



Let's build

Querying Medical Device Data For Clinical & Workflow Applications

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Who are we?



Kathrin Pia Riech

- B.Sc. in Medical Computer Science, University of Lübeck, Germany
- Research associate at the University of Lübeck, field: medical device interoperability
- Developed the Point-of-Care Device Implementation Guide for mapping medical device data from ISO/IEEE 11073-10207 to HL7 FHIR



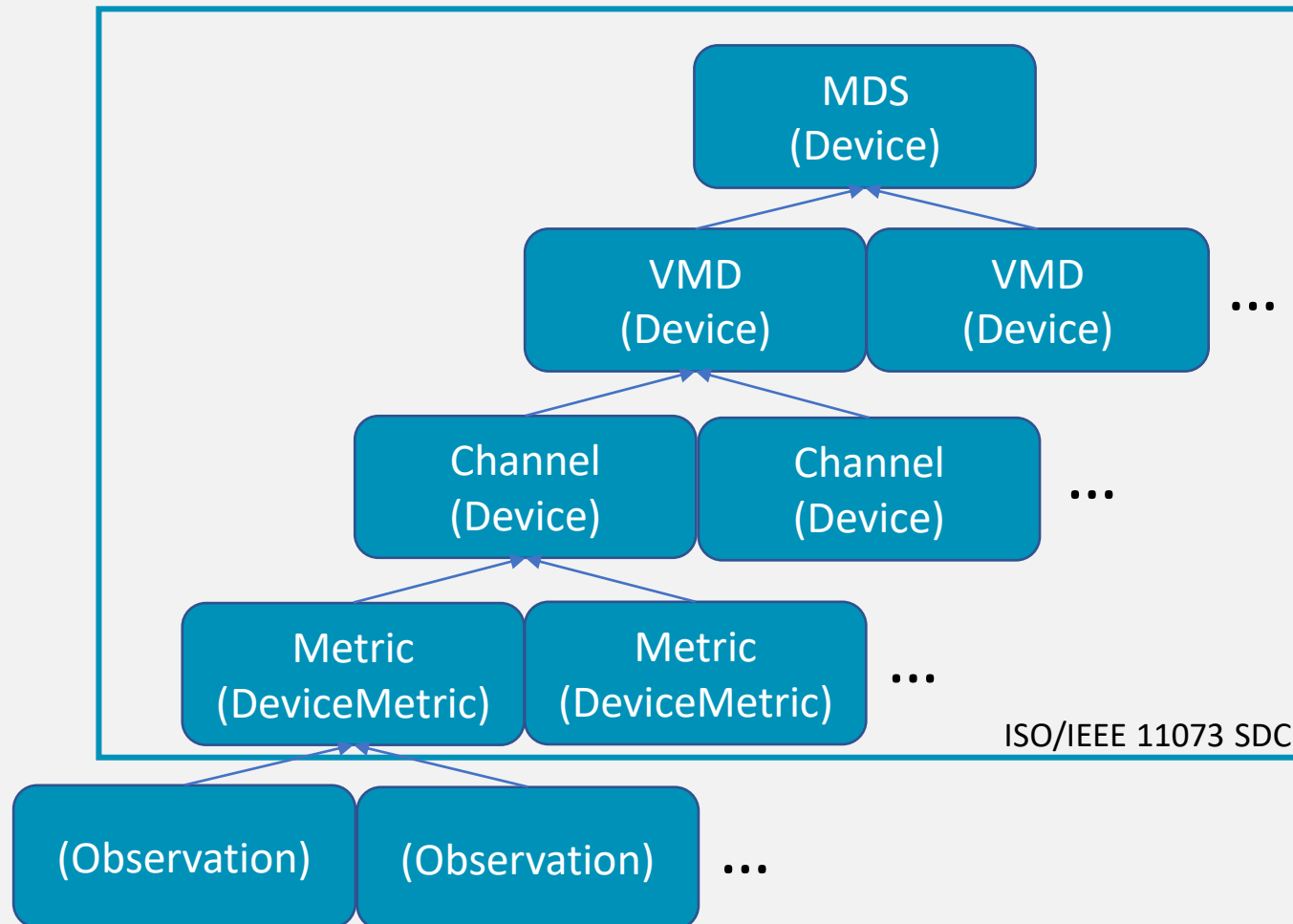
Tobias Wildi

- B.Sc. in Business Information Systems, University of Applied Science, Berne, Switzerland
- Management Consultant, UNITY AG
- Developed FHIR structure & resources for patient blood management solution

