



GNU Health : Freedom and Equity in Healthcare Implementation in the Government of Jamaica

Dr. Luis Falcón

falcon@gnu.org



Functionality Areas : "People before Patients"



Person Level

Demographics, Socioeconomics, Lifestyle, ...

Patient Level

Evaluations, Genetics, prescriptions, History, surgeries...

Health Center Level

Hospitalizations, Finances, Billing, Laboratory, stock

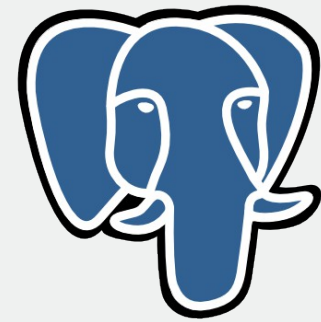
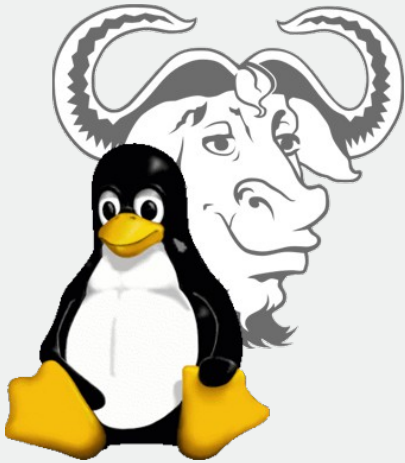
Health Government Level

