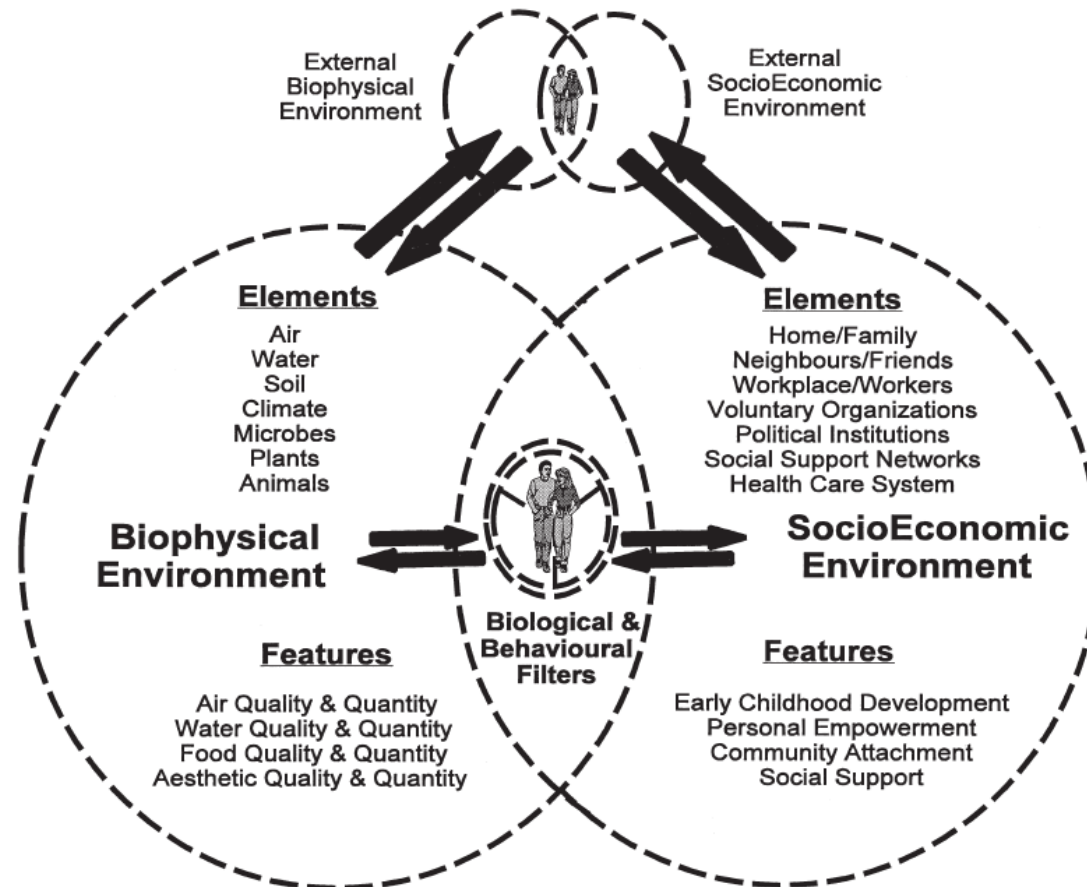


SCIENTIFIC DIRECTORATE EPIDEMIOLOGY AND PUBLIC HEALTH

Research driven by a holistic view on health

