

Deploying OpenMRS in Rwanda

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Scaling up a healthcare system

- Began in 2005 as first Partners in Health project in Africa. Partners: Clinton and Gates Foundations and TED.
- Scale up PIH model of health nationwide with services including HIV/TB, family planning, malnutrition, community health workers, housing, employment, schooling.
- Started in Rwinkwavu and in two years has grown into two hospitals and four health clinics. Training center and third hospital are being built.
- Technology is playing an important role in the scale up and OpenMRS is the vehicle.



What is OpenMRS?

- OpenMRS is an application which enables design of a scalable and customized medical records system with no programming skills.
- Framework on which medical informatics effort in developing countries can be built.



Who are the key players?

- Developers: PIH, Regenstrief, and others
- Funders: WHO, CDC, Rockefeller, PEPFAR, IRDC, NIH, Google, SA-MRC, MVP
- Deployments: Kenya, Rwanda, Lesotho, South Africa, Zimbabwe, Mozambique, Uganda, Malawi, Tanzania, Haiti, Peru



How is it put together?

- OpenMRS is built in Java. The core application works through a web browser.
- Tomcat is used as the application server. The database is currently in MySQL. Hibernate is used as an interface layer to the database. Also use Spring, Dojo, DWR, BIRT, etc.
- The system creates XML schemas for form design. Form design data entry is currently done in Microsoft Infopath.

Concept Dictionary

Viewing Concept HUMAN IMMUNODEFICIENCY VIRUS

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Id 884
Locale English | French | Spanish | Portuguese | Italian
Name HUMAN IMMUNODEFICIENCY VIRUS
Short Name
Description The virus that causes the acquired immune deficiency syndrome (AIDS).
Synonyms HIV
P23
Class Diagnosis
Data type N/A
Version
Retired false
Created By Super User - May 27, 2004 12:00:00 AM PDT
Changed By Super User - February 16, 2005 3:32:05 PM PST

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Form Driven

INSHUTI MU BUZIMA
Clinique des Maladies Chroniques

RENDEZ-VOUS

No. DEM:

Information démographique

1. Date précédente: _____ Patient: _____

2. Nom: _____ Prénom: _____

3. (c) Nom de l'accompagnateur? non oui (quel est son nom): _____

4. Catégorie de patient: Malade du cœur Malade des reins Diabète
Description de santé: _____ Adresse: _____

5. Groupe de patient: _____

6. Clinique: Refikwavy Mulindi Rukira Nyarubye Kiriba
Rusuro Autre si spécifier: _____

Anamnèse

7. Hospitalisé(e) depuis la dernière visite? non oui
Si oui, quel est le diagnostic? _____

Examen clinique

8. (a) Signes vitaux: TA: / / Pouls: /min Temp: °C FR: /min Oxygène: %
(b) Paramètres: Poids: /kg Taille: /cm DM: /mm

Cohort Builder

Search

Concept/Observation Patient Attributes Encounter Program Enrollment Drug Order Composition

Search by Concepts and Observations: _____ Include Verbose

Search History

1. Patients with any encounters at Rukira 1073 results (cached)

2. Patients currently taking ANY of (LPVY (Aaktra), 3TC Supp., 3TC 150, ABC 300, NVP Supp., NVP, EFV 600, EFV 100, EFV 30, EFV 250, AZT 3TC (Covair), e47 30, e47 40, e47 20, e47 15, 7PV 300, DDI 125, DDI 200, Thymine 30, Thymine 40, AZT 8mg, AZT 100, AZT 200) 2790 results (cached)

3. Patients in program HIV PROGRAM 5138 results (cached)

4. 1 AND 2 AND 3 481 results (cached)

Display which cohort:

View method: **List** Other methods are not yet implemented
[<] [] []

16. Geoffrey Lejaji (4 year old Male)
17. Vicky Siroi (33 year old Female)
18. Aloice Kener (46 year old Male)
19. Arieta Lugaga (47 year old Female)
20. Domaga Sufu (46 year old Female)
21. Colland Kerebei (13 year old Male)
22. Metrin Singaire (9 year old Female)
23. Frmasiga Tingi (32 year old Female)
24. Winibel Cherman (29 year old Female)