Epidemiology, OLAP, reporting

GNU Health : The Free Health and Hospital Information System



GNU Health relies on Free Technology



PostgreSQL



GNU Health : Modular Design

GNU Health Modular Design



Communitary Development Environment



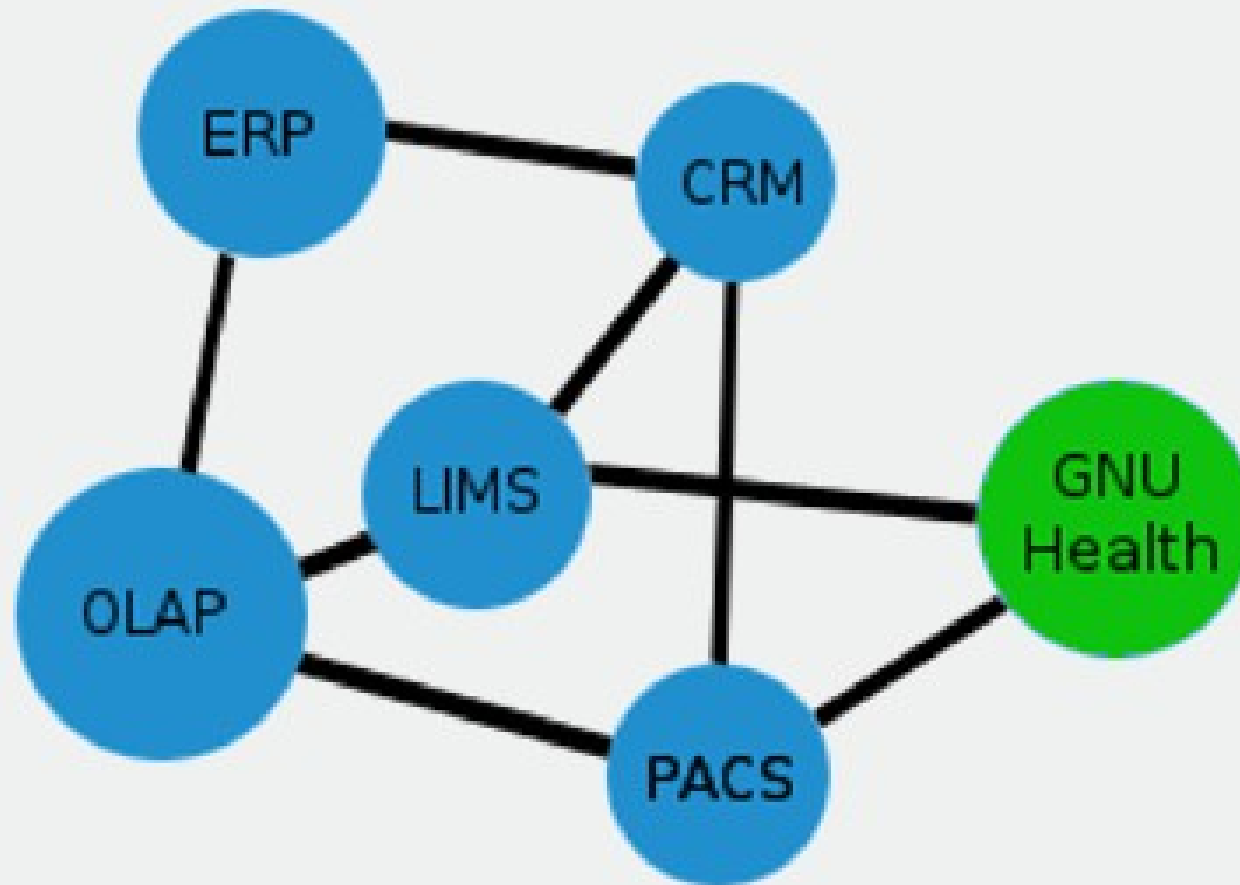
Localization portal : over 80
languages



Source code, mailing lists, bugs
GNU Savannah



Interoperability



Interoperability : Lab Module

File User Options Favorites Help

Search

- Party
- Product
- Financial
- Currency
- Inventory & Stock
- Calendar
- Health
 - Patients
 - Patients
 - Appointments
 - Prescriptions
 - Demographics
 - Laboratory
 - Request Lab Test
 - Lab Test Requests
 - Lab Tests Results**
 - Hospitalizations
 - Pediatrics
 - Nursing
 - Health Services
 - Reporting
 - Configuration
 - Administration

Lab Tests Results 1 / 1

Main Info Extra Info

ID: TEST001 Test type: COMPLETE BLOOD COUNT

Date of the Analysis: 06/30/2013 23:09:19

Patient: Betz, Ana Pathologist: Hadley, Remy

Date requested: 07/01/2013 02:05:03 Physician: Cordara, Cameron

Lab Test Critearea (14/18)

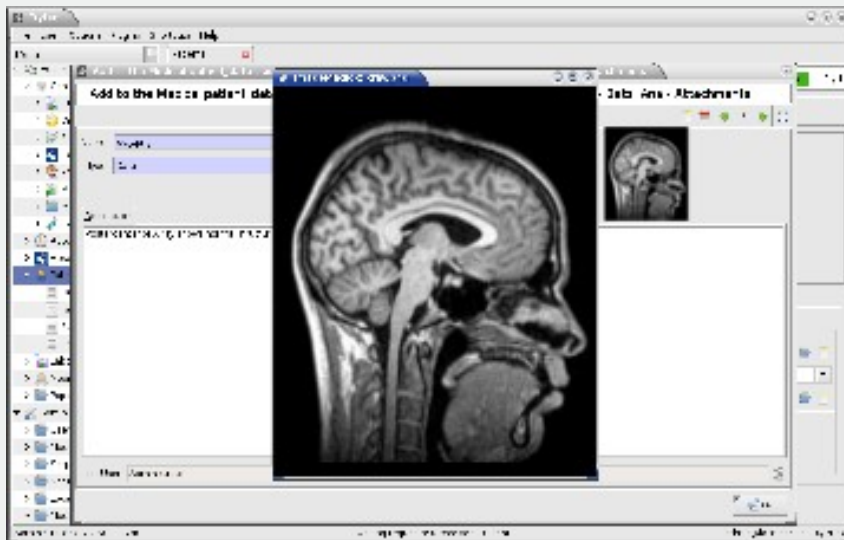
Warn	Excluded	Analyte	Value	Result - Text	Lower Limit	Upper Limit	Units	Remarks
<input type="checkbox"/>	<input type="checkbox"/>	Hemoglobin	12.00		11.00	16.00	g/dL	
<input type="checkbox"/>	<input type="checkbox"/>	RBC	4.50		3.50	5.50	10 ⁶ /uL	
<input type="checkbox"/>	<input type="checkbox"/>	HCT	39.00		37.00	50.00	%	
<input type="checkbox"/>	<input type="checkbox"/>	MCV	83.00		82.00	95.00	fL	
<input type="checkbox"/>	<input type="checkbox"/>	MCH	28.00		27.00	31.00	pg	
<input type="checkbox"/>	<input type="checkbox"/>	MCHC	33.00		32.00	36.00	g/dL	
<input type="checkbox"/>	<input type="checkbox"/>	RDW-CV	13.00		11.50	14.50	%	
<input type="checkbox"/>	<input type="checkbox"/>	RDW-SD	40.00		35.00	56.00	fL	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	WBC	13.00		4.50	11.00	10 ³ /uL	Patient with bacterial pneumonia
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NEU%	75.00		40.00	70.00	%	
<input type="checkbox"/>	<input type="checkbox"/>	LYM%	22.00		20.00	45.00	%	
<input type="checkbox"/>	<input type="checkbox"/>	MON%	5.00		2.00	10.00	%	
<input type="checkbox"/>	<input type="checkbox"/>	EOS%	3.00		1.00	6.00	%	
<input type="checkbox"/>	<input type="checkbox"/>	BAS%	0.00		0.00	2.00	%	

