



Integration of Genomics in Nursing Practice in Brazil

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President - SBEGG

Background

Brazil Demographic Information



200,000,000

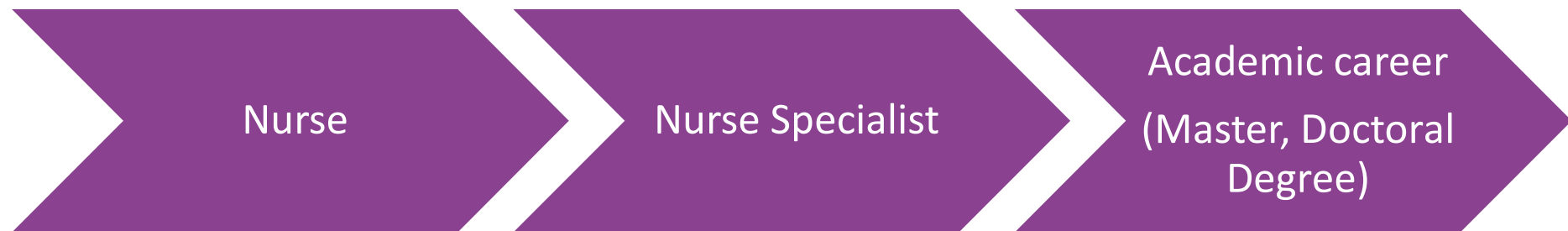
Population



632,557

Nurses

Nurse's Career in Brazil

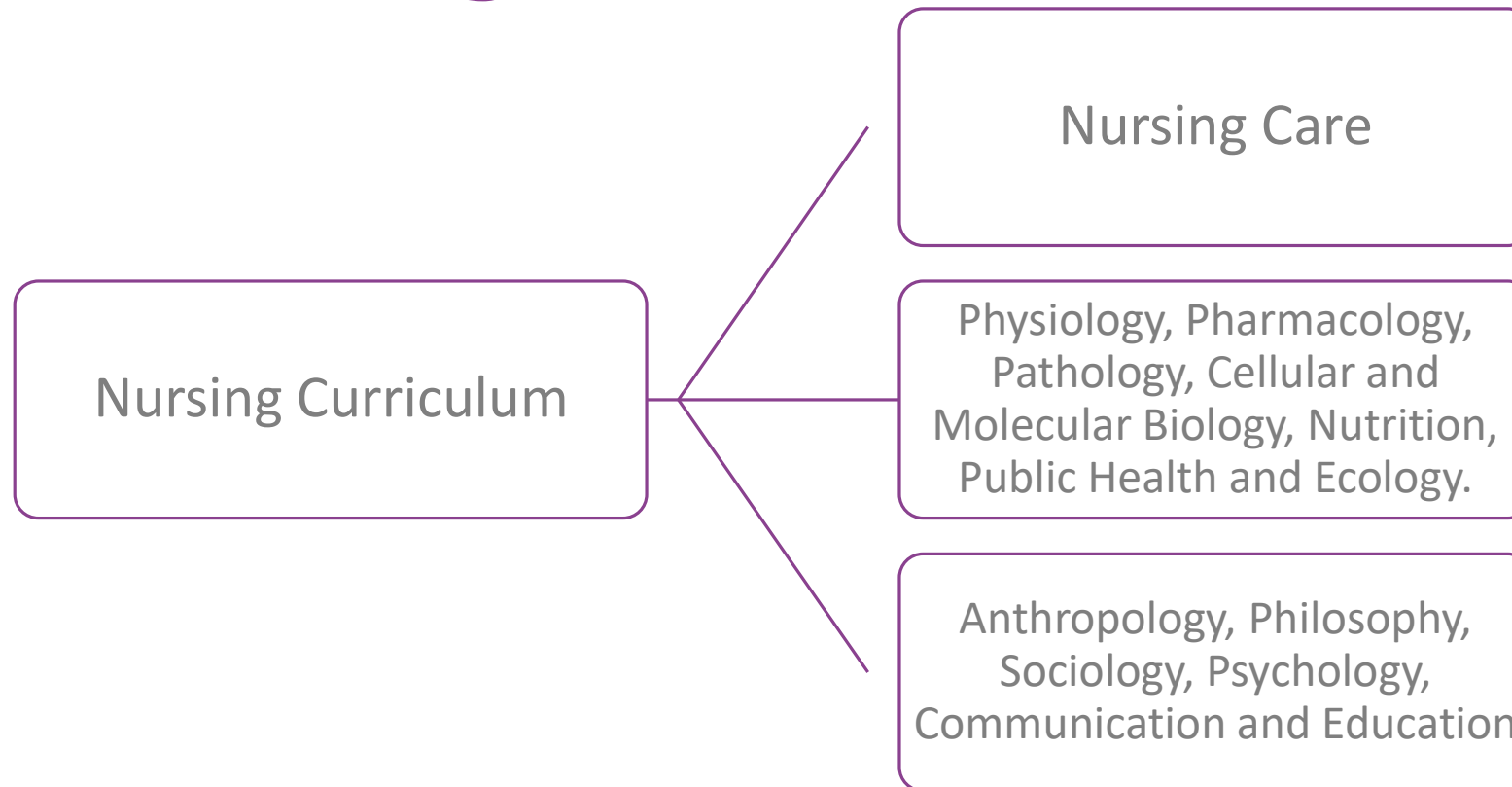


Undergraduate
Course
4 years

Postgraduate
diploma
or
Portfolio evaluation
and test offered by a
society of experts

Graduate Programs
Master's and PhD
Programs offered by
Public and Private
Organizations

National Curricular Guidelines for Nursing



There is no direct mention of genetics in the guidelines. It may be offered in the context of molecular biology.

Nurses in Genetics in Brazil: Historical Perspective



1985

Registration of the first nurse who works with genetics and genomics in Brazil



1988

ISONG



2001

Nurses joined oncogenetics departments

Williams e, Lessick (2001)

Flória-Santos e Nascimento (2006)

Nurse's Role in Genetic Counselling



2001

COREN-SP has published a resolution (Sao Paulo State) that recognizes the role of nurses in genetic counseling



2014

Letter to the COFEN



2014

COFEN 468/2014 has published a federal resolution that recognizes the role of nurses in genetic counseling

Williams e, Lessick (2001)

Flória-Santos e Nascimento (2006)

Nurse's Role in Genetic Counselling



Non-specialist

- Empathic Relationships
- Identifying At-Risk Individuals
- Patient Follow-up
- Assess understanding



Specialist

- Collecting genetic data
- Interpreting genetic risk
- Evaluating responses to genetic counseling
- Educate

Genetics and Genomics as a Nursing Specialty



2017

SBEGG's Foundation



2018

COFEN 570/2018
The Federal Council of
Nursing recognizes
Genetics and Genomics
as a Specialty