Prof. Dr. Herman Van Oyen
14th of June 2021

Ecosystem of population health

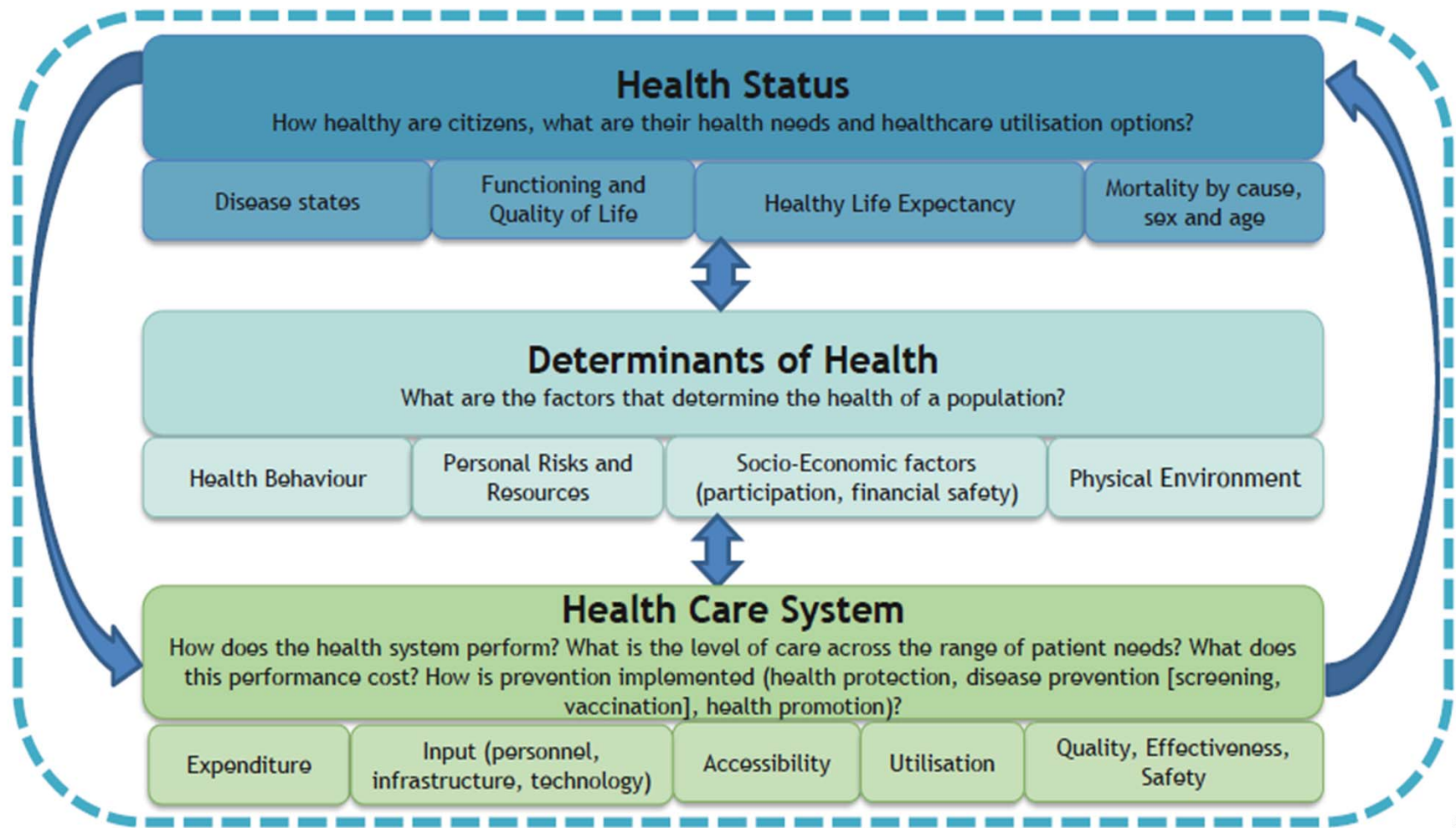


What defines and drives healthy populations ?

