COVID-19 PANEL

GERMAN ACTIVITIES: MIRACUM, NUM

Prof. Dr. Hans-Ulrich Prokosch
Chair of Medical Informatics
University of Erlangen-Nürnberg
The German government declared the first COVID-19 lockdown

Vereinbarung zwischen der Bundesregierung und den Regierungschefinnen und Regierungschefs der Bundesländer angesichts der Corona-Epidemie in Deutschland

Die Bundesregierung und die Regierungschefs der Bundesländer haben am 16. März 2020 folgende Leitlinien zum einheitlichen Vorgehen zur weiteren Beschränkung von sozialen Kontakten im öffentlichen Bereich angesichts der Corona-Epidemie in Deutschland vereinbart:

Pressemitteilung 96
Montag, 16. März 2020

The German minister for research and education provided 150 Mio Euro funding for a German University Medicine Network (NUM) to fight the COVID-19 pandemic.
150 Mio. Euro for the German University Medicine Network (NUM) coordinated by the Charité

Goals:

• systematic documentation of all patients treated for COVID-19 at university hospitals and creating a Germany wide research database

• support integration of data from various data collections

• leverage this data to gain new knowledge about diagnostics and treatment of COVID-19 patients

13 projects received funding

One of it aimed to develop and provide a COVID-19 Research Data Platform
COVID-19 Research Data Platform
The MII NUM-Project

• several industrial vendors of healthcare information technology
• various German research initiatives

• the network of university hospitals engaged in the German Medical Informatics Initiative (MII)

provided concepts and offers to establish such a platform

within the MII concept all four funded consortia contributed experiences, knowledge and results from their first two years of the MII project
The German Medical Informatics Initiative (MII)

https://www.medizininformatik-initiative.de/en/start

Medical informatics
Strengthening research and advancing healthcare
The German Medical Informatics Initiative four funded consortia
The German Medical Informatics Initiative (MII)

https://www.medizininformatik-initiative.de/en/uber-die-initiative/goals

**Goals**

The medical informatics initiative will employ IT in order to develop and use local data integration centers allowing networked data sharing within the consortium network but also for cross-consortial research.

**Consolidating patient-oriented clinical data**

Patients often visit multiple doctors and hospitals. However, medical data are usually not easily accessible or combinable. The latest treatments or diagnoses made by their peers or on other premises are not always available with informed consent; relevant data will be consolidated digitally. This will provide a complete picture of the patient's situation and the progression of the disease, which is crucial for the best treatment and increased patient safety – because diagnoses will be faster, and second examinations can be avoided, and unwanted side effects from multiple medications can be detected early.
the MII CORE offer

15.05.2020

NATIONALES FORSCHUNGSNETZWERK DER UNIVERSITÄTSMEDIZIN ZU COVID-19

Gemeinsames Angebot aller Universitätskliniken der Medizininformatik – Initiative des BMBF für eine Technologie- und Datenplattform
the MII CORE offer: Architecture
The MII Covid-19 Research platform provides interfaces to integrate data from external data sources.
the MII CORE offer: Architecture

central portal

central data & technology platform

Interfaces to various types of apps
the MII CORE offer: Architecture

decentralized nodes extending a university hospital’s data integration center

but also adapted to the needs of other healthcare providers
CORE decentral nodes (NUM-Nodes) to extend the university hospital data integration centers comprise a

- fast-Track i2b2
- FHIR-Store (in 2021)
- FHIR-Gateway to link with
  - the central platform
  - local transactional applications
- EDC-systems to cover for data not yet in the EHR
Fast-Track i2b2

Data integration center out of the box (Docker Container)

- De-Identification
- LOINC Conversion (incl. units of measure)

First NUM-node release:
Billing data (demographics, diagnosis, procedures)
Laboratory data
Fast-Track i2b2

data integration center
out of the box
(Docker Container)

- De-Identification
- LOINC Conversion (incl. units of measure)

This infrastructure is stepwise deployed
to the 34 German university hospitals

First NUM-node release:  Billing data (demographics, diagnosis, procedures)
Laboratory data
weekly conferences to support NUM-Node deployments

Tracking the installation & ETL progress

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CODEX = Covid-19 Data Exchange Platform
Fast-Track i2b2-Installations for quick cross-consortial analyses

with 18 participating university hospitals

in Public Health

under review

Reduced Rate of Inpatient Hospital Admissions in 18 German University Hospitals during the COVID-19 Lockdown

Fast-Track i2b2-Installations for quick cross-consortial analyses

Reduced Rate of Inpatient Hospital Admissions in 18 German University Hospitals during the COVID-19 Lockdown

Endoprosthesis Implants: Arthrosis

Endoprosthesis Implants: Hip Fracture
Fast-Track i2b2-Installations for quick cross-consortial analyses

with 14 participating university hospitals

Studies on COVID-19 Lethality: Causes and dynamics at German University Hospitals to be soon submitted

- total number of COVID-19 patients
- ventilated patients
- patients died
Thank you very much

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