Lightening the EHR Burden: Five Years of Physician Engagement in a Canadian Mental Health Organization

Tania Tajirian, Brian Lo, Gillian Strudwick, Adam Tasca, Emily Kendell, Brittany Poynter, Sanjeev Kumar, Po-Yen (Brian) Chang, Candice Kung, Debbie Schachter, Gwyneth Zai, Michael Kiang, Tamara Hoppe, Sara Ling, Uzma Haider, Kavini Rabel, Noelle Coombe, Damian Jankowicz, Sanjeev Sockalingam

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Abstract

Background: Lightening the EHR burden through the five year analysis of a physician engagement strategy in a Canadian Mental Health Organization focused on the use of electronic health records and the impact of digital health.

Objective: This study focuses on evaluating physician burnout related to electronic health record (EHR) usage, and the impact of a Physician Engagement Strategy at a Canadian mental health organization five years post implementation.

Methods: A cross-sectional survey was conducted to assess the perceived impact of the Physician Engagement Strategy on burnout associated with EHR use. Physicians were invited to participate in an online survey that included the Mini-Z Burnout questionnaire, along with questions about their perceptions of the EHR and the effectiveness of the initiatives within the Physician Engagement Strategy. Descriptive statistics were applied to analyze the quantitative data, while thematic analysis was used for the qualitative data

Results: Of the 254 physicians invited, 128 completed the survey, resulting in a 50% response rate. Among the respondents, 26% (33/128) met the criteria for burnout according to the Mini-Z questionnaire, with 61% (20/33) of these attributing their burnout to EHR use. About 52% of participants indicated that the EHR improves communication (67/128) and 38% agreed that the EHR enables high quality care (49/128). Regarding the Physician Engagement Strategy initiatives, 39% (50/128) agreed that communication through the strategy is efficient, and 75% (96/128) felt more proficient in using the EHR. However, additional areas for improvement within the EHR were identified, including: 1) Medication Reconciliation & Prescription Processes; 2) Chart Navigation and Information Retrieval; 3) Longitudinal Medication History; and 4) Technology Infrastructure Challenges.

Conclusions: This study highlights the potential impact of EHRs on physician burnout and the effectiveness of a unique Physician Engagement Strategy in fostering positive perceptions and improving EHR usability among physicians. By evaluating this initiative in a real-world setting, the study contributes to the broader literature on strategies aimed at enhancing physician experience following large-scale EHR implementation. However, the findings indicate a continued need for system-level improvements to maximize the value and usage of EHRs. The Physician Engagement Strategy demonstrates the potential to enhance physicians' EHR experience. Future efforts should prioritize system-level advancements to increase the EHR's impact on quality of care and develop standardized approaches for engaging physicians on a broader Canadian scale.

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The authors have not published, posted, or submitted any related papers from this study.

Original Study

Lightening the EHR Burden: Five Years of Physician Engagement in

a Canadian Mental Health Organization

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Keywords: electronic health records, health informatics, digital health, documentation burden, physician burnout, engagement strategy, evaluation

Introduction

Burden caused by use of electronic health record (EHR) systems continues to be an important issue for healthcare organizations, especially given human resource shortages in healthcare systems globally.{Arnsten, 2021 #15;Canadian Medical Association, 2021 #1;Canadian Medical Association, 2022 #2}[1-4] As physicians report spending two hours documenting for every

hour of patient care, there has been strong interest from many organizations to understand and address the root causes of physician burnout due to EHR burden.[5] This is particularly important given the growing digital maturity of many health systems coupled with broader healthcare challenges, specifically an overburdened health system and a healthcare workforce crisis.[2-4] Over the last few years, many organizations including the American Medical Informatics Association (AMIA),[6] the Canadian Medical Association (CMA),[2-4] and the American Medical Association (AMA),[7] have recognized and advocated for strategies to target these challenges .

As a result, there have been many initiatives focused on mitigating the impacts of EHR burden on physicians. For example, the 25X5 initiative, led by AMIA, focused on developing a multi-level approach (vendor, health systems, government) to reducing documentation burden by 25% in 5 years in the United States.[6, 8] Through these work streams, a toolkit has been developed that provides recommendations and next steps at the organization and system levels.[8] In addition, others have explored unique initiatives to identify and address EHR-related burden within their own organizations.[9] An example of this is the Getting Rid of Stupid Stuff (GROSS) initiative from the University of Colorado, which focuses on removing redundant processes from the EHR.[10] Other initiatives include more agile delivery of personalized training and system optimization targeting the pain points of the end-users.[11-13]

However, a key challenge that has impacted the ability to develop strong recommendations on approaches to address EHR-related issues has been limited insight into the impact of these initiatives.[9, 14, 15] In particular, most of these evaluations have been limited to a single site pilot with a limited duration, and/or small participant size. Moreover, since these studies examined the intervention immediately after implementation, there is little information around the long-term impact of these initiatives on EHR end-user experience. [16]. To better understand the impact of initiatives to reduce EHR burden, it is essential to evaluate them on large-scale real-world environments with numerous users, as studies of digital tools indicate that effectiveness must be tested across diverse settings.

Physician Engagement Strategy

At a large Canadian academic hospital located in Toronto, Ontario, the inaugural Chief Medical Information Officer (Tajirian) spearheaded the Informatics Physician Engagement Strategy in 2018. While details of the strategy can be found in other articles [17-21], the conceptualization of the strategy was informed by a benchmark survey, which was conducted to understand EHR-related burden and burnout rate among physicians across the organization.[18] From the benchmark survey, about 75% (155/208) of physicians with symptoms of burnout reported that the EHR was a major contributor to burnout. In addition, participants highlighted issues related to its usability and the IT infrastructure as contributors to burnout.

The first iteration of the Physician Engagement Strategy was created, consisting of four key components: 1) An Agile approach for resolving EHR-related issues (SWAT)[19]; 2) Physician Think Tanks, a medical staff subcommittee for engaging in discussions on EHR and digital health matters; 3) Communication, education, and informatics strategies, including peer education videos, a monthly newsletter, and speech recognition technology (SRT) [20]; and 4) Utilizing EHR usage log data to guide further optimizations. While smaller evaluations have been conducted on individual components,[19-21] there remains a gap in understanding how

the overall strategy has supported improvements in EHR use over the past five years. It is vital to explore opportunities for continuously advancing the strategy as new technologies, such as Generative AI, are integrated into the environment.[22-28]

Objectives

In this study, we present our findings from a survey conducted five years after the implementation of the Physician Engagement Strategy. The primary objective is to understand the impact and perceptions of the strategy's components and identify opportunities for further improvement. These findings may be valuable for Canadian healthcare organizations seeking to adopt a long-term strategy to enhance physician experience and reduce EHR-related burden.

The specific aims of this study were to:

1- Evaluate overall burnout rates and the extent to which they are linked to the EHR five years after implementing the Physician Engagement Strategy

2- Assess the perceived effectiveness of the different elements within the Physician Engagement Strategy.

3- Pinpoint key areas for future improvement and optimization of the Physician Engagement Strategy to further alleviate EHR-related burden

Materials and Methods

A cross-sectional survey was conducted in January 2023 for six weeks, to evaluate the impact and challenges in delivering the Informatics Physician Engagement Strategy at a large, urban, Canadian mental health hospital. This work has received approval by the Quality Project Ethics Review (QPER) Board at the Centre for Addiction and Mental Health (QPER 2018-2019 #014).

Participants and Settings

All physicians with fulltime or part time appointments at the organization as of November 2022, were invited to participate in the survey through an email invitation. This included physicians with psychiatry, addictions or hospitalist roles who provide care across inpatient, outpatient, emergency, outreach and community settings. The project team obtained a list from the Medical Affairs department in order to identify all physicians who are eligible to participate in the survey and there were no exclusion criteria.