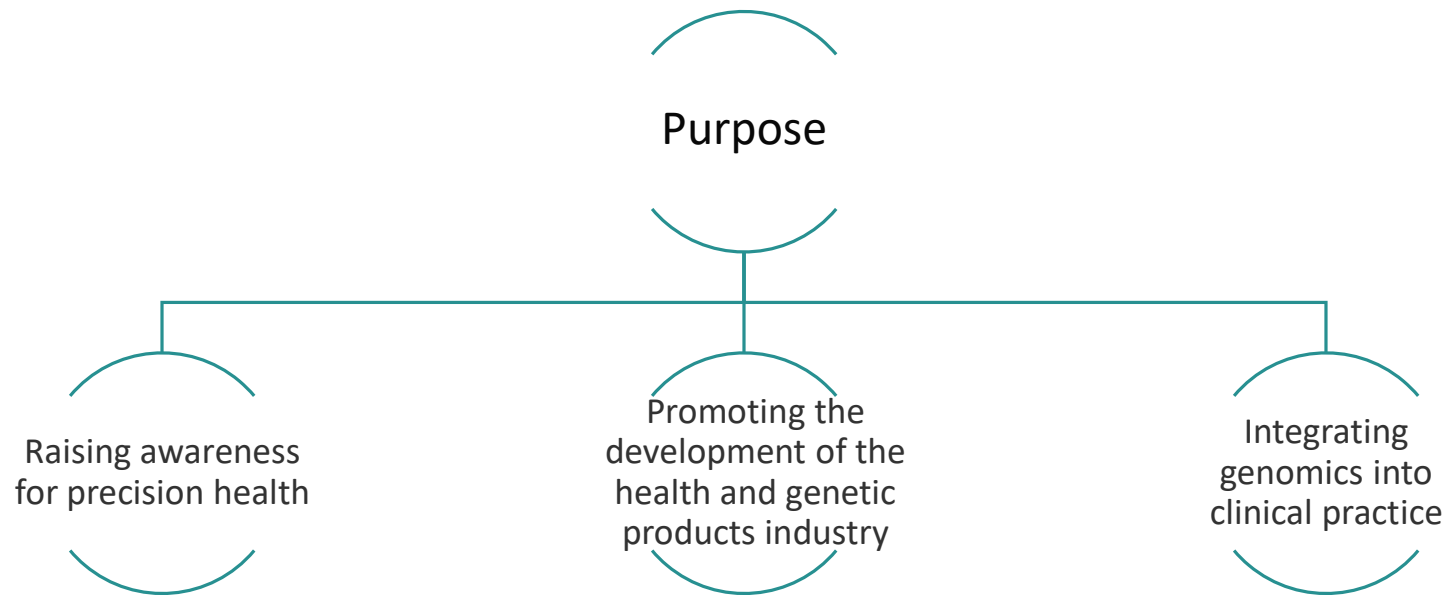


2022

SBEGG: Portfolio analysis
from 10 nurses

National Program of Genomics and Precision Health

National Program of Genomics and Precision Health



Resolution nº 1.949/2020 (Ministry of Health)

Problems Identified

Genomic Medicine and Precision Health

Scarcity of large-scale genomic studies in multiethnic populations

Lack of incentive for scientific development

Dependence on the development of diagnostic and therapeutic products

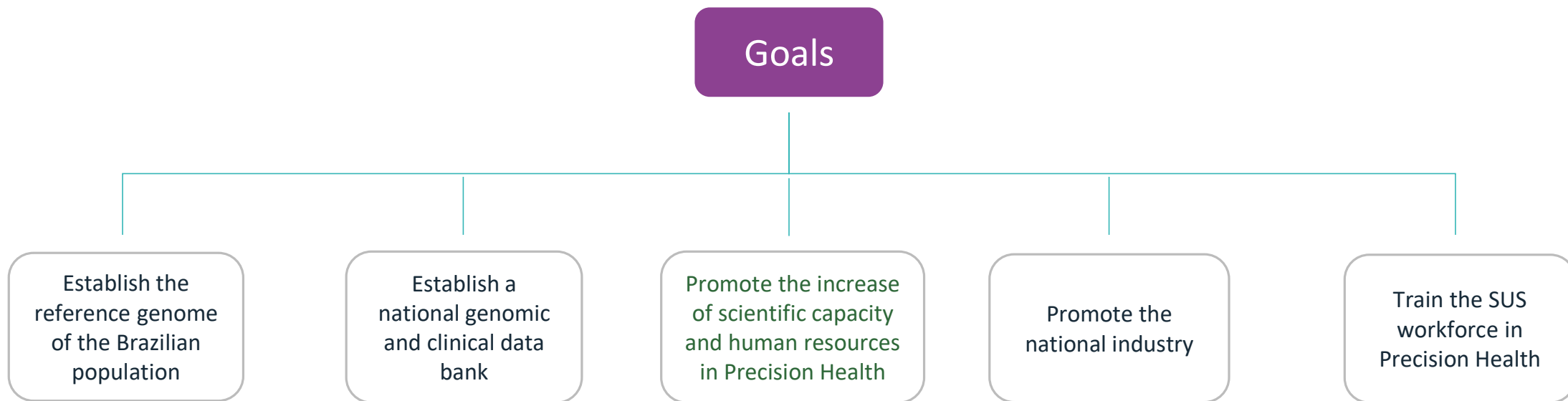
Productive vulnerability in the manufacture of diagnostic and therapeutic products

Health care spending with non-preventive interventions

High expenditures for the health care system in relation to the population's access to therapeutic products (e.g. cell and gene therapies)

Shortage of health care workforce qualified in genomics

Goals of National Program of Genomics and Precision Health



Training the National Health Care System Workforce

Initiatives

- Curriculum Guidelines for multi-professional fellowship programs in genetics and genomics
- Curriculum Guidelines for multi-professional fellowship programs in genetic counseling

PROADI-SUS



PROADI-SUS

Support Program for
Institutional
Development of the
National Health System
(PROADI-SUS)

Source of Resources

The projects are
managed with funds
from the participating
hospitals themselves
that would be used for
tax payments.

