Institutionalizing National Health Account: Experiences from Thailand
International Health Policy Program
16 December 2008

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Table of Contents

I. Introduction ...................................................................................................................... 2

II. Institutionalizing NHA: a historical review and assessment ....................................... 2
   A. Motivation of NHA initiative ..................................................................................... 2
   B. Phase 1 - Incubation period, 1994 NHA ................................................................. 3
   C. Phase 2 Capacity consolidation period, 1996 and 1998 NHA ............................... 4
   D. Phase 3 Institutionalization period, 1994 to 2001 NHA ....................................... 6
   E. Fully institutionalization: regular updates and NHA diversifications ............... 7

III. Utility of NHA .............................................................................................................. 8
   F. The assessment .......................................................................................................... 8
   G. Progress to date ....................................................................................................... 9

IV. Conclusions .................................................................................................................. 9
Acknowledgments ............................................................................................................. 10

Figures
Figure 1 Amount of THE and ratio of THE to GDP, constant price, 1994-2001 .......... 12
Figure 2 Trend of recurrent expenditure by provider, 1994-2001 ............................... 12
Figure 3 Long term THE projection 2006 to 2026 based on 1994-2005 NHA .......... 13

Tables
Table 1 Total Health expenditure of Thailand 1994, 1996 and 1998 comparison of two sources .......................................................................................................................... 11
Table 2 strategic approaches in institutionalizing NHA at different stages ............ 11
I. Introduction

Prior to National Health Account development, there were a number of attempts to estimate health expenditure, dated back to USAID support in healthcare financing in general in 1983, followed by estimate health expenditure by Mongkolsmai and Berman in 1986. However, it was a one off effort; there was no capacity to establish NHA. Thailand Health Profile, a regular publication by the Ministry of Public Health also provided estimate total health expenditure, dated back to 1970s, however this was only an aggregate total estimate.

The Thai National Health Account (NHA) was initiated by the Ministry of Public Health, Health Planning Division in 1994 and fully institutionalized by 2000. International Health Policy Program (IHPP) designated by the MOPH as national NHA focal point, together with its partners are responsible for annual NHA update. By early 2007, a long series of 1994-2005 NHA, with the application of three dimensional matrices, recommended by OECD Systems of Health Account (SHA) was available.

By end 2008, two more years of 2006-2007 NHA will be updated by IHPP et al. We found NHA has practical utility for health financing analyses, monitoring expenditure size and profiles, a foundation for medium to long term financial projection with the applications of various methods and assumptions. In the recent major health reform in Thailand towards Universal Coverage (UC), NHA in addition to other information support the design of financing configurations.

Based on hand-on experiences by the authors since 1994 NHA inception, this paper describes and analyzes actors, strategies and processes, enabling factors and challenges in institutionalizing NHA both technical and organizational dimensions, in order to draw lessons for other developing countries, who so wish to establish, maintain and institutionalize NHA.

II. Institutionalizing NHA: a historical review and assessment

Given a number of references defining institutionalization of NHA [1,2,3], country specific experiences of institutionalization is required. In this paper, the operational definition of institutionalization covers (1) capacity to generate reliable national administrative health expenditure datasets in particular by three groups of financing agencies: government, households and donors; and where necessary to improve the reporting of these administrative or survey datasets to suit the NHA matrices; (2) human and institutional capacity to produce regular (preferable annual or biannual basis) meaningful NHA matrices for national use and where feasible, facilitates international comparison; (3) capacity to link between NHA and academic uses or policy decisions; and (4) capacity to improve the reliability, accuracy and of NHA and diversify NHA for national interests.

A. Motivation of NHA initiative

There is a need to know how much Thailand spent on health of the population; this starts a long march quests for answer. In 1993, we visited and interviewed officials in the National
Account Division of the National Economic and Social Development Board (NESDB), which have been responsible for producing National Income and Expenditure Account since 1967 based on guidelines proposed by the United Nations Systems of National Accounts (UN SNA). The national account was first published in 1953. UNSNA applied “production” approach, whereas NHA is based on “consumption” approach.

We found health expenditure reported in National Account was not useful for health financing policy analysis and monitoring, as the aggregate figure did not allow understanding the profile of spending by healthcare functions (e.g. outpatient, inpatient and ancillary services), providers and sources of financing.

