mobile Framework for Healthcare

Adoption of Short-Message Technologies (mFHAST)

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mFHAST – Project Goal

- To provide standards for communicating health services through short message technologies (SMTs) (e.g. SMS, Instant Message, Twitter, etc.)
- To increase opportunities for consumer/patient engagement and timely communication
- To improve communication and response time among providers of health services
mFHAST Status

- Evolved out of HL7 Mobile Health Low & Middle Income Countries (LMIC) sub-workgroup activities
- HL7 project/product (normative standard) in development
- Project approved by HL7 SD April 2015
- Approved by TSC September 2015
- Meeting Thursdays @ 2pm EST
Short-message Tech in Healthcare

- Smoking cessation
- Condition Management
- Disease Management
- Medication adherence
- Clinical and appointment reminders
- Adverse event reporting
- Activity/Fitness Monitors
- Community health mobilization
- Telehealth/eConsultation

- Pandemic Tracking (e.g. Ebola)
- Immunization/Vaccination
- Public Health & Emergency Response
- Health Services Coordination
- Child & Maternal Health
- Surveillance & Tracking
- Health Education
- Vital records
Short-message Basics

- “Short-Message” encompasses the realm of technologies related to SMS, text messages, instant messages (e.g., iMessage, FaceBook Message, Twitter, WhatsApp, Google Chat, Unstructured Supplementary Service Data (USSD) messages etc..)

- Emphasizing brief messages of approximately 160+/- characters

- Low-cost, low infrastructure, low learning-curve

- Currently predicted that instant messaging (MIM) carries upwards of twice the volume (50 billion per day) of messages than SMS (Deloitte 2014)
mFHAST
Short-message Concept

- Short messages within the mFHAST standard are meant to be
  - Brief
  - Low Payload
  - Easily Processed by Humans at its endpoint
  - Orientation is for fast, meaningful communication between people and care providers using garden variety phones with no assumption of having sophisticated apps or services
Short Messages
Example: 160 characters

Mayo Clinic Health System — Franciscan Healthcare patients can choose to receive text message reminders in place of the automated telephone reminder for upcoming clinic, lab and rehabilitation appointments that are made two or more days in advance.

Patients must provide their cell phone number and elect to participate in the service by texting “MCHS” to 622622. Patients who elect to receive this service can sign up anytime to receive reminder texts for all future appointments.
SMS Use Case - Immunization

**National Immunization Campaign**

*Updated data as of February 28, 2012*

**About this program**

National Immunization Program (NIP) is one of the key programs of Government of Nepal. The Nepal Immunization program aims to immunize all children with the main vaccines intended to protect them against polio, measles, and from other vaccine-preventable diseases.

**Immunization Coverage Report**

http://www.nip.org.np

**Veriﬁcation Report (RCS)**

Through SMS

**STEP 1**

Immunization

**STEP 2**

Immunization Coverage Report Through SMS

**STEP 3**

Immunization Report Aggregator

**STEP 4**

General Public

**STEP 5**

Survey Coverage Verification

**STEP 6**

Immunization Supervisor
SMS Use Case – Maternal/Child Health

Set Up Free Appointment Reminders with Text4baby
1. Text REMIND (or CITA for Spanish) to 511411.
2. Enter appointment date. Enter 7/7/2014 as 07072014.
3. Enter appointment description with time, place and purpose (ex. 3pm apt w Dr Parker).
4. Reminder text will be sent three days before and the morning of appointment.
5. You can set up as many reminders as you need, at any time.

Reference: https://www.text4baby.org
SMS Use Case – Ebola Disease Management

Initial set of key Ebola messages is broadcast to all subscribers.

An individual dials *112# from their mobile phone. The service is marketed via mobile, TV, radio and other channels.

A USSD or IVR service is triggered in response to *112#. The service is triggered in response to *112#.

Two basic options:
1. Report a case
2. Request information

SMS Use Case – TB

**SMS + Cue Card Interface**

*General Strengths*
- Can be used with any phone
- Ongoing cost is low (SMS)
- Many workers familiar with SMS

*General Weaknesses*
- Requires basic literacy skills
- Changing survey requires new cue card
- Hard to enter in free-form notes
- No confirmed receipt of data delivery
- Worker can forget or lose cue card
- Quite easy to fake visits (copy old SMS)

**b)**

**Our Results: Accuracy & Efficiency**
- We measured 4.5 errors per 100 entries
- The average interaction was 97 seconds

**SMS Cue Card**

1. **Create a new SMS Message**
   - Press Center Button
   - Select “Messages”
   - Select “Create Message”
   - Select “New Short Message”

2. **Switch to Numeric Input Mode**
   - Press Menu Button
   - Select “Entry Mode”
   - Select “Numeric”

3. **Enter the ID of the Current Patient**
   - Aamir Khan - Press 1
   - Abhishek Bachchan - Press 2
   - Aishwarya Rai - Press 3
   - ...

