The Open Health Information Exchange (OpenHIE) Community: Supporting Health Information Architectures in Emerging Economies

Paul Biondich, MD MS
…and the growing OpenHIE community

What We'll Cover

- How I got involved in global health
- Project in Rwanda
- It's Underpinnings
- How that "gave birth" to OpenHIE
- What OpenHIE is all about

Paul

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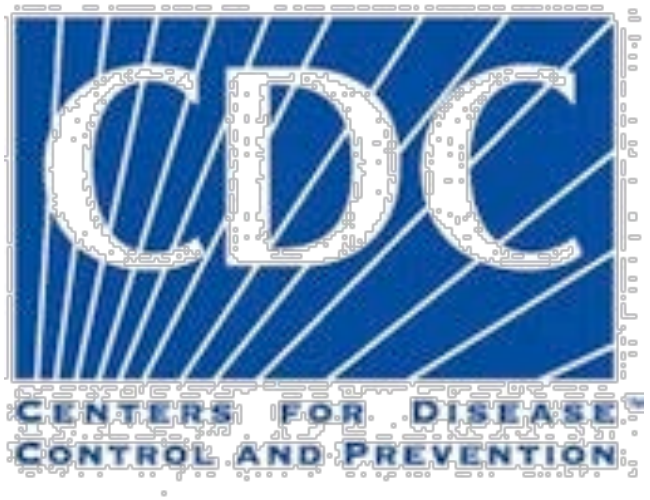
OpenMRS

MEDICAL RECORD SYSTEM



BILL & MELINDA GATES foundation

THE ROCKEFELLER FOUNDATION

Abbott

Rwanda Health Enterprise Architecture Project (RHEA)

- Goal – Creating Health Information Architecture for Country
- Support - International Development Research Centre (IDRC) (Ottawa, Canada), Rockefeller Foundation (New York, USA), PEPFAR (USA)

Why?