Also the doubt in methodology of “drug and non-drug” approach of UN SNA to estimate health expenditure, with the application of percent mark-up of medicines from an obsolete reference; data deficiencies on drug production and imports should result in unreliable health expenditure estimates \[4\]. In 1993, we were unable to convince National Account Division to produce and host a satellite account specifically for health.

We classify NHA development since the inception (1994) to institutionalization in 2001 into three phases.

**B. Phase 1 - Incubation period, 1994 NHA**

In 1993, our requests for advices from the University of Philippines, who got USAID technical supports to produce Philippine NHA got no replies. Decision was made to produce NHA prototype based on an “open-book-do-it-yourself” manner. We decided to live on our own, with no expert advices. The references we consulted were WHO publications in the 1980s, by the late professor Brian Abel-Smith and his colleagues \[5, 6\].

In this phase, NHA was a research project; it secured funding support from local resources provided by Health Systems Research Institute (www.hsri.or.th), with two aims: to establish country specific methodologies and team building. The prototype NHA seemed to be a by-product; which could be improved when more capacities were acquired.

NHA Team of not more than 12 key researchers who worked on part time basis for NHA; consists of strategic partners from various government agencies. Involvement, engagement and learning together on how to produce NHA by relevant actors are essential in the inception and for long term sustainable NHA production.

These strategic partners are

- National Statistical Office, responsible for biennial (now annual) Socio-Economic Survey (SES), a national representative household income and expenditure survey. SES is the most comprehensive dataset of household expenditure on health.
- NESDB, a cross ministerial policy and planning body, responsible for producing National Account; health is one of the national account. This also ensures harmonization between national account and NHA in the future.
• Ministry of Public Health, one of the major financing agencies as well as the main user of NHA
• Ministry of Finance, e.g. Comptroller General Department responsible for expenditure records across all public sectors including health.
• Academic institutes.

One simple three dimensional matrix of 1994 NHA prototype was produced. There are 12 financing agencies, public and private providers and simple healthcare functions such as outpatient, inpatient, prevention and health promotion, and capital formation.

This was published in Health Policy and Planning in 1999\textsuperscript{[7]}. The 1994 NHA reported the Total Health Expenditure (THE), which included consumption and capital formation, 3.56% of GDP whereas UN SNA estimated consumption expenditure on health 5.01% GDP, a discrepancy 1.5% GDP was substantial. Also there was a large discrepancy on proportion of public and private sources of finance.

The prototype NHA had no policy use in this phase. However, a contradictory result led to further investigation of both estimations. However, the NESDB is the official reference on national health expenditure.

The main outcome of this phase is a critical mass of committed researchers, while 1994 NHA seems to be a by-product. This is a national asset for sustainable development. If expertise was imported from outside country without building national capacity, the following development and NHA updates would be hampered.

A genuine partnership between the NHA team and the National Statistical Office (NSO) was gradually built up and sustained to date. We were successful in convincing the NSO to amend their SES questionnaire on household health expenditure to break down the expenditure into ambulatory service provided by public and private providers; and inpatient in public and private hospitals. The most important modification is on time references: expenditure on ambulatory care in the past month and admission in the past year were asked instead of asking inclusive health expenditure in the past month by the household. These specific questions capture more accurate household spending on uncommon events of admission in the past year than asking for the past month. As household expenditure in the NHA, a large proportion of THE, relies solely on SES; then a partnership with the NSO is an essential, a foundation for regular improvement of survey tools for household health expenditures.

In conclusion, though the NHA has no policy utilities, Phase 1 is really a methodological learning and team building, an exposure of partner agencies to the concept and potential utility of NHA, and improvement of SES for accurate household health spending.

\textit{C. Phase 2 Capacity consolidation period, 1996 and 1998 NHA}

The HSRI continued to sponsor the second phase; the technical objectives were to fine tuning methodology focusing on more reliable household spending and facilitate
international comparison with the application of OECD SHA three dimensional concept\cite{8,9}. The development objective was to consolidate capacity on NHA.

The output of this phase were 1996 and 1998 and the amendment of 1994 NHA \cite{10}. Almost the same group of researchers fully participated. The outcome is more reliable household health spending on ambulatory and inpatient care; the specific reference period was applied, one month for outpatient and one year for admission in the SES questionnaire and also link with expenditure in public and private providers.

