HL7 Mobile Health Transforming Healthcare

Mobile Health Work Group

2016

HL7 Mobile Health Work Group

Mission

"The HL7 Mobile Health Work Group creates and promotes health information technology standards and frameworks for mobile health."

Mobile Health Work Group - Charter

- Identify Healthcare IT standards and functional requirements that are specific to the mobile health environment

- Identify and promote mobile health concepts for interoperability as adopted and adapted for use in the mobile environment

- Coordinate and cooperate with other groups interested in using mobile health to promote health, wellness, public health, clinical, social media, and other settings.

- Provide a forum where stakeholders collaborate on Healthcare IT standards to enable the secure exchange, storage, analysis, and transmission of data and information for mobile applications and/or mobile devices.
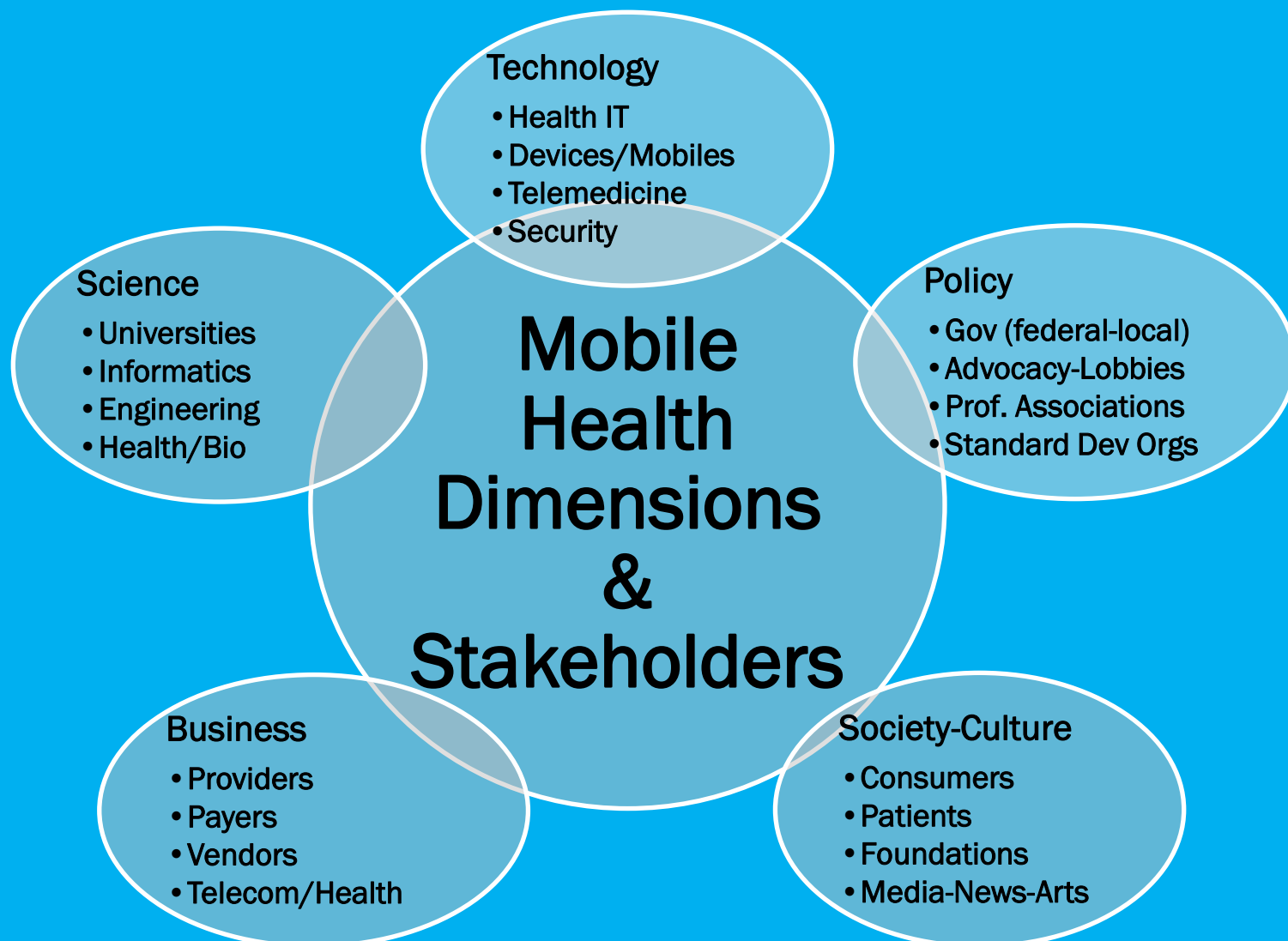
Leadership

