



GNUHealth

FREEDOM AND EQUITY IN HEALTHCARE



SUMMARY OF FEATURES IN GNUHEALTH HIS 5.0

Luis Falcon, MD



GNU Solidario

- Non-for-profit organization
- Works globally
- Focused on Social Medicine
- Fights for the right of human and nonhuman animals
- The organization behind GNU Health
- Promotes Libre Software and Open Science



GNUHealth

THE LIBRE DIGITAL HEALTH
ECOSYSTEM

What is new in GNU Health HIS 5.0
Luis Falcón



Projects by GNU Solidario



GNU Solidario



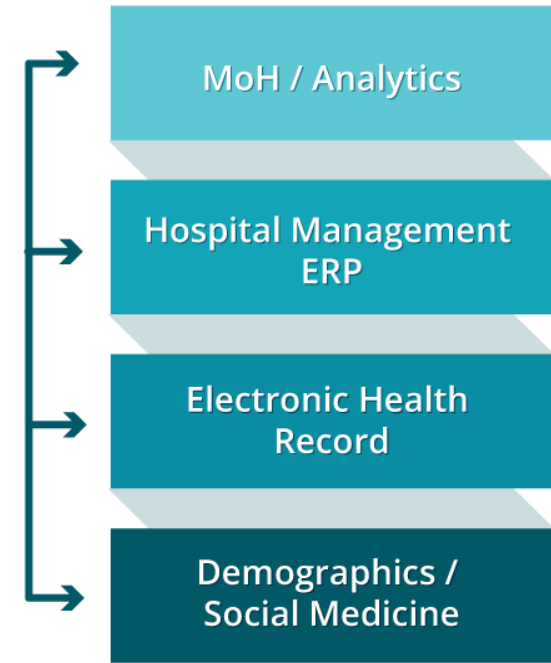


GNUHealth HIS component

Modular and extendable – Example GNU Health



...and many more



GNUHealth



GNUHealth

GNU Health declared a Digital Public Good



Digital
Public
Goods
Alliance



GNUHealth + World Health Organization (WHO)



Immunization schedules

Malaria, TB and HIV modules

List of Essential Medicines

Neglected Tropical diseases

ICD10, ICD11, ICF

Pediatric growth charts



Training session to WHO officials



GNU Health implementation with WHO at Bafia general hospital

GNU Health ecosystem components



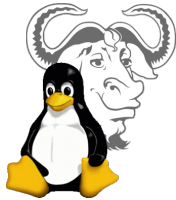
Official GNU Package

Official GNU Package

Open Documentation

Relies on Free / Libre technology

Friendly community



PostgreSQL



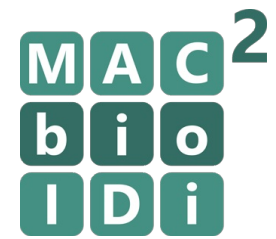
Academia



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

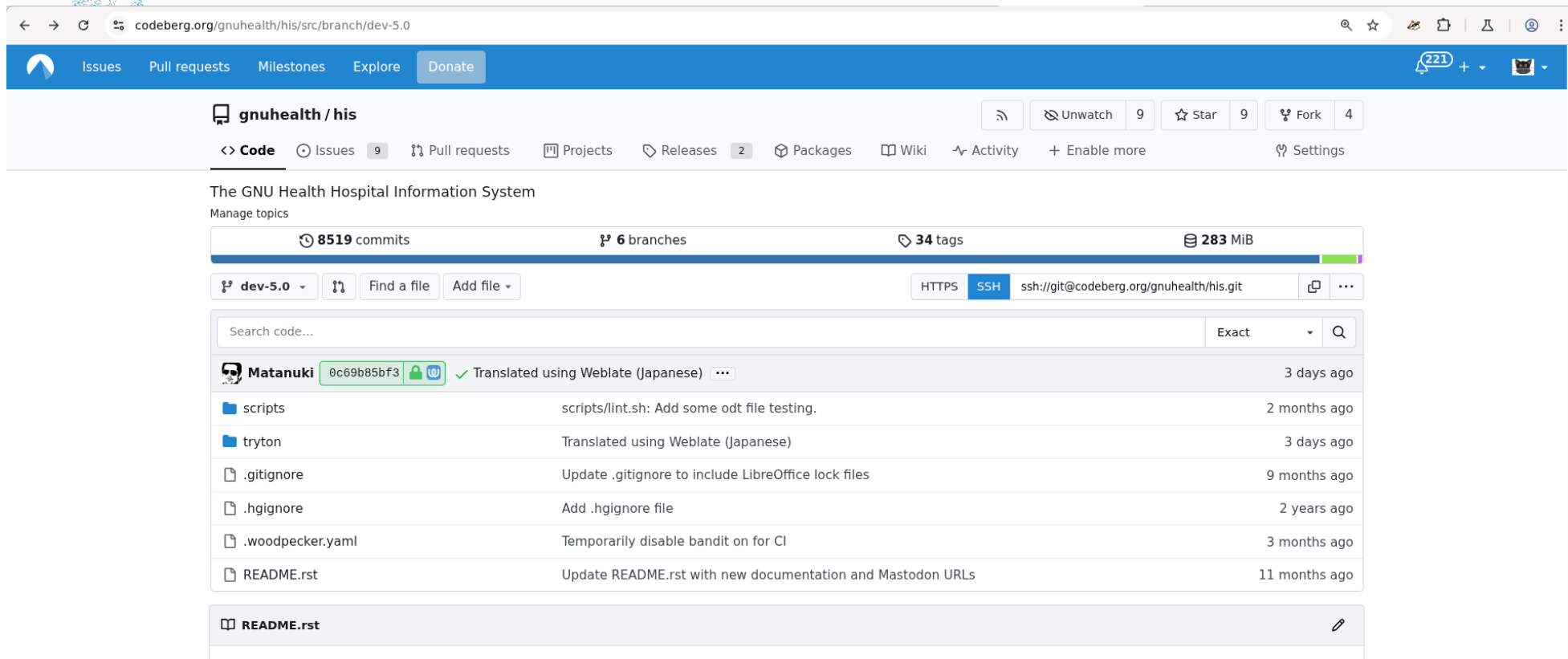



What is new in GNU Health HIS 5.0
Luis Falcón

What is new in GNU Health HIS 5.0



Development environment @ Codeberg



The screenshot shows the Codeberg repository page for `gnuhealth/his`. The page is titled "The GNU Health Hospital Information System" and includes a "Manage topics" section. The repository statistics show 8519 commits, 6 branches, 34 tags, and 283 MiB of data. The current branch is `dev-5.0`. The file list includes `scripts`, `tryton`, `.gitignore`, `.hgignore`, `.woodpecker.yaml`, and `README.rst`. The `README.rst` file is highlighted.

codeberg.org/gnuhealth/his/src/branch/dev-5.0

Issues Pull requests Milestones Explore Donate

gnuhealth / his

<> Code Issues 9 Pull requests Projects Releases 2 Packages Wiki Activity + Enable more Settings

