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Electronic Health Record Evolution

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FROM THE EDITOR IN CHIEF

Breaking Bad News

Audiey C. Kao, MD, PhD

Delivering difficult or potentially life-altering information to patients is a solemn responsibility of physicians and all who have the privilege of caring for the sick and injured. Breaking bad news is an artful skill that requires the ability to strike a balance between providing hard facts and offering tender hope while ministering to a patient's emotional reaction to this news.[1,2,3,4]

For over a quarter of a century, the *AMA Journal of Ethics* has striven to publish insightful commentaries, engaging podcasts, and provocative artwork that help medical students, physicians, and all health care professionals reflect on and make sound ethical decisions in service to patients and society.[5] I write to inform you that the *AMA Journal of Ethics* will cease publishing new content after December 2025. Understandably, this news will be sad and unexpected for the journal's readers and supporters. I share in this loss.

Previously published content will be maintained on the journal's website and remain freely available to all in keeping with our guiding premise that ethics inquiry is a public good. With humility, I am hopeful and confident that this archived journal content will stay evergreen for years to come.

Lastly, I want to extend my deepest thanks to the many authors, artists, peer reviewers, editorial board members, theme issue editors and fellows, and staff colleagues who have dedicated their time and talents to advance the *AMA Journal of Ethics'* editorial mission of "illuminating the art of medicine." I will be forever grateful for your kindness and contributions.

Fiat lux and take good care.

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FROM THE EDITOR

Promises and Perils of Electronic Health Records

David Oxman, MD, HEC-C

Electronic health records (EHRs) and even their predecessor, the "chart," would be unrecognizable to their originators.[1,2] What started out in the 19th century as a place for handwritten, bedside observations now exists almost completely electronically and comprises terabytes of text, data, and images. Moreover, a chart's original purposes included documenting case histories and facilitating communication among clinicians,[1] which are now often secondary to aims of code specialists, compliance officers, legal reviewers, and researchers. EHRs offer opportunities to aggregate enormous quantities of "big data," streamline processes of care, and increase access to information. But EHRs have also fundamentally changed how health care is given and received—and not always for the better.

Although a patient's EHR contains vast quantities of information, when it comes to determinations about which clinical information is relevant and why, more is not necessarily better. Much information in a patient's record today is cut, copied, and pasted from other sources or derived from templates, and some of it is not accurate. Clinicians reading a patient's EHR frequently find themselves drowning in data without a drop of information to meaningfully deepen their understanding of the patient's illness or of how to help them get better. Many clinicians feel they are caring more for charts than for patients and can resent having less time being physically present with patients when they have to spend so much time entering data.[3,4] Since EHRs are never more than a remote login away, the boundaries between work and home erode, which can diminish job satisfaction and exacerbate burnout.[5]

EHRs have also given patients unprecedented access to an abundance of clinical information, including raw data, notes from consultant specialists, unfamiliar language, and acronyms that require clinicians' guidance to interpret and apply, even for patients with above average health literacy. Patients can not only review laboratory and radiology reports themselves but access these data at all hours. While access can help some patients, it can cause misunderstanding and unnecessary distress for others when clinicians are not around to help them interpret information and apply it to their health decisions.

Patients' direct access to EHR data also makes some clinicians more careful about the language they use in their notes,[6] as some patients demand not only access to, but control over the language used in, these notes. *Who should decide which words are used in patients' records and why?* When patients should challenge clinicians' impressions or analyses, omissions, or commissions in a record—and from whose points of view should narrative data in a health record be drafted, revised, interpreted, or used—are also pertinent sources of inquiry in this issue. Already, EHR capabilities have changed how some patients' stories are constructed. Note templates can be easy to create but might over- or underemphasize unique aspects of patients' experiences. Furthermore, how clinicians

create patient narratives in the EHR can, in some cases, undermine how complex human stories are communicated when nuance and detail are key.

Digitalization of patients' records has also increased the ease with which information can be shared. On the one hand, this capability has made care more efficient and been a boon for clinical research. On the other, with so much personal health information flying across the internet, all stakeholders might be pressed to adjust privacy expectations, since keeping health information private might no longer be practical.

Finally, artificial intelligence (AI) might free clinicians from spending hours in front of a screen and allow them to spend more time with patients—or it could diminish patient-clinician relationships. Judging whether AI is ultimately a boon or a bust for health care requires assessing its impact not only on efficiency but on clinical encounters and other features of current clinical practice. EHRs have already delivered significant benefits to clinicians and patients. Whether they will continue to increase access, reduce fragmentation of care, and improve efficiency without diminishing the quality of patients' and clinicians' experiences remains to be seen.

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CASE AND COMMENTARY: PEER-REVIEWED ARTICLE

What Are Ethical Merits and Drawbacks of a Patient's Open and Direct Access to Clinical Information in Their EHRs During a Hospital Stay?

Ibrahim Nawaz Khan and Lauren B. Smith, MD

Abstract

Electronic health records (EHRs) now generally offer patients immediate access to a broad swath of health information and data they are often not fully prepared to interpret or review. This commentary on a case considers risks and benefits of open access to EHRs and strategies for mitigating patient anxiety caused by immediate access, including improving patient understanding of data, tools to promote health literacy, and customizable EHR information access options.

Case

Dr C has just read the chest X-ray report for TH, a cardiology inpatient admitted earlier today. TH has also seen the chest X-ray report in their electronic health record (EHR), which they accessed from their hospital bed. TH suggests to Dr C, "I think I need a CT scan. I'm reading online that I have a lung nodule." Dr C spends the next 15 minutes explaining to TH why a CT is not necessary. "Your lung nodule was seen on X-ray 5 years ago. It has not changed in size or appearance since then, so you don't need a CT scan." TH is not convinced, looks worried, and continues to ask Dr C about a CT scan. Dr C continues to try to explain why a CT scan is not indicated and will not be ordered. Dr C thinks to themself, "This conversation would be so much easier if this patient couldn't see everything that was in the chart." Dr C wonders how to respond.

Commentary

Electronic health records (EHRs) have revolutionized modern health care, offering a digital platform to store and share patient information while enhancing efficiency, accuracy, and accessibility.[1] For patients, EHRs provide unprecedented access to their medical information—data that were historically difficult to obtain—which can support more active participation in care decisions when accompanied by tools that aid interpretation and application. Patient access to and use of EHRs has grown steadily, with the telehealth boom during the COVID-19 pandemic between 2020 and 2022 accelerating the trend.[2] Concurrently, the final rule implementing the federal 21st Century Cures Act supported patients' cost-free, timely access to their EHRs by adopting interoperability standards and prohibiting information blocking.[3] EHRs are thus uniquely positioned at the intersection of technology, patient autonomy, and clinical decision-making. This commentary on a case discusses ethical tensions arising from patients'

immediate access to test results and notes and how clinicians and health systems can help mitigate patients' anxiety.

Ethical Tensions in EHR Access

Open access to EHRs offers significant benefits to patients. It has been shown to enhance patients' satisfaction and engagement, thereby improving their understanding of their health conditions, treatment plans, and the rationale for care, which in turn supports better self-management and adherence to medical advice.[4,5] Surveys have found that most patients prefer receiving test results through portals immediately,[6] even before clinician contact, and few feel more worried after viewing their test results before discussing them with a clinician.[6,7] This transparency bolsters autonomy, enabling patients to monitor health trends, share records with others, and participate actively in care decisions, thereby challenging physicians' historically paternalistic role.[8,9,10] Furthermore, patient access to EHRs can lead to identification of medication errors,[10] enhanced medication adherence,[11] and improved communication between patients and health care professionals, which increases patient preparedness for consultations.[12]

However, open access to EHRs also has drawbacks. Patients might turn to unreliable online sources, such as forums or artificial intelligence, to interpret new test results. Reports often include pending results or preliminary diagnoses that are difficult to contextualize. Physicians worry that patients might misinterpret their results[13] or that access might cause undue emotional distress, provoking fear or anxiety, especially for those with severe or chronic conditions or those seeking mental health care.[14] Many patients might simply feel overwhelmed or be unwilling to interpret their results independently.[15] Additionally, discrepancies between clinical documentation and a patient's lived experience can lead to misunderstandings, conflicts, or strained patient-clinician relationships.[16] Privacy concerns are also significant, especially for sensitive information (eg, mental health or genetic data). Many patients and clinicians worry about data breaches or unauthorized access by insurers or government.[10,17] For vulnerable groups, such as adolescents or elders, proxy access can further compromise personal privacy, as restricting information sharing is often not feasible in EHR systems.[16] Practical barriers, such as internet access or hardware limitations, are often assumed to be the main challenges that patients face in accessing EHRs. These kinds of drawbacks of open access to EHRs must be carefully considered and addressed to avoid harming patients.

Minimizing Patient Anxiety

Given these potential concerns, the question arises of how to mitigate patient anxiety caused by immediate access to EHRs. One solution lies in clinicians and systems proactively framing the presentation of medical data. While most EHRs include reference ranges for common tests, which inform patients whether their results are "normal," they often lack the contextual or explanatory tools necessary for patients to fully understand their significance. Enhanced educational resources, such as simplified trend analyses, clinician-provided summaries, and links to accessible, verified medical explanations, can bridge this gap. Incorporating visual aids and graphics can further clarify results, particularly in complex cases or for patients with reduced health literacy.[18] Whenever possible, test result interfaces should be designed to provide clear takeaway results for each result in text form or in carefully designed graphics. In complex cases that require synthesis of multiple laboratory values or tests (for example, for patients wondering about their current liver function in the setting of a drug-induced liver injury), determining a takeaway message may require expert interpretation or

complex algorithms.[19] While this commentary focuses particularly on test results that have potential for misinterpretation, principles of data framing can and should be extended to other areas of the EHR, such as clinical notes or imaging reports, which similarly can arouse patient distress or confusion. Using plain language summaries or inviting patients to respond or annotate their records might help reduce patient-clinician information asymmetry.

