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

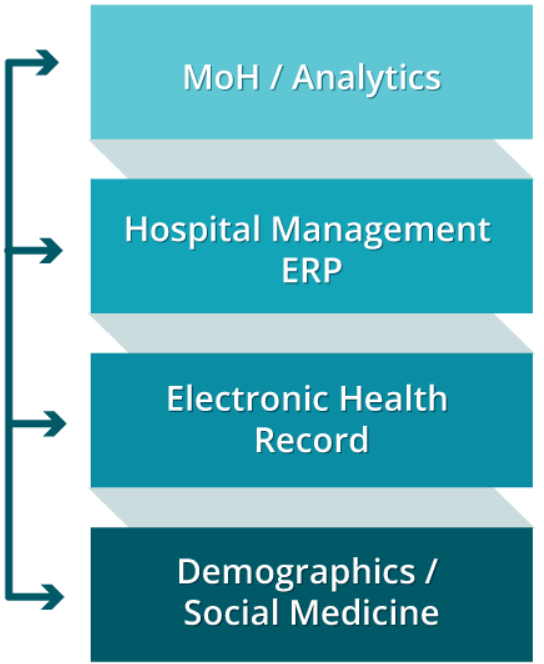
Projects by GNU Solidario

GNU Solidario

HQ HEADQUARTERS · HEALTH INSTITUTIONS · ACADEMIC INSTITUTIONS · REGIONAL OFFICES · ANIMAL RIGHTS · HUMANITARIAN MISSIONS

GNUHealth HIS component

Modular and extendable – Example GNU Health



GNUHealth

GNU Health declared a Digital Public Good

Digital Public Goods Alliance

Federal Ministry for Economic Cooperation and Development

ISPIRT

Norad

UNDP

unicef

GNU Health EMBEDDED

MyGNUHealth

GNU Health LABORATORY / LIMS

GNU Health BIOINFORMATICS

GNU Health FEDERATION

GNU Health

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

World Health Organization

Training session to WHO officials

GNU Health implementation with WHO at Bafia general hospital

GNU Health ecosystem components

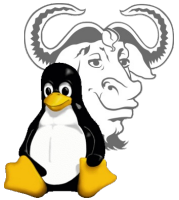
Official GNU Package

Official GNU Package

Open Documentation

Relies on Free / Libre technology

Friendly community



Academia

Adopted by UNITED NATIONS UNIVERSITY

GNU Health ALLIANCE
OF ACADEMIC AND RESEARCH INSTITUTIONS

UNER

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**

Leibniz Universität Hannover

KYOTO UNIVERSITY FOUNDED 1897 KYOTO JAPAN
GNU Health

Instituto de E.S. Julián Marías

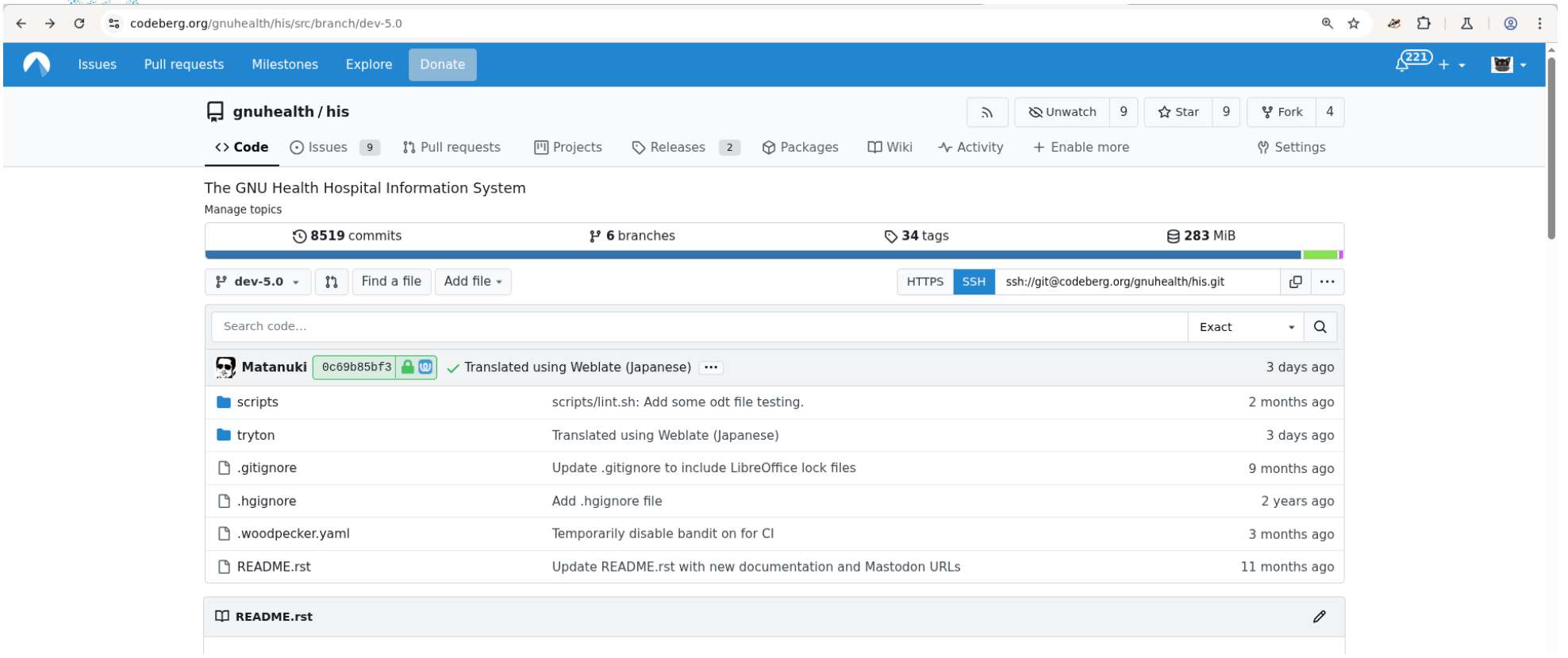
IFMSA BANGLADESH

MAC bio IDi 2

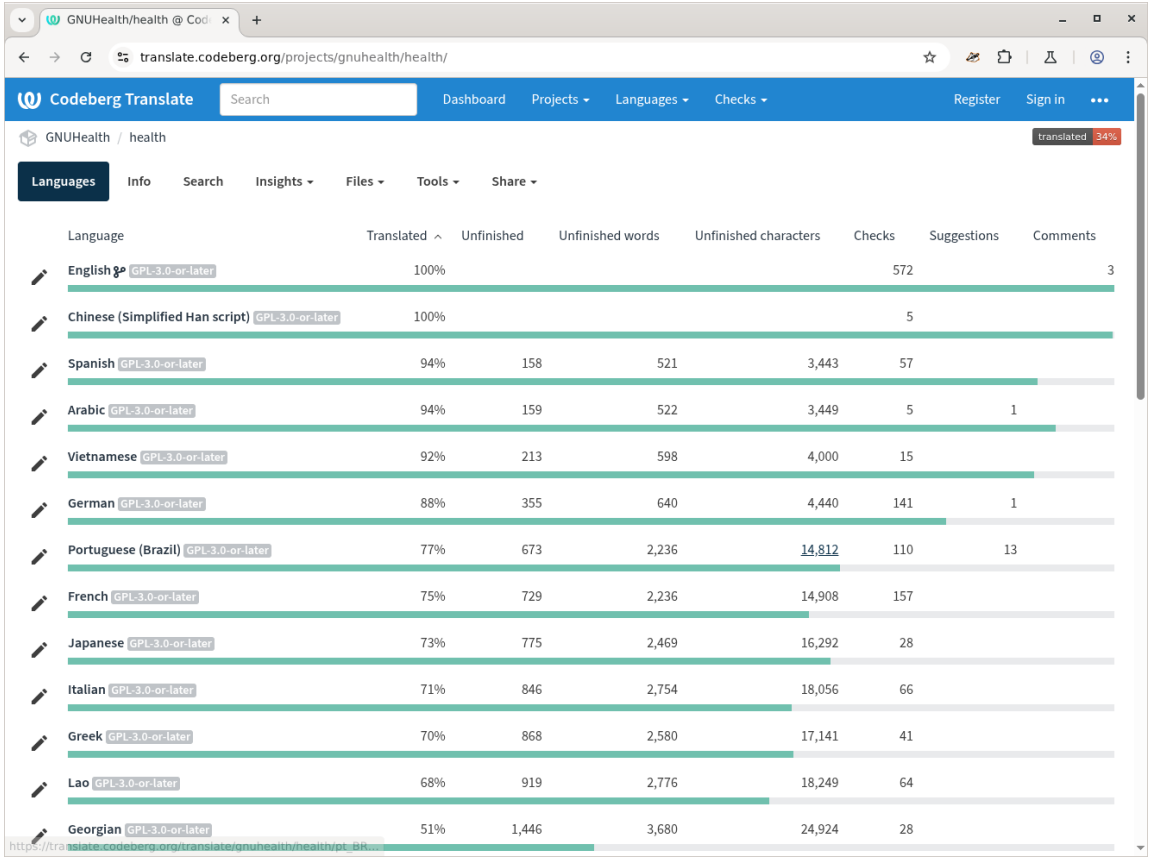
What is new in GNU Health HIS 5.0
Luis Falcón