Administrator - GNU SOLIDARIO HOSPITAL [Euro] Waiting requests: 0 received - 0 sent admin@localhost:8000/health20rc1



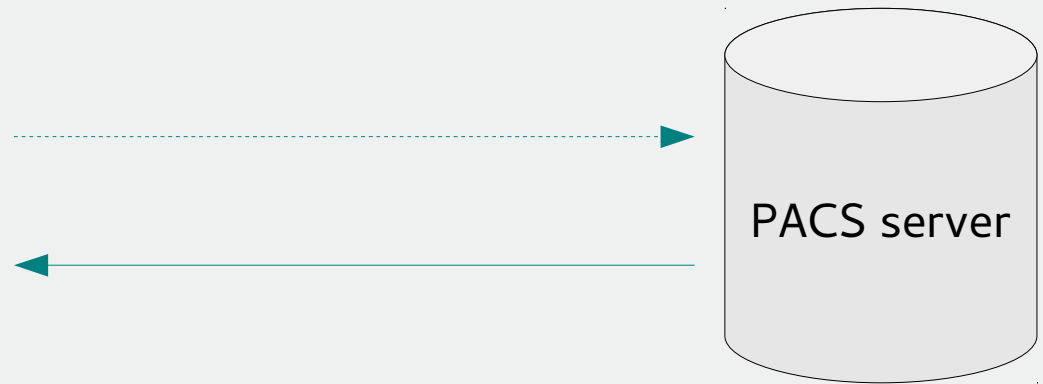
Interoperability - Imaging

GNU Health



Can store the image, metadata
or DICOMDIR location

ORTHANC



Government of Jamaica chooses GNU Health



300+ "GNU" Health facilities nation-wide



Working with the local team from the MoH



Georeferencing and Early Warning System

File User Options Favorites Help

Patients Domiciliary U ...

Domiciliary Units

1 / 1

Code: Desc:

Street: Number: Apartment:

District: Municipality: City:

Zip Code: Country: Province:

Latitude: Longitude: OSM Map:

Conditions:

Infrastructure

Material: Roof:

Bathrooms: Running Water: ☒

Gas supply: ☐ Telephone: ☒

Members

Code	Name	Last Name	SSN
2	Ana	Betz	55567890
5	John	Zenón	40556644
4	Matt	Zenon Betz	97234436

Visualizza Modifica Storico Esporta

Type:

