

GNU Health

Free Software technology improving Public Healthcare around the world



Celebrating 10 years of Freedom and Equity in Healthcare

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openSUSE Conference, osCON18
Czech Republic, May 26th, 2018

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GNU Health : Freedom and Equity in Health

GNU Health is a Social Project

...that uses really cool technology



About GNU Solidario

“Delivering Health and Education with Free Software”



GNU Solidario first project :Santiago del Estero, Argentina, 2006

GNU Health

The Free Health and Hospital Information System. (health.gnu.org)

GNUHealthCon - IWEEE

International Workshop on E-Health in Emerging Economies.



openSUSE Conference, osCON18
Czech Republic, May 26th, 2018



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Les Miserables



Over 20000 Children die every day from Social Diseases – in misery



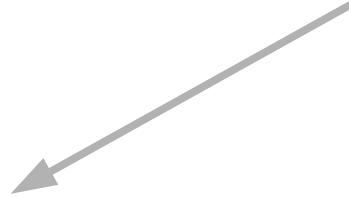
Human Trafficking
Contaminated Water
Malnutrition
Cholera
Drug abuse
Prostitution
Chagas
Tuberculosis
Child Labour
War
Family Violence
Malaria
HIV /AIDS



The other Miserables: Those who cause misery



The macabre business of war

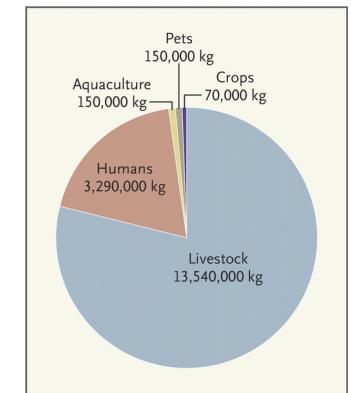


Dairy and Meat : Inhumane, Cruel and Unhealthy



- * Extremely cruel
- * Stress → immunocompromise → ATB → Resistance
- * Bacteria contamination
- * Milk / meat full with ATB, Hormones, ...
- * Linked to cancer, cardiovascular disease in humans
- * Global warming

Factory farming accounts for 37% of methane emissions, 20 times the global warming potential of CO₂.

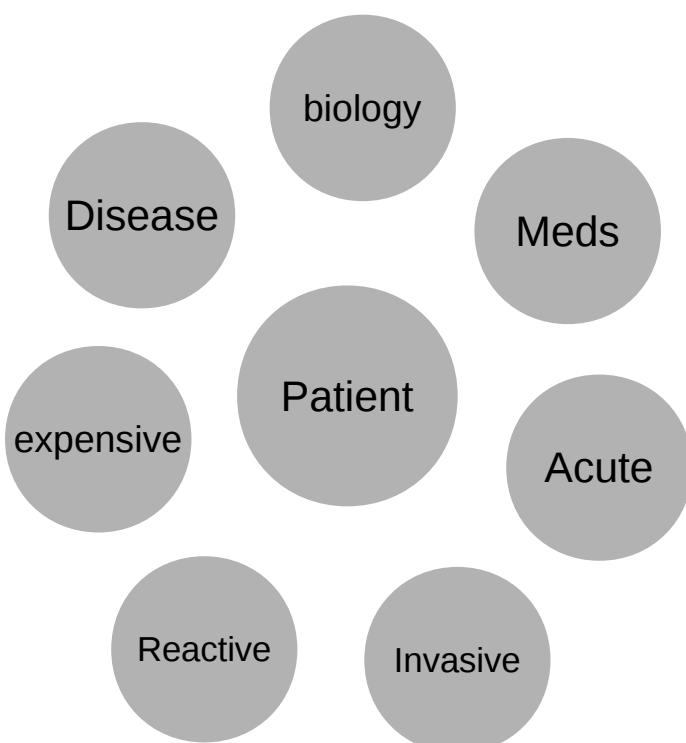


New England Journal of Medicine
Dec 26, 2013



GNU Health : Nature and Nurture

Current System of Disease
(reductionist)



“GNU” System of Health
People before patients



health.gnu.org



GNU Health : Functionality



Person and Community

- Person, families
- Domiciliary Units,
- Health Institutions, professionals
- Socioeconomics, lifestyle...

Patient

- Medical history, Evaluations, appointments
- Genetics & family history
- Prescriptions
- surgeries...

Health Institution Management

- Finances, Billing
- Stock Management , pharmacies
- Hospitalizations, Inpatientcomplex
- LIMS
- Emergency Management...

Health Authorities / MoH

- Civil / Vital Record System
- Health campaigns
- Epidemiology
- Federation, distributed health networks...



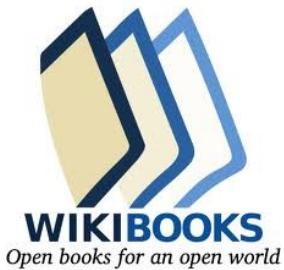
GNU Health is Free/Libre Software

Official GNU Package, from the Free Software Foundation

Open Documentation

Relies on free technology

International community (100+ language teams)



PostgreSQL



python



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health.gnu.org

Demographics Community and Infrastructure



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The Domiciliary Units (DUs)

Address / Location
Construction material
Number of rooms

Sanitary conditions

Bathrooms
Sewers
Electricity
...

Domiciliary Units

Code: Valde-Leony-Castillo1 Desc: House by the city town hall.

Street: Leon y Castillo Number: 1 Apartment:

District: Municipality: Valsequillo City:

Zip Code: 35217 Country: Spain Province: Las Palmas

Latitude: 27.991891000000000 Longitude: -15.494628000000000

Conditions: Comfortable and good sanitary conditions

Infrastructure

Material: Concrete Roof: Concrete

Bathrooms: 2 Running Water:

Gas supply: Telephone:

Members

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

Administrator - GNU SOLIDARIO HOSPITAL [Euro]

Waiting requests: 0 received - 0 sent

OSM Map: <http://openstreetmap.org/?mlat=27.99189100000000&mlon=-15.49462800000000>

Visualizza Modifica Storico Esporta Type: Single / Detached House

admin@localhost:8000/health20rc1

The DU shows the people currently living in it at any given moment
The DU can be geolocated / linked to OpenStreetMap



Health Institutions and Operational Sectors

Screenshot of the Tryton - Administrator - GNU SOLIDARIO HOSPITAL [Euro] interface showing the Institutions module.

The main window displays the following details for the institution:

- Institution: GNU SOLIDARIO HOSPITAL
- Type: General Hospital
- Public Level: Public
- Code: SPAIN-LASPALMAS-GNUSOLIDARIO-GRAL_H
- Specialty: (empty)
- Teaching:
- Beds: 750
- Operating Rooms: 15
- Trauma Center:
- Trauma Level: Level I
- Operating Room:

The "Institutions" tab is selected in the top navigation bar. A context menu is open over the "Beds" field, listing options: Beds, Buildings, Operating Rooms, Units, and Wards.

Below the main form, there are two sections:

- Specialties**: A list box containing "Specialty", "Nutrition", and "Cardiovascular".
- Operational Sector**: A list box containing "Operational Sector" and "Las Palmas de Gran Canaria".

A note at the bottom left states: "The GNU Solidario General Hospital (GSGH), is a major fictional teaching hospital in Las Palmas, and core of the automomic region health network." Another note below it says: "GNU Solidario General Hospital has research units covering nearly all major specialties of medicine and is the primary teaching hospital in the island." A third note at the bottom right says: "The hospital's emergency department is certified as a level I trauma center for adults and pediatrics. It is the sample health center used in the demo system."

The status bar at the bottom shows the URL: <tryton://localhost:8000/health26/model/gnuhealth.institution/1;views=%5B603%2C+604%5D>



People Before Patients : Demographics

Name: Ana Last Name: Betz PUID: 55567890

Active:

Health General Accounting Stock

Person: Patient: Health Prof: Institution: Insurance Company: Pharmacy:

Demographics

DoB: 10/04/1985 <input type="button" value="..."/>	Sex: Female <input type="button" value="..."/>
Occupation: Teacher <input type="button" value="..."/>	Education Level: University <input type="button" value="..."/>
Mother: Luna <input type="button" value="..."/>	Father: Caput, Bonifacio <input type="button" value="..."/>
Marital Status: Married <input type="button" value="..."/>	Citizenship: Spain <input type="button" value="..."/>
Country of Residence: Spain <input type="button" value="..."/>	Domiciliary Unit: Valse-LeonyCastillo1 <input type="button" value="..."/>
Ethnic group: Hispanic <input type="button" value="..."/>	Alternative IDs: <input checked="" type="checkbox"/>