Health Sector Strategic Plan

July 2009 – June 2012

Government of Rwanda

Ministry of Health

Health Sector Strategic Plan

July 2009 – June 2012

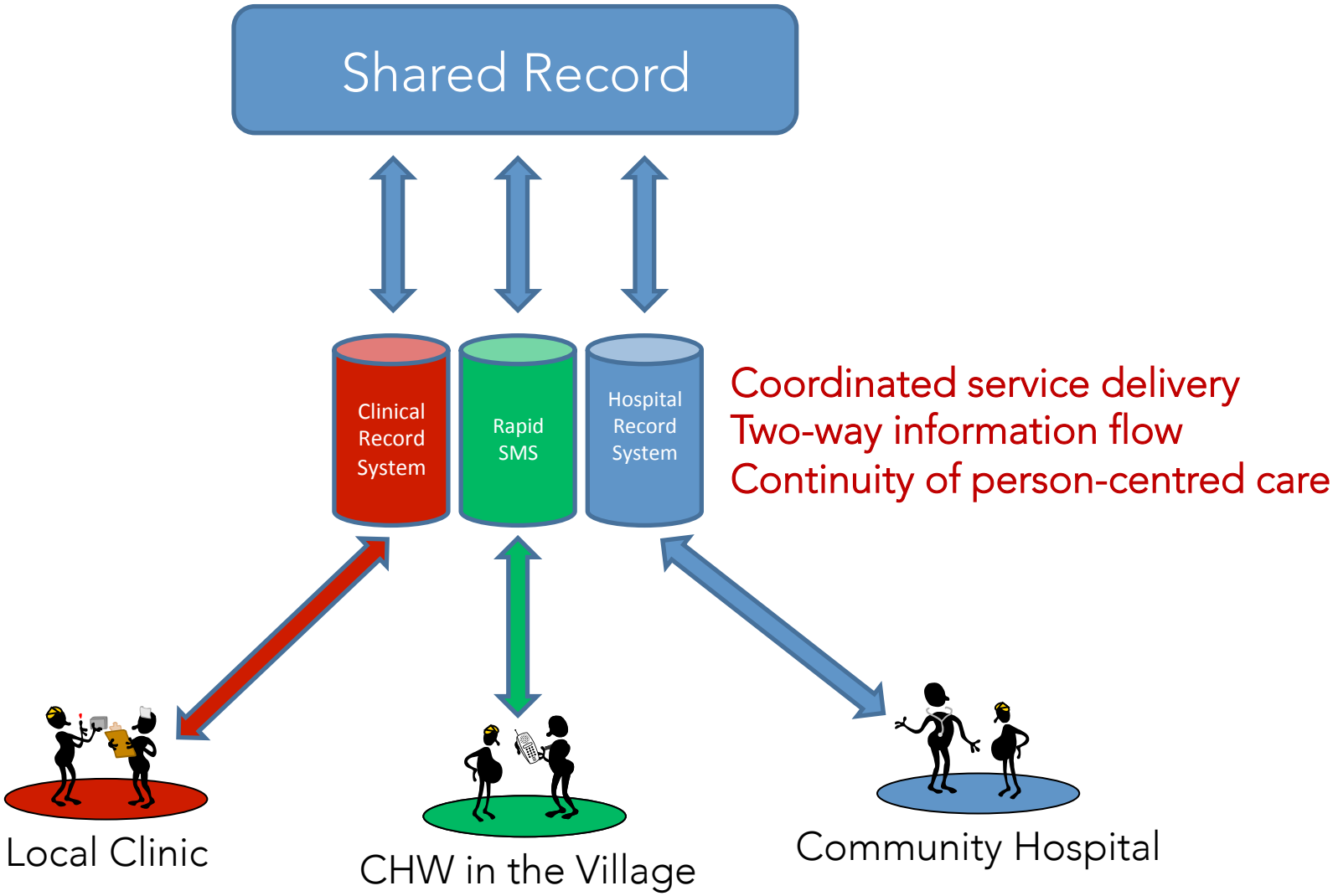
3.2. Strategic objectives

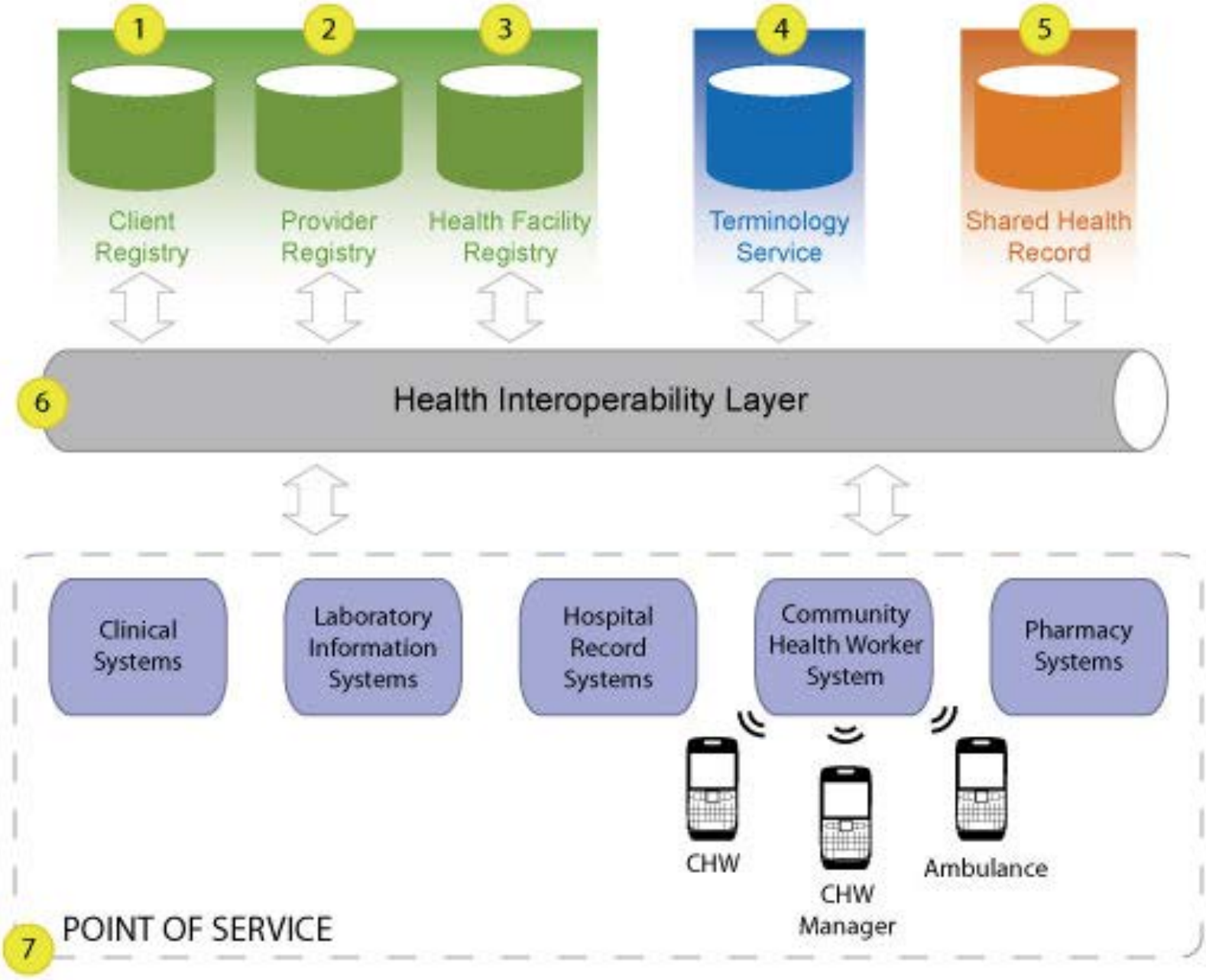
3.2.1 To improve accessibility to, quality of and demand for MCH/FP/RH/Nutrition services

The average Maternal Mortality Ratio (MMR) during the 5 years before 2000 stood at 1071 per 100,000 live births (DHS 2000 which had decreased to 750 for the 5 years preceding 2005 (DHS 2005). Despite the decrease, maternal mortality is still high and is not predicted to meet the target in Vision 2020 of 200 per 100,000. In 2005 over 3,800 (over 70%) deliveries occurred outside a health

Government of Rwanda

Ministry of Health


Shared Record
Clinical Record System
Rapid SMS
Hospital Record System
Coordinated service delivery
Two-way information flow
Continuity of person-centred care
Local Clinic
CHW in the Village
Community Hospital


1
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3
4
5
Client Registry
Provider Registry
Health Facility Registry
Terminology Service
Shared Health Record
6
Health Interoperability Layer
Clinical Systems
Laboratory Information Systems
Hospital Record Systems
Community Health Worker System
Pharmacy Systems
CHW
CHW Manager
Ambulance
7
POINT OF SERVICE

Client Registry

- An enterprise master patient index (EMPI), or *Client Registry* manages the unique identity of citizens receiving health services with the country – "For whom"

Provider Registry

- A *Provider Registry* is the central authority for maintaining the unique identities of health providers within the country – "By whom"

Facility Registry

- A *Health Facility Registry* serves as a central authority to uniquely identify all places where health services are administered within the country – "Where?"

Terminology Service

- A *Terminology Service* serves as a central authority to uniquely identify the clinical activities that occur within the care delivery process by maintaining a terminology set mapped to international standards such as ICD10, LOINC, SNOMED, and others – "What?"

