

The 21st Century Cures Act: Inpatient Clinician Perceptions of Changes to Information Sharing at an Academic Medical Center

Review began 05/31/2023

Review ended 06/06/2023

Published 06/09/2023

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Abstract

Introduction

To comply with the Information Blocking Rule in the 21st Century Cures Act, many hospitals began to release inpatient electronic health information such as clinical notes and results to patients immediately, starting in April 2021. We sought to understand the perceptions of hospital-based clinicians regarding the impact of these changes in information sharing on clinicians and patients.

Materials and methods

We developed and distributed an electronic survey to 122 inpatient attending physicians, resident physicians, and physician assistants within the internal medicine and family medicine departments at an academic medical center. The survey asked clinicians to rate their comfort with information-sharing protocols and describe their perceptions of the impact of immediate information sharing on their documentation habits and patient interactions following the implementation of the Cures Act.

Results

The survey response rate was 37.7% (46/122). Of the respondents, 56.5% felt comfortable with the note-sharing process, 84.8% reported omitting specific information from their notes to prevent patients from reading it, and 39.1% of clinicians agreed that patients have found clinical notes “more confusing than helpful.”

Conclusions

Immediate sharing of electronic health information has the potential to be a powerful tool for communicating with hospitalized patients. However, our results show many hospital-based clinicians report limited comfort with the note-sharing process and perceive it to be confusing to patients. Efforts are needed to educate clinicians regarding information sharing, understand patient and family perspectives, and develop best practices to enhance communication through electronic notes.

Categories: Internal Medicine, Quality Improvement, Healthcare Technology

Keywords: 21st century cures act, medical documentation, cures act, access to information, inpatient care, academic medical centers, personal health information, electronic health record (ehr), information sharing

Introduction

Implementation of the Cures Act

The 21st Century Cures Act (“Cures Act”) is a federal law, one component of which mandates the immediate release of inpatient and outpatient progress notes, laboratory test results, and radiology and pathology reports to the patient’s electronic health record (EHR) portal [1]. The Information Blocking Rule (“the Rule”) within the Cures Act took effect on April 5, 2021, and established a core set of electronic health information (EHI) via the United States Core Data for Interoperability (USCDI) that must be made available to patients in a timely fashion [2-4]. Although many studies have assessed the impact of information-sharing changes on clinicians and patients in the outpatient setting [5,6], few studies have investigated clinician perceptions of EHI sharing in the inpatient setting. As part of a project to improve the quality of communication in the EHR at our medical center, we developed and conducted a survey to assess clinician understanding and perceptions of immediate EHI sharing as a result of the Rule.

Information-sharing changes from the Cures Act

How to cite this article

Hamze M K, Joshi S S, Li Y, et al. (June 09, 2023) The 21st Century Cures Act: Inpatient Clinician Perceptions of Changes to Information Sharing at an Academic Medical Center. Cureus 15(6): e40184. DOI 10.7759/cureus.40184

As of April 5, 2021, the Rule prohibits healthcare providers from engaging in practices that are “unreasonable and likely to interfere with access, exchange or use of EHI” unless certain limited exceptions apply [4]. In essence, the Rule prevents providers from delaying or restricting patients’ access to their EHI, including results, progress notes, and pathology and radiology reports. The guidelines of the Rule state that all health systems must share the required EHI with patients in both inpatient and outpatient settings. From June 2017 until April 2021, our institution was sharing all patient notes written by providers in ambulatory encounters but only discharge summaries from inpatient hospital visits. On April 5, 2021, our institution began the immediate release of inpatient progress notes, imaging narratives, laboratory and pathology results, and consult notes. Notes and other patient information that are part of the USCDI may only be withheld from the patient if an exception permitted by the regulations applies. The most clinically relevant exceptions are those circumstances that pose a specific risk to patient safety or privacy [7].

Challenges of information sharing in the inpatient setting

While the goal of the Cures Act and information sharing is to provide transparency to patients and families regarding their medical care, many clinicians have noted apprehension and concerns about the default sharing of patient notes [5]. Clinicians have expressed worry that notes, and results may contain information that could be confusing, unexpected, or distressing without accompanying explanation by the patient care team. As a result, it is possible that clinicians may change the content of clinical documentation or omit information altogether [8]. Prior studies have examined clinician and patient perspectives in the inpatient setting, but only when notes were being released at the time of discharge [9]. This project sought to explore whether these concerns were present among inpatient clinicians at our institution when notes and results were being released in real time.

