

Health Data Space Event 4 APRIL 2022

#3 Longitudinal Patient Records Exploration

Chapter 2a: Breakout Session



Chapter 2a: Breakout Use cases



• **#3 Longitudinal Patient Records Exploration**

Welcome and Opening



• Jeroen Tas, Jeroen Tas, Jeroen Tas, Member Board of Directors, Gaia-X

Remote patient monitoring for heart disease jie patients and early treatment for stroke patients

- Michale Mossal, Senior Digital Transformation Director, NTT Luxembourg
- Jacques Federspiel, Chief Information Security Officer at Hôpitaux Robert Schuman

Longitudinal diabetes care



Mikael Rinnetmaki

Interoperable and citizen controlled cross-border sharing of diabetes data











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TIDEPOOL









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Authorization

Permissions

Active

St. Gallen Hospital Dept. of Endocrinology

Your data will be used for your treatment.

▶ given on 26/3/2021 at 1:31:27 a.m.



DOWNLOAD RECEIPT

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Data sharing

Preferences
My data can be used for My treatment ③ always upon specific request
 Improving medical practices (i) always upon specific request
 Medical research (i) always upon specific request
 Other scientific research (i) always upon specific request
 Other purposes (i) always upon specific request CANCEL SAVE

Ecosystem model for digital health



Connecting clinical data warehouses to computing resources in the cloud

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 Romain BEY, Head of Data Science Unit, IT Department, Greater Paris University Hospitals (AP-HP)



Greater Paris University Hospitals (AP-HP)

AP-HP's Clinical Data Warehouse (EDS)

- Data collected in the clinical information system
- Petascale database: 2-3 PB
- Daily data refresh

- Secondary use of data for research, hospital management, innovation
- Systematic patient information since 2017
- Dedicated Institutional Review Board

Clinical Data Warehouse (EDS): current architecture

- **On-premises** data science platform
- **Investigators** analyze data relative to minimized cohorts (>140 research projects)
- Data stewards select patients and categories of data among the total database for each research project
- Platform operators (data engineers, developers, data scientists and data experts):
 - o integrate, standardize, pseudonymize data
 - deploy and manage data analysis applications and algorithms

Clinical Data Warehouse (EDS): connecting to cloud resources

- **Complement** the on-premises data science platform with cloud resources
- Provide scalability for computationally intensive projects (e.g. training of AI models)
- Benefit from various managed IT services

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Challenge *AI for Health 2020*

- Organized by Paris Region
- 2 hospitals provided two medical use cases
- 20 AI companies competing during two months
- AP-HP's use case: **bile duct cancer** (cholangiocarcinoma)
 - Rare disease (2 annual new cases per 100,000 persons in western countries)
 - Rising incidence (+50% between 2003 and 2012 in the USA)
 - Complex and delayed diagnosis
 - Poor prognosis
- Objective:

Develop an AI algorithm to predict prognostic factors from medical imaging data

- Input data: preoperative abdominal 600-slice CT scanner with injection of contrast products
- **Predicted data:** tumour size, level of differentiation, number of nodules, presence of liver fibrosis, pTNM stage, etc.

CT scanner

Selection of patients treated for cholangiocarcinoma using claim data Extraction of clinical notes in a dedicated

analysis environment

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Uploading data to the cloud

Creation of isolated analysis environments

Tumour size : XX Number of nodules : XX

Al algorithm

Estimation by the organizers of the algorithms' performances

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Downloading of the winner's algorithm for a long term collaboration

Conclusion

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- Connecting clinical data warehouses to cloud services for:
 - Scalability of resources for computationally intensive projects (e.g. for AI training)
 - Access to managed IT services for specific big data analysis
- Requirements:
 - High level of security
 - Sovereignty
 - Reversibility
 - Interoperability
 - o ...

Thank you!

https://www.aphp.fr/ https://eds.aphp.fr/

Q&A

A data space for blended care

Nico van Rooijen, Fellow Architect, Philips

OLVG / Santeon needs integral blended care dealing with increased demands, less staff and less funding

- Coordinated physical + virtual care
- The "hospital without walls"
- Service centers above the individual hospitals
- "Carepath factory" to create coverage over conditions
- Longitudinal data for operational carepath, performance, data science

Yet, the care ecosystem is fragmented

- Multiple EMR / Many virtual care IT vendors
- Different information models
- Data siloes
- Many point-to-point IT integrations; high-effort but low value; no fly-wheel effect
- Lack of longitudinal view; partial integrations and data copies

The Health Data Space and standards-based ecosystem API a vision shared with OLVG / Santeon

scaling from OLVG to Santeon houses to National to ... scaling from single carepaths to many carepaths and IT vendors

<u>Status:</u>

First carepaths & 3rd party Focus on operational data Using legacy protocols Accepting data copies Dutch Nictiz information model Single data controller

Needs:

Federation / liberation Controlled / compliant sharing Information model standards Interaction patterns

Using AI in transplant optimization

• Dr Ignacio Revuelta

C4Yourself project

• Jildau Bouwman

Q&A

Session Summary

