



**HiGHmed**  
Medical Informatics

# HiGHmed

RETROSPECTIVE | ACHIEVEMENTS | OUTLOOK

Creating together.

The digital health environment of tomorrow.

Now.

# HIGHMED PARTNER

## OUR NETWORK CONTINUES TO GROW.

HiGHmed network during the Medical Informatics Initiative (MII):

**Conceptual phase (2016-2017)**

**Development and networking phase (2018-2022)**

**Consolidation and extension phase (2023-2026)**

**GÖTTINGEN** | University Medical Center Göttingen

**HANOVER** | Hannover Medical School (MHH)

**HEIDELBERG** | University Hospital Heidelberg,  
German Cancer Research Center

**BERLIN** | Charité – Universitätsmedizin Berlin, Patients4Digital

**COTTBUS** | Carl-Thiem-Klinikum Cottbus

**KIEL** | University Hospital Schleswig-Holstein

**KÖLN** | University Hospital Cologne

**LÜBECK** | University Hospital Schleswig-Holstein

**MÜNSTER** | University of Münster

**WÜRZBURG** | University Hospital Würzburg

**BIELEFELD** | Faculty of Medicine at Bielefeld University

**LUXEMBOURG** | Luxembourg Institute of Health

**OLDENBURG** | Carl von Ossietzky University Oldenburg

**STUTT GART** | Robert-Bosch-Hospital

**WITTEN / WUPPERTAL** | University of Witten/Herdecke,  
Helios University Hospital Wuppertal

## THE MEDICAL INFORMATICS INITIATIVE (MII)

was launched in 2015 by the Federal Ministry of Education and Research. The funding programme aims to advance digitalisation in medicine by facilitating the exchange and sharing of data between research institutions and healthcare providers through innovative IT solutions. The MII consists of four consortia and HiGHmed is one of them.



## A MEDICAL DATA INTEGRATION CENTRE

is an organisational unit of a facility/institution that provides patient data and, if applicable, biomaterials (in cooperation with a biobank) for the purpose of medical research or carries out analysis methods and routines.

# ADVANTAGES OF OUR MeDICs\* FOR CLINICAL CARE



\*Medical Data Integration Centres

## DATA HARMONISATION / INTEROPERABILITY

1



- Data harmonisation, enabling data evaluation across sites.
- Introduction of shared data models for all application systems (significantly simplifying interoperability).
- Providing solutions for the collection of health care data in a structured and standardised form.
- Introduction and pre-testing of innovations, enabling a seamless transfer into practice.

## DECISION SUPPORT / CARE SUPPORT

2



- The integrated view of data from different systems can help gain an overview of the disease history and health status of patients at an early stage.
- Decision support: More targeted therapy, complications or inefficient therapies can be avoided and costs can be reduced.
- The „search for similar patients“ and the comparison of data from different patients, makes it possible to learn from previous cases and ensures that patients can be treated in a more targeted way – for the benefit of all.

## EXCHANGE BETWEEN CARE AND RESEARCH

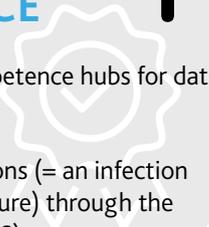
3



- Close integration of care and research through shared systems and data models.
- Clinicians are supported in their daily work and can themselves benefit from the medical documentation.
- More effective allocation of patients to suitable clinical studies.

## QUALITY ASSURANCE

4



- Ensuring data quality: MeDICs as competence hubs for data.
- Examples of quality assurance in care:
  - Prevention of nosocomial infections (= an infection associated with a medical procedure) through the detection of outbreaks (see SmICS).
  - Alert mechanisms: early warnings in case of contraindications of drugs enabled through integrated databases.

# OUR CLINICAL USE CASES 2018–2023\*



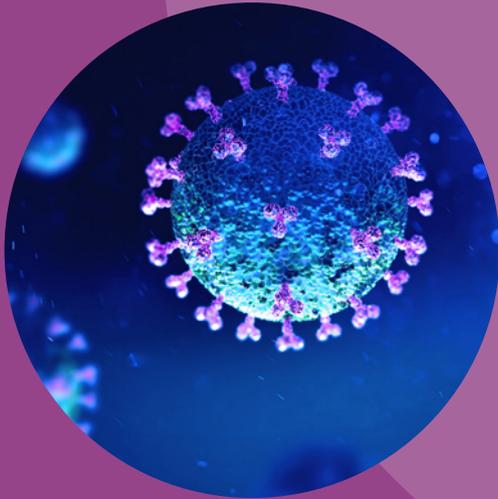
## USE CASE CARDIOLOGY

This use case aims to reduce hospital admissions and the mortality rate related to heart insufficiency by merging different data sources and using the MeDICs' platforms to develop a clinical decision support system for patients and physicians.

