HL7 mFHAST Standard

mobile Frameworks for Healthcare Adoption of Short-Message Technologies

Project of the HL7 Mobile Health Workgroup

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mFHASt Goal

- To provide standards for communicating health services through short message technologies (SMTs) (e.g., SMS, Twitter, etc.)

- Increase opportunities for patient engagement and communication
mFHASt Status

- Evolved out of mHealth LMIC sub-workgroup activities
- New HL7 project/product (normative standard) in development
- Approved by HL7 SD April 2015
- Awaiting approval by TSC
- Meeting Thursdays @ 2pm EST
Short-message Tech in Healthcare

Multiple global short-message studies have reported success in improving health outcomes and activities related to:

- Smoking cessation
- Diabetes
- Weight management
- HIV
- Medication adherence
- Appointment attendance
- Activity/Fitness Monitors
- Telehealth/eConsultation
- Pandemic Tracking (e.g. Ebola)
- Immunization/Vaccination
mFHAST Domain Examples

- Clinical reminders (e.g., appointments, treatments)
- Health Education
- Vital Records
- Disaster Reporting
- Adverse Event Reporting
- Telehealth

- eConsultation
- Community health mobilization
- Public Health and Emergency Response
- Surveillance and Tracking
- Maternal & Child Health
Short-message Basics

• “Short-Message” encompasses the realm of technologies related to SMS, text messages, instant messages, Twitter, Unstructured Supplementary Service Data (USSD), etc.

• Messages composed of approximately 140-160 characters.

• Estimated that upwards of 200,000 SMS messages are sent every second.

• 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).
How does 140 characters feel?

This is an example of 140 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

Reference: http://www.nip.org.np
SMS Use Case - Maternal/Child Health

Findings:
• Increased perception of being prepared to be a mother
• Increased acknowledgment of the dangers of alcohol consumption during pregnancy
• Potential Barrier: Enrollment increases with level of literacy

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


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SMS Use Case - TB

Short-Message Standards Development

Purpose: Scoping and Education of mFHAST Domain

Outline:

- SMT Background
  - SMT Workflow
  - SMT Structures
- Methods
  - Lit review
  - Environmental scan
- Results & Discussion
  - Current domain of SMT interventions
  - Standards development implications
mFHAST Preliminary Findings: Domain
mFHAST 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
- Message size
- Stateless (at its most basic implementation)
- Cost of message
- Governmental and organizational policy and barriers
mFHAST 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

- Space exploration health needs...
- Extreme remote and boundary cases
  - Low density population areas
  - High Altitude populations
  - Oceanic exploration
- Extremely low-bandwidth environments
- Transmission speeds
  - Requirements when high throughput is paramount
mFHAST Project Timeline 2015

- Q1 2015 - PSS submission, Documentation, education, use case development and requirements gathering
- Q2 2015 - Project approval at HL7 Paris Meeting, Use Case development
- Q3 2015 - Environmental Scan, White paper development
- Q4 2015 - Comment only draft developed
- Q1 2016: (1st) Ballot
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. Office of the National Coordinator for Health Information Technology
- World Health Organization
- United Nations Foundation
- USAID / UNICEF
- mHealth Alliance
- Johnson & Johnson
- Gates Foundation

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Appendix
Short-Message Communication Methods

- Reminders
- Broadcasts (e.g., Alerts, Alarms)
- Education/Decision Support
- Structured Data Collection
- Interactive Health Communication