



mobile Framework for Healthcare Adoption of Short-Message Technologies (mFHASt)



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HL7 Mobile Health Workgroup
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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

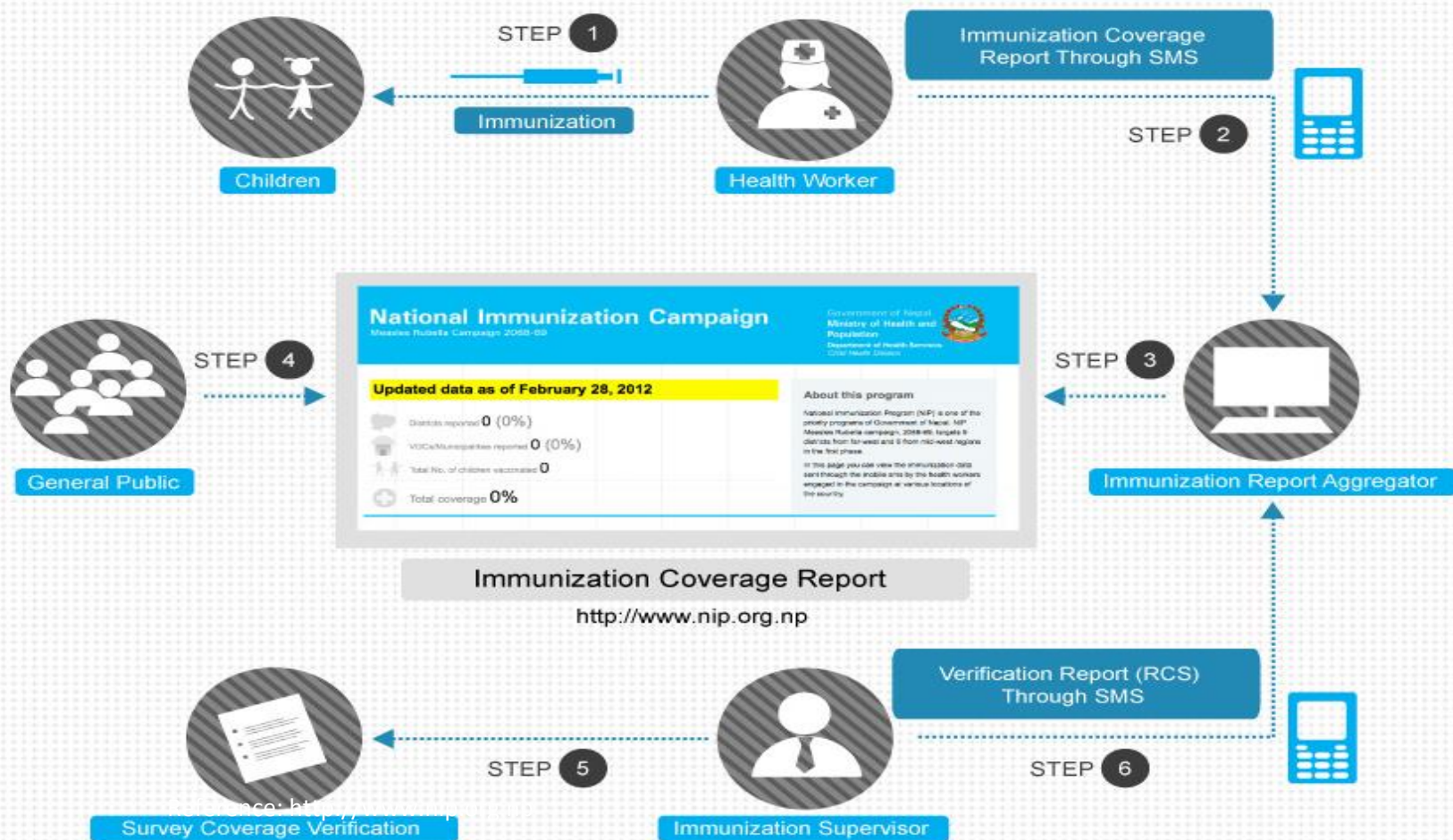
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vivamus eget mauris a nisi ultricies fermentum. Quisque ac rutrum dolor, in dictum augue. Sed volutpat.

SMT Clinical Use Illustration

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



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.

SMS Use Case – Ebola Disease Management



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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

- b) 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)

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 *

11. 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

21. Check Yourself

Your finished message should be formatted similarly to the following:
10 372 62 68 4 1030007

