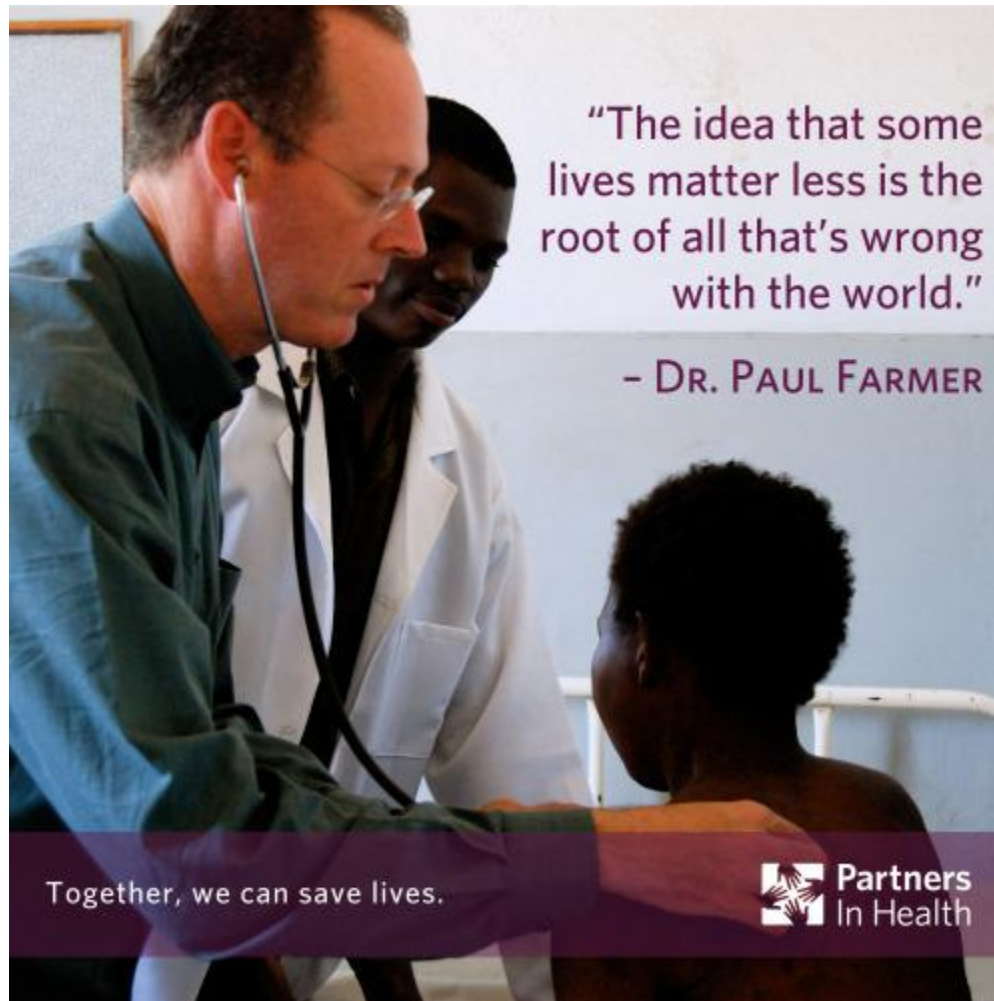# Partners In Health

Implementing Electronic Medical Record Systems in Rural Haiti

LibrePlanet
March 22, 2015

Ellen Ball & Michael Seaton
Partners In Health
Medical Informatics
Boston, Massachusetts USA

"The idea that some lives matter less is the root of all that's wrong with the world."

– Dr. Paul Farmer

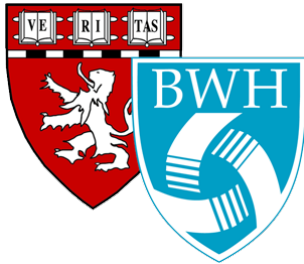Together, we can save lives.

Partners In Health

Partners In Health

Health is a human right.

Providing high-quality health care to poor and marginalized people—and inspiring others to do the same.

