

eHealth/Digital Health and Health Information Systems in Thailand: an Update and the Next steps

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In 2010, the Ministry of Public Health (MOPH) of Thailand, with the support from WHO SEARO, conducted research on the eHealth situation in Thailand. The study found that Thailand lagged in laying down national eHealth foundations. The country's eHealth experts recommended that the country should put the development of eHealth foundations the priority. The recommendations are

1. Thailand should create a multi-stakeholder, national-level, eHealth governing authority to provide leadership and direction,
2. legislations related to health information security, privacy and confidentiality should be acted to protect people
3. national health information standards need to be developed to enable eHealth services interoperability and
4. systematic mechanism for capacity building of people who design, implement, operate and use of the eHealth systems has to be planned and implemented. [1]

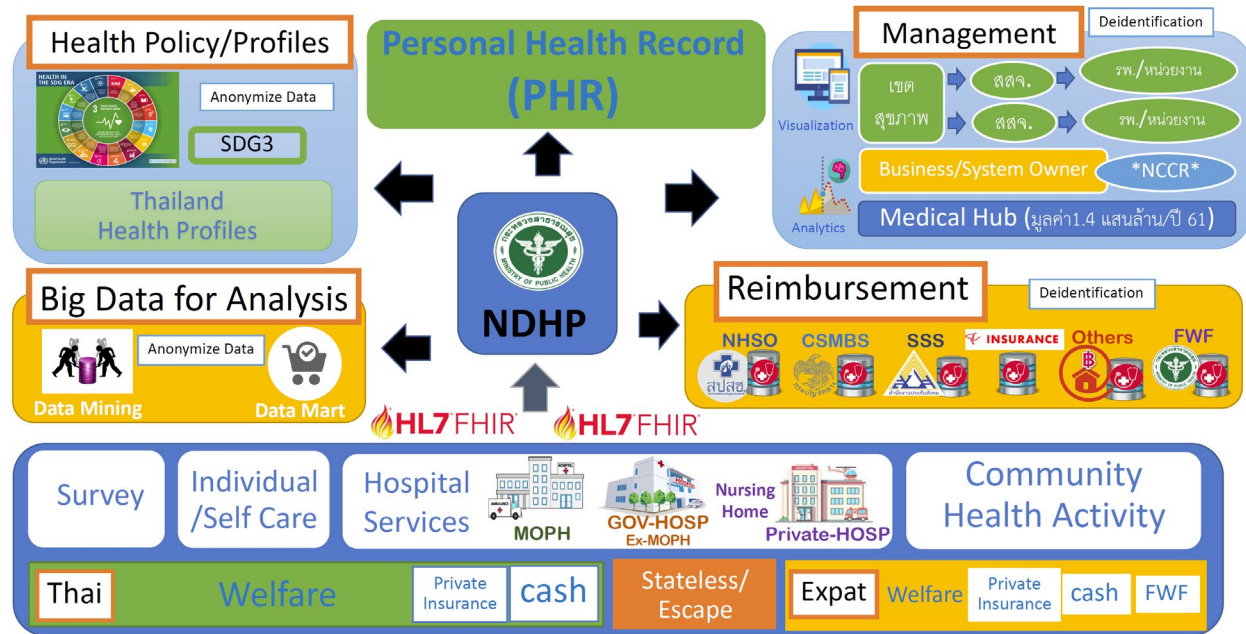
Since that time, there has been several health IT related stakeholders including the MOPH, the Ministry of Digital Economy and Society-MDES (formally ministry of information and communication technology), national health insurance agencies and many health systems reform committees of the Parliaments have proposed and attempted to establish the national eHealth/digital health governing mechanism and/or agency. However, the attempts to create the multi-stakeholder, national-level, eHealth/digital health governing authority to provide leadership and direction has not been realized.

The consensus-based eHealth/digital health national blueprint/architecture has also been an on-going endeavor. Currently (2020), MOPH's office of permanent secretary proposes the National Digital Health Platform (NDHP) [Figure 1] to health systems related stakeholders. The NDHP aims to integrate and standardized health data from all sources in health systems that will benefit every stakeholder including patients, providers, administrators and public health. The NDHP employs the OpenHIE architecture [2] in her national digital health platform.

Regarding legislations related to health information security, privacy and confidentiality, Thai government enacted the personal data protection act (PDPA) and the cyber security act in 2019. Both laws are general laws that cover all digital data from all sectors including the health sector.

In terms of health data standards and interoperability, Thailand has progressively developed and implemented several data standards. [Figure 2] The integrated national citizen ID system and civil registration and vital statistics (CRVS) system was implemented since 1982.[3] The national citizen ID has been used to identify an individual when the person transacts with both public and private organizations including healthcare organizations. The Ministry of Public Health in Thailand has developed, adopted, and implemented several health data standards. Most of these standards serve administrative purposes. Thailand had adopted ICD 10 since its inception (1990). Thailand modified and extended the WHO ICD 10 international to ICD 10 TM (Thai Modification). The main use is for public health reports and reimbursements. The ICD10 -TM and ICD9-CM (Clinical Modification) are used for coding diagnosis and health service intervention, respectively. Thai Diagnosis Related Group (TDRG) standard has been developed since 1992 as a financing tool for prospective payment systems. It progressively evolved and has been widely used for acute care in-patient reimbursement since 2002. The Ministry of Public Health also developed and maintained health facility registry and identification code (health facility IDs). In 2013, Thai Health Information Standards development center (THIS) under MOPH's Health Systems Research Institute (HSRI) developed the national medicine terminology and coding system, the Thai Medicines Terminology (TMT) in response to the request from the Comptroller General's Department (CGD), Ministry of Finance (MOF) to be used in the civil servant medical beneficiary system's (CSMBS) electronic claim information systems and later be implemented in MOF's electronic Governmental Procurement (eGP) information systems. The TMT, a concept-based terminology model, is the pharmacy Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT) extension in Thailand. In 2020, THIS is developing the Thai Medical Laboratory Terminology (TMLT) for CSMBS claim information system. TMLT is Thailand's modified Logical Observation Identifiers Names and Codes (LOINC) terminology system. Both TMT and TMLT now have been adopted nationwide. [4]

