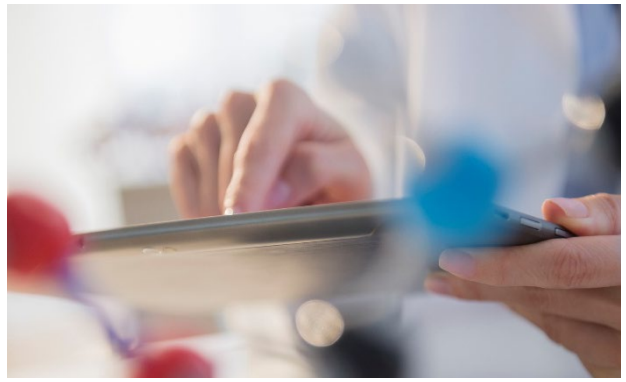

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Real World Data Solutions

How can AI provide benefits to citizens and contribute to building the data culture for society?

Barış Erdoğan, PhD
Chief Executive Officer

Switzerland
November 29, 2022

Artificial Intelligence In Healthcare

How can citizens support AI?

AI needs to be trained and validated on data.

Why would a citizen need AI in healthcare?

- For the early detection of diseases.
- Understanding more about disease risks and causes.
- Developing new treatments and preventing from diseases.
- Improving diagnosis and avoiding mis-diagnosis
- Improving individual care and allowing personalized treatments.

Healthcare Data Collaboration is Challenging

FACT: Healthcare AI Algorithms need to be trained and validated **on citizen data**.

Standards

Curating data from different EMR systems at multiple hospitals is a **very costly** option

Privacy & Ethics

Different countries have different privacy laws and ethical approval standards for working with health-care data

Limited Solutions

Projects focus on ONE large hospital with sufficient data for AI research, limiting applicability to other countries

Patient-Centered Technologies Needed

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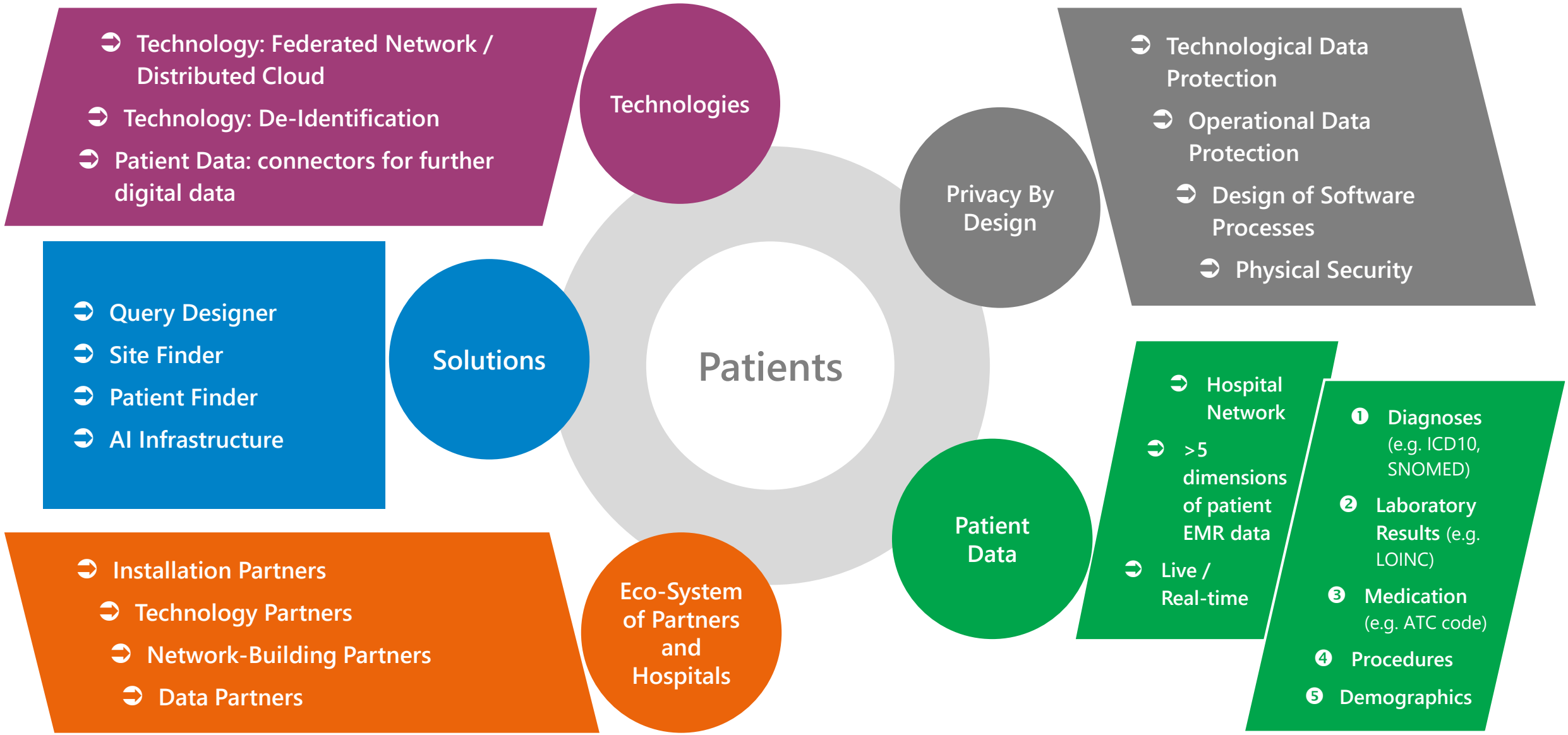