Customizable access features can offer another solution, allowing patients to choose when and how they view their data. Sensitive results, such as imaging or genetic findings, could be delayed until a clinician has provided interpretation. For example, patients could choose to delay receiving results about distressing items during working hours or until they have social support with them. These patient-centered strategies not only reduce distress but also respect varying levels of health literacy and personal preferences. Additionally, institutions could benefit from establishing formal processes that allow patients to flag entries in their EHR for clarification or to request a follow-up discussion with a clinician in order to reduce confusion and ensure that patient concerns are addressed promptly. Implementing these measures would enable health care systems to better balance transparency and support by informing patients and giving them opportunities to cultivate self-knowledge from EHR information without overwhelming them.

Balancing Benefits and Risks

As mentioned, the Cures Act final rule mandates that patients be given timely access to most health information in their EHRs, including clinical notes and test results.[3] For clinicians, this provision means, in practice, that results are often released before they have had a chance to interpret them—raising the risk of patient confusion or distress and prompting questions about when release of information could be delayed or restricted. Under the Cures Act final rule, 8 information blocking exceptions are outlined, including a "Preventing Harm Exception" that permits information blocking in cases in which it is "reasonable and necessary to prevent harm to a patient or another person."[3] Now, it is even more important that any restriction on patient access to EHR information be done thoughtfully and only when necessary, with the goal of not simply limiting patient distress but truly preventing harm understood as physical, psychological, or social consequences resulting from premature release of medical information.

Physical harm can occur if immediate access to results causes delay in appropriate clinical intervention or care; psychological harm can involve emotional distress, fear, or anxiety; and social harm can arise in the case of sensitive information, such as mental health or genetic data, leading to stigma or discrimination. While both patients and clinicians have been shown to value information transparency, the immediate release of test results remains controversial among clinicians,[20] although most patients prefer to receive test results immediately[6]; this mismatch highlights the importance of setting expectations regarding communication of results before tests are underway. Indeed, a large survey has highlighted the need to improve result interpretation by patients, given that patients who received abnormal tests results were more likely to report being worried than those with normal results.[6]

Any restriction of patient access should be initiated by physicians when there is legitimate possibility of harm (eg, when the results are complex, potentially alarming, or could be misinterpreted) or by patients. Physicians should assess potential for different types of harm in individual cases, carefully weighing factors such as a patient's

emotional state, complexity of results and ensuing intervention plans, and risks of care delays. Allowing patients to choose how much information they wish to view immediately, instead of waiting until a clinician offers interpretative help, could be another effective approach. Developing tools that allow patients to flag results and request clinician clarification could help prevent unnecessary worry and promote better communication. Overall, it's more important than ever to engage patients in conversations about their EHR access preferences and expectations.

Recommendations

Although patient TH's ability to immediately access their record may prove to be challenging and a source of current stress for Dr C, it highlights the importance of clinicians providing more educational resources to patients and ensuring they have realistic expectations regarding future test results. Additional knowledge about incidental pulmonary findings and clinical decision-making tools, such as the Mayo Clinic Solitary Pulmonary Nodule malignancy risk score,[21] could contextualize patient TH's findings, thereby alleviating their fear. While perhaps initially challenging for clinicians like Dr C, these efforts would foster greater patient agency. Over time, this approach could help strengthen patient-clinician relationships and help promote trust.

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Editor's Note

The case to which this commentary is a response was developed by the editorial staff.

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The people and events in this case are fictional. Resemblance to real events or to names of people, living or dead, is entirely coincidental. The viewpoints expressed in this article are those of the author(s) and do not necessarily reflect the views and policies of the AMA.

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CASE AND COMMENTARY: PEER-REVIEWED ARTICLE

Whom Should We Regard as a Legitimate Stakeholder in the Accuracy of Information in a Patient's EHR?

Steve O'Neill, LICSW, JD and Catherine M. DesRoches, DrPH, MSc

Abstract

This commentary on a case canvasses federal and some organizational rules applicable to health record keeping and considers these in light of "open notes." Accuracy of information in health records, accountability for remediating inaccuracies, and ownership are considered as key areas of ethics investigation.

Case

BG is a patient recently discharged from University Hospital. BG shares access to their online chart with their spouse, MM, who is reviewing information in BG's chart as they coordinate review of their insurance company's explanation of benefits documents and bills from University Hospital. MM is distressed to see how BG is described in the online chart and is outraged by some references entered by Dr C and Dr T, in particular, describing BG's physical appearance, clinical presentation, behavioral symptoms, and experiences. MM worries that some of the words used to describe BG could prompt a future clinician who reads those words to be negatively biased against BG in a possible future clinical encounter. MM also notices inconsistencies in what is documented in Dr C's notes about procedures performed by Dr T, for which they and their insurer have been billed.

MM calls University Hospital's patient relations number to report that "information recorded in BG's chart is factually inaccurate and offensive. The chart notes need to be changed so the right claims can be resubmitted to our insurance and so that anyone else who reviews these notes will know what really happened to BG."

How should University Hospital, Dr C, and Dr T respond?

Commentary

In 2021, the final rule implementing certain provisions of the 21st Century Cures Act required that clinical notes (commonly referred to as "open notes") be available electronically on request and free of charge to patients, in a timely manner, with limited exceptions.[1] The provisions were enacted to support information transparency and to improve care.[1] Naturally, this new transparency raises a host of ethical questions as to

what should be included in notes intended to serve many purposes, including care, communication, and payment.[2] This case raises ethical questions related to information transparency, patient autonomy, professional autonomy and integrity, nonmaleficence, veracity, and fidelity.

Influence of Open Notes

The idea of sharing clinical notes with patients is often met with concern from clinicians. Physicians have reported fearing that open notes would increase their work burden,[3,4] thereby contributing to already-prevalent clinician burnout.[5,6] Physicians have also reported worrying that open notes would harm patients who would either not understand or be anxious about what was written, requiring them to limit the content of their notes or not use language that could be perceived as patient criticism to avoid upsetting their patients.[3,4] Most physicians in one study reported that none of these concerns had materialized.[4] However, research suggests that patients want access to their health record and that they benefit from seeing it, including by being more proactive about and feeling more in control of their care.[3,7,8,9] Studies suggest that this transformation to more transparent health care remains remarkably quiet.[4,7]

Of course, with any change, there can be adverse effects. The practice of open notes is like prescribing medicine. It has benefits for most and side effects for a few, as evidenced by one large survey, which found that the majority of patients reported open notes being important for their health care while only a small percentage reported being confused or worried after reading their notes.[7] While the practice of note sharing confers benefits to patients, this transparency can raise questions about notes' ownership.

Health Record Ownership

With the American Hospital Association's adoption of the Patient Bill of Rights in 1973,[10] patients' right to access to their health record was established. However, access to that record was generally made so onerous by health care organizations that few patients ever saw their record. As mentioned, the Cures Act required patients' timely electronic access to clinicians' notes and test results. With this shift, patients might believe that they "own" the record, as access to their record helps them become engaged in their care and report documentation errors.[11] And yet, except for patients living in New Hampshire,[12] they do not; ownership of the information lies with the clinician or organization. These entities have documentation requirements and custodial obligations, many of which can be negotiated with patients, but some of which cannot. Yet patients have a clear stake in what is written in the record. How clinicians balance patient autonomy and privacy interests with their professional responsibilities without tipping into paternalism remains tricky. For instance, if either clinician in the case believed BG was psychotic based upon observations, they would be obligated to write that in the record. However, if BG relayed sensitive information, such as a childhood trauma that was not pertinent to the current clinical situation, then how or whether that information was documented could be negotiated with BG. Without BG's input, a note that states that the patient is "dealing with difficult childhood issues" without details might satisfy professional documentation requirements while being respectful of BG's privacy and autonomy.

In the given example, MM wants her husband's chart changed. This request could devolve into "undue" autonomy if it compromises the clinician's professional obligations. Once a clinical note has been signed by the clinician, it becomes a legal document. Altering a health record is usually not legally permissible,[13] especially if it

could be viewed as part of an effort to "cover up" an error and shield clinicians or health care organizations from liability. There are rare exceptions,[13] such as when a clinical note is entered in the wrong patient's chart. However, most health care record platforms do allow clinicians to make an "addendum"[14] to their signed clinical note. In our case, it should be possible for the clinician to add an addendum to clarify the note or rectify an error or to ensure that MM's or BG's perspective is heard.

Differing Perspectives and Documentation Requirements

Patients greatly appreciate having their perspective included in the record, even when it differs from the clinician's.[15] A common example is when a patient does not believe they are psychotic or delusional, but the clinician does, based upon their professional observations. Clinicians are obligated to document their professional observations; however, they can also add the patient's perspective to the note. Our experience and research[16] suggest that when patients experience clinicians as respectful and inclusive of their perspective, they are generally accepting of the record.

We do not know if the descriptions of BG's "physical appearance, clinical presentation, behavioral symptoms, and experiences" are accurate from the clinician's perspective. We can presume that the descriptions are experienced as pejorative, and research suggests that pejorative or biased language in a note can affect the perception of a clinician who reads it.[17] As a corollary example, research has shown how upsetting it is when patients see offensive descriptions, such as *obesity*, in their record.[18] It is hard to imagine any clinician using the term *morbid obesity* in a visit, yet health insurers require this wording for a diagnosis to justify billing.[19] When the language is explained to patients as an artifact of billing, some might be mollified. Yet it does not take away their concern that it will prejudice their care. In the interests of nonmaleficence, we suggest that clinicians shift to using—and that insurers accept—body mass index, weight, or other language to satisfy billing requirements. Most importantly, clinicians should generally not write something that will surprise the patient.[18] "Write what you say and say what you write" is the mantra for these situations.[20,21,22]

Patients have a right to accountability, including an explanation—in this case, of the language describing BG in clinical notes. It will be important for the physicians and the patient relations department to meet with MM. They should acknowledge that MM's concerns are well-founded, even if the descriptions of BG's appearance, behavior, and clinical presentation are accurate. In one hospital, over 25 years ago it became policy that all bioethics consultation notes would be shared with the patient and any involved family member or friend.[23,24,25] This practice is still considered controversial, and yet the sharing of the record—including, at times, drafts of the consult note—generally bridged any divide and allowed for more partnerships at that hospital.