What is new in GNU Health HIS 5.0

Development environment @ Codeberg



Translations



- **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

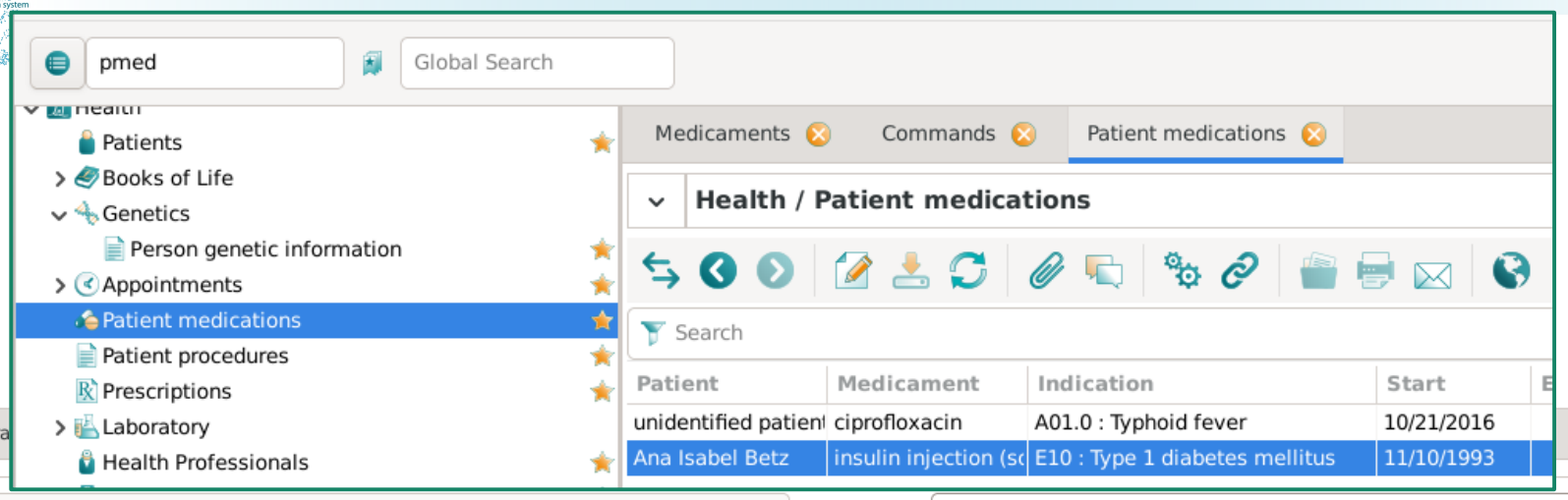
Default WSGI Server

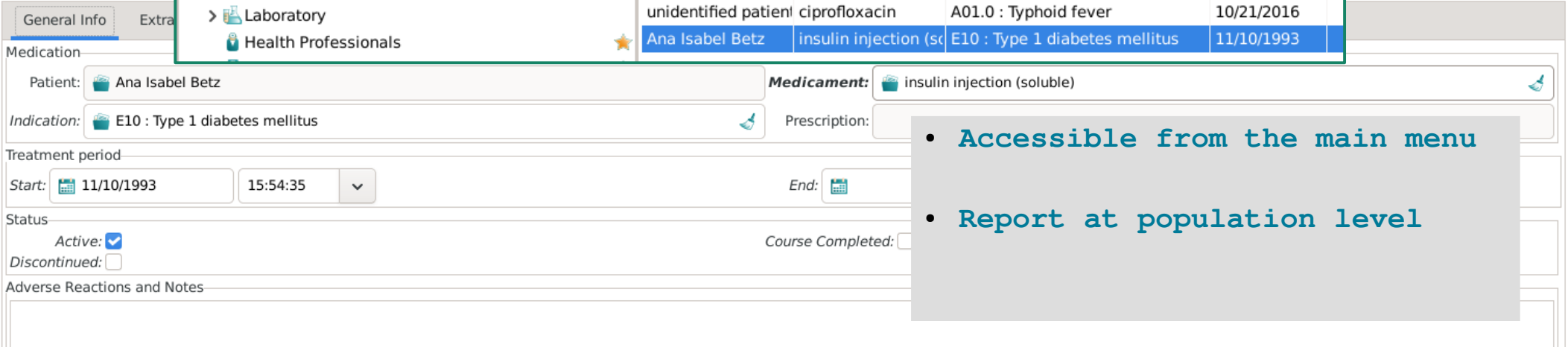
- **Gunicorn will be the default WSGI server for GNUHealth HIS**
- For production / large deployments
- Can be coupled with Nginx
- Used already in Thalamus and the GNU Health Federation
- Will replace uWSGI