In terms of setting, the large academic mental health hospital is located in Toronto, Ontario and provides care to over 34,000 patients a year. The EHR system was implemented in 2014 and is being used for all facets of patient care. In 2017, the organization achieved HIMSS EMRAM Stage 7,[29] which is a testament to the high adoption and use of the EHR for clinical care.

Data Collection Approach

An online survey was deployed to physicians via the REDCap survey tool. [30, 31] The survey was developed, using a co-design approach with members of the Physician Think Tanks, and

was informed by the Benefits Evaluation Framework, benchmark survey data, and relevant literature. The survey underwent testing with the Physician Think Tank members, to refine its topics, content, and wording. It was available from January to March 2023, with biweekly reminders sent to encourage participation, the Chief Medical Officer (SS) and the Division Chiefs encouraged physicians to participate in the survey. The survey has four components, which can be found in Appendix A. The first comprises demographics, which include age, gender, appointment, and years of experience in the organization. The second component focuses on burnout, which includes the Mini-Z Burnout questionnaire[32], as well as a question on the perceived contribution of the EHR to burnout. The third section contains questions related to the perceived impact of the initiatives within the Informatics Physician Engagement Strategy, as well as emerging issues of interest outlined by the Physician Think Tanks. The last section is an open-ended question for participants to outline opportunities for improvement in terms of use of the EHR and/or initiatives within the Informatics Physician Engagement Strategy.

Data Analysis

Both quantitative and qualitative approaches were used to analyze the data. For Likert scale questions, descriptive statistics (e.g., mean, standard deviation) were generated. In addition, one-way ANOVA and Chi-Squared tests were used to compare burnout rates from the benchmark survey. For qualitative data, a content analysis approach was used to identify the main themes [33, 34]. To ensure the trustworthiness of the data, two reviewers have analyzed the data using the approaches outlined by Elo et al.[35]

Ethical Considerations

Numerous safeguards were implemented to ensure the confidentiality of participants. First, data was collected anonymously. Participants were instructed not to share identifying information in their responses. All survey data were de-identified before analysis if individuals entered identifying information in the survey. Second, findings were reported only in aggregate form to both internal and external audiences.

Results

Of 254 physicians eligible to complete the survey, 128 participants completed it and were included in the analysis (50%). There were 18 individuals who opened the link to the survey but did not submit the survey. The findings of the survey are described below.

Respondent Characteristics

The demographics reported by participants who completed the survey (n = 128) are outlined in Table 1. Respondents were primarily individuals with outpatient duties and provided psychiatric care to adult populations. There was a range in years of experience of respondents, with 27% of participants, reporting 0-5 years of experience. In terms of gender identity and ethnicity, there was about equal responses from participants identifying as a man (45%) or

woman (42%), and 53% of individuals (n = 68) identified with a white ethnic group.

Table 1. Demographic characteristics of respondents.

	Characteristic Category	Number of Participants (%) (n = 128)
Clinical Activities (multi-select)		
	Inpatient Physician	46 (36%)
	Outpatient Physician	93 (73%)
	Emergency Department	22 (17%)
	Community-Based Care	10 (8%)
	Outreach	8 (6%)
Primary Division		
	Addictions	23 (18%)
	Adult Neurodevelopment and Geriatric Psychiatry	12 (9%)
	Child and Youth Psychiatry	11 (9%)
	Forensics	8 (6%)
	General Adult and Health Systems Psychiatry	46 (36%)
	Hospital Medicine	15 (11%)
	Schizophrenia	13 (10%)
Frequency in providing care		
	Full-Time (>= 0.6 FTE)	106 (83%)
	Part-Time (< 0.6 FTE)	22 (17%)
Experience in Practicing as a Physician		
	0-5 Years	35 (27%)
	6-10 Years	26 (20%)
	11-15 Years	24 (19%)
	16-20 Years	12 (9%)
	21-25 Years	12 (9%)
	26+ Years	18 (14%)
	Prefer not to answer	1 (1%)
Age Group		
	<30 years old	3 (2%)
	31-40 years old	46 (36%)
	41-50 years old	39 (30%)
	51-60 years old	19 (15%)
	61+ years old	13 (10%)
	Prefer not to answer/did not respond	8 (6%)
Gender Identity		
	Man	58 (45%)
	Non-Binary	2 (2%)

	Woman	54 (42%)
	Prefer Not to Answer/Not Reported	14 (11%)
Ethnicity		
	East Asian	11 (9%)
	Latin American	2 (2%)
	Middle Eastern	9 (7%)
	South Asian	10 (8%)
	Southeast Asian	2 (2%)
	White	68 (53%)
	Indian-Caribbean	1 (1%)
	Indigenous	1 (1%)
	Mixed Ethnicity	4 (3%)
	Identity not listed	2 (2%)
	Prefer not to answer/did not respond	18 (14%)

Burnout & Perceptions of the EHR

The level of burnout reported by participants using the Mini Z questionnaire[32] is outlined in Table 2. About 26% (33/128) of individuals reported a description that meets the threshold of burnout. However, only 4% (5/128) of individuals reported being at the highest and second-highest levels of burnout. Of those who indicated a level that meets the threshold of burnout, 61% (20/33) of the respondents indicated that the EHR contributed to their burnout often or always. There was no relationship between burnout levels with age, ethnicity or years of experience.

There were no significant differences in burnout level (F(1,333) = .035, P = .85) between the current survey and previously conducted benchmark survey [18]. Of those who reported burnout, there is a considerable reduction in the number of individuals who reported that the EHR contributes to burnout, all or almost all the time (F(1,81) = 1.651, P = .20).

With regards to the perceptions towards the EHR, over half the participants (74/128) agreed or strongly agreed that the EHR adds to their daily frustration (Table 3). From a benefits perspective, a similar proportion of participants also felt that the EHR improved communication within their circle of care (67/128), enabled the delivery of high-quality care (49/128) and kept patients safe (50/128).

Table 2. Reported levels of burnout for benchmark survey and follow up survey.

	Characteristic Category	Baseline Survey (n = 208) [18]	Follow-up Survey (n = 128)
Burnout			
	I enjoy my work. I have no symptoms of burnout.	45 (22%)	27 (21%)
	Occasionally I am under stress, and I don't always have as much energy as I once did,	111 (53%)	68 (53%)

	but I don't feel burned out		
	I am definitely burning out and have one or more symptoms of burnout, such as physical and emotional exhaustion	35 (17%)	28 (22%)
	The symptoms of burnout that I'm experiencing won't go away. I think about frustration at work a lot.	15 (7%)	4 (3%)
	I feel completely burned out and often wonder if I can go on. I am at the point where I may need some changes or may need to seek some sort of help.	1 (1%)	1 (1%)

Table 3. Perceived effectiveness of the various components of the Informatics Physician Engagement Strategy.

|	Characteristic Category	Number of Participants (%) (n = 128)
Do you think [EHR] contributes to your symptoms of burnout? (only for those who answered having at least one or more symptoms of burnout (n=33))		
	Rarely	1 (3%)
	Sometimes	12 (36%)
	Often	14 (42%)
	Always	6 (18%)
[EHR] adds to my daily frustration.		
	Strongly Disagree	2 (2%)
	Disagree	20 (16%)
	Neutral	32 (25%)
	Agree	51 (40%)
	Strongly Agree	23 (18%)
[EHR] improves communication within the circle of care.		
	Strongly Disagree	2 (2%)
	Disagree	25 (20%)
	Neutral	34 (27%)
	Agree	55 (43%)
	Strongly Agree	12 (9%)
[EHR] enables me to deliver high quality care.		
	Strongly Disagree	8 (6%)
	Disagree	18 (14%)
	Neutral	53 (41%)
	Agree	43 (34%)
	Strongly Agree	6 (5%)
[EHR] helps keep my patients safe.		
	Strongly Disagree	4 (3%)
	Disagree	19 (15%)

	Neutral	55 (43%)
	Agree	44 (34%)
	Strongly Agree	6 (5%)

SWAT Initiative – Rapid Handling of EHR Issues

The SWAT Initiative focuses on bringing an interdisciplinary team to rapidly triage and address issues related to the EHR in an agile manner.[19] In the survey, participants indicated whether the SWAT initiative improved documentation, order-entry and chart navigation within the EHR (Figure 1A). Of those who provided a response, about 54% of participants reported that the SWAT initiative had made some or major improvements across documentation (69/128) and order-entry. For chart navigation, the numbers of respondents were marginally less, with 40% of participants indicating that SWAT has made some or major improvements to the functionalities related to chart navigation (51/128).