- Co-Chairs
  - Gora Datta   gora@cal2cal.com
  - Matt Graham   graham.matthew@mayo.edu
  - Nathan Botts nathanbotts@westat.com
  - Harry Rhodes harry.rhodes@ahima.org
- Interim Co-Chair
  - Mlynda Owens
    mlynda.owens@cognosante.com

Mobile Health Stakeholders

Technology
- Health IT
- Devices/Mobiles
- Telemedicine
- Security

Science
- Universities
- Informatics
- Engineering
- Health/Bio

Policy
- Gov (federal-local)
- Advocacy-Lobbies
- Prof. Associations
- Standard Dev Orgs

Mobile Health Dimensions & Stakeholders

Business
- Providers
- Payers
- Vendors
- Telecom/Health

Society-Culture
- Consumers
- Patients
- Foundations
- Media-News-Arts

What is Mobile Health?

- Many things to many people

- Mobility is the common factor
  - Mobile patients and service users
  - Mobile health and care providers
  - Mobile technologies
    - Extending reach, enabling innovation

So What is Mobile Health?

- Extension of the EHR?

- PHR on a mobile platform?

- Consumer wellness/fitness apps?

- "new" way to access/provide care

    – MOBILE HEALTH

        - All of the above!

        - Not a vertical domain/sector

        - But a horizontal framework that cuts across and impacts all health care domains

- Scenarios illustrating the scope and benefits of Mobile Health

A few Mobile Health Scenarios

- **Moving around a hospital**
  - EHR System services follow providers around a hospital
- **Independent living**
  - Assisted living drawing on a range of mobile services
- **Patient empowerment**
  - Patient involvement in care process across a wide range of lifestyles, including: support for long term conditions
- **Behavioural health**
  - Behavioural health support anytime, anywhere - especially *there*!
- **Secure/trusted messaging**
  - Getting the message(s) – for example on child health to hard-to-reach families
- **Public/Population Health**
  - Disaster Management to PH outreach

Emerging HL7 Mobile Health Projects

1. **mFHAST**
   - Mobile Framework for Healthcare Adoption of Short-Message Technologies standard
     - ✓ transport, structure and content

2. **cMHAFF**
   - Consumer Mobile Health Application Functional Framework

3. **Mobile Health Application Interoperability Review**
   - Environmental Survey of Mobile Health APIs
   - FHIRframe – Phase 0 – Problem definition

Mobile Framework for Healthcare Adoption of Short-Message Technologies (mFHAST)

Nathan Botts, PhD, MSIS
Senior Study Director
Center for Health Information Technology
WESTAT
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mFHAST Goal

To provide standards for communicating health services through short messages (e.g. SMS, Twitter, etc.)

Short-message Basics

- "Short-Message" encompasses the realm of technologies related to SMS, text messages, instant messages, Twitter, iMessage, USSD, etc

