A HOLISTIC APPROACH TO EXPLORING THE DIVIDED STANDARDS LANDSCAPE IN E-HEALTH RESEARCH

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Outline

• Research Motivation
• Research Method
• Findings
• Discussion and Future Work
e-Health and Standards

- **ITU**
  - ITU-T Study Group 16, Question 28: Multimedia framework for e-health applications

- **EU**
  - eHealth Action Plan 2012-2020

- **South Korea**
  - Standards-R&D Roadmap for Smart Health

- **Interoperability**
  - among ICT technologies and systems
  - common information formats for data exchange
  - unified security structures

Research Purpose

• **Existing studies are…**
  – engineering-based or focus on technical issues and solutions
  – lacking systematic examination of e-Health studied by social scientists

• *Divided standards landscape in research*

• **Research purpose**
  – to identify and synthesize dispersed e-Health standards studies
  – to discover *the role and effect of standards in e-Health*
Research Method

• **Systematic review**

• **Database**

  - **Web of Science core collection**
    - social sciences
    - arts & humanities
    - sciences & technology
  - **Medline**
  - **Embase**
    - life sciences, biomedical literature

• **Inclusion and exclusion criteria**
  – standards-related topic
  – “standards” not in a broader meaning
Topic 1. Standards for e-Health in developed and developing countries

**Developed countries**

- **North America**
  - U.S. SHARP program
  - Canada C-HOBIC project

- **Europe**
  - U.K. NHS Data Accreditation Programme
  - EC eStandards project

**Developing countries**

- **Africa**
  - the Millennium Villages Project (MVP)
  - Kenya standards and guidelines for EMR systems

- **China**

- **Saudi Arabia**

• adoption, harmonization of standards
• information exchange across networks

• centered on the development and adoption of standards
## Topic 2. Types and effects of standards

### Types of standards
- HL7
  - CDA
  - FHIR
- DICOM
- ISO
- IHE
- Data and device standards

### Effects of standards
- **Interoperability**
  - simplifying, speeding up patient data exchange
- **Security and privacy**
- **Quality of care and hospital performance**

• Health data standards and medical device standards created by different modes of standardization help ensure interoperability, usability, quality, security and privacy.
Topic 3. Implementation of standards

Adoption of standards

• Factors that affect adoption decisions of standards
• Organizational context
  – barriers
  – facilitators
  – critical factors

Application in technical frameworks development

• Proposal of frameworks
  – HL7 CDA Release 2
  – IEEE 11073
  – CEN 13606
  – HL7 and IHE profiles

• Implementation approaches tailored for different standards are needed to translate them into practice
• Standards used globally are implemented in developing new, interoperable frameworks
Discussion and future work

- Standards in building e-Health projects and strategies
- e-Health standards and their effects on interoperability
- Adoption and application of e-Health standards

- Through further synthesis, we expect to derive practical implications that can facilitate e-Health interventions and policies based on standards.
THANK YOU

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