In terms of overall experience (Figure 1A), approximately 59% (75/128) of respondents reported that the SWAT initiative has made some or major improvement to their use of the EHR. Similarly, about 42% (54/128) of participants agreed or strongly agreed that the initiative made them feel their needs were acknowledged and 45% (58/128) agreed that it provided a platform to discuss issues pertinent to their practice (Figure 1B).
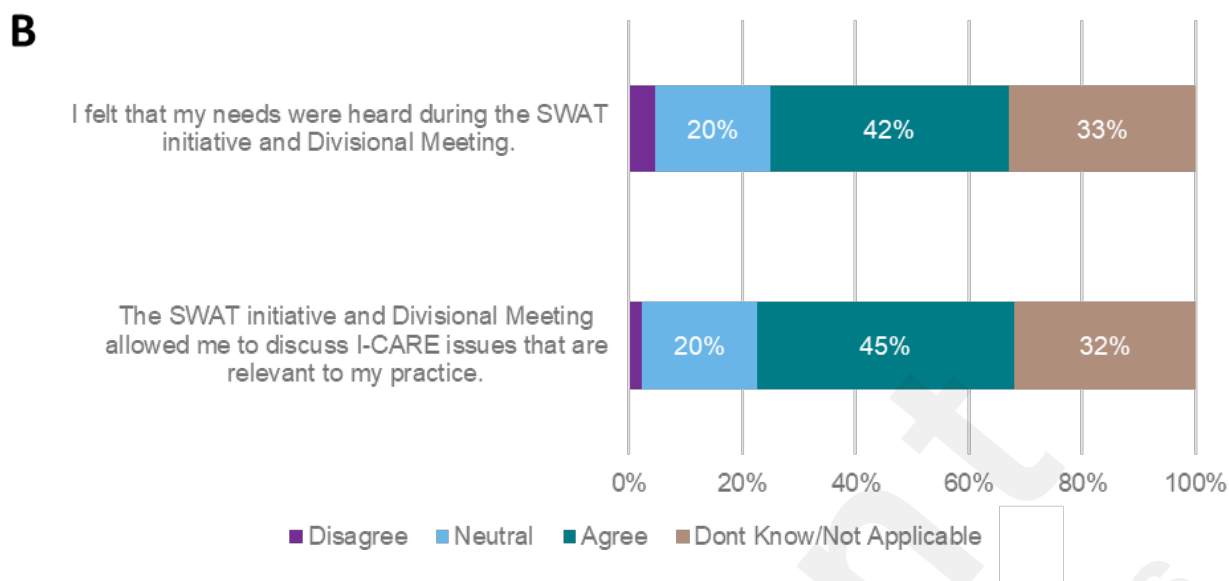
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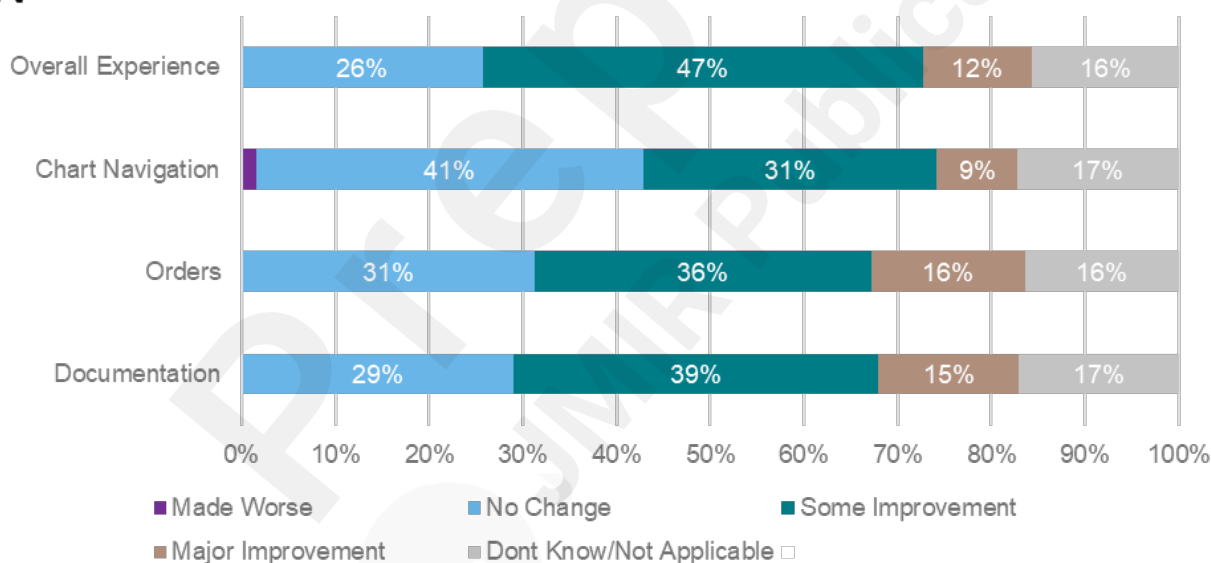
Figure 1. Impact of SWAT Initiative on EHR Burden.

Communication & Education

With regard to communication, about 77% (98/128) of respondents recall reading the monthly newsletter that is sent out from the strategy (Figure 2A). Of those who have read the newsletter, about half (50/98) suggested that the communication of EHR changes are efficient through this method.

