Emergency Physicians' Perspectives on Their Use of Health Information Exchange

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Study objective: We explore what emergency physicians with access to health information exchange have to say about it and strive to better understand the factors affecting their use of it.

Methods: A qualitative study using grounded theory principles was conducted in 4 urban emergency departments that had health information exchange access for 4 years. Data were collected with unstructured interviews from 15 emergency physicians.

Results: Emergency physicians reported that a number of factors affected their use of health information exchange, but the most prevalent was that it was not user friendly and disrupted workflow. Five major themes emerged: variations in using health information exchange and its access, influencing clinical decisions, balancing challenges and barriers, recognizing benefits and success factors, and justifying not using health information exchange. The themes supported a theoretical interpretation that the process of using health information exchange is more complex than balancing challenges or barriers against benefits, but also how they justify not using it when making clinical decisions. We found that health information exchange systems need to be transformed to meet the needs of emergency physicians and incorporated into their workflow if it is going to be successful. The emergency physicians also identified needed improvements that would increase the frequency of health information exchange use.

Conclusion: The emergency physicians reported that health information exchange disrupted their workflow and was less than desirable to use. The health information exchange systems need to adapt to the needs of the end user to be both useful and useable for emergency physicians. [Ann Emerg Med. 2014;63:329-337.]

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INTRODUCTION

Background

Patients often cannot recall previous diagnostic tests or medications, but emergency physicians still have to make decisions.[1] Health information exchange is the electronic sharing of information across health care organizations[2,3] and is one approach to obtain missing information. However, integrating it into an emergency physician's workflow is challenging.[4] Successful implementation requires systems that are easy to use, with demonstrated cost efficiencies, workflow redesign, sustainable funding, privacy protection,[4-10] collaboration among regional providers,[11] and standardized electronic data.[3,5,12] Reports of health information exchange access rates in emergency departments (EDs) is as low as 2.3%[13] to less than 15%,[14] and patient information known to be available is accessed less than half the time.[15]

Importance

Previous studies suggest that health information exchange has the potential to reduce costs and improve quality of care.[16,17] However, even when health information exchange systems are readily available, nontechnical barriers, such as restrictive access policies, impede use for emergency physicians,[11,14] who are less likely to use health information exchange on busy days.[18] Furthermore, poorly designed health information exchange systems disrupt workflow and increase the potential for medical errors.[19] Implementing user-friendly systems and achieving higher health information exchange usage rates is critical to ensure the promise of health information exchange, given the substantial investment it requires and the sustainability challenges facing regional health information exchange organizations.[20]

Few studies focus only on emergency physicians and their use of health information exchange postimplementation or ask for their views of the issues[21-23]; therefore, qualitative research is well suited for this phenomenon.[21,24] Because easy access to information influences health information exchange use,[1] it is important to gain a better understanding of how emergency physicians use it and the influence on clinical workflow.[4,10,25] We defined health information exchange use as accessing health information exchange data. Identifying what emergency physicians view as the

Editor's Capsule Summary

What is already known on this topic

Through health information exchanges, emergency department (ED) providers could obtain information from other facilities about patients in their ED.

What question this study addressed

In this qualitative study conducted in 4 EDs, the authors explored what factors affected the use of a health information exchange.

What this study adds to our knowledge

Most providers thought the system was not user friendly, and there was large variation in how often providers looked for information. Physicians made a number of recommendations for improving the usability of the system.

How this is relevant to clinical practice

Computer systems for accessing health information need to be designed by and for physicians. Although previous information may be helpful, physicians are wary about being influenced by such evaluations.

most critical factors needed to use and support its adoption is necessary if such systems are to become feasible.[10,13,21]

Goals of This Investigation

The objective of this study was to explore what emergency physicians with access to a health information exchange database have to say about it and to better understand the factors affecting their use of it.

MATERIALS AND METHODS

Study Design and Setting

We selected 4 large urban adult EDs from different hospital systems in a major metropolitan area where health information exchange use was typically less than 10%. The sample provides a cross-section of private (not-for-profit and for-profit) and publicly owned hospitals; one site is a Level I trauma center. The annual ED patient volumes were 36,000, 44,000, 54,000, and 60,000. The study sites contributed patient data to a centralized nonprofit regional health information exchange database that had been operational for 4 years and linked more than 450 providers in 15 clinics and 9 major hospitals and served a population of 1 million. Although 2 of the study EDs had not yet implemented electronic documentation, the emergency physicians had access to the hospital's electronic health records and health information exchange.

Selection of Participants

Full- or part-time physicians working regular scheduled emergency shifts were recruited after institutional review board approval. The first 2 physicians were purposely selected to get a sense of the issues because they had a 4-year history of using health information exchange. The remaining participants were recruited with theoretical sampling, which included a range of physicians with actual health information exchange experiences. The ED medical directors arranged unlimited access to the study sites and aided sample diversity by identifying outliers, such as disgruntled emergency physicians; recruiting emergency physicians who either disliked health information exchange or accessed it on almost every patient captured a broad range of perspectives. Participants were contacted by telephone, e-mail, or in the EDs, and all the physicians who were contacted volunteered to participate; no one dropped out of the study. A letter of introduction served as consent. Physicians were not paid to participate. The study maintained participant and site anonymity/confidentiality.

Data Collection and Processing and Primary Data Analysis

Face-to-face interviews averaging 30 minutes were conducted by S.A.T. in a location of the physician's choice, either the ED or adjacent offices. The interviews were audiorecorded (with the physicians' permission), transcribed, and analyzed with audioediting transcription software[26] and MAXQDA 10, a qualitative software program.[27] Verbal fillers such as "um" were removed. Descriptions of the study setting, along with analytic insights, were contained in 194 memos and reviewed with M.A.C. during data collection.

The use of unstructured interviews reduced interviewer bias by allowing participants to talk freely.[28-30] Probe questions such as "Tell me about your experience with health information exchange" initiated interviews; follow-up questions such as "When you say access is a challenge, what do you mean" were based on responses and analysis between interviews. Paraphrasing was used and repeated to the participants during the interviews, which allowed them to confirm their responses or further elaborate.

Data analysis followed a number of steps [28-31] The first step used both initial and focused coding, which developed categories from the words and lines in the written transcripts. In vivo coding used the participants' own words as a code. Memo writing, which included interpreting findings and creating an audit trail, began with the first interview. The next step was constant comparative analysis, whereby data and categories were compared for similarities and differences with concepts. Theoretical comparisons analyzed the categories surrounding health information exchange use. There was a concern that one participant may have been coached before the interview because when asked to describe frequency of health information exchange use, the participant used the ED department's overall health information exchange usage rate as an individual rate. These data were flagged during analysis. M.A.C. helped develop properties and categories and S.A.T., M.A.C., and J.E.B. discussed and agreed to the themes and interpretation. We arranged the categories into 5 higher-order themes (Figure 1) to summarize a theoretical interpretation.