4. **Enter a Space**
   - Press *

5. **Enter the Patient’s Cough**
   - No Cough - Press 1
   - Rare Cough - Press 2
   - Mild Cough - Press 3
   - Heavy Cough - Press 4
   - Severe Cough (with blood) - Press 5

6. **Check Yourself**
   - Your finished message should be formatted similarly to the following:
   - 10 372 62 68 4 1030007

Short-Message Guideline Examples
Short-Message Standards Needs

- Reducing health data silos due to ad-hoc constructs
- Increased interoperability between interventions
- Improved aggregation and processing of collected data
- Sustainability of data collection and reporting efforts
- Control cost of adoption through development of templates and guidelines
- Re-usability across various interventions and mediums
mFHASt Whitepaper Development

■ Purpose: Scoping, education and feedback gathering within mFHASt Domain

■ Outline:
  ➢ SMT Background
    ■ SMT Workflow
    ■ SMT Structures
  ➢ Methods
    ■ Lit review
    ■ Environmental scan
  ➢ Results & Discussion
    ■ Current domain of SMT interventions
    ■ Standards development implications
HL7 mFHAST Subgroup
Preliminary Findings: Domain
mFHAST
Preliminary Findings: Region
Healthcare Short-Message Technology Promotion & Dissemination

Who to follow

Co.Exist @FastCoExist
Follow

theorizing the feed @abolish..
Follow

APHA @PublicHealth
Follow

Tweets

mfhast @mfhast · Apr 10
Diabetes Text-Message Self-Management Support Program (SMS4BG): A Pilot Study

From the article abstract: "The increasing prevalence of diabetes and costly long-term complications associated with poor glycemic control are issues facing health serv..."

mfhast.org
mFHAST
Examples of Preliminary Implications

- SMT Intervention findings suggest:
  - Ability of targeted text messages to improve lifestyle decisions toward cardiovascular health
  - Effectiveness of SMS mobile health methods for improving frontline health worker adherence to treatment guidelines
  - Opportunity for text-message based reinforcement to increase effectiveness of a behavioral intervention (encouraging increased walking habits)
  - Effectiveness of short messages for increasing adherence to malaria therapies
  - Standards for insulin titration through SMS methods within underserved populations.
Short-message Barriers

- Ad-hoc implementations
- Lack of interoperability
- Security/Privacy/Consent
- Limited Message size
- Stateless (reduced ability for threading of messages)
- Cost of message (although very cheap, can still be a barrier for LMICs depending on the region)
- Governmental and organizational policy and barriers
mFHAST Adoption Pathway of Inquiry

- What is the issue?
- What are the critical variables? (e.g., prioritization, response)
- What are the privacy/security/consent variables required?
- Who initiates/consumes/stores the message?
- What format/architectures are required?
- What are the temporal considerations?
- What are the limitations?
Short-Message Actors

- Healthcare Providers (at all levels)
- Business
- Organizations (e.g., Non-profit, NGOs)
- Governments
- People (Families, Peers, Public)
- Systems
mFHAST Communication Structures

- Coded Response
- Short codes (reference sets)
- Free Text
- Structured Response
- API Interactions & Transformations
mFHAST
Future and Beyond

- Extreme remote (low-bandwidth) and boundary cases
  - Low density population areas
  - High Altitude populations
  - Oceanic and Space exploration

- Transmission speeds
  - Requirements when high throughput is paramount
mFHAST Project Timeline 2016

- Q1-Q2 2016: Environmental Scan, White paper development
- Q3 2016: Comment Only Ballot to be submitted
- Q4 2016: Ballot reconciliation
- Q1-Q3 2017: STU Development
- Q4 2017: STU Ballot to be submitted
Related and Associated Organizations & Projects

SDO/Organizations
- HL7 EHR/PHR / FHIR / Medical Devices / PHER
- WHO eHealth Standardization and Interoperability Recommendations
- ISO/AHIMA/OASIS/IEEE/HIMSS

Initiatives
- Mobile Alliance for Maternal Action (MAMA) in Bangladesh and South Africa
- Millennium Development Goals
- mPowering Frontline Health Workers
- Saving One Million Lives initiative
- Asia e-Health Information Network

Organizations
- US Centers for Disease Control
- U.S. ONC for Health Information Technology
- World Health Organization
- United Nations Foundation
- USAID / UNICEF
- mHealth Alliance
- Johnson & Johnson
- Gates Foundation
Project / Contact Information

- Standing meetings - Thursdays at 2 PM EST

- Project Site: http://mfhast.org/

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