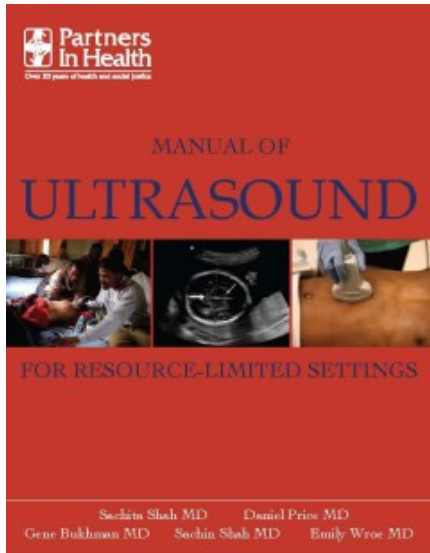# Our Mission

Service

Training

Advocacy

Research

Our Model

Building a movement

Where PIH works

Partners In Health

Information systems are a key component in PIH's model of care. To replicate the model of care, it is fundamental that open, scalable, maintainable, and high-quality information systems are available that meet the unique challenges found in resource poor settings

Why technology?

Partners
In Health

Clinical Decision Support

View trends that would be difficult or impossible to see otherwise

Alert clinicians to potentially dangerous situations (allergies, contraindications)
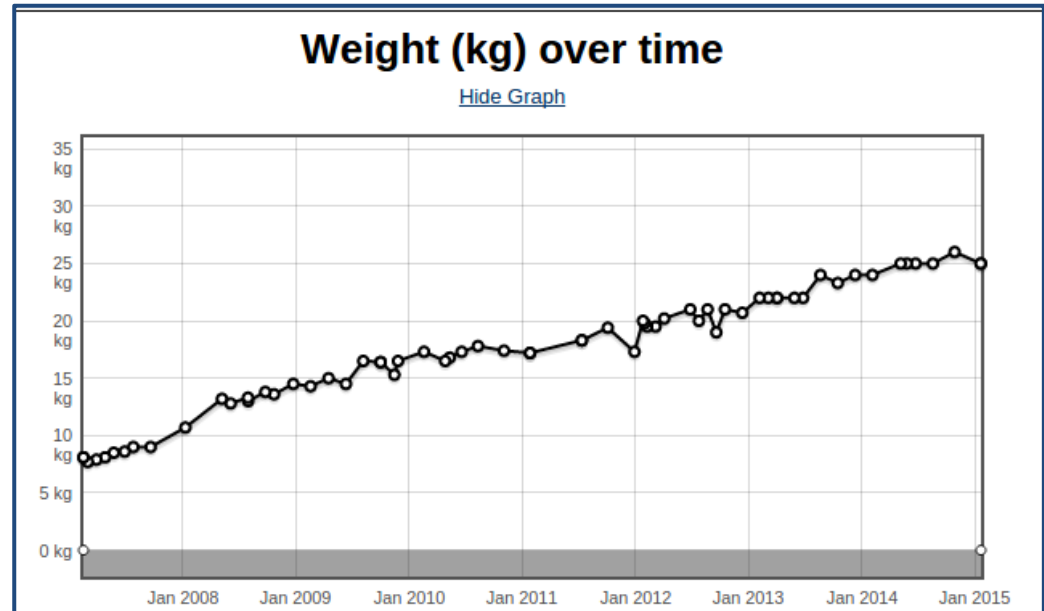
Why technology?