Inaccuracies

Errors in medical records are common. One large survey has shown that roughly 20% of patients found material errors in their health record, with almost half of these patients perceiving the errors as serious.[11] These errors range from those that can be easily corrected to documentation that could potentially constitute fraud. We also know that clinicians frequently use the copy and paste functions of the electronic record to help reduce their work burden, which can perpetuate errors.[26]

In any bioethics consultation, it is crucial to first ascertain all the facts, including any disagreement about them, as there are always differing perspectives. Factually, we

know that BG, the patient, underwent a procedure while hospitalized. Thus, it is likely that this procedure occurred on a medical or surgical service. There is a health care insurance company involved with benefits and billing. We know that MM, the patient's spouse, is upset by several features of BG's record. We do not know BG's reaction and whether MM is acting as BG's health care proxy or simply playing an advocacy role. It appears that trust has broken down between MM and the team. This distrust might extend to the hospital's patient relations staff. Lastly, MM fears that BG's written record will prejudice future clinicians.

Physicians and the hospital are fiduciaries who owe BG and BG's family a duty of care to do their best for them. Whether the "inaccuracies" in BG's chart noticed by MM are differences in perception, mistakes, errors in care, or evidence of fraud or malpractice, BG and MM are owed explanations and accountability. Accountability includes disclosure to BG and MM of what the hospital is doing to ensure that inaccuracies in documentation do not occur on the charts of any future patient(s). It would thus be preferable for the hospital's patient relations staff to discuss with MM and BG how well the inaccuracies were addressed rather than ignore their concerns. The essential principle in ethics is respect for persons. Transparency in documentation is part of changing the dynamic so that patients are better able to trust that clinicians have a stake in their best interests.

Summary

Clinicians write notes to satisfy a variety of users, including cross-covering clinicians, health insurance companies—and now, patients and families. Patients and families can certainly contribute to, influence, and improve this documentation, especially when they are viewed as partners. Patients should not restrict or change what clinicians write when documentation is fulfilling professional obligations, except when it is in a "negotiable" area of care. Patients have a right of access to, accountability for, and explanations of their record and care, while also offering an additional set of eyes to catch errors and mistakes and thus improve safety. Furthermore, transparent medical records can enhance patients' trust in clinicians and health care organizations and lead to their greater engagement in care.[27]

Clinicians should write their clinical note as if the patient is sitting with them and reading it. Avoiding words that could convey bias or judgment, ensuring that physical descriptions are objective (eg, BMI), and including empowering and encouraging language could help avoid future issues such as those raised by MM.[7] The mantra "Write what you say and say what you write" not only comports with principles of beneficence and nonmaleficence, but also can lead to more trusting, engaged, and productive care.

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CASE AND COMMENTARY: PEER-REVIEWED ARTICLE

How Should We Think About Ambient Listening and Transcription Technologies' Influences on EHR Documentation and Patient-Clinician Conversations?

Sara Gerke, Dipl-Jur Univ, MA and David A. Simon, PhD, JD, LLM

Abstract

This commentary on a case analyzes how integrating ambient listening and transcription technologies powered by artificial intelligence into the electronic health record documentation process influences documentation practices and clinical encounters. The commentary offers best-practice recommendations for informed consent processes and patient-clinician relationship formation.

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Case

XY is a patient at University Health and prepares for an upcoming routine visit with their new physician, Dr M. XY reviewed and completed health questionnaires and signed consent forms prior to their visit. XY did not consent to the use of a new ambient listening and transcription artificial intelligence (AI) technology, which University Health clinicians use to more easily integrate information from patient interviews into a patient's health record. The consent form for this technology specifies that not consenting will not interfere with the course of care one would receive during a "normal visit." XY plans to ask Dr M a few questions about cannabis and psychedelic mushroom use, because XY wonders if it is causing some new symptoms, but XY is not comfortable having audio evidence of their substance use recorded, so XY does not consent.

On the day of XY's visit with Dr M, XY learns from the medical assistant (MA) that the AI recording and transcription technology is already widely in use at University Health and that "most patients consent." MA is not sure how to respond when XY says, "But the consent form said that refusing to be recorded wouldn't interfere with my getting care." MA remains unsure how the visit will proceed without XY's consent to use the technology and asks Dr M to help explain. Dr M explains to XY, "I rely on this technology to do my documentation and dictation now. Is there something specific you're concerned about?"

XY feels awkward, hesitates, but finally capitulates and consents to being recorded. XY gets the orders needed for routine health screenings, but when asked by Dr M if they have any more questions or concerns, XY says, "No."

Commentary

In practice, many clinicians now use ambient listening and transcription technologies powered by AI ("ambient clinical documentation tools" or "tools"), similar to the tool in this case. For example, one large nonprofit health care organization in the United States recently announced it would implement an ambient clinical tool in 40 hospitals and over 600 medical offices.[1] Tools like this one typically record and transcribe the patient-clinician encounter and generate a summary of the conversation in a clinical note. In the initial versions of such tools, the recording, transcript, and note were typically first sent to a third-party company for human review. But newer versions skip this extra step[2,3]: one AI-based tool "securely drafts clinical notes, recording in-office and telehealth patient visits with patient consent . . . and produces a draft note for immediate physician review and completion."[2]

Ambient clinical documentation tools promise to increase the quality and efficiency of documentation, reduce clinician burnout, and improve the quality of care.[2] Because such tools record and transcribe the patient-clinician encounter and summarize the conversation in a note for the clinician's review, the clinician can spend more time listening to and treating the patient. But for all they promise, these tools also raise several ethical and legal issues, ranging from privacy and security to liability. For example, patients might be uncomfortable with their conversation being recorded, or the ambient clinical documentation tool might make mistakes.[4] Thus, in addition to considering the potential benefits of these tools, hospitals, health care facilities, and other stakeholders should carefully consider their risks before adopting them in clinical practice.

Inspired by the case of patient XY and Dr M, this commentary uses the concept of informed consent to evaluate the possible impact of such technologies on the patient-clinician relationship. After discussing informed consent, we focus on the legal protections and limits of informed consent and related laws. We then discuss other ethical issues raised in this case, such as the power imbalance between Dr M and patient XY. We conclude with best-practice recommendations for hospitals and clinicians implementing these AI tools.

Informed Consent

According to the American Medical Association *Code of Medical Ethics*, "[t]he process of informed consent occurs when communication between a patient and physician results in the patient's authorization or agreement to undergo a specific medical intervention."[5] A staple of medical practice, informed consent refers to 2 distinct practices. One is legal. It typically requires the physician to disclose the material risks of proposed treatments and alternatives.[6] The other is ethical, as informed consent is grounded in the ethical principle of respect for autonomy: patients ought to be able to make decisions about their bodies based on the full information available.

Principles that underlie the legal doctrine of informed consent overlap but are not coextensive with the ethical principles that animate the ethical process of informed consent. Under both, for example, patient XY has an autonomy interest and therefore a right to information about risks related to the treatment that might affect their decision

to undergo it. But physicians' ethical duties to disclose the uses and risks of the ambient clinical documentation tool are likely broader than physicians' legal duties to do so, if any exist.

Limits of the Legal Doctrine of Informed Consent

Although a patient-focused concept, the legal doctrine of informed consent does not entitle the patient to every conceivable morsel of information. And the doctrine's limitations, just like its protections, can affect the patient-clinician relationship.

For instance, the physician often has a legal duty to disclose only those risks that "a reasonable person, in what the physician knows or should know to be the patient's position, would be likely to attach significance to . . . in deciding whether or not to forego the proposed therapy."[6] With a few exceptions, physicians do not have a duty to disclose the use of AI technologies to help formulate treatment recommendations under the legal doctrine of informed consent.[7] If this is correct, it follows that physicians (like Dr M) are also unlikely to have a general duty to disclose to patients (like XY) the use and, ultimately, the risks of ambient clinical documentation tools, which in their current versions play no part in the decision-making role of the treating physician. Additionally, the legal doctrine of informed consent typically applies to a "medical or surgical procedure" or "treatment."[8] However, ambient clinical documentation tools seem unlikely to constitute some form of medical or surgical procedure or treatment that requires disclosure. The reason is that the tools are currently unlikely to be "devices" under federal law as long as they just transcribe and do not interpret or analyze patient records.[9,10] While the Health Data, Technology, and Interoperability (HTI-1) final rule of the Office of the National Coordinator (ONC) for Health Information Technology (IT) has recently implemented transparency requirements for certain algorithms that are considered "Predictive Decision Support Interventions" and are part of ONC-certified health IT, these requirements apply to health IT developers and typically do not extend to physicians.[11] Finally, as an example of new developments at the state level, California has implemented disclosure requirements for providers using generative AI to generate "patient communications pertaining to patient clinical information," but such requirements only apply to patient-facing clinical communications and also do not apply in cases in which a physician reads and reviews the AI-drafted communication.[12] In short, the legal doctrine of informed consent does not currently appear to require physicians like Dr M to disclose to patients like XY the uses and risks of an ambient clinical documentation tool.

Yet the likely absence of such a duty under the legal doctrine of informed consent could negatively affect what information physicians voluntarily disclose to patients like XY. For example, without a legal obligation to disclose the tool's risks (eg, the risk of mistranscription that could be used in future diagnosis), physicians could have less incentive to learn about them, making further discussions with patients like XY about those risks difficult. And if a physician cannot answer basic questions about the tool, then the patient might infer that the physician lacks competence, thereby undermining trust and the patient-clinician relationship. For example, if patients do not trust their physician, they might be less likely to share information—including their cannabis and psychedelic drug use, as in the case of XY—or be less likely to consent to treatment.