This article was previously presented in the form of a virtual poster presentation at the 2021 American College of Physicians Vermont Chapter Annual Scientific Meeting on October 15, 2021.

Materials And Methods

Institution-wide emails were distributed to clinicians at our institution ahead of the April 5, 2021 implementation of the Information Blocking Rule to inform clinicians about the workflow and protocols regarding information sharing and blocking changes. We conducted an anonymous, web-based survey of resident physicians, attending physicians, and physician assistants in the internal medicine and family medicine specialties within our institution in July 2021, three months following the implementation of these changes. Survey participants were clinicians who provided care to hospitalized patients after the implementation of the Information Blocking Rule on April 5, 2021. This survey was developed using the Likert scale, yes/no, and open-response answer formats where applicable. This instrument was partly modeled on a 2018 survey composed by DesRoches and colleagues, which aimed to assess clinician experiences with note sharing before the implementation of the Cures Act rules [5]. Our survey included 23 rating questions in addition to a demographics section. The survey in its entirety can be found in the Appendix.

Email invitations were sent out to 122 inpatient clinicians (45 internal medicine and family medicine MD/DO (doctor of medicine/doctor of osteopathic medicine) attending physicians or physician assistants, and 77 internal medicine and family medicine resident physicians) between July 14, 2021, and August 3, 2021. As an incentive to complete the initial survey, clinicians could elect to provide their contact information for the chance to win a \$10 Amazon e-gift card. Study data were collected and managed using REDCap (Vanderbilt University, Nashville, TN) electronic data capture tools hosted at our institution.

According to the policy defining research activity at our institution, this work met the criteria for operational quality improvement activities exempt from IRB review.

Results

Immediate changes in note sharing following the Cures Act implementation

The absolute number of notes shared for inpatients increased 26-fold, from 708 in March 2021 to 18,304 in April 2021 following the implementation of the Information Blocking Rule on April 5, 2021. The total number of shared notes per month in the calendar year 2021 reached a maximum of 42,561 in October. The absolute number of notes viewed by patients increased 11-fold from 99 in March 2021 to 1,126 in April 2021 following the implementation of the Information Blocking Rule, and to a maximum of 2,613 in October 2021. Figure 1 shows the number of notes released to and viewed by patients in 2021.