Disease Surveillance

Patients

Conditions

Improving access
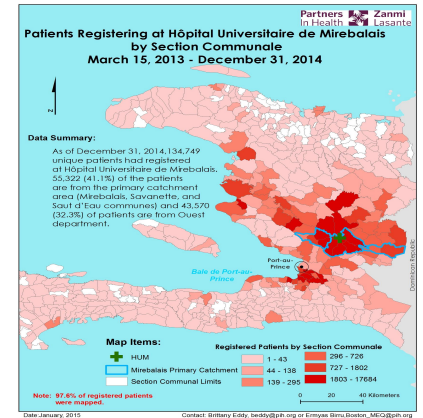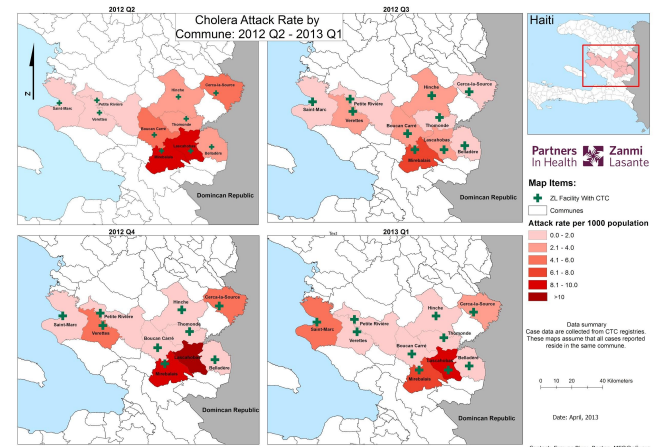

Why technology?

Monitoring, Evaluation, and Quality Improvement

Analyze cohorts of patients. Find patient groups in need of follow-up or further analysis.

Identify areas of improvement (in what percentage of patient visits was a weight recorded)

Perform routine reporting to health ministries, funders, and program managers

	End date		1 week ago	
On ART	1229	+4	1225	+11
No appointment	12	-4	16	-13
Missed appt >2 <=3 weeks (6)	12	+3	9	-3
Missed appt >3 <=8 weeks (3)	28	+4	24	+10
Missed appt >8 <= 12 weeks (4)	4	-2	6	-3
Missed appt >12 weeks (5)	17	+1	16	+3

(1): A Patient can be counted multiple times if he/she trans
(2): Missed appointments either due to data entry delay/err
(3): "Potential Defaulters"
(4): Defaulter in MoH definition
(5): Latest at this time a defaulter tracking without any oth
(6): To be verified by EMR team for data entry erros

Missed appointment >2 <=3 weeks validation	
Reported by EMR	12
Verfied missed appointments	
Unable to verfiy	
Data entry error	

Why technology?

Partners
In Health

Support Advanced Treatment

Why technology?

