How Usable are Patient-Accessible Electronic Medical Records by Underserved Populations?

EMR Consumer Usability Tests

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Presentation Objectives

- Provide brief overview of Health IT.
- Describe current R21 study.
- Present some preliminary findings.
- Describe next steps.

Health Information Technology (HIT)

- Continual rise in the use of HIT
  - Rapid developments in healthcare applications (e.g., e-Health)
  - Projected cost savings and health benefits
  - Responsibility for health increasingly shifting to the consumer
  - Government support (HITECH)
    - Adoption of electronic medical records (EMRs) by providers with incentives for “meaningful use”
  - Development of “patient portals” to EMRs

Patient Portals to EMRs

- Online health record tethered to a provider's EMR system
- Allows the consumer to perform key health related tasks
- Little is known about the how underserved consumers with low literacy and/or low health literacy are able to meaningfully use portals

Overview of Study

Objectives:

1) Identify facilitators & barriers to underserved consumers' use of portals through methods from health literacy and human factors engineering.

2) Focus on three common functions of patient portals:
   - Medication management
   - Lab/test results
   - Health maintenance/disease prevention – cancer screening

3) Develop preliminary best practice guidelines for the design of current and future EMR systems to inform a larger RCT.

Methodology

- Conduct focus groups with consumers in our target population.
- Conduct task analyses and health literacy load analyses of targeted tasks using 3 existing patient portals.
- Conduct usability tests of 3 existing patient portals.
- Analyze data and develop preliminary best practice guidelines for design.

Focus Groups & Task & Health Literacy Load Analyses

- Focus groups enthusiastic about the concept of patient accessible EMRs
  - "Information is power"

However …

- Task analyses identified complexity of steps required for users to complete core functions
- Health Literacy Load (HLL) analyses identified high HLL or demand in content

Usability Testing

Protocol:

- Participants recruited from Mount Sinai Hospital and CBOs in E. Harlem and Queens.
- Inclusion criteria:
  - High School Graduate/GED or less
  - 21-75 years
  - Speak and read English
  - New York City Resident
- Basic Computer and Internet training for all participants, regardless of prior experience.
- Pre-Testing Questionnaires:
  - Demographics
  - Prior Technology and Internet Use
  - Newest Vital Signs

Usability Testing

- Usability testing (individual basis):
  - Assume fictitious patient
  - Interact with all three systems (order counter-balanced)
  - Perform a series of tasks with each system while “talking aloud” about their experience
  - Data capture of on-screen performance of each task (Morae 3.2)
- Administration of post usability questionnaire.

Usability Testing: Preliminary Data

Study Sample

- 54 participants
  - Age:
    - $\bar{x}$ = 41.0, range = 22-62 years, SD = 11.7
  - Gender: 16 males / 38 females
  - Race (of all ethnicities):
    - 7% White
    - 61% Black
    - 4% Asian
    - 22% Some other race
    - 6% More than one race
  - Ethnicity:
    - 39% Hispanic, Latino or Spanish origin