Alternative IDs

Code	ID type	Comments
93674665J	Passport	Spanish Passport
PAC001	Medical Record	

Picture



(1/2)



health.gnu.org

Medical Practice and Health Center Management

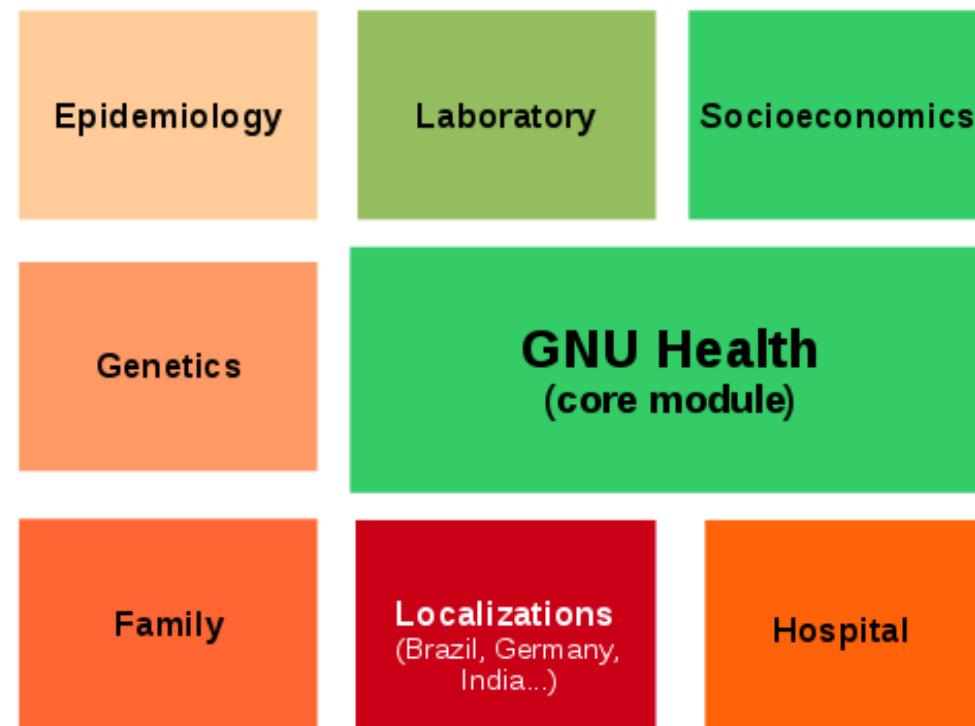


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Modularity

GNU Health Modular Design



Some of current packages

Package	Functionality
Health	Core package. Includes demographics, patients, evaluations, health centers, appointments, vaccinations, medicaments, health conditions, health professionals and other core models and functionality.
Pediatrics	Main package for pediatrics (including neonatal information and pediatric psychosocial assessments)
Pediatric Growth Charts	Including World Health Organization percentile and z-scores charts
Gynecology and Obstetrics	Gynecology, obstetrics, perinatal and puerperium assessment and history
Lifestyle	Physical exercise, diets, drug addictions, National Institute of Drug Abuse (NIDA) recreational drug database, Henningfield ratings, sexuality, risk factors, home safety, child safety
Genetics	Person genetic information and family history. Includes 4200+ "disease genes" from the NCBI / GeneCards
Genetics Uniprot	UniProt database on human protein natural variants and phenotypes
Lab	Laboratory Information Management System functionality. ^[1]
Socioeconomics	Assessment and history of education, occupation, living conditions, hostile areas, child labor and prostitution, among others.
Inpatient	Hospitalization, bed, operating room management. Inpatient care and nursing plans.
Surgery	Pre-operation checklist, procedures, operating rooms, patient surgery history.
Services	Groups health related services for the patient. It also allows generating invoices and billing the selected services.
Calendar	CalDAV and WebDAV server. Manages appointments, hospitalizations, bed and other resources.
QR Codes	Includes QR codes for identification on persons, patients and lab orders
History	Reports for patient demographics and medical history
MDG6	Millennium Development Goal 6. Functionality to fight Malaria , Tuberculosis and HIV/AIDS .
Reporting	Demographical, epidemiological and health center related information.
Nursing	Nursing functionality. Patient roundings, medication administration and procedures.
ICU	Basic intensive-care unit assessment, history and patient management
Stock	Pharmacy and locations stock management. Automatic stock moves generation on medical procedures.
NTD	Base module to cover Neglected tropical diseases .
NTD Chagas	NTD submodule for vector control, diagnosis, and management of Chagas disease .
NTD Dengue	NTD submodule for vector control, diagnosis, and management of Dengue fever
Imaging	Diagnostic Imaging orders management functionality.
ICPM	WHO International Classification of Procedures in Medicine
Crypto	Support for document digest / record integrity check with hash functions ; digital signatures and GNU Privacy Guard plugin.
Archives	Functionality to track legacy or paper-based patient Health records .
Ophthalmology	Basic Ophthalmology and Optometry functionality
Functioning and Disability	Based on WHO International Classification of Functioning, Disability and Health and Laos Center of Medical Rehabilitation
ICD9 Vol 3	WHO ICD-9-CM Volume 3 Procedure codes
Insurance	Insurance and pricelists on services and products management
EMS	Ambulance and Emergency Management System



Patient Management

GNU Health - localhost - Administrator - GNU SOLIDARIO HOSPITAL [Ksh]

Connection User Options Favorites Window Help

Obstetric Histories Patient

Patient

Main Info

Ana Betz

Critical Information

Z88.0 : Personal history of allergy to penicillin
Z88.0 : Personal history of allergy to penicillin
E10 : Type 1 diabetes mellitus
A90 : Dengue fever [classical dengue]
A40 : Streptococcal sepsis

Disabilities / Barriers:

Appointments

Conditions
Disability Assessment
ECGs
Evaluations
Imaging Test Request
Imaging Test Results
Lab: Reports
Lab: Request new order
Neonatal Info
Obstetric History
Ophthalmologic Evaluations
PSC
Prescriptions
RCRI
Request Imaging Test
Services
Socioeconomic and Family Assessment
Surgeries
Vaccinations

Age: 37y 8m 27d

Photo of Ana Betz

General Info Functioning and Disability OB/GYN S

Main Misc

GP: Cordara, Cameron Family

Conditions

Condition	Status
Z88.0 : Personal history of allergy to penicillin	unchanged
E10 : Type 1 diabetes mellitus	chronic
A90 : Dengue fever [classical dengue]	acute
A40 : Streptococcal sepsis	

Date of Birth: 08/28/1980 PUID: 55567890 Blood Type: A Hospitalized: Hb: Active:

Notepad

Married Insurance: Insuror: 938291

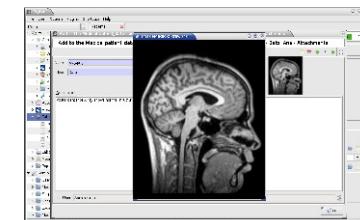
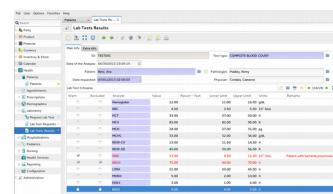
Verify Date of Diagnosis Healed Remarks

01/07/1991
11/10/1993

PAT ANA Connected



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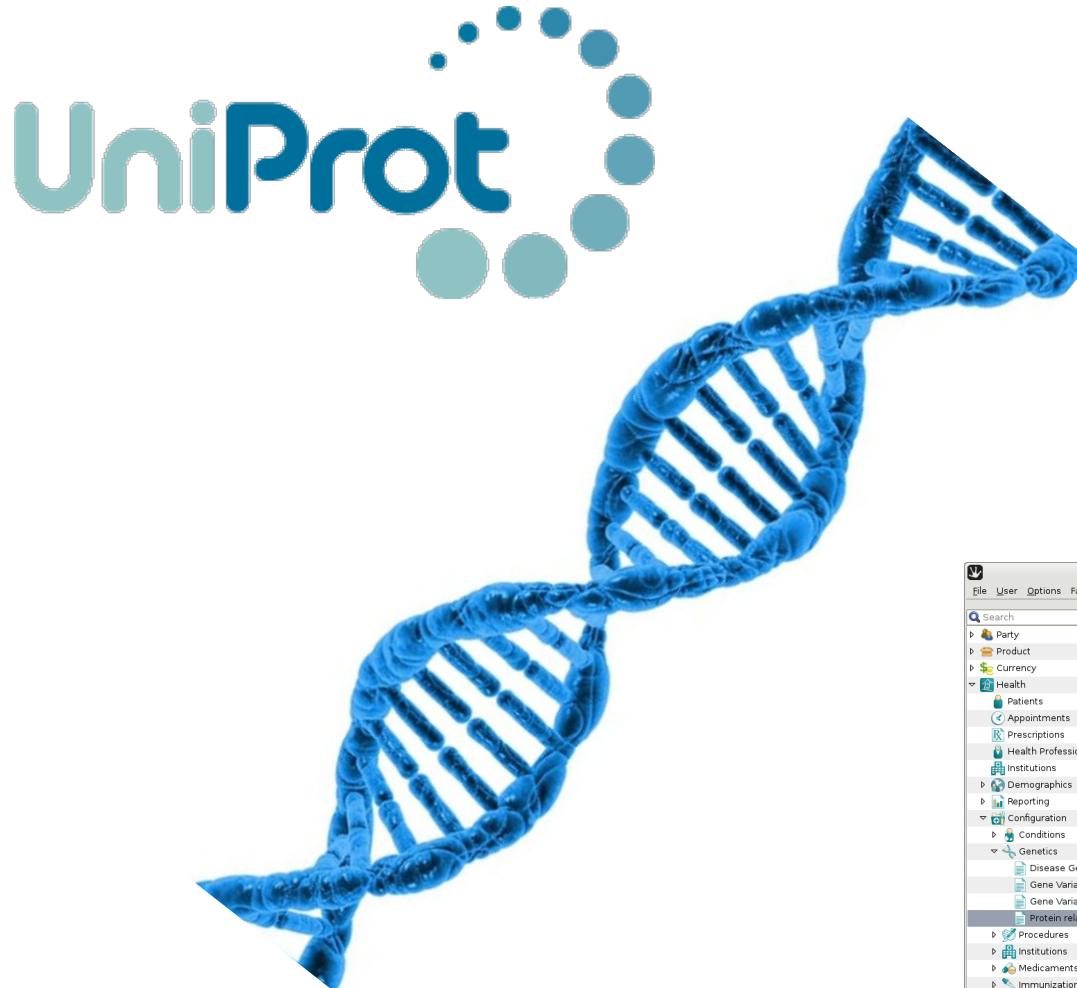
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Calendar functionality

The screenshot shows the Mozilla Thunderbird Calendar interface. The top navigation bar includes Home, Calendar, Synchronize, Event, Task, Edit, and Delete buttons. The main window displays a calendar for June 2017. A search bar at the top right allows filtering by 'Today's Events' or 'contain' specific text. Below the search bar is a table header with columns for Title, Start, End, and Category. The main calendar grid shows days from June 23 to July 1, 2017. A tooltip for a meeting on June 6, 2017, provides details: Title: Betz, Ana, Date: Tue 6 Jun 2017 04:00 PM - 04:30 PM, Calendar Name: DCORDARA, and Description: Well-woman evaluation. The interface also includes a sidebar for 'Calendar' and a bottom toolbar with icons for Today, Panes, and other functions.