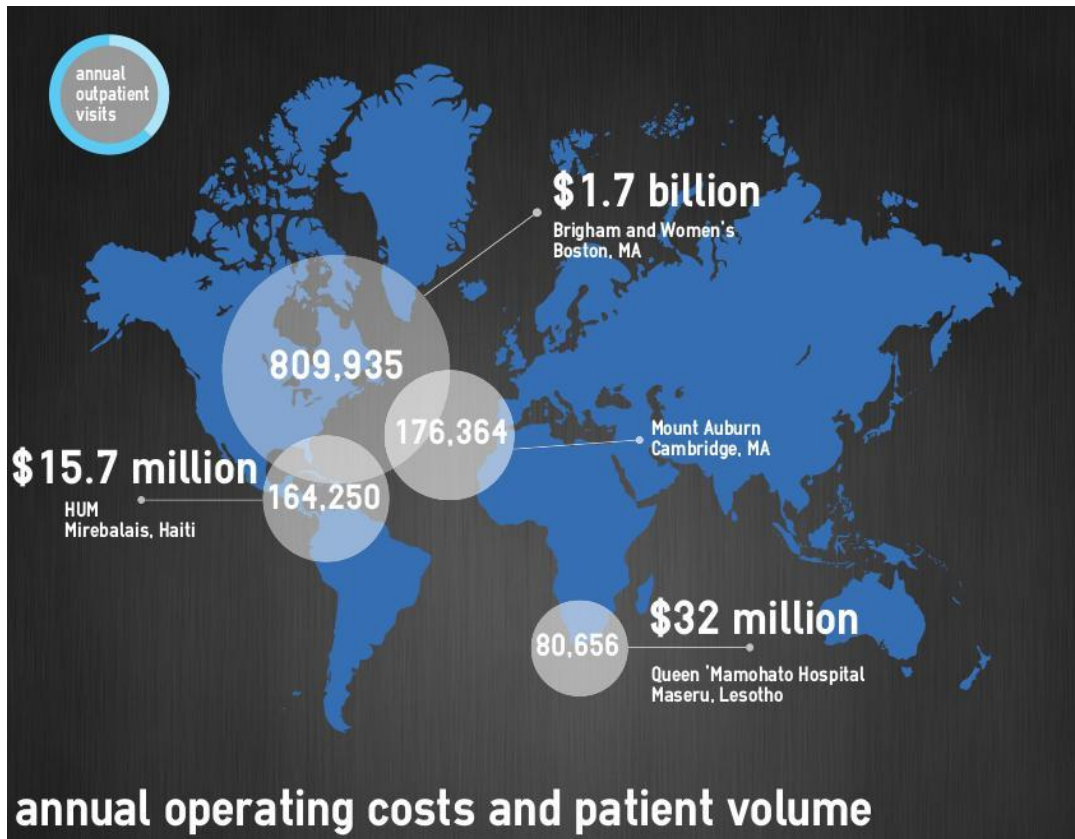Unreliable Internet and power

Remote facilities

Challenges: Infrastructure

Few trained staff

High patient volume.

Challenges: Human resources

No cost recovery from facilities

Low eHealth budgets

Challenges: Funding

Partners In Health

PIH and Harvard Medical School win $44.7 million Gates Foundation grant to fight drug-resistant TB in Peru.

In Haiti, Zanmi Lasante's HIV Equity Initiative is one of the first in the world to provide antiretroviral therapy in resource-poor settings.

2000

PIH creates drug-resistant TB EMR for Peru and HIV EMR for Haiti.

