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Empowering Patients: Rural Healthcare and Chronic Conditions

Session 406, March 7, 2018

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Conflict of Interest

Kristina Sheridan

Principal Investigator

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Have no real or apparent conflicts of interest to report.

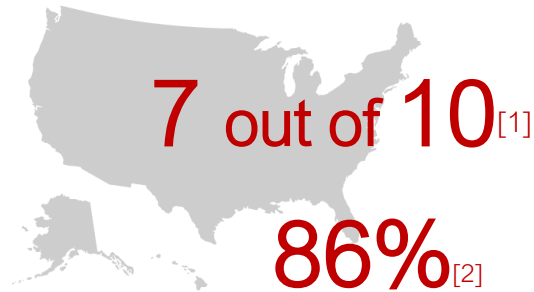
Agenda

- Introductions
- Chronic illnesses and rural areas
- Needs of patients around the management of chronic conditions
- Patient Toolkit use case
- Steps to make health IT available to patients
 - Potential barriers to the adoption of patient-facing technologies
 - Study design to address those barriers
 - Usability test and tips on how to conduct a usability test
- Facilitated discussion

Learning Objectives

- 1 List the needs of patients who are living with chronic conditions in regards to self-management
- 2 Identify the major barriers to adoption of patient-facing health IT tools in rural areas
- 3 Discuss the clinical study design needed to evaluate the impact of patient-facing tools in rural areas
- 4 Develop a step-by-step procedure for a usability test of patient-facing health IT tools

Burden of Chronic Conditions



Created by Bence Bezeregy
from Noun Project

CHRONIC DISEASES ARE THE
LEADING CAUSE OF DEATH AND
DISABILITY IN THE UNITED STATES
and GLOBALLY

CHRONIC DISEASES ACCOUNT FOR
MOST HEALTHCARE SPENDING IN
THE UNITED STATES



Created by Krisztián Mátyás
from Noun Project

[1] Centers for Disease Control and Prevention. Leading causes of death and numbers of deaths, by sex, race, and Hispanic origin: United States, 1980 and 2014 (Table 19). Health, United States, 2015. [https://www.cdc.gov/nchs/data/15.pdf#019](https://www.cdc.gov/nchs/data/hus/15.pdf#019)[PDF – 13.4 MB]. Accessed June 21, 2017.

[2] Gerteis J, Izrael D, Deitz D, LeRoy L, Ricciardi R, Miller T, Basu J. *Multiple Chronic Conditions Chartbook*. [PDF – 10.62 MB] AHRQ Publications No, Q14-0038. Rockville, MD: Agency for Healthcare Research and Quality; 2014. Accessed November 18, 2014

[3] World Health Organization. Integrated Chronic Disease and Prevention. http://www.who.int/chp/about/integrated_cd/en/

Why focus on chronic illness in rural areas?



- Patients experience higher rates of chronic illness^{1,2}
- Transportation barriers contribute to primary medication non-adherence³ and avoidance or delay of care due to distance⁴

[1] Bushy, A. (2009). A Landscape View of Life and Health Care in Rural Settings. Handbook for Rural Health Care Ethics: A Practical Guide for Professionals. <https://geiselmed.dartmouth.edu/cfm/resources/ethics/chapter-02.pdf>

[2] O'Connor, A. et al. 2012. Rural-urban disparities in the prevalence of diabetes and coronary heart disease. Public Health. 126(10):813-20 SOURCE: McKinsey Healthcare Practice

[3] Wroth, T. et al. 2006. Primary Medication Adherence in a Rural Population: The Role of the Patient-Physician Relationship and Satisfaction with Care. JABFM. vol. 19 no. 5 478-486

[4] DPHHS Montana. 2011. [Burden of Chronic Disease and Unintentional Injury in Montana.](#)

Objective #1. Needs of Patients

Self-management support

- Symptom management support
- Self-monitoring of symptoms
- Insight into health status
- Drug management support, including reminders

Communication with providers

- More in-depth patient-provider conversations
- Online communication with providers
- Improved follow-up/coordination of care

eHealth Tech

- Tailored toward patients
- Easy to use technology
- Accessible at home
- Requires as few actions as possible

Huygens, M., Vermeulen, J., Swinkels, I., Friele, R., Van Schayck, O., P. de Witte, L., Expectations and needs of patients with a chronic disease towards self-management and eHealth for self-management purposes. *BMC Health Service Research*. 2016; 1472-6963. DOI: <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-016-1484-5>

Jerant, A., Friederichs-Fitzwater, M., Moore, M. Patints' perceived barriers to active self-management of chronic conditions. *Patient Education and Counseling*. 2005; V 57, Issue 3, Pages 300-2007. DOI: <http://www.sciencedirect.com/science/article/pii/S0738399104002605>








- Patient Toolkit: a telehealth tool, designed to engage patients and providers in the management of chronic disease.
- Goal: to demonstrate how patient-facing tools improve patient-provider communication, health outcomes, engage patients, and reduce readmissions by gathering longitudinal data on patients that can be seen by the patient and shared with the healthcare provider.