Bioinformatics and Precision Medicine



Linking clinicians with research

Personal genetic information & family history

Work with Uniprot

Protein related diseases

Gene Natural Variants & phenotypes

GNU Health Federation to interact with scientific community

The screenshot shows the Tryton application interface. On the left is a sidebar with a tree view of various clinical modules: Party, Product, Currency, Health (selected), Patients, Appointments, Prescriptions, Health Professionals, Institutions, Demographics, Reporting, Configuration, Conditions, Genetics (selected), Disease Genes, Gene Variants, Gene Variant Phenotypes, Protein related diseases (selected), Procedures, Institutions, Medicaments, Immunization Schedule, and Misc. At the top, there are tabs for Disease Genes, Gene Variant, and Protein related diseases. The main panel displays the "Protein related diseases" screen. It shows a list of diseases under the heading "Disease". One entry is highlighted: "Disease: DI-00104 Disease name: Amyloidosis 8 Acronym: AMYLB". Below this, there is a detailed description: "A hereditary generalized amyloidosis due to deposition of apolipoprotein A1, fibrinogen and lysozyme amyloids. Viscera are particularly affected. There is no involvement of the nervous system. Clinical features include renal amyloidosis resulting in nephrotic syndrome, arterial hypertension, hepatosplenomegaly, cholestasis, petechial skin rash." At the bottom, there is a table titled "Gene Variants" with columns for "Gene" and "Variant". Several variants are listed, including APOA1.apolipoprotein A-I : VAR_000609 : p.Gly50Arg, APOA1.apolipoprotein A-I : VAR_000610 : p.Leu84Arg, FGA.fibrinogen alpha chain : VAR_010731 : p.Glu54Val, FGA.fibrinogen alpha chain : VAR_010732 : p.Arg573Leu, LYZ.lysozyme (renal amyloidosis) : VAR_004280 : p.Ile74Thr, and LYZ.lysozyme (renal amyloidosis) : VAR_004281 : p.Asp85His. A note at the bottom says "Gene variants involved in this condition". The URL in the address bar is triton://localhost:8000/genetics/model/gnuhealth.protein.disease/99;context=%7B%22date_format%22%3A+%22%25m%2F%25d%2F%25Y%22%7D&views=%5B%270%2C+271%5D.



GNU LIMS



Laboratory Information System for HealthCare and Biomedicine



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Czech Republic, May 26th, 2018

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GNU LIMS : Interoperability and Interfaces

Tryton - Administrator - GNU SOLIDARIO HOSPITAL (Euro)

Lab Tests Results

Test	Value	Unit
Hemoglobin	14.0	g/dL
RBC	4.5	5.5-10.5 g/dL
HCT	42.0	%
MCV	83.0	fL
MCH	28.0	pg
MCHC	33.0	g/dL
RDW-CV	12.0	11.5-14.5 %
RDW-SD	41.0	56.0-81.0 fL
WBC	12.0	11.0-10.5 g/dL
NEUT%	72.0	70.0-78.0 %
LYMPH%	22.0	18.0-45.0 %
MONO%	2.0	1.0-10.0 %
EO%	1.0	0.0-8.0 %
BAS%	1.0	0.0-2.0 %
LYM%	3.0	1.5-4.0 g/dL
GRAd	6.0	7.5-10.5 g/dL
PLT	285.0	150.0-450.0 10 ³ /μL
ESR	12.0	0.0-15.0 mm/hr

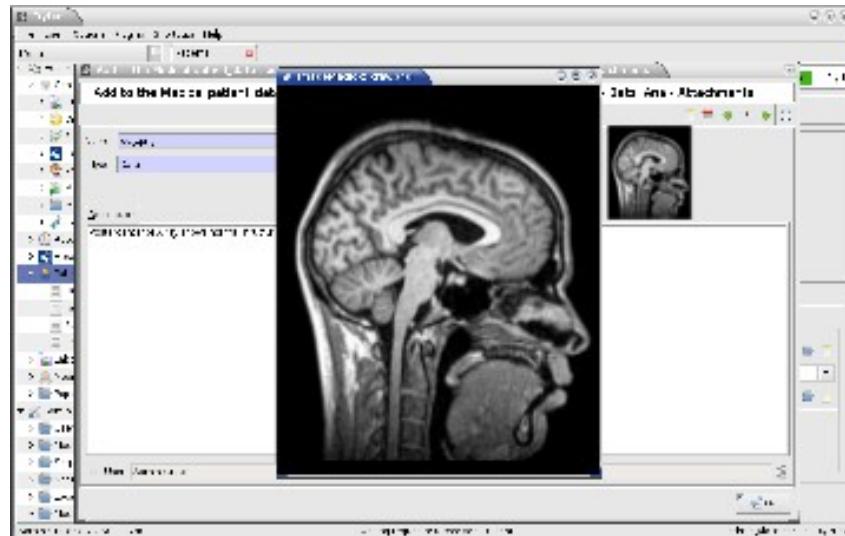
lfm@beastie:~/health/tryton/doc/ Connecting to GNU Health Server Connected ! Checking integrity of the batch Basic check on test ID and analy Updating lab results from batch Done !

ID: TEST006	Test: COMPLETE BLOOD COUNT			
Req by:	Cordara, Cameron	Patient: Betz, Ana	Extraction date:	Cap label
TEST006				



Dx Imaging

GNU Health



Can store the image, metadata
or DICOMDIR location

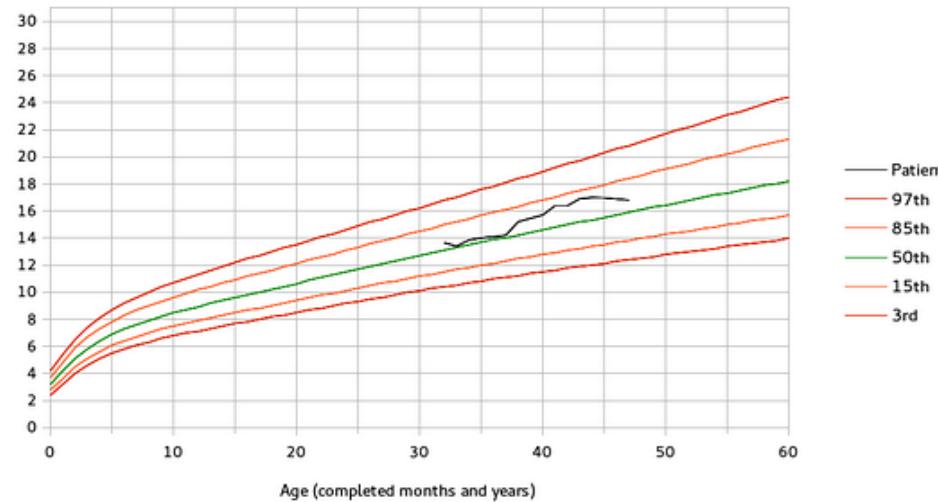
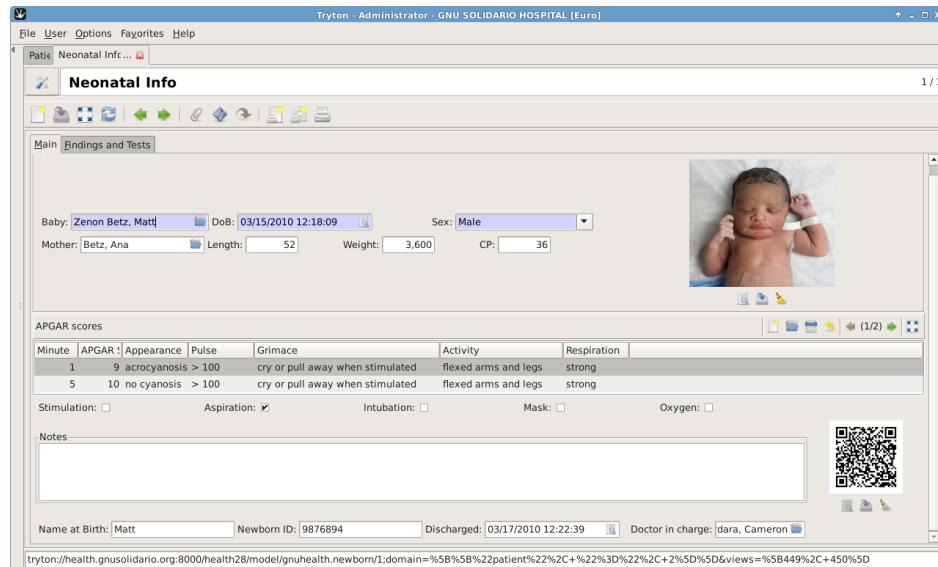
ORTHANC



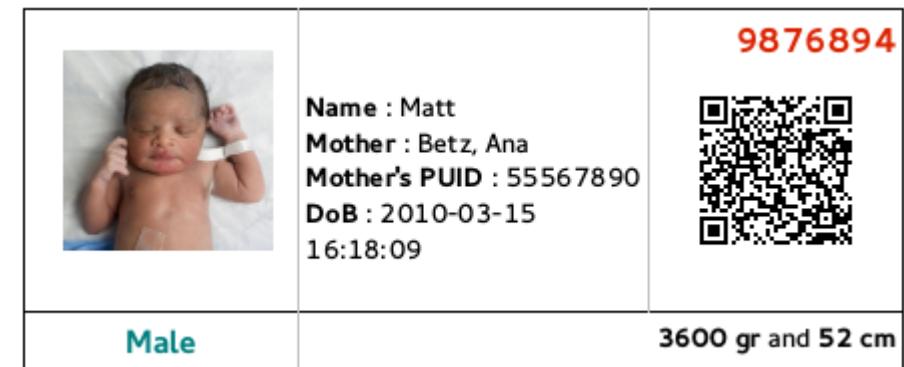
PACS server



Obstetrics & Pediatrics



Preconception and Prenatal Care
Genetic Risks and counseling
Obstetric evaluations / imaging
Nutrition and growth charts
Socioeconomics
Neonatology
Immunizations
Family Functionality and Affection level
Psychosocial Risk (Mass General Hospital PSC)