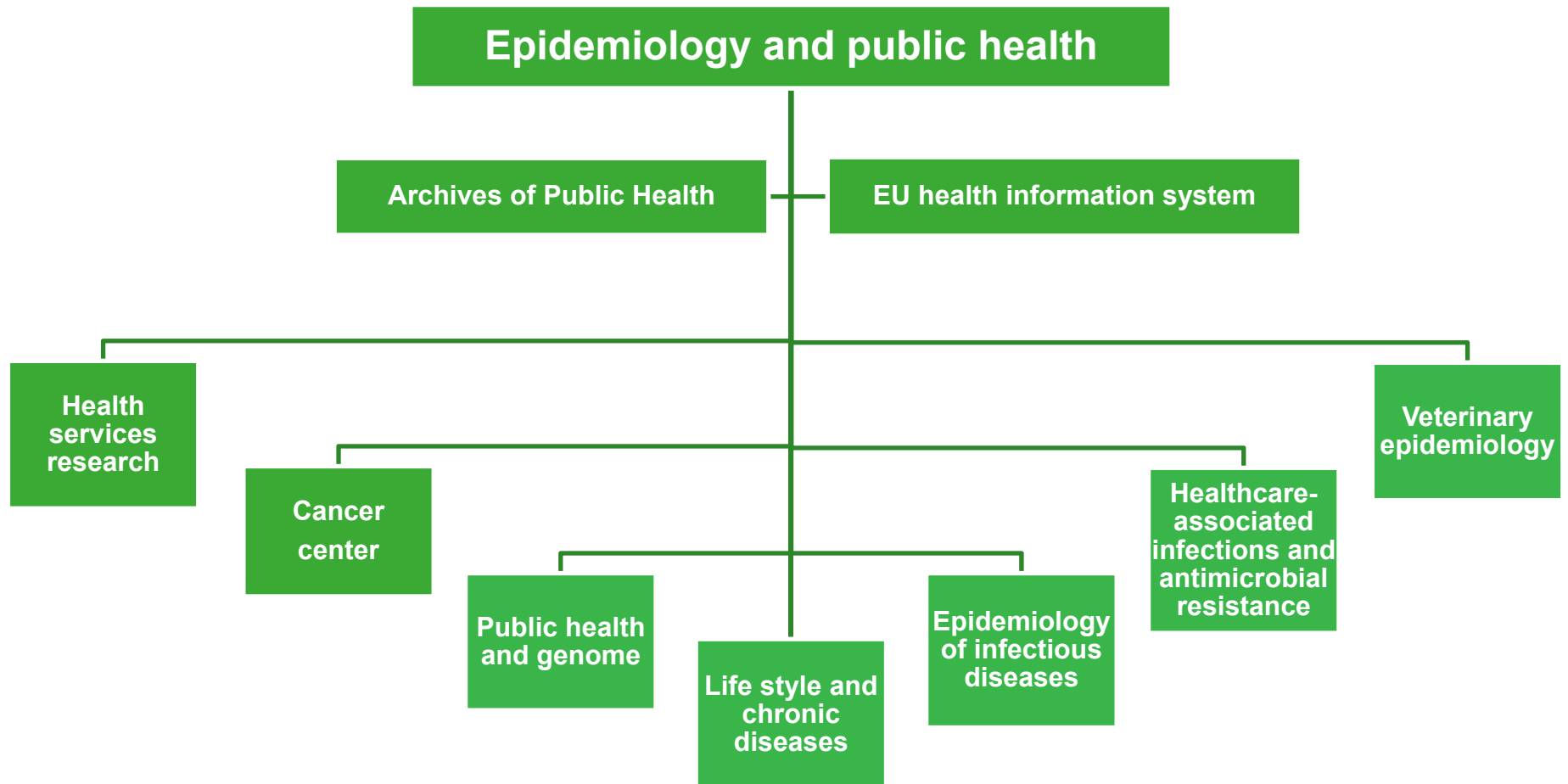
Mission: Understanding the dynamics of population health and well being

- **Health information:** health status
health determinants
health care
- **Societal challenges:** ageing
reintegration of people with chronic diseases in labor market
inequities
genome knowledge
- **Health care quality**
- **Impact assessment**
- **Knowledge translation toward policy (practice and public)**
- **Increase the efficiency of health information system**
 - Population
 - Health care use
 - Use and reuse of data (including health and non-health administrative data)
 - Training