2001

PIH expands to sub-Saharan Africa, bringing community-based HIV treatment and primary care to two districts in rural Rwanda.
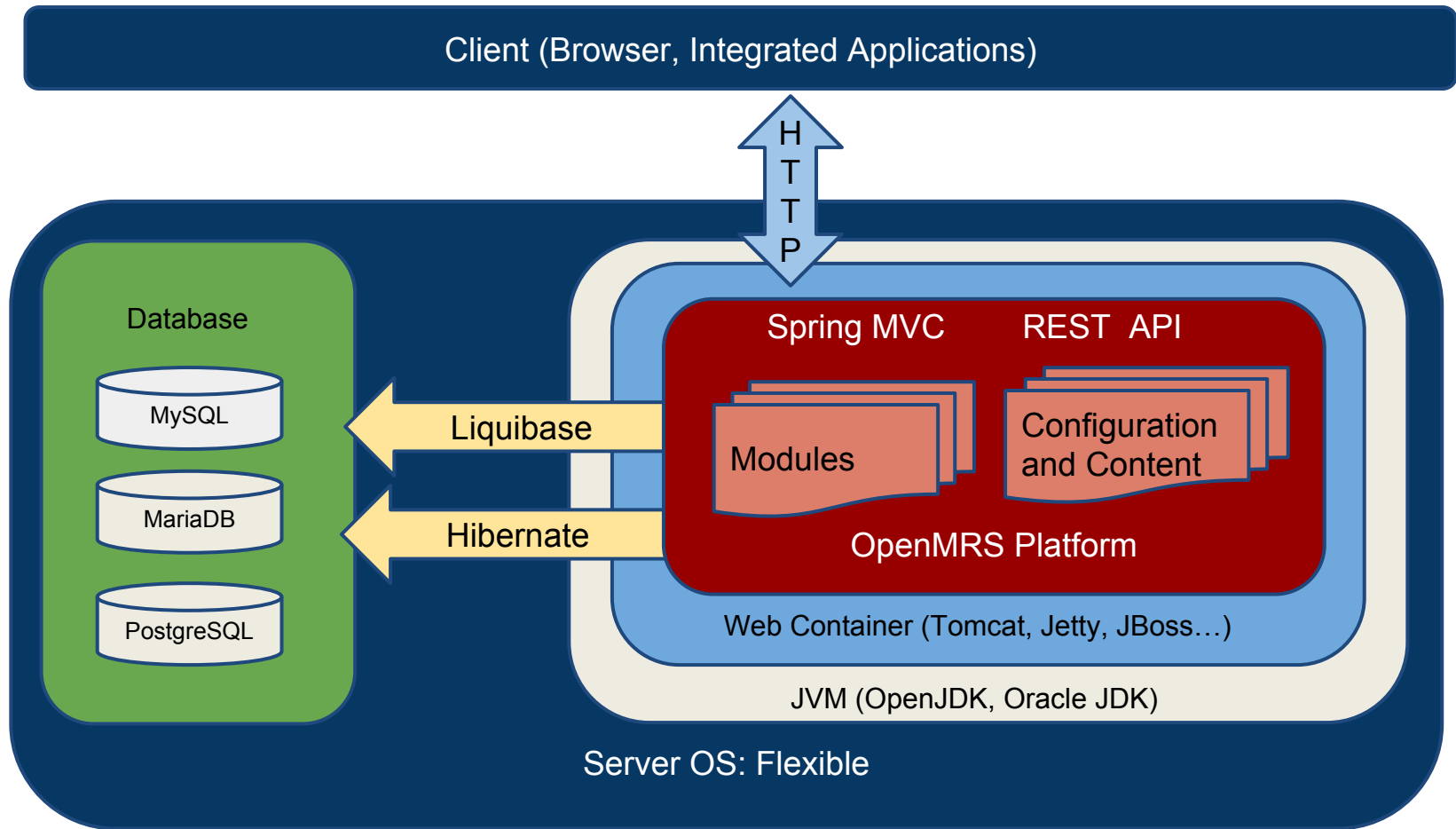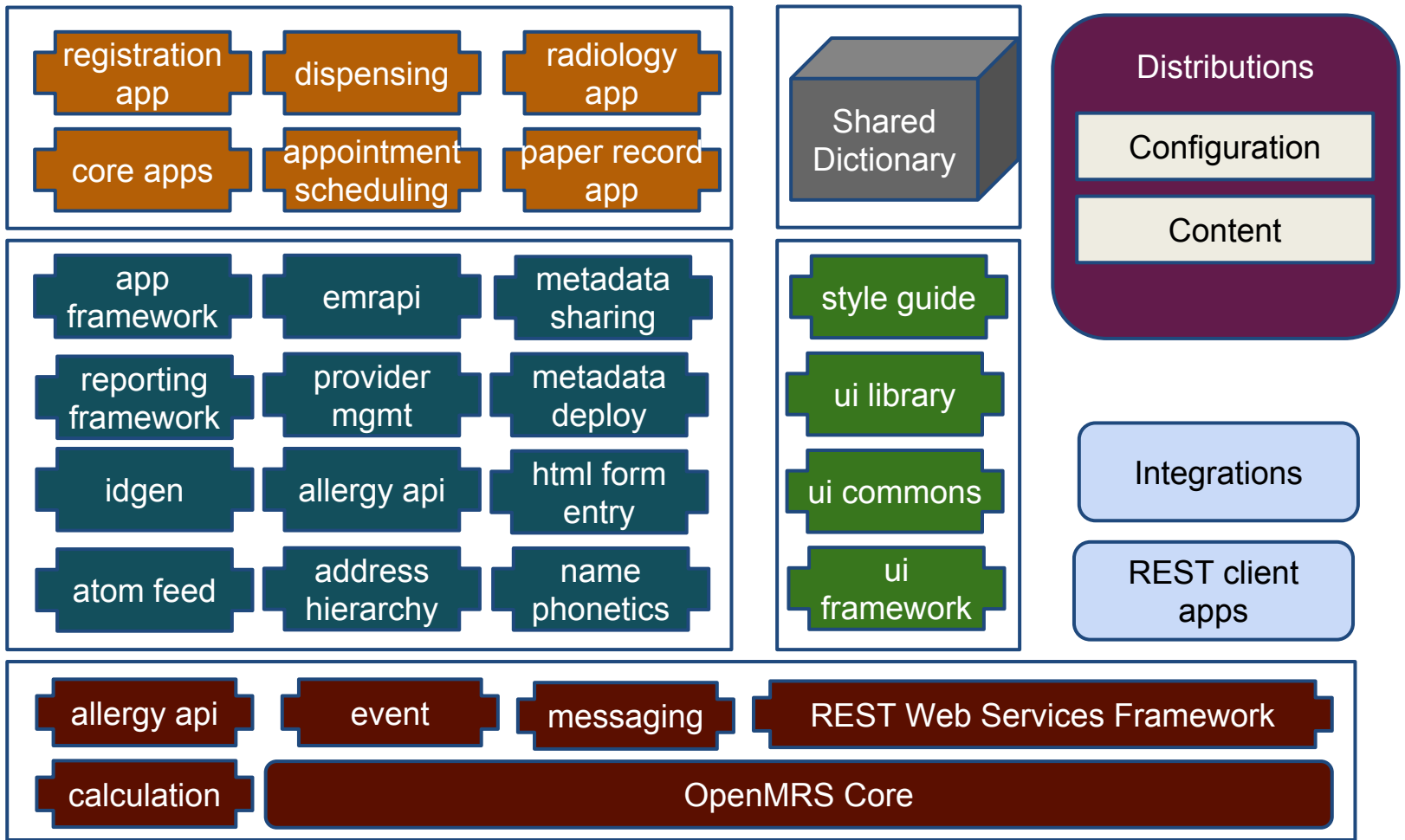
2005

