HelmholtzZentrum münchen
Deutsches Forschungszentrum für Gesundheit und Umwelt

Concept of knowledge-based self-management pathways for the empowerment of diabetes patients – the EMPOWER project

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Intention of my talk

- Introduce the EMPOWER Project
  - Overview
  - Self-management pathways
 - Integration and interoperability
- Feedback & Discussion

INTRODUCTION AND OVERVIEW

EMPOWER project – overall goals

- Support Diabetes Type I and II

- Help patients to get involved in their own healthcare process

- Establish disease management as integrated part of daily life

- Mediate between patient and treating health professionals

- Facilitate therapy compliance whilst preserving motivation

- Raise awareness and understanding of the disease (symptoms, therapy) and correlation to lifestyle

EMPOWER project — iterative, knowledge-based self-management pathways (?)
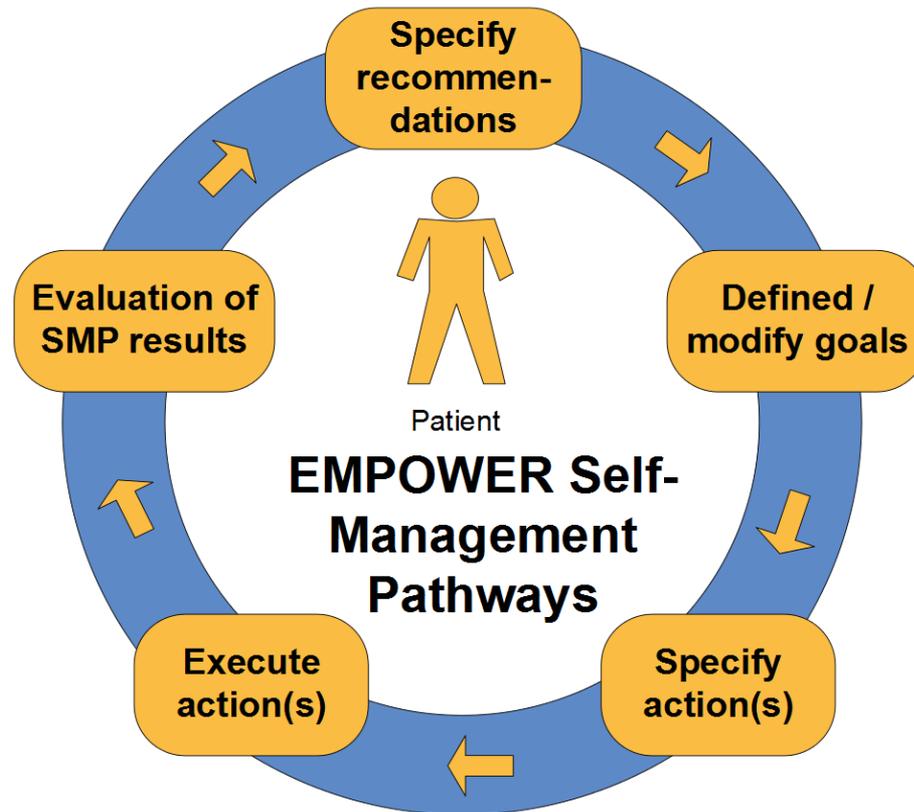
EMPOWER project – patient's perspective

- ✓ Review examination summary

- ✓ Transfer physician's recommendations into a self-defined action plan
  - ➔ Simplify and split abstract recommendations
  - ➔ Easier to achieve short-term goals

- ✓ Define, schedule and self-monitor required actions

- ✓ View calendar, receive reminders and conformance appraisal

- ✓ Record and visualize observations of daily living (ODL) like blood glucose, blood pressure, pulse, ..., physical activities, sleep, stress, nutrition

- ✓ Provision of contextual background information and guidance

EMPOWER project – physician's perspective

- ✓ Recommendation engine
  - Based on computerized diabetes guidelines
  - Integrating multiple data sources: EMR, PHR (e.g. observations of daily living)
  - Adjust and self-define recommendations
  - Submit to patient's self-management system
- ✓ Complete and consistent data basis by patients' self-monitoring
- ✓ Performance and compliance at a glance
- ✓ Seamless integration, prevention of duplicate data entry
- ✓ Reduced efforts in 'patient handling'
- ✓ Provision of contextual background information and guidance