The GNU Health Hospital Information System

Manage topics

8519 commits 6 branches 34 tags 283 MiB

dev-5.0 Find a file Add file

HTTPS SSH ssh://git@codeberg.org/gnuhealth/his.git

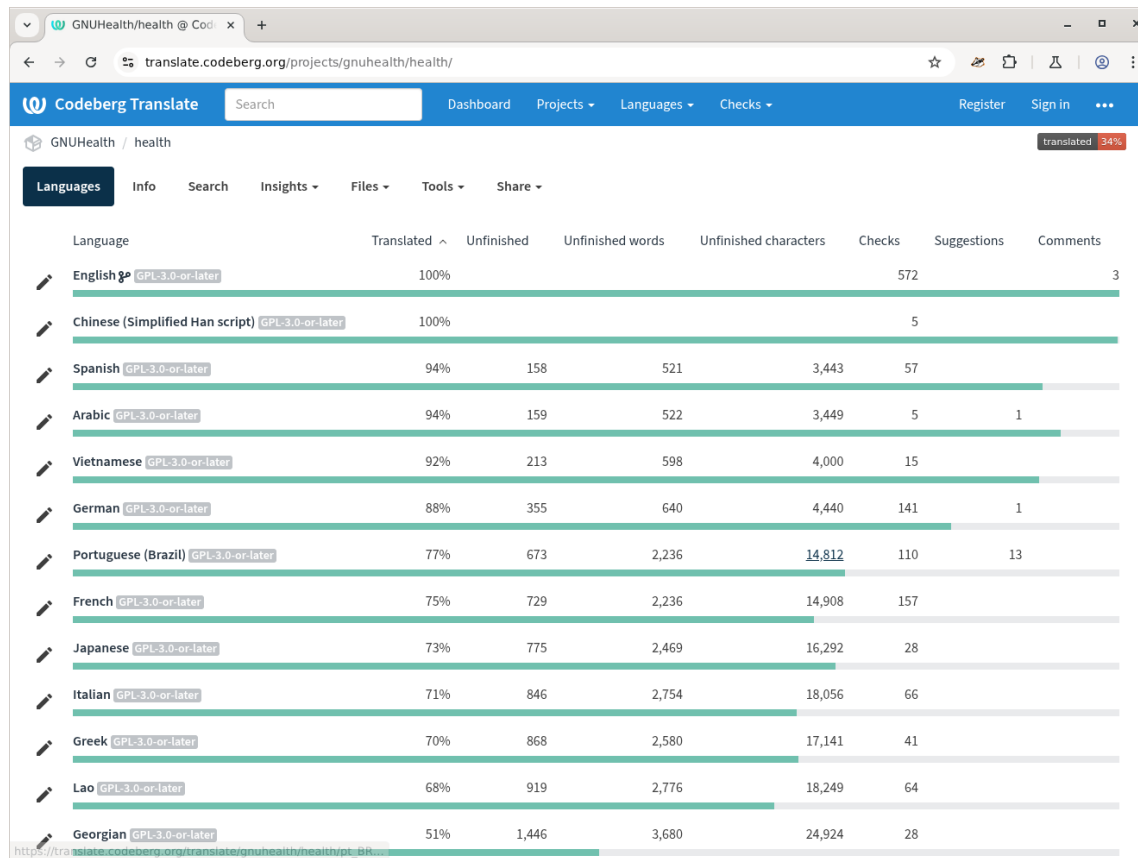
Search code... Exact

Matanuki 0c69b85bf3 Translated using Weblate (Japanese) 3 days ago

scripts	scripts/lint.sh: Add some odt file testing.	2 months ago
tryton	Translated using Weblate (Japanese)	3 days ago
.gitignore	Update .gitignore to include LibreOffice lock files	9 months ago
.hgignore	Add .hgignore file	2 years ago
.woodpecker.yaml	Temporarily disable bandit on for CI	3 months ago
README.rst	Update README.rst with new documentation and Mastodon URLs	11 months ago

README.rst

Translations



Language	Translated	Unfinished	Unfinished words	Unfinished characters	Checks	Suggestions	Comments
English <small>GPL-3.0-or-later</small>	100%				572		3
Chinese (Simplified Han script) <small>GPL-3.0-or-later</small>	100%				5		
Spanish <small>GPL-3.0-or-later</small>	94%	158	521	3,443	57		
Arabic <small>GPL-3.0-or-later</small>	94%	159	522	3,449	5	1	
Vietnamese <small>GPL-3.0-or-later</small>	92%	213	598	4,000	15		
German <small>GPL-3.0-or-later</small>	88%	355	640	4,440	141	1	
Portuguese (Brazil) <small>GPL-3.0-or-later</small>	77%	673	2,236	14,812	110	13	
French <small>GPL-3.0-or-later</small>	75%	729	2,236	14,908	157		
Japanese <small>GPL-3.0-or-later</small>	73%	775	2,469	16,292	28		
Italian <small>GPL-3.0-or-later</small>	71%	846	2,754	18,056	66		
Greek <small>GPL-3.0-or-later</small>	70%	868	2,580	17,141	41		
Lao <small>GPL-3.0-or-later</small>	68%	919	2,776	18,249	64		
Georgian <small>GPL-3.0-or-later</small>	51%	1,446	3,680	24,924	28		

- Integrated in Codeberg
- Using Weblate
- 35+ languages
- Automatically sync to repository

GNU Health HIS packaging & distribution



- GNU Health becomes an organization @ Python Package Index
- Migration to Poetry for building, packaging and publishing GNU Health HIS resources.
- Use of `pyproject.toml`
- Allow single package installation
- Increased modularity
- Less dependencies
- HIS in a **virtual environment**

GNU Health Control

- **Gnuhealth-control**
- Single point to manage GNU Health
- Installation
- Creation of new instances
- Start / stop instance
- Database backup
- Add health packages
- Status of the server
- Update dependencies

```
su - sandbox

Welcome to GNU Health Control Center 5.0.0

0: Install GNU Health HIS
1: Create a new DB instance
2: Add Health package
3: Refresh DB instance
4: Start / stop instance
5: Update packages / dependencies
6: Backup instance

Server status: running

Press 'q' to go back or exit
```

Default WSGI Server



- **Gunicorn will be the default WSGI server for GNUHealth HIS**
- For production / large deployments
- Can be coupled with Nginx
- Used already in Thalamus and the GNU Health Federation
- Will replace uWSGI

Tryton 7.0 LTS



- GNU Health 5.0 uses Tryton 7.0
- Support until end of 2028
- Full refactoring of packages
- Python 3.13
- Native GNU Health GTK Client
- Development web client

Patient Medications

Global Search

Medicaments ✕ Commands ✕ Patient medications ✕

Health / Patient medications

Search

Patient	Medicament	Indication	Start	
unidentified patient	ciprofloxacin	A01.0 : Typhoid fever	10/21/2016	
Ana Isabel Betz	insulin injection (soluble)	E10 : Type 1 diabetes mellitus	11/10/1993	

- Accessible from the main menu
- Report at population level

Validation on allergic conditions

Focus on

Allergic: ☒ Cardiovascular: ☐ HBP: ☐ DBT: ☒ Mental: ☐ Nutrition: ☐ Cancer: ☐ Immunity: ☐ Cognitive: ☐ Social: ☐