Partners
In Health

PIH begins collaboration with Regenstrief Institute to create OpenMRS.

- global health community
- free & open
- collaboration
- replication
- cost benefits

2005: Why OpenMRS?

Why OpenMRS? Free and open

Why OpenMRS? Modular

Flat Model

New data points require new columns

Name	Weight	Height
John Doe	150	65

→

Name	Weight	Height	Temp
John Doe	150	65	99

EAV Model

New data points require new rows.

Metadata dictionary enables associating more information describing each data point (eg. units, value ranges)

Concept	Units
Weight	lbs
Height	in

Name	Concept	Value
John Doe	Weight	150
John Doe	Height	150

→

Concept	Units
Weight	lbs
Height	in
Temp	f

Name	Concept	Value
John Doe	Weight	150
John Doe	Height	150
John Doe	Temp	99

Why OpenMRS? Flexible

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Configurable and shareable metadata, including forms

Configurable components via editable settings

Customizable functionality, including overriding core pages, styles, logos via modules

Why OpenMRS? Configurable

Partners In Health

Active forums

#OpenMRS on irc.freenode.net

Developers list: dev@openmrs.org

https://talk.openmrs.org/
https://wiki.openmrs.org

Many contributors with broad expertise

Thanks to the complete list of code contributors to OpenMRS 2.1:

@alexis_duque , Andrew Szell, @angshuonline , @aniketha , Anton Kravchenko, Arathy-mac, @bwolfe , @burke , @cintiadr , @cioan , Damian Szafranek, Damitha Kithmal, @dkayiwa , @darius , @endeepak , Filip Biedrzycki, Geoffrey W Wasilwa, Gitahi Ng'ang'a, Glauber Ramos, @harsha89 , Hemanth, Jakub Kondrat, @k_joseph , Krzysztof Kaczmarczyk, Lech Rozanski, Lee Breisacher, @lbat , Madawa Soysa, Marek Szukalski, @mogoodrich , Mihir, @mseaton , Miss Beens, Mujir Shaikh, @marioareias , Nehashri P L, Neissi Torres Lima, @ningosi , @nyoman , Pamela Canchanya, Paweł Muchowski, Przemyslaw Gierszewski, Radek Puzdrowski, Radoslaw Puzdrowski, @raff , Rohan Poddar, Rowan Seymour, @sunbiz , Shruthi Dipali, @suraj5 , Sushmitha Rao, Vinay Venu, Vinkesh Banka, Wesley Spencer See, @willa , @wyclif , hemanths, indraneelr, Łukasz Gąsior

♥   🔗   🏳   🔖   ↩ Reply

6 people liked this. Like it too.