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

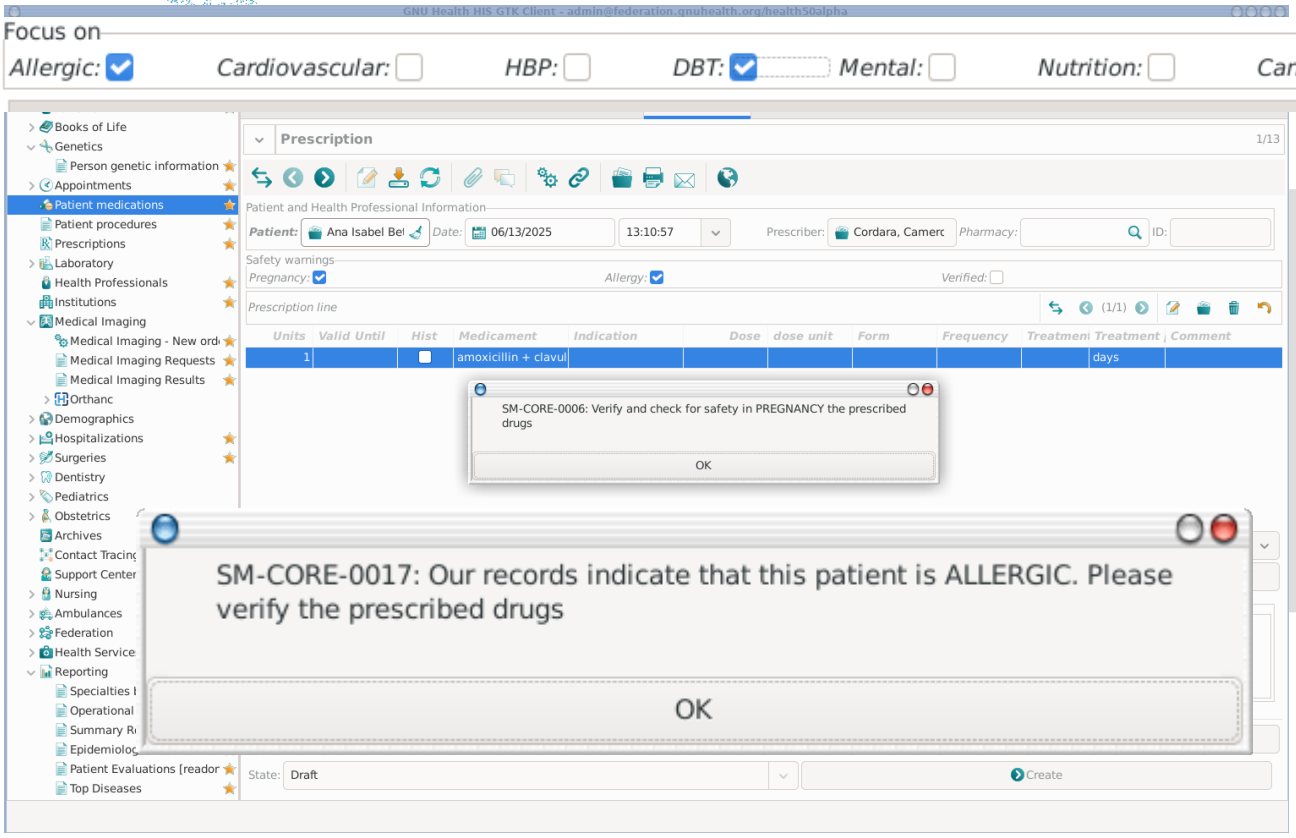
Patient Medications





- **Accessible from the main menu**
- **Report at population level**

Validation on allergic conditions



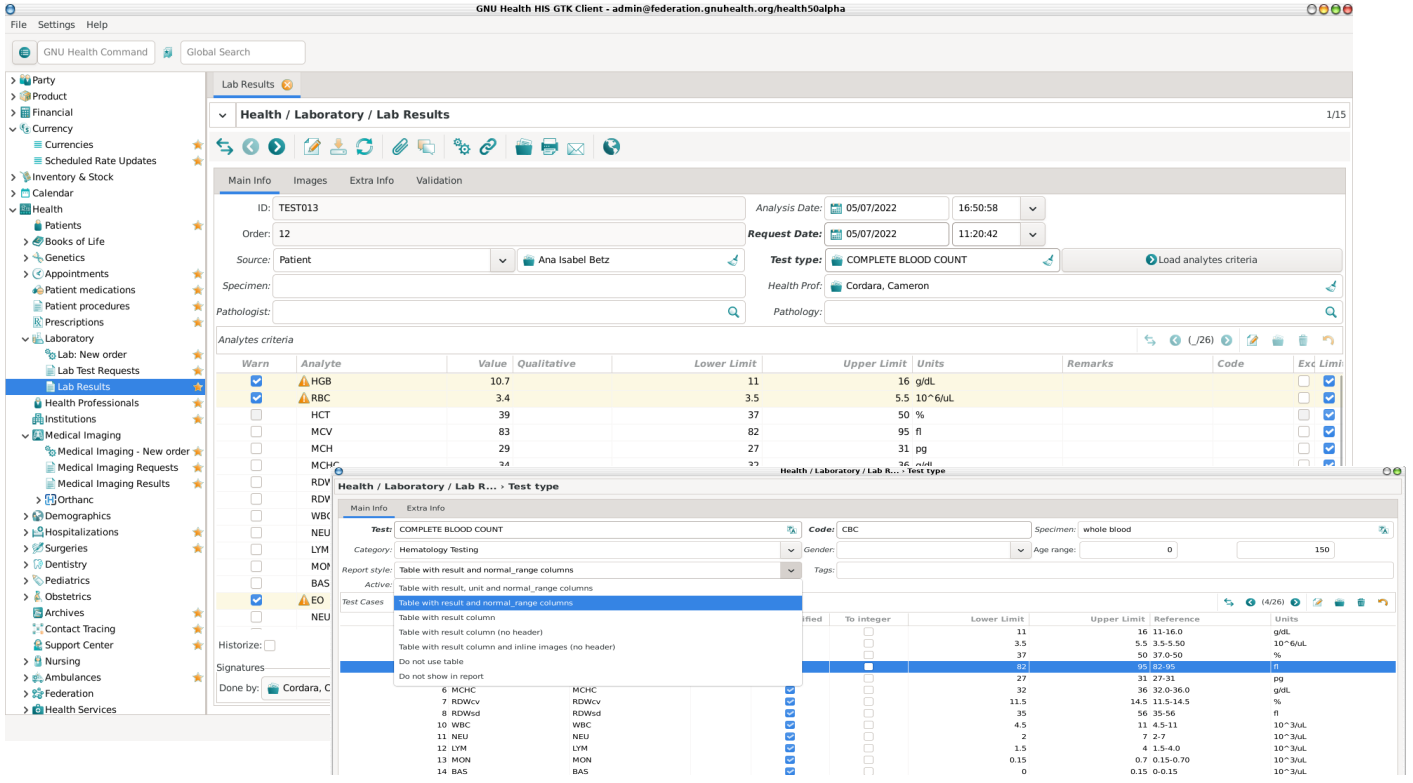
- **Automatically check the patient allergic status**
- **Patient level**
- **Prescription level**