GNU Health HIS GTK Client - admin@federation.gnuhealth.org/health50alpha

Books of Life
Genetics
Person genetic information
Appointments
Patient medications
Patient procedures
Prescriptions
Laboratory
Health Professionals
Institutions
Medical Imaging
Medical Imaging - New ord
Medical Imaging Requests
Medical Imaging Results
Orthanc
Demographics
Hospitalizations
Surgeries
Dentistry
Pediatrics
Obstetrics
Archives
Contact Tracing
Support Center
Nursing
Ambulances
Federation
Health Service
Reporting
Specialties
Operational
Summary R
Epidemiolog
Patient Evaluations [reador
Top Diseases

Prescription

1/13

Patient and Health Professional Information

Patient: Ana Isabel Bel Date: 06/13/2025 13:10:57 Prescriber: Cordara, Camerc Pharmacy: ID:

Safety warnings

Pregnancy: ☒ Allergy: ☒ Verified: ☐

Prescription line

Units	Valid Until	Hist	Medicament	Indication	Dose	dose unit	Form	Frequency	Treatment	Treatment	Comment
1			amoxicillin + clavul						days		

SM-CORE-0006: Verify and check for safety in PREGNANCY the prescribed drugs

OK

SM-CORE-0017: Our records indicate that this patient is ALLERGIC. Please verify the prescribed drugs

OK

State: Draft Create

- Automatically check the patient allergic status

- Patient level

- Prescription level



Occhiolino

THE GNU HEALTH LIMS

Laboratory Information System

- New visual aids for out-of-range results
- Create individual test directly w/o orders
- Include testing in veterinary context
- Analyte code harmonization
- Test sources for patient & non-patients
- Enhanced report formats

GNU Health HIS GTK Client - admin@federation.gnuhealth.org/health50alpa

File Settings Help

GNU Health Command Global Search

Party Product Financial Currency Currencies Scheduled Rate Updates Inventory & Stock Calendar Health Patients Books of Life Genetics Appointments Patient medications Patient procedures Prescriptions Laboratory Lab: New order Lab Test Requests Lab Results Health Professionals Institutions Medical Imaging Medical Imaging - New order Medical Imaging Requests Medical Imaging Results Orthanc Demographics Hospitalizations Surgeries Dentistry Pediatrics Obstetrics Archives Contact Tracing Support Center Nursing Ambulances Federation Health Services

Lab Results

Health / Laboratory / Lab Results 1/15

Main Info Images Extra Info Validation

ID: TEST013 Analysis Date: 05/07/2022 16:50:58
Order: 12 Request Date: 05/07/2022 11:20:42
Source: Patient Ana Isabel Betz Test type: COMPLETE BLOOD COUNT Load analytes criteria
Specimen: Health Prof: Cordara, Cameron
Pathologist: Pathology:

Analyses criteria

Warn	Analyte	Value	Qualitative	Lower Limit	Upper Limit	Units	Remarks	Code	Excl	Limit
<input checked="" type="checkbox"/>	HGB	10.7		11	16	g/dL			<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	RBC	3.4		3.5	5.5	10 ⁶ /μL			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	HCT	39		37	50	%			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	MCV	83		82	95	fL			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	MCH	29		27	31	pg			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	MCHC	34		32	36	g/dL			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	RDW					%			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	RDW					%			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	WBC					/mm ³			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	NEU					%			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	LYM					%			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	MON					%			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	BAS					%			<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	EO					%			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	NEU					%			<input type="checkbox"/>	<input type="checkbox"/>

Health / Laboratory / Lab R... - Test type

Main Info Extra Info

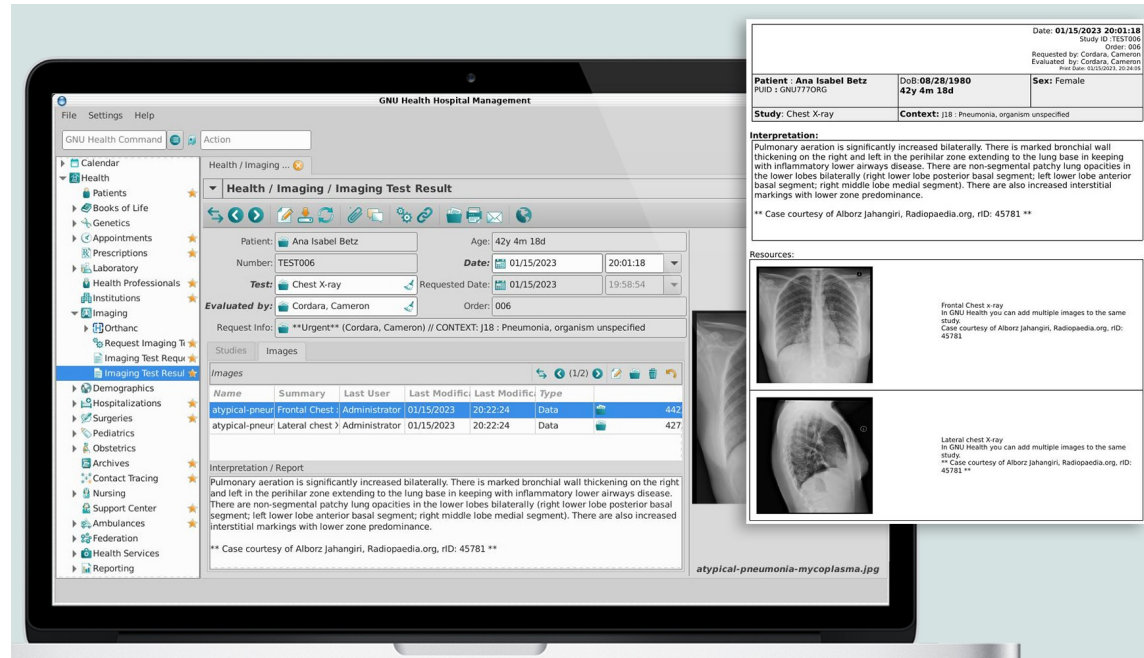
Test: COMPLETE BLOOD COUNT Code: CBC Specimen: whole blood
Category: Hematology Testing Gender: Age range: 0 150
Report style: Table with result and normal_range columns Tags:
Active: Table with result, unit and normal_range columns
Test Cases: Table with result and normal_range columns

Offset	To Integer	Lower Limit	Upper Limit	Reference	Units
<input type="checkbox"/>	<input type="checkbox"/>	11	16	11-16.0	g/dL
<input type="checkbox"/>	<input type="checkbox"/>	3.5	5.5	3.5-5.50	10 ⁶ /μL
<input type="checkbox"/>	<input type="checkbox"/>	37	50	37.0-50	%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	32	36	32.0-36.0	g/dL
<input type="checkbox"/>	<input type="checkbox"/>	27	31	27-31	pg
<input type="checkbox"/>	<input type="checkbox"/>	11.5	14.5	11.5-14.5	%
<input type="checkbox"/>	<input type="checkbox"/>	35	56	35-56	fL
<input type="checkbox"/>	<input type="checkbox"/>	4.5	11	4.5-11	10 ³ /μL
<input type="checkbox"/>	<input type="checkbox"/>	2	7	2-7	10 ³ /μL
<input type="checkbox"/>	<input type="checkbox"/>	1.5	4	1.5-4.0	10 ³ /μL
<input type="checkbox"/>	<input type="checkbox"/>	0.15	0.7	0.15-0.70	10 ³ /μL
<input type="checkbox"/>	<input type="checkbox"/>	0	0.15	0-0.15	10 ³ /μL