Regular (un)conferences

Building the movement

- Not reliant on any one organization

- Evolving regional communities

- Supports scaling and replicating

Why OpenMRS? Community

AMPATH starts using OpenMRS in Kenya.

PIH Rwanda begins using OpenMRS in Rwanda.

2006

PIH begins work in Lesotho and Malawi, launching testing and treatment programs for HIV and TB.

PIH Lesotho and Malawi uses OpenMRS.

2007

Partners
In Health

PIH develops OpenMRS MDRTB module for many countries and organization including Haiti, Pakistan, Nepal, and South Africa.

2009

PIH trains computer science graduates in Java and OpenMRS in Rwanda. 34 graduates in 3 years.

2009

Partners In Health

PIH responds to a 7.0 earthquake in Haiti with lifesaving emergency care and a plan to strengthen Haiti's public health system.

PIH provides treatment and vaccination in response to cholera outbreak.

2010

"The new teaching hospital at Mirebalais will be a model for our national health system, offering high-quality medical services, a place for our clinicians to study and train, and hope and dignity to all who will seek—and offer—care there. We look forward to building upon our long-standing partnership with Partners In Health/ Zanmi Lasante with this desperately-needed facility."
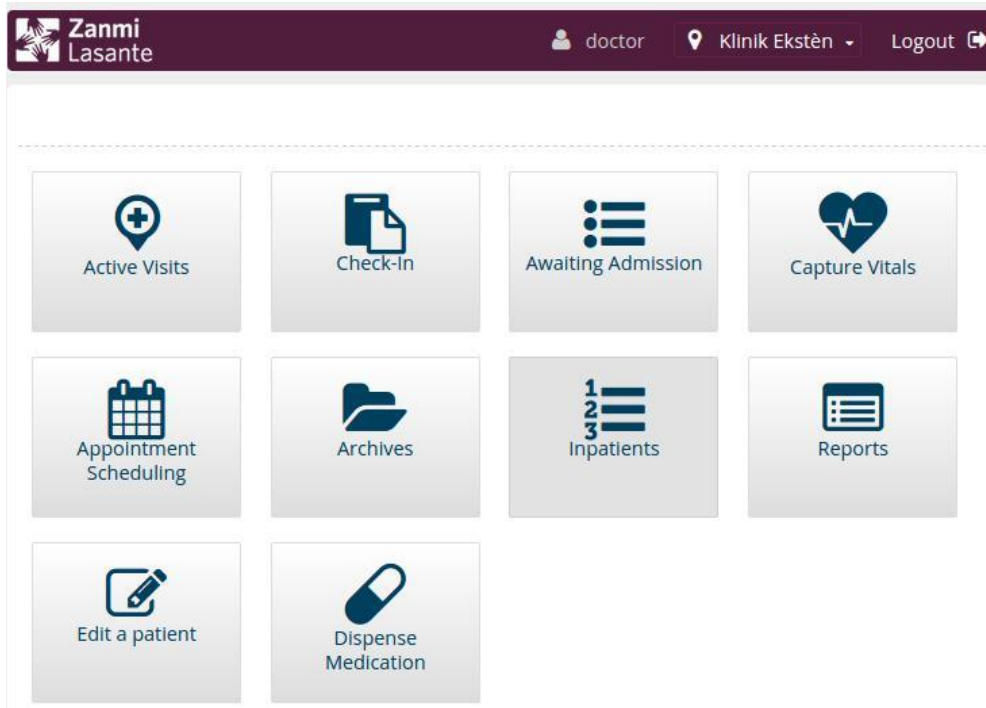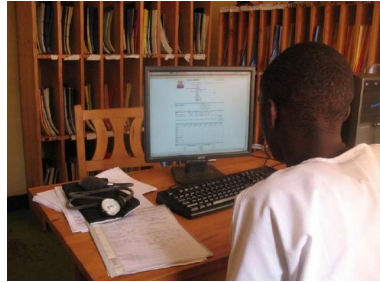
— Dr. Alex Larsen,
Haitian Minister of Health

Partners In Health

Clinical care

Point of care

Registration

Appointments

Vitals

Medications

Surgery

2013

Partners In Health

PIH develops OpenMRS for University Hospital which becomes the basis of the OpenMRS 2.0 Reference Application.

