NBR CENTER FOR HEALTH AND AGING
Health Information Technology and Policy Lab

Thailand HIT Case Study

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Summary

For over twenty years, both public and private hospitals have been trying to take advantage of the benefits of IT to improve health services in Thailand, yet varying resources and requirements of each institution have made for scattered, unharmonious HIT development throughout the country. The Ministry of Public Health made several attempts over the last ten years to develop a nationwide electronic medical record. However, hospitals responded unenthusiastically to the lack of immediate incentives and perceived benefits for each institution in exchange for the investment that building a common system for data sharing would require. Nevertheless, in 2007 an EMR exchange network remains in development, with the 21st century attempt likely to bring about new success in this area.

HIT Adoption

At present all 82 government provincial and large private hospitals in Thailand use some form of IT internally to manage drug dispensing, receipts, outpatient card searching, and appointment booking. The electronic medical record exchange system initiative in Thailand currently involves a few public and private institutions with a clear goal of supporting the medical tourism industry. This small but advanced partnership will act as the pilot project to help develop a model for wider coverage and a more comprehensive, farther-reaching system in the future.

Hospitals share this information externally through hard copies, such as claims for health insurance. Most hospitals have unique software programs that are designed specifically for their internal use and operate quite comfortably within each institution's legacy IT systems. Unfortunately, these unique IT systems make electronic information-sharing across hospitals impossible. This has not been a major issue however, as most hospitals tend not to share a great deal of data externally.

12-Files System. In 1997 the Ministry of Public Health began designing a health IT system to facilitate the sharing of medical data among healthcare providers and the Ministry's Health Statistics Unit. Known as the "12-files system," this HIT system currently incorporates hospital outpatient and inpatient records, financial information, referral data, and health coverage data. More than 800 provincial and district hospitals across Thailand are linked or participate in the 12-files system.

18-Files System. Separate from the 12-files system, the 18-files system is used by primary care units (PCUs) throughout Thailand and will be in full operation in June 2007. The system includes outpatient data on disease surveillance, behavior, death records, immunization, and family planning. The 18-files system will also incorporate data on community health prevention and promotion. The data will be transferred from subdistrict to district levels, to the province, and finally, to the central government unit at the Bureau of Health Planning and Strategy. Database records are projected to number 150 million by the end of 2007. The National Health Security Office (NHSO) has committed to support this data transfer by providing compensation for data mobilization to every PCU and relevant PCU Contracting Unit Purchaser (CUP) as well as to every Provincial Medical Office. Although there is currently no connection between the 12- and 18-files systems, linkages may be addressed in the future.

Who Drives HIT?

Traditionally, the Ministry of Public Health has been the primary driver for HIT in Thailand. For the purpose of promoting medical tourism, however, TCELS is now a driving force behind HIT. Additionally, the Thai Medical Informatics Association has been promoting technical input to the development of a national HIT system.

For a system to achieve success, however, both government agencies and private-sector organizations (hospitals and insurance companies) will need to join forces in support of HIT implementation. The National Health Security Office, whose major responsibility is to provide quality health services to the community, could play a vital role in mobilizing funding for such an important endeavor.

Who Pays for HIT

Until 2007 financial support for HIT, offered primarily by the government, had been limited. This year the government increased funding for HIT. The Ministry of Public Health currently finances the development of a nationwide health IT system, and the National Health Security Office (NHSO) has committed to support data transfer between hospitals to the office for reimbursement. Individual hospitals pay for IT systems and standardization in their respective institutions. Private-sector institutions do not play a large role in financing HIT in Thailand.

Challenges

Funding

Challenges	Proposed Solutions and Current Measures
Because it is a colossal and complicated undertaking, HIT requires both an immense budget and unique collaboration between private- and public-sector partners.	The government has already contributed significant financial resources to HIT development, but now needs to inject a handsome amount of budget to propel HIT implementation. Hospitals alone cannot and will not cover the cost of adoption.

Political Commitment

Challenges	Proposed Solutions and Current Measures
The amount of work to be done, the resources required, and the time scale for HIT adoption are all tremendous. Thus, HIT implementation requires an unwavering commitment from the government, which the Ministry of Public Health has for the most part provided.	In order to show results and sustain official support from policymakers HIT adoption should be phased into smaller pilot projects, working in small steps to achieve the goal of a national health IT system.

Privacy and Security

Challenges	Proposed Solutions and Current Measures
The public has expressed anxiety over the possible abuse of widely available health data for discrimination in jobs and insurance eligibility.	This fear warrants careful consideration. Cautionary steps in preventing abuse, including national policies on information-sharing, should be introduced to ensure the pubic of anonymity and confidentiality.

IT Professionals

Challenges	Proposed Solutions and Current Measures
Shortages of IT professionals, especially in the public sector due to government headcount limitations present a challenge for the growth of HIT.	Creating incentives for those with IT skills to enter the healthcare realm are necessary.