Historize: ☐ Signatures: Done by: Cordara, C

6 MCHC 7 RDWcv 8 RDWsd 10 WBC 11 NEU 12 LYM 13 MON 14 BAS MCHC RDWcv RDWsd WBC NEU LYM MON BAS

Medical Imaging



GNU Health Hospital Management

File Settings Help

GNU Health Command Action

Calendar

Health

Patients

Books of Life

Genetics

Appointments

Prescriptions

Laboratory

Health Professionals

Institutions

Imaging

Orthanc

Request Imaging Test

Imaging Test Result

Demographics

Hospitalizations

Surgeries

Pediatrics

Obstetrics

Archives

Contact Tracing

Nursing

Support Center

Ambulances

Federation

Health Services

Reporting

Health / Imaging / Imaging Test Result

Patient: Ana Isabel Betz

Age: 42y 4m 18d

Number: TEST006

Date: 01/15/2023 20:01:18

Test: Chest X-ray

Requested Date: 01/15/2023 19:58:54

Evaluated by: Cordara, Cameron

Order: 006

Request Info: **Urgent** (Cordara, Cameron) // CONTEXT: J18 : Pneumonia, organism unspecified

Studies Images

Name	Summary	Last User	Last Modific	Last Modific	Type
atypical-pneul Frontal Chest		Administrator	01/15/2023	20:22:24	Data
atypical-pneul Lateral chest		Administrator	01/15/2023	20:22:24	Data

Interpretation / Report

Pulmonary aeration is significantly increased bilaterally. There is marked bronchial wall thickening on the right and left in the perihilar zone extending to the lung base in keeping with inflammatory lower airways disease. There are non-segmental patchy lung opacities in the lower lobes bilaterally (right lower lobe posterior basal segment; left lower lobe anterior basal segment; right middle lobe medial segment). There are also increased interstitial markings with lower zone predominance.

** Case courtesy of Alborz Jahangiri, Radiopaedia.org, rId: 45781 **

atypical-pneumonia-mycoplasma.jpg

Date: 01/15/2023 20:01:18

Study ID: TEST006

Order: 006

Requested by: Cordara, Cameron

Evaluated by: Cordara, Cameron

Ref: Ana Isabel Betz, 42y 4m 18d

Patient: Ana Isabel Betz

PUID: GNU7770RG

DoB: 08/28/1980

42y 4m 18d

Sex: Female

Study: Chest X-ray

Context: J18 : Pneumonia, organism unspecified

Interpretation:

Pulmonary aeration is significantly increased bilaterally. There is marked bronchial wall thickening on the right and left in the perihilar zone extending to the lung base in keeping with inflammatory lower airways disease. There are non-segmental patchy lung opacities in the lower lobes bilaterally (right lower lobe posterior basal segment; left lower lobe anterior basal segment; right middle lobe medial segment). There are also increased interstitial markings with lower zone predominance.

** Case courtesy of Alborz Jahangiri, Radiopaedia.org, rId: 45781 **

Resources:

Frontal Chest x-ray

In GNU Health you can add multiple images to the same study.

Case courtesy of Alborz Jahangiri, Radiopaedia.org, rId: 45781

Lateral chest X-ray

In GNU Health you can add multiple images to the same study.

** Case courtesy of Alborz Jahangiri, Radiopaedia.org, rId: 45781 **

- Extensive package refactoring
- `health_imaging`
- `health_imaging_worklist` (DICOM patient worklists)
- `health_imaging_orthanc`
- Better integration with Orthanc PACS server
- Work from Wei Thao, University of Louvain and the Orthanc community

Insurances

- Enhanced demographics
- Warning on expired insurances
- Insurance policies and pricing for procedures
- Linked to medical evaluations, surgeries, ...

GNU Health HIS GTK Client - admin@suriname.gnuhealth.org:8000/training

File Settings Help

GNU Health Command Global Search

Party

- Configuration
- Parties
 - People
 - Addresses
 - Contact Mechanisms
- Categories

Product

- Financial
- Currency
- Companies

Health

- Patients
- Appointments
- Patient procedures**
- Patient medications
- Prescriptions
- Health Professionals
- Institutions

Patient medications Patient procedures

Health / Patient procedures

Search

Patient	Procedure	Insurance	Price	Context	Date	Time	Origin	Comments
Laura	89.07 : Consult	SZF: SZF DEFAULT PLAN - 43534535 (valid)	375	Medical Evalu	04/22/2025	16:34:46	Patient Evaluation 2025-04-22	
naam, patient	89.07 : Consult	SZF: SZF DEFAULT PLAN - 34234234 (expired)		Medical Evalu	04/01/2025	16:31:40	Patient Evaluation 2025-04-01	
Doe, Glorio	89.07 : Consult	SZF: SZF DEFAULT PLAN - 234234 (expired)		Medical Evalu	04/01/2025	18:54:41	Patient Evaluation 2025-04-01	
Laura	89.07 : Consult	SZF: SZF DEFAULT PLAN - 43534535 (valid)		Medical Evalu	04/22/2025	16:34:46	Patient Evaluation 2025-04-22	

GNU Health HIS GTK Client - admin@suriname.gnuhealth.org:8000/training

File Settings Help

GNU Health Command Global Search

Insurances

- Insurance Plans
- Insurance Company
- Plan Product Policies**
- Genetics
- Medical Imaging
- Functioning and Disability
- Immunization Schedule
- Federation

Patient medications Patient procedures Plan Product Policies

Health / Configuration / Insurances / Plan Product Policies 1/1

Search

Plan	Product	Product code	Category	discount %	Price
SZF DEFAULT PLAN	[ICD9 - 89.07] 89.07 : Consultat	109340			375

Socioeconomics

Focus on

Allergic: ☐
 Cardiovascular: ☐
 HBP: ☐
 DBT: ☐
 Mental: ☒
 Nutrition: ☐
 Cancer: ☐
 Immunity: ☐
 Cognitive: ☐
 Social: ☒

▼ Socioeconomic and Family Assessment (Ana Isabel Betz) 1/13



Patient: Ana Isabel Betz
 Age: 44y 9m 16d
 Female
 Health Prof: Cordara, Cameror
 Date: 06/13/2025
 13:42:55

Socioeconomics

Socioeconomics: Middle	Income: Medium
Education Level: University	Occupation: Teacher
Homeless: <input type="checkbox"/>	DU: Valse-LeonyCastillo1
Housing conditions: Comfortable and good sanitary conditions	