2013

2013

Since March 2013:

150K unique patients
480K visits
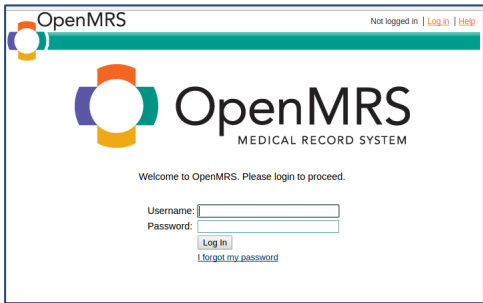1.3M encounters
6.7M observations
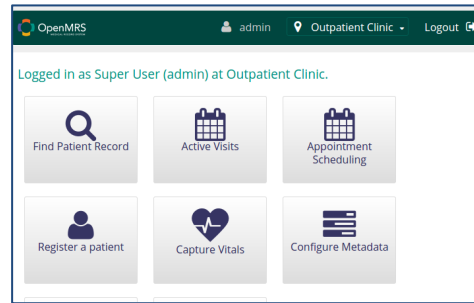400+ users

2015: HUM by the numbers

PIH continues ebola response work in Sierra Leone and Liberia, but transitioning to health care strengthening.
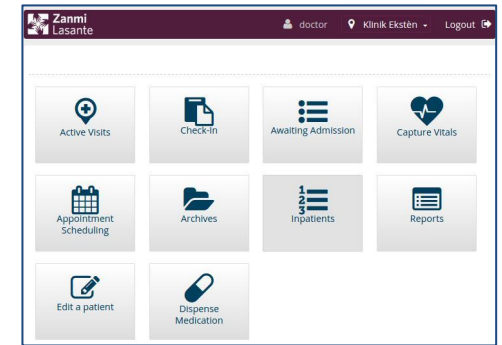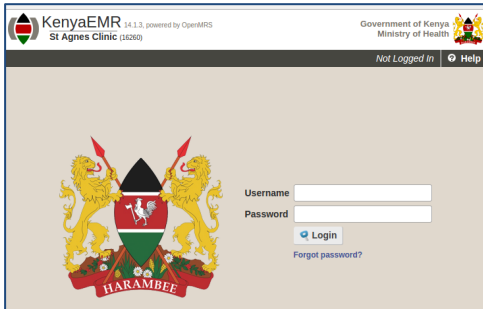
2015

Partners
In Health

Where next?

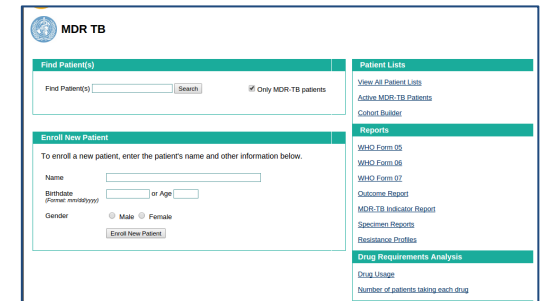**OpenMRS 1.x**

OpenMRS 2.x

Mirebalais

KenyaEMR

Bahmni

MDR-TB

Distributions

- Partners In Health (pih.org)
  - Medical Informatics positions
    - Boston
    - Lesotho
    - Malawi
  - http://www.pih.org/pages/employment
  - PIH Engage
  - Donate
- OpenMRS community
  - Sprints / Bug fixes / Documentation
  - Google Summer of Code

Opportunities