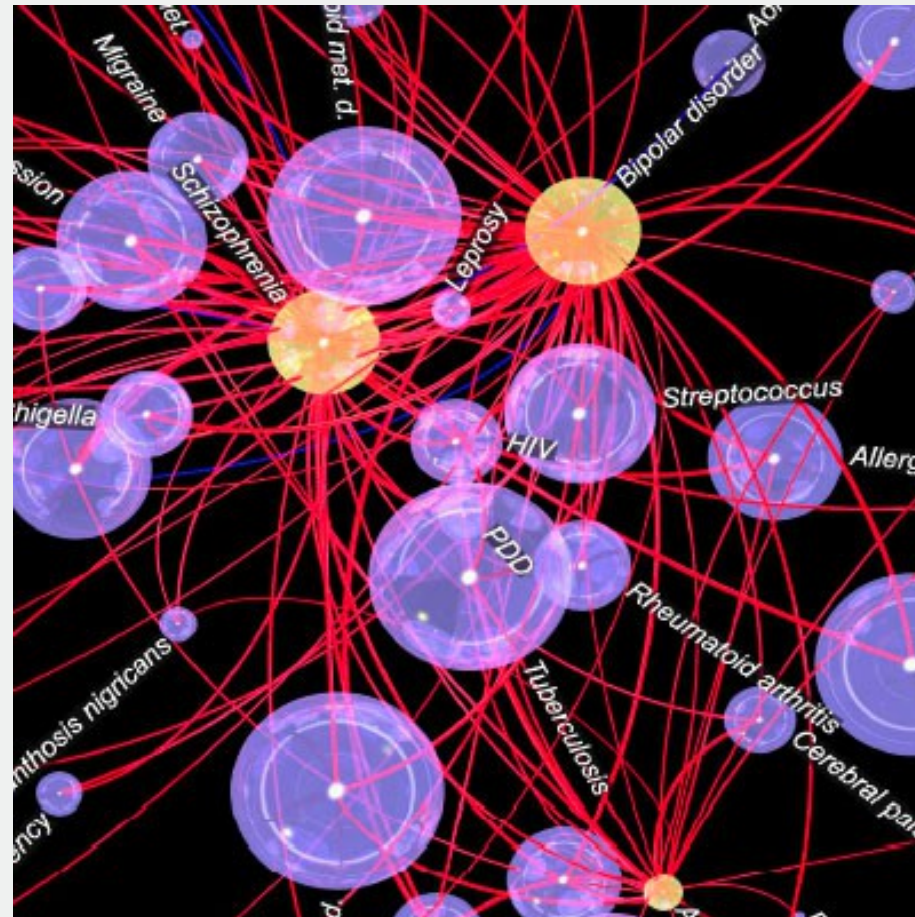
Waiting requests: 0 received - 0 sent

admin@localhost:8000/health20rc1

Open Street Maps (OSM) & GNU Health Integration



Data aggregation, Reporting and Epidemiology Engine



"Epidemiological Transition"



Some key points

- ✓ Project between Ministry of Health of Jamaica and GNU Solidario
- ✓ GNU Health will become Jamaica national eHealth system
- ✓ The Jamaica Ministry of Health trains their own personnel in GNU Health
- ✓ All clients and servers will be running Libre Operating Systems GNU/LINUX
- ✓ Capacity building : Functional, Technical, Medical, ...
- ✓ Each citizen will have a Unique Health Identifier
- ✓ Unique Patient History, countrywide, regardless the center the patient is treated
- ✓ Georeference of each Domiciliary Unit (GNU Health OpenStreetMap interface)
- ✓ High Availability for each Hospital, as well as for the Master Instance at MoH
- ✓ Data aggregation for better health promotion and disease prevention
 - ✓ Demographics
 - ✓ Epidemiology
 - ✓ Injuries and violence (GNU Health Jamaica Injury Surveillance System module)



