Korea’s health care is characterized by its well-developed ICT (Information-Communication Technology) infrastructure. In response to the Asian financial crisis in 1997, the Korean government prepared for the future by developing the ICT industry. ICT combined with medicine has created many advances in Korea.

ICT has not always been a positive influence on medicine. The ease of information processing increased the risk of privacy information being leaked. Also, greater protection of medical information such as genetic information and medical records is needed. Accordingly, the Korean government implemented the Personal Information Protection Act in 2009 and the medical field started to encrypt resident registration numbers of subjects with personal identification numbers so that the resident registration number would not be exposed when research data is provided. All information originating from a subject including not just genes but also blood and body fluids is defined as “human-derived material” and placed under extremely strict control by the IRB.

The government has announced that it plans to promote U-healthcare and develop it as the next generation medical service and corporations are also preparing for another wave of growth for the ICT industry. On the other hand, the medical field holds its reservations due to potential issues such as patient safety, clinical efficacy, liability of misdiagnosis, and the implication that ICT would bring to practice of physicians. This presentation will introduce the current status and future outlook of ICT in health care in Korea and discuss relevant issues.
Privacy protection problem

Major Types of Violations
1. Violation of personal information and privacy
2. Misuse of personal identification number
3. Improper use beyond initial purposes
4. Collection of information that are not agreed
5. Academic incompletion

Leakage of personal information in the medical field

- Non-medical staff illegally inspected the hospital electronic medical records
- E-prescriptions of four thousand patients in a hospital were drawn by some clerks
- Suppliers to a number of hospitals leaked patient medical information from hospital management program

Personal Information Protection Act, 2011

- Data exportation was strictly limited in order to prevent leakage of personal information
- Data coding: resident ID number → randomized secret code
- New randomized number should be given during clinical trials
- The same principle applies genetic research
  - Bioethics and Safety Act, revised 2013
  - Institutional Review Board

Bioethics and Safety Act

Article 18 (Provision of Personal Information)
1. When a human subject of research consents in writing to providing his/her personal information to a third party pursuant to Article 16 (1), the relevant human subjects researcher may provide his/her personal information to a third party, subject to examination thereof by the competent institutional committee.

(2) When a human subject who intends to provide personal information about a human subject of research to a third party under paragraph (1), he/she shall anonymize such personal information. Provided, That the foregoing shall not apply where a human subject of research consents to leaving his/her personally identifiable information therein.
Merits and demerits of health care supported by ICT

**Challenges to Healthcare delivery in Korea**

- Aging of Population
- Increasing Chronic Diseases
- Integration with U-Society
- Consumer Empowerment
- Demands for Access, Quality, Efficiency of Healthcare Delivery
- Increasing Concerns on Wellness / Prevention

**Government**

- Overcoming increasing medical expenditures
- Health care industry as growth engine for next generation

**Enterprises**

- Provide new business opportunities for companies
- Efficiency and advancement of the health care industry

**Growth of U-Health Market**

- 2010: $2.8 billion
- 2020: $10 billion

Ministry of Trade, Industry & Energy
ICT AND HEALTHCARE IN KOREA: PRESENT AND PROSPECT

Medical Communities

- ICT as an supportive tool
- Lack of doctor-patient relationship
- Doctor-patient relationship can not be replaced by ICT
- Irreplaceable feature of healthcare

Responsibility issues of medical staff
Limits of practice using patient data compared with a face-to-face patient care
Vulnerable infrastructure: Can not guarantee data reliability
Improper care increases costs

Accessibility issues related to technologies
ICT should be focused on vulnerable groups
‘Brain drain’ from the 3rd to the 1st world

EQUITY

Cost-effectiveness

- No definite evidence that U-Health brings improvement of healthcare so far
- In terms of cost reduction, there is no conclusive evidence
- U-Health’s cost effectiveness concluded that there is insufficient evidence, EU, 2008
- Limited enforcement in developed countries: Education, Training
- Trying to find evidence in the third world

Issue transition

- Third world needs to be equipped with substantial health care infrastructure to improve their own health
- However, introduction of U-Health dilutes the substantial needs on their own healthcare

Thank you.