CAN.HEAL – Building the EU Cancer and Health Genomics platform

Start: 1 Nov 2022
End: 30 Apr 2025

COUNTRIES:
Belgium
Czech Republic
Denmark
Estonia
France
Germany
Greece
Italy
Latvia
Luxembourg
Malta
Netherlands
Poland
Portugal
Serbia
Slovenia
Spain

FOR MORE INFO

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Project Website:
https://canheal.eu/

The CAN.HEAL project is all about upscaling available information in personalised medicine to improve access to prevention, diagnosis and treatment for all Europeans. The goal is to bridge the gap between public health genomics and genomics for diagnosis and treatment.

Genomics is playing an increasingly important role in both clinical practice and public health research, particularly in the field of cancer, where genomic alterations are key drivers of disease development and progression.

The CAN.HEAL consortium recognised the need for a comprehensive approach to prevention, diagnosis and treatment for optimal patient outcomes. The project aimed to establish recommendations for EU health systems that improve patient access to prevention, diagnosis and treatment of cancer through **personalised medicine**.

The clinical work focused on applying 'next generation sequencing' technology and identifying implementation paths to extend the application of genetic profiling of patients and tumour cells.

The project was structured around two main arms 'Genomics for Public Health' and 'Cancer Diagnostics and Treatment for All'.

Our mission: to raise awareness of cancer predisposition to prevent and predict cancer, diagnose early on and treat the correct targets, as well as to transfer knowledge and expertise to patient care

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Public Health Genomics

- Key recommendations to equitable genetic counselling
- Explored the potential of Polygenic Risk Scores (PRS) in cancer screening
- Recommendations on prenatal screening results suspicious of cancer

Cancer Diagnostics and Treatment

- Established an EU-wide network for early genetic risk assessment
- Optimization of Molecular Tumor Boards (MTBs): current practices, guidelines, recommendations
- Whole-Genome Sequencing impact analysis
- Comprehensive genomic tumor testing recommendations in routine clinical care
- EU-OncDST decision support tool framework

Ethics, Training and Evaluation Framework

- GDPR-compliant ethical and legal frameworks for genomic data reuse
- Education and training programs in oncogenomics
- Public awareness materials
- Evaluation framework for innovative cancer prevention and care interventions

Liquid Biopsy (LB) and NGS Standardization

- Recommendations on liquid biopsy workflows and quality assurance
- A repository of standard operating procedures (SOPs) for clinical and omics data exchange
- Guidance for the adoption of LB in metastatic colorectal cancer treatment

CAN.HEAL ACHIEVEMENTS

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CAN.HEAL DELIVERABLES

Public Health Genomics

Key recommendations to equitable genetic counselling in cancer care

- Description of regulations
- Recommendations
- Genetic counselling legislation and practice in cancer in EU Member States
- Practical considerations for integration

Explored the potential of Polygenic Risk Scores (PRS) in cancer screening

- Scoping review PRS portability
- Scoping review PRS applicability, perspectives and perception
- Recommendations on PRS in breast cancer screening

Recommendations for managing non-invasive prenatal screening results suspicious of cancer

- Recommendations

Recommendations for liquid biopsy techniques and decision support systems for cancer detection and prevention

- Literature review

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CAN.HEAL DELIVERABLES

Cancer Diagnostics and Treatment

Setting-up an EU-wide network for early cancer genetic risk assessment

- Integration NGS and clinical data
- NGS testing data
- Harmonization Data sharing

Optimizing Molecular Tumor Boards (MTBs) through analysing current practices, developing guidelines and recommendations

- Organization of MTB across countries and institutions
- National initiatives
- MTB outcome
- MTB standardised guidelines
- Policy Brief

Recommendations for implementing comprehensive genomic tumor testing in routine clinical care across EU healthcare systems

- National Precision initiatives
- NGS implementation in EU (Survey & capacity building)
- The Belgian Approach (BALLETT study)

Impact analysis of Whole-Genome Sequencing (WGS) on patient care

- An overview (Survey + literature)