The Patient Toolkit



Objective #2. Barriers to adoption (1 of 2)

mHealth apps have the potential to improve the self-management of chronic conditions across populations; however, not accounting for potential barriers in the environment where the tool will be utilized can hinder the adoption of these technologies ¹.

-  Complexity of the technology (ease of use) ³
-  Usefulness of technology ⁴
-  Lack of access to internet ²
-  Speed of internet at the clinic ⁴
-  IT support needed by the provider/patient ⁴

[1] Thies K, Anderson D, Cramer B. Lack of Adoption of a Mobile App to Support Patient Self-Management of Diabetes and Hypertension in a Federally Qualified Health Center: Interview Analysis of Staff and Patients in a Failed Randomized Trial. Santana-Mancilla P, ed. JMIR Human Factors. 2017;4(4):e24. doi:10.2196/humanfactors.7709. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5645643/>

[2] Moore, S.L. et al. A mobile health infrastructure to support underserved patients with chronic disease. *Healthc (Amst)*. 2014 Mar;2(1):63-8. doi: 10.1016/j.hjdsi.2013.12.016. Epub 2014 Feb 5.

[3] Fischer SH, David D, Crotty BH, Dierks M, Safran C. Acceptance and Use of Health Information Technology By Community-Dwelling Elders. *International journal of medical informatics*. 2014;83(9):624-635. doi:10.1016/j.ijmedinf.2014.06.005.

[4] Jorie M. Butler, Marjorie Carter, Candace Hayden, Bryan Gibson, Charlene Weir, Laverne Snow, Jose Morales, Anne Smith, Kim Bateman, Adi V. Gundlapalli, Matthew Samore. Understanding Adoption of a Personal Health Record in Rural Health Care Clinics: Revealing Barriers and Facilitators of Adoption including Attributions about Potential Patient Portal Users and Self-reported Characteristics of Early Adopting Users AMIA Annu Symp Proc. 2013; 2013: 152-161. Published online 2013 November 16.

Objective #2. Barriers to adoption (2 of 2)

mHealth apps have the potential to improve the self-management of chronic conditions across populations; however, not accounting for potential barriers in the environment where the tool will be utilized can hinder the adoption of these technologies ¹.