Patients like XY might also be reluctant to share information if they know that these tools sometimes "hallucinate" and if they believe physicians like Dr M do not take the necessary time to identify false or invented information in the AI-generated note,

particularly if they cannot explain how these tools work.[13] Although the risk of incorrect information could also exist when physicians draft their own notes, patients might (perhaps rightly so) believe that the physician has more control than when an ambient clinical documentation tool generates the note for them. This concern can be particularly well-founded in cases in which a tool is insufficiently trained on diverse accents and speech patterns and the patient has a strong non-native English accent, which can lead to inaccuracies in the AI-generated note.[14] Additionally, AI algorithms might introduce new forms of bias or distortions, not simply when transcribing but when drawing inferences and summarizing conversations.[1] Without an honest and informed patient-clinician interaction, treatment decisions are less likely to advance the patient's interest and might negatively impact patient outcomes.[15]

That said, the risks of ambient clinical documentation tools do not always outweigh their benefits. Properly used, such tools might actually improve patient care, despite the weak incentives provided by the legal doctrine of informed consent. For example, patients like XY, despite their misgivings about the technology, might ultimately consent to its use and develop a better, more trusting relationship with their physician than they would have if the physician had been typing on a keyboard or clicking a mouse. If physicians like Dr M experience less burnout from using the technology, they can pay closer attention to their patients. Both of these results could, in turn, translate into better care. Thus, even if there are some risks that these technologies could undermine trust and negatively affect patient care, they will not necessarily do so in every case. And nothing about the legal doctrine of informed consent prohibits disclosures that could help to realize these benefits by informing patients of the use of and risks associated with ambient clinical documentation tools.

Other Legal Protections

Gaps in the legal doctrine of informed consent can be partially closed by other laws, helping to augment trust in the patient-clinician relationship. The Health Insurance Portability and Accountability Act (HIPAA) and the corresponding Privacy Rule, for example, protect the use and disclosure of "individually identifiable health information" (so-called "protected health information" or PHI) by "covered entities," such as clinicians, hospitals, and payers, as well as their "business associate[s]" who have, for example, agreements with hospitals.[16] In the hypothetical case, HIPAA protects XY's PHI (eg, XY's diagnosis) because Dr M is a covered entity. And the company that offers the tool is likely a business associate since it provides services (eg, the recording and transcription) on behalf of the covered entity.

Other federal and state laws can also help safeguard patient privacy, dignity, and autonomy. For example, federal and state wiretapping laws might require patient consent to recording.[17] For example, in *US v Hollern*, a chiropractor was criminally convicted under the Federal Wiretap Act because he did not obtain proper patient consent: patients signed consent forms authorizing recording and use for medical purposes, but the chiropractor used the recordings to coach other chiropractors on how "to convince the patient to agree to a lengthy course of treatment, preferably paid for in advance."[18] State civil laws can operate in similar ways. In California, for example, third-party platforms used to facilitate communication with patients faced civil liability for "intercepting" data without the patient's consent.[19] In the case of XY, University Health could face criminal charges or civil claims under state wiretapping or privacy laws if it does not obtain informed consent that covers all of the relevant activities. Each of these protections can help to encourage a sense of privacy and trust.

Limitations of Other Legal Protections

Despite the additional protection offered by these laws, they also have limitations that can affect the patient-clinician relationship. For example, although HIPAA protects the use and disclosure of PHI, patients might authorize a covered entity to disclose their PHI in writing, such as for marketing or sale,[20,21] even if they do not actually know what they authorize. Additionally, HIPAA does not apply to deidentified data when covered entities remove specific "identifiers" from PHI, such as name, address, phone numbers, and biometrics.[22]

These legal gaps can affect patient privacy. For instance, XY might sign an agreement that purports to protect their privacy under HIPAA, but University Health might share properly deidentified data with a third party, as HIPAA does not apply in this situation. However, the ability to relatively easily "re-identify" data using other datasets undermines HIPAA's privacy protections.[23] In particular, voice recordings that integrate with other EHR information might need to be "deidentified" using a more sophisticated technology to alter the patient's voice.[24] The other option would be to destroy the recording altogether and keep only a deidentified transcript of the conversation. However, this option could generate other risks, such as an inability of physicians (who rely on memory) to identify errors if the transcript was not (properly) validated before the destruction of the recording. If errors are not fixed and false notes are included in health records—and if clinicians are unable to correct the errors—patients could be harmed over time.

Patients like XY might worry that these limitations reduce their privacy, which could negatively impact their care and relationship with their physicians. For example, if XY thinks University Health is going to share their data, even if properly deidentified in compliance with HIPAA, she might have second thoughts about sharing information about drug use with Dr M. Similarly, a broad consent form that protects University Health from liability under wiretapping laws could undermine XY's trust in the privacy of their conversation with Dr M, making XY less likely to provide complete and accurate information.

Framing, Power Asymmetry, and Equity

While legal considerations influence the patient-clinician relationship, the ethical considerations in informed consent could have a broader impact on this relationship. A patient like XY might choose to consent out of fear rather than agreement. For example, XY might fear Dr M will label them "difficult" or be more dismissive of their concerns if they do not consent, which could undermine their trust in Dr M.

How the care team frames the process of consent can exacerbate or mollify this concern. For example, in the hypothetical case, MA tells XY that "most patients consent." When XY asks about a potential decision to refuse to consent to the technology, Dr M's answer is framed with consent as a default. Rather than explain the risks and ask for XY's consent to record and use the conversation, Dr M explains the software's purpose and asks XY "Is there something specific you're concerned about?" Even if Dr M did not intend to influence XY's decision, this framing places the burden on the patient to question the physician's authority. It is also dismissive and feeds into the existing patient-clinician power asymmetry by suggesting that there is nothing to worry about. XY might consent simply to avoid Dr M's forming an unfavorable impression before treatment begins.

Power asymmetries can disproportionately impact patients with low health literacy, cultural differences, or disadvantaged backgrounds. Patients with low health literacy or those who come from a culture that prizes deference to authority might be hesitant to question a physician,[25,26] particularly when a decision is framed as being contrary to the physician's preference or recommendation.[27] In the hypothetical case, for example, XY could be influenced to consent by Dr M's and MA's describing the use of the tool as common and typical—as opt-out rather than opt-in. Finally, patients from financially disadvantaged backgrounds might have public insurance, limited resources, or private insurance with limited provider networks, making it difficult for them to locate or see another clinician who does not use an ambient clinical documentation tool. XY might not have access to clinicians other than Dr M because XY lacks reliable transportation or because Dr M is part of a health management organization. The way clinicians like Dr M approach the conversation to obtain consent thus can have a particularly large influence on patients' decisions in certain contexts.

Best Practice Recommendations

While obtaining informed consent is important for managing risks, it does not address the panoply of risks confronting patients, clinicians, and technology manufacturers. To combat some of these risks, health systems and clinicians should consider implementing and monitoring alternative workflows, ideally to both build trust and respect individual autonomy. For example, providers could implement consent processes that allow patients to watch a short video on the ambient clinical documentation tool, including benefits and potential privacy and security risks, as well as how the hospital is actively addressing those risks. Medical assistants like MA and physicians like Dr M should also be available to answer any questions patients like XY might have after watching the video. For example, physicians could explain to patients that they review the notes and check them for any mistakes before finalizing and entering them into the EHR.

Using some of these strategies could help increase trust, even when using an ambient clinical documentation tool is the default option. For instance, a short video explaining to patients how their data would be protected could make them feel safer sharing personal information with the physician. Providers could ensure that they offer internet-based portals through which patients can easily view their medical records,[28] including the AI-generated notes that were checked and approved by their physicians. Providers might also inform patients in a message sent through the portal, in simple terms, what rights they have to correct their records and why it is important to do so. At the same time, however, health systems should be careful not to overload the patient with the feeling that the onus is on them to catch errors.

Another key factor in maintaining trust is ensuring that the ambient clinical documentation tools actually deliver on their mission to reduce burnout and increase physician attention. If they do, they could enable physicians to better understand, relate to, and empathize with patients on a personal level.[29,30] If they don't, physicians will face 3 interrelated problems: decreasing patient trust, flatlining or increasing burnout, and potentially worse patient outcomes.[2,3] For example, providers should implement systems to measure the effects of these tools by comparing baseline measurements of the time physicians spent interacting with patients and completing paperwork before the adoption of the ambient clinical documentation tool to the post-implementation time spent on the same activities.

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CASE AND COMMENTARY: PEER-REVIEWED ARTICLE

EHRs, iPatients, and Clinician Well-Being

Kimberly Ho, MD, Marissa Dulas, Zi-Yi Choo, MD, Ali Rahman, and Maria Alcocer Alkureishi, MD

Abstract

Electronic health records are now critical in day-to-day health care operations. A drawback to using them, however, is that they tend to divert clinicians' focus from patients to a screen. This phenomenon has generated a colloquial reference to patient-screen pairings as an "iPatient." This commentary on a case suggests key points of ethical and clinical relevance about this trend in patient-clinician relationships and clinical encounters.

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Case

ML works in a busy, academically affiliated community clinic with daily pressure to sign patients' charts promptly after encounters with patients. ML has always enjoyed interacting with patients, students, and trainees, but pressure to sign charts by a busy day's end makes ML feel mechanized and that their ability to connect with students, trainees, and especially patients during visits is compromised due to the need to shorten visits to make time for demands of prompt chart review and sign-off.

Clinic administration has incentivized ML's and other clinicians' "efficient" chart completion with bonuses, which feels infantilizing and exacerbates ML's feelings of being valued by their organization for perfunctory complacency and compliance.

ML and their colleagues consider how to respond to this trend.

Commentary

Early goals of integrating the electronic health record (EHR) into health systems practice and performance included supporting patients and aiding clinicians' decision-making. Since their introduction, EHRs have expanded their functions significantly, incorporating billing, prescribing, and providing virtual care, all of which shape the current landscape of clinical care.[1] However, EHRs' pervasiveness also means that more time and focus

are dedicated to the EHR itself as a means of focusing on patients during clinical encounters. This commentary on a case suggests key points of ethical and clinical relevance about this trend in patient-clinician relationships and clinical encounters.