Federated AI & RWD Research Ecosystem

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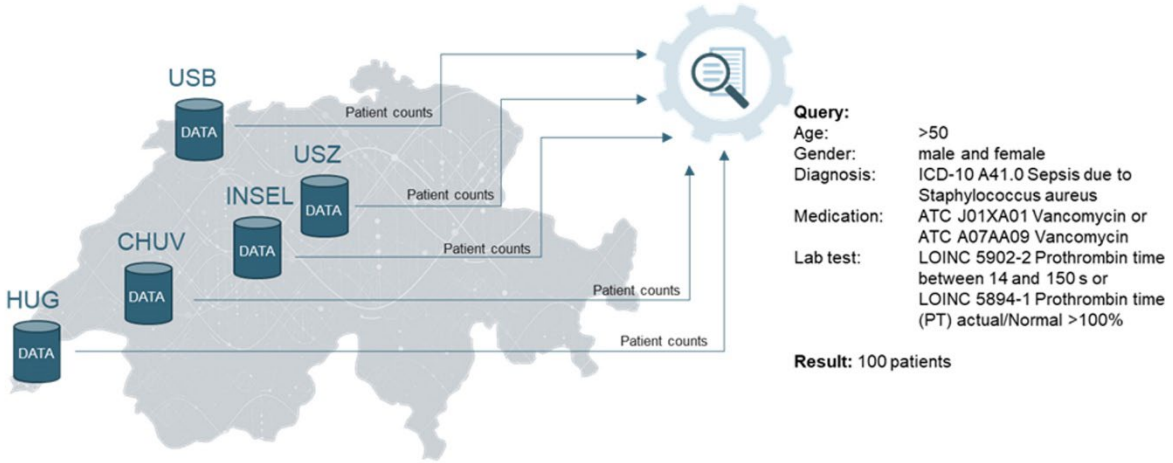
Case study: the Federated Query System (FQS) of the Swiss Personalized Health Network (SPHN)

- Operates across all five of Switzerland's university hospitals
- Enables AI model training and queries for multisite data-driven research projects

on clinical data in all hospitals, simultaneously

- >70 million data elements from >450'000 patients: a (consented) subset of patients from the five hospitals
- Fully anonymized, complies with privacy requirements, only aggregated search results are shared with users and small patient numbers are obfuscated to prevent potential re-identification
- Hospitals to retain full control over their data