Data storage and privacy concerns ³



Increased workload ⁵



Length of data entered by the patient ⁴



Usefulness of data for providers ⁴



Sustainability, lack of funding ⁵

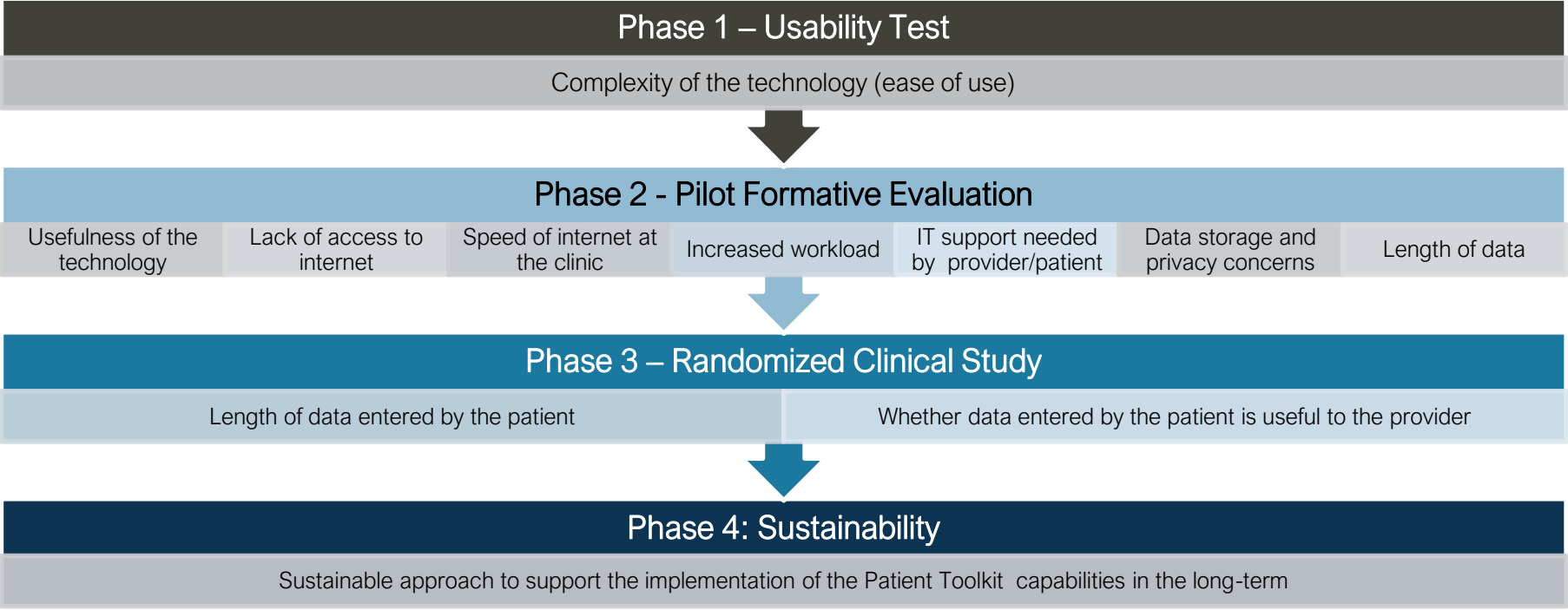
[1] Thies K, Anderson D, Cramer B. Lack of Adoption of a Mobile App to Support Patient Self-Management of Diabetes and Hypertension in a Federally Qualified Health Center: Interview Analysis of Staff and Patients in a Failed Randomized Trial. Santana-Mancilla P, ed. JMIR Human Factors. 2017;4(4):e24. doi:10.2196/humanfactors.7709. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5645643/>

[3] Fischer SH, David D, Crotty BH, Dierks M, Safran C. Acceptance and Use of Health Information Technology By Community-Dwelling Elders. International journal of medical informatics. 2014;83(9):624-635. doi:10.1016/j.ijmedinf.2014.06.005.

[4] Jorie M. Butler, Marjorie Carter, Candace Hayden, Bryan Gibson, Charlene Weir, Laverne Snow, Jose Morales, Anne Smith, Kim Bateman, Adi V. Gundlapalli, Matthew Samore. Understanding Adoption of a Personal Health Record in Rural Health Care Clinics: Revealing Barriers and Facilitators of Adoption including Attributions about Potential Patient Portal Users and Self-reported Characteristics of Early Adopting Users AMIA Annu Symp Proc. 2013; 2013: 152–161. Published online 2013 November 16.

[5] U.S.D.H.H.S. Patient Provider Telehealth Network – Using Telehealth to Improve Chronic Disease Management. 2012 June. https://www.healthit.gov/sites/default/files/pdf/RCCHCandPHS_CaseStudy.pdf

Objective #3. Study Design (1 of 2)



Objective #3. Study Design (2 of 2)



Phase 1 – Usability Test

Design: Scenarios
Participants: 16
Time: 1 week
Status: Completed



Phase 2 - Pilot Formative Evaluation

Design: Formative Evaluation
Participants: 40
Time: 4 weeks
Data Collection: 6 surveys and patient-generated data captured using the Patient Toolkit
Data Storage: Server at the clinic



Phase 3 – Randomized Clinical Study

Design: Randomized Clinical Study
Participants: 200
Time: 6 months
Data Collection: Validated surveys and data collected using the Patient Toolkit
Data Storage: Server at the clinic



Phase 4 - Sustainability

Develop a strategy proposal informed by lessons learned through phases 2 and 3 on how to integrate the Patient Toolkit capabilities into the current workflow to make it more accessible to patients and providers

Objective #4. Usability Test Considerations

- Identify the purpose of the usability test
- Determine appropriate measures
- Determine what is the best design for your test
- Patient Toolkit use case:
 - **Purpose:** Identify usability issues that would affect measuring the impact of the Patient Toolkit capabilities
 - **Measures:** Functionality, software malfunction, learnability, efficiency satisfaction, determine if the device itself would be a barrier to the use of the Patient Toolkit
 - **Design:** Scenario testing, session length (60 minutes), 15 scenarios, open-ended question at the end