Family Functionality

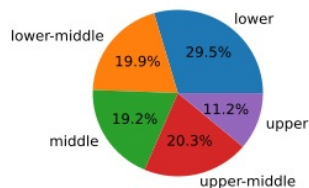
Help from family: Moderately	Problems discussion: Moderately	Decision making: Very much
Time sharing: Moderately	Family affection: Moderately	Score: 6

Notes

State: In progress

Distribution by Socioeconomic Status

Cases by Socioeconomic groups: U07.1 : COVID-19, virus identified



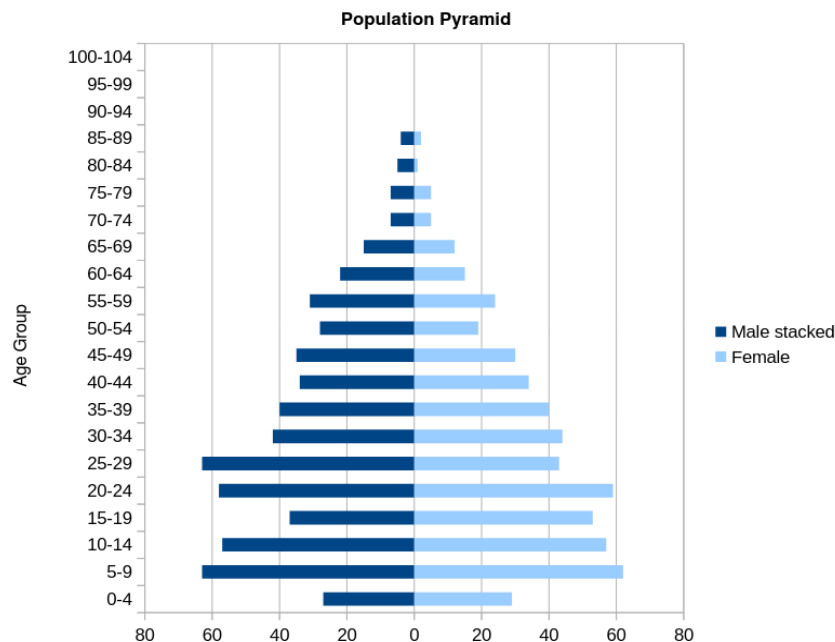
Focus on Social Diseases

- Check uninsured population
- Enhanced data entry for socioeconomic status and family functionality
- Add homeless status
- Linked with ICF
- Epidemiological report takes into account the socioeconomic status of the population

Reporting

	No DoB	♀	♂	Σ
Living Population	8	538	578	1116

In this period	Registrations	In health system	Birth certs	Death certs
06/13/2020 - 06/13/2025	1117	1114	0	0



Medical Imaging Requests
Medical Imaging Results

> Orthanc

> Demographics

> Hospitalizations

> Surgeries

> Dentistry

> Pediatrics

> Obstetrics

Archives

Contact Tracing

Support Center

> Nursing

> Ambulances

> Federation

> Health Services

Reporting

Specialties by institution

Operational sectors by institution

Summary Report

Epidemiological Surveillance

Patient Evaluations [readonly]

Top Diseases

Injury Surveillance System Registration

Ophthalmologic evaluations

Socioeconomic Assessments

Amputations

Protheses

Specialties by health professionals

Appointments Report

Evaluations Report

> Configuration

? Help and Documentation

Online Documentation

Demographics & Socioeconomics

GNU Health HIS GTK Client - admin@federation.gnuhealth.org/health50alpha

File Settings Help

ppl Global Search

Person genetic in... People

People 7/16

Name: Ana Isabel Betz PUID: GNU777ORG Other IDs: ☒ Unidentified: ☐ Active: ☒

Health General Supplier Identifiers Accounting Stock

Create target: ☒ Person: ☒ Patient: ☒ Health Prof: ☐ Institution: ☐ Insurance Company: ☐ Pharmacy: ☐

Demographics

Gender: Female Age: 44y 9m 16d DoB: 08/28/1980 Est: ☐

Ethnicity: ☒ Hispanic Proclaimed: ☒ Hispanic

Occupation: Teacher Education: University Marital Status: Married

Homeless: ☐ DU: Valse-LeonyCastillo1 Residence: Lao People's Democratic Republic

Citizenship: Spain

Main address: Leon y Castillo 1, , Valsequillo, Las Palmas - 35217, Spain

Other IDs

Code	ID type	Other ID type	Expiration date	Comments
93674665J	Passport			Spanish Passport
PAC001	Medical Record			
85739376	Other			Local SSN

Invoices

Number	Plan	Insurance T	Insurance Cc	Category	Member since	Expiration date	Status
938291	FAMILY PLAN	State	Insurador		01/21/2016	01/21/2017	Expired

Internal User: Federation ID: ESPGNU777ORG Prefix: Activation date: 01/17/2008

Invoices
Pending (0)
Paid (1)

- Enhanced demographics information
- Insurance validity check
- Record Homeless status
- Ethnicity and proclaimed ethnicity
- Improved socioeconomic assessments

Obstetrics

GNU Health HIS GTK Client - admin@localhost:8001/gh44to50

Global Search

Obstetric Histories

Health / Obstetrics / Obstetric Histories 1/1

Patient: Betz, Ana Age: 41 Blood Type: A Rh: - Pregnancies: 1 Abortions: 0 Stillbirths: 0 Premature: 0

Pregnancy # 1 Fetuses: 1 Current: LMP: 04/21/2024 Due Date: 01/26/2025 Warn:

End of pregnancy End: 01/12/2025 00:00:00 Gest. Weeks: 38 Result: Live birth

Result (1/1)

Result	Newborn	Delivery mode	Labor time	Comments
Live birth	Matt	Vaginal - Spontaneous	17	Welcome to this world, Matt! ♥

Monozygotic: IUGR: Home Birth: BBA:

