Medical Engineering & eHealth

AUSTRIAN INSTITUTE OF TECHNOLOGY
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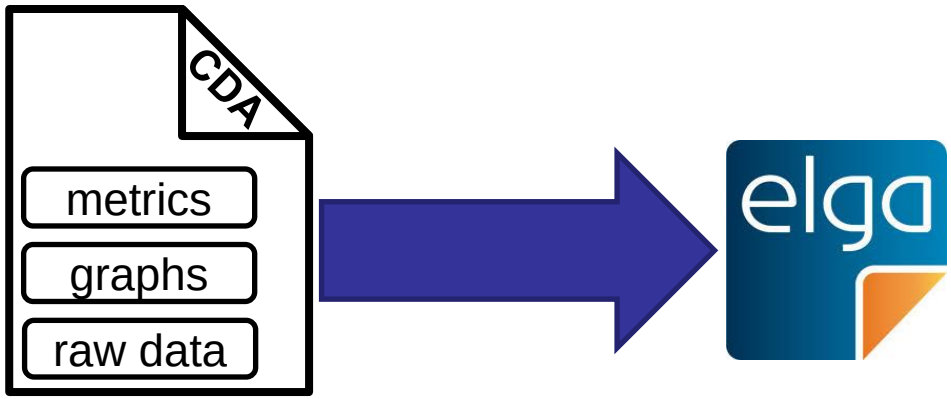
Integration of Continuous Glucose Monitoring Data into an Electronic Health Record using HL7 Clinical Document Architecture

Objective

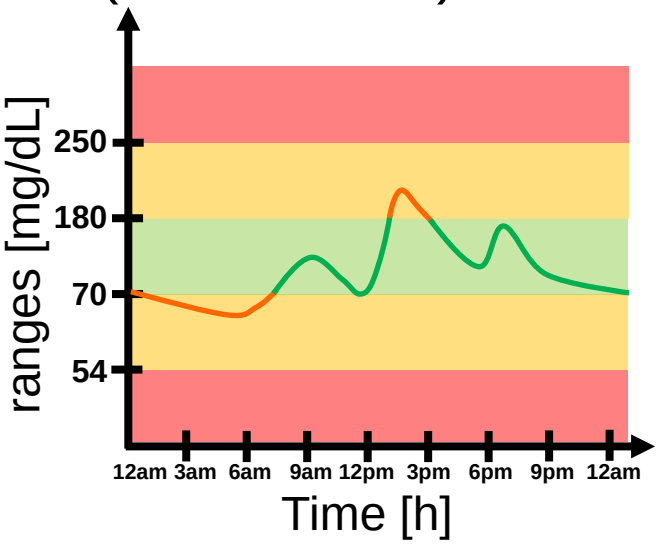
- Identify key Continuous Glucose Monitoring (CGM) metrics
- Integrate them in the standardised document format Health Level 7 (HL7) Clinical Document Architecture (CDA)
- Implement a document transfer to the Elektronische Gesundheitsakte (ELGA)



ELGA GmbH, “ELGA”. [Online]. Available: https://www.elga.gv.at/ (visited on 05/22/2020).

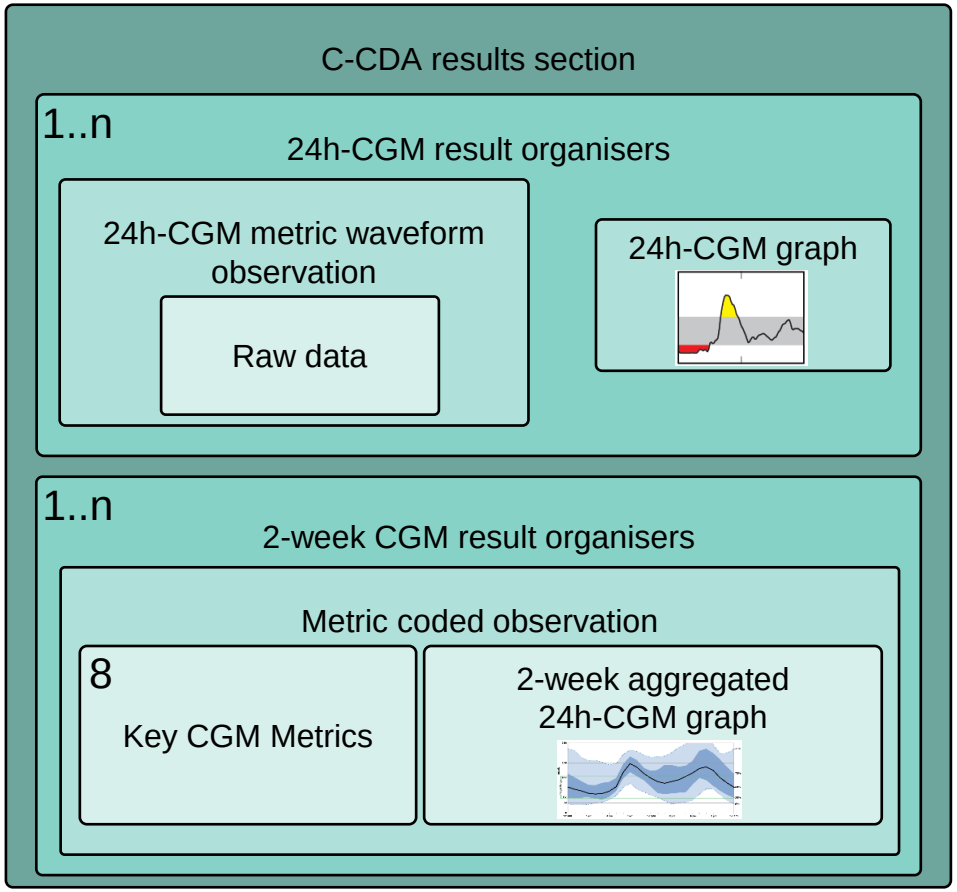
Results

- Identified 8 key CGM metrics and one graphical report according to an international consensus (Danne et al.),
  - 5 Time in Range
  - Glucose Management Indicator
  - Average Glucose
  - Glucose Variability
  - Ambulatory Glucose Profile
- HL7 CDA result section
  - Using SNOMED-CT
- Python-based Broker for transmission



T. Danne, R. Nimri, T. Battelino, et al., “International consensus on use of continuous glucose monitoring”, *Diabetes Care,* 2017; 40(12):1631–1640.doi: 10.2337/dc17-1600

Resulting HL7 CDA



International Diabetes Center, „AGP – Ambulatory Glucose Profile“. [Online]. Available: http://www.agpreport.org/ (visited on 05/22/2020).

Possible next steps

- CGM result structure might be added to the “ELGA Telemonitoring Episodenbericht” (HL7 CDA)
  - This report will be first time used in the telehealth pathway HerzMobil Tyrol and Styria

- Alignment of CGM content with sensor manufacturers, medical expert groups and HL7 Austria
  - Technical discussion with expert group
  - Ballot procedure with HL7 Austria