Population health framework



Organisational chart



Organisational chart

Understanding relationship care practice and health outcomes

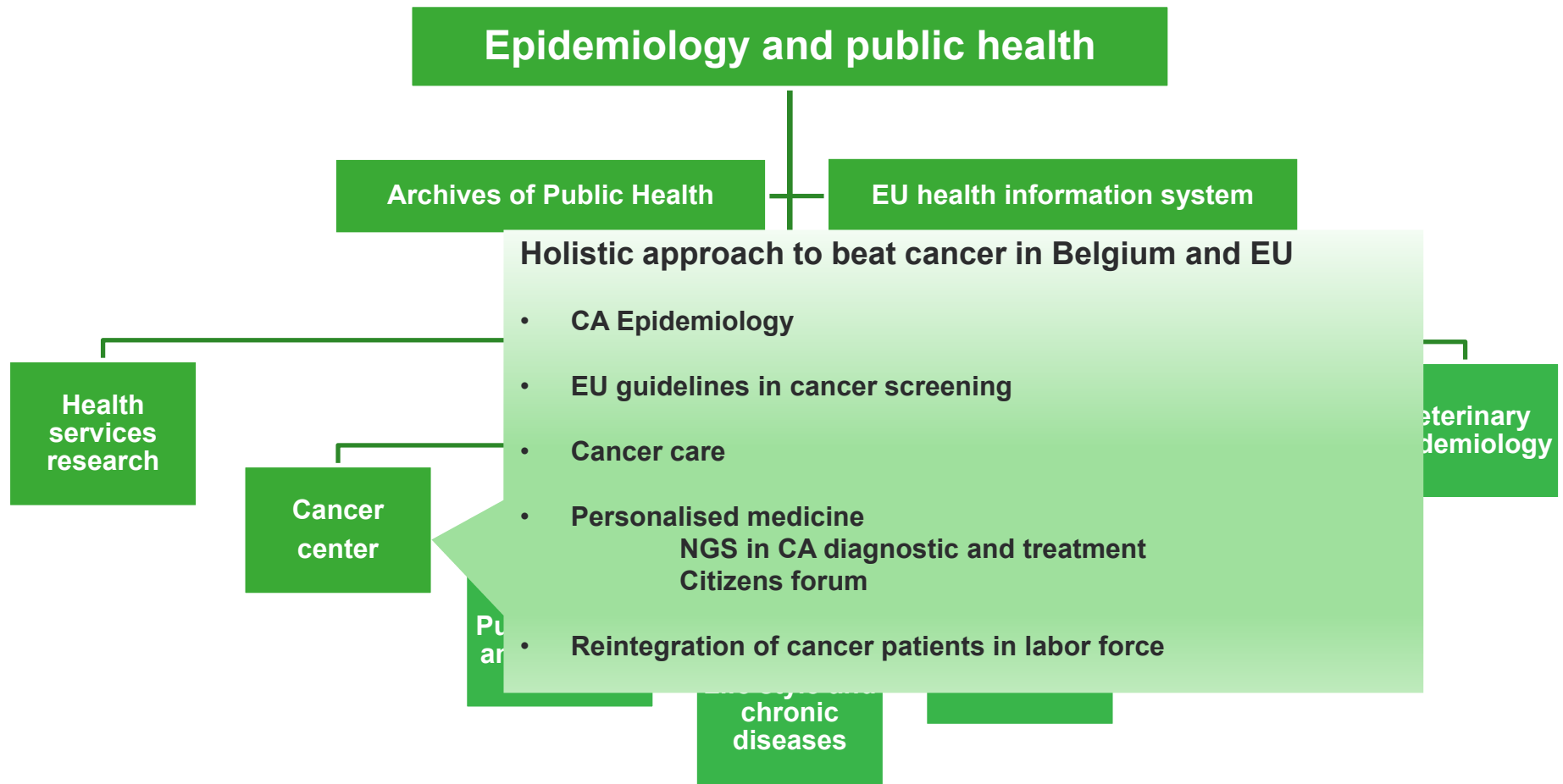
- **Primary care :**
Sentinel network
PROMS-PREMS
Integrated care
- **Diabetes care :** adults / foot clinic / children
- **Rare diseases :**
Central register
Genetic test register
QA genetic centers
Web portal Orphanet
- **Disease specific registers :**
Mucoviscidosis
Neuromuscular diseases
Haemophilia