### Achievements:

- Recruitment of over 4,500 patients at seven sites for the Use Case Cardiology study.
- Extensive data integration in the MeDICs, for planned publications amongst others.
- MPG (Medical Devices Act) certified app for the sub-study "sensor technology":
  - Data collection with the help of smart wearables
  - MPG certification since September 2022
  - Intention to continue the sub-study after the end of 2022
- Accompanying results are integrated in the Digital Hub CAEHR, which has been funded by the German Federal Ministry of Education and Research since 2021, and in the ACRIBIS use case which is part of the new MII funding phase.

\*The use cases continue – beyond the development and networking phase (2018-2022) – until the end of 2023

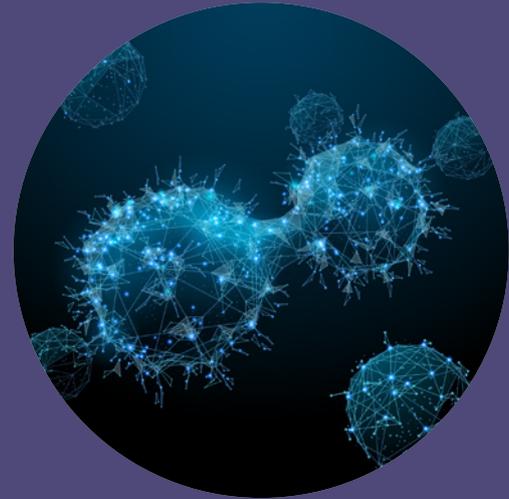


## USE CASE INFECTION CONTROL

Using Smart Infection Control Systems (SmICS), the Use Case Infection Control focuses on preventing the spread of multi-resistant bacterial pathogens as early as possible. The software connects information on patients, pathogens and movements.

### Achievements:

- SmICS development completed in 2022.
- SmICS successfully installed at three HiGHmed sites.
- Detection algorithms are currently being tested on real data.
- Evaluation of functionality and usability underway at six sites; initial results show significant time savings in infection control.
- SmICS and companion results are implemented in RISK PRINCIPE (which is a use case of the new MII funding phase).



## USE CASE ONCOLOGY

The aim of the Use Case Oncology is to use a systematic and structured collection of oncology data to share the genetic findings of patients with oncology experts across sites to increase the patients' treatment options.

### Achievements:

- The first version of the majority of the openEHR templates modelled as part of the Use Case Oncology has been completed.
- A data mart\* is supported by a solution enabling the „search for similar patients“.
- HiGHmed cases are discussed in a molecular tumor board.
- The use case will be incorporated in the PM4Onko project which is part of the next MII funding period.

\*A data mart is a subject-oriented database designed to meet the requirements of a specific user group



# HiGHmed AS A PART OF THE MII

- 14 HiGHmed sites are establishing a **Medical Data Integration Centre (MeDIC)**.
- Successful establishment of the **HiGHmed Data Sharing Framework** as a central communication and workflow platform for federated data exchange.
- Successful establishment of a **central terminology server** to support interoperability across all sites.
- Successful establishment of a **federated feasibility query**.
- Provision of a **functional central research data platform** that can be flexibly expanded for future use cases.
- Introduction of the **MI Broad Consent** (detailed consent provided by a patient or clinical study participant plays a decisive role in determining how personal health data can be used for future research. For the consistent use of data for medical research across Germany, it is critical to ensure essential elements of patient information and consent forms are standardised. Not all future research goals are known at the time the data are captured. It is therefore necessary to describe potential future use of data for research and healthcare in very general terms when a patient/participant declares consent (broad consent)).



# THE FOUNDATION OF THE HiGHmed ASSOCIATION

The solutions developed within the HiGHmed network and the combined expertise of our partners should be used beyond the end of the funding period.

**For this purpose, in 2019 the HiGHmed Association was founded as a registered association and is supported by all clinical HiGHmed partners.**





# HiGHmed ASSOCIATION

## MISSION & VISION

### WHAT WE DO

- We think **beyond the funding period** to consolidate the structures and solutions developed in HiGHmed.
  - We **develop concepts to expand the existing research priorities** using concepts, methods and technologies developed in HiGHmed.
  - We **facilitate the inclusion of new partners** on the organizational, legal and technical level.
  - We **enter strategic cooperations with scientific, political and corporate institutions as well as with citizen and patient oriented organizations** in order to expand the HiGHmed network beyond university medicine.
  - We provide **central services for the HiGHmed network**, for example in the areas of public relations, procurement and knowledge transfer.
  - We **support the management, coordination and implementation of further research initiatives and projects** within the HiGHmed ecosystem.
  - We **support our members** regarding both operational and strategic challenges.
- 

## OUR VISION

We as HiGHmed Association **support our members to develop innovative solutions** to better link patient care and research in the future.

We want to **make a strong contribution to the sustainable establishment of new technologies in healthcare** – for the benefit of patients, to support medical professionals and for a sustainable, data-based and patient-centered healthcare system.



# CONTACT US

DO YOU HAVE ANY QUESTIONS  
OR ARE YOU INTERESTED IN BECOMING  
PART OF OUR NETWORK?

Management Office:  
[communications@highmed.org](mailto:communications@highmed.org)

MORE INFORMATION CAN BE FOUND ON OUR WEBSITE