For education, about 64% (82/128) of individuals believe they are proficient with the use of the EHR, yet only 39% (50/128) of individuals thought that the education support provided by the organization is available and sufficient (Figure 2B). Regarding peer education videos (Figure 2C), about 32% (41/128) of individuals reported watching one of the three peer education videos released to date. For those who did not watch a video, about 57% (73/128) of respondents were not aware that peer education videos existed. Among the 41 individuals who watched a video, 68% (28/41) of individuals reported that the video was useful and 66% (27/41) of individuals believed that the length and details were appropriate.
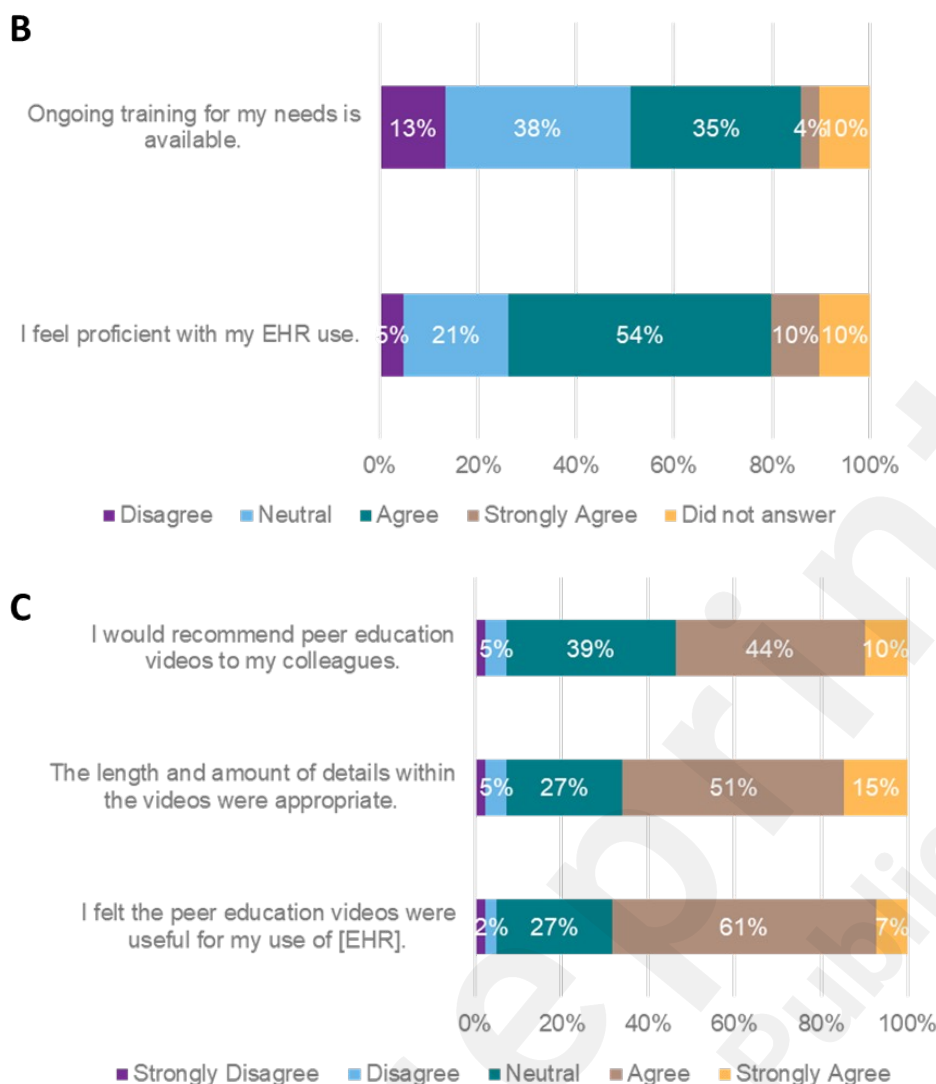
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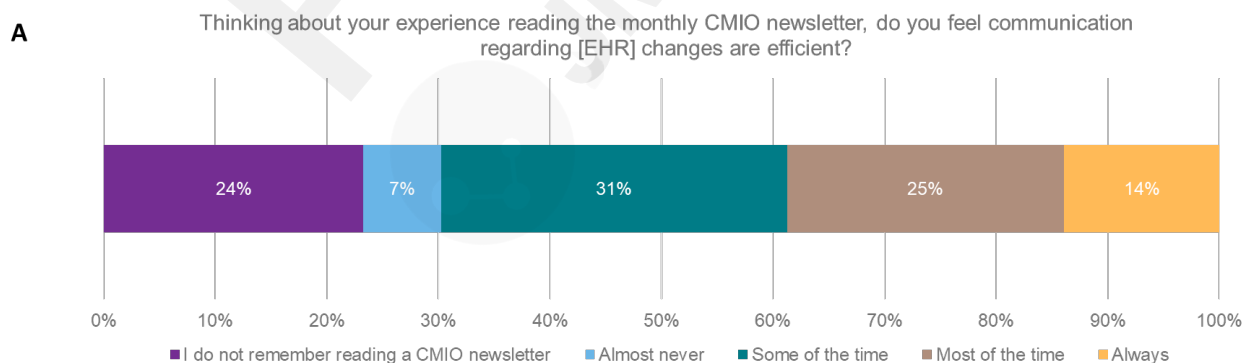
Figure 2. Impact of communication and education initiatives.

Informatics Tools (Documentation (SRT) & Continuity of Care)

With regards to documentation, about 64% (82/128) of respondents reported trying to use speech recognition technology (SRT) for documentation (Figure 3A). Of those who indicated using SRT, 69% (57/82) of individuals reported that it was easy to set up and use, and 58% (48/82) of respondents indicated that it integrates well with the EHR (Figure 3). About 51% (42/82) of respondents believed that the use of SRT decreased their documentation time (Figure 3B).

For continuity of care, participants were asked to comment on their confidence level regarding delivery of notes to external health care providers. Only 35% (45/128) of individuals agreed that they are confident that notes are sent to the provider as intended (Figure 4A). With automated fax transmission (auto-fax) being the default approach for document delivery within the EHR, 54% (69/128) of respondents indicated that they are somewhat or very comfortable with sending their notes through current auto-fax process instead of than sending notes through Health Records distribution process (Figure 4B).
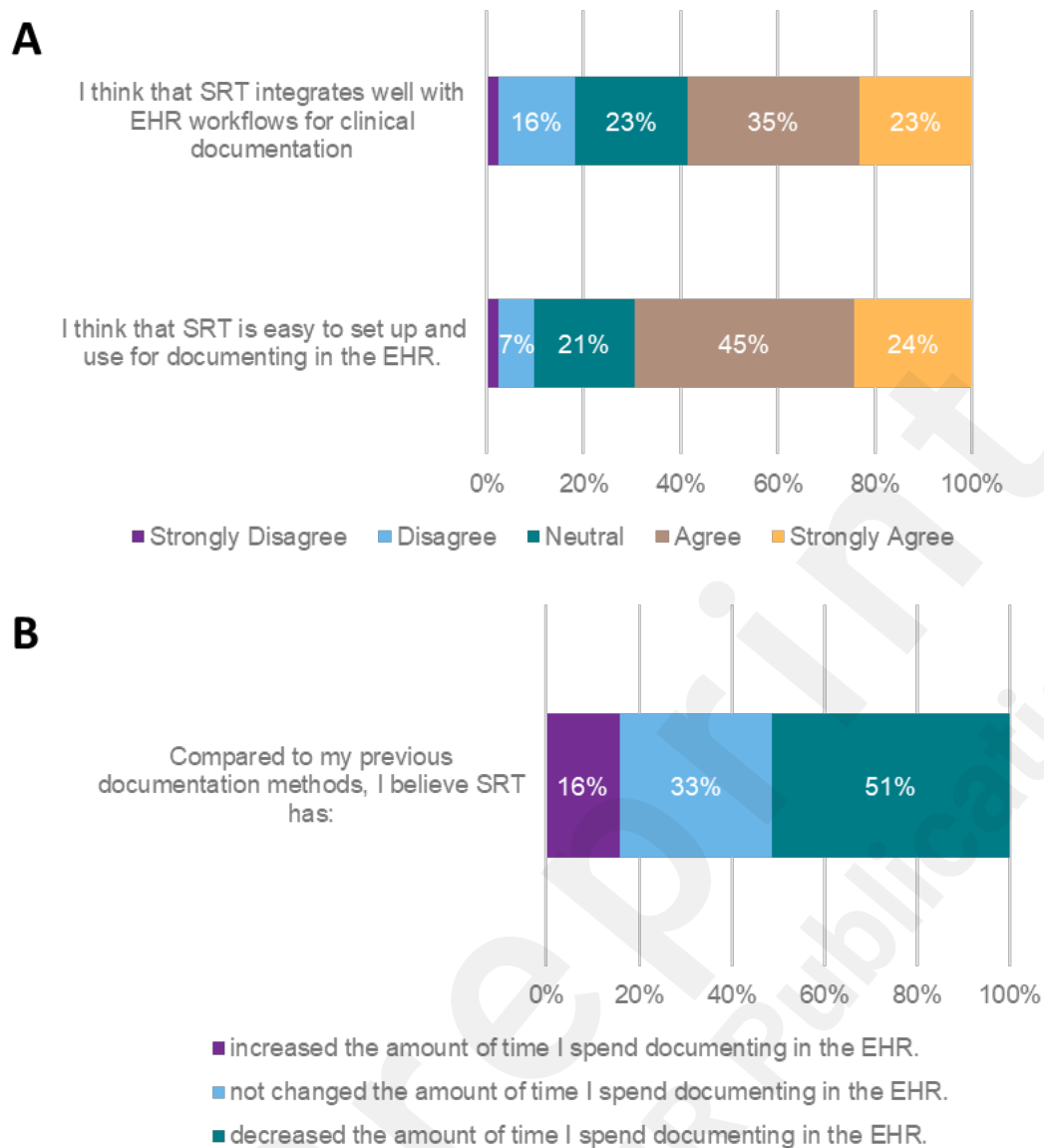
A

