OpenHDS overview

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OpenHDS

HDSS data platform developed by a distributed team
Based on many of the concepts in HRS2
First introduced in Cross River HDSS, Nigeria
Since then rolled out in several additional sites

Objectives:

Improve data quality
Improve timeliness of data availability
Harmonization between INDEPTH member centres
Efficiency (at centre level)
Implementation status

Implemented

INDEPTTH

Cross River (Uni Calabar, Nigeria), Ifakara and Rufiji (both Ifakara Health Institute, Tanzania), Nanoro HDSS, Manhica HDSS

Other

Rusinga Island (ICIPE, Kenya); Majete (College of Medicine, Blantyre, Malawi); Bioko Island (through Uni Southern Maine)

In preparation

Taabo HDSS, Ethiopian HDSSs (Arba Minch, Butajira, Dabat, Gilgel Gibe, Kersa, Kilite Awlaelo, Mecha)
OpenHDS overview
System architecture

- **OpenHDS Mobile**
- **ODK Collect**

**Tablet**

- **Mysql client**
- **Su2**
- **iShare2**

**Server**

- **Sync Data (Mirth)**
- **OpenHDS**

- **ODK Aggregate**

**Diagram Components:**
- Samsung phone with ODK Collect application
- MySQL client
- Su2
- iShare2
- ODK Aggregate
- OpenHDS
- MySQL database
- Sync Data (Mirth)
Data integration

MirthConnect
MirthConnect

- Is an open source standards-based healthcare integration engine
- First released in 2006, version 3.0 released in 2013
- Widely used
- Facilitates the routing, filtering, and transformation of messages between systems over a variety of protocols or connectors (HTTP, Databases, Web Services, Files FTP…)
- Easily transform, filter, and route your data
- Lets you configure email alerts so that you know if there is a problem with your interface
OpenHDS: recent developments

Improved management of data entry forms
Migration classification (internal, external)
Documentation and DM SOPs
Integration with iShare2
Version 1.5 production release

https://github.com/SwissTPH/
OpenHDS: recent developments

Flexible configuration
  Location Hierarchy (up to 8 levels)
  Visit at Location/Household
  Additional constraints (e.g. earliest date of an event)
Multi language (FR-EN-PT-ES-SW-Amharic)
Added support for death and change of Head of household
OpenHDS: recent developments

Guided tablet workflow (hiding-showing buttons)

Highlighted people visited

Added “successful” visit flag (to distinguish from empty houses/nobody inside at time of the visit)

Improved tablet sync (faster) and info for data manager for entities synced (sync successful-last time synced)

Experimental extra forms mirth channels
Outlook: utilize OpenHDS system architecture

- Further near-time quality control
- Additional reporting channels
- Potential for surveillance-response
- Data integration with health facilities & CRVS
Key enabling factors and best practices for adequate data collection and management

Centralized data storage and management
  Client-server database management system
  Web-based data management application
Near time data centralization
  Point of collection digitization
  Secure data transfer
Near time quality control
  Open interfaces
  Automatized, extensible reporting engine
Additional possibilities

- Beyond questionnaires: bar codes
- Scanning the code gives access to add data to the specific location
- For navigation purposes, the database is converted with GIS to a geographical database
- Houses in designated clusters to be visited by the FW are displayed on Google Earth mobile app

- Biometry?
Near-time quality control

- Nightly synchronization and error reporting

Duplicate individuals
Operational guidance

Revisit guides
Additional resources

Latest source code, releases, and manual
https://github.com/SwissTPH/

Stable repository
https://github.com/openhds/

Windows server setup
https://digitalhealth.institute/courses/openhds-basic-installation/