Patient-Centered Care

Digital consolidation of patient-specific health records has offered some benefits to patients, clinicians, and health care systems that should be acknowledged. EHRs are easily accessible and highly informative. Yet these records are so extensive and attended to that Abraham Verghese has described them as constituting an "iPatient," an electronic representation and digital shadow of the actual living, feeling, and sometimes neglected real patient.[2] In his words: "The iPatient is getting wonderful care all across America. The real patient often wonders, where is everyone? When are they going to come by and explain things to me? Who's in charge? There's a real disjunction between the patient's perception and our own perceptions as clinicians of the best medical care."[3] Table 1 highlights the ethical implications of prioritizing the iPatient.

Table 1. Ethical Implications of Prioritizing the iPatient

Ethical principle	Potential ethical dilemma
Autonomy	Hyperfocus on the EHR can diminish patient participation in and ownership of their care. Clinicians might inadvertently spend more time on chart completion during a visit than on facilitating shared decision-making and patient education, compromising patient autonomy.
Nonmaleficence	Multitasking can force clinicians to prioritize data entry over thorough patient assessment and communication, potentially increasing the risk of medical and diagnostic errors, treatment delays, and compromised patient safety.
Justice	Some EHR systems are configured to meet billing and administrative needs at the expense of practical clinical workflows and patient engagement, raising serious concerns about justice. Clinicians might find themselves with limited time and resources to address the complex needs of patients, particularly vulnerable populations that require more attention and personalized care.
Integrity	Overemphasis on administrative tasks might tempt clinicians to cut corners or compromise their ethical standards to meet institutional demands. This pressure directly challenges clinicians' commitment to thorough, honest, and accurate documentation and care, risking harm to patients and undermining professional integrity.
Prudence	EHRs tend to overwhelm clinicians with alerts, reminders, and excess information, making it difficult to exercise sound clinical judgment. The cognitive burden of managing excessive data can detract from clinicians' ability to prioritize critical information and make prudent, patient-centered decisions.
Compassion	Persistent pressure of documentation can undermine clinicians' capacity to express empathy and compassion during interactions with patients. Ultimately, EHRs can result in clinicians who seem to patients to be detached or rushed.

Abbreviation: EHR, electronic health record.

Given that there can be tangible human costs associated with prioritizing the iPatient, it is important that clinicians be aware of this possibility to avoid potential negative impacts. First, the sheer presence of exam room computers might also reduce the amount of interpersonal contact, as perceived by patients. Studies have noted that clinicians spend nearly 50% of an average clinic day in the EHR and only 27% in direct face time with patients.[4,5,6] In a Harris Poll published in 2018, nearly 62% of primary care practitioners (PCPs) felt they had insufficient time to adequately address patient

questions or concerns because of EHR time demands, and 69% felt that EHRs took valuable time away from patients.[6,7]

Given the limited time available for clinical interactions, prioritizing EHR use over essential elements such as touch, dialogue, and patient engagement can have significant consequences. Increased EHR use during clinical encounters has been shown to detract from rapport building, which can decrease patient satisfaction.[8] From a patient's perspective, the optimal clinic visit length varies widely but averages 15 minutes in ambulatory settings.[9] If a third of this time is spent on the EHR, patients might experience the encounter as brief or rushed, which negatively affects their perception of the quality of care.[10,11,12] This shift in focus toward screen gazing and EHR use also has the potential to diminish human intimacy, emotional responsiveness, and open discussion about sensitive issues.[13] These personal elements serve as the foundation for a trusting and meaningful patient-centered relationship. Thus, it is critical for clinicians to leverage the EHR to educate and communicate with patients while enhancing human connectedness. Clinicians, as well as organizations and patients, can counteract or minimize potential negative consequences of EHR usage in several ways (see Table 2).

Table 2. Practices to Minimize Potential Negative Consequences of Electronic Health Record Integration

Health care organizations
Establish dedicated time for clinician EHR management.
Promote team-based documentation, leveraging scribes and support staff.
Adopt new technologies such as artificial intelligence voice dictation tools.
Provide patient access to educational resources about data security and privacy policies.
Support patients' utilization of communication channels of their choice, from patient portals and video visits to lower-tech options like phone and home visits.
Clinicians
Take EHR-specific training covering communication techniques such as signposting, active listening, and verbal summarization.
Practice mindfulness and time-management strategies.
Patients
Seek to understand the benefits of the EHR in improving their health care.

Abbreviation: EHR, electronic health record.

EHRs offer abundant clinical information, often in excess of what is clinically necessary or helpful for decision-making. This information overload often hinders workflows and exacerbates cognitive burden, which, in turn, can contribute to medical errors and clinician burnout due to inefficient EHR use.[6,14,15]

Cognitive Burden of EHRs

PCPs, in particular, have increased workloads due to EHR tasks before, during, and after patient encounters.[6] For every hour they spend with patients, they spend almost twice that amount of time on EHR-related tasks during the workday, plus an additional 1 to 2 hours at home.[3,5] Increasingly complex EHR billing and documentation are primary reasons clinicians spend more time with their computers than with their patients.[16] In

fact, a study that logged user event data in the EHR for PCPs found that they spent 44.2% of their time in the EHR performing administrative tasks such as documentation and order entry.[15] Once given as a quick verbal instruction, order entry has evolved into a complex and time-consuming electronic task, taking an average of 12.1% of a clinician's daily EHR time.[15] Furthermore, system security tasks, such as 2-factor authentication to protect patient data and reduce unauthorized prescribing incidents, can further increase EHR-task time.[17] Given that 2-factor authentication is not federally mandated for noncontrolled substances, these additional keystrokes and time spent in the EHR might not always be necessary.[17]

Cognitive burden is also a consequence of many EHRs being designed with minimal input from the users themselves—clinicians and patients—which is why they might be cumbersome and user unfriendly. Despite receiving a System Usability score in the bottom 9th percentile ("not acceptable") of all industries surveyed,[18] EHR vendors are largely unaffected by the criticism. In 2009, the Health Information Technology for Economic and Clinical Health Act catalyzed EHR adoption through financial incentives, whereby market saturation was achieved without major technical innovations.[19] Market share for the top 2 EHR vendors nearly doubled from 2012 to 2021, increasing from 34% to 56%, as overall adoption surged from 7% to 81% between 2009 and 2019.[20,21] Large health care systems continue to endorse solutions from the top few vendors without offering agency to employees in build customization.[22,23]

Safety

Many clinicians find multitasking a stressful and demanding aspect of their jobs. True multitasking, or concentrating on complicated computer interactions while simultaneously holding a conversation with and attending to the patient, is difficult, if not impossible, and can impede the quality of patient-centered communication and care.[24,25] It is one of the reasons for high rates of prescribing errors.[26] Clinicians might also miss important test results and ignore best practice reminders because of the overabundance of information in the EHR, a phenomenon known as "alert fatigue."[27,28]

Usability and interoperability challenges within and between EHR systems can also create an excessive burden for clinicians and pose safety risks for patients.[29,30,31,32,33] Some organizations utilize multiple EHR systems to allow for more specialized functionalities for scheduling and department-specific tasks.[34] However, patient safety can be compromised if clinical data, such as a patient's newly prescribed medication, is not exchanged appropriately between systems.[34] This lack of interoperability might also lead to order duplication, causing an unnecessary strain on the hospital system and frustration among clinicians.[31,34] An excessive workload, coupled with high message volumes and perceptions of poor EHR usability, can lead to emotional fatigue, depersonalization, and burnout among clinicians.[6,18,35,36,37]

Burnout

It is easy to see why clinicians might want to make up for time lost to the EHR by focusing on the iPatient and clinician-centric data rather than involving the patient in the diagnostic and treatment process.[38,39,40] This tendency has become increasingly evident in hospital settings, with teams rounding either outside patient rooms or in workrooms far removed from the patient's bedside rather than engaging with the actual patient and their families.[41,42] As a result, opportunities can be missed to include patients in their care and to promote shared decision-making and patient education opportunities.

