Privacy Issues in the Austrian EHR Project „ELGA“

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Outline

• eHealth study of the EU (Gartner)
• Privacy concerns (EC, Forrester)
• ELGA - Austrian eHealth Strategy (ARGE ELGA)
• Conclusion
Challenges

• Since the 1960s spending on healthcare has grown faster than the GDP in most EU member states.

• Spending rose from an average of 3.1% in 1960 to 8.8% in 2006.

• Forecasts indicate that spending on healthcare as a percentage of GDP will rise to around 15% by 2020.

Gartner, 2009
Political goals in healthcare

- Patient safety
- Quality
- Availability
- Empowerment
- Continuity of Care
Technology adoption

Gartner, 2009
Examples of quantified potentials

- Avoidance of **5 million yearly outpatient prescription errors** through the use of *Electronic Transfer of Prescriptions*.

- Avoidance of **100,000 yearly inpatient adverse drug events** through *Computerised Physician Order Entry* and *Clinical Decision Support*. In turn, free up **700,000 bed-days** yearly and **decreasing waiting times** (value of almost **€ 300 million**).

- Free up **9 million bed-days** yearly through use of *Computer-Based Patient Records* (value of nearly **€ 3,7 billion**)

  Gartner, 2009
Privacy Concerns

• Right of self-determination
• Identification and authentication of patients and health care professionals
• Data security
• Authorization for accessing EHR in order to read and write in EHR
• Use of EHR for other purposes
• International transfer of medical records
• Transparency
• Liability issues
"My primary health plan fully protects the privacy of my personal information."

Forrester, 2008
Privacy Concerns - Health Insurance Portals

Percent who agree or agree completely that each entity fully protects the privacy of their personal information

- Primary banking provider: 73%
- Household insurance provider: 66%
- Credit card provider: 64%
- Investment firm: 56%

Forrester, 2008
ELGA - Austrian eHealth Strategy

- ELGA stands for “Elektronische Gesundheitsakte” (electronic health record)
- Includes
  - prescriptions
  - referrals
  - medication history
- Decentralised electronic health record system
- Key to patient data will be the E-Card (smartcard)
Considerations

- Already many stand-alone health care systems are put into operation at various health service providers
- Specialisation in health care → many health care service providers are consulted during one treatment
- Mobility of patients → new HSP needs information about earlier treatments
- Cross-functional consolidation of data to get consistent view on patient‘s health data nationwide
Requirements

- Decentral storage of data
- Considering data protection
- Patient’s consent for processing his/her health records
- Only selected documents are available to HSPs
- Cost-efficiency
- Compliant to EU guidelines (Interoperability,...)
- High-quality provisioning of health data by every single HSP (7/24 h availability)
System Architecture

Protocol System

- Pat. Index
- HSP Index
- Roles and Authorization Concept
- Document-Registry

- HSP System
  - Consumer
  - Source
- HSP System
  - Repository
  - Consumer
  - Source
- Portal
  - Consumer
  - Source
IHE IT Infrastructure Profiles

• **All systems:**
  - „ATNA Secure Node“ using SSL/TLS

• **Patient Index:**
  - „Patient Identifier Cross-Reference Manager“ (PIX)
  - „Patient Demographic Query“ (PDQ) and uses
  - „ATNA Audit Trail Node“

• **HSP Index:** „ATNA Audit Trail Node“

• **Protocol System:** „ATNA Audit Trail Node“
IHE IT Infrastructure Profiles II

- **Authorization System:**
  - PIX, PDQ and XDR as proxy
  - uses the functions of Patient Index and Registry
  - checks and filters incoming parameters and outgoing results

- **Document Registry:**
  - „Cross Enterprise Document Sharing“

- **Portal:**
  - uses ELGA-functions through proxy interfaces
ISMS-ELGA

- Security Concept
  - Maintenance and improvement of security targets and security guidelines
  - Documentation of security requirements, that have to be considered while implementing the system
  - Ensure that
    - *data integrity*
    - *data availability*
    - *data security*
    
    of transferred/processed data comply with planned standards
Integration of ISMS-ELGA/ISMS-HSP
Layers of ISMS Concept

ELGA

Layer 1

Overall
Data protection
Concept

Overall
Security Concept

Layer 2

Computing Center

Specific
Security Concept

Site-specific
Security Concept

HSP

Security Policy
Conclusion

Benefits from eHealth:
- Reduce medical errors and wastage of resources
- Serves increased patient and clinician demand

Privacy Concerns:
- Take concerns serious
  - The problem is trust, not technology.
  - Build trust in eHealth solutions
Conclusion II

ELGA System:

• Quality added value:
  - Integrated supply of data
  - Increased communication/cooperation of HSPs
  - Tool for modernizing and optimizing processes of Austrian health care system

• Privacy concerns:
  - ISMS according to ISO/IEC 2700x
  - IHE Integration Profiles