

# Medical Informatics in Taiwan

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# Scale of Healthcare in Taiwan

- Population: 23 million
- Insurance: universal coverage, by National Health Insurance Bureau
- Outpatient visits: 300 million/year
- Inpatient stays: 28 million man-day/year
- Budget:
  - Public: 10 billion USD/year
  - Private: 10 billion USD/year

# Scale of Healthcare in Taiwan<sub>(cont.)</sub>

- 600 hospitals
  - 70% computerized, 50% with some kind of clinical information system
- 9,000 primary care clinics
  - 70% computerized and paperlessible

# Outline

- Government effort
- A growing industry
- Academic

# Government Effort

# Major Projects from DOH

## ■ Health Smart Card

- A 120 million USD, 3-year project
- 23 million smart cards for everyone
- 2003 → store health insurance information
- 2004 → store vaccination hx, medication hx, ICD-9-CM codes, major medical examinations...etc.
- Still debating

# Major Projects from DOH (cont.)

- eHealth Services Project:
  - A 40 million USD, 4-year project
  - Medical Information Exchange
    - Inter-hospital exchange of patient information as well as providing personal health record to individuals
  - Adoption of Electronic Patient Record
    - Encourage hospitals to go paperless

# Major Projects from DOH (cont.)

- eHealth Services Project (cont.)
  - Health Certificate Authority (HCA)
    - Issue certificates (using PKI) for all hospitals and health professionals
  - National Guideline for Healthcare Information System functional requirement
  - Consumer Health Information websites critiquing and certifying
  - HIPAA related legislation
  - Promotion of standards → HL7, DICOM, IHE



# A Growing Industry

# Medical Informatics Industry

- It is recognized by the Ministry of Economy as a high potential industry in Bio-tech
- It is estimated that the hospitals (not including the clinics) would spend up to 1 billion USD on IT outsourcing in the next 3 years

# Medical Informatics Industry (cont.)

- Several big Taiwan-based companies are starting to invest on Medical Informatics projects
  - e.g. Acer, Teco electronics...etc.
- Invest on standards like IHE, HIS guideline in its early phases

# Fast Academia Development

# Universities

- There are now more than ten formal degree granting departments from public and private universities offering degrees from undergraduate diploma to Ph.D.
- Different Emphasis on
  - Clinical Informatics
  - Bioinformatics
  - Health Informatics
  - Nursing Informatics

# Universities (cont.)

- Prominent examples
  - Taipei Medical University (Graduate Institute of Medical Informatics-GIMI)
  - 60 master and Ph.D. students
- Yang-Ming University
  - 40 master and Ph.D. students
- Tsu-Chi University
  - Enroll 50 bachelor students every year

# Associations and Activities

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- Taiwan Association of Medical Informatics (TAMI)
  - established in 1991, now with 500+ voting members, all major hospitals and the department of health are current members
  - Holds a major annual conference - MIST (Medical Informatics Symposium in Taiwan) every year with 300-500 attendees
  - Act as a liaison in major issues like Health Smart Card and Electronic Patient Record between government agencies and other organizations
  - Sits in the National Committee on the Development of Health and Medical Informatics



# Associations and Activities (cont.)

## ■ HL7 Taiwan

- Established in 2001, member of HL7 international affiliate, now with 200+ voting members

## ■ DICOM Taiwan

- Established in 2001, member of DICOM committee

Future

# Future Projects

- eHealth Services Project (2001~2005)
- National Health Information Infrastructure
- Patient Safety Informatics
- More integration with the Bioinformatics community