Project Elaboration

Participating hospitals,
Ministry of Health,
CONASS, CONASEMS,
class entities and other
interested parties

Hospital Beneficência Portuguesa (*Portuguese Charity Hospital*)



A Beneficência
Portuguesa
de São Paulo



160 years

711 beds



192 ICU beds

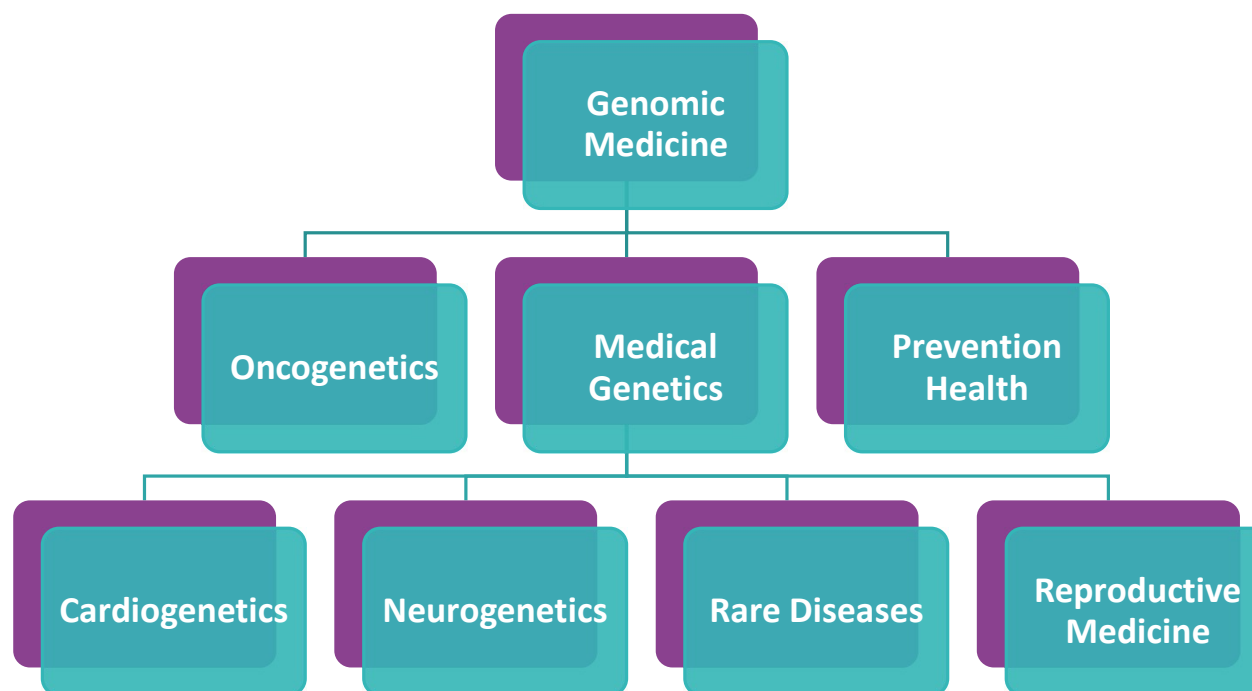
32 operating
rooms



6,244
employees



A Beneficência
Portuguesa
de São Paulo





Mapa
Genoma Brasil

Brazilian Genome Map

Precision Health: correlation between genomic, epidemiological, clinical and familial profiles in cancer and cardiovascular diseases

Brazilian Genome Map Project - Precision Medicine in Oncology and Cardiology at National Health System (SUS)



Ministério da
Saúde

Governo
Federal

Goals

Precision Health in Cardiovascular Diseases and Cancer

Continuing education of doctors, nurses and community health agents in genetics and genomics

Structuring of a genomic, clinical, epidemiological and family database of patients with breast, prostate and colorectal cancer

Registering families of individuals with cardiovascular disease and cancer

Structuring processes for material collection

Structuring processes for analysis and interpretation of genomic data

Establishment of risk scores and genomic, epidemiological, ethnic, clinical and familial correlations, with the aim of establishing guidelines for primary and secondary prevention