Prenatal Labor Puerperium

Prenatal Evaluations

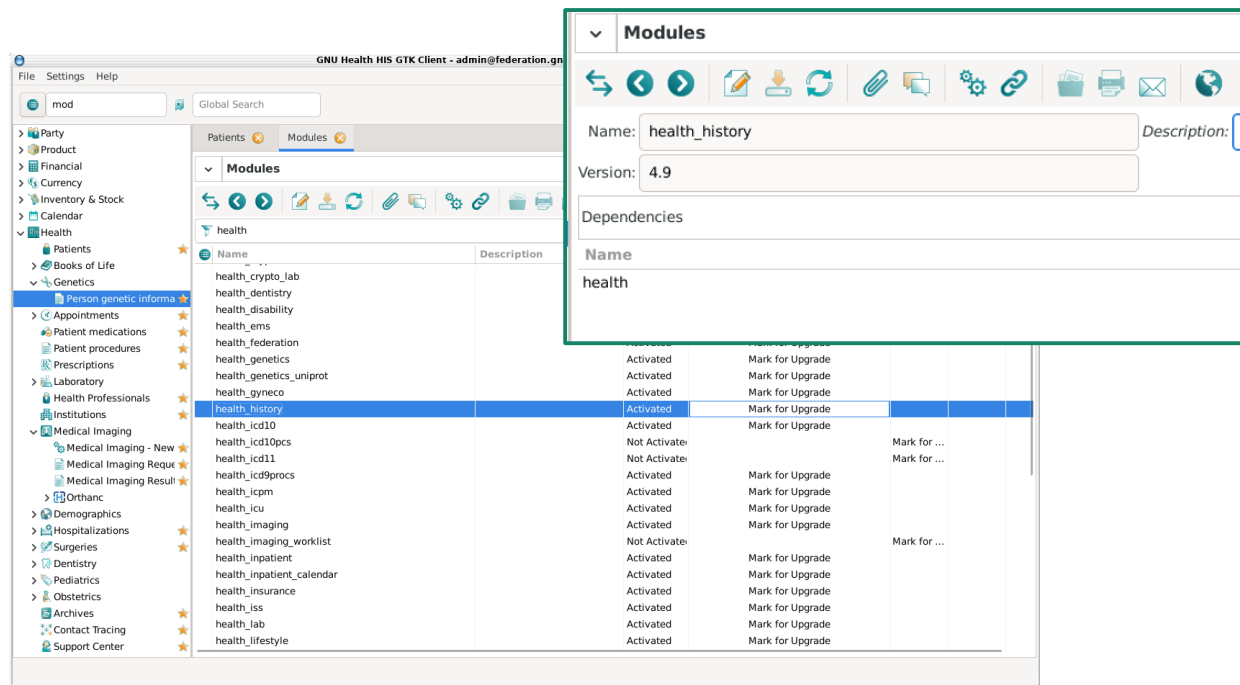
Date	Gestational	Fundal Height	Fetus heart rate	EFW	IUGR	Hyper	Preec	Overw	Diabe	Placentation	Place	Vasa	Oligo	Polihy	Health Prof	Institution
08/16/2024	16		130	150						Normal decidua					Cordara, Cameron	GNU SOLIDARIO HTAL

Health Prof: Cordara, Cameron Institution: GNU SOLIDARIO HTAL

ultrasound-16wk.png

- Enhanced obstetric history
- Link newborn with pregnancy result
- General population report
- Detailed information about multiple-pregnancy for each fetus

Increased Modularity



GNU Health HIS GTK Client - admin@federation.gn

File Settings Help

mod Global Search

Patients Modules

Modules

Name Description

Name	Description	Status	Action
health_crypto_lab		Activated	Mark for Upgrade
health_dentistry		Activated	Mark for Upgrade
health_disability		Activated	Mark for Upgrade
health_ems		Activated	Mark for Upgrade
health_federation		Activated	Mark for Upgrade
health_genetics		Activated	Mark for Upgrade
health_genetics_uniprot		Activated	Mark for Upgrade
health_gyneco		Activated	Mark for Upgrade
health_history		Activated	Mark for Upgrade
health_icd10		Activated	Mark for Upgrade
health_icd10pcs		Not Activated	Mark for ...
health_icd11		Not Activated	Mark for ...
health_icd9procs		Activated	Mark for Upgrade
health_icpm		Activated	Mark for Upgrade
health_icu		Activated	Mark for Upgrade
health_imaging		Activated	Mark for Upgrade
health_imaging_worklist		Activated	Mark for Upgrade
health_inpatient		Not Activated	Mark for ...
health_inpatient_calendar		Activated	Mark for Upgrade
health_insurance		Activated	Mark for Upgrade
health_iss		Activated	Mark for Upgrade
health_lab		Activated	Mark for Upgrade
health_lifestyle		Activated	Mark for Upgrade

Dependencies

Name

health

- Reduced Package inter-dependency
- Nursing & Ambulatory care
- Crypto
- Lab
- Clinical History
- Stock management
- Removed health_profile

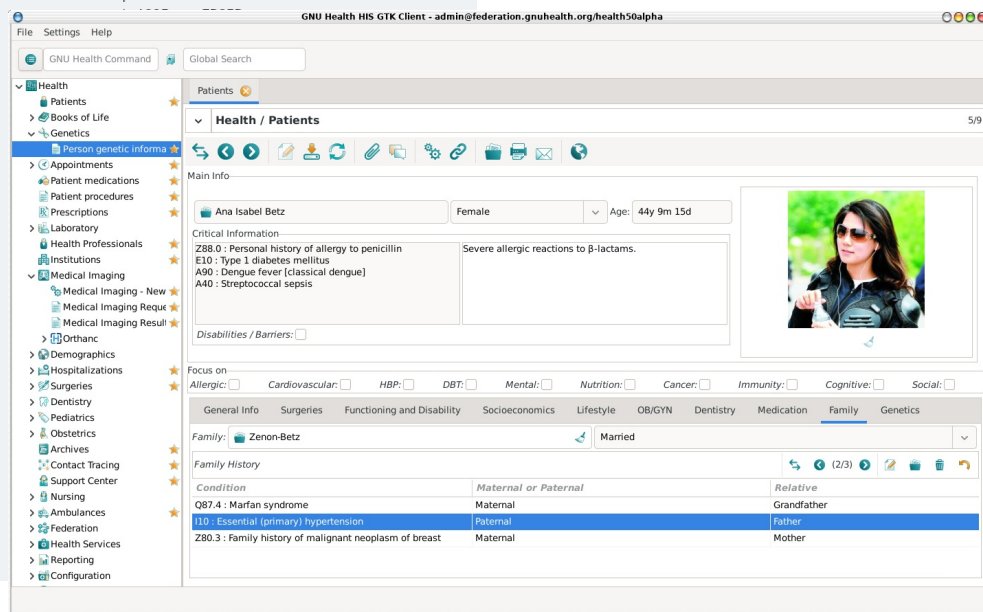
Medical Genetics

HGNC:ID Symbol 2023

1152 BVES
1184 C12orf4
1290 C21orf62 -AS1
1305 C21orf62
8258 OR2I1P
10152 RNU2-2P
10964 SLC22A18
11398 STK19
13968 OR2B8P
14698 OR8G3P
15038 OR9H1P
15191 OR51C1P
15246 OR56B2P
16111 SOGA1
16631 MRPS36
17272 CENPJ
17346 PRPF48
17837 MSL3P1
19225 C4orf3
19627 OR5BS1P
19834 C14orf28
20615 TAS2R2P
21223 BVES -AS1
21494 SOGA3
21668 STK19B
22421 C7orf50
23378 KIAA2026
23831 CDKN2A-DT
25002 CCDC113
25077 C2orf27A
25085 FAM104B
25146 SLC66A1L

HGNC:ID Symbol 2025

1152 POPDC1
1184 FERRY3
1290 EPCIP-AS1



GNU Health HIS GTK Client - admin@federation.gnuhealth.org/health50alpha

File Settings Help

GNU Health Command Global Search

Health / Patients 5/9

Main Info

Ana Isabel Betz Female Age: 44y 9m 15d

Critical Information

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

Severe allergic reactions to β -lactams.