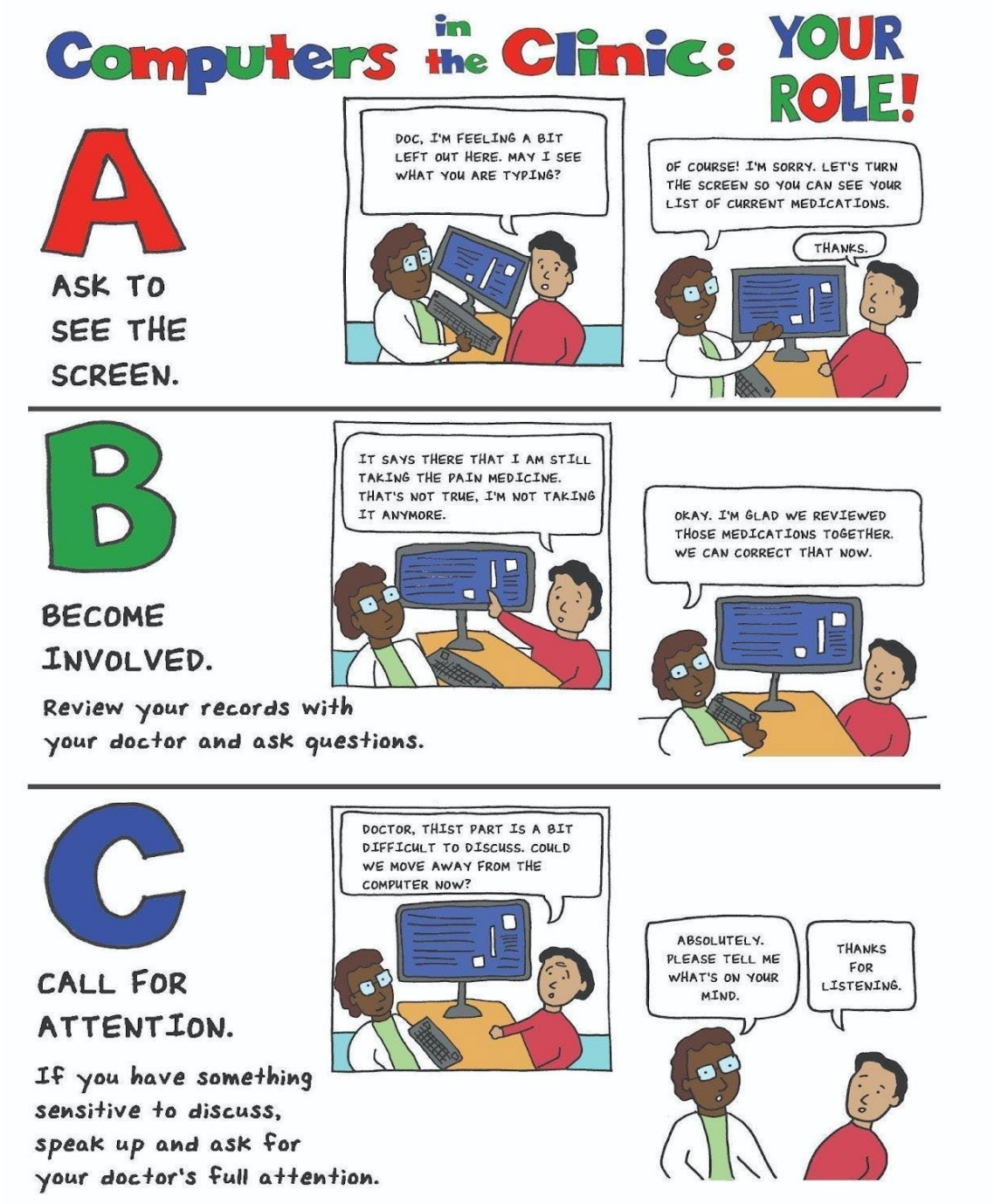
Empathy is crucial for building a trusting relationship and is associated with improved patient satisfaction and outcomes.[43,44] However, the burden of miscellaneous EHR tasks contributes significantly to clinician burnout, which can, in turn, decrease empathy, jeopardizing the trusting relationships crucial for optimal patient care and outcomes.[6,18,35,36,45,46,47] The annual prevalence of clinician burnout has been above 45% in the 2020s, and the EHR is frequently reported as an important stressor in patient care, with nearly 71% of PCPs in 2018 identifying the EHR as a contributor.[6,7,48] While many clinicians might not meet the formal definition of burnout, they increasingly suffer from EHR moral injury. It should be a top priority of the health care system to address clinicians' conflicts about their personal values and the competing demands imposed upon them in the current practice of medicine in order to foster a health care system that prioritizes both patient well-being and clinician fulfillment.[49]

Reclaiming Humanity in a Digital Age

Medicine is a noble profession rooted in humanism, human touch, dialogue, and engagement. Forming meaningful relationships with patients is one of the most important and rewarding parts of clinicians' daily work, along with nurturing trainees, helping them achieve their highest potential, and witnessing them develop into clinically excellent clinicians. However, the EHR has altered clinician workflows and responsibilities, clinicians' core relationships with patients, the hidden curriculum, and education delivered to trainees.

Despite these challenges, there are ways to enhance patient engagement with the EHR to prioritize patient-centered care. Strategies such as showing patients the computer screen can harness the EHR as a communication and engagement tool (see Figure).[38,50,51]

Figure. Patient EHR Self-Advocacy Comic



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An example of an educational comic to encourage EHR self-advocacy behaviors and engagement given to adult patients and parents of pediatric patients when registering for their clinic visits.
Abbreviation: EHR, electronic health record.

EHR efficiency training and tools, such as artificial intelligence dictation, can help mitigate clinician burnout, optimize health care efficiency, and increase clinician satisfaction with the EHR.[52,53] Furthermore, increased patient and clinician participation during the EHR design process is needed to improve EHR capabilities and better serve

clinician and patient needs (see Table 3).[53,54,55,56] Lastly, administrative support and time to attend to EHR demands are critical in avoiding burnout and allowing clinicians to work in an effective and productive manner.[55,56]

Table 3. Optimizing Electronic Health Record Tasks to Promote Patient-Centered Care

Criteria	Task description	Questions
Decision-making	The task provides insights that inform the clinician's decisions regarding diagnosis, treatment, or management of a patient.	• Does the task provide readily accessible and relevant information for diagnosis and treatment planning? • Does the task offer evidence-based recommendations or decision support tools?
Safety	The task reduces the likelihood of medical errors, improves medication safety, or prevents adverse events.	• Does the task promote an aspect of patient safety in a way that doesn't increase alert fatigue?
Communication	The task facilitates effective communication, supports shared decision-making, or enhances patient education efforts.	• Does the task facilitate clear and concise communication of diagnoses, treatment plans, and follow-up instructions to patients? • Does the task improve coordination among clinicians?
Efficiency	The task is designed in a way that minimizes frustration and resultant burnout.	• Does the task streamline workflows and reduce the number of steps required to complete common actions? • Is the task intuitive and easy to perform? • Does the task integrate seamlessly with other clinical systems and workflows?
Accuracy	The task ensures the accuracy of clinical data, diagnostics, or treatment processes.	• Does the task enhance the accuracy of treatment documentation or reduce potential for errors? • Does completing the task ensure that clinical protocols or treatment guidelines are followed accurately?
Accessibility	The task promotes information accessibility for clinicians or patients.	• Is the information associated with the task readily accessible to all relevant clinicians? • Does the task allow patients to access important information about their care in an understandable format?
Personalization	The task allows for customization based on the unique needs of individual patients.	• Can the task be modified to support varying individual patient needs? • Does the task enable accommodation of patient preferences and unique circumstances?

Optimizing EHR Uses

As the integration of technology and its advancement in medicine continues, it is crucial to reduce the daily cognitive load of clinicians and their multitasking burden while they are caring for patients. Since PCPs notably spend a significant amount of time performing tasks in the EHR, tools, resources, and improved design of the EHR to support clinician usage are essential.

It is essential to be cognizant of the potential negative influences of EHRs to avoid them proactively. We look forward to optimizing EHR usage and development via enhanced EHR education, continued quality improvement, and systems-based research. By doing so, it is possible to leverage the EHR to promote humanistic, patient-centered care and to allow clinicians to return to the joy of connecting with patients and practicing meaningfully in the digital age.[49]

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How to Teach Good EHR Documentation and Deflate Bloated Chart Notes

Neda Frayha, MD

Abstract

Since health care organizations implemented widespread adoption of electronic health records (EHRs), clinicians' notes about patients' care have become longer and more cumbersome, a phenomenon colloquially known as "note bloat." Bulky templates and blocks of data take time to sort through, making it difficult for clinicians to discern what is clinically and ethically relevant in prior clinicians' notes about their encounters with a patient. This article considers important consequences of long, dense notes for clinicians, including less time to spend face-to-face with patients. Bloated notes have other consequences for teaching and for clinician well-being, so this article proposes a less-is-more approach to electronic documentation that focuses on making important information about a patient easier to find, illuminating clinical reasoning, and promoting efficiency, concision, and clarity in EHR documentation practices.

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Advent of Electronic Health Record

"The ability to simplify means to eliminate the unnecessary, so that the necessary may speak." Attributed to the 20th-century abstract painter Hans Hofmann, this quotation originally applied to abstract art and its relationship to reality.[1] Hofmann's contemporary, Ludwig Mies van der Rohe, the famous architect and interior designer, echoed a similar sentiment when he coined the expression, "Less is more."[2] While he was referring to the skyscrapers, pavilions, and even chairs for which he would become known, the idea of less is more applies equally well to today's electronic health record (EHR).

The modern EHR had its origins in computer technology first developed in the 1960s,[3] and its adoption in clinical practices across the United States became more widespread after the passage of the Health Information Technology for Economic and Clinical Health Act, part of the American Recovery and Reinvestment Act of 2009, which provided financial incentives for health care institutions to adopt EHR technology.[4] The final rule

implementing the 21st Century Cures Act of 2016 further promoted the importance of the EHR in the patient-clinician relationship by requiring that patients have access to all of their electronic health information at no cost and that test results be released electronically to patients in a timely manner; many health systems release all or most test results as soon as they are finalized.[5]

Throughout past decades, the patient note has evolved from handwritten bullet points on a paper chart to a multipage electronic document replete with blocks of imported data, templated physical exams that might or might not reflect what was performed in the examination room,[6] and dot phrases that might actually increase note length.[7] By necessity, the handwritten patient note strove to capture the most essential details of a patient's story. The clinician needed to synthesize and distill the information in the medical history and physical exam into a concise, prioritized assessment and plan. There was never an expectation that a handwritten patient note would or could be multiple pages in length. The note's relative brevity reflected the discernment of a practitioner. Only the most relevant, important elements of the patient's story and plan could make their way into the finished product. This discernment, in turn, became part and parcel of how medical learners approached their own patient assessments and documentation. For generations, it was incumbent upon clinicians to learn and then teach what to include within a finite amount of space.

Now, however, patient notes created and stored within the EHR serve a variety of masters: patients and clinicians (as before) and also billing departments, insurance companies, risk management offices, malpractice attorneys, and quality monitoring organizations, among others.[8,9] As the intended audiences of the patient note have evolved with the widespread use of the EHR, so, too, has "note bloat"[10,11]—the amount of time clinicians spend on documentation—and how today's medical students and residents learn to approach their own note writing.

EHRs' Evolving Influence

By one 2020 estimate, 50% of a given clinician note is copied and pasted from prior notes, up from 33% in 2015.[12] This duplication of content might require a physician who sees 10 patients per day to review at least 85 pages of single-spaced text across nearly 700 notes.[12] Moreover, laboratory results imported into notes in a templated fashion are inserted indiscriminately en bloc, where *all* lab data are included rather than only significant or abnormal results. All of this added length has profound repercussions for physicians in clinical practice, who are now absorbed in the computer screen before, during, and after every patient encounter: poring through dozens of pages of medical records while pre-charting, typing rapidly and staring at the computer screen instead of the patient during the visit, and then spending as much time documenting the visit afterward as they did on the visit itself.[13,14,15] This phenomenon led the renowned physician and author Abraham Verghese to coin the term "iPatient" in 2008, identifying a modern-day "chart-as-surrogate-for-the-patient approach" to medicine.[16]

Unsurprisingly, the added time and energy spent satisfying the EHR's demands impact the very humanity of the patient being cared for. They come at the expense of time spent at the patient's bedside for seasoned clinicians and trainees alike. By some estimates, physicians spend more time in the EHR than with the actual patient.[15] And with patients' increased access to their health records, including lengthy, jargon-filled notes and reports their clinician might not have seen, the potential for patient confusion abounds.[17] As the patient chart has metamorphosed into a compliance document and a

receipt for services rendered, its reams of data might tell everything but the patient story at the heart of the encounter. If a humanizing detail does make its way into the note—a recent vacation, how a medication change impacted the patient's daily life, grief over a fresh loss—it quickly becomes lost among all the templates.

