Using the OpenHIE and OpenHIM to implement the Health Normative Standards Framework: Experiences from Africa

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Agenda

- South African Health Normative Standards Framework
- MomConnect Implementation
- Open Health Information Mediator (HIE Layer)
- Rwanda Health Information Exchange and Open Health Information Exchange
NATIONAL HEALTH NORMATIVE STANDARDS FRAMEWORK FOR INTEROPERABILITY IN EHEALTH
HNSF Act

GOVERNMENT NOTICE

DEPARTMENT OF HEALTH

No. 314

23 April 2014

NATIONAL HEALTH ACT, 2003 (ACT NO. 61 OF 2003)

NOTICE IN TERMS OF THE NATIONAL HEALTH ACT NO 61 OF 2003: NATIONAL HEALTH NORMATIVE STANDARDS FRAMEWORK FOR INTEROPERABILITY IN EHEALTH

Development of the HNSF

- Commissioned by the National Department of Health (NDoH)
- Developed by the Meraka Institute of the Council for Scientific and Industrial Research (CSIR) in collaboration with the Nelson Mandela Metropolitan University (NMMU)
HNSF Some Highlights

- Patient-centric approach including a shared health record
- Maturity levels based on paper and electronic records
- Based on international standards, including base standards, profiles and interoperability specifications (IHE, ISO, HL7 etc)
- Adopt, adapt and develop (in that order) standards
- Interoperability architecture based on Health Information Exchange with demographic and clinical registries
- Requires a unique patient identifier and identification system
- Enterprise Architecture required to extend HNSF for a particular implementation
National Health Normative Standards Framework (HNSF)
Generic eHealth Architectural Components

HNSF - Local paper-based medical record system

HNSF - IHE profiles mapped to a fully integrated national shared electronic health record system

HNSF Recommended Implementation Model

MOMCONNECT PROJECT
KEEPING TRACK OF PREGNANCY
MomConnect

Partners:
- NDOH
- Jembi
- Praekelt Foundation
- CSIR
- HISP-SA
Architectural Design

- Architecture based on the HNSF integrated national shared electronic health record system
- Five layers:
  - Edge Devices, eg mobile phone
  - Consumer Applications, eg mHealth services
  - Health Information Exchange, eg OpenHIM
  - Demographic and Clinical Repositories, eg the National Pregnancy Registry
  - Security / Audit Services, eg certificate service

MomConnect Reference Implementation of HNSF
HNSF Maternal Health Standards and Profiles

MomConnect Backend System
+carl@jembi.org or +hannes@jembi.org: Please could you redraw this diagram replacing the text ‘HIM’ with ‘HIE (OpenHIM)’
Chris Seebregts,

+linda@jembi.org same as previous slide?
Carl Fourie,

I have an updated version - there is no subscription database
Linda Taylor,
MomConnect Standards and Profiles

Patient Identity Management  Save Clinical Encounter

HIE (OpenHIM)

Patient Identity Management
ITI-30 Patient Identity

Feed
Mobile Application Service

HIE (OpenHIM)

Save Clinical Encounter
ITI-65 Put Document Dossier

CDA
Mobile Application Service
+carl@jembio.org or +hannes@jembio.org: Please could you redraw these two diagrams replacing the text 'HIM' with 'HIE (OpenHIM')
Chris Seebregts,

+linda@jembio do you own these drawings or know where they are?
Carl Fourie,
MomConnect

Cumulative Totals

- User Subscriptions
- CHW Subscriptions
- Clinic Registrations (All)
- Clinic Registrations (with ID)

Axes Title

0 50000 100000 150000 200000 250000

14/08/11 14/09/11 14/10/11 14/11/11 14/12/11 15/01/11 15/02/11
OpenHIM

Open Health Information Mediator (OpenHIM)
- Middleware tool focuses on the exchange of Health Data
- Developed and maintained by Jembi as open source (www.openhim.org)
- Developed to facilitate standards compliant data exchange
- Reference tool of the OpenHIE Interoperability Layer Community (IOL)
OpenHIM Management Console
Current Implementations of the OpenHIM with DHIS2
RWANDA HEALTH INFORMATION EXCHANGE AND OPEN HEALTH INFORMATION EXCHANGE
RHIE Overview

- Developed as a solution to improve maternal health information management in the Rwamagana district of Rwanda
- Aim of the application was to provide information about pregnant women collected by community health workers to antenatal care clinics
- The application also provides access to centralized services, such as Client and Facility Registries
Rwanda Health Information Exchange Architecture
Implementation of the RHIE
OpenHIE
Improving health for the underserved
OpenHIE - Who we are

• OpenHIE is a diverse mission-driven community of practice including countries, organizations, individuals and donors working to promote sharing of health data across many different software products.

• We make and improve standards-based software to improve the exchange of health information.

• www.ohie.org
Community of Communities

OpenHIE

- Facility Registry Community
- Client Registry Community
- Health Worker Community
- Terminology Services Community
- Shared Health Record Community
- Health Management Information System Community
- Interoperability Layer Community
References

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- United States Centres for Disease Control and Prevention
- Health Information Systems Program – South Africa
Thank you

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