Towards Lifetime Electronic Health Record Implementation

Kai Gand, Peggy Richter, Werner Esswein

eHealth 2015, Wien
1) Background

2) Method

3) Country assessment criteria

4) Summary
BACKGROUND
Challenges in healthcare

- Skilled worker shortage
- Transition processes, i.e. demographic change
- Increasing number of multi-morbid patients

Advanced concepts like Integrated Care (IC)

eHealth measures/tools like LEHRs

References:
[1]; [2]; [5]; [3]
What is an LEHR?

• **LEHR** = Lifetime Electronic Health Records
  
  ➢ “Lifelong electronic collection, storage and provision of all health related information about its owner, allowing integrated care and functioning as a data basis to improve the quality of health care on the individual and societal level”
  
  ➢ Reduce information asymmetries by empowering the individual, increase continuity, quality, patient safety, effectiveness and efficiency along the care process → reduce costs as well as redundant work [6]; [8]; [7]

• **LEHRs ≠ EMRs** → do not cover the whole lifespan and represent a provider-based, no alternative treatments or lifestyle information

• **LEHRs ≠ PHRs** → information is primarily collected, managed and used by the owning individual alone [15]; [4]; [7]; [11]
METHOD
Literature analysis

**Databases**

Academic Search Complete, ACM Digital Library, ScienceDirect and Google Scholar

**Search terms**

\{(lifetime; lifelong; longitudinal) \text{ OR } \{personal*; patient\} \text{ OR } \{electronic*; digital*\} \text{ OR } health\} \text{ AND record}

**Checking titles and abstracts of the papers; Backward and forward search for completion**

43 peer-reviewed articles, one definitive book, one ISO standard

**Analysis with regard to LEHR definition and implementation**

**Listing identified requirements; Classifying those relating to a country’s readiness for LEHR implementation**
COUNTRY ASSESSMENT CRITERIA
• **Culture:**
  - Definite separation between health care providers → inflexible, not very permeable borders between different sectors [31]; [32]
  - Large population + highly developed health care system → conservatism + difficulties managing large-scale eHealth systems on national level [29]

• **Regulation & Informational Self-Determination:**
  - Data protections laws → highly developed → hurdle → barriers that hamper cross-sectoral data exchange + block integrated care approaches [31]
  - Concept of informational self-determination → ranked as constitutional fundamental right → reason for strict German laws in this field [33]
• **Incentives:**
  - Social security laws primarily include benefits and incentives for cost reductions → granted for
    - Patients, e.g. for routinely dental checks ups or the participation in prevention courses
    - Health care providers, e.g. drug prescription without naming the concrete product but only the active ingredient to save costs
  - Sustainable behavioral change is rather a minor objective of the social security laws [34]
  - Latest legislative measures → promoting incentives (and sanctions) for the broader utilization of eHealth solutions and the implementation of a uniform infrastructure for telematics and interconnection in health care [35]
• **Compliance**: Highly evidence-based medical guidelines, but voluntary usage + insufficient linkage to practical implementation in clinical practise → few mandatory regulations for a higher rate of IC [36]; [37]

• **ICT infrastructure**: Performs less well on eHealth usage and access, but has a mature health infrastructure, an excellent medical technology sector and performs well on ICT indicators [29]; [38]
**Standards:** [39]
- Overarching electronic exchange and integration of health-related data is uncommon
- Standards are mainly used for data exchange within a single institution
- Even intra-clinical integration of (new established) telemedicine solutions and the (already existing) primary systems often fails
- Existence of double structures
- Insufficient integration in organizational standard procedures
- Differing standards used among practitioners
- No cross-sectoral standards by now ➔ only limited ways for IC and LEHRs
SUMMARY
Final assessment

- Overall: Germany is partly ready yet to implement an LEHR
- Excessively fulfilled regulation criterion
- Pilot projects on integrated care → aim: sector and indication spanning integration of medical treatments → but: main focus currently on integration on the indication level [30]
- LEHRs open a chance to achieve a deeper and broader integration in health care

<table>
<thead>
<tr>
<th>Category</th>
<th>Culture</th>
<th>Regulation</th>
<th>Informational Self-Determin.</th>
<th>Incentives</th>
<th>Compliance</th>
<th>ICT Infrastructure</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Explanation
- ⬜ extensively fulfilled
- ⬜ partly fulfilled
- ⬜ insufficiently fulfilled
Discussion / Open points

- Ethical, legal and social concerns:
  - Privacy issues, unrealistic expectations for cooperation and interoperability, fear of data abuse along with expected high initial costs and uncertain payoffs for the users [11]; [26]; [40] → intensify research on possible solutions + societal acceptance
  - Technical (e.g. interoperability, sustainability, data security), societal (e.g. acceptance, benefits, willingness to cooperate, privacy understanding), organizational challenges (e.g. centralized vs. decentralized approaches, responsibilities, monitoring)

- For Germany: LEHR implementations fitting rather data protection and informational self-determination laws are needed
Discussion / Open points

- Literature review could be broadened to increase rigor and to further verify the derived assessment criteria.
- Limiting factor: non-existence of real, broad LEHR implementations by now → only first pilot projects and general experiences with eHealth/EHRs.
- Broader evaluation is needed for more rigorous assessment.
- Already proposed solutions have to be assessed with the criteria.
Thank you for your attention!

Questions?

Knowledge builds bridges.