Short-Message Guideline Examples



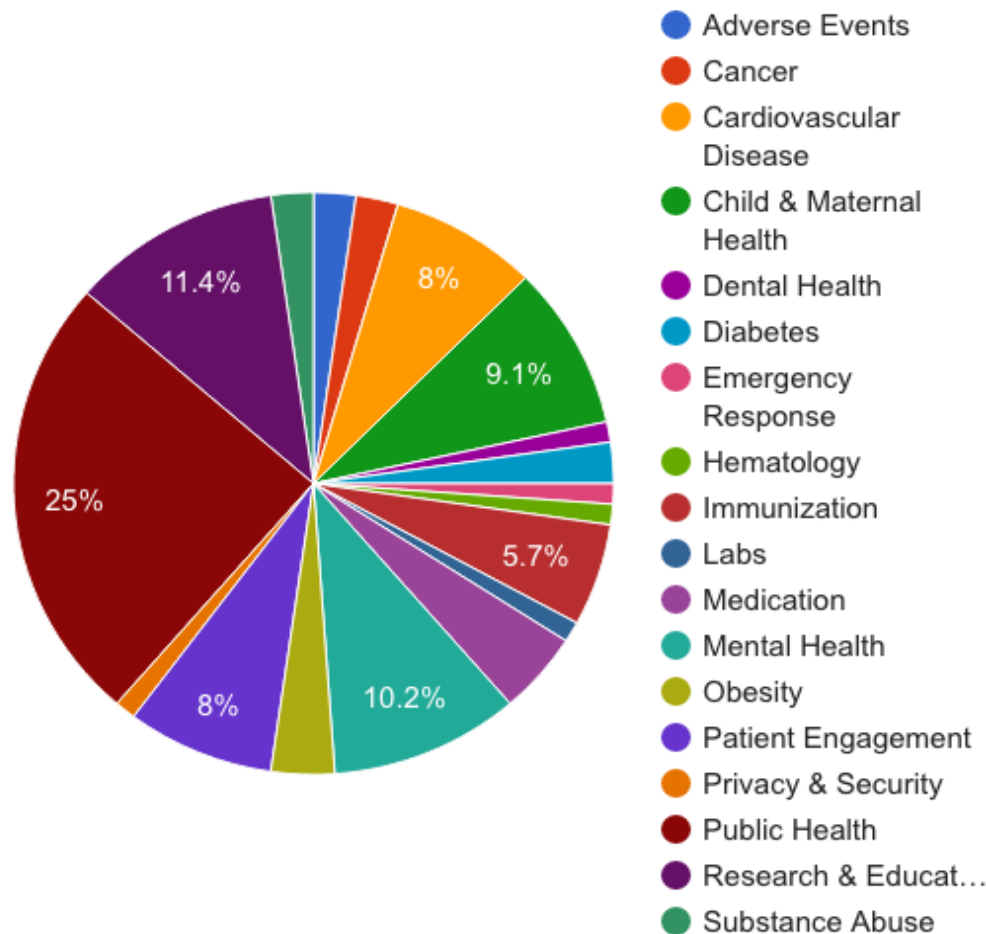
Short-Message Standards Needs

- 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

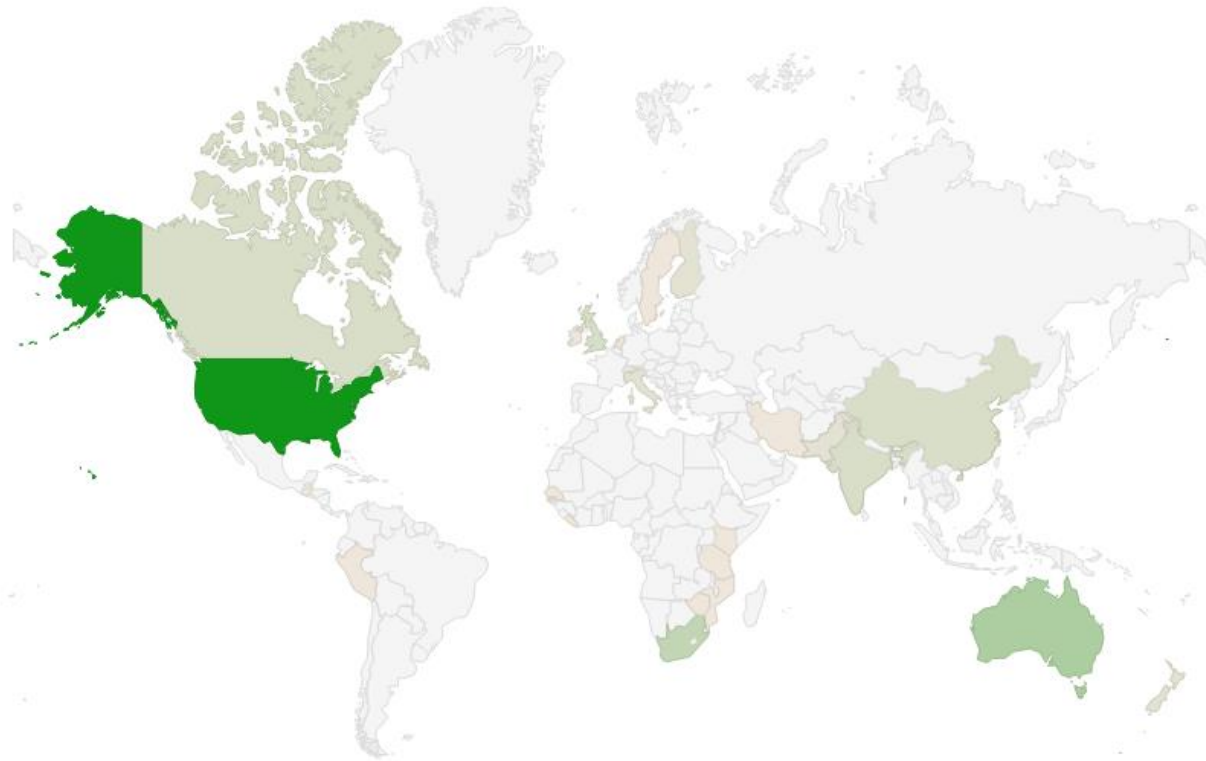
mFHASt Whitepaper Development

- 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




mFHA Preliminary Findings: Region



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Healthcare Short-Message Technology Promotion & Dissemination



HL7 mFHASt


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105


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



Diabetes Text-Message Self-Management Support ...
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

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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

mFHA 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

mFHA 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

mFHA 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. ONCfor 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/>
- Project Lead:
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