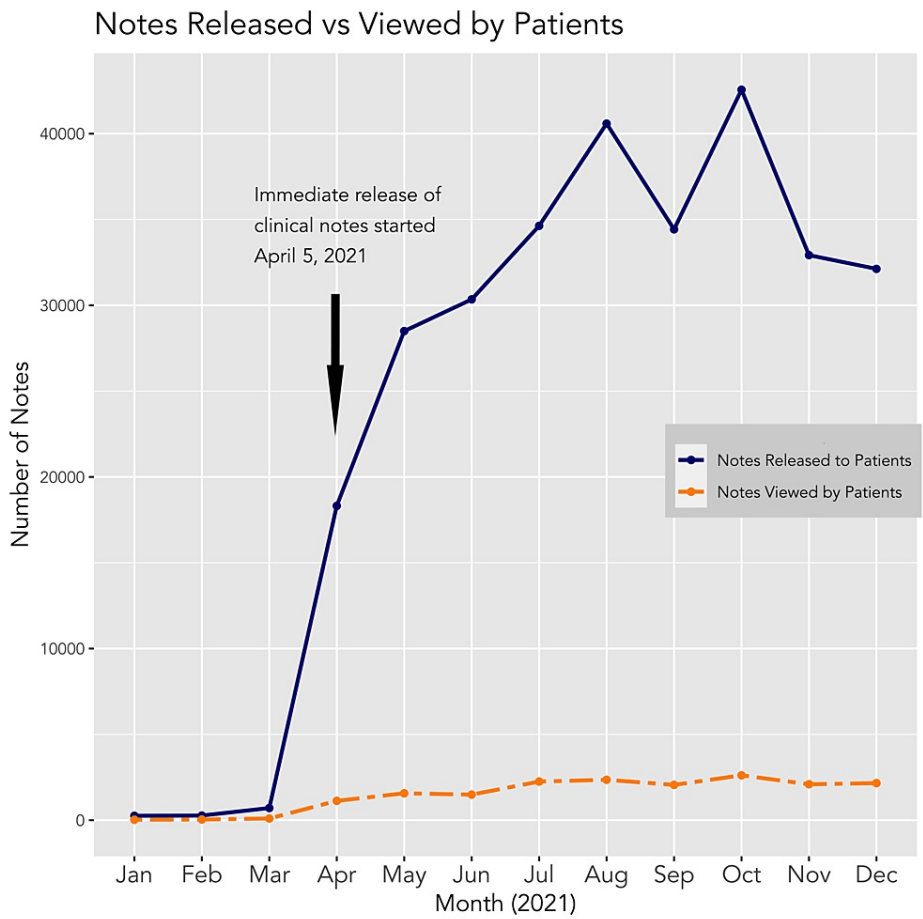


FIGURE 1: The number of inpatient notes shared and viewed in 2021. Following the implementation of the Information Blocking Rule on April 5, 2021, the absolute number of inpatient notes released to and viewed by patients increased at this institution while the percentage of viewed notes decreased

Data source: Epic MyChart Data.

Survey demographics

Survey respondent demographics are presented in Table 1. The mean age of the respondents was 34 years (SD = 8.9).

Attribute		Respondents	Percentage (%)
Sample size		122	100
Respondents		46	37.7
Training level	Resident physician	26	56.5
	Attending physician	18	39.1
	Physician assistant	2	4.3
Gender	Male	25	54.3
	Female	21	45.7

TABLE 1: Demographics of survey respondents

Clinician familiarity and comfort with information sharing

Responses to selected questions are presented in Figure 2. Most respondents (93.5%, 43/46) were aware that the Information Blocking Rule went into effect in the inpatient setting at our institution on April 5, 2021, while 37% (17/46) endorsed encouraging their patients to utilize the MyChart electronic patient portal to access their inpatient notes (Figure 2). Just over half of all respondents (56.5%, 26/46) agreed or strongly agreed they felt comfortable with the current note-sharing process. Regarding familiarity with the note-withholding process, 30.4% (14/46) of respondents felt “not at all familiar” with the reasons for which they could withhold a note from being viewed by their patients.



FIGURE 2: Responses to selected survey items

Note writing changes

Most respondents (65.2%, 30/46) reported that the time spent writing their notes did not change after the implementation of the Rule; however, 28.3% (13/46) reported at least some increase in time spent composing notes. Most respondents (84.8%, 35/46) indicated that they omitted specific information or language from their notes to prevent their patients from reading it, with 10.8% (5/46) indicating that they omitted information “often.”

Patient correspondence regarding notes

Regarding communication with patients, 28.2% (13/46) of respondents noticed at least some increase in time spent conversing with patients or families via phone, email, or the patient portal. When asked how often patients reported errors in their shared notes, 73.9% (34/46) of responding clinicians indicated “Never.” The remainder (26.1%, 12/46) described this as “rarely” (8) or “sometimes” (4). Among the 12 clinicians who responded that patients reported errors “rarely” or “sometimes,” 11 stated that patients reported errors in the history/subjective portion of the chart, while five stated that patients reported errors in medications, and one stated that a patient reported an error in the physical exam.

Clinician perceptions of patient experience with notes

When surveyed about how they felt patients perceived their notes, 39.1% (18/46) of clinicians felt their patients found the notes “more confusing than helpful.” Since the implementation of the Rule, 41.3% (19/46) of clinicians noted their patients “expressed more worry” and 34.8% (16/46) noted that patients “expressed more confusion.” None noted that their patients “expressed more reassurance,” “complied better with instructions and recommendations,” or “understood their discharge instructions better.”

Clinician experience with notes

When asked if they anticipated any challenges or barriers to the digital storage, review, and sharing of clinical notes, 52.2% (24/46) of responding clinicians reported that they anticipated ethical barriers to information sharing, including those related to privacy. Several clinicians wrote responses about their experience with patients or patient families reading what they perceived to be sensitive information before the clinician could counsel them on the result in question. Overall, 42.2% (19/45) either disagreed or disagreed strongly with the general statement: “Information sharing through the Cures Act has been useful in further engaging my patients with their care.”

Site-specific physician training with information sharing

Most survey respondents (86.7%, 40/46) felt they were at least slightly aware of the changes to information sharing at our institution, and 54.3% (25/46) endorsed knowing how to withhold inpatient notes from being shared through the patient portal if it met one of the allowed exceptions to the Rule. Over half (54.3%, 25/46) of the respondents indicated they would be interested in further training in the process of information sharing, with 18 of these 25 indicating that they would prefer this training in the form of a written reference/tip sheet. Other training options suggested by survey respondents were asynchronous video training modules or on-site, one-on-one training, although these were less popular.