Laboratory Information System

Occhiolino

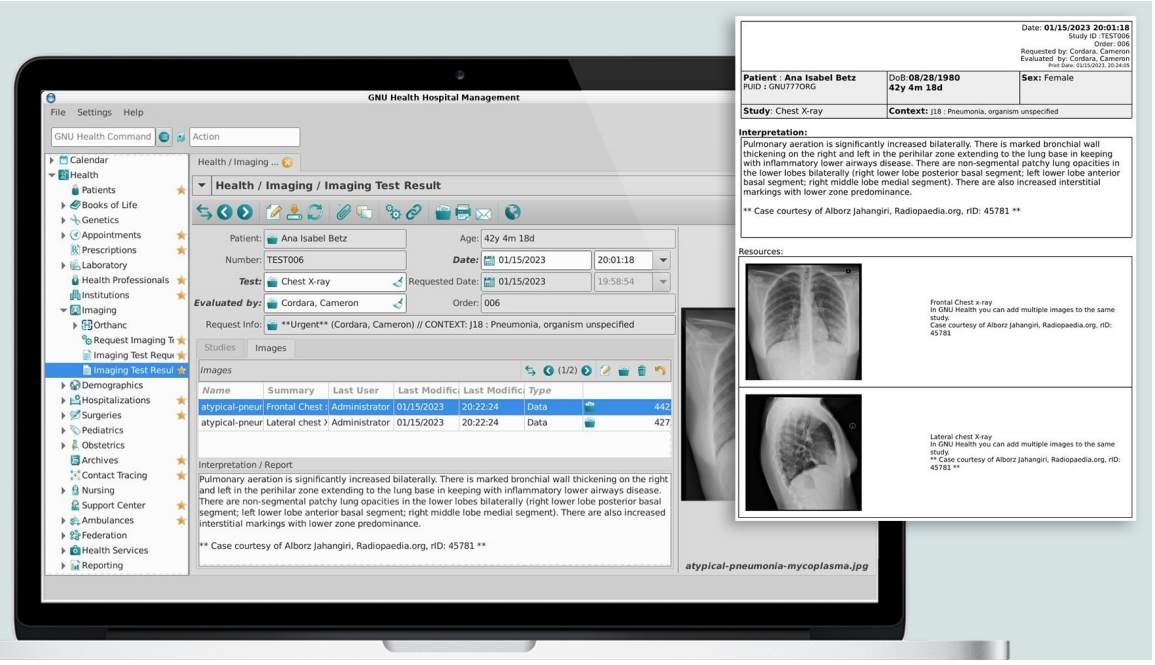
THE GNU HEALTH LIMS

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

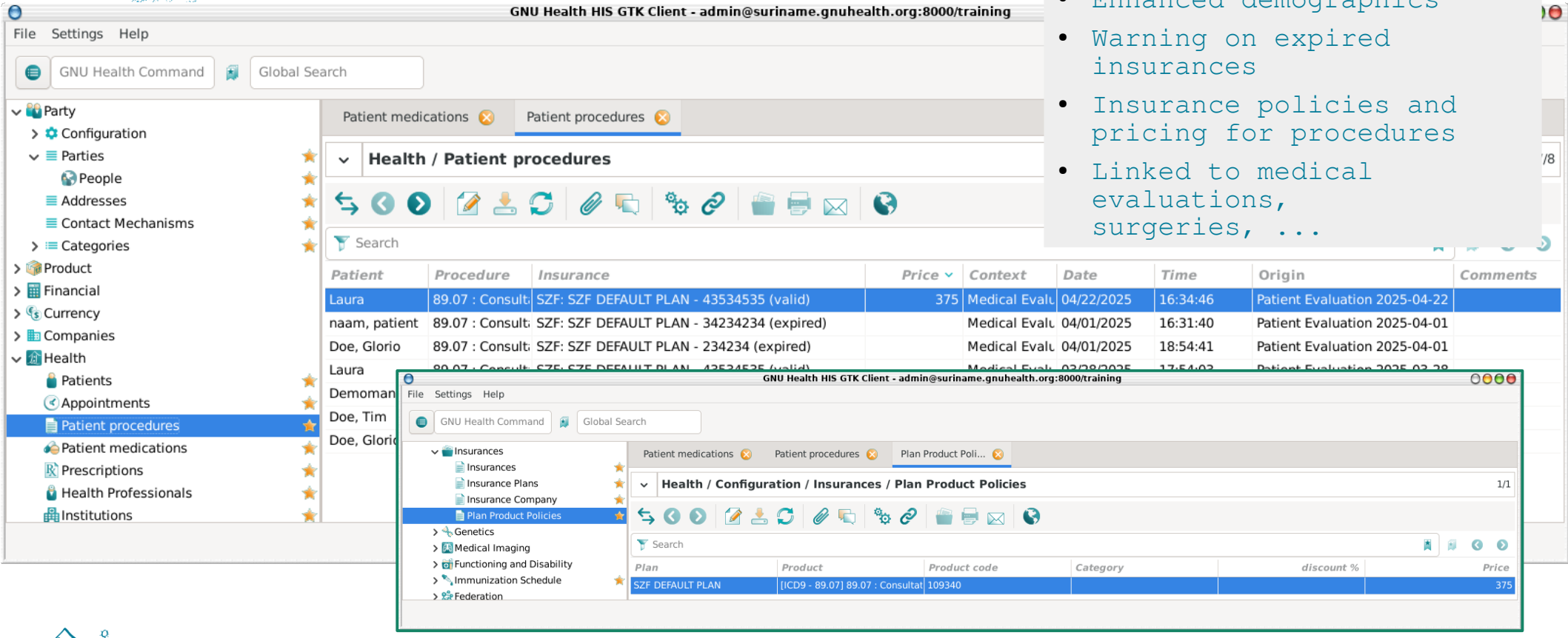
Medical Imaging



- 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, ...



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: ☐ | DU: Valse-LeonyCastillo1

Housing conditions: Comfortable and good sanitary conditions

Family Functionality

Help from family: Moderately | Problems discussion: Moderately | Decision making: Very much

