A Comprehensive Health Information System to Support Health Promotion and Disease Prevention in Japan

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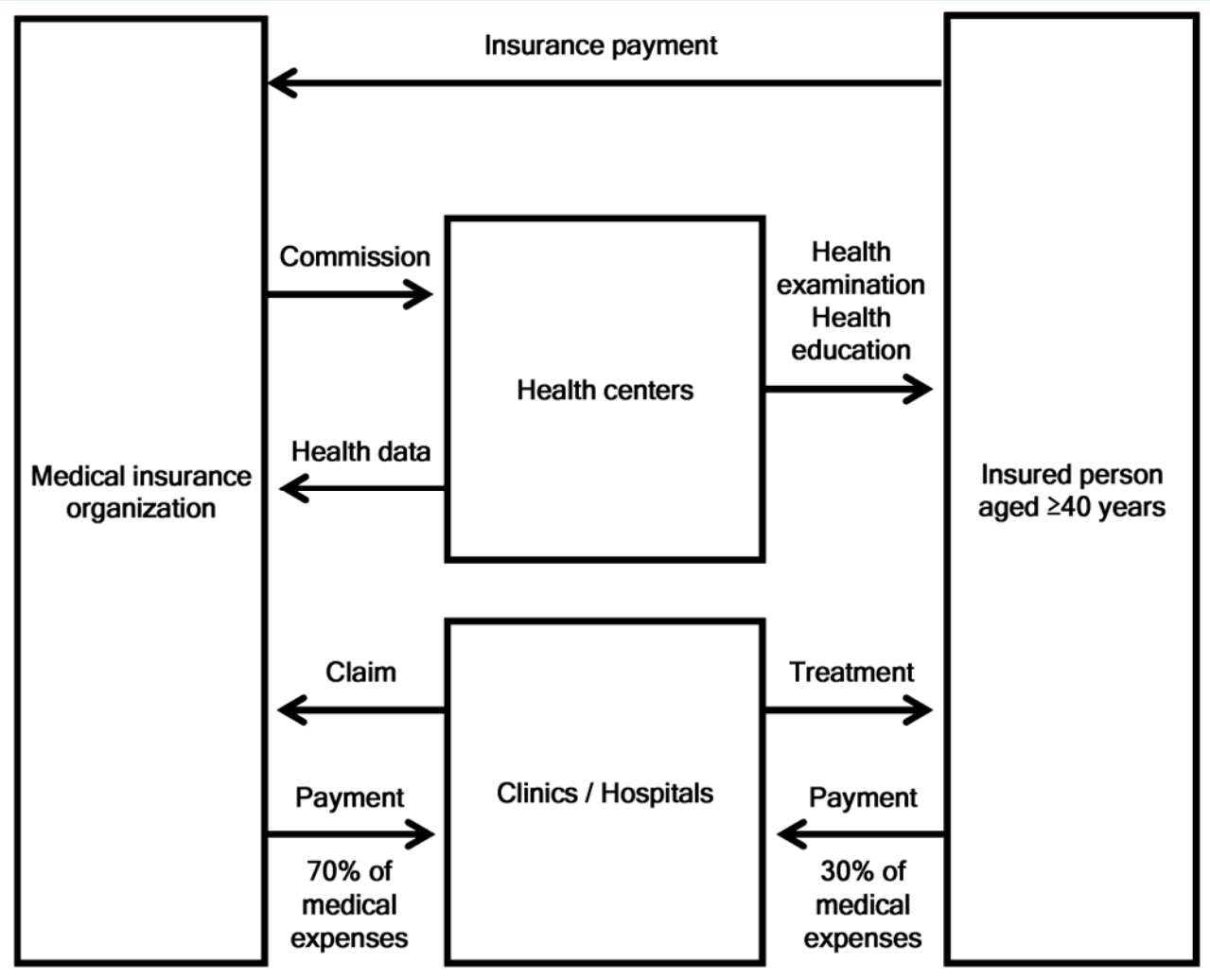
Background

- The Japanese Ministry of Health, Labour, and Welfare intends to reform the health promotion and disease prevention system in 2008.
- After the introduction of the system, medical insurance organizations will be responsible for providing annual health examination and health education for every insured person aged ≥40 yrs and implementing outcome assessment.
- And they will have to deal with health information that is collected from various sources (Figure 1).

Figure 1 - Public health system in Japan



Objective

- In 2006, we established a university-industry collaboration project with the aim of developing a comprehensive health information system to support health promotion and disease prevention in Japan (J-CHIS).