I think that SRT integrates well with EHR workflows for clinical documentation

| 16% | 23% | 35% | 23% |

I think that SRT is easy to set up and use for documenting in the EHR.

| 7% | 21% | 45% | 24% |

0%   20%   40%   60%   80%   100%

■ Strongly Disagree   ■ Disagree   ■ Neutral   ■ Agree   ■ Strongly Agree

B

Compared to my previous documentation methods, I believe SRT has:

| 16% | 33% | 51% |

0%   20%   40%   60%   80%   100%

■ increased the amount of time I spend documenting in the EHR.
■ not changed the amount of time I spend documenting in the EHR.
■ decreased the amount of time I spend documenting in the EHR.

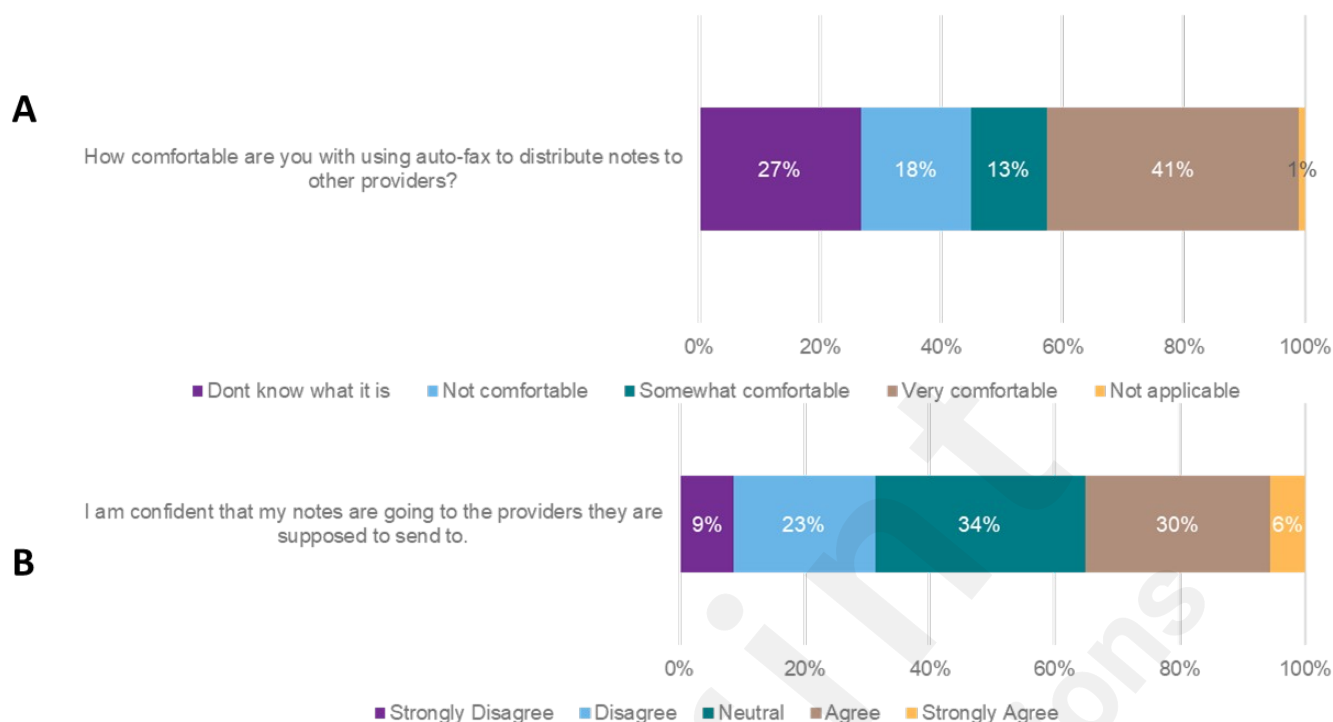Figure 3. Impact of Speech Recognition Technology on Documentation in the EHR.

Figure 4. Perceptions of continuity of care in the EHR.

Areas of Focus

From the qualitative findings, four themes were identified. These include: 1) Medication Reconciliation & Prescriptions Processes; 2) Chart Navigation and Information Retrieval; 3) Longitudinal Medication History; and 4) Technology Infrastructure Challenges. These themes are detailed below.

Medication Reconciliation & Prescriptions Processes

Physicians had concerns about the current capabilities of the EHR with regard to medication reconciliation and transmission of prescriptions. While medication reconciliation and communication of prescriptions was identified as highly important for supporting patient care, the processes involved were identified as cumbersome and time-consuming. As one physician outlines:

> *"Outdated and clunky interface - navigation is clumsy and could be streamlined. More like 2010 than 2023 software...Med Reconciliation is a slow and laborious chore - great when pharmacists do it." (Psychiatrist, SC-FT-246)*

Another physician also highlights the lack of intuitive search functionality with the current EHR system:

> *"Discharge med rec is frequently broken and unsafe. Search function is desperately needed. For example, cognitive testing hard to find or not accessible, not organized, not uploaded." (Geriatrics Psychiatry Physician, GE-APP-47)*

Collectively, these limitations of the system can make the process unsafe for patient care. Furthermore, the impact on continuity of care back to the community also affects the process at

discharge. Fax is still commonly used for transmission of prescriptions and documents to community providers and pharmacies, but the limitations of this technology represent a significant burden for clinicians. This is particularly outlined from a physician who engages in telepsychiatry practice:

> *"The prescription function on [the EHR] is awful for telemedicine prescriptions. First, I have to enter the prescription on the software. Next, I have to download the PDF, find that, and sign manually. Finally, I have to open separate software [company] to fax the prescription. This whole process takes 5-10 minutes, whereas with the other EMR software I can send a prescription in <1 min. Since I send many prescriptions per day, I can waste anywhere between 30-60 min of a clinical day on this cumbersome prescription faxing process."* (Telemedicine Psychiatrist, AD-AP-22)

Collectively, the administrative burden spent on faxing prescriptions can take a significant toll on physicians. More importantly, the lack of feedback from the process hinders the ability of the physician to know if the process worked for the patient:

> *"Sending external lab requisitions and prescriptions, especially when delivering virtual care is non-obvious, tedious, time-consuming and error prone. For instance, for nearly 3 months my prescriptions had a return fax number that no one could tell me if and where returned faxes from pharmacies were going to."* (Addiction Psychiatrist, AP-AD-6)

Given the growing adoption of team-based care with the community, continuity of care through current medication reconciliation processes and faxing significantly hinders the value and utility of the EHR.