Health Services, Billing / Invoicing

Tryton - Administrator - GNU SOLIDARIO HOSPITAL [Euro]

Health services ... Invoices

Health services

New Save Switch Reload Previous Next Attachment(0) Action Relate Report E-Mail Print

Patient: Betz, Ana Date: 10/02/2013 ID: SERV 2013/001

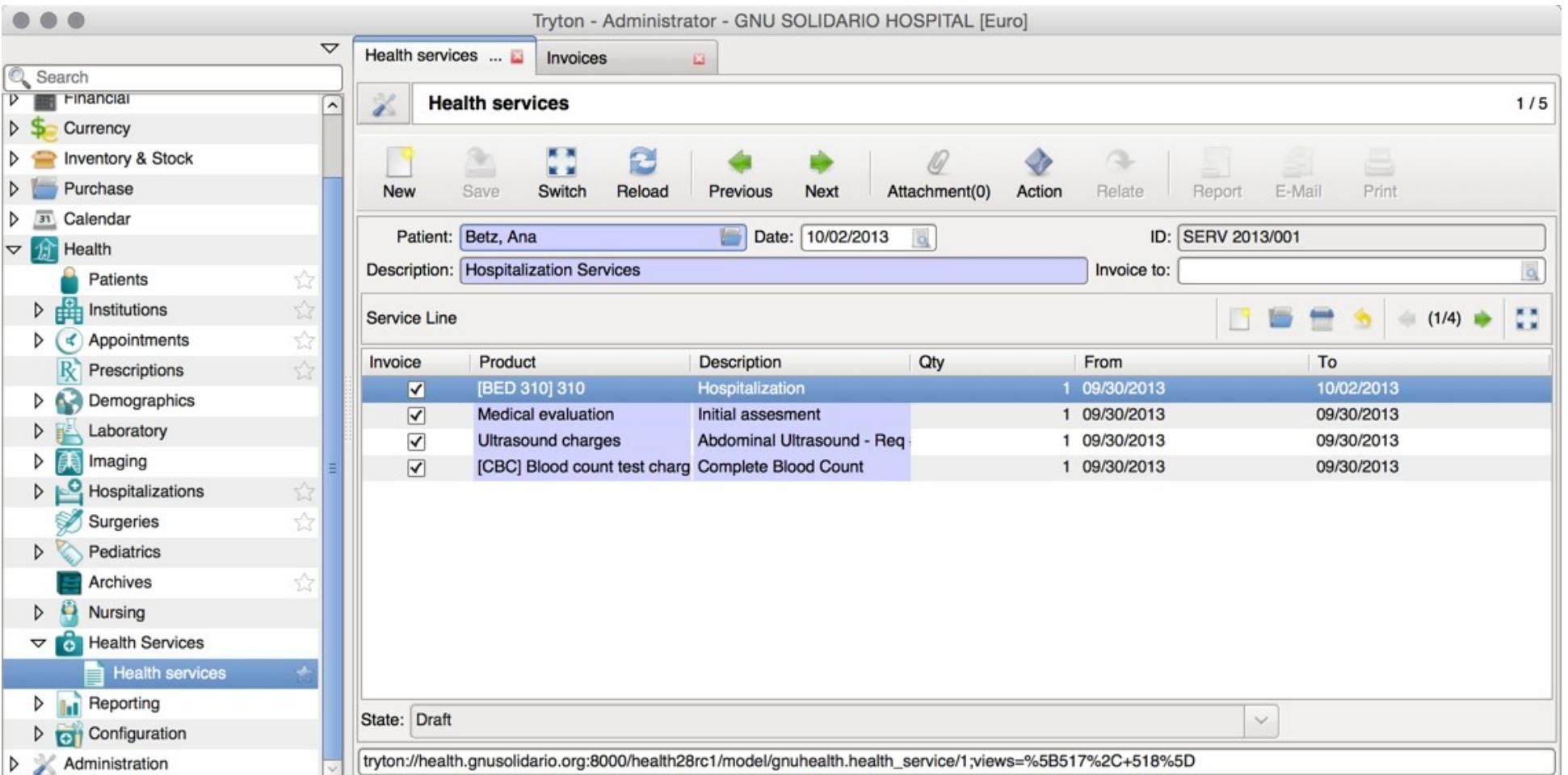
Description: Hospitalization Services Invoice to:

Service Line (1/4)

Invoice	Product	Description	Qty	From	To
<input checked="" type="checkbox"/>	[BED 310] 310	Hospitalization	1	09/30/2013	10/02/2013
<input checked="" type="checkbox"/>	Medical evaluation	Initial assesment	1	09/30/2013	09/30/2013
<input checked="" type="checkbox"/>	Ultrasound charges	Abdominal Ultrasound - Req.	1	09/30/2013	09/30/2013
<input checked="" type="checkbox"/>	[CBC] Blood count test charg	Complete Blood Count	1	09/30/2013	09/30/2013

State: Draft

tryton://health.gnusolidario.org:8000/health28rc1/model/gnuhealth.health_service/1;views=%5B517%2C+518%5D



Interoperability



GNU Health adopts HL7 FHIR standard

New standard **FHIR** in upcoming version.



Disease Groups

File User Options Favorites Help

Patients

Patients

Main Info

BETZ, ANA Female Age: 29y 2m 3d PAC001

Critical Information

Personal history of allergy to penicillin
Personal history of allergy to anaesthetic agent

We can automate other patient related information to be shown at the critical info.

Automated summary of patient allergies and other critical information

General Info Medication Diseases

Diseases

Disease Status of the disease

Personal history of allergy to penicillin chronic
Personal history of allergy to anaesthetic agent chronic
Leptospirosis healed

tryton://localhost:8000/admin/model/gnuhealth.patient/1;views=%5B215

Automatic triggers

Patient Critical Info

Reporting

Tuberculosis example

Tryton - Administrator - GNU SOLIDARIO HOSPITAL [Euro]

Diseases

Main Genetics Extra Info

Name: Respiratory tuberculosis, bac Code: A15 Main Category: I Certain infectious an...

Groups

Group

NOTIFIABLE
RESPIRATORY
INFECTIOUS
SOCIAL AND FAMILY

Specify the groups this pathology belongs. Some automated processes act upon the code of the group



Digital Signatures & ePrescriptions

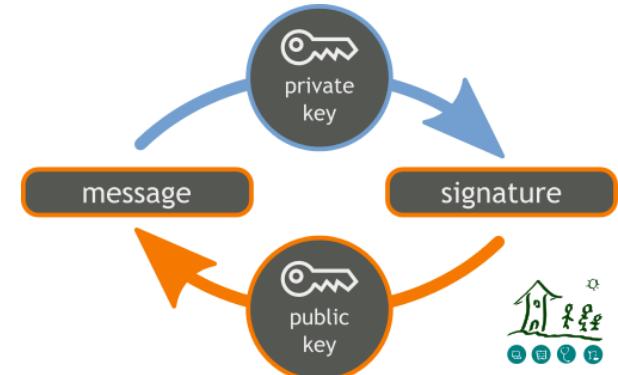
Digitally sign documents and medical acts

GNU Privacy Guard (GNUPG) Integration

Authenticity, accountability & non-repudiation

Document validation

The screenshot shows the Tryton application interface for managing prescriptions. On the left is a sidebar with various menu items like 'Party', 'Prescriptions', and 'Demographics'. The main window has tabs for 'Prescriptions' and 'Sign Document'. The 'Prescription' tab displays a list of prescriptions, with one selected. The details for the selected prescription are shown in a large table. The table includes columns for Medicament, Indication, Dose, dose unit, Form, Frequency, Units, Treatment, and Allow s. Two medications are listed: amoxicillin and ibuprofen. Below the table is a 'Notes' section containing a note about stopping ibuprofen if experiencing stomach pain. A 'Document validation' section shows a 'Digest' field with a long hex string and a JSON-formatted 'Doc String'. A modal dialog box titled 'pinentry' is overlaid on the interface, prompting the user to enter a passphrase to unlock a GPG certificate. The dialog includes fields for 'Passphrase' and 'OK' and 'Cancel' buttons.



ePrescriptions

Evaluations / Encounters

Birth and death certificates

Lab Tests, ...



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Tools for the Health Authorities



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Czech Republic, May 26th, 2018

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One person, one history : PUID

Screenshot of a medical software application showing a patient record for Ana Betz. The PUID (Patient Unique Identifier) is highlighted with a red box.