Discussion

Key findings

Though it is reported in the literature that patients want immediate and full access to their EHI [7], fewer than one in four clinicians perceived that information sharing has been useful in engaging patients in their inpatient care, and many clinicians indicated concern that notes may be confusing to patients. These findings highlight the potential disconnect between hospitalized patients and inpatient clinicians regarding the use of information sharing as a tool in their care. In addition, more than a third of respondents reported that their patients expressed worry or confusion about the content of their shared notes.

The majority of surveyed clinicians endorsed omitting certain information or language from their notes as a result of the implementation of the Information Blocking Rule. Although this study did not explore the content or type of omissions, it is possible that clinicians omitted clinical assessments or interpretations that they felt might be confusing or worrisome to patients. Alternatively, clinicians may have avoided language to describe patients or their conditions, which has the potential to, intentionally or unintentionally, elicit bias or perpetuate stigma [10]. Note writers may also be omitting jargon or abbreviations that would make it difficult for patients to understand their notes. Future research could aim to assess how these omissions affect the perceived utility of notes for patients and the care team.

About one in four respondents reported that patients identified errors in their medical records. This finding raises the possibility that information sharing may increase the accuracy of the medical record, and by extension, reduce medical and diagnostic errors, which may result from inaccurate information, although medical and diagnostic errors were not specifically reported by our respondents. Future investigations might explore the association between EHI sharing, information accuracy, and medical errors.

The absolute number of inpatient notes shared to and viewed by patients increased substantially following the implementation of the Information Blocking Rule, although the overall proportion of shared notes that were viewed by patients remained low, typically under 10%. This finding could have a number of explanations, such as patients not being aware of the note availability in the patient portal, lack of a device to access the portal, lack of patient interest in reading notes, or selective review of notes. Further study is warranted to evaluate the reasons why patients are not accessing notes more frequently.

Limitations

The study's generalizability is limited by the sample size and focus on two specialties (internal medicine and family medicine) at a single medical center. Clinicians at other medical centers or of other specialties may have varying experiences with information sharing due to different patient populations and the complexity of medical data. Although our response rate was relatively low at 37.7%, raising the possibility of non-response bias, this rate is comparable to, if not better than that of 35% as described by Cunningham and colleagues in a 2015 review exploring physician response rates to online surveys [11]. The Likert scale questions utilized in the survey are subjective by nature, and nominal answer choices may be interpreted variably by different respondents. For example, the answer choice "often" may mean once a week to one respondent and once a day to another. As a whole, although tested and refined, our survey instrument has not been rigorously validated.

Future aims and research directions

Overall, our results indicate that inpatient clinicians have concerns about the utility of automatic EHI sharing. With the results from this project, we have developed several recommendations for areas of focus regarding information sharing. Primarily, it will be critical to assess and understand patient experiences with and perspectives of inpatient EHI sharing, including its usefulness, clarity, and accessibility. This could be accomplished by future surveys of or interviews with previously hospitalized patients. We also are implementing EHR functionality that will allow clinicians to see when patients have read shared notes, which may give clinicians a better understanding of what notes or results their patients have seen and help guide future discussions with patients or families. An easily accessible reference sheet could help clinicians feel more confident with the process of note sharing and withholding. Development and dissemination of best practices for clinicians to communicate with patients about EHI sharing may promote effective information transfer, alleviate clinician discomfort, improve patient understanding and engagement, and enhance care outcomes.

Conclusions

While previous studies of information sharing show that patients desire access to their EHR notes, few studies thus far have investigated clinician perceptions of EHI sharing in the hospital setting. Following the implementation of note sharing for hospitalized patients at our academic medical center, many inpatient clinicians at our institution perceived that note sharing was not useful in engaging hospitalized patients in their care and may lead to patient confusion. They also endorsed the desire for additional training and professional education on maintaining compliance with new information-sharing rules. Further studies of patient perspectives and the development of evidence-based practices to promote effective EHI sharing are needed.

Appendices

Appendix

Assessing inpatient clinician experience and patient utilization of changes to information sharing at our institution

The aim of this survey is to assess the clinician (MD/DO/PA) utilization of Information Sharing as outlined by the 21st Century Cures Act, which went into effect in the inpatient setting at our institution on April 5th, 2021. Your participation in this project will help us to gain an understanding of the current stage of inpatient information sharing so we can work to improve the system configuration for usability, as well as improve education for providers to help them more effectively use Epic as a communication tool to support patient and family centered care.