Disabilities / Barriers: ☐

Focus on

Allergic: ☐ Cardiovascular: ☐ HBP: ☐ DBT: ☐ Mental: ☐ Nutrition: ☐ Cancer: ☐ Immunity: ☐ Cognitive: ☐ Social: ☐

General Info Surgeries Functioning and Disability Socioeconomics Lifestyle OB/GYN Dentistry Medication Family Genetics

Family: Zenon-Betz Married

Family History

Condition	Maternal or Paternal	Relative
Q87.4 : Marfan syndrome	Maternal	Grandfather
I10 : Essential (primary) hypertension	Paternal	Father
Z80.3 : Family history of malignant neoplasm of breast	Maternal	Mother

Family History and Genetic information

- Include family history in core package
- Patient family tab (members, history ...)
- Mutation zygosity
- Improved data entry and view

Updated datasets (2023 → 2025)

- Genes: 44056 (+348)
- UniProt Natural variants: 82581 (+1422)
- Protein related diseases: 6740 (+300)
- HGNC: 80 gene symbols renamed

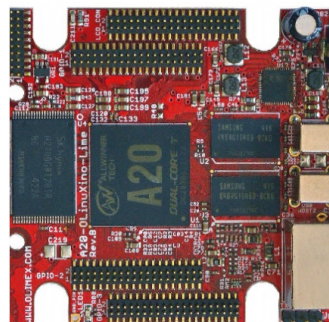
General Info	Surgeries	Functioning and Disability	Socioeconomics	Lifestyle	OB/GYN	Dentistry	Medication	Family	Genetics
Genetic Information									
Gene	Variant	Zygosity	Phenotype	Onset	Notes				
BRCA1 (P38398) :BRCA1 DNA repair associated	VAR_007768 : p.Gly55	Heterozygosity							

Summary of some other functionalities

-
- New functionality for patient procedures and medical interventions
- Improved reporting and analytics
- New features on patient obstetric history and pregnancy related evaluations
- Improved ergonomics and views on demographics and patient related information.
- Enhanced socioeconomic and family functionality assessment
- Extensively revised Medical Imaging, DICOM worklists and Orthanc packages
- Reorganize nursing and ambulatory care packages
- **Enhanced patient body composition and anthropometrics**
- Enhanced “Focus on” patient section, including automated settings and mental health
- New insurance and billing features for medical interventions and insurance plans.
- Improved patient safety and allergic conditions checks and prescription writing



Current and future work



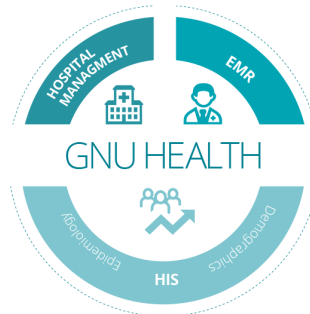
```
-<feed>
  <title>Search results</title>
  <updated>2023-05-09T19:47:06.269810Z</updated>
  <id>http%3A//localhost%3A5000/Observation</id>
-<author>
  <name>GNU Health</name>
  </author>
-<entry>
  <title>GRA# value for Betz, Ana Isabel on 2023/03/30</title>
  <id>http://localhost:5000/Observation/349</id>
  <updated>2023-03-30T17:32:17.814173Z</updated>
  <published>2023-03-30T17:32:17.814173Z</published>
  <content type="text/xml">
    <-<Observation>
      <-<name>
        <-<coding>
          <display value="GRA#"/>
        </coding>
        </name>
        <issued value="2023-03-30T17:32:17"/>
        <status value="temporary"/>
        <reliability value="ok"/>
      <-<identifier>
        <label value="GRA# value for Betz, Ana Isabel on 2023/03/30"/>
        <value value="/Observation/349"/>
      </identifier>
      <-<subject>
        <reference value="/Patient/1"/>
        <display value="Betz, Ana Isabel"/>
      </subject>
      <-<referenceRange>
        <-<low>
          <value value="2.0"/>
          <units value="10^3/uL"/>
        </low>
        <-<high>
          <value value="7.5"/>
          <units value="10^3/uL"/>
        </high>
      <-<meaning>
        <system value="http://hl7.org/fhir/referencrange-meaning"/>
        <code value="normal"/>
        <display value="Normal range"/>
      </meaning>
    </referenceRange>
  </Observation>
  </content>
</entry>
</feed>
```

- Integration with privacy respecting Single Board Computers and medical devices
- “GNU Health in a box”
- Glucometers, scales
- Documentation
- Translations
- MyGNUHealth
- Federation Portal
- DHIS2



GNUHealth

Standard and Interoperable



Pioneered HL7 FHIR in 2014

Can use JSON, XML, and any open formats

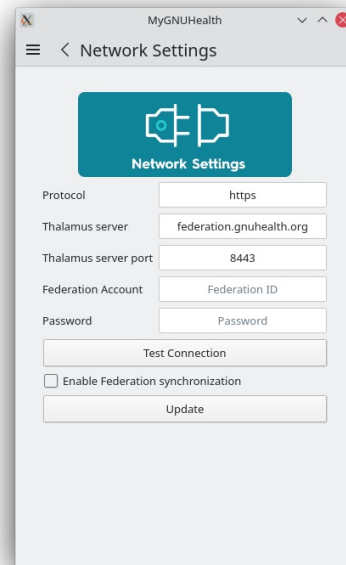
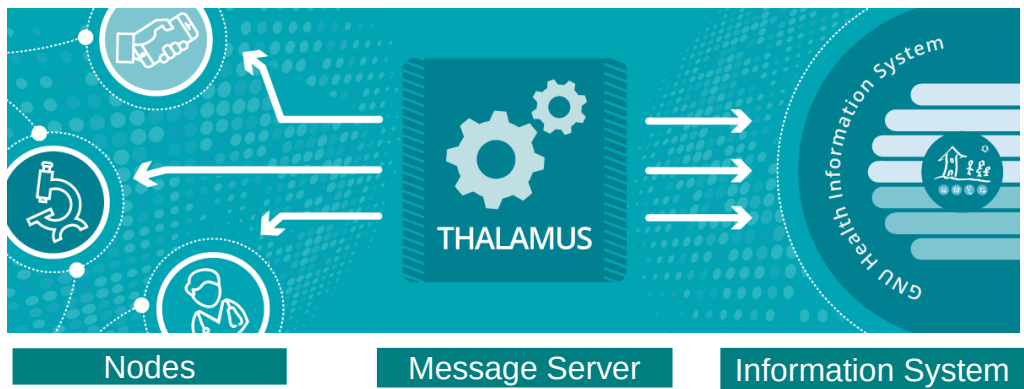
Medical coding: ICD10, ICD11, ICPM, ICF ...