Shared Health Record

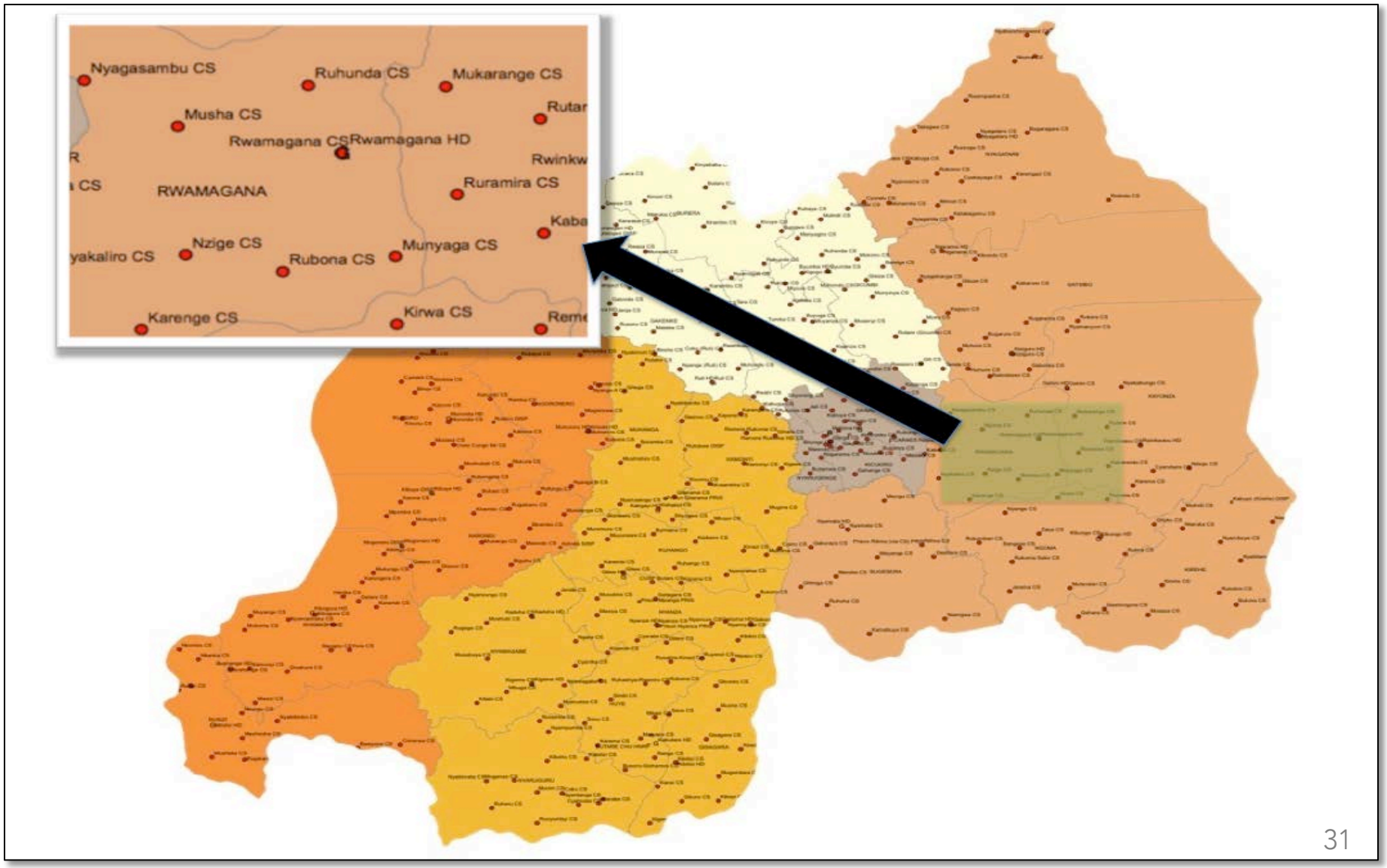
- A *Shared Health Record* (SHR) is a repository containing the normalized version of content created within the community, after being validated against each of the previous registries. It is a collection of person-centric records for patients with information in the exchange.

Health Interoperability Layer

- A *Health Interoperability Layer* receives all communications from point of service applications within a health geography, and orchestrates message processing among the point of service application and the hosted infrastructure elements.

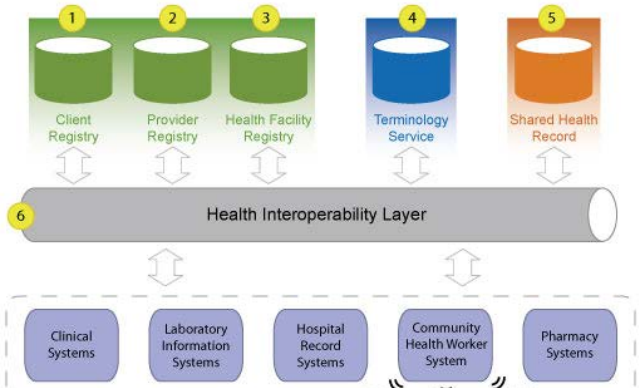
Rwanda – October 2012 (Pilot)

Rwanda – October 2012 (Pilot)

