GP Connector (GPC)

A tool to enable access for general practitioners to a Standards-based Personal and Electronic Health Record in the Rhine-Neckar Region

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Copernican Shift in Healthcare

Traditional Healthcare
- Patients (C1-C5) have to interact with care delivery organizations (CDOs)
- Model is tailored to needs of CDOs, not to the needs of the patient!

The Patient in the core – integrated care
- Health-conscious
- Empowered
- Informed, actively involved

In 1543, Copernicus was the first to propose that the Earth rotated around the sun, while accepted scientific thought at the time believed that the Earth was the center of the universe. Copernicus effectively “changed the center of the universe”.

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Rhine-Neckar Metropolitan Region

- University Hospital HD and its Partners establish a Regional Health Information Network (RHIN)
- Seventh largest economic area in Germany (2.4 million inhabitants)
Personal Electronic Health Record (PEHR)

1. Fully controlled by the patient
2. Based on IHE and international standards
3. Open Source for connectivity

Patient / Citizen

- Hospitals
- GPs
- Pharmacies
- Homecare Devices
Decentralized Consent Management

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Partner Hospital

(P)EHR

Medical Practice (GP)

- Consent document is paper-based
- Administrative staff has to fill in the consent flag in the local primary system (e.g. HIS/CIS)
Centralized Consent Management
referring to IHE BPPC

Consent Creator

- Policy 1: 0
- Policy 2: 0
- Policy 3: 0
...

PEHR
- MPI
- Consent Management Service
- Record Module

XACML via HL7 MDM

Consent Creator

HL7 ADT in context

HIS/CIS
- EMR
- Digital Archive

Print for Signature

Scan

IHE: Integrating the Healthcare Enterprise
BPPC: Basic Patient Privacy Consent
XACML: OASIS eXtensible Access Control Markup Language
Objectives

To enable general practitioners to participate in the PEHR in order to share medical documents of their patients electronically without having a deep integration of their primary systems.

- Underlying conditions:
  - Complying to German legislation
  - To incorporate GPs into the PEHR eConsent mechanisms
Methods

- Requirements analysis
  - Physicians
  - Computer scientists
  - Data privacy officer
- Analysis of the systems landscape of the PEHR
  - To identify technical possibilities
  - To identify limitations of an integration approach
- Tools
  - Database: PostgreSQL
  - Server: Apache Tomcat
  - Java Spring (Security, web MVC)
  - Messaging: Open eHealth Integration Platform (IPF)
  - GUI: HTML5 and CSS3
Results
Workflow

Incorporates a matching with PORS (Provider and Organization Registry Service)
GPC System Architecture

**Presentation tier**
Web-based Graphical User Interface providing login and search functionality.

**Logic tier**
This layer is responsible to handle the login attempts, to execute search queries and performing needed queries to the MPI, PORS and the Consent Manager using message based intercations.

**Data tier**
This layer is in charge of storing account data together with the PORS_ID as well as the configuration of GPC.
Discussion

- GPC enables GPs in the Rhine-Neckar Region to access the PEHR considering the consents of the patients
- Open source tools provide an easy, efficient and inexpensive way to implement the GPC
- Nevertheless, a deep integration of the PEHR into the primary systems is preferable
  - No second login is required
  - Automated document sharing is possible
- The first pilot with GPs using GPC will start end of the year
  - Evaluation of acceptance and versatility
- Deep integration stays worthwhile
- It is much to be hoped that the industry will start to implement standard based interfaces like IHE-Actors
Thank you!

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