Current Exemplars

HIT Standards in Hospitals	Major hospitals, such as Siriraj Hospital, Ramathibodi Hospital and Bumrungrad, a prominent private hospital in Bangkok, have incorporated the HL7 standard into their IT systems.
Pharmacogenomics Database Project	Thailand Center for Excellence in Life Sciences (TCELS), in collaboration with Mahidol University's Faculty of Medicine, Ramathibodi Hospital and Oracle Co. Ltd. (Thailand), is conducting a study in patients with Thalassemia, diabetes, cardio vascular diseases, rheumatoid arthritis, HIV/AIDS, leukemia in children, Dihydropyrmidine dehydrogenase, and post-traumatic stress disorder. The project's clinical database of patients with these different diseases will facilitate quick, cost-effective clinical research. Currently, the project's database system and its clinical data record program are complete and have passed preliminary testing. Ultimately, TCELS and its partners seek expand the project database into a national genetic database.

Future Direction

Thailand intends to develop an electronic medical record exchange system in a limited number of private and governmental hospitals. The system will follow the standard Clinical Document Architecture (CDA) format, which is based on the HL7 Reference Information Model standard. The "exchange" element of this system will take place among healthcare providers from different sectors within Thailand, as well as with the home institutions of some foreign tourists. The timeline for standards adoption is as follows:

- The CDA standard will facilitate a smooth transition to HL7, which will be become a nationwide standard in the foreseeable future.
- Level 2 CDA is relatively undemanding and easy to learn as it does not require much medical vocabulary coding. When all involved parties (i.e., hospital administrators, clinicians, and It professionals) feel comfortable using level 2 CDA, they will then

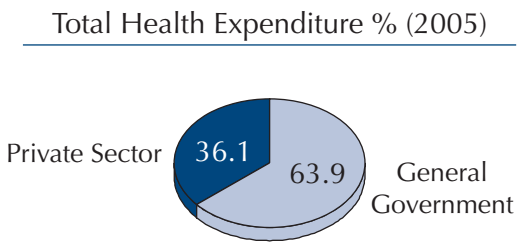
be introduced to the next step of Level 3 CDA, which requires more medical coding, such as SNOMED (Systematized Nomenclature of Medicine). There will be nationwide training programs for all systems.

- After the implementation of Level 3 CDA, the Ministry of Public Health will facilitate the HL7 migration for interested hospitals.

Healthcare Landscape

Expenditure

- In 2005, expenditure on health totaled 3.5% of Thailand's GDP.
- Private households' out-of-pocket payments represent 76.6% of total private expenditure on health.
- Total expenditure on health per capita is $96.
- General government expenditure on health per capita is $61.[1]



Coverage

Civil Servant Medical Benefit Scheme (CSMBS)	Social Security Scheme (SSS)	Universal Coverage Scheme (UCS)
• % of Population covered: 10 • Financed by: Ministry of Finance	• % of Population covered: 11 • Financed by: Social Security Office, Ministry of Labor	• % of Population covered: 79 • Financed by: National Health Security Office and Ministry of Public Health
A fee–for–service payment system, CSMBS provides medical coverage to government employees, retirees, and their dependents (including parents, spouses and up to three children who are less than 20 years old). This scheme is the largest in terms of expenditures involved and features the most extensive benefits package. Covered persons are entitled to free medical care in public hospitals and partial reimbursement for care in private hospitals.	The SSS provides seven types of benefits under the Social Security Fund (SSF) and three types of benefits under the Workmen's Compensation Fund (WCF) for workers working in enterprises with one or more employees. Employers and insured employees each pay 5% of wages to the Social Security Fund. The government contributes an additional 2.75%.	The UCS was introduced in October 2001 to provide essentially free medical care for all who are not covered by other systems, with small co-payments of 30 Thai baht per hospital visit. The program is designed to provide health benefits to those who cannot afford to purchase their own healthcare or health insurance. Within the UCS, the number of individual patient records currently totals about 6 million each year, with private and public hospitals combined.

[1] WHO values, calculated using the March 2007 exchange rate.

Private health insurance policies are also available for those who can afford the premiums, which are usually higher than that of well developed countries due to a narrower clientele. In addition to Western-style medical care, there are also alternative treatments for minor ailments such as Thai traditional medicine, Thai massage and spa.

Infrastructure

- There are 298 private and 1,185 public hospitals, with a cumulative total of 133,245 beds.
- Approximately two-thirds of Thailand's population of 64-million resides in rural areas. Although beds and doctors (in both public and private institutions) are concentrated in Bangkok, the government has built up primary care health centers in community hospitals in more than 90% of districts throughout the country. Most Thai healthcare professionals are employed by the government, but there is a new trend of medical professionals working full-time in private hospitals.