Towards an OHDSI-based Data-Sharing Infrastructure in Germany

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on behalf of the MIRACUM consortium
Motivation

We need

- coordinated
- secure
- data protected
- governed access to data

based on a trustworthy framework of technologies and policies
The German Medical Informatics Funding Scheme

• Improve research opportunities and patient care through innovative IT solutions (initially at university hospitals)

• Intensify the exchange and sharing of data between the research community and the health care delivery system

• Position medical informatics as a progressive field in research, teaching and continuing education

• As a key element of the funding scheme data integration centres are to be set up and interlinked by the university hospitals
The initiative so far...

**Announcement 2015**

**Conceptual Phase 2016-2017**

**Development and Networking Phase 2018-2021**

**Supplementary Funding for**
- new professorships
- young researcher groups and
- non-funded university hospitals
The MIRACUM consortium

- Medical Informatics in Research and Care in University Medicine
  - eight University Hospitals and Medical Faculties, two Universities of Applied Science, and one industrial partner
  - across five German States
  - associated with four German Health Research Networks

- comprising ¼ of all German University Hospitals
- handling clinical and research data of more than 10 Mio patients
Use cases of MIRACUM

**Alerting in Care**
- IT Support for Patient Recruitment
- Medical Informatics / Clinical Trials

**From Data to Knowledge**
- Clinico-molecular Predictive Knowledge Tool
- Biostatistics / Prediction Models / Med. Inf.

**From Knowledge to Action**
- Support for Molecular Tumor Boards
- Bioinformatics / Medical Informatics / Precision Medicine
The MIRACUM ecosystem is based on ...

- Medical Informatics ReusAble eCosystem of Open source Linkable and Interoperable software tools – X

MIRACOLIX

- MIRACOLIX is
  - pragmatic
  - modular
  - reusable
  - open source
  - interoperable
  - federated
Example: Feasibility

- 11 University Hospitals
- 3,3 Mio Patients
- 30 Mio Diagnoses
- 23 Mio Procedures
Current work and first results

- Full import of the clinical data warehouse
- Mapping, mapping, mapping
  - National SNOMED license on the way
  - ICD10GM, OPS (procedures)!, cost?
- App infrastructure
  - OMOP on FHIR (http://omoponfhir.org)
  - SMART on FHIR (https://smarthealthit.org)
  - FHIR-enabled wearables
- Automatic data sharing based on a central query broker
  - Inspired by li2b2 (https://github.com/li2b2)
- Interactive queries and (geo-)visualization
  - based on Kibana