- Messages composed of approximately 140-160 characters

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

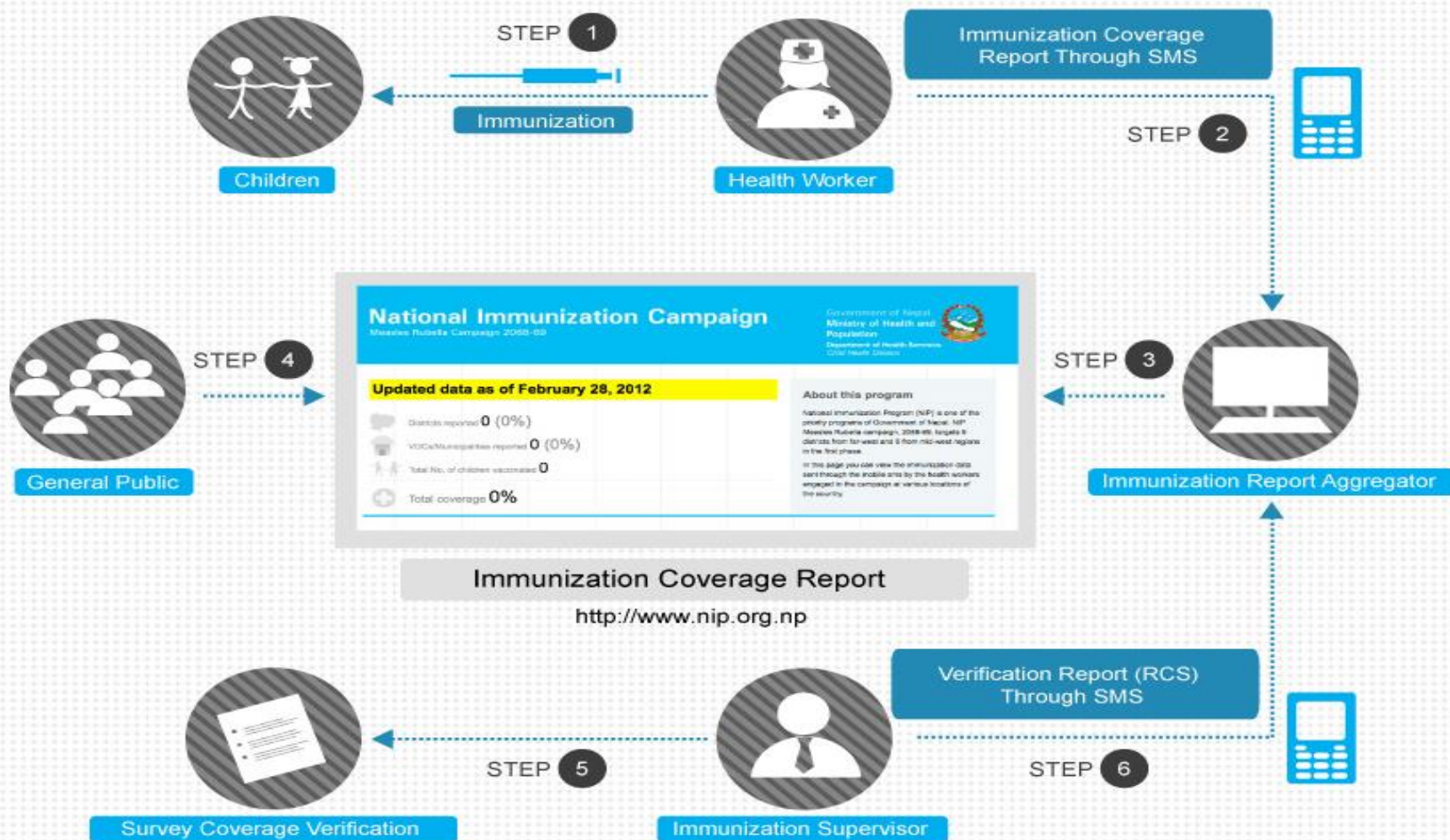- Low-cost, low infrastructure, low learning-curve

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

SMS Use Case -Immunization

Reference: http://www.nip.org.np

Short-message Barriers

- Ad-hoc implementations
- Lack of interoperability Standards
- Security/Privacy/Consent
- Message size
- Stateless (at its most basic implementation)
- Cost of message
- Governmental and organizational policy and barriers

Consumer Mobile Health Functional Framework

Tim McKay, Ph.D., CISSP

Kaiser Permanente

Consumer Mobile Health Functional Framework-Project Scope

- **Define security, privacy and data standards for secure mobile health applications (apps).**

- **Provide industry guidance and common methods to enable the development of mobile health smartphone apps targeted to healthcare consumers/citizens.**

- **Provide a framework for security, privacy and the integration of data generated from apps into PHR and EHR systems as well as into other types of data repositories (e.g., personal data stores, population care systems).**

- **Standards will not address the content of such apps.**

Consumer Mobile Health Functional Framework-Project Need

- **Standards for consumer smartphone health apps:**
  - **Focus on:**
    - **Security**
    - **Privacy**
    - **Data Controls**
  - **Allow for:**
    - **personal data tracking using mobile devices**
    - **integration of patient-sourced information into a person's record of care**
    - **clinical decision making using reliable, relevant information**

The proposed project will develop a framework against which Mobile Health Smartphone-based apps can be certified for conformance.

