HL7 mFHA Standard

mobile Framework for Healthcare Adoption of Short-Message Technologies

Project of the HL7 Mobile Health Workgroup

Presented By: mHealth Co-Chair, Matthew Graham
Project Lead: mHealth Co-Chair Nathan Botts
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
- Approved by TSC September 2015
- Meeting Thursdays @ 2pm EST
Short-message Tech in Healthcare

A multitude of 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

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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.

• 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)
How does 160 characters feel?

This is an example message of 160 characters:

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut ipsum orci, posuere quis mollis eu, posuere vitae sem. Nam porta condimentum leo, in euismod nullam.
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 - 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

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#.

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

SMS Use Case - TB

Short-Message Standards Development

IN DETERMINING WHETHER AN SMS PLATFORM IS APPROPRIATE FOR DISASTER RESPONSE ACTIVITIES, ORGANIZATIONS SHOULD CONSIDER THE FOLLOWING FACTORS:

1. **Organizational Needs:** The platform should meet the specific needs of the organization.
2. **Logistics:** The platform should be accessible and usable by all stakeholders.
3. **Security:** The platform should have robust security measures to protect sensitive information.
4. **Cost:** The cost of implementing and maintaining the platform should be affordable.
5. ** Scalability:** The platform should be scalable to accommodate future needs.

SMS PLATFORMS SHOULD IDEALLY BE SET UP PRIOR TO MAJOR DISASTERS.

EXISTING NATIONAL SMS SYSTEMS SHOULD NOT BE DUPLICATED (UNLESS THERE ARE CONFLICTING REASONS TO DO SO).

REGULAR CONTACT WITH MOBILE NETWORK OPERATORS TO AVOID WEDGES AND REQUESTS.

A STREAMLINED PROCESS FOR SHORT CODE PROVISIONING SHOULD BE ADOPTED TO AVOID CONFUSION AND DUPLICATION.

SHORT CODE SHARING BY MULTIPLE ORGANIZATIONS SHOULD BE CONSIDERED UNLESS POSSIBLE, AND PROCEDURES REQUIRE THAT THESE ORGANIZATIONS PARTNER WITH EACH OTHER PROVIDING A COORDINATING ENTITY FOR SMS REGULATORY PURPOSES.

ENSURE THAT TEXT MESSAGES ARE NOT Duplicative OR CONTRADICTORY.

A CENTRALISED COORDINATING BODY SHOULD BE IDENTIFIED TO STREAMLINE SMS SERVICES.

FOR RESPONDENTS: CONSIDER THAT MOBILE NETWORK OPERATORS ARE REQUIRED TO BLOCK OR BLOCKED SMS SERVICES IN THE EVENT OF A DISASTER. CONSULT THE SMS SERVICE PROVIDER'S POLICIES AND PROCEDURES.

THE ABILITY TO MONITOR AND EVALUATE THE IMPACT AND APPROPRIATENESS OF THE SERVICE SHOULD BE CONSIDERED AND OUTLINED IN THE TITLE.

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

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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
mFHAST Preliminary Findings: Domain

![Pie chart showing various health domains with percentage distribution]

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Examples of Preliminary mFHAST 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 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
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

- Q3-Q4 2015: Environmental Scan, White paper development
- Q2 2016: Comment Only Ballot to be submitted
- Q3 2016: Ballot reconciliation
- Q1-Q2 2017: DSTU 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. 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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