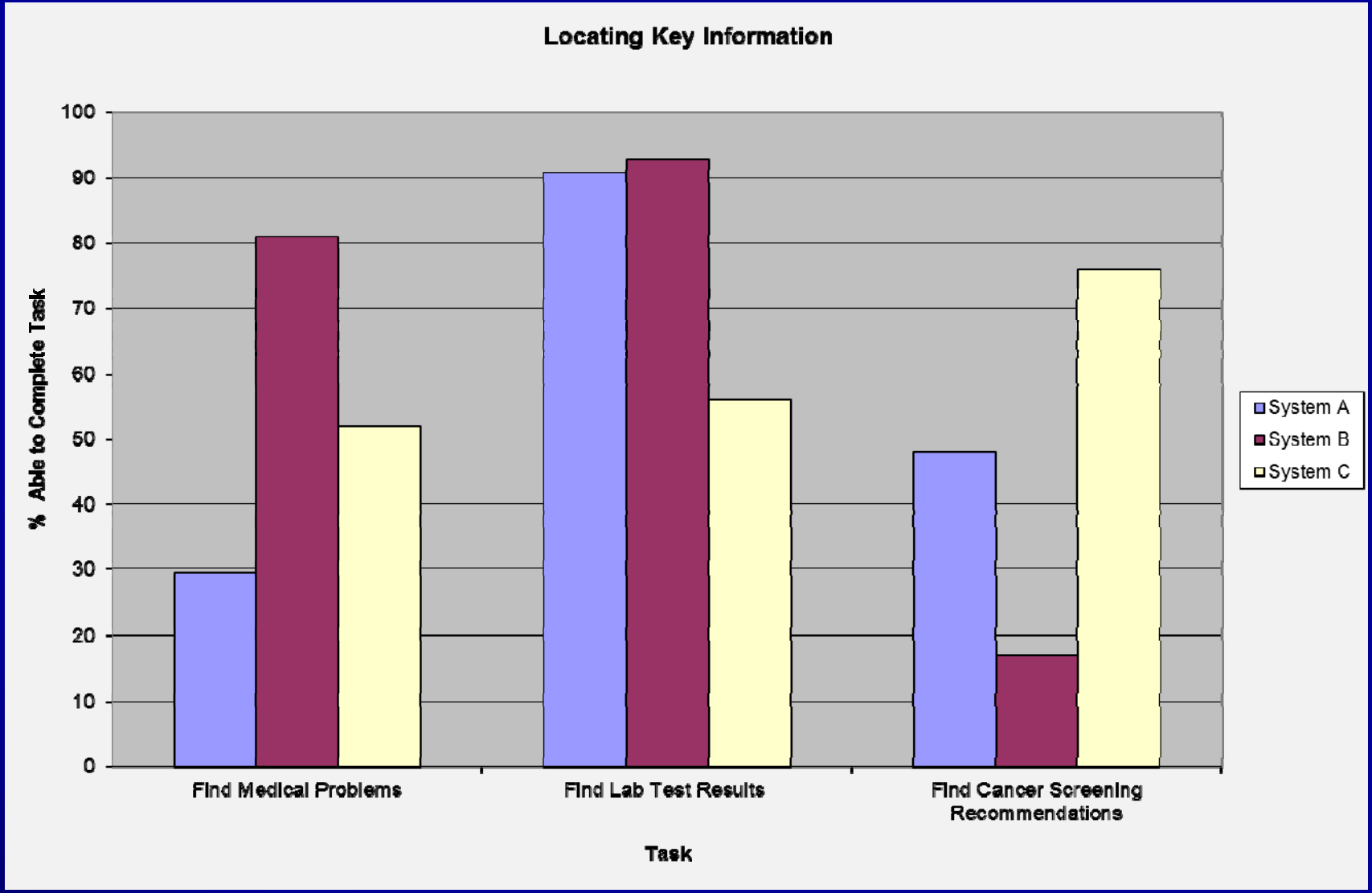
Study Sample

- Education
  - 52% High school graduate/GED
  - 48% Did not graduate from HS or have GED
- Income:
  - 78% reported household income under $20,000/yr
- Health Literacy:
  - 15% scored in the adequate range on the Newest Vital Signs

Locating Information Tasks

- “Find the place where you can find out about this patient’s medical problems.”
- “Go to the place in this portal where this patient could find information about their lab test results.”
- “Find if there are any cancer screening tests that this patient should have.”

Task Performance (locating information)



Lab/Test Result Interpretation Task

- “What are this patient’s numbers for cholesterol?”
- “According to the patient portal are this patient’s numbers normal or not normal?”

Task Performance (lab/test results)

- Only 49% of participants correctly interpreted cholesterol results across all three portals
- By portal:
  - 57% System A
  - 85% System B
  - 78% System C

Lab/Test Result Interpretation Task

[Video clip of participant
using a patient portal*]

Short Cholest Stat trim.mov

* Participant consented to public viewing of recording

Post-Usability Test Questionnaire

- 94% of participants said they would use a secure electronic patient portal to view their personal health information
  - Of these participants:
    - 87% Agreed it would make it easier to get their health info
    - 81% Agreed it would be useful to them
    - 61% Agreed it would help them to be healthier

If You Build It, Will They Come?

"People think of the internet for so many things … you got the youngsters using it for games, the media process, but this thing is so informative. Who would think that I could sit home and I can pull up my medical record … email my doctor … and reschedule my appointment? These portals are very informative and very helpful." - "A"

Next Steps …

- Complete quantitative and qualitative analyses of usability test data.
- Review data from the usability tests in conjunction with task analyses and health literacy load analyses to develop best practice guidelines for patient portal design.

“Access to appropriate information is particularly difficult for those who need it most. The vicious circle of low education and low health literacy and low income, poor health, and the inaccessibility of information technology, can only be broken if the field is not left to market forces alone but if public health policy actively brings information technology to those who are underserved.”

(Eysenbach, 2000)