Limited Project Scope

- **Limited by initial set of use cases**

- **Focus on limited problem domain.**

- **Future iteration to add more use cases.**

January 2016 Ballot for Comment

- Much feedback
- Finalizing Reconciliation

Mobile Health Application Interoperability Review FHIRframe – Phase 0

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Director, Mobile Health Interoperability Lab

Dept. of Electrical and Computer Engineering

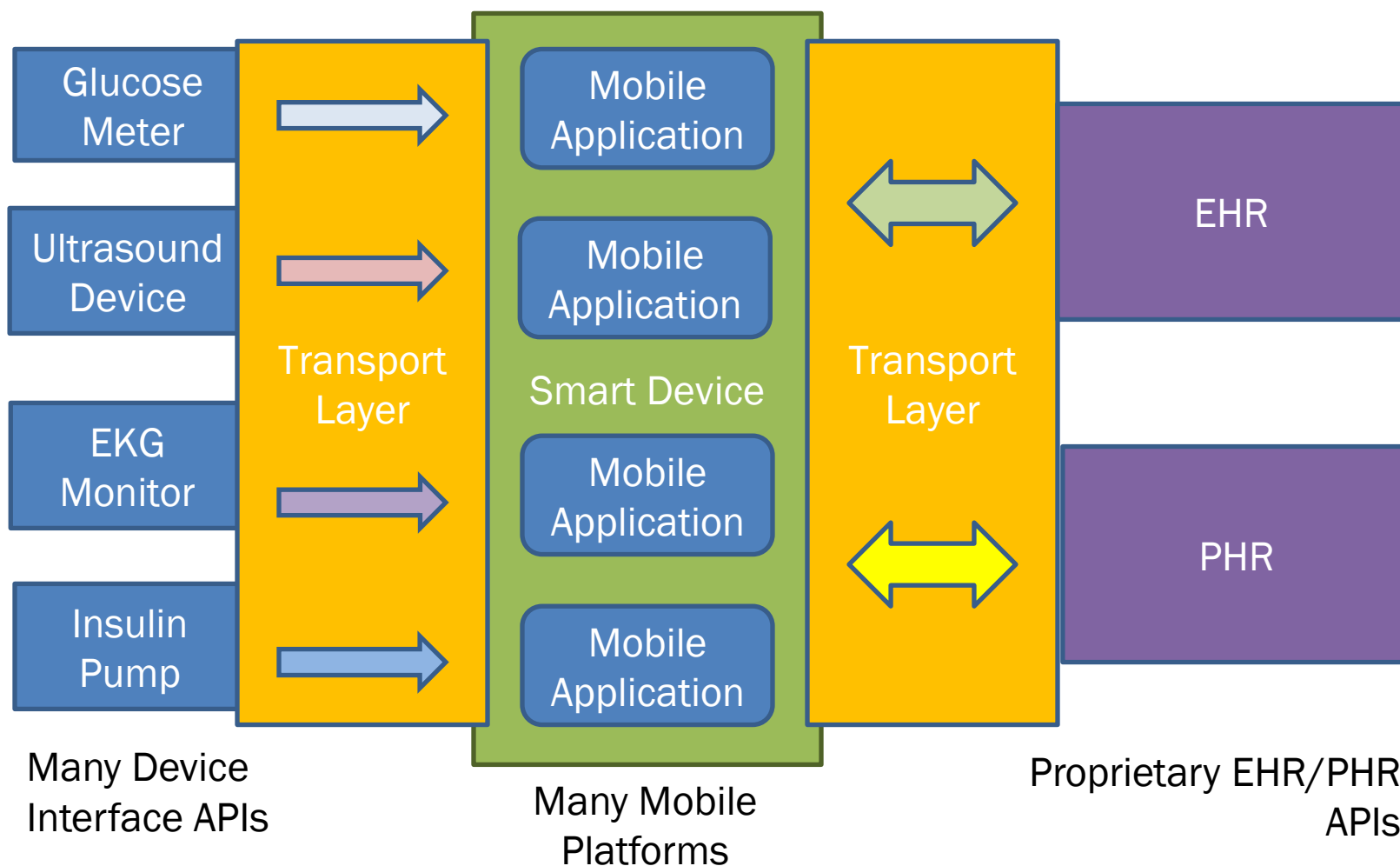North Carolina A & T State University

cdoss@ncat.edu

Mobile Healthcare Data Interoperability - Project Need

- Expansive wave of healthcare devices are coming to consumer market.