Chart Navigation and Information Retrieval

Given the complexity and chronicity of the patient population, chart navigation was another critical theme outlined by physicians. For example, several physicians highlighted issues about being able to view other notes while documenting:

> *"It is horrific that one cannot simultaneously see a document and type into a note. I don't know who designed such a system, they do not understand physician work at all. Opening an ED note locks you out of seeing other documentation."* (Addiction Psychiatrist, AD-FT-33)
> *"Being unable to quickly click through the pages, for example have a tab to click one month back or to be able to skip an inpatient admission. Being unable to have a note open while I am also looking at other applications. Have to write the draft note somewhere else and paste it."* (General Adult Psychiatrist, GA-FT-171)

As such, being able to review and generate new documentation can be burdensome and can result in developing workarounds that are not aligned with best practices. Another key limitation of the system is the limited ability to search for relevant documentation. Given that some patients have many previous consultations, searching through prior documentation efficiently is critical. One physician highlighted that it:

> *"It can be hard to find needed documentation if the chart is extensive because the filtering system isn't great/doesn't let you just search for the things you need."* (General Adult

Psychiatrist, GA-FT-158)

As such, this can hinder the ability for physicians to understand the broader clinical picture in a timely manner through the EHR.

Longitudinal Medication History

Review of past medication history often informs decision making regarding which medication regimen to trial next for a particular patient. However, currently there is a limited ability to review the medication histories of patients in a longitudinal way:

> *"[The EHR] is not well set up for longitudinal care. Medication histories, for example, are not well captured, nor are key pieces of information easily parked somewhere that can be referenced later without having to scroll through many progress notes."* (Schizophrenia Physician, SZ-AP-220)

Having to review numerous progress notes can make it difficult for physicians to grasp the patient's history and develop an evidence-based treatment plan.

Challenges with Technology Infrastructure

Since the implementation of the EHR 10 years ago, physicians have reported growing issues with regards to the challenges with IT infrastructure. For example, one psychiatrist highlights how the application slows down the system when open and takes excessive amounts of time to complete tasks within the EHR.

> *"The program freezes frequently and then it is a process to restart it. [The EHR] often has a lag and this slows down work for outpatient work, there is no easy way to fax prescriptions. What I do is create a PDF, open it in program (Premium which I pay for personally), sign it, save it, then open the [fax] program, and then send it. The fax process itself takes 5+ minutes and isn't an effective use of physician time."* (General Adult Psychiatrist, GA-FT-184)

This process becomes especially challenging when physicians must act under pressure, such as during an emergency code:

> *"To work on multiple units when on call- Duty Doctor is very time consuming as clinicians are required to start up their [EHR] on a new computer on each unit and the initializing process to get into the platform to access [EHR] takes 5-10 minutes sometimes which is very delayed when responding to a code where a clinician is required to order meds/restraints etc."* (General Adult Psychiatrist, GA-FT-114)

Since IT infrastructure is fundamental to EHR usability, it is crucial that it remains up to date to ensure the system operates efficiently and effectively over time, particularly in critical situations.

Discussion

This study examines the current findings from the Physician Engagement Strategy at a Canadian mental health hospital in Toronto, Canada. Although extensive literature has

investigated the causes of EHR related physician burnout and proposed various approaches to address these issues [6], there is limited research on how physician engagement strategies and their components interact strategically to mitigate burnout through a health informatics perspective. To our knowledge, this work is among the first to involve a large number of Canadian physicians in assessing the impact of these initiatives within a cohesive and supportive environment.

Overall, the Physician Engagement Strategy has positively impacted perceptions and value of the EHR among physicians. However, there are still many opportunities for improvement, particularly at the system level. The implications of these findings are described below.

We found that while the physician overall burnout rate remained unchanged from the index survey in 2018, the perceptions of the EHR's impact on physician burnout have considerably improved. Physicians who used engaged in the informatics physician engagement initiatives reported enhancements in EHR usage, communication, education, and documentation, which are key components of the overall strategy. These findings are consistent with the growing literature on the role of perceptions of physician burnout. Several studies have highlighted how perceptions can influence overall satisfaction and utility of the EHR, despite its impact from a quantitative (objective) perspective.[36] Studies that take a sociotechnical perspective suggest that characteristics of the individual and the environment can have a profound impact on burnout rate and EHR usage patterns.[37] With this in mind, it is likely that understanding EHR-related burnout requires a broader consideration of the environment and the system at play.

Since the evaluation was conducted 5 years post-implementation of the strategy, improvements seem to be sustained over time. This provides promising support for the long-term impact of initiatives such as a physician engagement strategy, which is an area that has not been widely investigated.[6]

Several areas for improvement have been identified since the strategy's inception, many of which necessitate system-level interventions. For example, through the qualitative SWAT interviews, issues related to transmission of prescriptions and documentation continue to be critical EHR-related barriers to continuity of care. In the Canadian setting, initiatives supporting electronic prescribing continue to progress at a slow pace, despite the high interest and discussion over the last decade.[38] In addition, functional interoperability could be used to support better continuity of care and the sun-setting of aging technology such as faxing.[39] As such, while these initiatives have made improvements to the use of the EHR, there continues to be significant requirement for novel, system-level solutions that fall outside the scope of a single organization or single digital tool.

Finally, this work makes a significant contribution to the international literature on interventions to reduce EHR burden for physicians.
To Date, most of the literature, including the 25x5 toolkit, and the GROSS initiative have a strong focus on the US context. .[10] However, these constraints do not necessarily apply to the Canadian and international context. As such, the impact observed in this study provides suggestive evidence of the broad impact these tools can have, irrespective of clinical and administrative environments. Future work should focus on examining the impact of similar initiatives and strategies in other geographical and cultural contexts.

This work has broad-reaching implications for healthcare organizations and health systems. At the organization level, clinicians and health administrators can consider building and evaluating similar strategies within their own organizations. By leveraging similar evaluation approaches and methodologies (e.g., Mini-Z for burnout), it will enable comparison and optimization of the initiatives outlined in this strategy. For researchers, it would be useful to explore how theoretical frameworks from implementation science and change management can be used to further understand the impact and key success factors in rolling out these initiatives across complex healthcare environments. At the health policy and system level, policy makers and healthcare organizations can leverage the findings from this study to inform development of system-level recommendations and initiatives to address the root causes that are consistent across the health care system (e.g., interoperability).

Limitations

The study's findings should be interpreted with caution due to several limitations. Foremost, the strategy is currently being evaluated in a single healthcare organization. Moreover, due to the limited number of time points available in the evaluation, this study fails to examine how the broader environment and the temporal nature of events can influence the impact of this strategy on EHR burden. Lastly, this study did not examine objective data sources like EHR usage logs, which could provide a more comprehensive understanding of the initiatives' impacts.

Conclusion

This study evaluates the impact of a Physician Engagement Strategy on improving physician experience and reducing EHR burden at a Canadian mental health organization. The cross-sectional survey indicates significant improvements in EHR use since the inception of the strategy in 2018. However, additional interventions and system-level changes are needed to further reduce EHR burden and enhance physician experience and patient care. Future work should focus on these system-level changes in coordination with other health systems.

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Conflicts of Interest
None declared.

Abbreviations
EHR: electronic health record
AMIA: American Medical Informatics Association
CMA: Canadian Medical Association
AMA: American Medical Association
GROSS: getting rid of stupid stuff
SWAT: Agile approach for resolving EHR-related issues
SRT: speech recognition technology
QPER: Quality Project Ethics Review
Auto-fax: automated fax transmission

Multimedia Appendix 1
See attached.