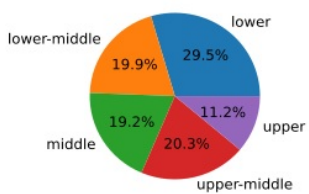
Time sharing: Moderately | Family affection: Moderately | Score: 6

Notes

State: In progress

Distribution by Socioeconomic Status

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



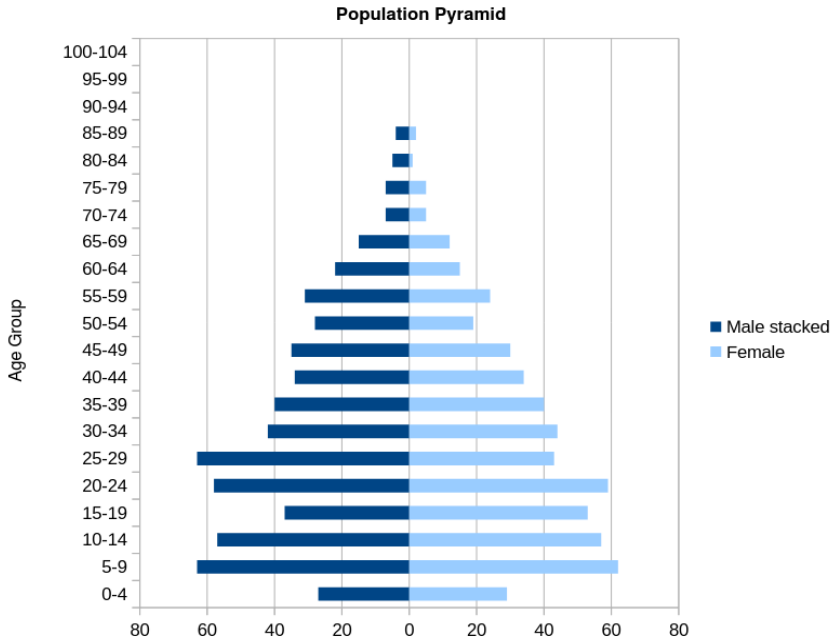
Focus on Social Diseases

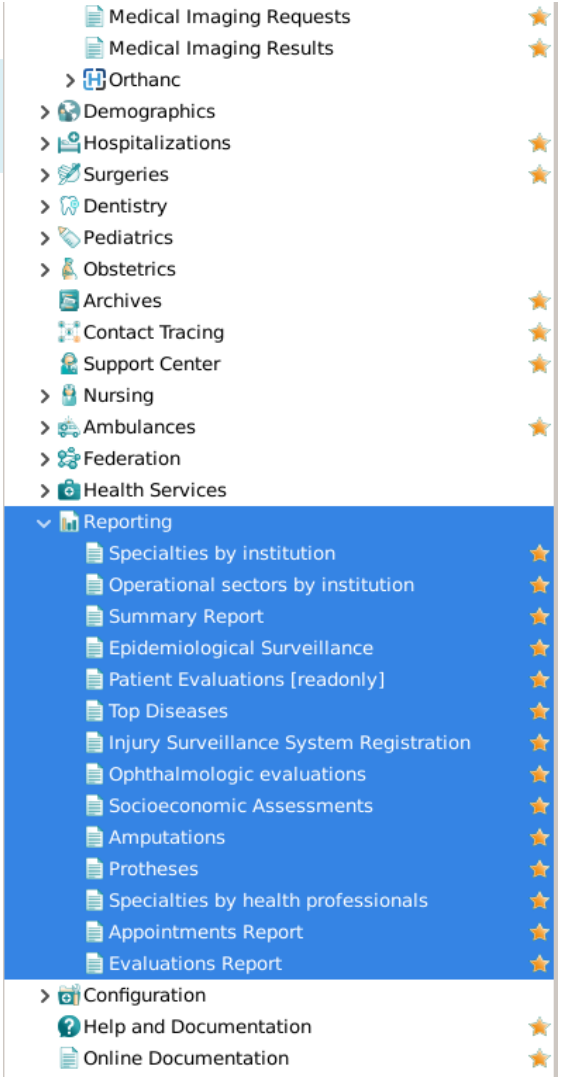
- Check uninsured population
- Enhanced data entry for socioeconomic status and family functionality
- Add homeless status
- Linked with ICF
- Epidemiological report takes into account the socioeconomic status of the population

