Technology Solutions for Telenursing and Generating Knowledge Part I of IV

TEHRAN UNIVERSITY OF MEDICAL SCIENCES TUMS WEBINARS

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Objectives

- Provide an overview of connected health.

- Discuss prerequisites for developing a connected health system.

- Address the correlation between connected health, a learning health system, consolidation of health information, and generation of knowledge.

- Discuss the role that supporting technologies play with a connected health system.

- Discuss the role that professional communication and organizations play with connected health.

Technology Solutions for Telenursing and Generating Knowledge ????

Connected Health

- "Umbrella" term for telemedicine, telehealth, mhealth
- System or model of care, means to connect clinicians, consumers, patients via technology; improve outcomes and quality while reducing costs
- Health Care 4.0

Components of Connected Health

- Modalities of care (including telehealth and mobile health)
- Supporting technologies
- Learning Health System

Prerequisites for a Connected Health System

- Policy/law/reimbursement
- Culture
- Consumer acceptance
- Knowledge and skill sets
- Technical elements
- Communication and collaboration

Groups & Initiatives Facilitating Data Sharing

- World Health Organization
- Canada Health Infoway
- FAIR Data Principles
- The European Commission (EC)
- U.S. 21st Century Cures Act
- U.S. Federal Cloud Computing Strategy of 2011
- Multiclinical Trial Centre (Harvard)
- U.S. National Insitutes of Health and National Canner Insitute vision for Precision Medicine
- International Cancer Genome Consortium (ICGC)
- Global Alliance for Genomics and Health (GA4G)
- Match-maker Exchange (MME)
- Organization for Economic Co-operation and Development
- Changing publication policies

Culture

- Commitment
- Continuous quality improvement
- Data preparaton and format
- Building a skilled workforce

Consumer Buy In

- Accept/demand ongoing research and application of evidence-based treatments
- Prepared to provide information related to care experiences to be used to improve subsequent care for others.
- Healthcare professional and worker acceptance

Knowledge and Skills

- ▶ Informatics competencies
- ▶ Data science knowledge and skills
- ▶ Ability to understand and use artificial intelligence

Technical Elements

- Technical standards
- Interoperability
- Robust information system infrastructure

Communication and Collaboration

- Within a given facility or collection of hospitals and care settings
- Among different disciplines
- Via professional/informatics associations
- Via communities of practice
- Regional, national, and international levels

Learning Health System (LHS)

- Pivotal concept to the connected health system
- Proposed as a new model for healthcare
- "a health system in which internal data and experience are systematically integrated with external evidence, and that knowledge is put into practice" (Agency for Healthcare Research and Quality, 2019)

Source: Agency for Healthcare Research and Quality. (May 2019). Defining a Learning Health System. https://www.ahrq.gov/learning-health-systems/about.html

Status of Connected Health Systems

- ▶ Fragmented policy

- ▶ Lack of infrastructure

- ▶ Ongoing data sharing issues across different vendor platforms

- ▶ Lack of clarity about legal and ethical requirements

- ▶ Lag times for data access

- ▶ Fragmented data protection across the globe

- ▶ Ongoing issues with data quality

- ▶ Complexities for data sharing

- ▶ Knowledge and skill gaps among healthcare workforce

Data Sharing Requirements

- Public trust
- Planning
- Data governance
- Development of models of good data-sharing policies
- Clear, comprehensive legislation
- Financial considerations
- Greater transparency

Data Sharing Principles

- Explicit ethical and legal framework for data collection and use
- Study participants must be informed prospectively
- De-identification of personally-identifiable information
- Data formatted using widely recognized data and metadata standards
- Suitable data repository
- Ongoing dialog related sharing and reuse
- Stewardship versus ownership
- Academic and societal rewards for data sharing

Data Sharing Benefits

- Learning-knowledge-wisdom
- Improved patient outcomes
- An ethical imperative
- Means to curtail costs
- Precondition of precision medicine

"Using data wisely means using, reusing, and sharing data to their maximum potential."

Ursin et al. (2019)

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