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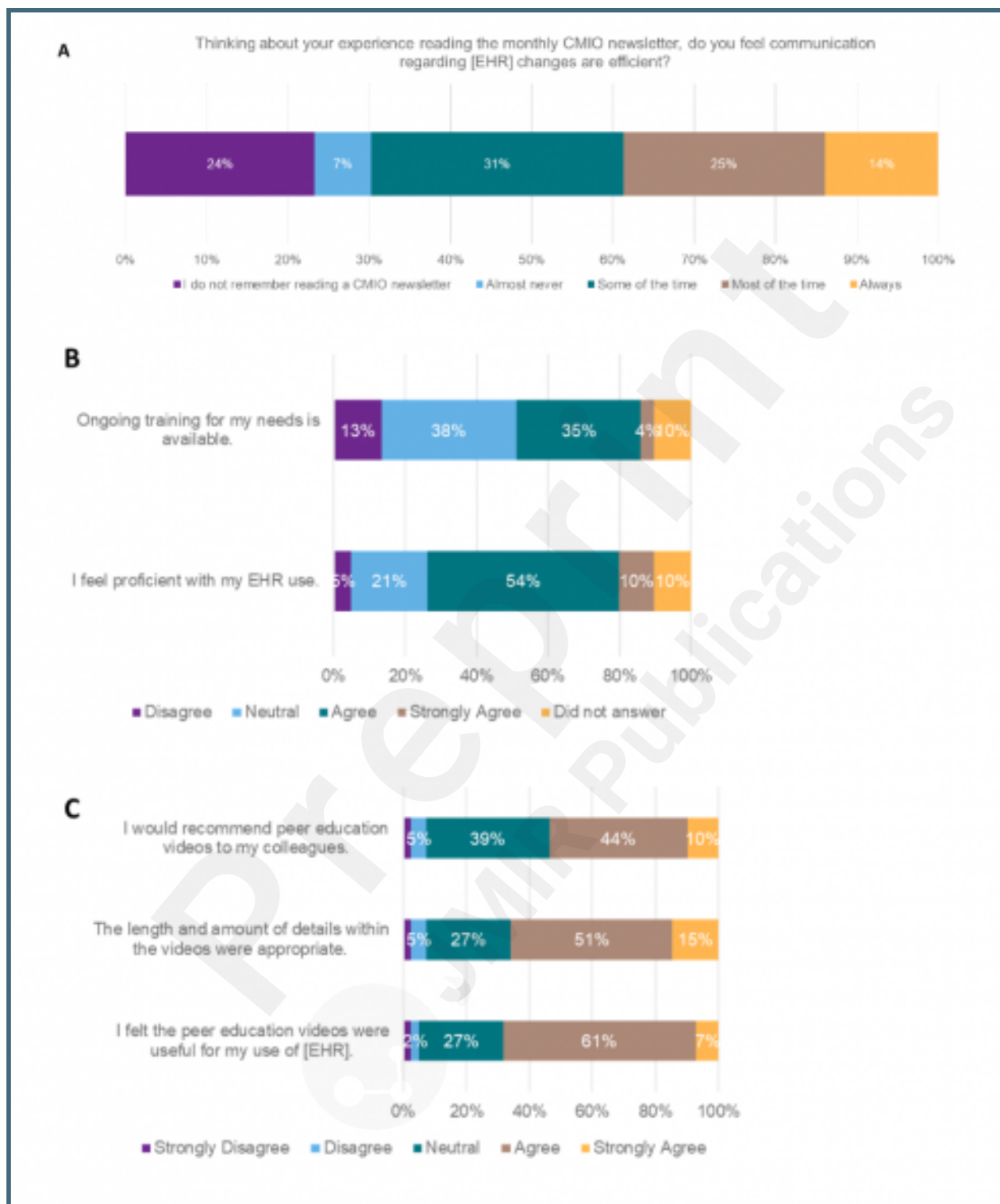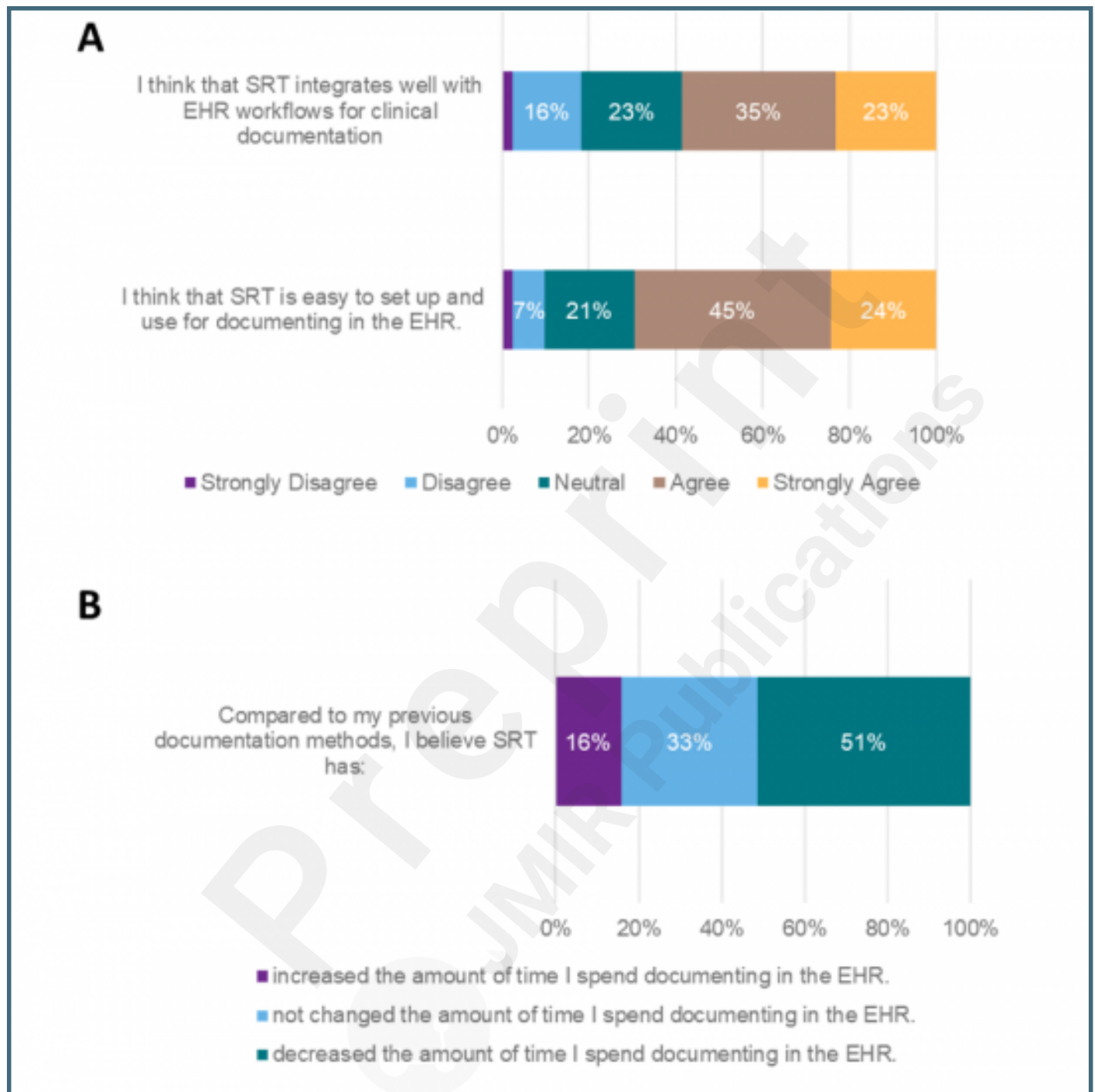
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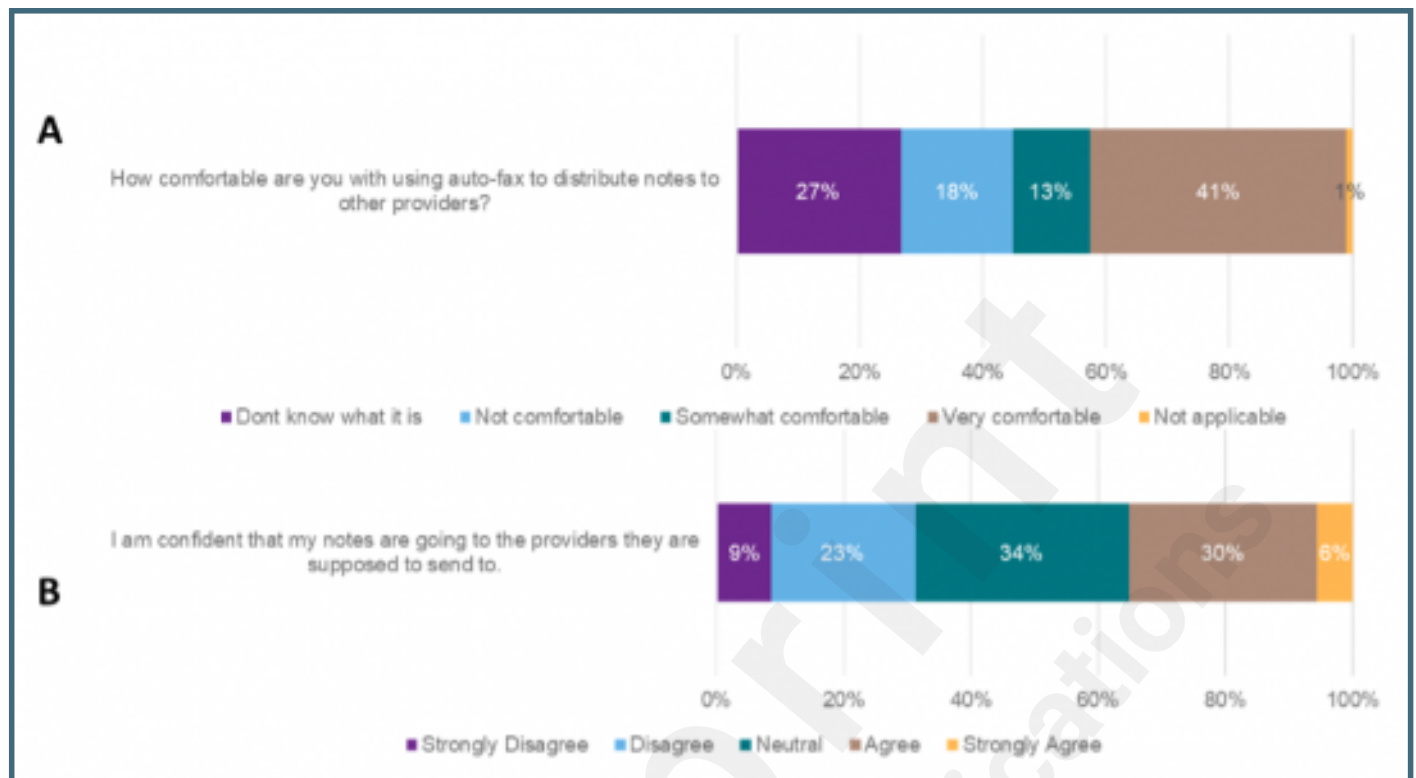
Figures