Objective #4. Usability Test Considerations



Usability Test - Participants Considerations

■ Target audience

- Conduct your usability test with members of the intended audience. Consider who would benefit the most from your technology.
- *Patient Toolkit use case: Conducted the usability test with patients who met the same criteria for the recruitment of patients in the larger study (patients with chronic health conditions, adults, between the ages of 40 and 69; speak, read, and write in English)*

■ Recruitment considerations

- Consider attrition rate, and your ROI when selecting participants for usability test, audience needs, and confidence level of findings.
- *Patient Use Case: Recruited 15 to 20 patients in a rural setting (4 dropped-out). Took into consideration needs of patients; for instance, transportation is a barrier to medical access in rural areas so we made an effort to schedule usability tests around the times patients had a medical appointment already scheduled.*

Objective #4. Usability Test Considerations



Testing team location

- Tester seat next to the user
- Technical Observer: analyze how the user is using the tool from afar using video cameras
- Note Taker seat

Plan your location!



Equipment position

- Position camera to minimize discomfort of being video recorded

Make the camera “invisible”!



Encourage feedback

- Encourage users to share their opinions and recommendations

Add humor if you can!



Participants' pre-conceptions

- Address participants' pre-conceptions about their abilities to use technology

Make users feel comfortable!

Comfort of Participants

Objective #4. Usability Test Considerations



Materials and test administration

- Develop a script for recruitment and a brief summary to introduce the study
- Consent forms: Read the consent form aloud to participants to ensure they understand what they are agreeing to ¹
- Evaluate need for Institutional Review Board (IRB) submission (consider impact)
- Plan for incentives as part of your budget
 - *Patient Use Case: Read aloud consent form to participants. Gave them the option to decline being video recorded. Each participant received a \$25 gift card at the end of the usability test.*

[1] Aldoory, L., Barret-Ryan, K.E., Rouhani, A.M., Best Practices and New Models of Health Literacy for Informed Consent: Review of the Impact of Informed Consent Regulations on Health Literate Communications

Questions

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Objective 1 – Discussion

Self-management needs for patients with chronic illnesses: *symptom and treatment management, insights into their health status, and effective bi-directional communication with providers.*

Based on your experience in the field, what are some other needs that are important to keep in mind in the development of patient-facing health IT tools?

Objective 2 & 3 – Discussion

Barriers to Adoption

- | | |
|---|---|
| 1. Complexity of the technology (ease of use) ³ | 6. Data storage and privacy concerns ³ |
| 2. Usefulness of technology ⁴ | 7. Increased workload ⁵ |
| 3. Lack of access to internet ² | 8. Length of data entered by the patient ⁴ |
| 4. Speed of internet at the clinic ⁴ | 9. Usefulness of data for providers ⁴ |
| 5. IT support needed by providers and patients ⁴ | 10. Sustainability, lack of funding ⁵ |

- For your use case is this alignment correct, or would you address those barriers in different steps, and why?
- What are the additional barriers that you are running into, and during what step would you address those?

Objective 4 – Discussion

You are awarded a grant to assess a patient portal prototype at the *Family Care Center*. The hospital has decided to invest in this patient portal to increase patients' understanding of their health issues, and the impact of their medications on their health.

- What is the purpose of your usability test?
- What are those critical functions that the tool must be able to do?
- Who is your intended user? What will you take into consideration to select your intended user?
- How many people will you recruit for your usability test?
- List 4 things you need to keep in mind when conducting a usability test

Objective 4 – Discussion

- What is the purpose of your usability test?
 - *Example: To determine if the patient portal prototype is equipped to increase patients understanding of their health issues and the impact of their medications.*
- What are those critical functions that your tool must be able to do?
 - *Example: Provide a list of health conditions (taking into consideration literacy level), provide a list of medications, showing alignment of medications to conditions and potential side effects.*

Objective 4 – Discussion

- Who is your intended user? What will you take into consideration to select your intended user?
 - *Example: patients identified by Family Care Practice as most in need, ensuring expand of demographics are considered*
- How many people will you recruit for your usability test?
 - *Example: 15 to 20 patients (3 to 5 if you have the funding and time to do multiple usability tests)*
- List 4 things you need to keep in mind when conducting a usability test
 - *Example: Heuristic Test, Comfort of Participants, Consent Forms, Recruitment Strategy, Incentives*

Questions

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