This survey is currently being distributed to inpatient internal medicine providers at our institution. It should take no longer than 5-10 minutes to complete. We will not be collecting provider names or ID, and will only request your email address if you are interested in participating in a qualitative interview about your experience with Information Sharing and/or if you wish to be considered in a raffle for a \$10 Amazon gift card. Your email will not be associated with your answers to the survey questions.

Thank you in advance for your participation!

Demographics

Age

Gender

☐ Male

☐ Female

☐ Non-binary

☐ Other identity, please specify below

☐ Prefer not to answer

Please Specify

Race

☐ American Indian or Alaska Native

☐ Asian

☐ Black or African American

☐ Native Hawaiian or Other Pacific Islander

☐ White

☐ Other, please specify below

☐ Prefer not to answer

Other race:

Ethnicity

☐ Hispanic/Latino

☐ Not Hispanic/Latino

☐ Prefer not to answer

Are you a/an:

☐ Attending Physician (MD/DO)

☐ Resident Physician (MD/DO)

☐ Physician Assistant (PA)

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FIGURE 3: Page 1 of the clinician survey

Please select your PGY year:	<input type="radio"/> PGY1 <input type="radio"/> PGY2 <input type="radio"/> PGY3 <input type="radio"/> PGY4 <input type="radio"/> PGY5 <input type="radio"/> PGY6 <input type="radio"/> PGY7 <input type="radio"/> PGY8+
What is your training background?	<input type="radio"/> Internal Medicine <input type="radio"/> Family Medicine <input type="radio"/> Other Specialty, please specify below
Please specify your specialty:	
How many years have you been in practice?	<input type="radio"/> 0 to 3 years <input type="radio"/> 4 to 10 years <input type="radio"/> Greater than 10 years
General Practices Regarding EMR Documentation and Information Sharing	
How much time do you typically spend writing a single patient note?	<input type="radio"/> Fewer than 30 minutes <input type="radio"/> 30-60 minutes <input type="radio"/> Greater than 60 minutes
How much time per day do you typically spend on note-writing overall?	<input type="radio"/> Less than 1 hour <input type="radio"/> 1 hour to 3 hours <input type="radio"/> 3 hours to 5 hours <input type="radio"/> 5 hours or more
How do you typically compose your patient notes?	<input type="radio"/> Typing <input type="radio"/> Dictation <input type="radio"/> Equal mix of the two
If applicable, when finalizing notes written by another team member, do you typically:	<input type="radio"/> Take over the note and make changes to the body of the note (Edit or Addend) <input type="radio"/> Add an attestation or co-sign without becoming the note author <input type="radio"/> Equal mix of the two <input type="radio"/> N/A
Were you aware that inpatient notes/results (minus a few exceptions) are now released by default as a result of the "Information Blocking rule" of the Cures Act that went into effect at our institution on April 5, 2021?	<input type="radio"/> Yes <input type="radio"/> No
Please rate how much you agree with the following statement: "I feel comfortable with the process of sharing notes with my patients."	<input type="radio"/> Strongly Disagree <input type="radio"/> Disagree <input type="radio"/> Agree <input type="radio"/> Strongly Agree
How familiar are you with the reasons for which a note may be blocked from being viewed by patients, as outlined by the Cures Act?	<input type="radio"/> Not at all familiar <input type="radio"/> Slightly familiar <input type="radio"/> Moderately familiar <input type="radio"/> Very familiar <input type="radio"/> Extremely familiar

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**FIGURE 4: Page 2 of the clinician survey**