Health
services
research

Veterinary
epidemiology

Life style and
chronic
diseases

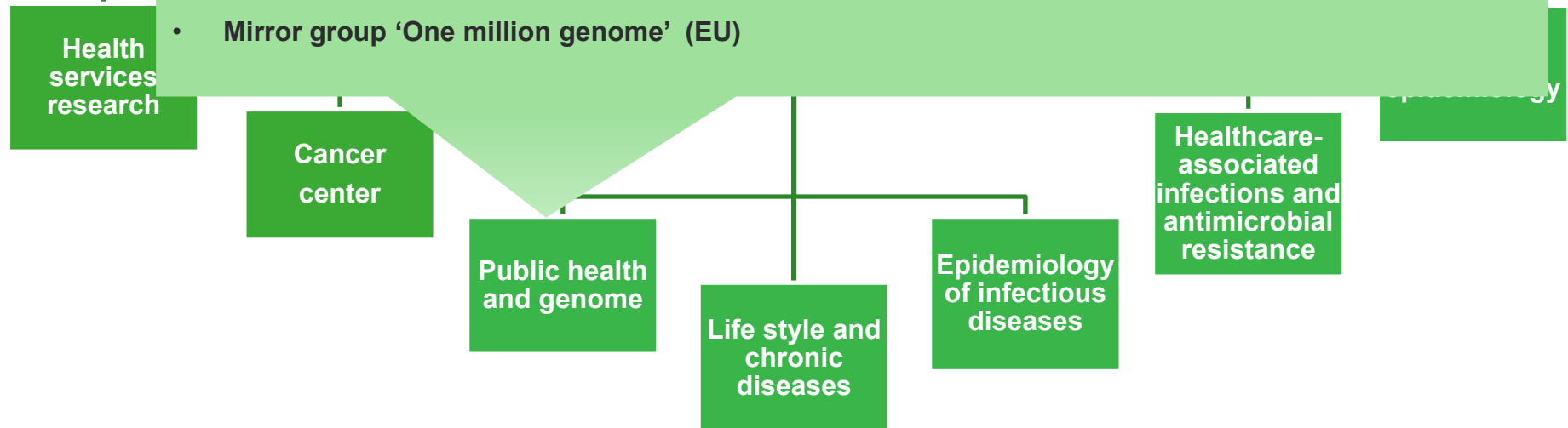
Organisational chart



Organisational chart

How will genome knowledge (human, pathogen) affects the public health paradigm ?

- **Pathogen genomic :**
Infectious disease surveillance
Outcome : Influenza : SARI patients
COVID-19 : hospitalised patients / vaccination (breakout cases)
- **Genetic structure Belgian Population**
HIS-2013 (genome-wide SNP array (feasibility))
HIS-2018 (Whole genome sequencing)
- **Mirror group 'One million genome' (EU)**



Determinants and impact of life styles and chronic diseases on population health

- Health surveys and health examination surveys :
 - 1997-current
 - Survey methodology
 - Feasibility of a Belgian population cohort
 - Inequality
- Food and health
 - Food consumption survey
 - Food environment
- Illegal drugs
 - Impact on health
 - Early warning
 - Treatment demand
- Belgian health information system
 - Health status report
 - Composite health measures: health expectancy
Belgian burden of disease study
 - Health inequality
 - Strengthening Belgian health information system (AHEAD)

center

Public health
and genome

Life style and
chronic
diseases

Epidemiology
of infectious
diseases

Infections and
antimicrobial
resistance

Primary
epidemiology

Study of epidemiology and impact of infectious diseases in the general population