- Consumer healthcare devices used to capture and exchange medical data and events.

- Lack of common data standards for data exchange to support mobile application development.

- The project will identify the current state of device APIs.

Strategy

- The project will on environmental literature survey of current APIs and standards

- Identify current state of healthcare device APIs.

- Identify current APIs for exchanging data with EHR and PHR systems.

- Look at FHIR Argonaut Project as core set of resources for data interoperability

- Project will leverage university students as a educational engagement opportunity.

Current State Mobile Health APIs

Glucose Meter → Transport Layer → Mobile Application

Ultrasound Device → Transport Layer → Mobile Application

Smart Device

EKG Monitor → Transport Layer → Mobile Application

Insulin Pump → Transport Layer → Mobile Application

Transport Layer ↔ EHR

Transport Layer ↔ PHR

Many Device Interface APIs

Many Mobile Platforms

Proprietary EHR/PHR APIs

MH Listserv Discussions

- ONC API Task Force Recommendations

- Mobile Health WG members providing comment on ONC API Task Force and relationship to cMHAFF project.

- FTC Definitions of PHI and PII

- Mobile Application Management & Security

- Comment on ONC 2016 Standards Advisory (ISA)

Resources...

- Mobile Health Alliance

  www.mhealthalliance.org/

- Continua Health Alliance

  http://www.continuaalliance.org/about-continua

- PWC white paper – Touching lives through mobile health

  www.pwc.com/in/en/assets/pdfs/telecom/gsma-pwc_mhealth_report.pdf

- Programmable Web

  www.programmableweb.com

Argonaut Project

The Argonaut Project is a private sector initiative to advance industry adoption of modern, open interoperability standards. The purpose of the Argonaut Project is to rapidly develop a first-generation FHIR-based API and Core Data Services specification to enable expanded information sharing for electronic health records and other health information technology based on Internet standards and architectural patterns and styles.

Argonaut Sponsors

- Accenture
- athenahealth
- Beth Israel Deaconess Medical Center
- Cerner
- Epic
- Healthcare
- Mayo Clinic
- MEDITECH

- McKesson
- Partners HealthCare System
- SMART at the Boston Children's Hospital Computational Health Informatics Program
- The Advisory Board Company
- Surescripts

Smart on FHIR

- SMART Health IT is an open, standards based technology platform that enables innovators to create apps that seamlessly and securely run across the healthcare system. Using an electronic health record (EHR) system or data warehouse that supports the SMART standard, patients, doctors, and healthcare practitioners can draw on this library of apps to improve clinical care, research, and public health.

Smart on FHIR (continued)

- The SMART platform is composed of open standards, open source tools for developers building apps and a publicly accessible app gallery. To date, dozens of clinical applications have been built on this platform, and SMART applications are being used to provide clinical care at healthcare institutions, including Boston Children's Hospital and Duke Medicine.

Conclusions

- The Argonaut project combined with Smart on FHIR have several primary EHR vendors setting development sandboxes.

- Smart on FHIR is about to become a defacto standard across EHR vendors for interoperability.

- Mobile Healthcare Applications should have an API for EHR plug and play.

HL7 on FHIR

- FHIR will play an integral role in the future of Mobile Healthcare.

- FHIR Reading and Resources
  https://onfhir.hl7.org/2016/03/31/may-2016-release/

- FHIR STU 3
  http://hl7.org/fhir/2016May/

Mobile Health Friday Calls

Dates: Every Friday

Time: 11:00 AM Eastern U.S.

- Mobile Health Web Page
  http://www.hl7.org/Special/committees/mobile/index.cfm

- Mobile Health Wiki page

  http://wiki.hl7.org/index.php?title=Mobile_Health

THANK YOU!

- Question?