Can interact with other systems such DHIS2

Great interface engines to connect to software and hardware

```
-<feed>
  <title>Search results</title>
  <updated>2023-05-09T19:47:06.269810Z</updated>
  <id>http%3Alocalhost%3A5000/Observation</id>
-<author>
  <name>GNU Health</name>
</author>
-<entry>
  <title>GRA# value for Betz, Ana Isabel on 2023/03/30</title>
  <id>http://localhost:5000/Observation/349</id>
  <updated>2023-03-30T17:32:17.814173Z</updated>
  <published>2023-03-30T17:32:17.814173Z</published>
  <content type="text/xml">
    <-<Observation>
      <-<name>
        <-<coding>
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      </name>
      <issued value="2023-03-30T17:32:17"/>
      <status value="temporary"/>
      <reliability value="ok"/>
    <-<identifier>
      <label value="GRA# value for Betz, Ana Isabel on 2023/03/30"/>
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    </identifier>
    <-<subject>
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      <display value="Betz, Ana Isabel"/>
    </subject>
    <-<referenceRange>
      <-<low>
        <value value="2.0"/>
        <units value="10^3/uL"/>
      </low>
      <-<high>
        <value value="7.5"/>
        <units value="10^3/uL"/>
      </high>
      <-<meaning>
        <system value="http://hl7.org/fhir/referencrange-meaning"/>
        <code value="normal"/>
        <display value="Normal range"/>
      </meaning>
    </referenceRange>
  </Observation>
```


More focus to the GNU Health Federation



Every person is a node in the GNU Health Federation

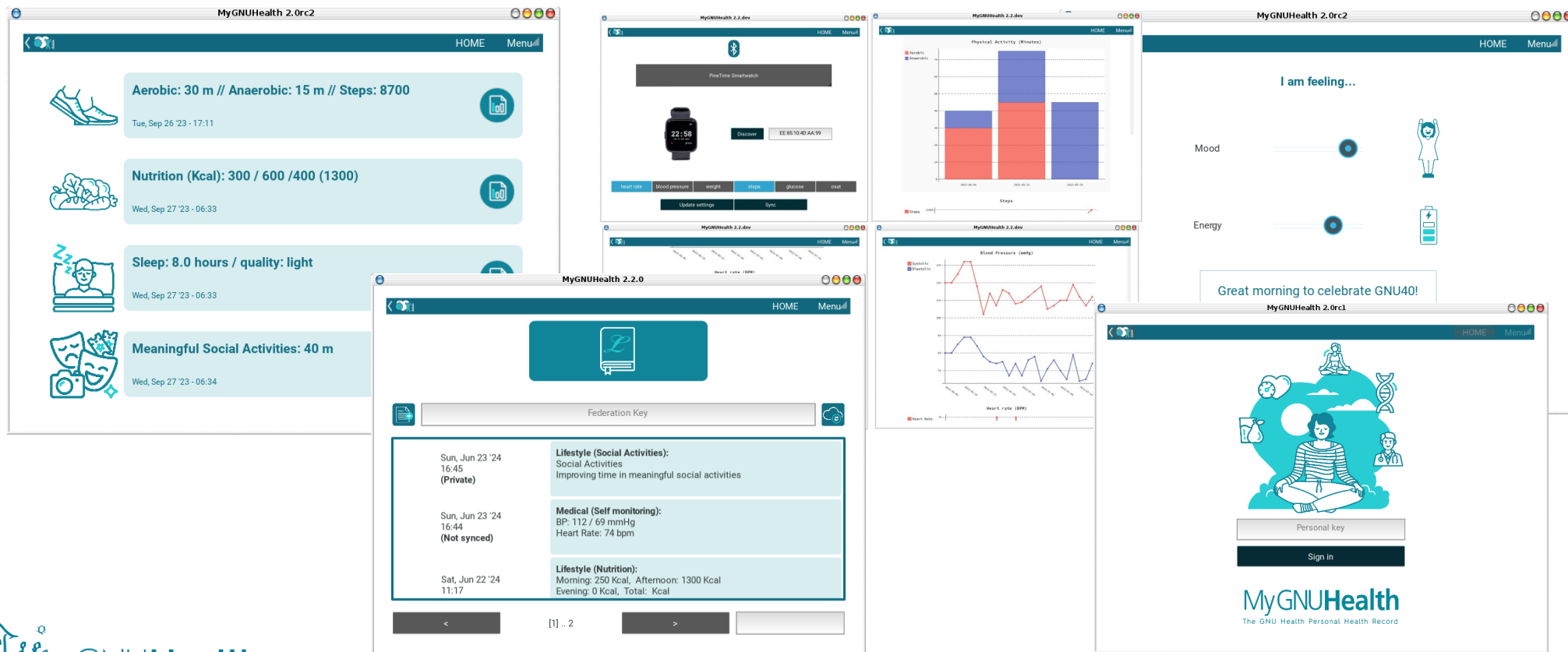
Relevance of MyGNUHealth, the Personal Health record

The person (node) is a member of the public health system

Information shared and updated in realtime with their health professional

Privacy: Person is in control of what to share

MyGNUHealth



The screenshot displays the MyGNUHealth 2.0rc2 interface across multiple windows. The main window shows a summary of health metrics:

- Aerobic:** 30 m // **Anaerobic:** 15 m // **Steps:** 8700 (Tue, Sep 26 '23 - 17:11)
- Nutrition (Kcal):** 300 / 600 / 400 (1300) (Wed, Sep 27 '23 - 06:33)
- Sleep:** 8.0 hours / quality: light (Wed, Sep 27 '23 - 06:33)
- Meaningful Social Activities:** 40 m (Wed, Sep 27 '23 - 06:34)

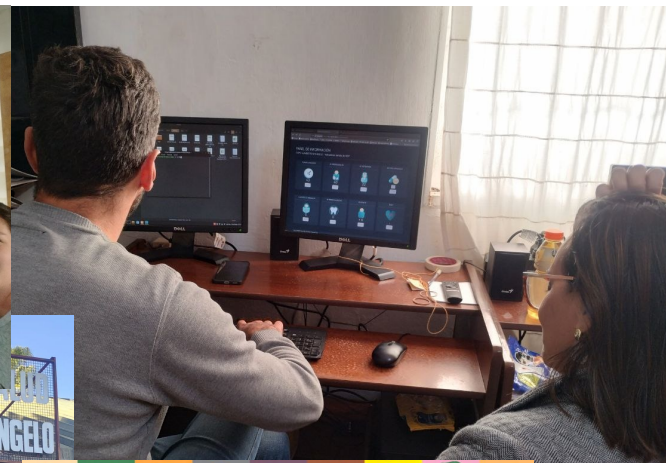
Other windows show detailed data and charts:

- Physical Activity (Minutes):** A bar chart showing activity levels over time.
- Blood Pressure (mmHg):** A line graph showing blood pressure trends.
- Heart Rate (bpm):** A line graph showing heart rate trends.
- I am feeling...:** A section for mood and energy tracking with sliders and icons.
- Great morning to celebrate GNU40!:** A celebratory message.
- Personal key:** A section for personal health records.

The bottom window shows a list of activities and their details:

Date	Time	Activity	Details
Sun, Jun 23 '24	16:45	(Private)	Lifestyle (Social Activities): Social Activities
Sun, Jun 23 '24	16:44	(Not synced)	Medical (Self monitoring): BP: 112 / 69 mmHg, Heart Rate: 74 bpm
Sat, Jun 22 '24	11:17		Lifestyle (Nutrition): Morning: 250 Kcal, Afternoon: 1300 Kcal, Evening: 0 Kcal, Total: Kcal

Medicine is a ♥ Social Science



Salud Mental Comunitaria

Encuentro con organizaciones participantes y presentación de avances del proyecto.

What is new in GNU Health HIS 5.0
Luis Falcón



www.gnuhealth.org



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info@gnuhealth.org