Improving Access to Clinical Information in an Emergency Department: a Qualitative Study

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Abstract
We studied the information flow in an emergency department (ED) to understand how patient information was received and shared between providers and how information from a computerized ambulatory system, which was not well-integrated with the hospital information system at the time, could be used. The study was aimed at identifying possible methods that could push information from the ambulatory system to providers with minimal interference with the ED’s current workflow. Using observations and interviews, the ED’s information flow was mapped and a strategy for making ambulatory encounter information available was identified.

Background
In an emergency department (ED), providers typically have to provide care to patients in a timely manner with limited information. Information related to the patients’ illness is obtained through various sources including directly from patient and family or faxed records from ambulatory care providers, and previous history in the hospital’s clinical information system. Studies show that there are still parts of the patients’ medical histories that are generally not known or acquired by providers, particularly information from past ambulatory encounters. This information gap is prominent especially in an ED where ambulatory and hospital information systems are not well-integrated.

We conducted a qualitative study in a 147 bed suburban hospital’s ED in order to understand how patient information was collected, acquired, documented, and used at each step of the workflow starting from patient arrival and ending with discharge from the ED. This understanding allowed us to suggest where and how information available from other information systems could help providers in the ED with their patient care.

Method
Semi-structured observations and interviews were employed. A total of eight visits to the ED during June-September 2007 were conducted. A total of nine patients and 39 providers were observed. The total observation time was 54 person-hours. Selected individual patients were followed from their arrival until they were being monitored in the treatment room or discharged. At least two researchers observed the same event simultaneously and recorded their observations independently. After each observation, researchers conducted content analysis, discussed and summarized their findings.

Results and Conclusions
The ED’s clinical information flow was mapped. The clinical information flow was slightly different at the starting point of ED encounter depending on patients’ arrival mode, whether it was a walk-in or emergency medical service arrival. Information flow between ED’s providers was multidirectional in both a linear and a recursive fashion. Many communication tools including telephones, pagers, personal intercoms, the Internet and verbal communications were used for collaboration among providers. Health unit coordinators played a significant role in seeking and retrieving previous patient information from both internal and external systems, as requested by physicians and other providers.

The ED’s providers used both paper-based and computerized medical record systems. The electronic medical record systems were fragmented with many partially integrated departmental systems. The ambulatory medical record system used by the healthcare system’s affiliated clinics was not integrated with the hospital information system. Though physicians could access the ambulatory medical record system to view patients’ records at the clinics, it was not regularly used. Direct information from patients and previous records from the hospital’s electronic medical record system were the two major clinical information sources. Different and multiple logins and passwords were one of the barriers that discouraged physicians from looking for additional information. Providers’ effort to seek patients’ previous relevant information varied by patient load at the time, complexity and severity of illness, and physicians’ age, experience and personal style.

An option for pushing patient information from the ambulatory system to ED’s providers with minimal workflow interference was identified. It is to have a registration clerk attach a “sticky” flag to the paper chart if the patient is already in the registration system. The flag serves as a visual reminder to look for the ambulatory information. This is a good but not perfect indicator that a patient already has information in the ambulatory system since the two share a common master patient index. In addition, we propose to simplify technical access to the ambulatory system by reducing the number of clicks to the login screen and assuring that all providers have the necessary access. This option was designed to minimize the number of unsuccessful searches for the ambulatory information and to give the providers a choice about accessing the information based on their professional judgment.

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