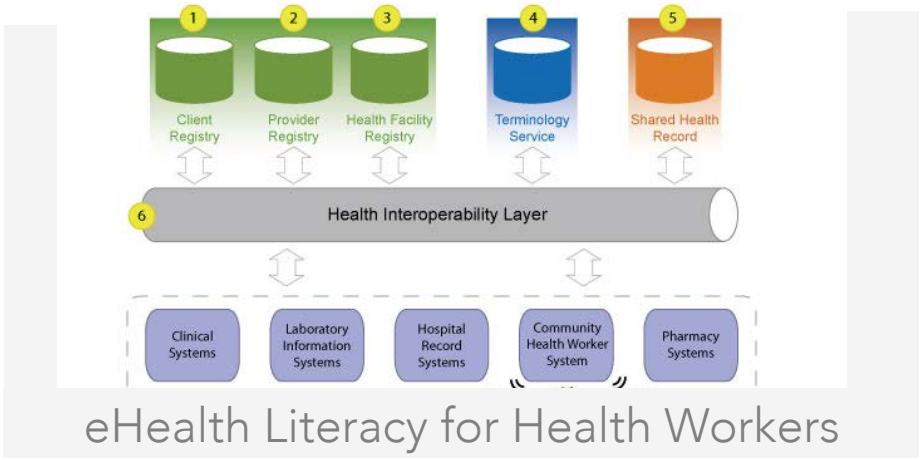


CENTRE DE SANTE
MUSHA
USAID
TWUBAKANE

Country Leadership & eHealth Capacities

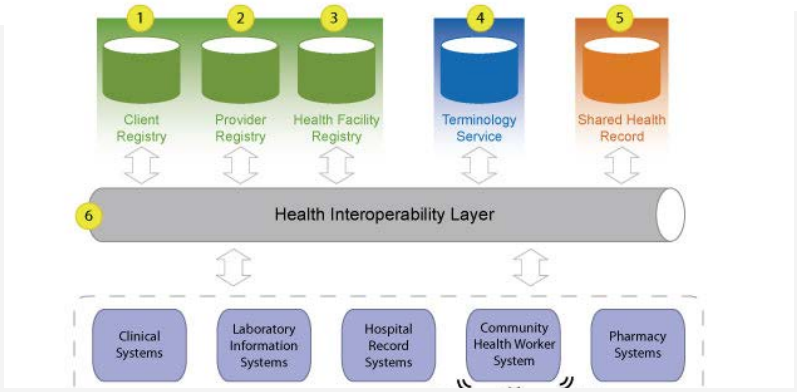


Country Leadership & eHealth Capacities



eHealth Literacy for Health Workers

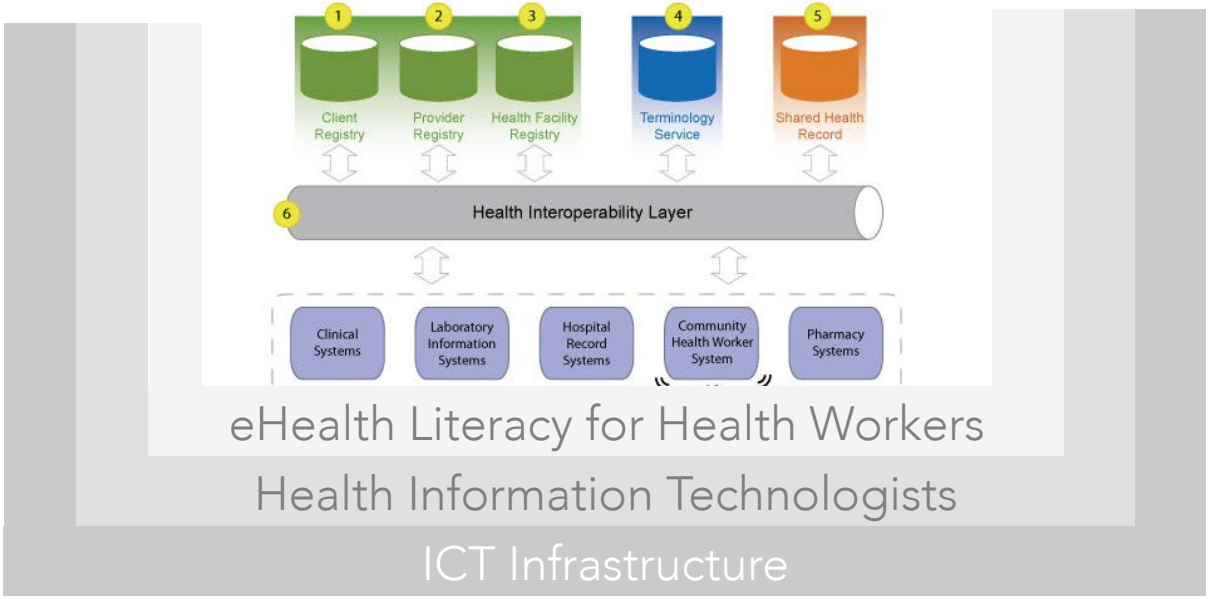
Country Leadership & eHealth Capacities



eHealth Literacy for Health Workers

Health Information Technologists

Country Leadership & eHealth Capacities



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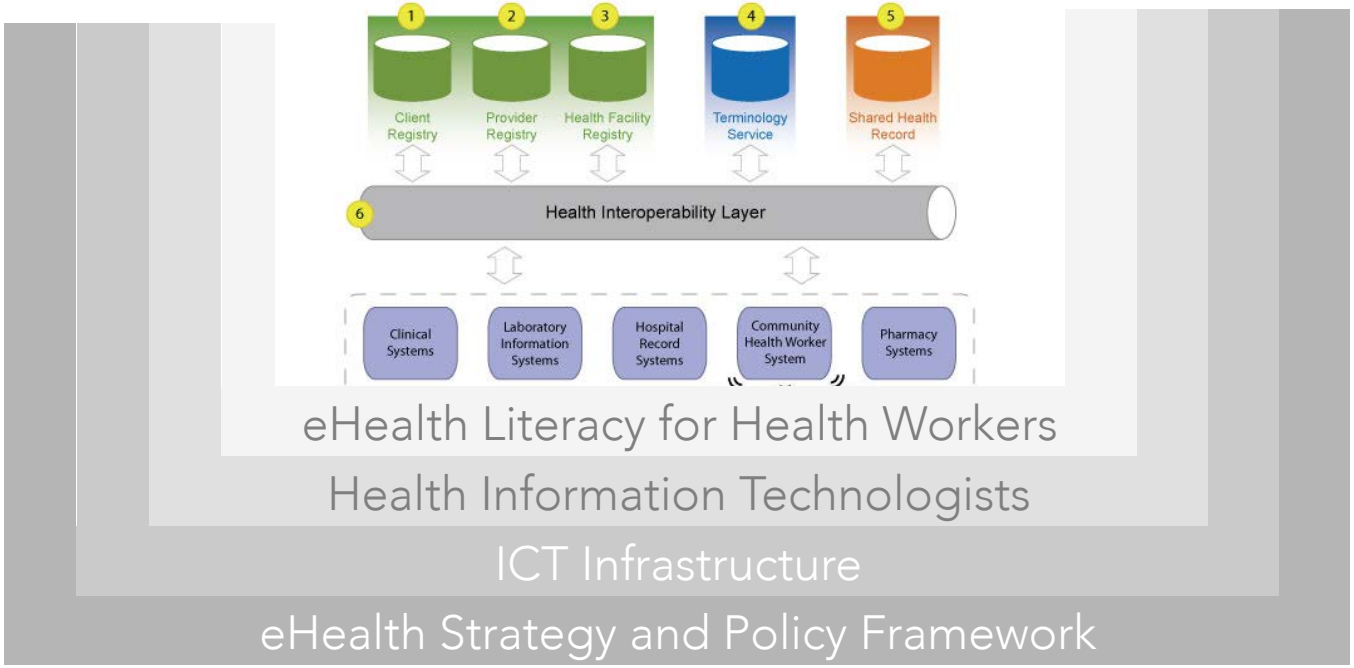