Reporting

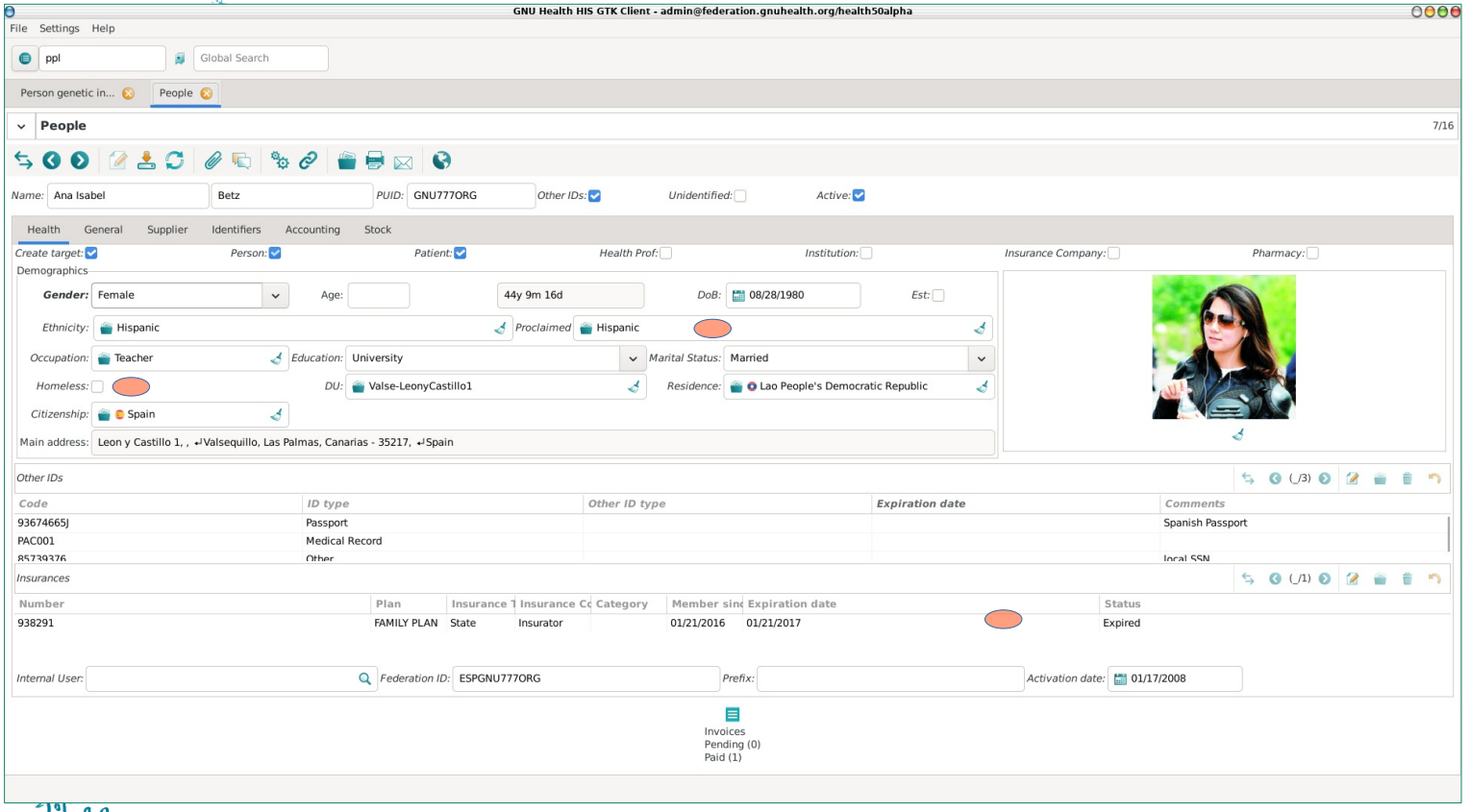
	No DoB	♀	♂	Σ
Living Population	8	538	578	1116