This diminishment of patient humanity, along with after-hours "pajama time" spent charting[18] and the cognitive load of constantly interfacing with the EHR, also contribute to clinician burnout and attrition,[19,20,21,22] a critical problem facing today's health care workforce that has been written about extensively.[23,24,25] The ever-growing pressures of the EHR have equally profound ripple effects on medical trainees, who warily observe their burned-out attending physicians while learning from early on that "more is more" when it comes to their documentation. They grow up in a system demanding as much recordkeeping as possible—not crisp, concise summations of their thought processes. How might this shape those very thought processes? When patient notes are a collection of copy-and-paste keystrokes, what cost might there be to a trainee's developing clinical reasoning skills?

Teaching and Revising EHR Methods

As clinicians strive to reclaim the patient note for its original purposes and include trainees in this reclamation, a few solutions are worthy of exploration. One is a modified template. Changes to the standard EHR note template have been suggested for over a decade, including a model that simply rearranges existing portions of the note to place Assessment and Plan before the Subjective and Objective sections (APSO, rather than SOAP).[26] If the most important information is placed at the top of the note, perhaps it will be easier for other clinicians to find.

A more streamlined model for shorter notes that document only relevant data, piloted among medical interns, has been associated with earlier physician completion of documentation and favorable impression scores regarding note quality.[27] Another intervention in which medical students received formal instruction in note writing and then were given a specially designed, shorter note template with minimal auto-populated data led to notes that were significantly more "up to date," "accurate," "organized," and "comprehensible" than the control group's notes.[28] Patient notes in this intervention group were also 35% shorter and took less time to complete.[28] In both models, the specially designed templates minimized the auto-population of data and prompted clinicians to enter relevant physical exam and lab findings manually.

Beyond modifying templates to either rearrange the order of existing note sections or reduce the sheer volume of relayed data, an interesting experiment would be to remove templates altogether and challenge medical students (and even residents and attending physicians) to write the shortest note possible that communicates the essential elements of a patient's story. As one expert and advisor to the American Medical Association (AMA) has observed, imagine if physicians ignored old templates and began writing notes on a blank screen. Then, they could determine what information was actually needed and recreate new, more appropriate templates accordingly.[29]

Many resources exist to support clinicians in this new, old world of less-is-more. The AMA has published a deimplementation checklist to reduce unnecessary burdens in daily clinical life that confer little-to-no added clinical benefit to the patient.[30] The section on reducing note bloat encourages health systems and individual practitioners to reduce the number of embedded template links automatically pulling data from the larger EHR

into notes. The AMA also offers a toolkit for reducing EHR inbox burden,[31] and the American College of Physicians' Patients Before Paperwork Initiative provides advocacy resources, an emotional support hub, and tips and tricks for practicing physicians in different specialties to streamline documentation.[32] Launched in 2022, the American Medical Informatics Association's 25 x 5 Initiative seeks to reduce the medical documentation burden to 25% of its current state within 5 years, replete with policy briefs, its own toolkit, and a Slack community where any interested clinician can engage with colleagues nationwide who support this goal.[33]

While other solutions involve artificial intelligence (AI) to help write patient notes or assist with clinical decision-making,[34,35,36] the inherent work of clinical reasoning and figuring out what is important versus what is extraneous remains a deeply human task. AI can support clinicians, but it can't (yet, if ever) replace them. Patients still need a human being to understand their medical condition, not to mention their very humanity. And that human being, in turn, presumably went into medicine to care for people, not electronic notes. To this end, stakeholders such as insurance companies, billing departments, and risk managers must be a part of any meaningful solution to documentation pressures and note bloat. Clinician notes can achieve their less-is-more potential only if the ever-growing demands for documentation from parties outside the clinician-patient relationship are reevaluated and relaxed.

Conclusion

It is time for clinicians and health care systems to rethink the fallacy that more is more when it comes to documentation in the EHR. The current landscape of bulky templates, note bloat, increased documentation burdens leading to pajama time, reduction and dehumanization of patients to their electronic avatar counterparts, and clinician burnout demands a new approach. Physicians deserve to return their focus to the art and science of caring for the patient before them rather than being absorbed by the computer screen throughout every clinical encounter. Medical trainees deserve the opportunity to think clearly about their patients and use notes to convey only the most salient points of the patient's story, the most important elements of the assessment and plan. How much time and cognitive energy could such a reenvisioning of the EHR note save? How much easier would it be for a fellow clinician to find relevant information and understand how the patient is really doing? May the health care system and the people of health care move to eliminate what is unnecessary, so that the necessary might speak.

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HEALTH LAW: PEER-REVIEWED ARTICLE

How Could Legal Standards Promote Equitable Access to EHRs?

Jessica L. Roberts, JD

Abstract

Electronic health records (EHRs) enable patients to access their health records anytime, from anywhere with internet connectivity. Yet not all Americans benefit from these innovations. EHRs can be hard to access for people with a range of disabilities. This lack of access perpetuates inequity and, thus, demands ethical and legal attention. Some federal laws and regulations require accessible EHRs, but even these protections can fall short. This article argues that more clearly defined obligations for EHR developers and clinicians are necessary.

Accessing Health Information

Electronic health records (EHRs) have made obtaining health data easier than ever before. EHRs are effectively "digitized medical chart[s]"[1] that allow clinicians to readily access and manage patients' information. Integrating EHRs into clinical practice can increase efficiency and improve quality of care.[1,2] Specifically, EHRs allow clinicians to coordinate treatment plans with other clinicians and to detect and mitigate errors. Patients, too, can review parts of their health records 24 hours a day, 365 days a year, from anywhere with an internet connection. Patients' reading and understanding of key information in their EHRs can motivate communication and adherence. However, not all patients can reap these benefits.

Americans with disabilities experience significant health inequity, and inaccessible EHRs could exacerbate that inequity. Moreover, issues that impede access for patients with disabilities could also affect other populations, such as elderly patients and patients with limited education.[2] Inaccessible EHRs are at odds with clinicians' legal[3] and ethical duties[4,5,6,7] to practice inclusively. Thankfully, current federal regulations require covered providers to ensure that information technology is accessible to those with disabilities.[8] Although federal disability rights laws do not apply to technology developers[3,9] and can go underenforced,[10] ethical duties of both clinicians and EHR developers provide a foundation on which to ground health systems' parallel duties to ensure that patients with disabilities can meaningfully access and use their health data.

Inaccessibility of EHRs

Many websites and apps are inaccessible to people with disabilities. They might use small font, include content written at a high literacy level, rely on complex and hard-to-navigate user interfaces, lack the capacity to customize, or be incompatible with

assistive technology, such as screen-reading or voice-control software. As a result, many health technologies, including EHRs, might be inaccessible to people with disabilities.[3]

Research on EHR adoption has identified a variety of disabilities—including physical, cognitive, and visual—as barriers to successfully using EHRs.[2] For example, a 2024 study that evaluated the compatibility of 3 popular, open-source EHR systems with 3 common screen readers—software tools that people with visual disabilities use to access digital content—found that, although the "EHR systems evaluated offer a respectable level of accessibility for visually impaired users," developers could build more inclusive EHR systems.[11] The study emphasized that "users and organizations should prioritize accessibility when selecting and implementing EHR systems to ensure all users can access and benefit from the system's content."[11] Similarly, researchers in Australia identified barriers to EHR access for patients with intellectual disabilities and suggested ways to improve their experiences.[12] Among the suggestions were ensuring that information in EHRs is "informative, concise, and easy-to-understand" and that support is available to help people with intellectual disabilities benefit from their possible value.[12]

Inaccessible EHRs do more than just deny patients with disabilities the opportunity to benefit from new health technologies. They can also compound existing inequalities. Over 70 million adults in the United States reported having a disability in 2022.[13] As a group, people with disabilities tend to have worse health outcomes and lower patient satisfaction than people without disabilities.[3,14] They are also at higher risk for several chronic conditions and tend to consume more health care.[3] Their heightened health risks and frequent health care consumption mean that patients with disabilities have more health data to manage across clinicians and organizations. Thus, patients with disabilities might seem particularly well-positioned to reap the benefits of EHRs. But if patients with disabilities cannot access their EHRs, that inaccessibility could perpetuate or exacerbate existing inequities. Consequently, both law and ethics require ensuring that patients with disabilities can use these important technologies.