EMPOWER project – iterative, knowledge-based self-management pathways (!)
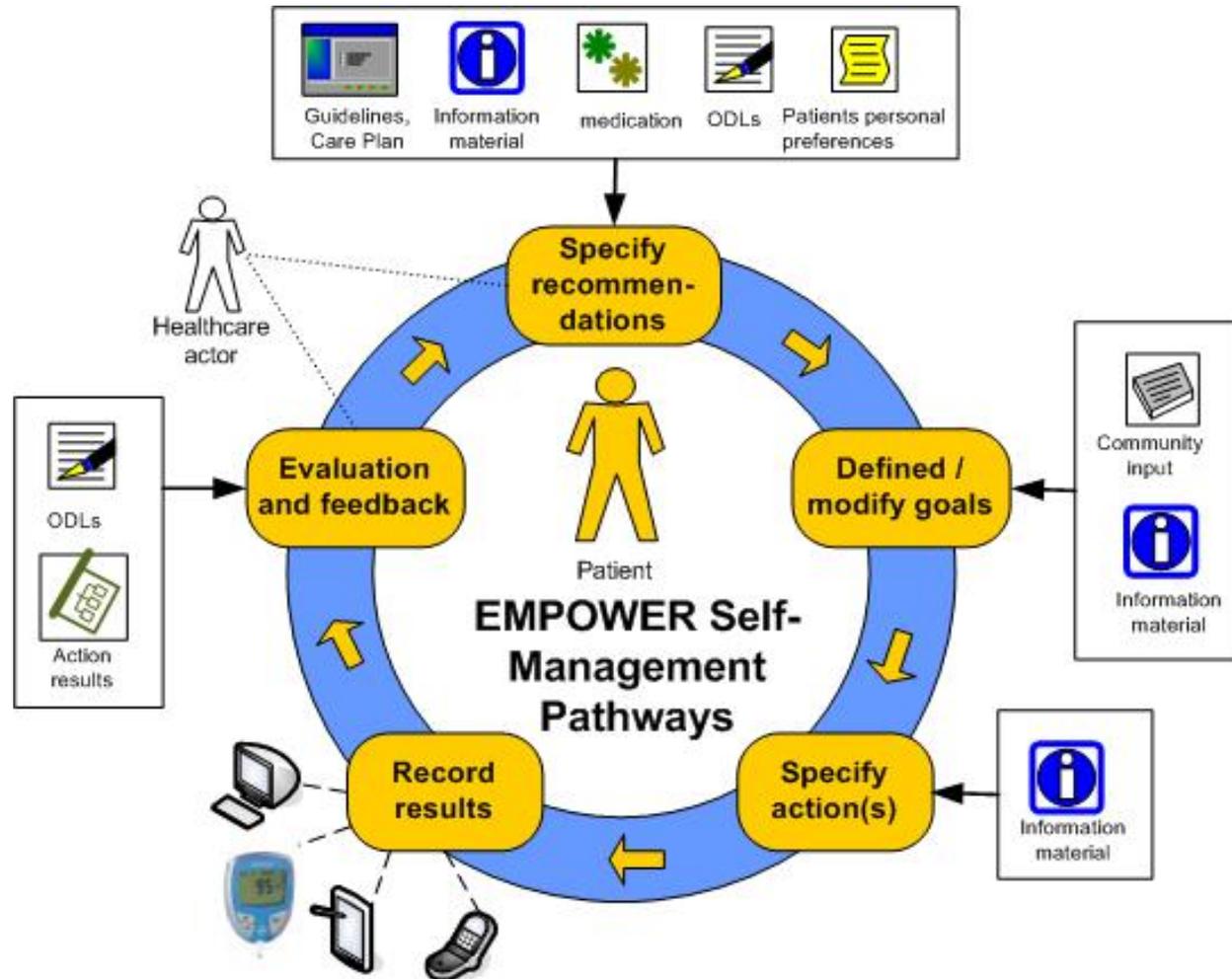
EMPOWER project – technical overview

- Modular, service oriented architecture using Web-technology

- Centralized storage of personal health data (PHR)

- Seamless integration with primary systems (EMRs) and medical devices (e.g. glucose meter)

- *Users:* patients, physicians and other health professionals

- Personalized UI based on maturity level (considering IT and medical skills) and preferences