The EU-OncDST framework, a decision support tool centralizing patient data to aid MTB discussions

- Mapping, Survey and Framework
- Action plan

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CAN.HEAL DELIVERABLES

Liquid Biopsy (LB) and NGS Standardization

Providing standard operating procedures (SOPs) for clinical and omics data exchange

Repository with SOPs

Recommendations and feasibility on LB workflows and quality assurance for early cancer detection

LB guidelines
Recommendations for ctDNA test reporting

Recommendations for adopting LB in metastatic colorectal cancer treatment

Systematic review
Expert recommendations

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CAN.HEAL DELIVERABLES

🚀 Advancing Implementation in Healthcare Systems

Advancing next-generation sequencing and public health genomics in healthcare systems

📖 Policy white paper for policymakers, healthcare providers, researchers, and public health organizations, offering actionable recommendations

Improving access through offering an Evaluation framework for cancer genomics innovative interventions

📖 Evaluation guide
📖 Equity guide
📖 Impact assessment tool

Established GDPR-compliant ethical and legal frameworks for genomic data reuse

📖 Ethical and Legal Compliance Recommendations for Data Governance
📖 Citizen and Patient Perspectives on Oncogenomic Data Reuse

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CAN.HEAL DELIVERABLES

Empowering communities through Education and Training

Delivered extensive education and training in oncogenomics

- Basic e-learning module on Oncogenomics for Health Professionals
- Results from a pilot e-learning course
- Gap analysis of healthcare professionals
- Recordings of expert-led webinars:

Realizing Precision Oncology: Perspectives from Different Stakeholders
T. Haferlach – Role of AI in the Diagnostics of Leukemia
M. Nomikou – Patients

Innovative Informatics and Data Sharing Solutions for Oncogenomics
F. Psomopoulos – Challenges and Opportunities of AI in Bio-data
T. Chatzinikolaou – Impact of Real-World Data for Precision Cancer Medicine

International Perspectives on Precision Oncology
K. Stamatopoulos – Precision Oncology in Greece: Solving the Unsolved?
C. Dupain – Molecular Tumor Board and French Genomic Medicine: 2025 Initiative

Precision Medicine in Action: Best Practice Examples
T. Stoklosa – Implementing Genomic Sequencing for Diagnostics and MRD Monitoring
T. Haferlach – Comprehensive Genomic Profiling for Clinical Decision-Making

Precision Oncology: Ethical Dimensions
C. Karamanidou – Communication of Genetic Results to Patients' Relatives
L. Leitsalu – Patient Participation and Consent Models

Precision Oncology: Where Do We Stand Now?
E. Fountzila – Solid Tumors and Hereditary Cancer Syndromes

Challenges in Cancer Genomics and Clinical Reporting
G. Tonon – Harnessing Data to Improve Cancer Treatment
J. De Bie – Single Cell Sequencing in Hematology

International Perspectives on Precision Oncology
G. Tonon – A Federated Learning System for Precision Oncology in Europe: DigiONE
J. Maria Hernandez Rivas – Precision in Spain

Precision Oncology Beyond Genomics
P. Natsiavas – Drug Repurposing in Precision Oncology
J. Lu – Multi-Omics Profiling Based Precision Cancer Medicine

International Perspectives on Precision Oncology (continued)
S. Pospisilova – Czech Republic
M. Krajc – The Development of the Clinical Pathways for Genetic Testing in Slovenia
E. Anders – Sweden

Health Economic Evaluation of Precision Oncology
K. Athanasakis - Value Assessment Frameworks

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CAN.HEAL DELIVERABLES

🌍 Empowering communities through Education and Training

Created public awareness materials to enhance understanding of genetics and cancer

📖 Scoping review to identify gaps in literacy and understanding of genetics and genomics among cancer patients and the general public
📺 Videos on oncogenomics to the public, patients and their families

Hereditary cancer

English version
French version
Italian version
Spanish version
Portugese version

Oncogenomics

English version
French version
Italian version
Portugese version
Spanish version

Personalised Medicine in Cancer

English version
French version
Italian version
Portugese version
Spanish version

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