Swiss Personalized Health Network
SPHN



- Centre hospitalier universitaire Vaudois – CHUV (Lausanne University Hospital)
- Hôpitaux Universitaires de Genève – HUG (Geneva University Hospitals)
- Inselspital, Universitätsspital Bern – INSEL (University Hospital of Bern)
- Universitätsspital Basel – USB (University Hospital of Basel)
- Universitätsspital Zürich – USZ (University Hospital of Zürich)

Data Driven Publications & Articles 2019–2022

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Realising International Data Access Through Data Collaborations
European Pharmaceutical Contractor
Publication date: February, 2019

Finding and Treating Rare Disease Patients in a Global Digital Haybale
Journal for Clinical Studies
Publication date: September, 2020

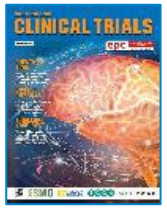
AI/ML to Generate Medical Insights ... While Maintaining Patient Data Security and Privacy
Journal for Clinical Studies
Publication date: February, 2022

How EHR-based Recruitment & Retention supports Patient Centricity
Journal for Clinical Studies
Publication date: May, 2019

An Electronic Data Model for a More Efficient Health System in Latin America
Clinical Research Insider
Publication date: May, 2021

Possibilities to increase number and scope of trials in Poland
Chapter in Industry Clinical Trials In Poland, by the Polish Association of Innovative Pharmaceutical Companies (INFARMA) & Polish Association for Employers of Contract Research Organizations (POLCRO)
Publication date: February, 2022

Recruitment Challenges in Oncology
Clinical Research Insider
Publication date: June, 2020



A Vision for Real-World Data Technology
International Clinical Trials
Publication date: December, 2021

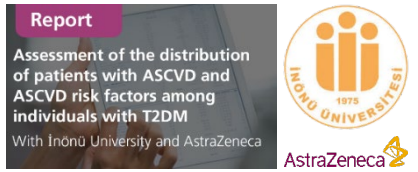
Why Do We Need Patient Diversity in Clinical Trials?
Journal for Clinical Studies
Publication date: October, 2022

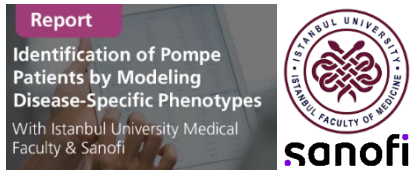
The New Healthcare, Digital by Design
Journal for Clinical Studies
Publication date: July, 2020

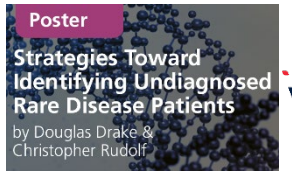
Health Outcomes in Clinical Trials
Journal for Clinical Studies
Publication date: December, 2021

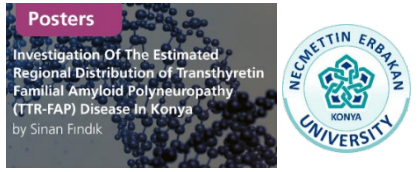
COVID-19 pushes Digital Trial Revolution...
Clinical Research Insider
Publication date: September, 2020

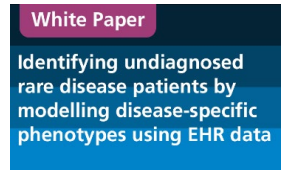
Clinical Research & Healthcare Digitalization in the Middle East & Turkey
Chapter in Clinical Research at MENA, by Fatih Özdener
Publication date: February, 2022