How satisfied are you with the current system of sharing notes with patients?	<input type="radio"/> Not at all satisfied <input type="radio"/> Slightly satisfied <input type="radio"/> Moderately satisfied <input type="radio"/> Very satisfied <input type="radio"/> Extremely satisfied
How has the time spent writing your notes changed since the implementation of Information Sharing?	<input type="radio"/> Greatly decreased <input type="radio"/> Slightly decreased <input type="radio"/> No change <input type="radio"/> Slightly increased <input type="radio"/> Greatly increased <input type="radio"/> I did not write notes prior to the implementation of Information Sharing
How often have you omitted information that you did not want your patient to see in their note due to the implementation of Information Sharing?	<input type="radio"/> Never <input type="radio"/> Rarely <input type="radio"/> Sometimes <input type="radio"/> Often <input type="radio"/> Always (This may include: language that places blame on the patient; language that may be perceived as critical of the patient; sensitive diagnoses, etc.)
How has the time you spend communicating with your patients and/or families (in person or via phone/email/Epic MyChart message or other) changed since the implementation of inpatient Information Sharing?	<input type="radio"/> Greatly decreased <input type="radio"/> Slightly decreased <input type="radio"/> No change <input type="radio"/> Slightly increased <input type="radio"/> Greatly increased <input type="radio"/> I did not communicate with patients or their families prior to the implementation of Information Sharing
How often do your patients point out errors in their shared notes that you feel are clinically important?	<input type="radio"/> Never <input type="radio"/> Rarely <input type="radio"/> Sometimes <input type="radio"/> Often <input type="radio"/> Always
Where have your patients noted errors in their documentation?	<input type="checkbox"/> History/Subjective chart <input type="checkbox"/> Medications <input type="checkbox"/> Radiology results <input type="checkbox"/> Lab results <input type="checkbox"/> Other, please specify below (Select all that apply)
Please specify the other type(s) of error your patients have noted:	
With regard to their understanding of their care, what do you feel are your patients' overall perceptions of their notes?	<input type="radio"/> More confusing than helpful <input type="radio"/> Neutral <input type="radio"/> More helpful than confusing <input type="radio"/> Unsure

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FIGURE 5: Page 3 of the clinician survey

Since the implementation of the Cures Act, have you noticed that your patients:	<input type="checkbox"/> Express more worry <input type="checkbox"/> Express more confusion <input type="checkbox"/> Express more reassurance <input type="checkbox"/> Trust their clinicians more <input type="checkbox"/> Comply better with instructions and recommendations <input type="checkbox"/> Understand their discharge instructions better <input type="checkbox"/> Understand their medical condition better <input type="checkbox"/> None of the above <input type="checkbox"/> I did not interact with patients prior to the implementation of the Cures Act (Select all that apply)
Do you anticipate any barriers or challenges involving the digital storage, review, and sharing of clinical charts on your service?	<input type="checkbox"/> Legal barriers <input type="checkbox"/> Ethical issues, including privacy <input type="checkbox"/> Other issues (please specify or comment) <input type="checkbox"/> I do not anticipate any barriers or challenges at this time (Select all that apply)
Please specify the other barrier(s) or challenge(s) you anticipate: <hr/>	
Please rate how much you agree with the following statement: "Overall, Information Sharing through the Cures Act has been useful in further engaging my patients with their care."	<input type="radio"/> Strongly disagree <input type="radio"/> Disagree <input type="radio"/> Neither agree nor disagree <input type="radio"/> Agree <input type="radio"/> Strongly agree
Implementation of Information Sharing under the Cures Act	
How well were you made aware of the changes to Inpatient Information Sharing at our institution by hospital-wide email correspondence?	<input type="radio"/> Not at all aware <input type="radio"/> Slightly aware <input type="radio"/> Moderately aware <input type="radio"/> Very aware <input type="radio"/> Extremely aware
Do you encourage patients on your INPATIENT service to activate and utilize MyChart in their care?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> I am unfamiliar with MyChart
Have your patients accessed your shared INPATIENT notes in the past 30 days?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Don't know
Do you know how to determine in Epic if INPATIENT notes have been accessed/viewed by the patient in MyChart?	<input type="radio"/> Yes <input type="radio"/> No
Do you know how to block or withhold INPATIENT notes from being shared by default in Epic?	<input type="radio"/> Yes <input type="radio"/> No
Would you be interested in further training regarding the process of sharing inpatient clinical notes with your patients?	<input type="radio"/> Yes <input type="radio"/> No

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**FIGURE 6: Page 4 of the clinician survey**

Which of the following training modalities would you be interested in?

☐ Reference/Tip sheet or infographic

☐ Asynchronous module training

☐ One-on-one training onsite with live demonstration

☐ Other (please specify below)

(Select all that apply)

Please specify:

If you would like to provide your email for us to reach out about a potential qualitative interview and/or to be considered for a gift card, you will be prompted to do so after pressing "Submit" below.

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FIGURE 7: Page 5 of the clinician survey

Additional Information

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** This work was funded by the University of Vermont Area Health Education Centers (UVM AHEC) Program in the form of a student stipend. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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