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Variation in Use of Informatics Tools Among Providers in a Diabetes Clinic

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Abstract

Direct observation and semi-structured interviews were used to examine variability in health information technology (HIT) use among four nurse practitioners (NP) and four physicians (MD) in an ambulatory diabetes clinic. One of the goals of the study was to understand the rationale behind variability in HIT use and to assess the impact of this variability on patient care. The study provides direction for future design to improve usability and efficiency.

Keywords:

qualitative research, observation, interviews

Introduction

We investigated workflow and information flow in an ambulatory specialty clinic, the Vanderbilt Eskind Diabetes Clinic. Variability of use of HIT among providers was examined as part of the study, and analyzed for impact on patient care. The variability reveals some of the strengths and weaknesses of existing HIT and provides suggestions for modifications.

Methods

The clinic provides diabetes care to approximately 6000 patients, who typically visit the clinic at 3-month intervals. Clinic providers have been using an electronic medical record (EMR) for approximately 3 years. All 8 providers had equal access to HIT features and training except for dictation software, which was available only to the physicians. Verbal assent was obtained from staff and providers prior to direct observation in offices, work areas, hallways, and exam rooms. Patients gave verbal assent prior to observation of patient-provider interactions. We conducted 52 hours of observation in the clinic. Observational data were supplemented through the use of semi-structured interviews.

Results

Use of HIT in the clinic can be grouped into three categories. Information access included examining existing data in the EMR. Information input involved altering existing data or entering new data. Communication involved using the EMR to communicate with others. Use of HIT varied both within and between the groups of providers and variability extended across all three categories of use (Table 1).

Table 1 – Variability in HIT use

Functionality	NP				MD			
	1	2	3	4	1	2	3	4
Category: Information Access								
Look up information (in exam room)	◢	◢	◢	◢	◢	◢	◢	◢
Look up information (outside exam room)	◢	◢	◢	◢	◢	◢	◢	◢
Graphical views of patient data	◢	◢	◢	◢	◢	◢	◢	◢
Category: Information Input								
Input note (in exam room)	◢	◢	◢	◢	◢	◢	◢	◢
Correct data in record (in exam room)	◢	◢	◢	◢	◢	◢	◢	◢
Input note (outside exam room)	◢	◢	◢	◢	◢	◢	◢	◢
Dictation software	◢	◢	◢	◢	◢	◢	◢	◢
Category: Communication								
Message basket communication	◢	◢	◢	◢	◢	◢	◢	◢
Write prescriptions	◢	◢	◢	◢	◢	◢	◢	◢
Patient portal	◢	◢	◢	◢	◢	◢	◢	◢
Non-secure email with patients	◢	◢	◢	◢	◢	◢	◢	◢

◢ Uses routinely
◢ Uses sometimes (not routinely)
◢ Uses rarely or never

Discussion

Variability of providers' HIT use has implications for both patient care and informatics design. Understanding the rationale for variability provides direction in the redesign of current applications and suggestions for features of new HIT. Direct observation and interviews can provide critical data about whether informatics tools are meeting user needs and supporting their workflow and can help guide design.

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