Identifying care providers’ and clinic staff members’ attitudes toward electronic medical records: An application of the technology acceptance model

Elizabeth M. Glowacki
Dron Mandhana
Heidi Shalev
Ronnie Castello

Moody College of Communication, University of Texas at Austin
Austin Regional Clinic
Electronic Medical Records (EMRs)

Presence in Healthcare
- 78% physician offices
- 84% emergency departments

Facilitators to Use
- Trained personnel
- Patient engagement

Barriers to Use
- Security concerns
- Lack of standardization
Electronic Medical Records (EMRs)

Patient Portals

- Access personal and family health information
- Password-protected, customizable
- Lab results, appointments, medications
- Messaging
Technology Acceptance Model

- Adoption of new technologies in organizations
- Perceived usefulness and ease of use
- Relevance to job
- Subjective norms – others’ attitudes
- Patients and providers engage with or reject health technologies
Objectives

Apply Technology Acceptance Model to assess EMR:

1.) Adoption within local clinic

2.) Impact on workload

3.) Utilization among multiple roles
Objectives

RQ1: How do primary care physicians, nurses, and clinic staff describe their attitudes toward the clinic’s EMR system?

RQ2: How do primary care physicians, nurses, and clinic staff describe patient engagement with the clinic’s EMR system?

RQ2: How do primary care physicians, nurses, and clinic staff describe the effect of the clinic’s EMR system on workload?
Method

Semi-structured, audio-recorded interviews (N=39)

- 11 primary care physicians (family, internal, or extensivist medicine)
- 9 nurses (registered nurses, licensed practical nurses, triage nurses)
- 6 administrative or management positions
- 5 medical assistants
- 5 patient care coordinators
- 3 referral coordinators
Method

Worked with administrative team to develop interview topics:

– Reasons for engaging with portal
– Patients’ perceptions and adoption of portal
– Portal as a communication tool
– Opportunities for improvement
– Benefits of using the portal
– Training opportunities
– Workflow
Results

Themes:

1.) Appropriate use and educating patients about meaningful engagement

2.) Active versus inactive users

3.) Mixed reactions to age as a barrier

4.) Increases and decreases in workload

5.) Need for a message filtering process
<table>
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<tr>
<th>Theme</th>
<th>Example</th>
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<tr>
<td><strong>Educating Patients about Meaningful Engagement and Appropriate Use</strong></td>
<td>“It’s like giving the patient a master key to the building. It's great for the ones that read it and pay attention and do it the right way, it's great. Then there are some that really just don't and they’ve figured out how to wiggle the system. It's not there yet. The visit types are always incorrect. Or sometimes they all come for four other reasons and try to get one appointment” (Interview 21).</td>
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<td><strong>Active Versus Inactive Users</strong></td>
<td>“A lot of them have lost their passwords or don't remember it and then they have to reactivate it, or they come back and say, ‘I never got my results.’ Well, you're on [name withheld] we sent it there. They're like, ‘I don't even look at [name withheld]'” (Interview 19).</td>
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<td><strong>Age as an Indicator of Use</strong></td>
<td>“I think the younger person probably just wants a quick answer. They don't want to write five paragraphs. The older person, that's where I've seen where I've gotten it more is my older, retired person who has more time and has all kinds of questions” (Interview 14).</td>
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<td><strong>Effect on Workload</strong></td>
<td>“It has really decreased my workload, mostly because the doctor sends the lab results straight to the patient through email when I used to be the one calling them back and now I don't even do that. It frees me up to do other things, refills and direct patient care, stuff like that. The electronic medical records part really has decreased my workload” (Interview 1).</td>
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<td><strong>Message Filtering</strong></td>
<td>“It's made my workload probably increase, but in a good way. It makes it go much smoother, because I can do more. I'm not just stuck on the phone for 9 hours a day. That's nice. I like it a lot” (Interview 3).</td>
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<td><strong>Message Filtering</strong></td>
<td>“I think [the distributor coordinator] sees all of the messages and routes them to the specific places they need to go, or takes them away. All the superfluous messages that patients send to doctors all the time that the doctor doesn't need to see, he takes them, deals with it” (Interview 5).</td>
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<td><strong>Message Filtering</strong></td>
<td>“I [distributor coordinator] am the first person to see the initial message from the patient. I decide if I can respond to it immediately or if I need to send it to the clinical staff or the doctor or to billing, referrals” (Interview 10).</td>
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Conclusions

• Most salient concern from nurses and staff had to do with *appropriate use* of the messaging and appointment-scheduling features
  – Frustration with patients who abuse the messaging feature
  – Patients tried to schedule appointments through the EMR in emergency situations or did not allow for enough time

• Importance of *educating patients* about meaningful engagement
  – Nurses described walking their patients through the activation process if they had time
  – Ask patients about whether or not they like to use technology and email, which can be helpful for deciding if a patient will actually benefit from the EMR

• Age more of a factor for doctors, but less relevant when identifying barriers to use among patients
  – Comfort with and attitudes toward new technology was a better predictor than age
Conclusions

• Identifying “active” versus “inactive” users
  – Problems with patients who initially activated their EMRs, but never returned to it (unaware of lab results and messages from doctors)

• Impact on workload
  – Both increased and decreased - respond to more messages, but spent less time on the phone with a patient or calling a pharmacy for refills

• Emphasis on staff and specialization of roles
  – Process of responding to patients’ messages had been improved by the clinic’s recent effort to implement a message filtering process
  – Staff screened and streamlined messages - only those having to do with the patient’s medical condition reached the doctor’s team
Technology Acceptance Model

- Perceived Usefulness
  - Meaningful Use (user status, log-in info.)
  - Appropriate Use (scheduling, messaging)
- Ease of Use
  - Message Filtering
  - Trained Staff
- Relevance to Job
  - Encouraged Use
  - Highly Relevant
- Subjective Norms/Others’ Attitudes
  - Use among Team (Doctor/Nurse/Med. Assistant)

Adoption and Engagement
Thank You

Elizabeth Glowacki
glowacki@utexas.edu