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

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Introduction

- Study conducted in the Vanderbilt Eskind Diabetes Clinic
- Examined variability of electronic medical record (EMR) use and assessed impact of variability
- Clinic: outpatient clinic providing speciality care to over 6000 patients with diabetes
  - EMR used by clinic providers for ~3 years

Methods

- Observed 4 physicians (MD) and nurse practitioners (NP) during their daily work including patient interactions
  - 52 hours of observation (18 hours for MDs, 18 hours for NPs)
- Took detailed notes during observation with focus on interaction between people, processes, and technology
- Supplemented observations with semi-structured interviews

Similarities in EMR usage

- Providers gathered information from the EMR prior to visiting patient
- Consulted EMR to clarify information or understand medical history
- None of the providers completed all of their documentation while with the patient
- All providers utilized secure messaging features

Variability in EMR usage

- EMR as information repository vs integrated tool for disease management
- A few of the providers started notes in the EMR while in the exam room, most did not
- Use of graphical displays of data
- Time to complete patient documentation varied, dependent on EMR use in exam room
- Only MDs had access to dictation software

Information Access: Examining data already in EMR

Functionality	NP				MD			
	1	2	3	4	1	2	3	4
Look up information (in exam room)	●	●	●	●	●	●	●	●
Look up information (outside exam room)	●	●	●	●	●	●	●	●
Graphical views of patient data	○	●	○	○	○	●	○	○

● Uses routinely
◐ Uses sometimes (not routinely)
○ Uses rarely or never

Information Input:
Altering existing data, entering new data

Functionality	NP				MD			
	1	2	3	4	1	2	3	4
Input note (in exam room)	●	○	●	◐	○	○	○	○
Correct data in record (in exam room)	●	●	●	●	●	◐	◐	◐
Input note (outside exam room)	●	●	●	●	●	●	●	●
Dictation software	○	○	○	○	●	●	●	●

● Uses routinely
◐ Uses sometimes (not routinely)
○ Uses rarely or never

Communication:
Using the EMR to communicate with others

Functionality	NP				MD			
	1	2	3	4	1	2	3	4
Message basket communication	●	●	●	●	●	●	●	●
Write prescriptions	●	◐	○	○	○	○	○	●
Patient portal	●	●	●	●	●	●	◐	●
Non-secure email with patients	●	●	●	●	○	○	○	○

● Uses routinely
◐ Uses sometimes (not routinely)
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Discussion

- All 8 providers had access to the same EMR in the same clinical environment and were treating the same disease in the same patient population
- Expectation: similar patterns of EMR adoption and use
- Observation: substantial variability in use
- Implication: providers not taking advantage of all EMR features - why not?

Contributors to variability

- Familiarity with the EMR features
- Typing ability
- Workload
- Patient needs
- Personal preferences

Implications for EMR design

- Redesign system to better fit user needs, abilities, and workflow
  - Pursue alternative approaches to data entry
  - Better match technology to workflow
- Workarounds point to need for new functionality or alternative implementation of existing functionality
- EMR modifications to promote standardization

Acknowledgements

- This research was supported by a National Library of Medicine Training Grant, #T15 LM007450-04
- The authors also would like to thank Nancy Lorenzi and Kevin Johnson for their contributions to this project.