to align those requirements with physicians' professional values.

Study Limitations

This study's main limitations are related to participant recruitment and representation and to setting. Participants were volunteers, limited in number, and drawn from just two healthcare organizations. Thus, the sample may not be representative of the medical profession as a whole. However, we believe our findings have face validity because the participants represent a variety of clinical contexts and levels of training. In addition, although previous research findings revealed themes such as those we observed, other issues may be

found in nonparticipants. Finally, participating organizations included a university and community hospital; other types of systems such as the Veterans Health Administration may be experiencing other issues associated with EHR-induced distress.

CONCLUSION

Even with its emphasis on distress, this study's encouraging findings can be applied at physician, administrator, and policy levels. By identifying and facilitating impeded physician activities related to patient care, communication, and professionalism, physicians and leaders can develop interventions to support workflows and behaviors that are aligned with those professional values.

In response to a possible climate of silence, we recommend that administrators consider qualitative anonymous interviews with physicians as a useful addition to local quality improvement methods because their creative and committed voices can enhance understanding of causes and remedies for physician distress. This method could easily be adapted to examine medical professional distress related to many other systems issues such as work–life balance, team (dys)function, and even (in)equity of patient care.

Facilitating physicians' desired professional values through alignment of competencies and behavior may help physicians play more fulfilling roles in advancing the mission of healthcare and the broader goals of medicine. Finally, national policymakers must communicate with administrators and physicians. Together, they can identify the pros and cons of policy requirements as they work together toward the common goal of improved patient care.

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