HL7 support - FHIR



Health Crypto: PKI / Signing / Encrypting

Digitally sign documents and medical acts

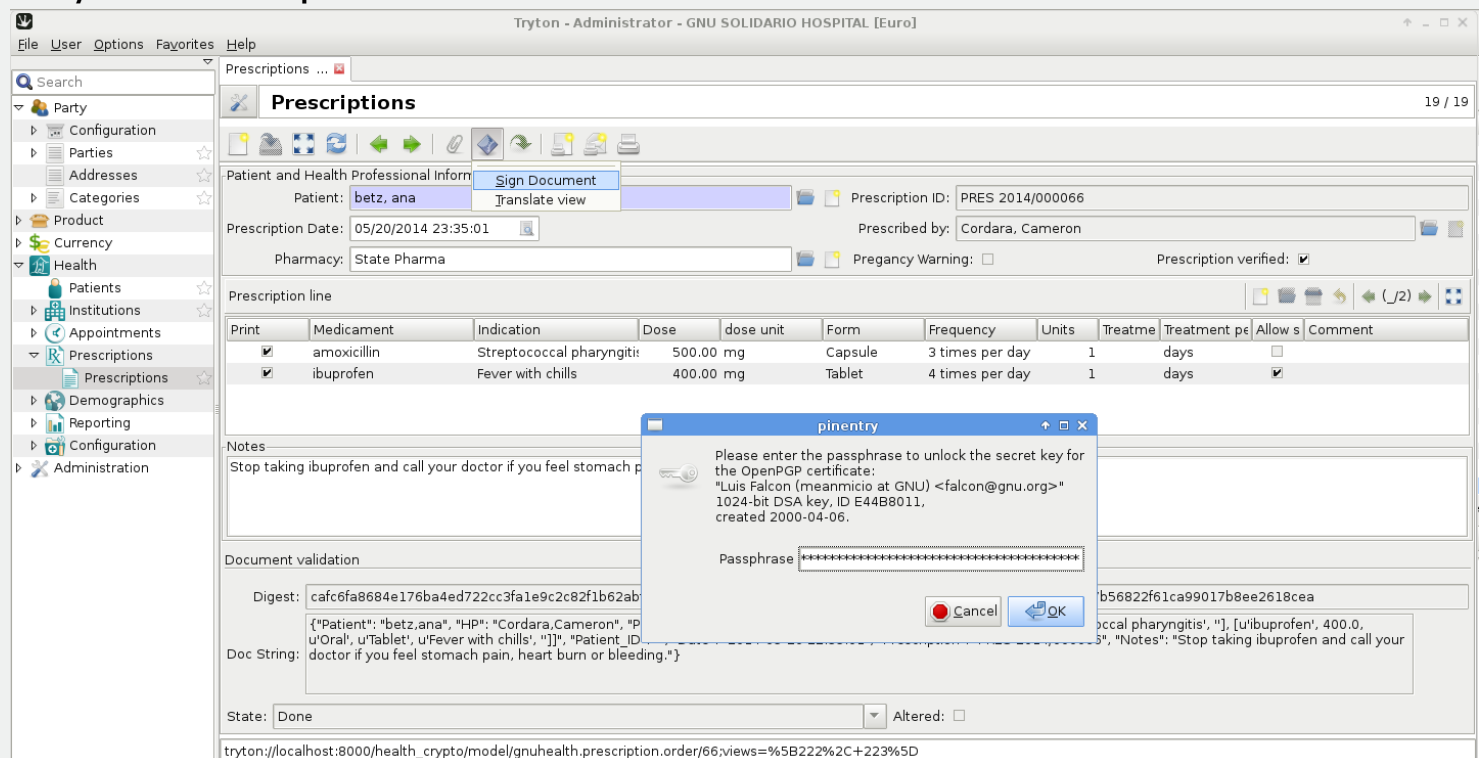
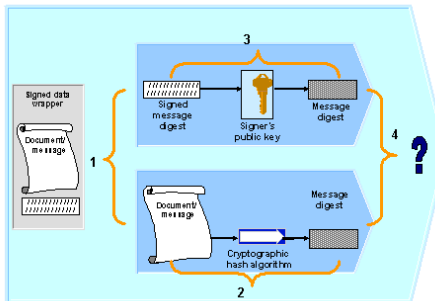
GNU Privacy Guard (GNUPG) Integration

Authenticity, accountability & non-repudiation

Document validation

Electronic prescription

Encryption



Thank you !

health.gnu.org

www.iweee.org



Twitter : [@gnuhealth](https://twitter.com/gnuhealth)

Health must remain a NON-NEGOTIABLE Human RIGHT