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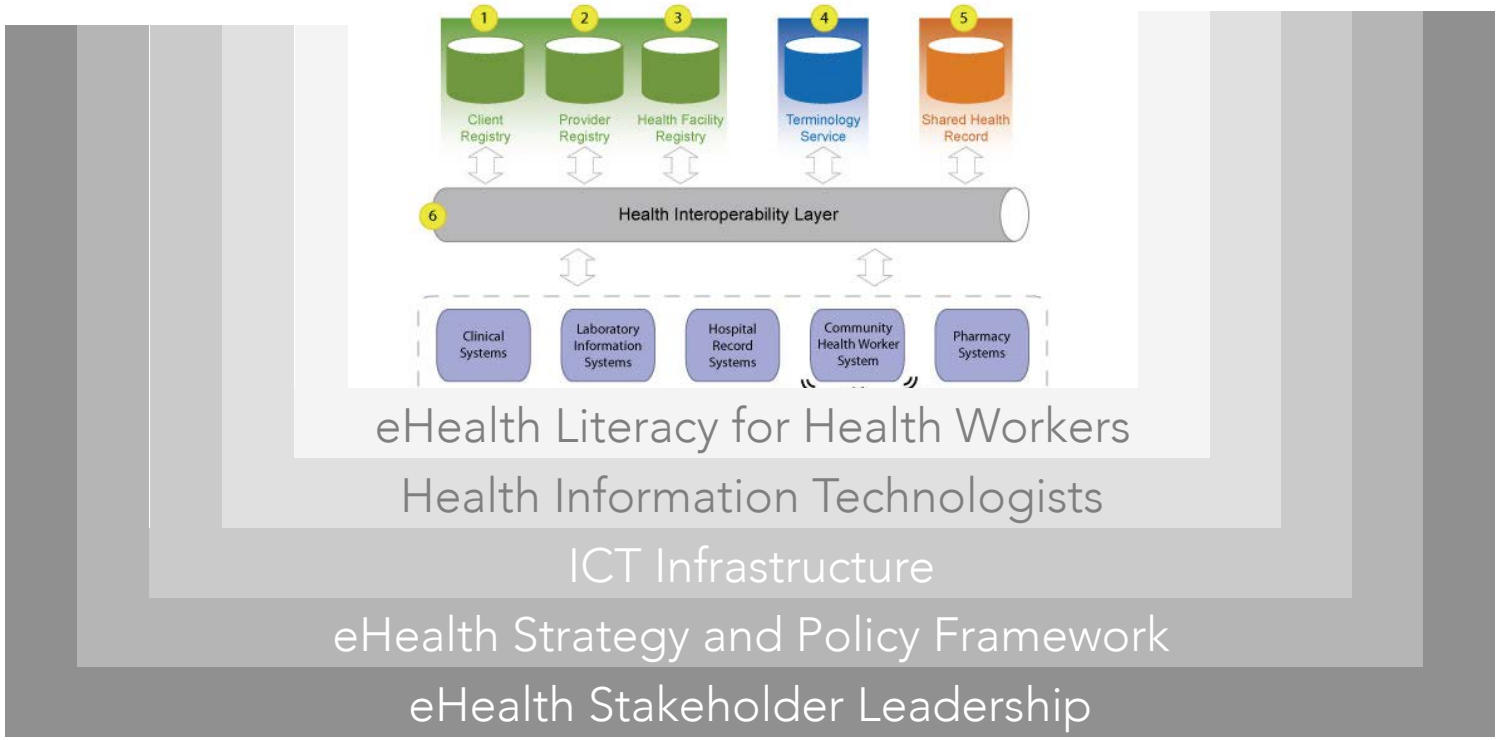

