

Visual Voicemail for Community Health

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Agenda



- Motivation
- Problem definition through contextual inquiry
- Brainstorming design alternatives
- Visual Voicemail
 - Initial design, prototype iterations
- Demonstration!
- Evaluation design, refinement and results
- Summary and lessons learned

Health care challenges for migrant and low-income people



- Social
 - Unschooled; language barrier
 - Reluctant to register with official/government organizations
 - Transient
- Financial
 - No insurance; don't know about free/subsidized options
 - No transportation
- Health practice
 - Rely on emergency care
 - No habit of seeking preventative care
 - No continuity of care / health history

Existing IT Solutions - EMR



- Electronic medical records (EMR)
 - Made by large IT shops, implemented by consulting firms for hospitals/clinics for billing insurance companies
 - Not centered around the user
 - Records not portable
 - National compliance mandates discourage identity-sensitive users
 - A challenge to implement for grant-funded community health providers

Existing IT Solutions - PHR



- Example: Google Health, Mayo HealthVault, MiVia
- Centered around user, but still requires web browser
- Relies heavily on text, laden with medical terminology
- Used so far by early-adopters with chronic conditions
- Grant-fuel enrollment frenzies != patient engagement

Understanding the Problem



- Understand the requirements for migrant and low income patients to engage in better health practices
- We performed contextual inquiry and observational interviews with
 - Community health providers
 - North East Medical Services (NEMS)
 - Berkeley Free Clinic
 - San Francisco Immunization Clinic
 - Personal health record provider
 - FollowMe
 - Community health promoters
 - California Human Development Corporation

Brainstorming



- For patients
 - o Short messaging?
 - "rich" mobile app?
 - o Audio interface?
- For care providers
 - Web dashboard?

<main menu>

- Welcome; for help press *
- You have X new messages, to listen press #

 (#) * < list messages>
- Press 1 to access issues
 - \circ (1) * <issues menu>
- Press 2 to access services
 - o (2) * < services menu>
- Press 3 for emergency information
 - o (3) * <emergency information>

Inbox

1:04 PM, Mar 2 FROM: 64842 BODY:

Open Clinics for 03/02-21 1)Market & 1st, Salinas 2)Mission & Hyde, Soledad 3)Fruitvale & Farm, Salinas 4)Lancelot & Creekside, Salinas

64842 9:05am

MiVia SMS system – Issue: Broken leg 2009-02-13 (Dr. Feng): How is your leg? We are at Hearst & Oxford again today from 10-6pm if you want a check-up. 555-390-1439 [i4] Back to issue menu [i4ap] Prompt for update

Reply Cancel

Issue: Preg	gnancy 3/2/09
Action	Diary
Recent Action: M.D. Visit Share 03/02/09	Share Took Vitamins
Action: Initial Visit hare 02/28/09 Clinician: John Smith, M.D. Treatment: Information: Reminder: Set - 1 day before	
Edit Action	Edit Action
Add Action	Add Action

Initial Prototype

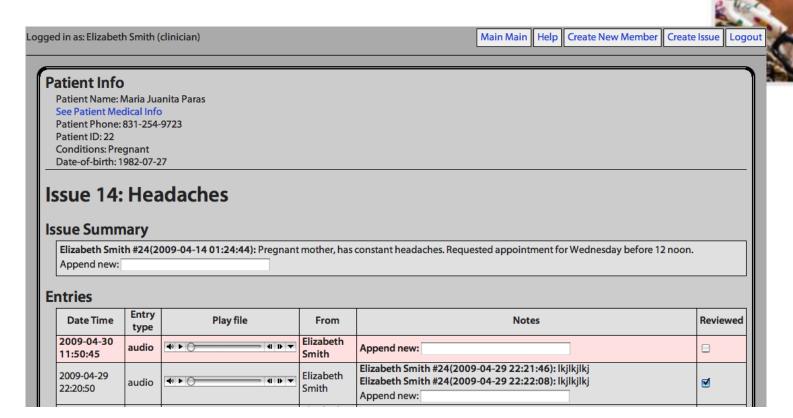


- Included two components of the system
 - A phone interface for indigent, transient, and uninsured people to access information
 - A web interface for community outreach organization staff to review/provide information
- Goal was to facilitate asynchronous communication that would allow community organizations to provide more help to more people and for needy populations to make requests at their convenience

Second Prototype



- We focused our efforts on the web interface and four tasks for clinical and administrative staff in community health organizations
- Staff Personas
 - Elizabeth Smith, Nurse
 - Victor Ruiz, Recruiting/Promoting



Demo



http://www.thedailynathan.com/info213/prototype/

- Tasks
 - Enroll a new patient
 - Listen to a message
 - Record a response
 - Annotate a message
 - View patient emergency information

Experiment and User Testing



- Sample Pool: work related to community health environment.
 - o Age 20-50
- Control: conventional voicemail & handwritten notes on medical records
- Testing: Record observations & questionnaire for user at the end (useful health system?)

Results



- Control: Conventional voicemail & paper annotations
- **Results:** Conventional responses are FASTER
- Feedback: Users liked archiving voicemails, wanted better interface, learning curve
- Future plans: suggestions for community health and collaborative treatment purposes.

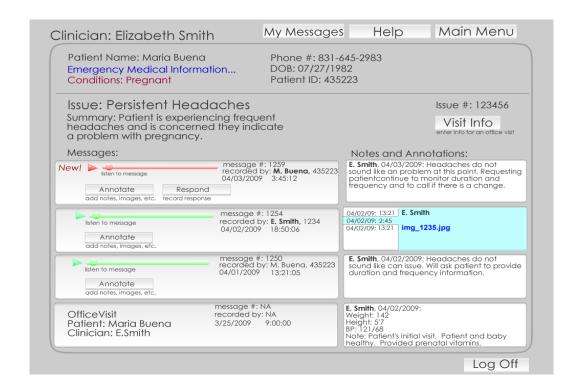
Refinement



- Clearer new messages
- Navigation
- State of message
- "Blank" screen area on right
- Some problems faced were anticipated in initial design

Problems not involving LISTENING & RECORDING to voicemails!

GREAT!



Conclusion



Visual Voicemail has a place in community health and can:

- Engage otherwise disengaged patient populations
- Especially useful for identity-conscious or shy patients
 - Stigma around venereal disease
 - Mental health patients
 - o a person "loveline"
- Facilitate continuity of care between occasional face-to-face encounters
 - Provides interaction model that allows grant-makers to stop requiring f-f encounters as basis of care
- Preserves original patient evidence for referencing cross care providers
- Moves towards a multimedia personal health record

Lessons Learned



- Performing observational interviews
 - Talking to a lot of people is useful
 - May not get the info you want or need immediately
- Design
 - Brainstorm, cull, repeat!
- Testing
 - Testing is also an iterative process
 - Yielded more reliable results as we refined methodology
- Different users needed varying levels of guidance and support
- Need continued user feedback to iterate on our design

Questions and Feedback?



Thanks!