- Surveillance
 - Surveillance systems : lab – reference lab – GP – Pediatric – STD)
 - Registers (HIV/AIDS – CJD)
 - Hospital surveys (SARI (Influenza), COVID-19)
 - Cohort HIV/AIDS
 - Citizens science (ticks, mosquitoes)
- Post-treatment Lyme disease syndrome
- Serological surveys
- Wastewater surveillance
- Surveys : Life styles => STD – HIV/AIDS
- BE-MOMO – excess mortality : infectious disease, climate, air quality
- Vaccine efficacy (Influenza, COVID-19)
- International health regulation : continuous risk assessments ↔ Risk Assessment Group (RAG)

center

Public health
and genome

Life style and
chronic
diseases

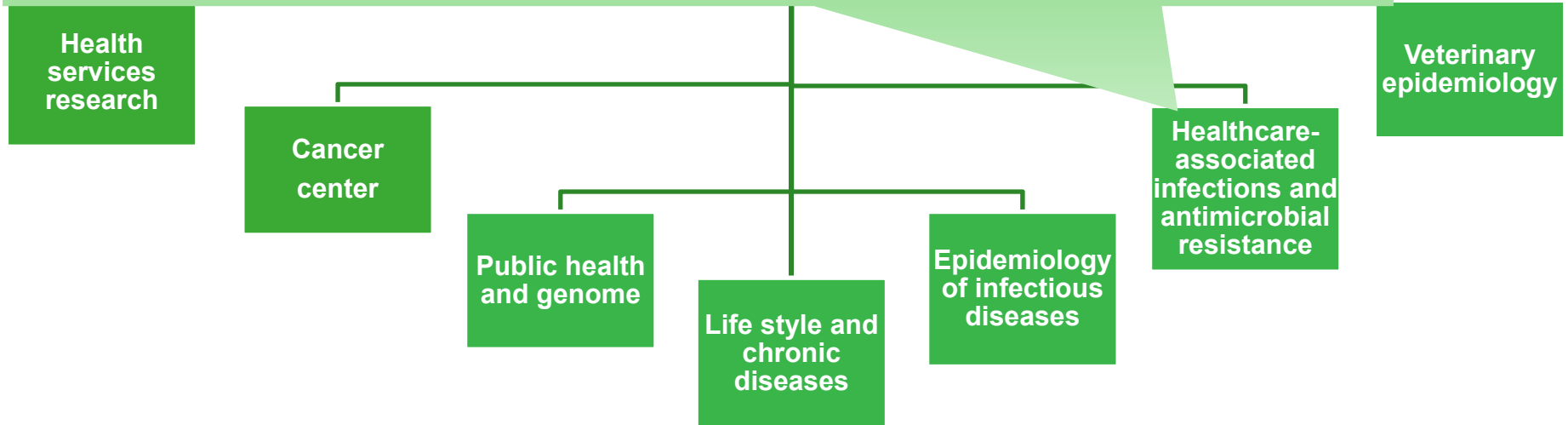
Epidemiology
of infectious
diseases

associated
infections and
antimicrobial
resistance

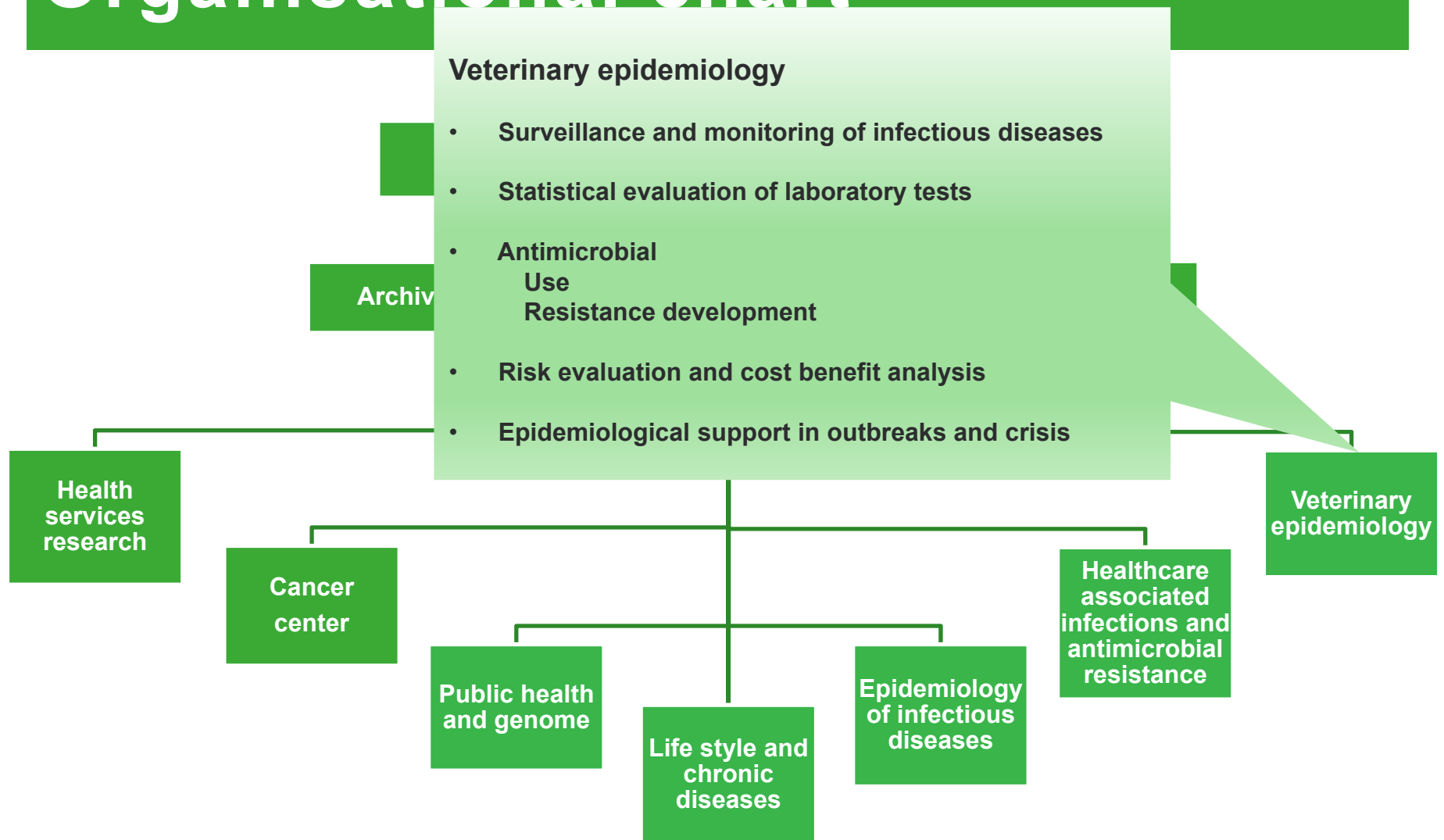
Veterinary
epidemiology

Surveillance and understanding of healthcare-associated infections and antimicrobial resistance