Modular Design

Action	Name	Version	Author	Description
<input type="checkbox"/>	Double Entry Reconciliation	1.5	Darius Jazayeri	This module allows you to specify a form, and puts all of those forms ever entered from the database. Any time a patient has two or more of that form with the same encounter date, those are taken.
<input type="checkbox"/>	Child VCT Report Module	1.1	Chase Yarborough	Child VCT Report Module. Creates a report of children who have not been tested for HIV, but whose parents are HIV+.
<input type="checkbox"/>	PatientSummaryModule	1.0	Yaw Atokele	Generates a printable one page clinical summary for a patient.
<input type="checkbox"/>	Form Import Export (Not Started)	1.4.3	Darius Jazayeri	Allows you to import/export forms between installations with identical concept dictionaries. Optionally keeps dictionary in sync with a parent dictionary. See module documentation.
<input type="checkbox"/>	FormEntry	3.1	Ben Wolfe	OpenMRS FormEntry Module ...
<input type="checkbox"/>	Patient Lookup Module	1.0	Christian Allen	Easy patient lookup for clinical use ...
<input type="checkbox"/>	BIRT Report Module	1.2	Justin Miranda	BIRT Reporting Module ...
<input type="checkbox"/>	Food Program Module	0.1	Justin Miranda	OpenMRS Food Program Module ...
<input type="checkbox"/>	Form Data Export Module	0.7	Justin Miranda	OpenMRS Form Data Export Module ...
<input type="checkbox"/>	PH Hacks Module	1.0	Darius Jazayeri	Various quick hacks can be put here so that we don't have to create a new module every time ...

Patient Registration

Enter patient information

Name (Example: Mukama) Other names (Example: Alio)

Sample Patient

Gender Male Female

Birthdate Month: Day: Year: Double-check birthdate in the future Year unknown

Address

Province: District: Sector: Cell: Multipoint:

Patient Summary

Paul Persil Patient

Gender: Male Female

Age: 48 years (Jun 01, 1934)
Last Visit: 8 months ago (Oct 26, 2007)
Drug Order: Rutengye Hospital

PHO: 123456789-A

NO CD4 RESULT IN THE LAST 6 MONTHS
NO CRF RESULTS!

Notes:

Hypertension/allergic reactions, purple face syndromes Jan 01, 1999
Anemia, pallor, fever, rash, diarrhoea, including bulimia evaluations Jan 01, 1999
Dizziness, loss of consciousness, syncope, coma, taste perversion, pruritus, ataxia, cold intolerance, and arthralgia including febrile rash and chills Jan 01, 1999

Drug Order:

Drug	Unit	Frequency	Start Date	End Date	Notes
Trimetoprim-40	1.0 tablet(s)	2/x * 7 d/w	Aug 13, 2007		
EFV 600	1.0 mg	1/x * 7 d/w	Aug 02, 2007		
Thymine-40 (Covair)	1.0 tablet(s)	2/x * 7 d/w	Sep 13, 2007	Sep 13, 2007	Horrible rash spread all over patient's face
EFV 600 (stopped)	1.0 mg	1/x * 7 d/w	Aug 02, 2007		

Lab Test:

Lab Test	Result	Date	Note
CD4 count	395 cells	Jan 01, 1999	Test invalid due to interference
Viral Load	A Million	Jan 01, 1999	Second test for verification of status
Viral load	3,419	Jan 01, 1999	Ordered by Dr. Green

Weight (kg):

Weight (lbs):

Weight (kg):

How can I help?

- Improve user interface and interactivity
- Improve report/form design and generation
- Improve decision support tools
- Improve data synchronization tools
- Improve programmability and documentation
- Help train local developers in Africa
- Build modules for community healthcare workers, food supplementation, pharmacy, and clinicians

Relevant Links

- Change – <http://change.cs.washington.edu>
- OpenMRS – <http://openmrs.org>
- Partners in Health – <http://pih.org>
- OpenROSA – <http://openrosa.org>
- GATHER – <http://gatherdata.org>