- *Access:*

  - Web-based (Browser)

  - Personal Health Assistant for mobile devices

- Read/write access based on patient's informed consent

- Context integration into institutional information systems

EMPOWER project – partners and pilots

- Receiving funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement No 288209, EMPOWER Project

- *7 Partners:* Salzburg Research Forschungsgesellschaft m.b.H. (Austria); Helmholtz Zentrum München (Germany); **GO IN Integrationsmanagement- und Beteiligungs-GmbH (Germany)**; Università della Svizzera italiana – Institute of Communication and Health (Switzerland); Software Research and Development and Consultancy Ltd. (Turkey); Intracom Telecom (Greece); **Ministry of Health (Turkey)**

- *Two pilot implementations:* Regional health network (Ingolstadt, Germany) and national level (Turkey).

- *Current status:*

  - Started February 2012

  - First functional prototype available (focus on component integration, demonstration of core functionality)
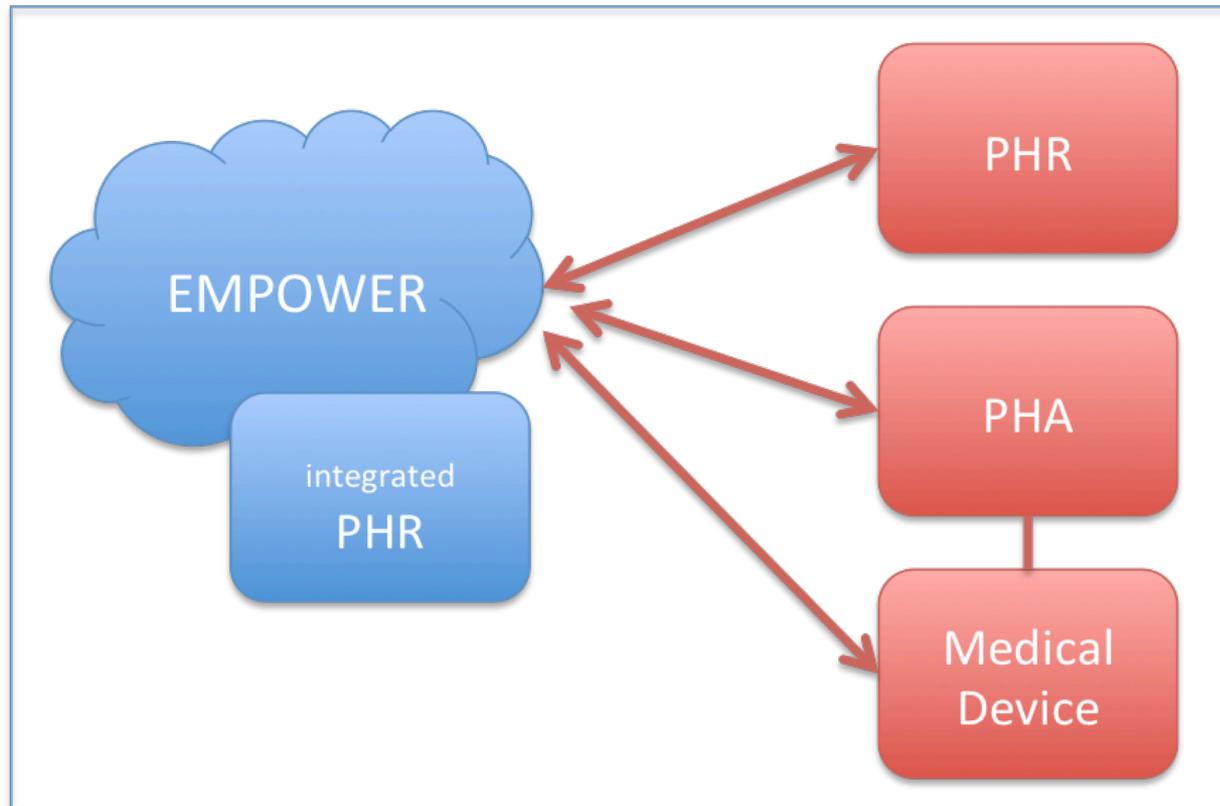
INTEGRATION