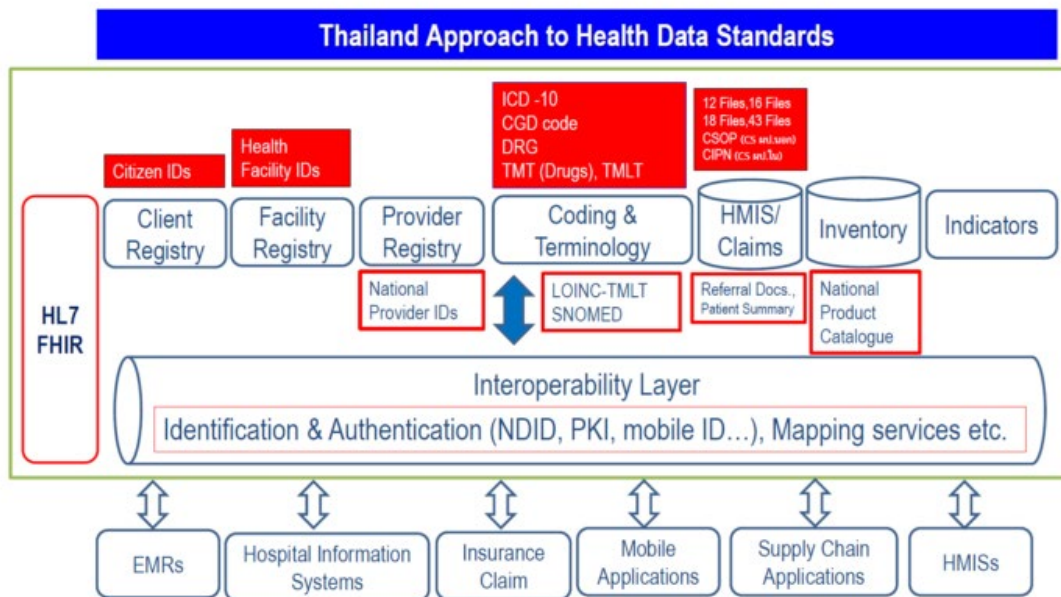
In the past two years, there have been many Health Information Exchange (HIE) projects piloting in Thailand They are pilot projects from several organizations including departments in MOPH, MDES, local health authority and telecom companies. Most of the projects are adopting Health Level 7 Fast Healthcare Interoperability Resources (HL7 FHIR) standard. In 2019, Standards and Interoperability Lab Thailand (SIL TH) was formed by a group of public and private health IT professionals who are working and interesting in developing standard-based digital health interoperability platforms for the country. SIL TH is a digital health sandbox that aims to learn and develop interoperability and health data standards for Thailand's health systems. SIL TH is one of the Asia eHealth Information Network's (AeHIN) Community of Interoperability Labs (COIL). Currently, SIL TH is learning and implementing HL7 FHIR in Thailand's health care context.



NCCR=National Chronic Care Registry *

Anant Kanoksilp

Figure 1 Ministry of Public Health's National Digital Health Platform (NDHP)



CGD = Comptroller General Department, TMT = Thai Medicines Terminology, TMLT = Thai Medical Laboratory Terminology, DRG = Diagnosis Related Group, HMIS = Health Management Information System, FHIR = Fast Health Interoperability Resources

Figure 2 Thailand approach to health information architecture (OpenHIE architecture) and health data standards

Next steps ahead

The four eHealth/digital Health/HIS challenges, identified by 2010 WHO-MOPH eHealth report, Thailand must overcome to establish an integrated effective national eHealth and health information systems is still illusive. Although, in the past decade, many digital health/HIS programs and projects have been initiated and implemented to fill the four challenge gaps, Thailand health information systems are still fragmented and not be able to effectively support the country health care, public health, and health systems. The urgent need of the Thai health systems to create a collaborative digital health governance mechanism to lead the development of the country digital health and integrated health information systems is eminent. Development of national health information architecture and data standards are essential to integrate and interoperate the current fragmented health information systems. The third important area concerns PDPA and cyber security law on health data management and sharing. Compliance with the PDPA legislative requirements will require all health stakeholders to set-up and update systems for data security which will require a lot of technical supports and financial resources. Additionally, availability of data to conduct research, discover knowledge are important for informing healthcare service, public health, health policy and management. Thailand has committed to an open data policy. However, integrating, accessing, securing, and sharing health data while protecting people privacy remains an area that need to develop and support further in the country.

Reference

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