Record saved! 1 / 6

Name: Ana Last Name: Betz PUID: 55567890

Active:

Health General Accounting Stock

Person: Patient: Health Prof: Institution: Insurance Company: Pharmacy:

Demographics

DoB: 10/04/1985	Sex: Female
Occupation: Teacher	Education Level: University
Mother: Luna	Father: Caput, Bonifacio
Marital Status: Married	Citizenship: Spain
Country of Residence: Spain	Domiciliary Unit: Valse-LeonyCastillo1
Ethnic group: Hispanic	Alternative IDs: <input checked="" type="checkbox"/>

Picture:

Alternative IDs

Code	ID type	Comments
93674665J	Passport	Spanish Passport
PAC001	Medical Record	

Insurances

Number	Plan	Insurance Ty	Insurance Comp:	Category	Member since	Expiration date
1257457	Family Plan	State	Universal Health		05/12/2012	05/12/2015

Unidentified: Alias: Code: 63dd59be-141c-4ff9-a0a9-e43a6f Activation date: 01/17/2008

tryton://health.gnusolidario.org:8000/health28/model/party.party/2;domain=%5B%5B%22is_person%22%2C+%22%3D%22%2C+true%5D%5D&views=%5B%

63dd59be-141c-4ff9-a0a9-e43a6f754b39-GNU SOLIDARIO HOSPITAL



Demographics, Epidemiology, Early Warning

Data aggregation

Demographics

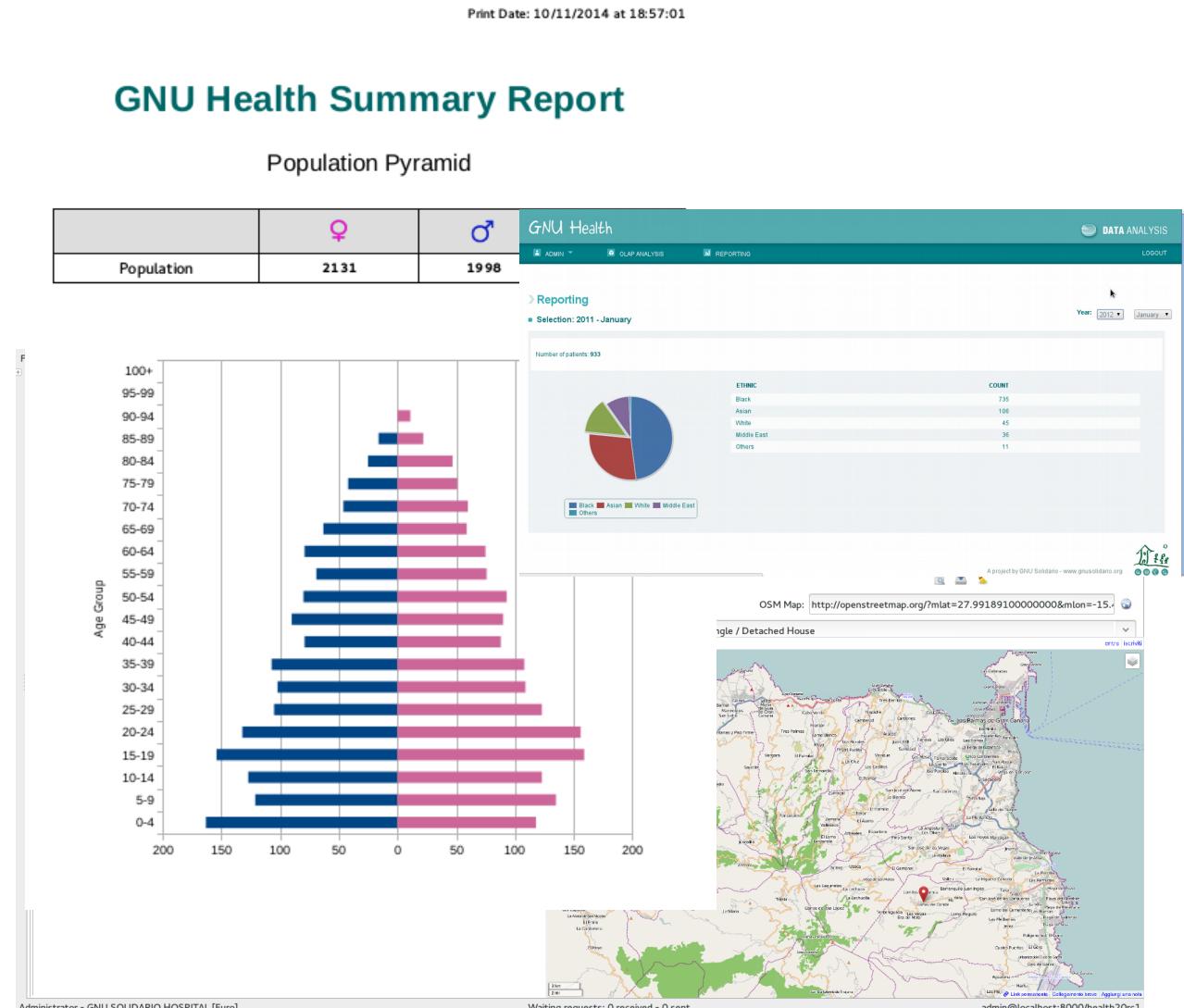
People without health coverage

Vital Records System

Outbreak early warning

Geolocalization (OSM)

Notifiable diseases



Injury Surveillance System

Tryton - Administrator - GNU SOLIDARIO HOSPITAL [Euro]

File User Options Favorites Help

Patients Evaluations Injury Surveil ... Parties

Injury Surveillance System Registration

Record saved! 1 / 1

Code: 3446654656 Institution: GNU SOLIDARIO HOSPITAL

Evaluation: 2014-12-19 10:30:48 Injury Date: 12/19/2014 Registration Date: 12/19/2014

Location
O. Sector: Guanarteme Latitude: 28.12984000000000 Longitude: -15.44731000000000 OSM Map: <http://openstreetmap.org/?m>

Patient Demographics
Patient: Ana Betz Sex: f Age: 29y 2m 15d

Specifics
Chief Complaint: pain in the wrist Injury Type: Motor Vehicle

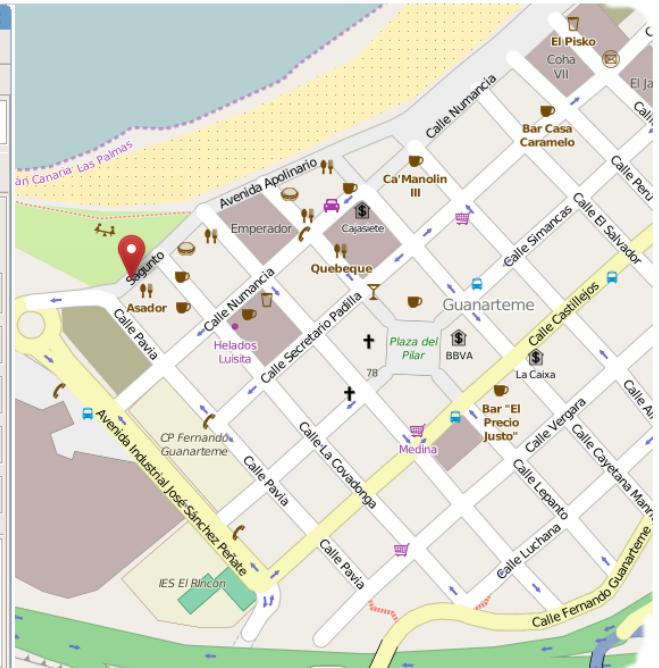
Motor Vehicle Accident
Mode: Bicycle User Position: Driver Counterpart: Car Safety Gear: Yes

Alcohol and other Drugs context
Alcohol: No Other Drugs: No

Details
A mother her son are safe, despite a cycling accident that sent the woman to the hospital with minor injuries. At just after 3pm yesterday, police, paramedics, and firefighters were dispatched to the intersection of Sanguto St. and Pavia for an accident involving a pickup truck and a 29-year old woman on a bicycle. Investigators at the scene tell GNU Solidario News that they believe the truck ran a red light and struck the back tire of the young woman's bicycle. The woman was apparently the first of the three bike riders on Sanguto that were crossing Pavia near the Alfredo Kraus Auditorium. The 29-year old woman was taken by ambulance to Negrín Hospital with non-life threatening injuries. Police investigators say speed and alcohol are not considered to be a factor in the accident.

Disposition
Treated and Sent Home

<tryton://localhost:8000/health28p/model/gnuhealth.iss/1;domain=%5B%5B%22name%22%2C+%22%3D%22%2C+2%5D%5D&views=%5B253%2C+254%5D>



GNU Health Injury Surveillance System integration with Open Street Map

<http://health.gnu.org>

Records violent injuries (accidents, robberies, self harm, sexual assaults, ...)

Georeferenced

ICD 10 encoded

Contextual information (place, time, subjects involved, ...)

Thanks to Jamaica MoH !



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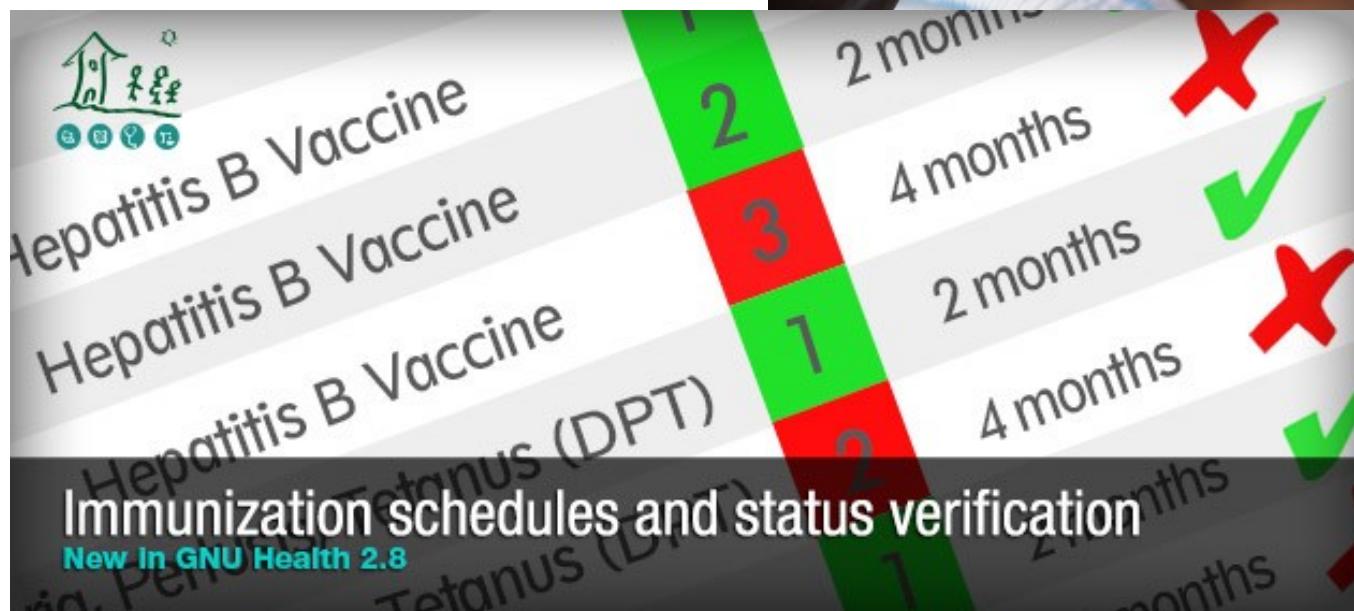
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Health Campaigns

Personalized campaigns (age, sex, social conditions, ...)