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



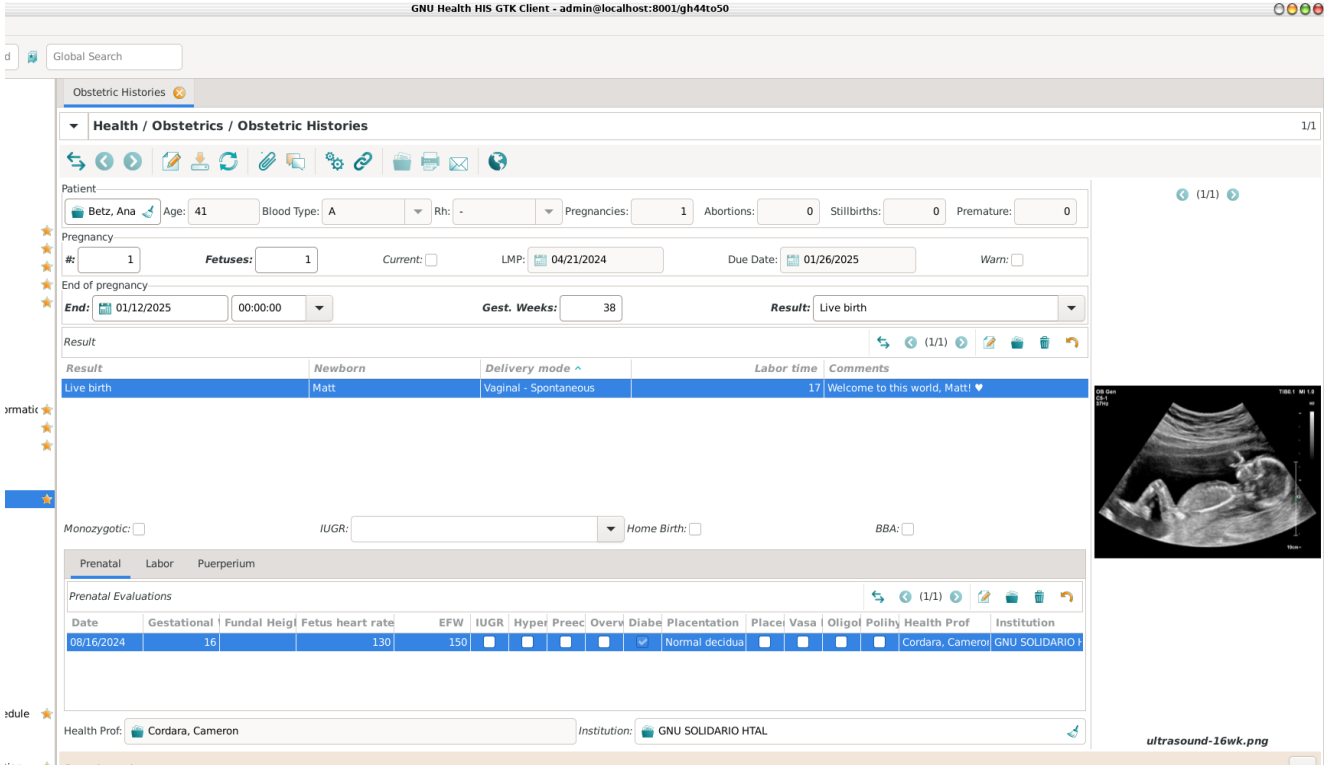


Demographics & Socioeconomics



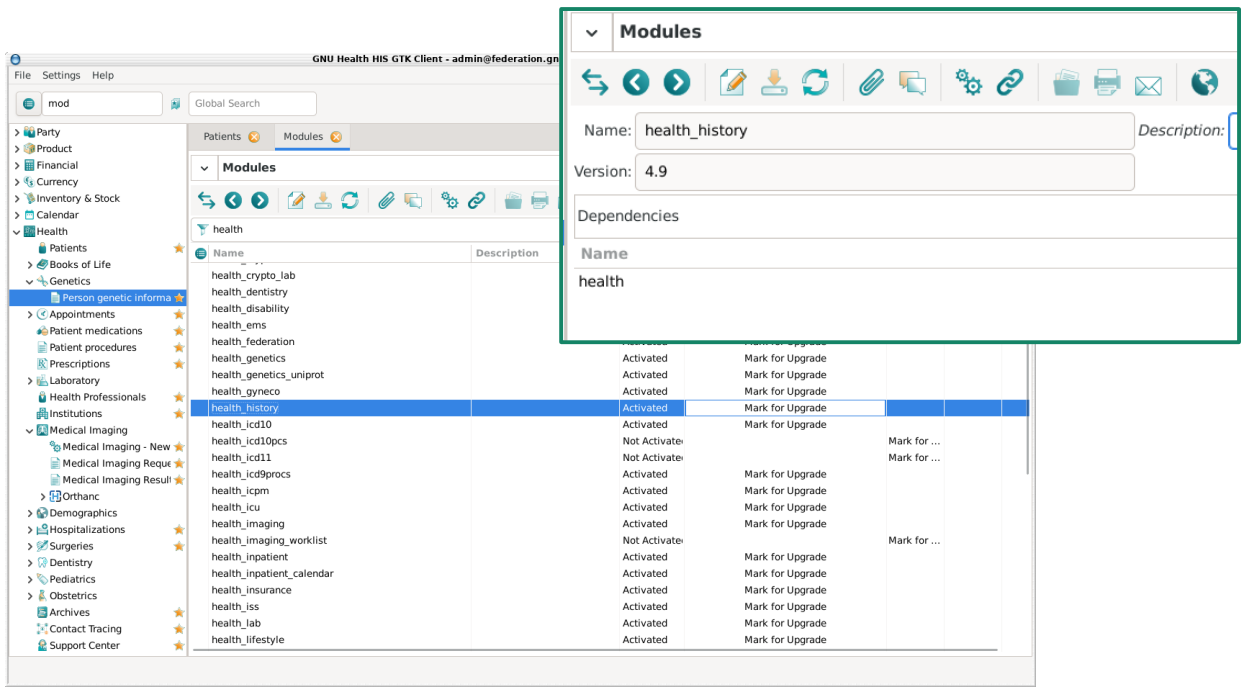
- Enhanced demographics information
- Insurance validity check
- Record Homeless status
- Ethnicity and proclaimed ethnicity
- Improved socoecomic assessments

Obstetrics



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

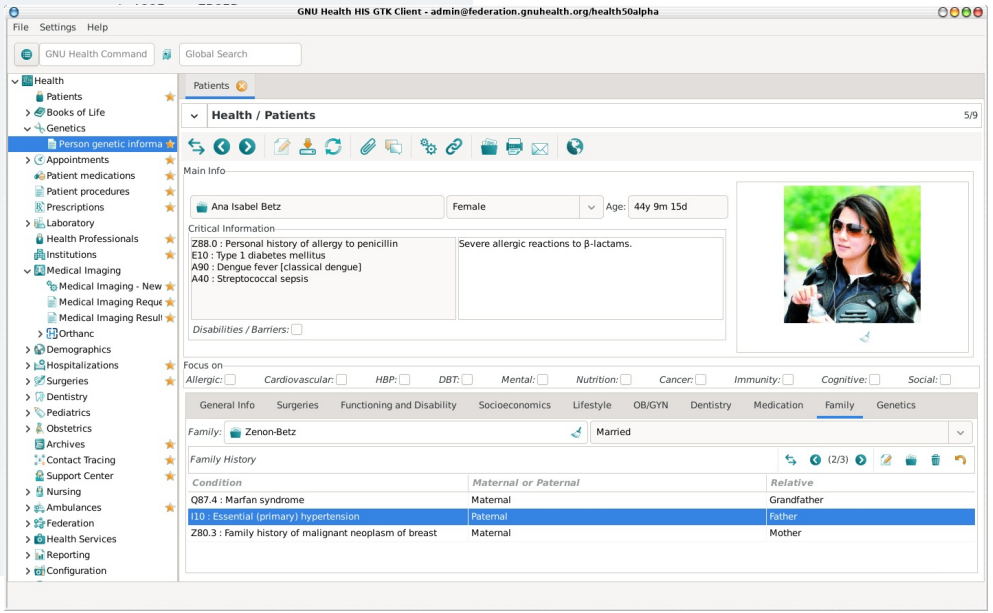
Increased Modularity

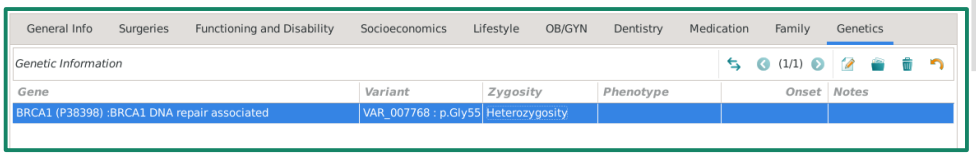


- **Reduced Package inter-dependency**
- Nursing & Ambulatory care
- Crypto
- Lab
- Clinical History
- Stock management
- Removed health_profile