Brazilian Genome Map

Brazilian Genome Map

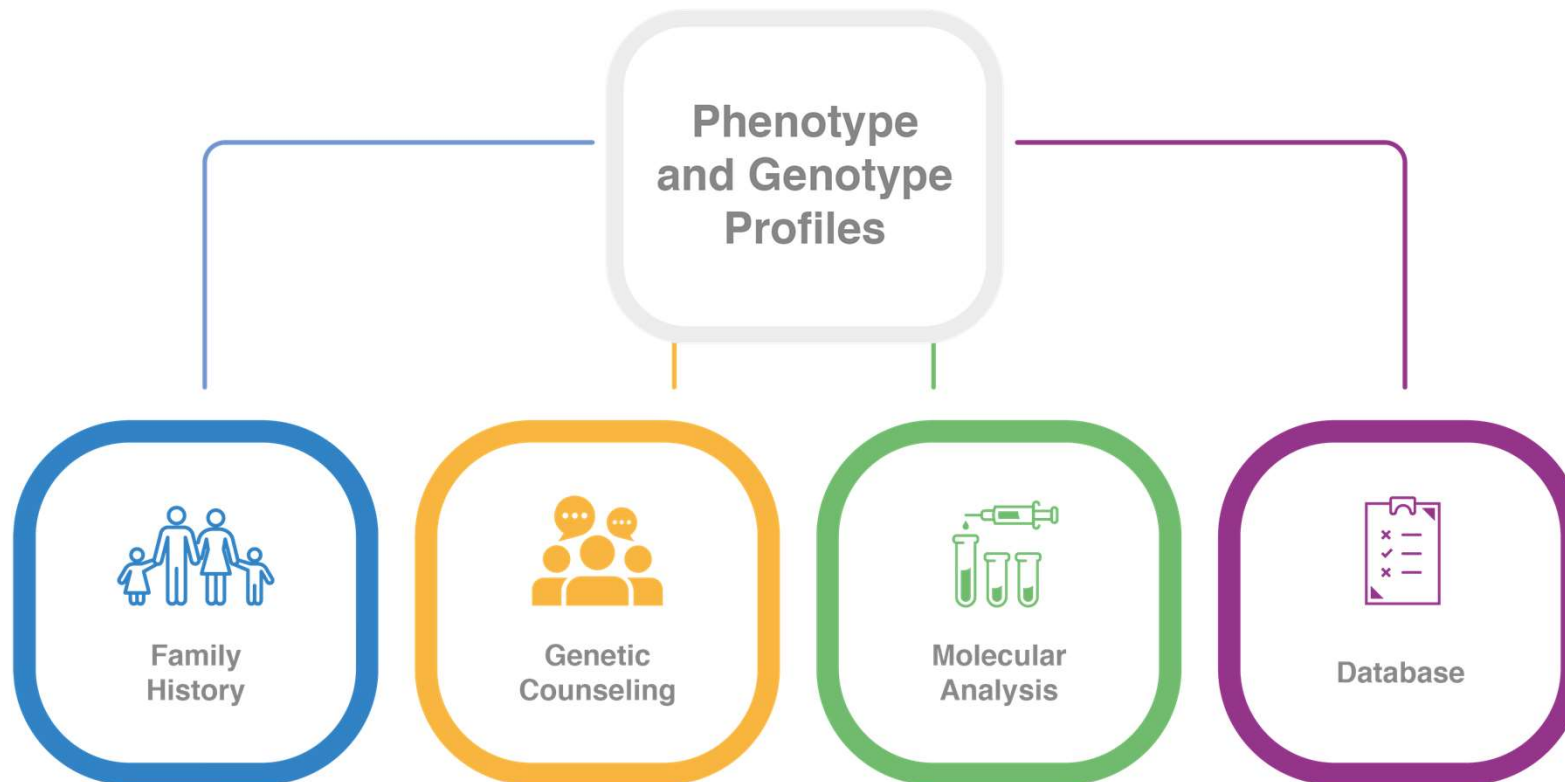
Oncology

Cardiogenetics

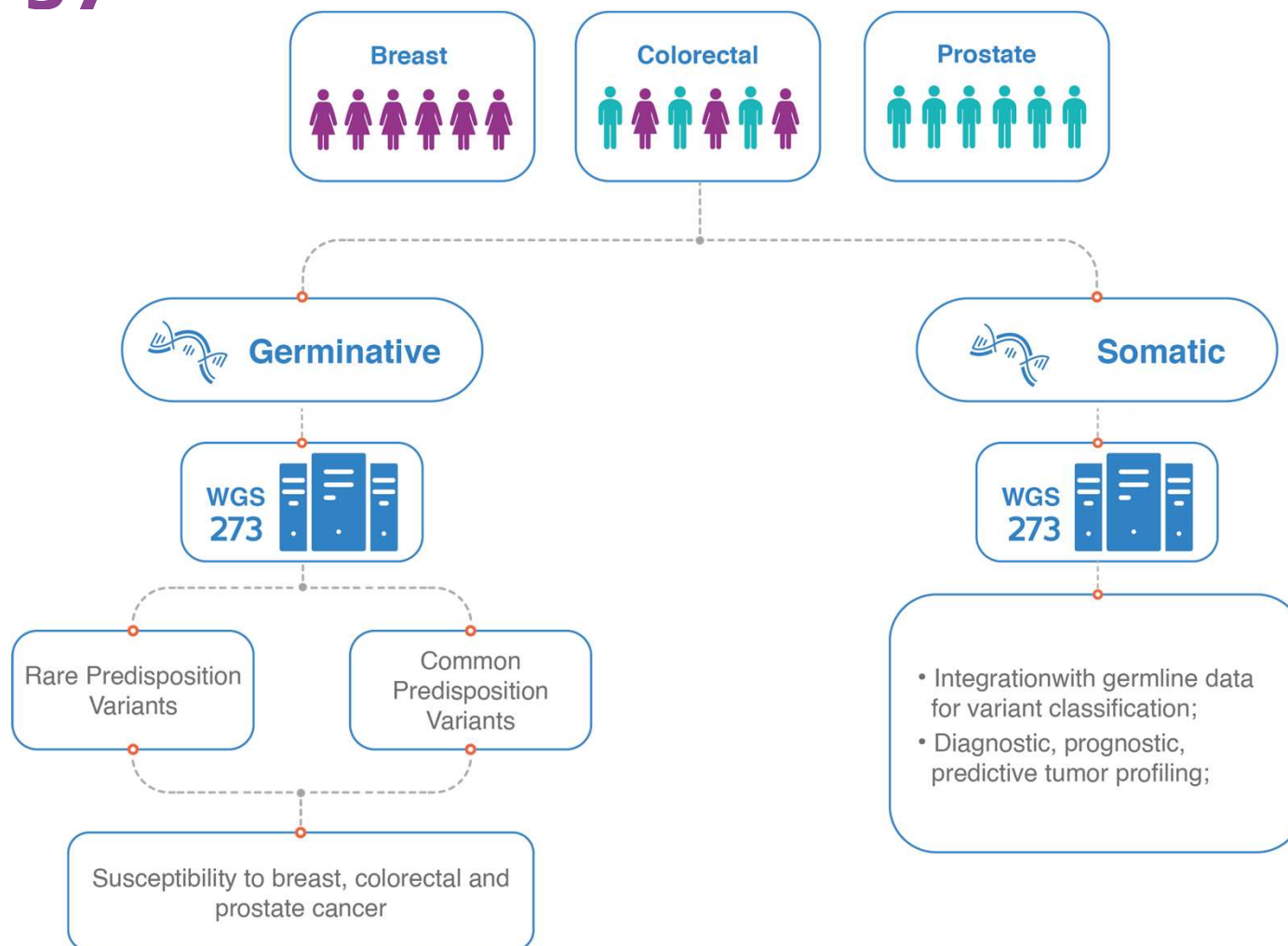
Population-based
Cardiology

Qualification for Health Care Workers

Oncology



Oncology



Participating Institutions: Oncology Project



Cardiogenetics

Exomas (WES)

Index Cases

1500

Cardiomyopathy
Arrhythmias
Dyslipdemia
RASopathies

Genoma (WGS)

IndexCases

700

Congenital
cardiomyopathy
Aortopathies

MLPA

Cases and Family Members

1000

Congenital
Cardiomyopathy
Aortopathies

Sanger

Family Members

3000

Cardiomyopathy
Arrhythmias
Dyslipdemia
RASopathies

Participating Institutions: Cardiogenetics Project



Population-Based Cardiology Project

ELSA Project Brasil (2022-2023)

Genomas (WGS)