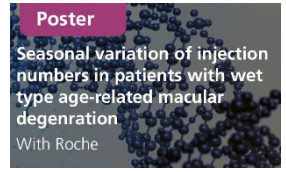












Authority guidance on the use of Data

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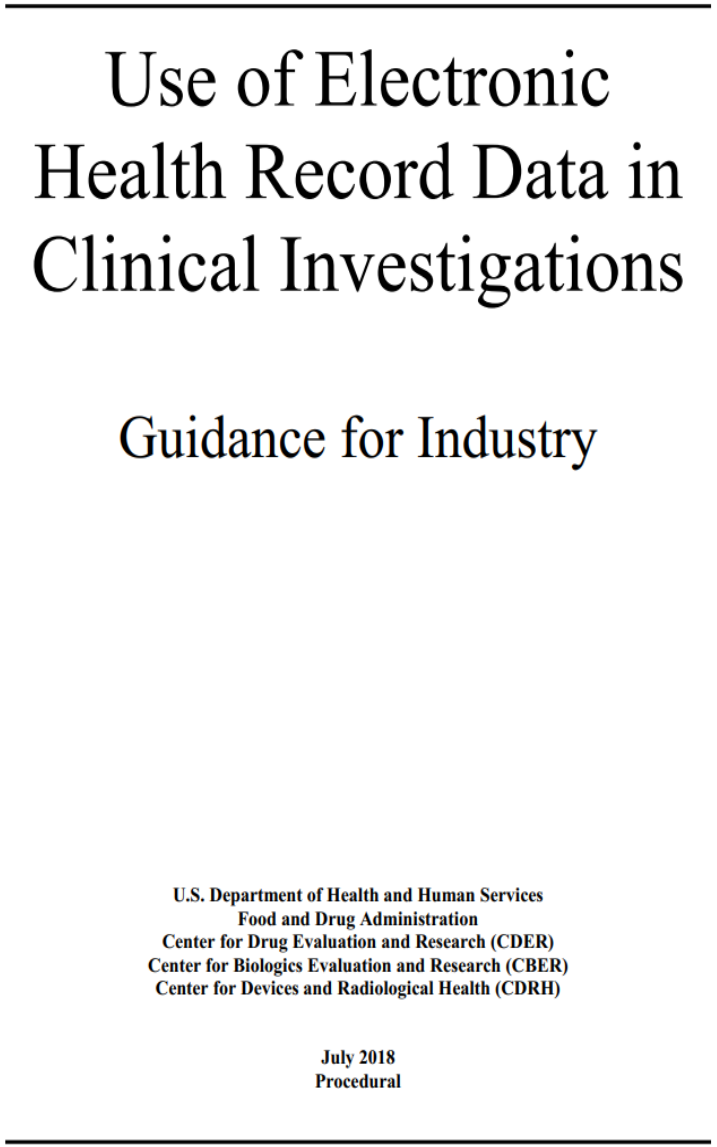

Use of Electronic Health Record Data in Clinical Investigations

Guidance for Industry

U.S. Department of Health and Human Services
Food and Drug Administration
Center for Drug Evaluation and Research (CDER)
Center for Biologics Evaluation and Research (CBER)
Center for Devices and Radiological Health (CDRH)

July 2018
Procedural

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A vision for use of real-world evidence in EU medicines regulation

Share

News 24/11/2021

Enabling the use of real-world evidence (RWE) and establishing its value for regulatory decision-making on the development, authorisation and supervision of medicines in Europe by 2025: this is the vision of European regulators as outlined in an article from Peter Arlett, Head of Data Analytics and Methods at EMA, Jesper Kjær, Director of Data Analytics Centre at the Danish Medicines Agency, Karl Broich, President of the Federal Institute for Drugs and Medical Devices (BfArM), and Emer Cooke, EMA's Executive Director, published in Clinical Pharmacology & Therapeutics.