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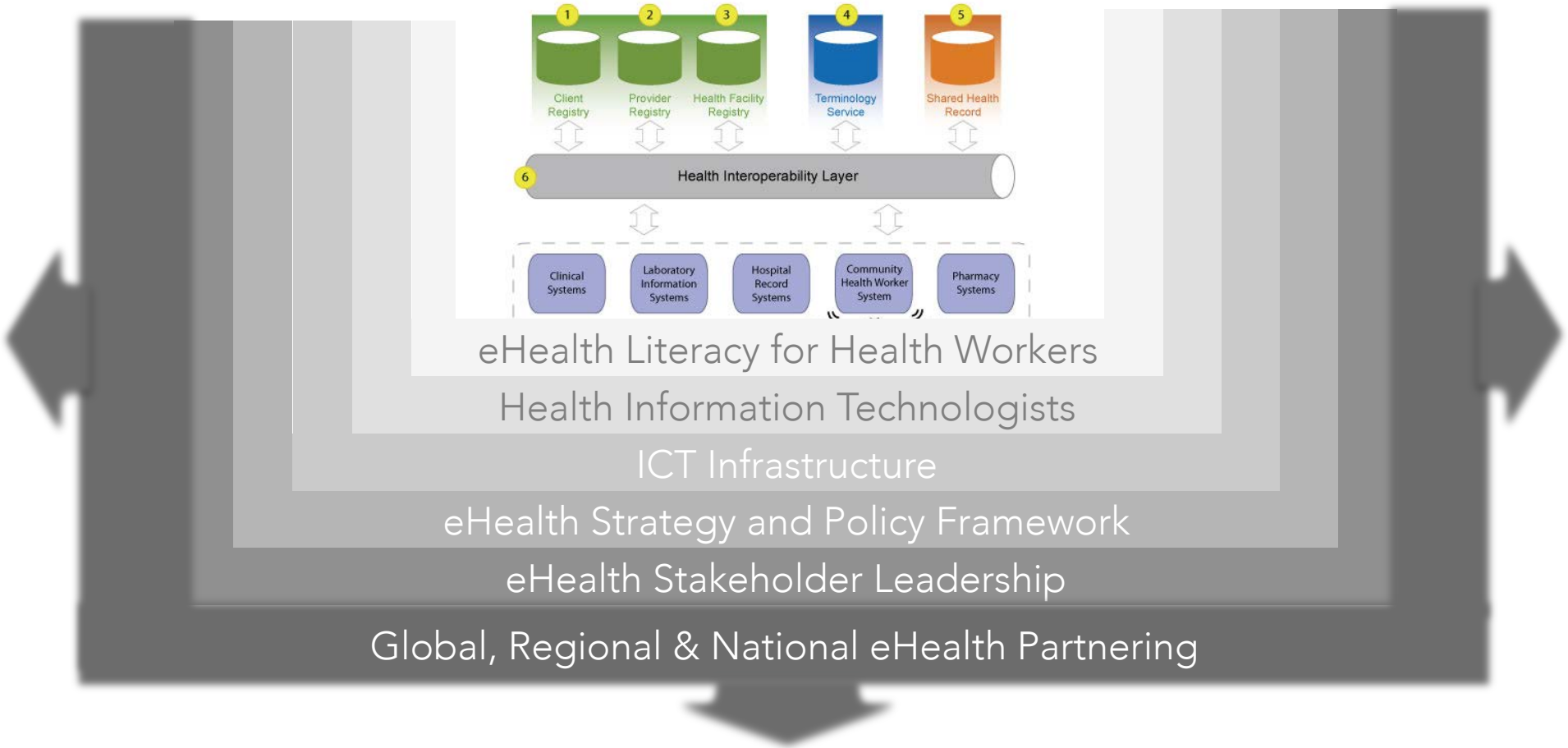
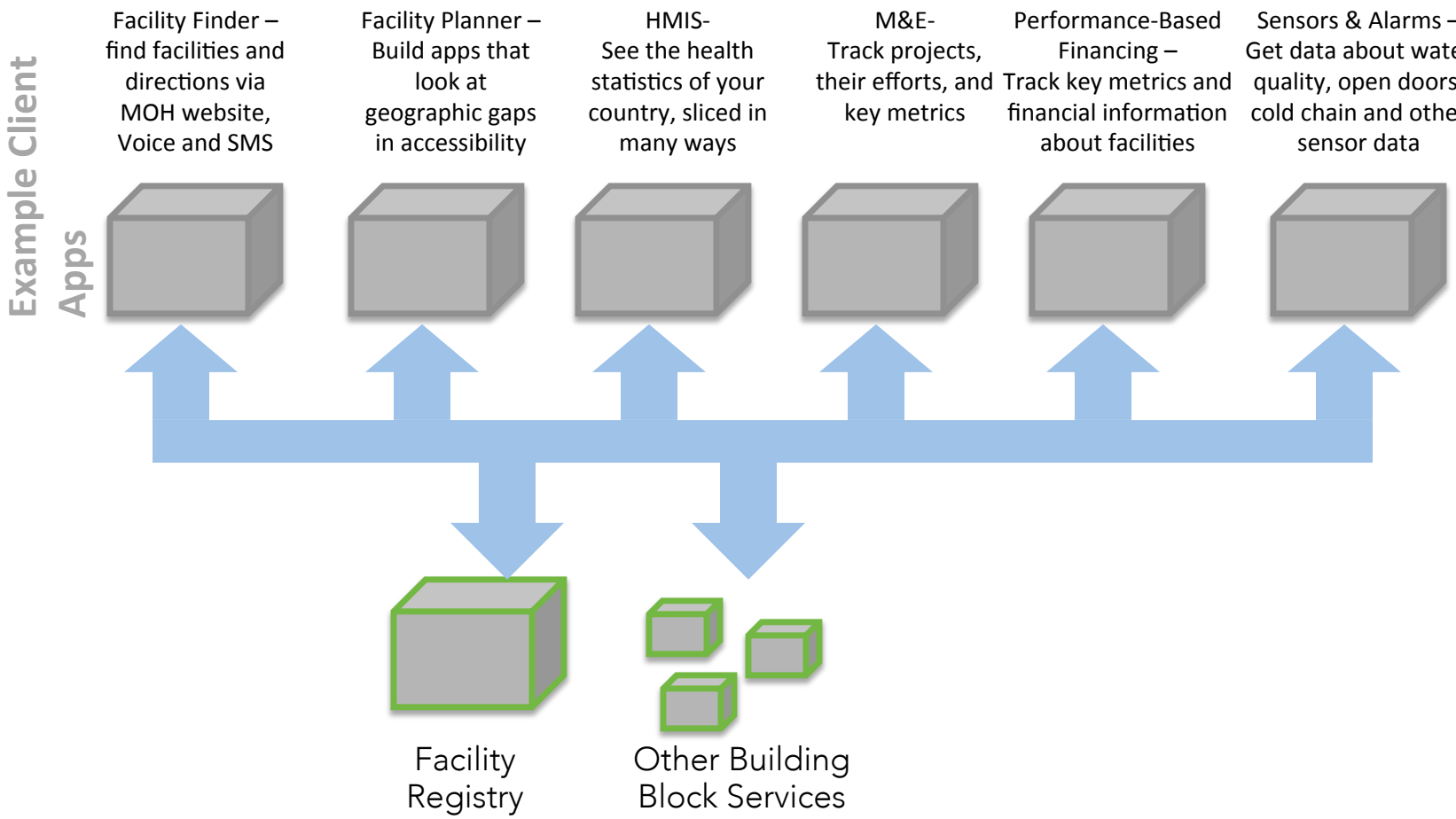


Open Architecture Grows Ecosystems



OpenHIE

"Our mission is to improve the health of the underserved through the open, collaborative development and support of country driven, large scale health information sharing architectures."