Immunization status of the population

Risk groups (obesity, diabetes, ...)



GNU Health embedded



GNUHealth &
RASPBERRY PI



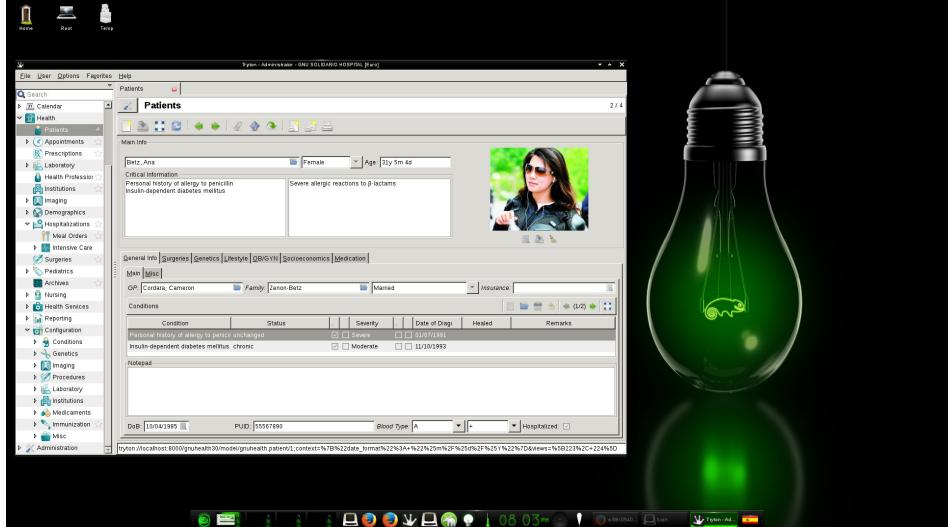
"GNU Health in a box"



openSUSE Conference, osCON18
Czech Republic, May 26th, 2018

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GNU Health & Raspberry Pi

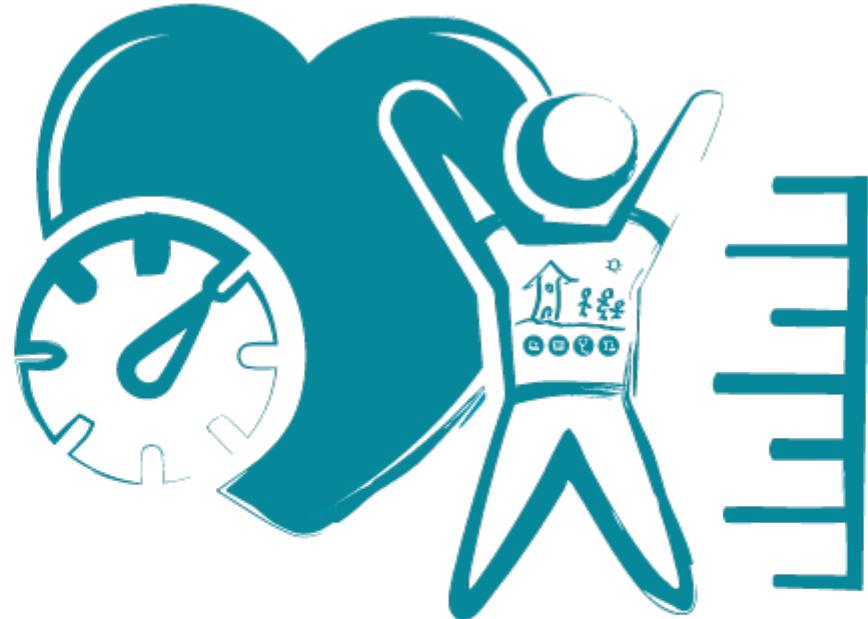


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Thanks OpenSUSE !

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My GNU Health (3.4)



MyGNUHealth



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MyGNUHealth (3.4)



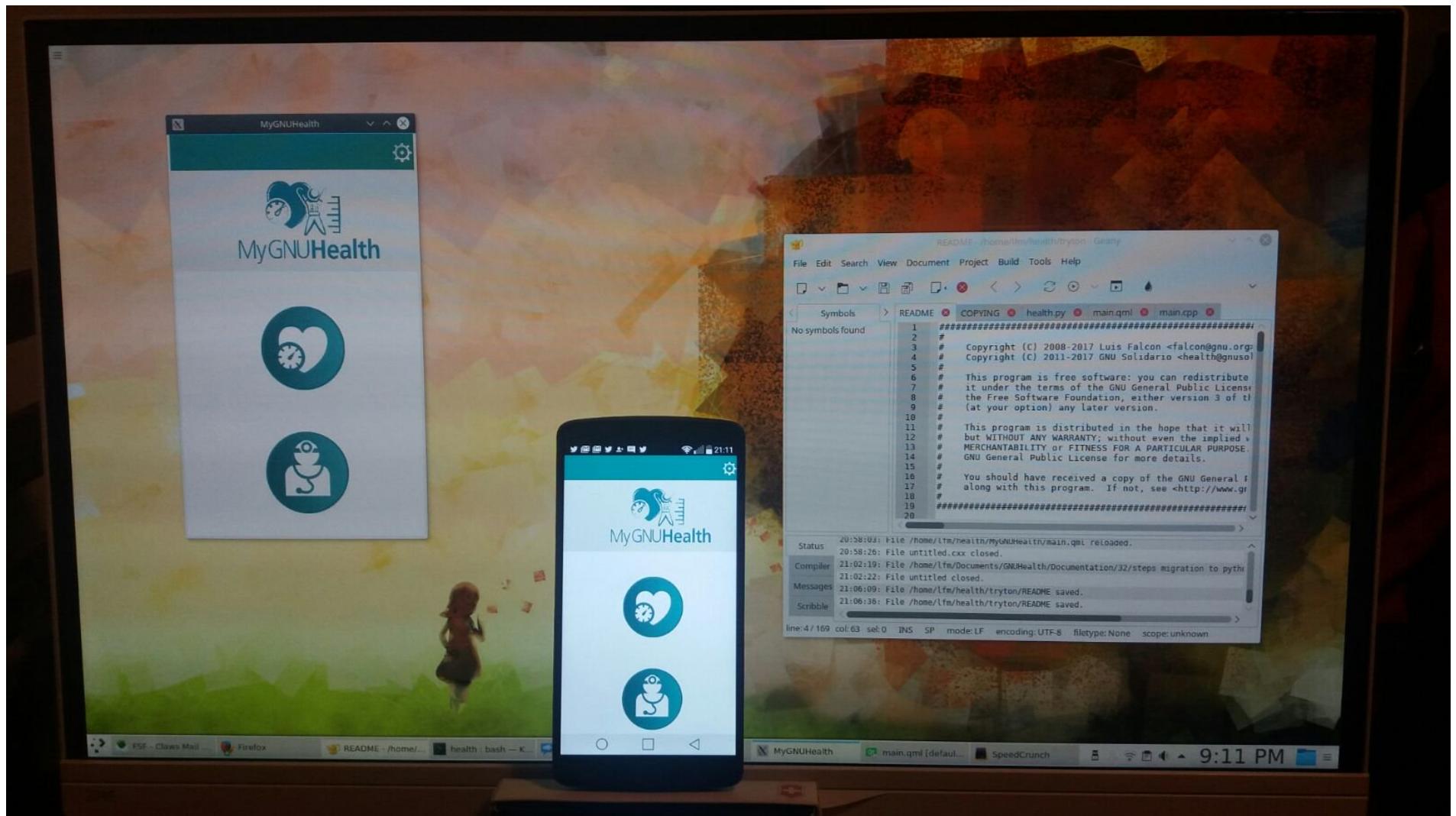
Demographics
Appointments
Telemedicine

BMI
Excercise
Vitals
Blood Glucose levels
Nutrition
Socioeconomics

Health History



Mobile and Desktop application



GNU Health Camera

The screenshot shows the Tryton Administrator interface for GNU SOLIDARIO HOSPITAL [Euro]. The main window displays a list of people with columns for PUID, Name, Family names, Patient status, Health Prof status, and Deceased status. A modal window titled "== GNU Health Camera ==" is overlaid on the list, showing a video feed of a man with a beard. The left sidebar contains a navigation tree with categories like Party, Configuration, People, Addresses, Contact Mechanisms, Categories, Product, Financial, Currency, Inventory & Stock, Purchase, Calendar, Health, Patients, Appointments, Prescriptions, Laboratory, Health Professionals, Institutions, Imaging, Demographics, Hospitalizations, Surgeries, Pediatrics, Archives, Nursing, Health Services, Reporting, Configuration, and Administration.