Qualification for Health Care Workers

Qualification for Health Care Workers



Course for
Primary Care
Professionals



Course for
Doctors and
Nurses from the
Participating
Centers

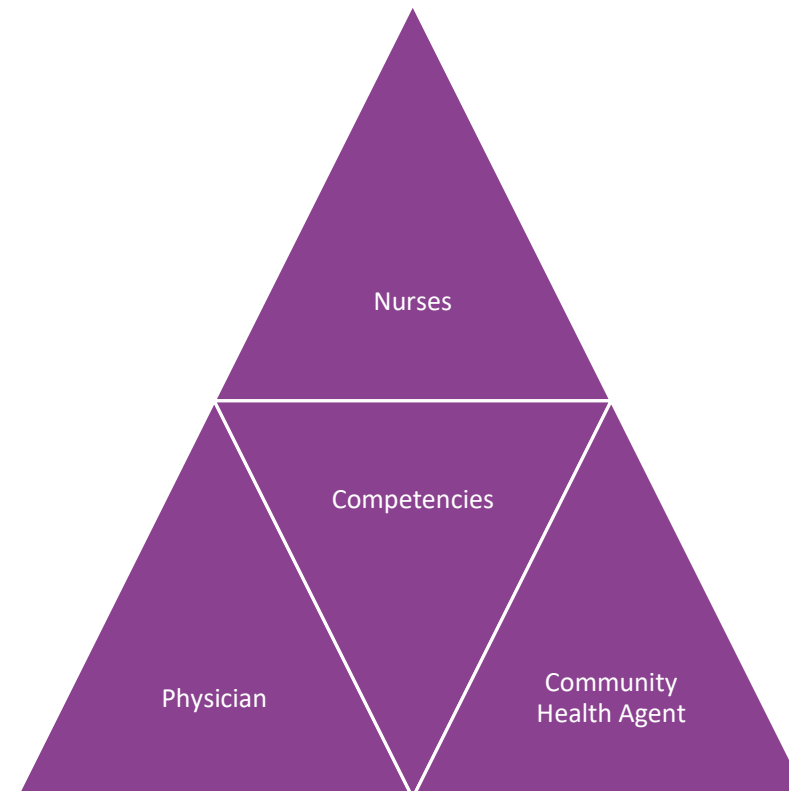
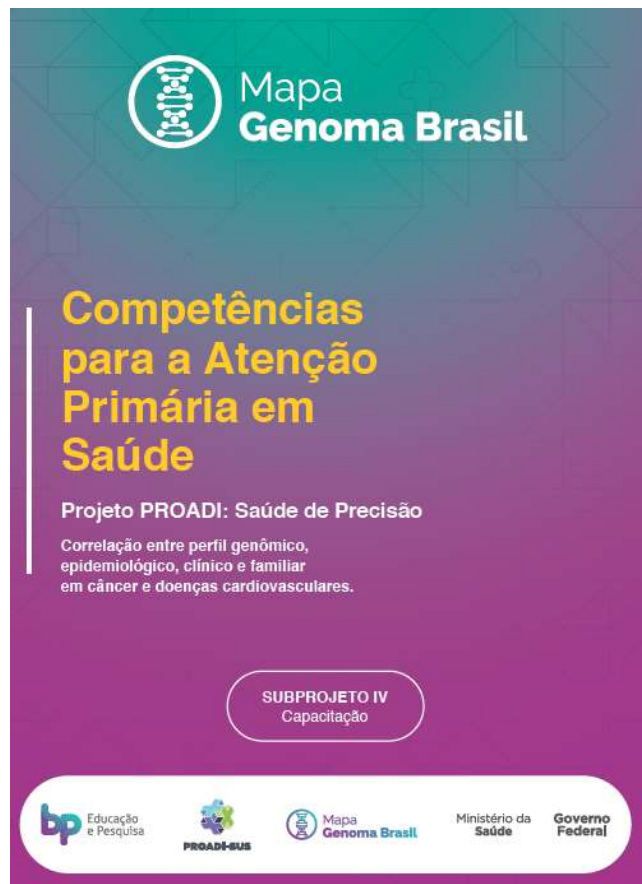