Technical integration of data sources

Integrating data sources of health care institutions in the German and Turkish pilot
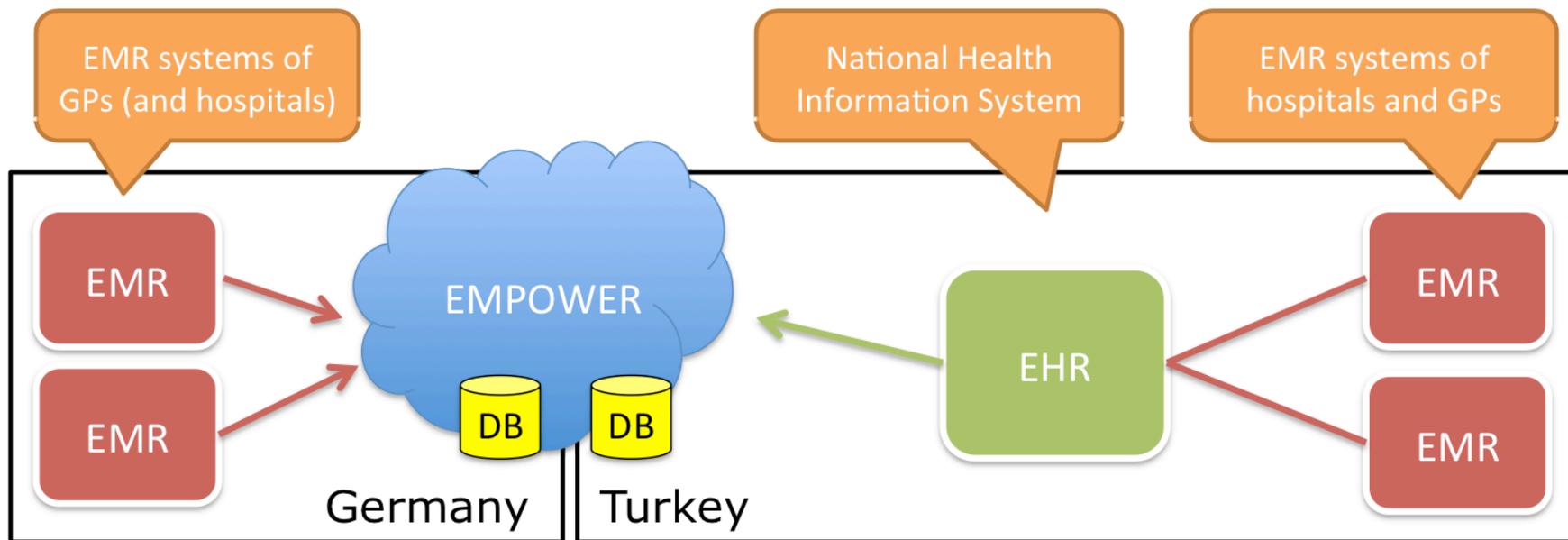
Technical integration of data sources
Common approach to import data provided by patients

STANDARDS

Technical integration of data sources
Utilizing common health data exchange standards

- IHE XPHR (Exchange of Personal Health Record Content Profile)
- IHE XDS-MS (Cross-Enterprise Sharing of Medical Summaries)
- IHE XDS.b (Cross-Enterprise Document Sharing)
- IHE PIX (Patient Identifier Cross-Referencing)
- IHE PDQ (Patient Demographics Query)
- IHE BPPC (Basic Patient Privacy Consents)
- IHE ATNA (Audit Trail and Node Authentication)

German pilot:
- Utilize and extend existing infrastructure of ByMedConnect project
- Standard-based inter-sectoral communication
- More info: www.bymedconnect.de

Semantic integration

Utilizing common semantic interoperability standards

- ISO 13606
- OpenEHR

Information models (aka archetypes) of observations of daily living and DDG Diabetes Passport using OpenEHR Clinical Knowledge Manager.

Metathesaurus for encoding and mapping between different terminologies.

Guideline Interchange Format (GLIF)

Guidelines of German and Turkish Diabetes Societies encoded as sharable computer-interpretable guidelines

OUTLOOK

Outlook and future activities

- Iterative, test-driven development approach has proven well in integrating different core components for the 1st prototype

- Data security and privacy concepts are being reviewed by ethical committee and legal advisory board

- Development phase for 2nd prototype about to start

- Pilot deployment end of this year

- Follow us at http://www.empower-fp7.eu/

Questions & Answers, Contact

Thank you for your attention!

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