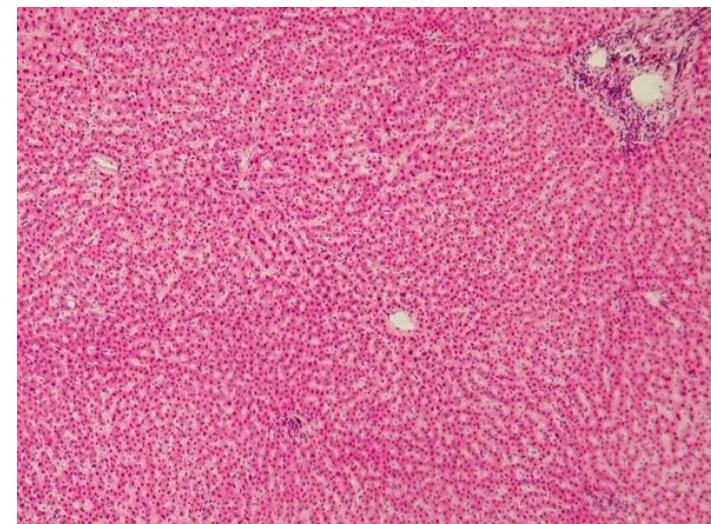


Person / Patient Registration

DUs Surveys

Dx Imaging

Histology / Pathology



GNU Health Federation



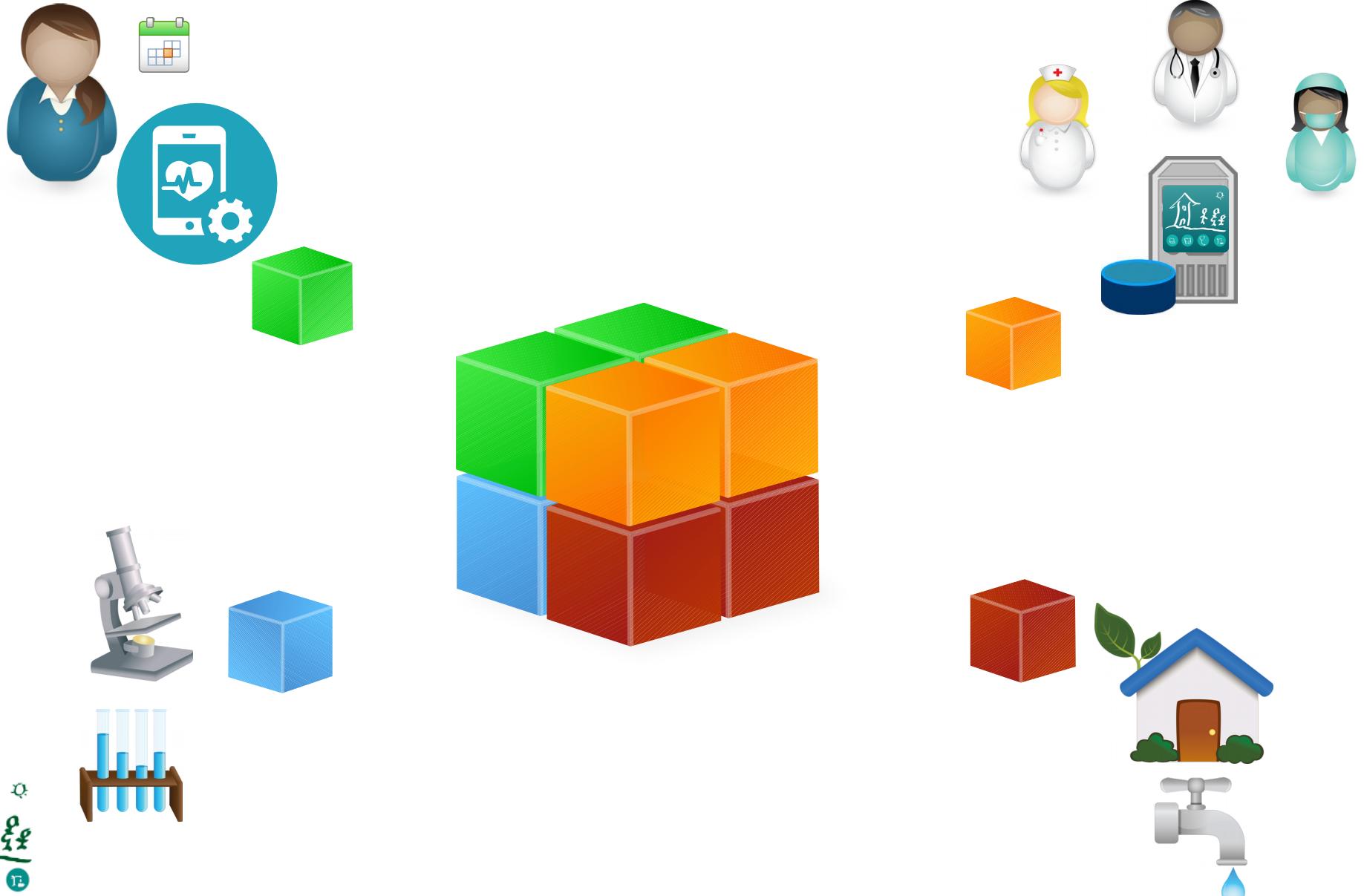
GNUHealth
FEDERATION

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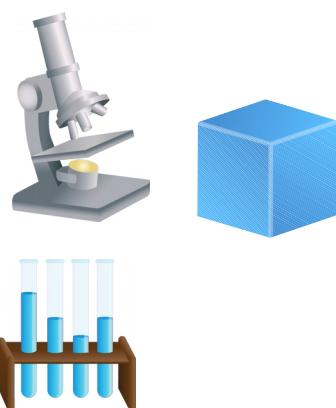
 **GNUSolidario**

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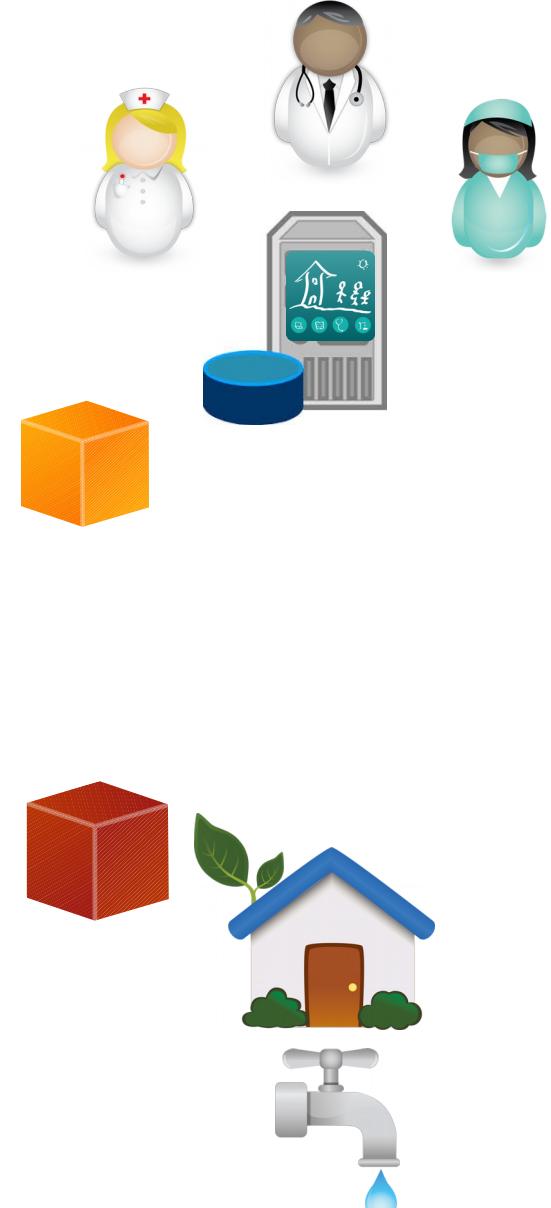
GNU Health Federation



GNU Health Federation



Autonomous
Distributed
Heterogeneous
Scalable
High availability
Secure



health.gnu.org

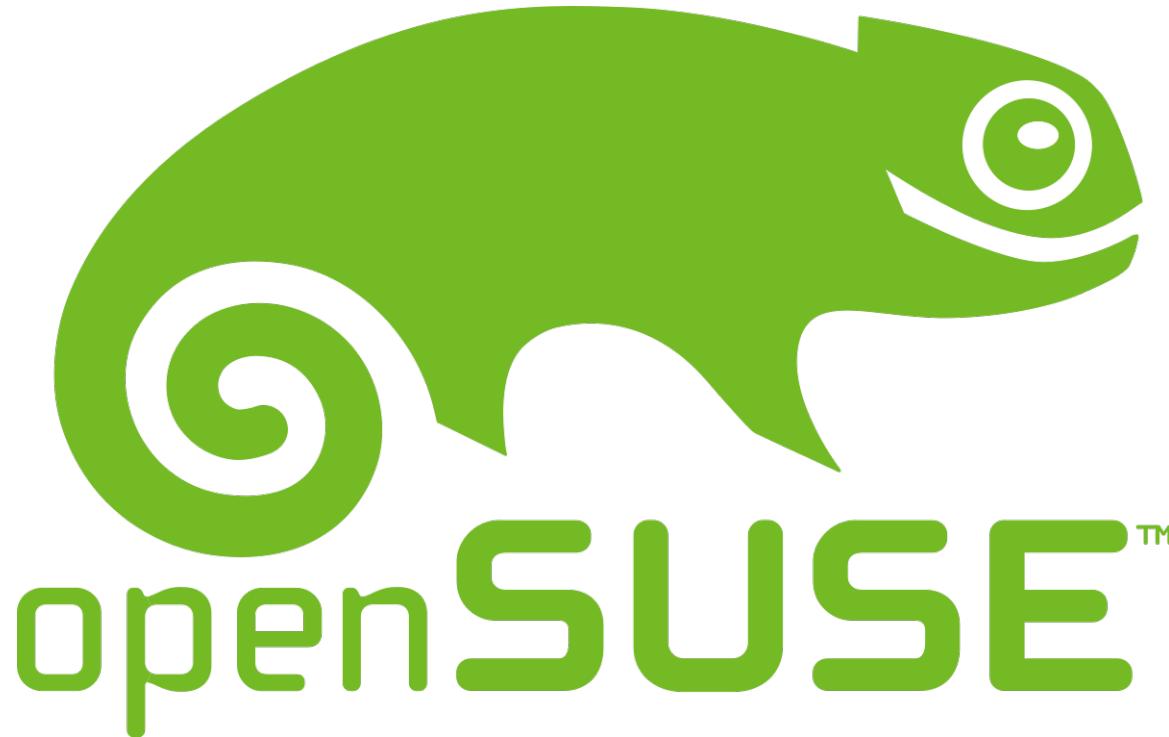
GNU Health Planet



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Thank you, geeko !!