Digital
Library

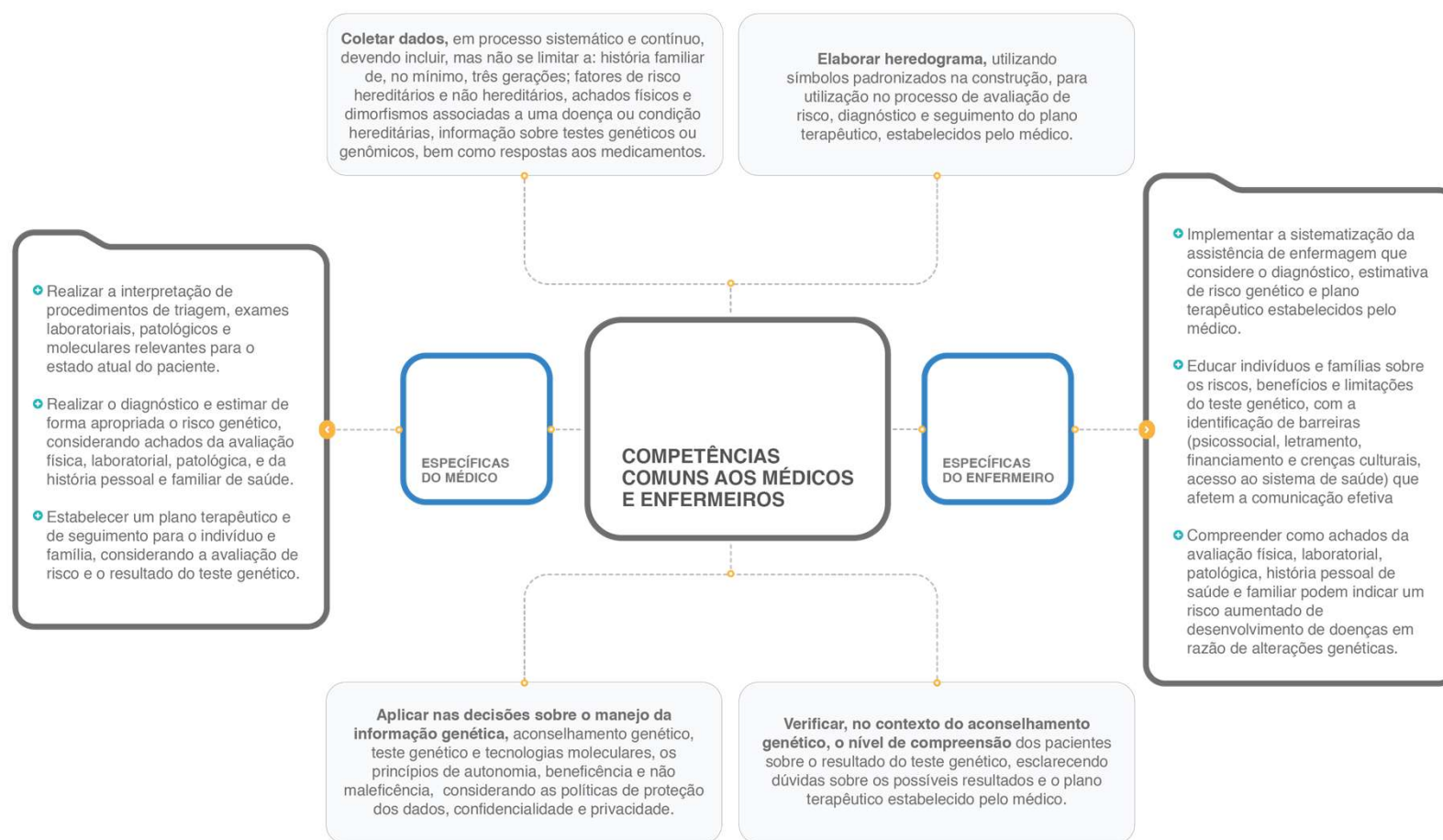
Process



Competencies in Genetics and Genomics for Primary Care



Competencies in Genetics and Genomics for Oncology and Cardiology Specialists



Curriculum Development

Genomic in
Primary Care

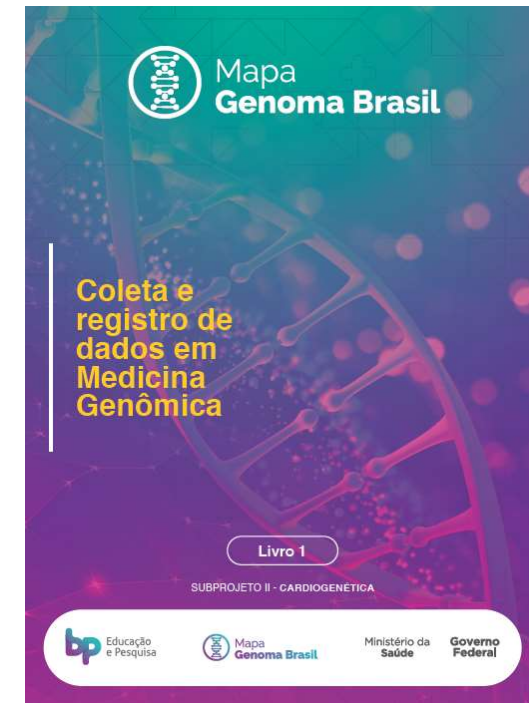
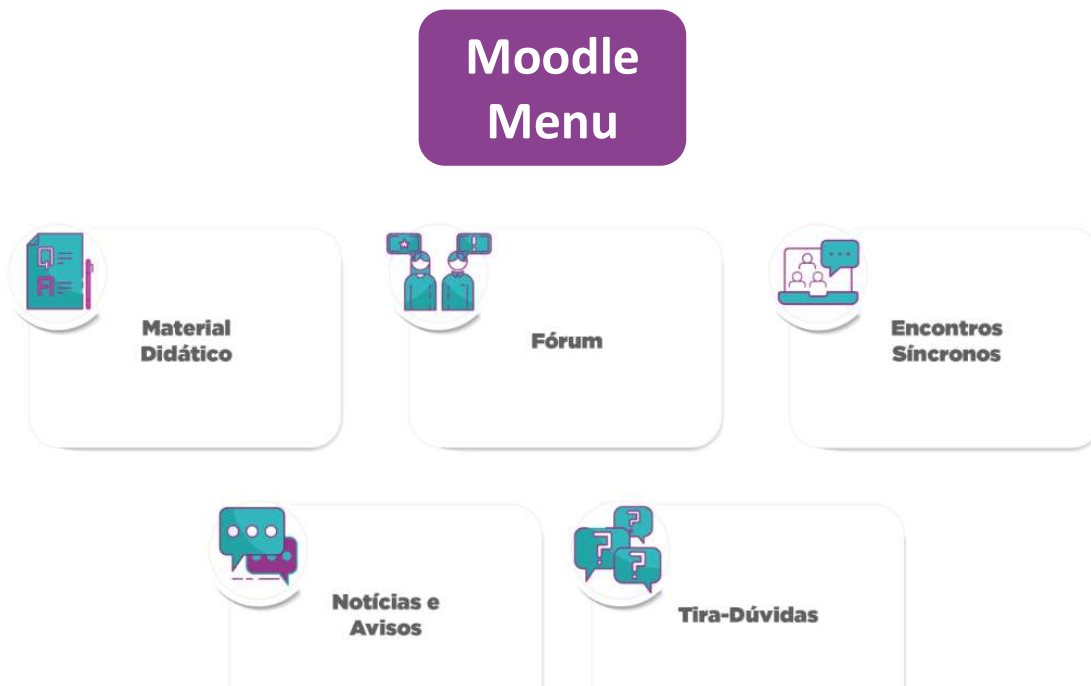
Genomic Data
Collection and
Registry

30 hours
8 weeks
Distance Learning

Genetic
Counseling in
Oncology and
Cardiology

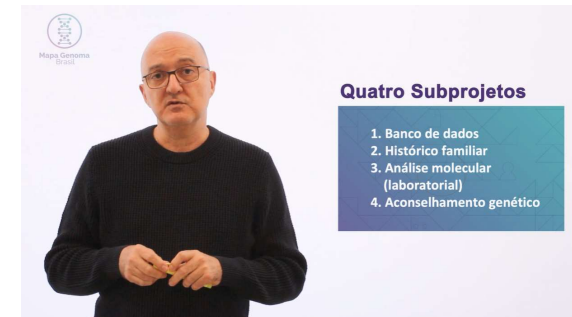
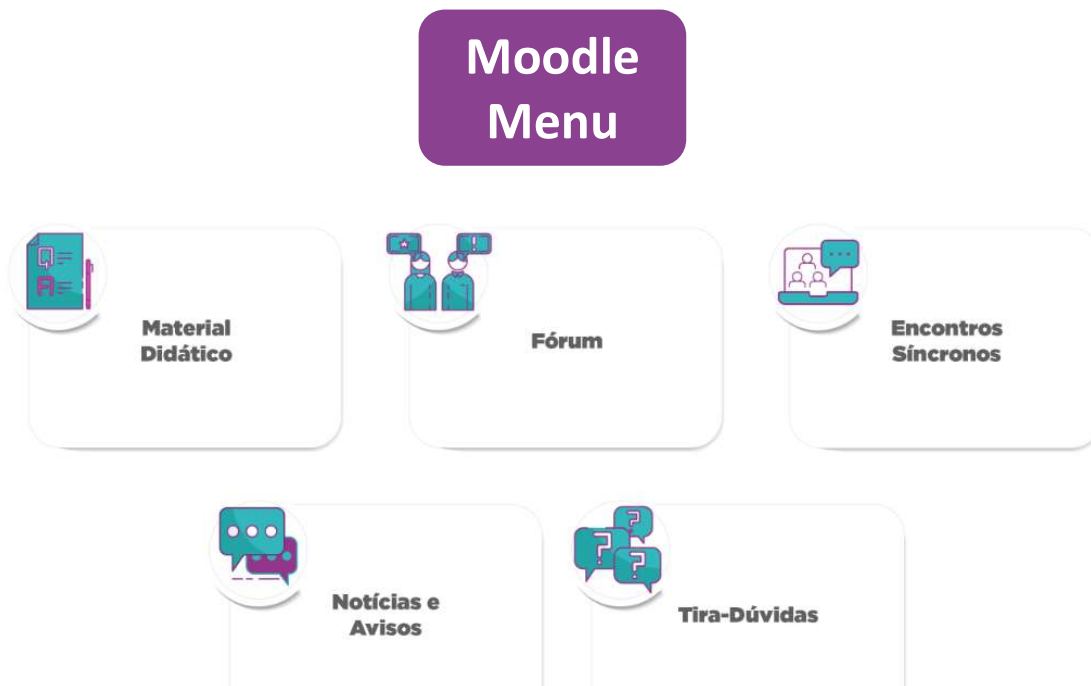
50 hours
25 weeks
Distance Learning
Weekly Mentorship Meetings