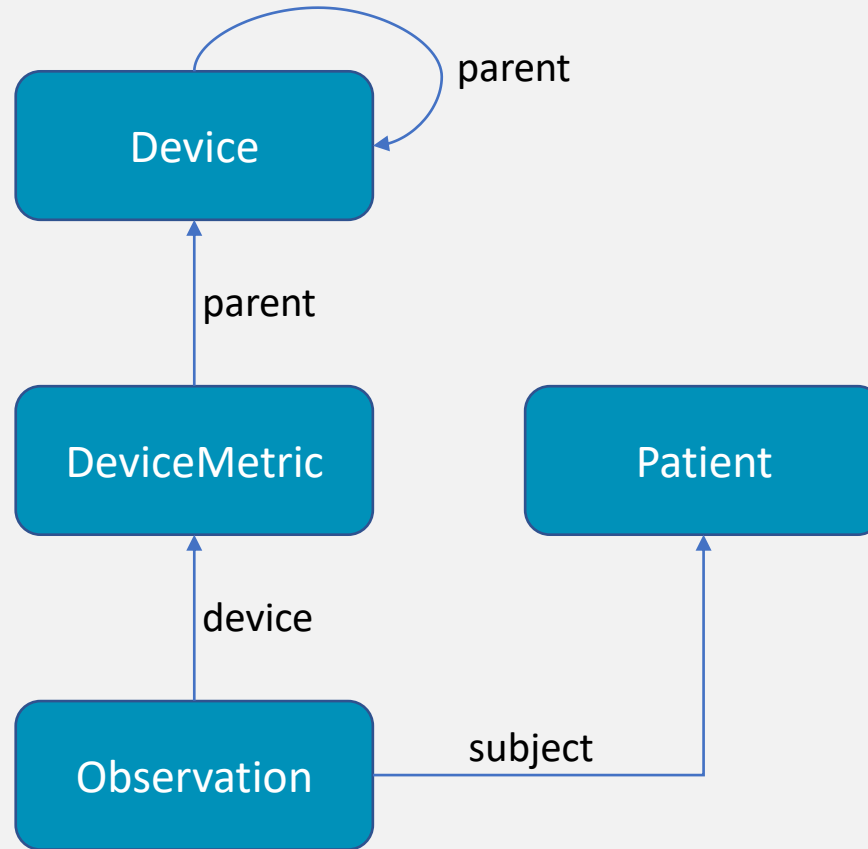
Learning Objectives Tutorial/Let's Build

- In this session you will learn how to query device data for usage in different clinical workflow applications.
- We will cover various queries to device data related topics based along a fictional clinical story line.
 - Device Connection
 - Measurement Data
 - Pulse & Body Temperature Data
 - Blood Pressure Development
 - Device Calibration & Device Connection History
- Used infrastructure: HAPI Server & SoapUI

ISO/IEEE 11073 SDC modeled in HL7 FHIR



Simplified Model



Measurement Data & Device Connection

- Admission of new patient Pauline last night, who is suffering from tachycardia and strong fever
 - Dr. Carla starts her shift and wants to get a sense for Pauline's status
 - She wants to check which measurement data is available from the connected devices.
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- **Query 1: What are the current measurements of this patient?**

Pulse & Body Temperature Data

- Lots of data seems to be available, Carla wants to know more about the blood pressure and body temperature of Pauline.
- **Query 2: How is the patient's blood pressure and body temperature?**

Blood Pressure Development

- Carla is curious about the development of Pauline's blood pressure.
- **Query 3: How has the patient's blood pressure developed over the past 24 hours?**

Device Calibration

- As mentioned, the latest body temperature measurement value of Pauline seems unrealistically high.
- Finally, she wants to ensure when was the last date on which the device had been calibrated.
- **Query 4: When was the date of the last calibration of this device?**

Device Connection History

- The device needs to be re-calibrated - to ensure safe treatments, Carla wants to check who else had been connected to the device in the past days
- **Query 5: Which patients were connected to the device during the last 5 days?**

What did you learn?

- How to query device data for usage in different clinical workflow applications with HAPI & SoapUI
- Filter measurements based on different attributes and search criteria
- Display selected patient and device measurements
- Device, DeviceMetric & Observation most important resources
- Curious to try it out yourself?
 - HL7 FHIR Cheatsheet: https://fire.ly/wp-content/uploads/2020/11/Cheat_Sheet_R5_Preview_3_OKT_2020.pdf
 - Introduction HAPI Server: <https://hapifhir.io/hapi-fhir/docs/introduction/introduction.html>

Q&A

- Do you have any questions?

Virtual HL7 FHIR CONNECTATHON 26

- Wednesday, January 13 - Friday, January 15, 2021
- Isolation ICU Bed Device Integration Use Case
- Orientation & Background for the Gemini SDPi+FHIR specifications & FHIR Gateway actor + the DoF PoCD IG; Workshop for the Isolation Bed Device Interoperability use case & scenarios; Scenario testing and

Contact

- During DevDays, you can find / reach us here:
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