Methods

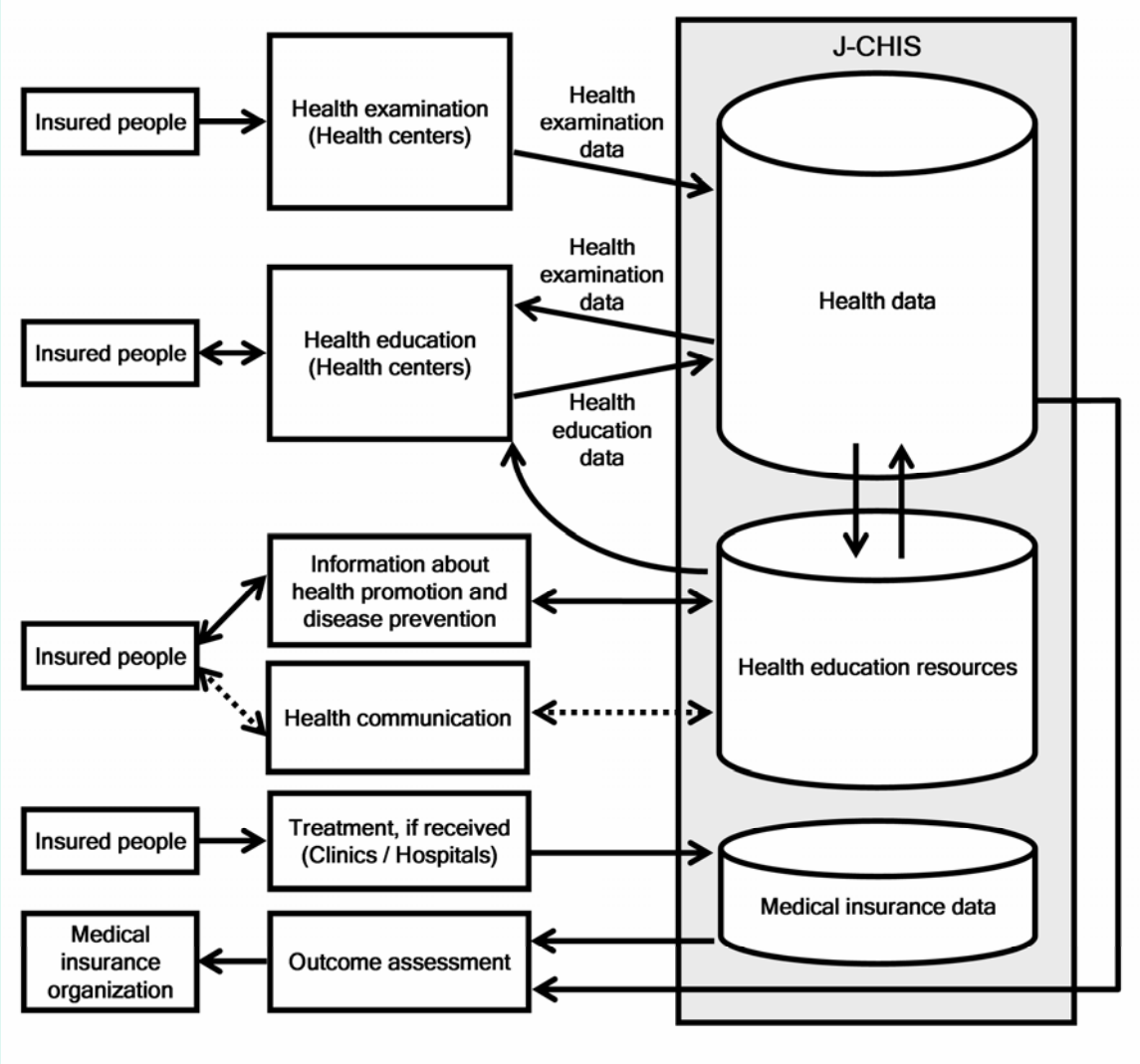
- The J-CHIS is designed to support
  - health examination
  - health education
  - outcome assessment

  in compliance with the newly-proposed national guidelines (available at http://www.mhlw.go.jp/bunya/kenkou/seikatsu/index.html).

Overview of the J-CHIS

- The J-CHIS consists of 3 components (Figure 2):
  - “Health data” are collected from health centers where the insured people receive health examination and health education.
  - “Health education resources” include information about health promotion and disease prevention and instruction materials.
  - “Medical insurance data” are collected from clinics and hospitals where insured people receive medical treatment.

Figure 2 - The J-CHIS



Problems to be solved

- The users will access each component through the Internet.
  - Communication on the Internet is timely and easily accessible, but data on the Internet is vulnerable.
- The components of health data and health education resources will be accessed by various people from various places using various computer hardware.
  - It is difficult to prepare specific software that is usable under such wide variety of circumstances.

Breakthrough

- The J-CHIS adopts a state-of-the-art secure communication protocol - TCP2 (developed by T.T.T. kabushikikaisya, Tokyo, Japan; available at http://www.tttnet.ne.jp/tcp2.html).
- TCP2 performs encryption, certification, key switch, and firewall on the 4th (transport) layer of the Open System Interconnection (OSI) reference model.

Effectiveness of TCP2

1) to identify the person who accesses the system
2) to establish secure communication independent of hardware and software
3) to build strict privacy and security measures into the system

Information sharing based on personal identification and hardware- and software-independent security will be realized in the J-CHIS.

Conclusion

- The J-CHIS will support health examination, health education, and outcome assessment in compliance with the newly-proposed national guidelines.
- And it will contribute to promoting the Japanese health promotion and disease prevention system by information sharing based on personal identification and hardware- and software-independent security.

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