Learning Objects



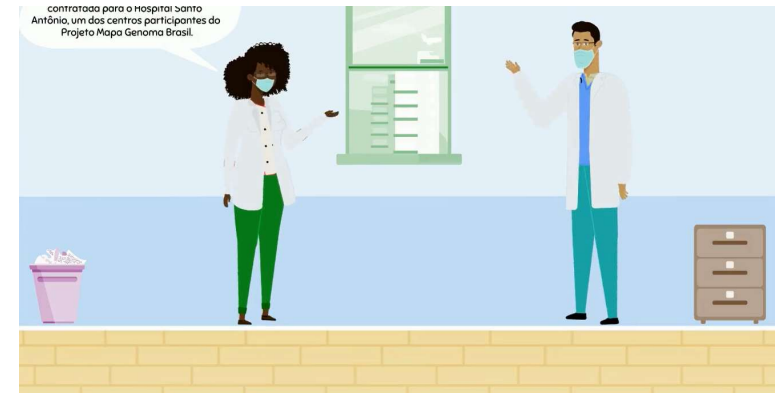
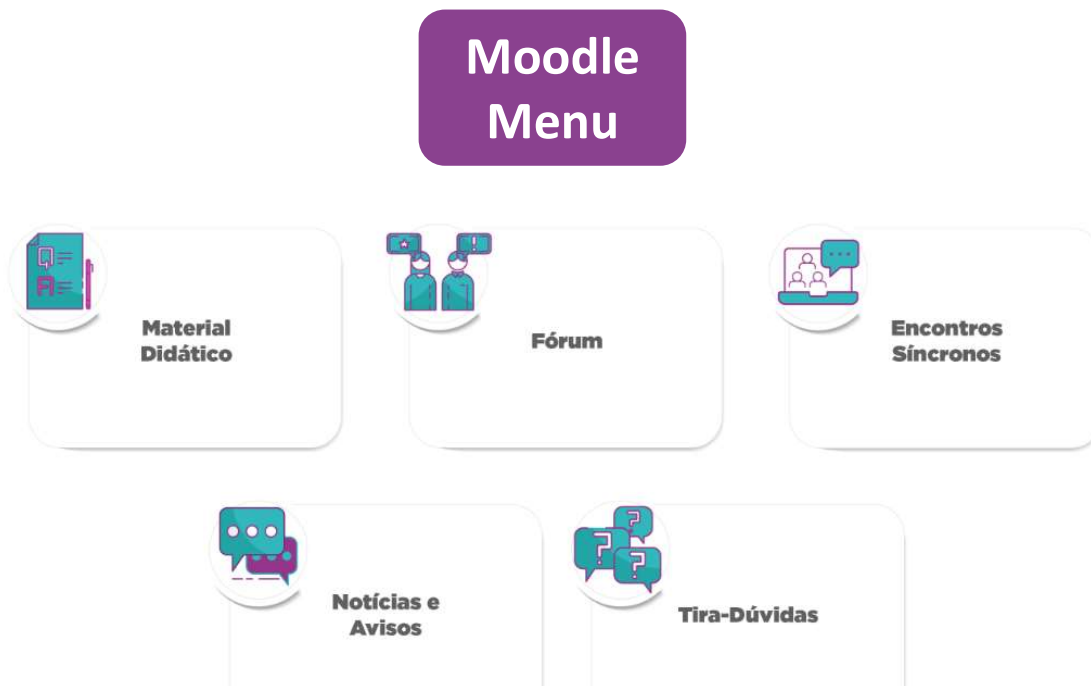
E-book

Learning Objects



Video

Learning Objects



Animation

Learning Objects

Moodle Menu



Material Didático



Fórum



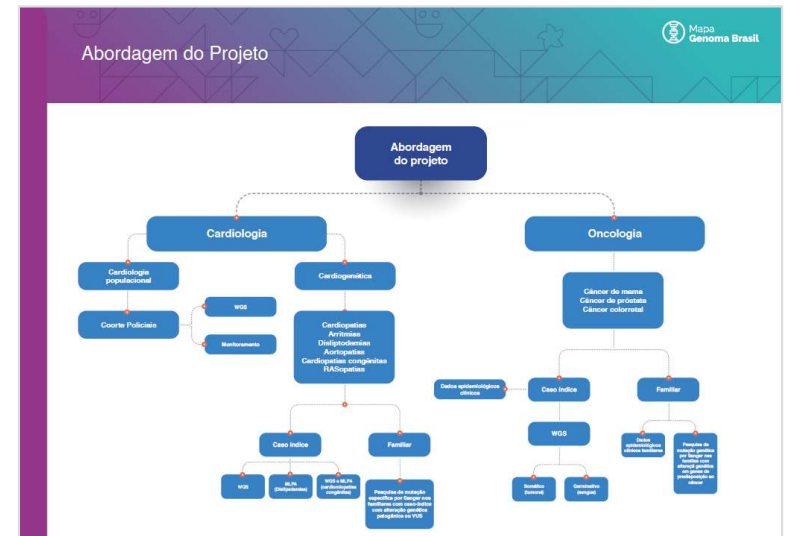
Encontros Síncronos



Notícias e Avisos



Tira-Dúvidas



Conceptual Map



The first group of nurses who participated in the course on Genomic Data Collection and Registry