Medical Genetics

HGNC:ID	Symbol 2023	HGNC:ID	Symbol 2025
1152	BVES	1152	POPDC1
1184	C12orf4	1184	FERRY3
1290	C21orf62-AS1	1290	EPCIP-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	PRPF4B		
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		





Family History and Genetic information

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

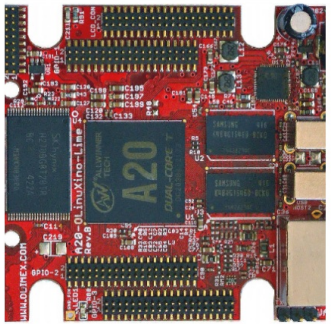
Updated datasets (2023 → 2025)

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

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 socoeconomic and family functionalty 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

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  <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">
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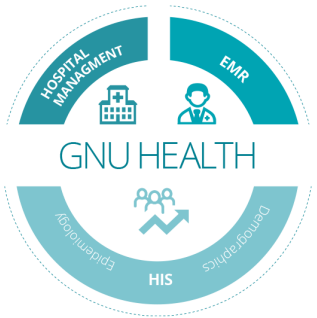
```


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

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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−<feed>
  <title>Search results</title>
  <updated>2023-05-09T19:47:06.269810Z</updated>
  <id>http%3A//localhost%3A5000/Observation</id>
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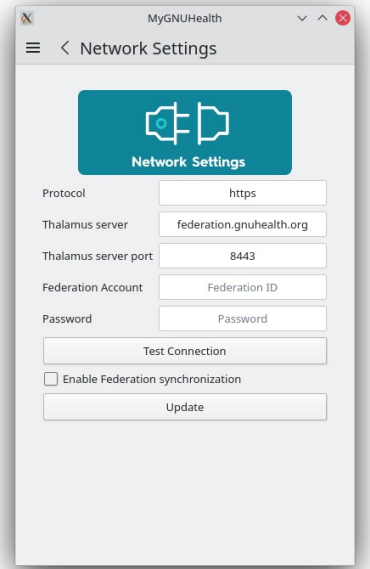
More focus to the GNU Health Federation



Every person is a node in the GNU Health Federation

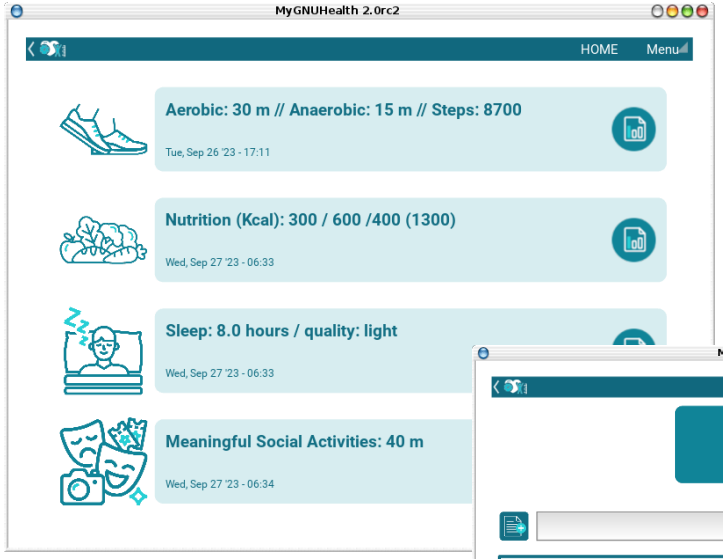
Relevance of MyGNUHealth, the Personal Health record

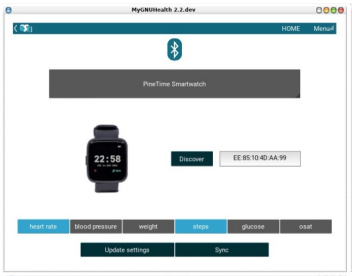
The person (node) is an member of the public health system

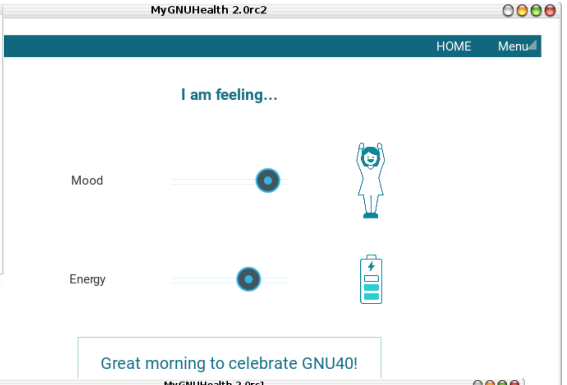
Information shared and updated in realtime with their health professional

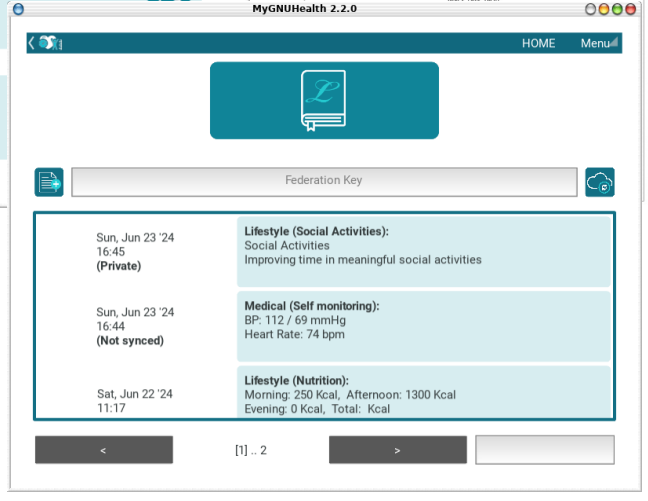
Privacy: Person is in control of what to share

MyGNUHealth









GNUHealth

What is new in GNU Health HIS 5.0
Luis Falcón

Medicine is a ♥ Social Science

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@gnuhealth@mastodon.social

info@gnuhealth.org