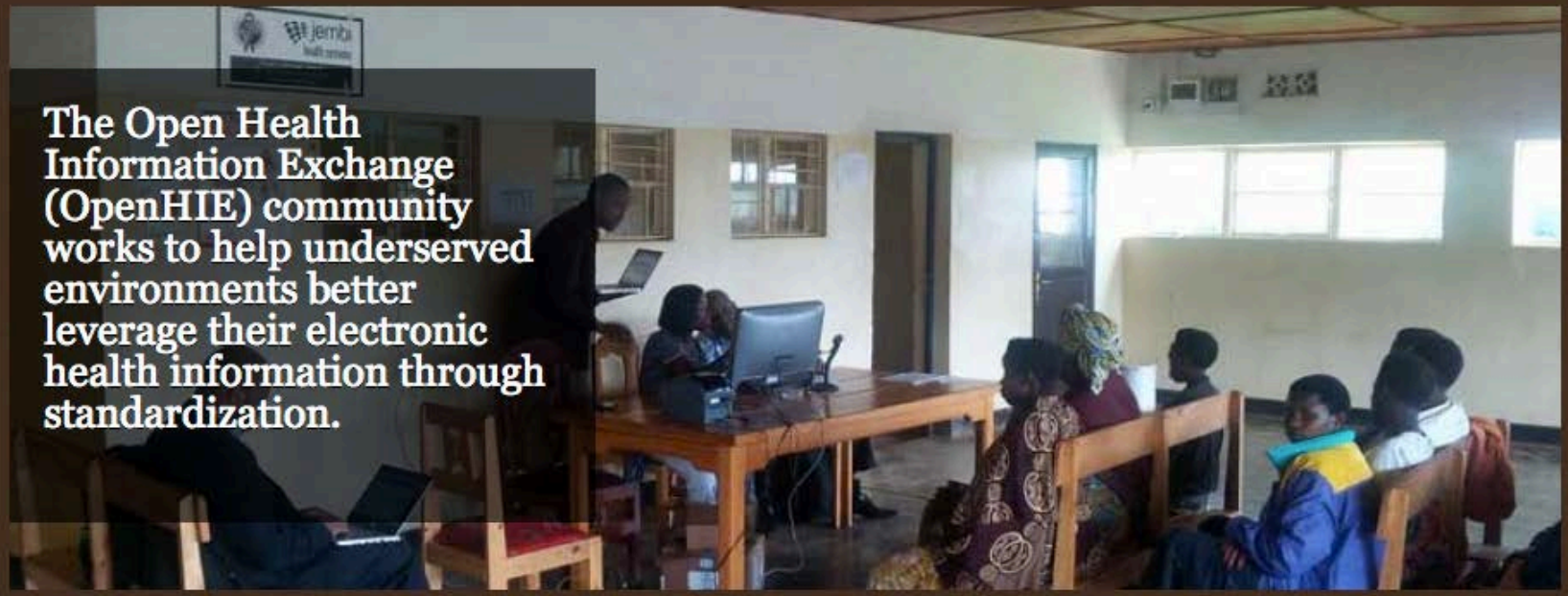
Community of Communities

- Client Registry
- Facility Registry
- Provider Registry
- Terminology Service
- Shared Health Record
- Interoperability Layer

OpenHIE

http://ohie.org

Home | About Us | Subcommunities | Architecture | Our Work | Project Wiki | Get Involved | News/Media



The Problem

Health systems depend on many types of information related to patients, health care providers, health centers, and health conditions. This vital information

Our Solution

We understand that all countries wrestle with their ability to access consistent, high quality health information. That is why we are determined to bring current and

Our Approach

Open source. The power of the open source approach fosters collaboration, interoperability and long term sustainability while controlling costs; this cannot be

OpenHIE

- Areas of focus to support real world use cases:
  - Community Development (incl. Capacity Dev)
  - Reference Technologies and "Sandbox"
  - Bi-Directional Interface to SDOs (in particular, IHE)
    - quick word about CSD

- Community of Communities
  - Client Registry, Facility Registry, Provider Registry, Terminology Service, Shared Health Record, Interoperability Layer

Query encounters workflo ×

https://wiki.ohie.org/display/documents/Query+encounters+workflow

Apps | AMPATH | OpenMRS | Technology | Personal | Sports | Media Server | Shorten | BitcoinWisdom

