AccessMRS

Integrating OpenMRS with Smart Forms on Android

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Ministry of Health-AMPATH Clinic Sites

AMPATH

Burnt Forest Sub-District Hospital
Chulaimbo Sub-District Hospital
Endebess Sub-District Hospital
Khunyangu Sub-District Hospital
Moi Teaching and Referral Hospital (modules 1-4)
Mosoriot Rural Training Centre
Port Victora Sub-District Hospital

SATELLITE CLINIC

Mt. Elgon National Park
Kitale
Eldoret
Kebnernet
Kakamega
UGANDA
Lake Victoria
Busia
Kakamega
Kabernet
CHV Responsibilities (KEPH, AMPATH)

- **Family Planning:**
  - Directive FP Counseling,
  - Condom Distribution

- **Antenatal Care:**
  - LMP, Danger Signs, Safe Delivery

- **Monitoring and Evaluation:**
  - Data Collection, Aggregation,
  - Analysis and MOH Reporting

- **Postnatal Care:**
  - Postnatal Danger Signs,
  - Obstetric Fistula

- **Diagnosis and Referral:**
  - Refer fever, malaria, etc. to
    appropriate health center

- **Preventive Health Services:**
  - Dissemination of IEC Materials,
  - Prevention of Malaria, ITNs, HIV, STIs etc.

- **Neonatal and Infant Care:**
  - Exclusive Breastfeeding Education,
  - Respiratory Rate, Infant Danger Signs, etc.

- **Children Under 5:**
  - MUAC, Malnutrition, Diarrhea, Vaccination and
    Deworming Schedule, OVC Services etc.

- **Adult and Chronic Diseases:**
  - Diabetes, HIV, TB, Disability,
    Wound Care, Scabies

- **Water Safety and Sanitation:**
  - Cholera, Latrine Construction

- **Community Organization:**
  - Community barazas, household registration
    and mapping

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SmartPhone?

Family Planning:
Directive FP Counseling, Condom Distribution

Antenatal Care
LMP, Danger Signs, Safe Delivery

Postnatal Care
Postnatal Danger Signs, Obstetric Fistula

Neonatal and Infant Care
Exclusive Breastfeeding Education, Respiratory Rate, Infant Danger Signs, etc.

Children Under 5:
MUAC, Malnutrition, Diarrhea, Vaccination and Deworming Schedule, OVC Services etc.

Adult and Chronic Diseases:
Diabetes, HIV, TB, Disability, Wound Care, Scabies

Water Safety and Sanitation
Cholera, Latrine Construction

Preventive Health Services
Dissemination of IEC Materials, Prevention of Malaria, ITNs, HIV, STIs etc.

Monitoring and Evaluation
Data Collection, Aggregation, Analysis and MOH Reporting

Diagnosis and Referral:
Refer fever, malaria, etc. to appropriate health center

Community Organization:
Community barazas, household registration and mapping
SmartPhone Capabilities

Monitoring and Evaluation
Data Collection, Electronic Form Submission, Automated Analysis, MOH Reporting

Community Organization:
Phone with airtime, data bundles, Electronic Money Transfer, Synchronized phone numbers

Device Security:
Encryption, SSL, Network Security with Remote Device Management

Video IEC Materials
Educational videos by local clinicians
Display of Health Facilities
Introduction to Staff and Services
Health Behavior and Demonstration (breastfeeding, umbilical cord care)
WHO Videos Exhibiting
Danger Signs and Symptoms

Diagnosis and Referral:
Background Synchronization with OpenMRS EMR system

Websites and Electronic Materials
Transfer of all previous clinical content to electronic media (text, images)

Electronic Resources
Medical Dictionary, GPS, OpenStreetMap data, local health center overlays on maps, Timer for Respiratory Rate Calculator, Calendar, Alarm, etc.

Clinical Decision Support
SmartForms: Suggesting Patient-Specific Forms
Branching logic in Xforms
Integration of IEC Materials, Electronic Forms, Maps

Device Security:
Encryption, SSL, Network Security with Remote Device Management
CHV Requirements

- Integrate into existing CHV Workflows
  - Register new patients
  - Simple UI to organize, edit and submit forms remotely
  - Integrate with existing materials (flipcharts, logbooks, etc.)

- Cost-effectiveness
  - Installation, in-field training, maintenance, device management, hardware, data transmission costs

- Security
  - Secure data transmission to OpenMRS servers and encryption of downloaded patient data on phone

- Connectivity
  - Limited coverage, asynchronous data transmission, & offline resources

- Quality of Care
  - Improve quality of care provided by CHVs to their local communities through Clinical Decision Support Systems
SmartForms 1: Integrated IEC Materials

Data Collection

IEC Materials
SmartForms 2: CDS Algorithms

Data Collection -> Background Synchronization

IEC Materials -> Patient-Specific Suggested Forms

CDS Algorithms -> DMOH Reports

Clinical Information
Android Demonstration
AccessMRS: Dashboard

- Dynamic Patient Lists
- Patient-specific SmartForms in Suggested Clients
- Asynchronous patient registration
- Simple, Intuitive Interface
- Background synchronization
AccessMRS: Patient Dashboard

- Suggested SmartForm reminder
- Signature-based authorization to view clinical data
- Clinical data from OpenMRS for offline use
- History of all previously completed forms
- Organization of previous visits by date categories

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Visits in the past day:

- Infant 6wks-6months
  - Added on Mon, Dec 10, 2012 at 18:45
  - Note: Referred for vaccinations

- Children under 5 years
  - Added on Mon, Dec 10, 2012 at 18:45
  - Note: Completed follow-up

- Routine
  - Added on Mon, Dec 10, 2012 at 18:45
AccessMRS: Forms

- Organization of Forms
  - Suggested To Do Forms (SmartForms)
  - Incomplete Forms, Completed Forms, Additional Forms
- Integrated branch of ODK Collect (AccessForms)
- Create personal reminders and notes on forms
Thank you!

This project is open-source. (github: bfazen)

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This project was generously supported by:

Ken Drazan Foundation, Schauer Foundation