Role of Data Intermediaries

Sponsor

- Real-world data and evidence-based research and publications
- Actionable insights for medical affairs division

Hospitals

- Insights on own patient cohorts
- Treatment improvement for involved patients
- Possibility for clinical trials with sponsor

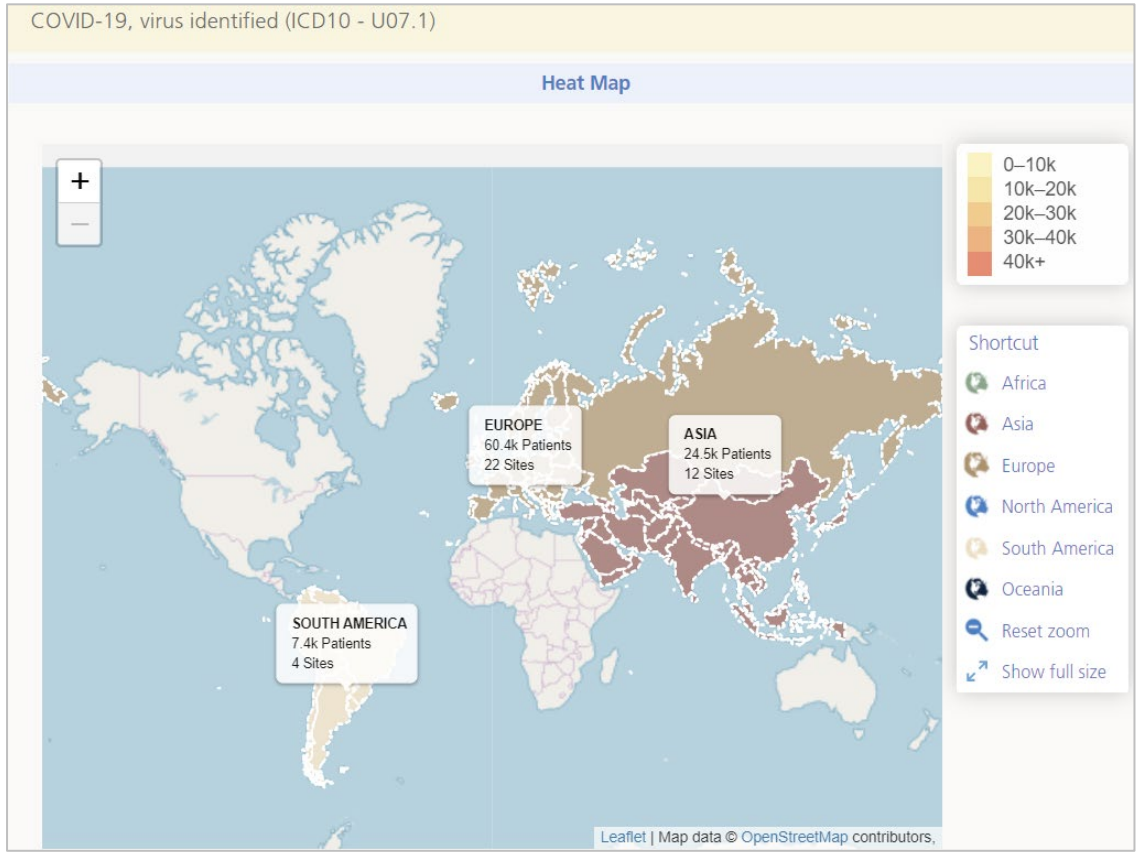
Intermediary*

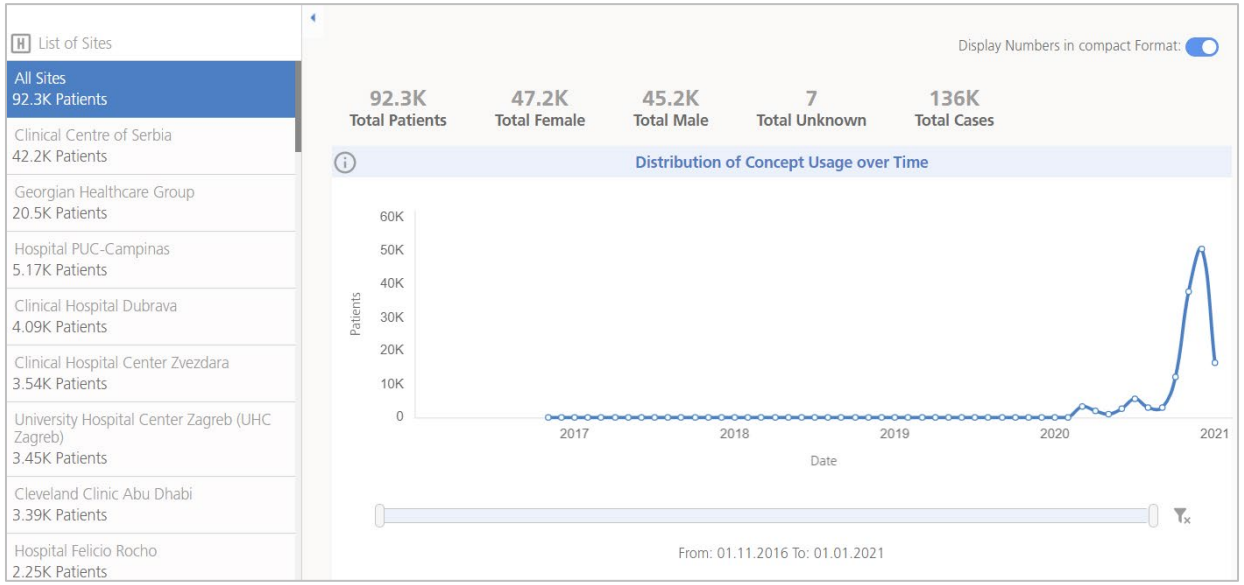
- Enablement and maintenance of innovative platforms as part of the collaboration

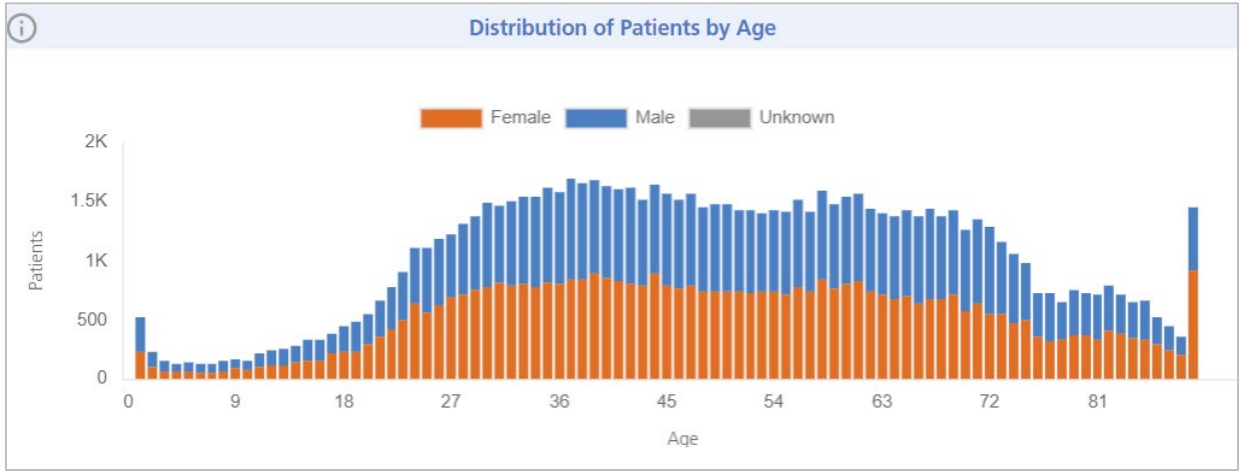
* Bridge between the industry and the healthcare providers.

AI Models to Predict COVID Progression

Real-time patient metrics and mapping







AI&Data Use Cases

Longevity

Increase survival rates even for lethal diseases with early detection.

Covid Pandemic opened up a new era on data and AI:

- Online symptom checkers and e-triage
- Detecting high-risk patients before critical stage and start preventive treatment
- Diagnosing rare disease patients which are often mis/un-diagnosed
- Identifying eligible patients for Clinical Trials for innovative treatments
- Creating synthetic control arms and speeding up the new therapy development being available

Thank you