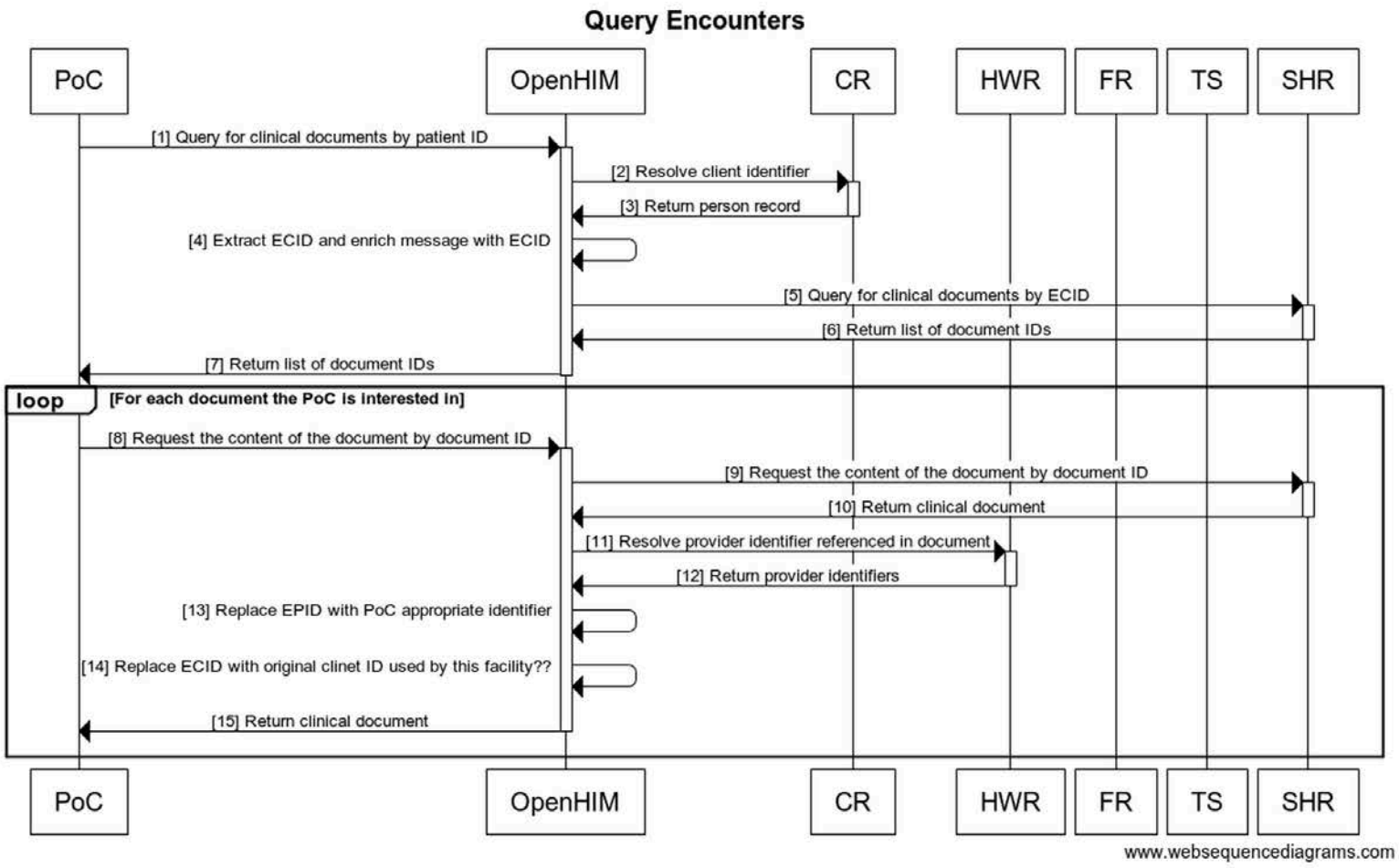
OpenHIE Spaces People Calendars Browse Create

OpenHIE Community Wiki

Documents
Subcommunities
Projects
Resources

Documents

- OpenHIE Introduction
- OpenHIE Strategy
- OpenHIE Architecture
  - Architecture Governance and Principals
  - Architecture Workflow Process
    - Workflow Documentation
      - OpenHIE Workflows
        - Aggregate data from the SHR
        - CSD Query for services
        - Get patient workflow
        - **Query encounters workflow**
        - Query patients workflow
        - Register patient workflow
        - Save encounter workflow
        - Send alert workflow
        - Send pre-aggregated indicator data
        - Update patient workflow
      - OpenHIE Transactions
      - OpenHIE Health Worker Registry Workflows
      - OpenHIE Interoperability Layer Workflows
      - OpenHIE Shared Health



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OpenHIE Web Demo

demo.ohie.org

Apps AMPATH OpenMRS Technology Personal Sports Media Server Shorten BitcoinWisdom

OpenHIE

OpenHIE Demo

- About the Demo

Components

Click on a component to load it on the right. If needed, the username and password will be provided for the component.

- Point of Care
- Interoperability Layer
- Client Registry
- Health Worker Registry
- Facility Registry
- Terminology Service
- Shared Health Record

About the Demo

Disclaimer

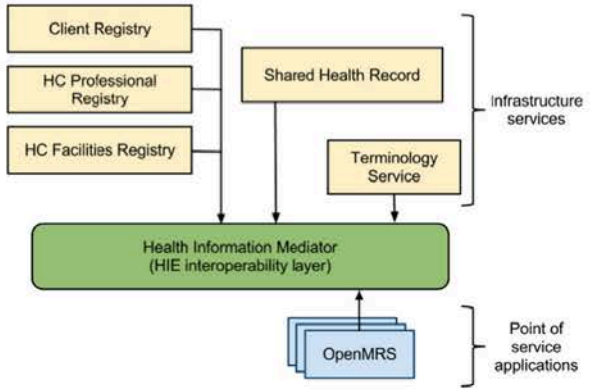
This is a reference implementation and work in progress. This is an alpha release and is provided as-is.

Browser Requirements

- Chrome
- Firefox
- Safari

The OpenHIE Web Demo is a demonstration of OpenHIE software components. This demo is based off of the currently implemented version in Rwanda. This does not represent changes we are currently implementing which include using IHE profiles and more standardized messages. More information on the future architecture can be found here. This demonstration environment will be reset every night at 23:00 UTC (19:00 EST).

The following diagram explains the various components of a health information exchange implementing OpenHIE recommendations. Links in the left sidebar provide access to integrated demonstrations of these components.



Common Tasks

Below are some common tasks that will be performed in the point of care system

The Technology is the Easy Part!

- Different governance and social constructs
- Getting to the “killer use case”
- Building capacity at all levels

- How we try to address: community, documenting best practices, community, multiple reference implementations, and more community!

Questions?

OpenHIE

http://ohie.org

Want my deck? Scan ->

..or hit: http://pgb.me/rwm

Health Informatics Public Private Partnership (HI-PPP)

"Mission is to scale up and advance country ownership of health information systems using an enterprise architecture methodology."

- Funding - U.S. President's Emergency Plan for AIDS Relief (PEPFAR)
- HI-PPP & RHEA project partnered up to support and deliver a health information exchange in Rwanda.