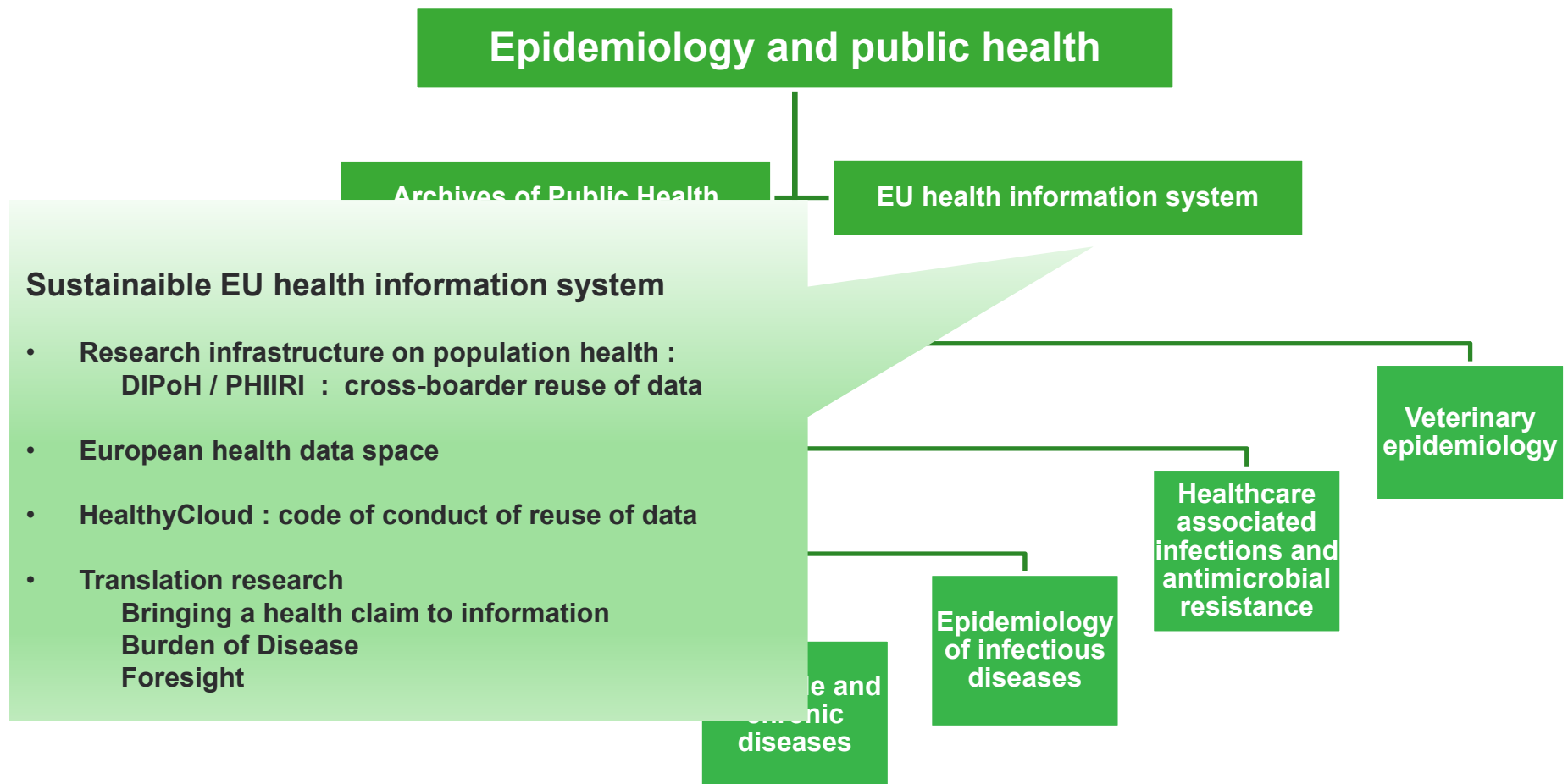
- Care-related infections surveillance
 - Hospital : ICU – bloodstream – Clostridium – MRSA & gram negative)
 - Nursing home
- Quality indicators and guidelines
- Antimicrobial Use
 - Impact guidelines and policies
 - Resistance development
- Hand hygiene : pre – post campaign evaluations
- Outbreak support



Organisational chart



Organisational chart



Organisational chart

Epidemiology and public health

Archives of Public Health

EU health information system

The screenshot shows the BMC Archives of Public Health website. At the top, it features the BMC logo and 'Part of Springer Nature' branding, along with search and explore journal options. The main header includes the journal title and navigation links for Home, About, Articles, Sections, and Submission Guidelines. A search bar is prominently displayed. A central notice addresses the impact of the COVID-19 pandemic on the peer review process. Below this, an 'Editor's Choice' section highlights two featured articles: 'The nature of food promotions over one year in circulars from leading Belgian supermarket chains' and 'Converging trajectories of mortality under one year of age in the Baltic States: a comparison with the European Union'.

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Archives of Public Health

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i As a result of the significant disruption that is being caused by the COVID-19 pandemic we are very aware that many researchers will have difficulty in meeting the timelines associated with our peer review process during normal times. Please do let us know if you need additional time. Our systems will continue to remind you of the original timelines but we intend to be highly flexible at this time.

Editor's Choice

The nature of food promotions over one year in circulars from leading Belgian supermarket chains

Converging trajectories of mortality under one year of age in the Baltic States: a comparison with the European Union

Scientific Directorate *Epidemiology and public health*

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