Impact of SWAT Initiative on EHR Burden.
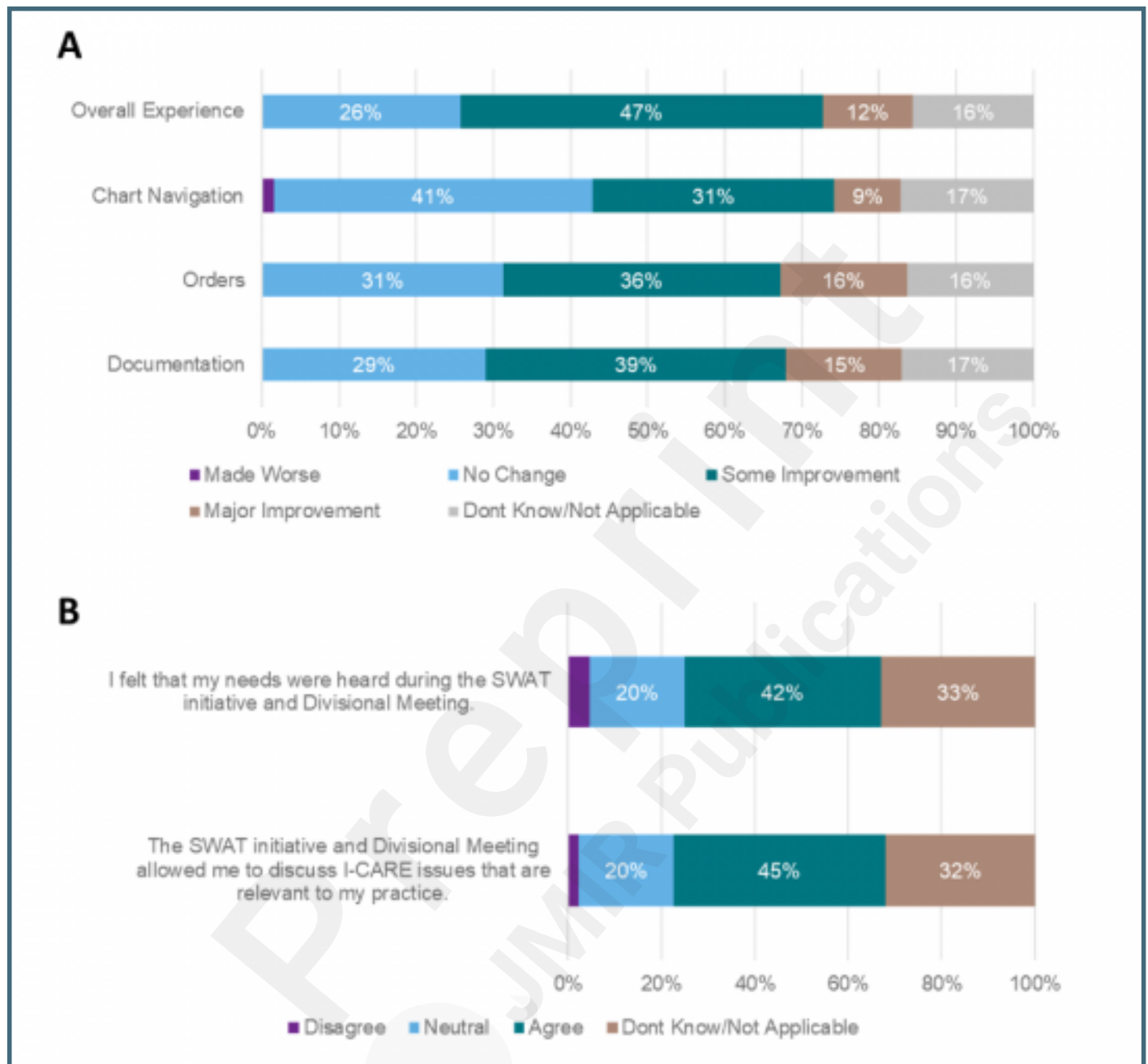
Impact of communication and education initiatives.

Impact of Speech Recognition Technology on Documentation in the EHR.

Perceptions of continuity of care in the EHR.

Multimedia Appendixes

Physician Survey.
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TOC Image.