Qualifications: Number of Doctors and Nurses



D 46 Doctors

D 28 Nurses

Digital Library

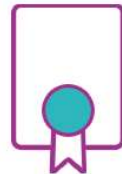
Categorias



Animações



Apostilas



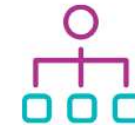
Artigos



Figuras



Infográficos



Mapa Conceitual



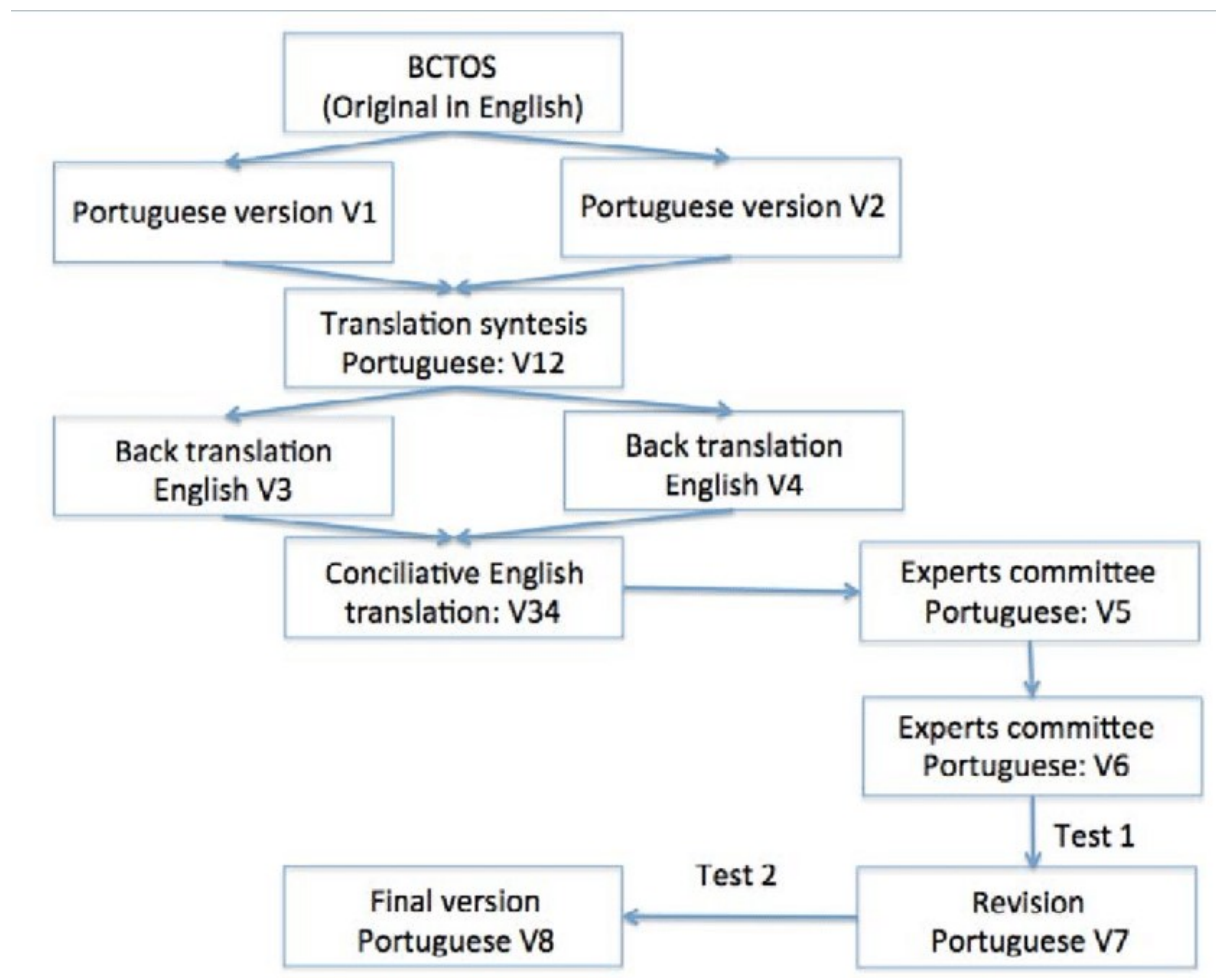
Vídeos

<https://repositorio.mapagenomabrasil.com.br/>

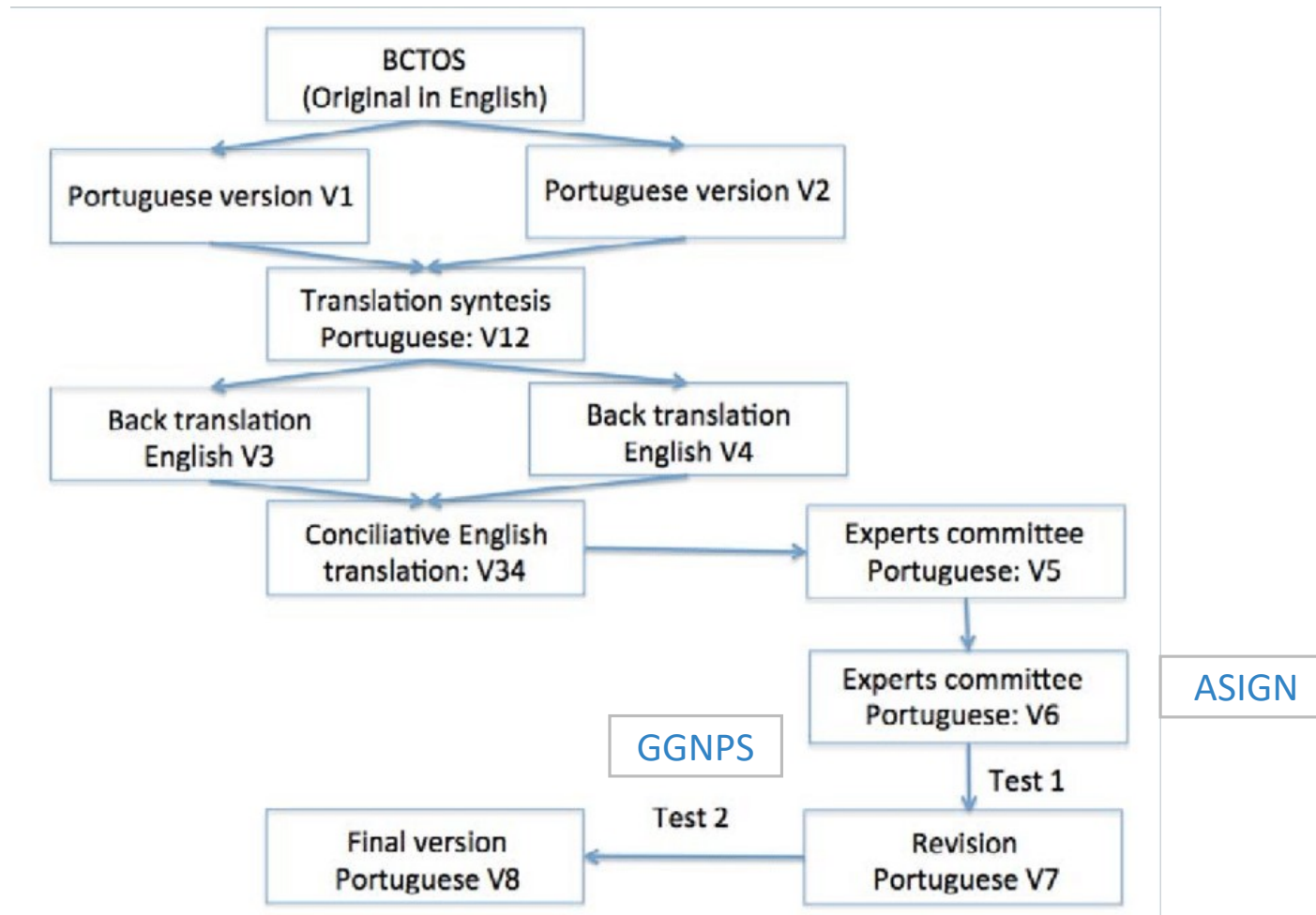
Instruments Translation

- The genetics and genomics in nursing practice survey (GGNPS)
- Assessment of Strategic Integration of Genomics Across Nursing (ASIGN)

Instruments Translation



Instruments Translation



Next Steps

- **Implementation of the course on genetics and genomics for primary care**
- **Application of GGPNS and ASIGN**
- New PROADI Project 2024-2026
 - Genetics and genomics teacher training
 - Establishment of a mentoring program

Obrigada



Thank you

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