Legal Obligations to Ensure EHR Accessibility

The inaccessibility of many EHRs is surprising, given that health care providers have legal obligations to offer care equitably and inclusively. In particular, several federal disability rights laws apply to health care.[3] These provisions state that covered providers cannot discriminate based on disability when practicing medicine.[3] While some of these laws have been in effect for decades, the statutes themselves do not directly address virtual health care. To fill this gap, 2 federal agencies—the Department of Health and Human Services (HHS) and the Department of Justice (DOJ)—adopted digital accessibility standards in 2024.[3,9,15,16] These HHS and DOJ regulations, which apply to certain federally funded health care providers and state and local entities, respectively, stipulate:

> A recipient [of federal financial assistance] shall ensure that the following are readily accessible to and usable by individuals with disabilities: (1) Web content that a recipient provides or makes available, directly or through contractual, licensing, or other arrangements; and (2) Mobile apps that a recipient provides or makes available, directly or through contractual, licensing, or other arrangements.[15]

> A public entity shall ensure that the following are readily accessible to and usable by individuals with disabilities: (1) Web content that a public entity provides or makes available, directly or through contractual, licensing, or other arrangements; and (2) Mobile apps that a public entity provides or makes available, directly or through contractual, licensing, or other arrangements.[16]

Because patients access EHRs through either websites or apps, the new rules require these technologies to be "readily accessible to and usable by"[15] individuals with disabilities. The regulations also offer much needed clarity regarding what constitutes digital accessibility. They require covered entities to comply with level AA of version 2.1 of the Web Content Accessibility Guidelines,[9,15,16] which are international standards for digital accessibility. By specifying the version of the guidelines and level of compliance required by federal law, HHS and DOJ clarified the scope of these obligations.[9]

Also in 2024, HHS promulgated regulations[8] interpreting the Affordable Care Act's antidiscrimination provision.[17] Pursuant to the agency regulations, "a covered entity [eg, a provider] must ensure that its health programs and activities provided through information and communication technology are accessible to individuals with disabilities."[8] The rule also requires "health programs and activities provided through websites and mobile applications" to comply with the standards for federally funded entities and state and local governments.[8] In other words, covered entities must conform to the standards outlined above. However, covered entities do not have to make their information and communication technology accessible if doing so would impose an undue financial or administrative burden or fundamentally alter the nature of their programs or activities.[8]

While these recent rules offer clarity, their potential impact is unclear. The statutes that the regulations implement vastly predate the recent rules by the span of decades. Despite these laws, people with disabilities experience exclusion and discrimination, including in health care.[10] The persistence of this inequality—even with broad federal legislation—could be in part due to underenforcement.[10] Consider the fact that the Americans with Disabilities Act's *physical* accessibility rules have been in effect for decades, yet many covered entities remain inaccessible.[3] These statutes rely predominantly on private litigants to enforce them through lawsuits.[3] Lawsuits are time-consuming and expensive, and federal disabilities rights laws offer very limited remedies. As a result, potential plaintiffs and their lawyers might not deem it worth the effort to file a claim.[3] Many legal violations might, therefore, go unchallenged.

Additionally, the new regulations do not apply to developers.[3,9] They target the individuals and entities that interact with patients—in other words, clinicians and their institutions—not the entities that design and sell the technology. As a result, the developers of EHRs do not have legal obligations regarding accessibility. Perhaps, then, it is unsurprising that the creators of EHRs have not prioritized accessibility. Hopefully, the new rules will generate a demand for more accessible EHRs.[3,9] Even with clear federal guidance regarding accessibility, noncompliance is still possible. The HHS and DOJ provisions might be underenforced. However, the following section argues that designers and clinicians have ethical obligations to create and adopt more accessible EHRs.

Ethical Obligations to Ensure EHR Accessibility

Beyond law, ethical principles articulated by medical associations demand that EHRs be accessible. Principle 2 of the World Medical Association Code of Medical Ethics states: "The physician must practise medicine fairly and justly and provide care based on the patient's health needs without bias or engaging in discriminatory conduct on the basis of age, disease or disability, creed, ethnic origin, gender, nationality, political affiliation, race, culture, sexual orientation, social standing, or any other factor."[4] Thus, clinicians have ethical obligations not to discriminate based on disability when providing care.

Likewise, the American Medical Association (AMA) *Code of Medical Ethics* upholds nondiscrimination as an important value. Principle I stipulates that "[a] physician shall be dedicated to providing competent medical care, with compassion and respect for human dignity and rights," and Principle IX requires doctors to "support access to medical care for all people."[5] AMA *Code* Opinion 11.2.7, "Responsibilities to Promote Equitable Care," includes an obligation to "identify institutional policies and practices that perpetuate or create barriers to equitable care."[6] And AMA *Code* Opinion 8.5, "Disparities in Health Care," explains that physicians "ethically are called on to provide the same quality of care to all patients without regard to medically irrelevant personal characteristics" and that, as part of that duty, physicians should "[p]rovide care that meets patient needs and respects patient preferences."[7] Ethics thus requires that clinicians provide care equitably and inclusively.

The AMA has also issued opinions dealing with the use of technology in medicine. While most focus solely on patient privacy and data security, Opinion 1.2.12, "Ethical Practice in Telemedicine," states that "physicians should … [a]dvocate for policies and initiatives to promote access to telehealth/telemedicine services for all patients who could benefit from receiving care electronically."[18]

While the above opinions support more accessible EHRs in the abstract, they might be insufficient. The AMA should consider adopting an opinion on inclusive technology that could explain that obligations to provide equitable health care extend to information and care online.

Additionally, developers have ethical obligations of their own. The Association for Computing Machinery (ACM) has its own code of ethics that includes a reporting process and states that computing professionals should "be fair and take action not to discriminate," including against users with disabilities.[19] It stipulates:

> The use of information and technology may cause new, or enhance existing, inequities. Technologies and practices should be as inclusive and accessible as possible and computing professionals should take action to avoid creating systems or technologies that disenfranchise or oppress people. Failure to design for inclusiveness and accessibility may constitute unfair discrimination.[19]

EHRs inaccessible to people with disabilities violate the principle of nondiscrimination. Thus, while developers do not have the same legal obligations as clinicians and their institutions, they do have an ethical responsibility to design inclusive technology. The ACM strongly advocates for accessible technology, including by encouraging developers to help establish digital accessibility rules like the ones described earlier.[19] However, the prevalence of technology inaccessible to people with disabilities suggests that the organization could do more to promote its core values. The AMC thus might consider investing more in educating developers about accessible digital design and in identifying potential violators.

Conclusion

EHRs are an important innovation not only for clinicians and providers but for patients. Direct access to records, when utilized, could make patients more informed and engaged, leading to better outcomes and improved quality of care. However, access barriers can deny people with certain disabilities the opportunity to benefit. Despite long-standing federal disability rights laws, people with disabilities experience inequity both on- and offline. And websites and apps inaccessible to this group are a ubiquitous problem that extends to health care. New regulations could help address this issue by

articulating specific digital accessibility standards for developers. Yet even if they fall short, clinicians and developers have ethical obligations to facilitate access and inclusion. These responsibilities support ensuring accessible EHRs. However, professional organizations for both clinicians and developers should consider further action to enable people with disabilities to more equitably reap the benefits of health technology innovations.

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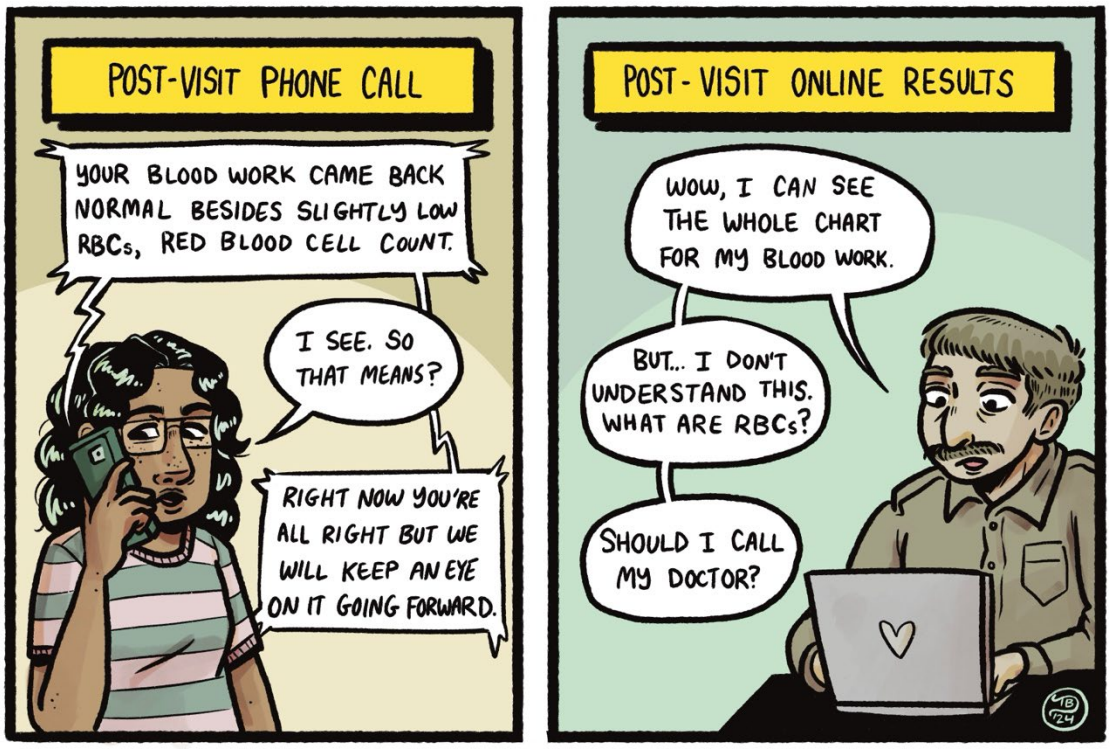
ART OF MEDICINE

A Comic of RBCs and Other EHR TMI

Teddie Bernard

Abstract
This comic prompts viewers and readers to consider conditions under which sharing raw clinical data with patients promotes better care. Electronic health records' conveyance of what many patients can experience as an overwhelming amount of information suggests the need for follow-up about which information has clinical and ethical value to patients and why.

Figure. *Raw Data*



Media
Digital in Procreate.

Caption

There are drawbacks to how electronic health record (EHR) systems present raw clinical data, such as lab values, reports from specialist consultants, unfamiliar clinical language, and obscure clinical acronyms. Information abundance does not necessarily confer knowledge about the patient's health. Clinicians must consider how EHR information mediates information exchanges during online or clinical encounters.

Teddie Bernard graduated from the School of the Art Institute of Chicago with a bachelor's degree in fine arts in 2023. Their editorial comics and graphic journalism have been recognized by the Society for Professional Journalists (Mark of Excellence, 2023), the College Media Association (2023, 2022, 2021), the Illinois College Press Association (2024), and the Associated Collegiate Press (2021). Teddie was also an Illuminating the Art of Medicine intern with the *AMA Journal of Ethics* in 2024.

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