- * Active GNU Health member
- * Ships GNU Health package
- * Sponsor (GNUHealthCon)
- * Donation of Raspberry Pis
- * Great, friendly community



Freedom = Liberty = Community = Ownership = Control

The Four Freedoms

Freedom 0

"The freedom to run the program, for any purpose"

Freedom 1

"The freedom to study how the program works, and adapt it to your needs"

Freedom 2

"The freedom to redistribute copies so you can help your neighbor"

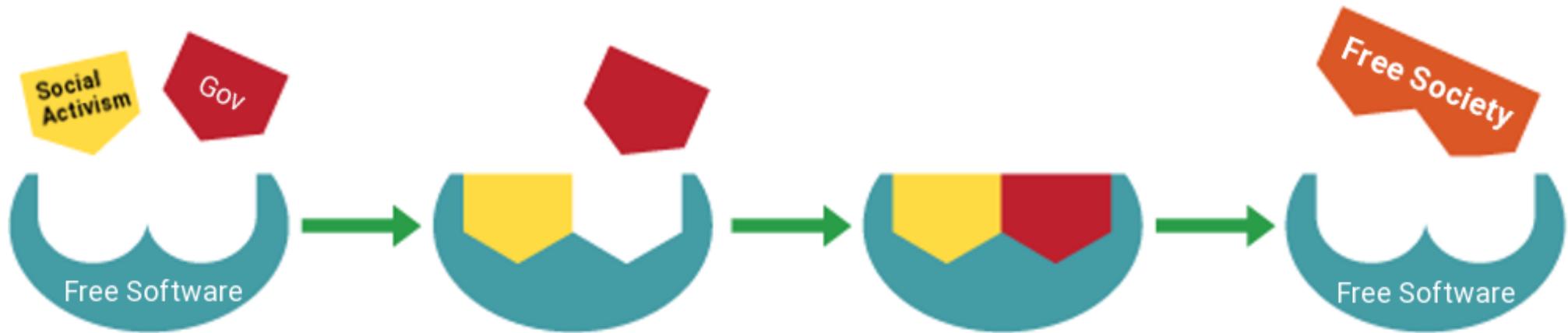
Freedom 3

"The freedom to improve the program, and release your improvements to the public, so that the whole community benefits"



But it's about collective Freedom !

Free Software as a Catalyst of a Free Society



Evolution and progress comes from collaboration, not from competition



GNU Health and the Academia



United Nations University, Kuala Lumpur, Malaysia



University of Entre Ríos, Argentina

HST.936: Global Health Informatics to Improve Quality of Care

The 2015 iteration of our course will focus on [Public Health Emergencies and Humanitarian Crises](#).

Classes begin: February 6, 2015
Fridays 9am – 11am ET (GMT -5)
Room: 09-057



Harvard / MIT, Boston, United States



UNIVERSIDAD DE CIENCIAS MÉDICAS
Matanzas



Univ. Matanzas, Cuba



Univ. Palermo, Italy



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Universities ... join the GNU Health Alliance !



GNUHealth

ALLIANCE
OF ACADEMIC AND RESEARCH INSTITUTIONS



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Universidad Nacional de Entre Ríos, Argentina



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GNU Health and Insolafrica



Insolàfrica



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GNU Health at the Government of Jamaica



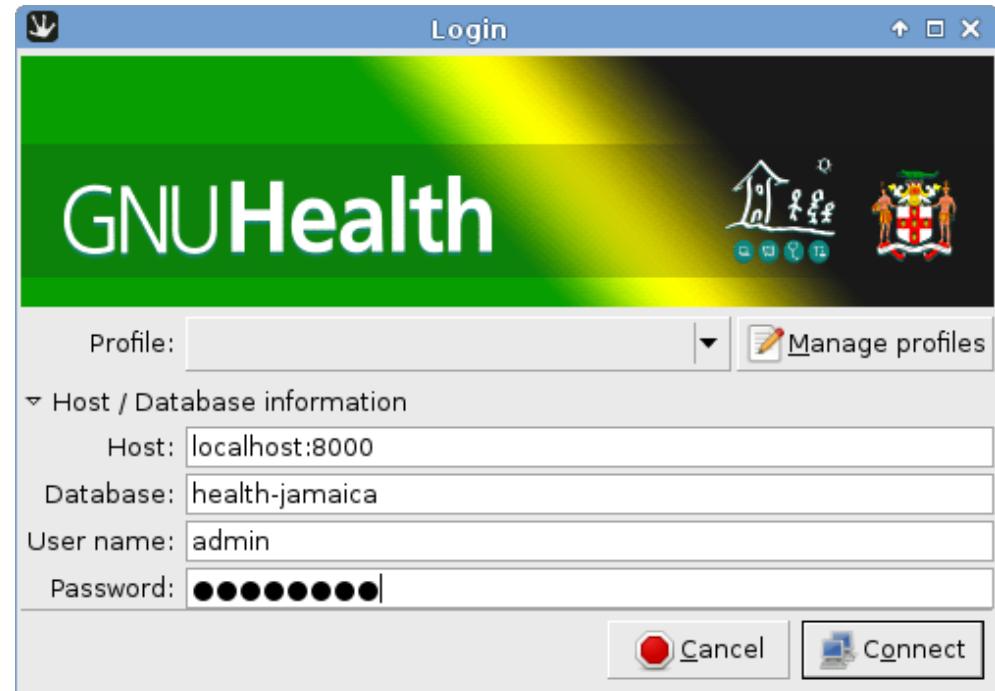
Unique ID for each individual across the country

GNU/Linux on both workstations and servers

Started as a joint project between Government of Jamaica Ministry of Health and GNU Solidario

Local team

Sustainability and independence



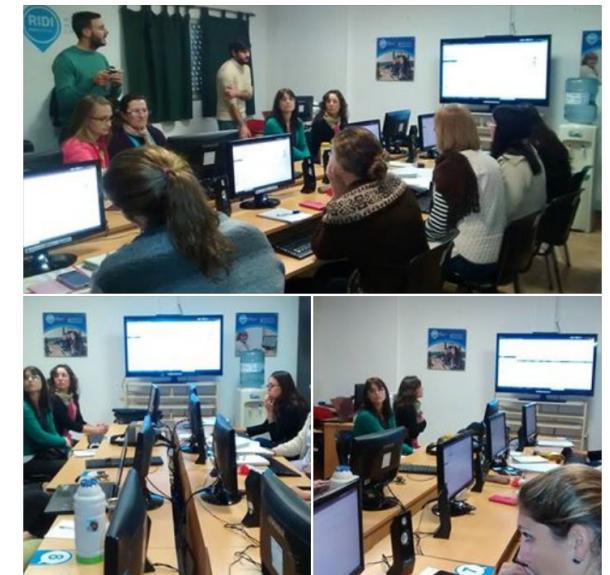
350+ “GNU” Health facilities nation-wide



GNU Health in Argentina



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GNU Health at Laos Public Health System



GNU Health & World Health Organization



MDG6 : Malaria, TB, HIV

Essential list of medicines

Neglected Tropical Diseases

ICD-10

ICPM

MDG4 : Reduce Child mortality

Immunization schedules

Pediatric growth charts



GNU Health & World Health Organization



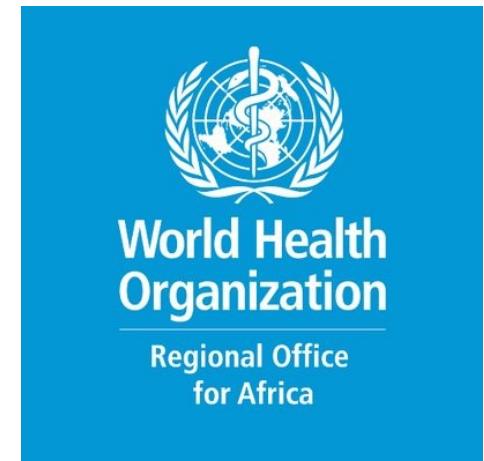
Training sessions with WHO Africa regional officers



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Cameroon - Public District Hospital



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Mexico



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Red Cross Mexico / Cruz Roja



Over 300,000 visits / year



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Bikop - Cameroon



Social Medicine at the heart of Africa



<http://health.gnu.org>



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Pakistan, Islamabad



Dr. Akbar Niazi Teaching Hospital (ANTH), a 500-bed hospital in Islamabad



Welcome, AIIMS !



All India Institute of Medical Sciences
chooses GNU Health.

All India Institute of Medical Sciences, AIIMS

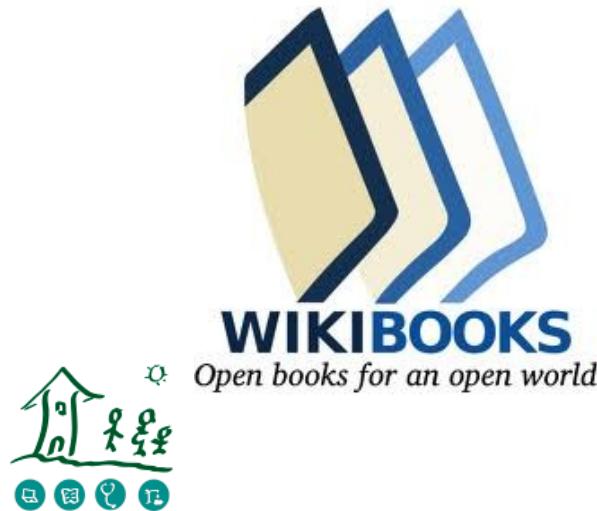
Largest public health hospital in Asia



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Some cool areas of work



Get the GNU Generation involved !



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Reach out !



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IWEEE & GNUHealthCon 2018

Celebrating 10 years of Freedom and Equity in Healthcare



November 23 -25, Las Palmas, Spain

<http://www.gnuhealthcon.org>



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Medicine is a Social Science



“Medicine is a social science, and politics is nothing else but medicine on a large scale”

Rudolf Virchow

<http://health.gnu.org>



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Health is a non-negotiable human right



<http://health.gnu.org>



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