In this phase, the strategic developmental objective was to closely engage the NESDB. The NESDB is the definitive stakeholder, as it produces health expenditure in National Account. A steering committee chaired by the Secretary General of the NESDB was appointed to oversee Phase 2 of NHA; NHA team reported the committee regularly. This aimed to implicitly harmonize methodological approaches between NHA and UNSNA and convince NESDB to host NHA. The outcome of this phase was high policy level commitment on NHA, but unfortunately, the NESDB was still reluctant to act as a hosting agency due to heavy routine workload such as quarterly GDP estimate for the government.

Compare NHA to UNSNA, the total health expenditure of 1996 and 1998 NHA were 3.72\% and 3.84\% of GDP respectively, whereas the NESDB estimate were 5.08\% and 5.34\% GDP \cite{11}. Furthermore, the ratios between public and private sources have great discrepancies: 53:47 and 61:39 for 1996 and 1998 NHA; but the NESDB estimates were 26:74 and 31:69. See table 1.

One major shortcoming needs to be emphasized. Since the first phase, we failed to convince the NESDB – the legitimate stakeholder who produces the National Account and a cross cutting Ministry agency who may better command intersectoral collaboration to host NHA. NESDB felt that the MOPH should be main host and has vested interest to use NHA.

In addition, apart from “old-face” team, we were not successful in convincing other partners in financing agencies to amend their expenditure reports according to the NHA matrix. The same problem was repeated in phase 2; not only did the NHA team had to refine the aggregate data; there was a severe lack of disaggregate data by healthcare function and providers. Various sources of survey data are required to manipulate these breakdowns.

The most invaluable asset is the close collaboration with the NSO, which could provide proper breakdown of household expenditure by outpatient, inpatient, use of ancillary services in public and private providers.

The application of OECD SHA facilitates international comparison and attracts attention of WHO and international audiences. Application of international definitions gains international recognitions.
D. Phase 3 Institutionalization period, 1994 to 2001 NHA

The HSRI continued to provide funding support for the third phase. As technical capacity and NHA team commitments were consolidated during the previous two phases, it was feasible to set the strategic objective of institutionalizing NHA.

The output of this phase was the production of a complete series of 1994 to 2001 (Phase 1 produced 1994, Phase 2 produced 1996 and 1998) with the application of three dimensional matrices. Note that the biennium nature of NHA is a result of biennial cycle of SES. The odd year where SES was not available, statistical extrapolation based on trend was applied for household health expenditure.

A number of possible choices of hosting institutions, e.g. NESDB, the MOPH –Bureau of Policy and Strategy, or the International Health Policy Program*, Thailand. In a consultation on whom to host NHA, the MOPH Deputy Permanent Secretary decided to designate IHPP to host long term NHA and to be a national focal point on the ground of expertise, continuity and its full commitment. It commits to provide financial support for routine NHA production.

In Phase 3, a series of 1994-2001 NHA [12] was produced with the application of three dimensional matrices: health care financing X health care function X health care providers. See Figure 1 and 2.

As household out of pocket spending is a major share, efforts were given to improve the reliability of household health spending. Health spending reported by the household in the SES could be under-estimated especially when full proxy respondents who are head of household or the most knowledgeable person responded on behalf of all eligible members on their health expenditure.

In phase 3, a special survey to repeat interview of the SES sub-sample households 2 weeks after the SES interviews finished. This is called Post Enumeration Survey –PES as a quality control in large survey. PES was supported by HSRI and conducted independently by IHPP field workers, with collaborative support from the NSO in providing the SES sub-sample households to produce correcting factors to adjust the discrepancy between proxy SES respondents to the non-proxy respondents. However, the small scale PES due to budget limitations, limits the use of correcting factors. We decided not to use them.

Discrepancy of NHA and NESDB estimates remain an outstanding issue; reconciliation is required in the future. Methodological weakness of both NESDB estimates and NHA should be assessed and corrected.

The discrepancy between NHA and UN SNA is understandable and unavoidable; as both applied different definition and methods. We never aim that the two approaches would produce the same figures; but we need to understand what and why are the discrepancies?

* IHPP is a research arm of Bureau of Health Policy and Strategy but got a semi-autonomous status
This aims to improve methodologies applied by both to reduce the unjustified discrepancies.

Note that the process of reconciliation between UN SNA and NHA is ongoing, whereas the NESDB and NHA teams work together to improve methodological approaches.

**E. Fully institutionalization: regular updates and NHA diversifications**

The MOPH provided full support to IHPP and its partners in and outside the MOPH for the sustainable production and maintenance of NHA. NHA was downloaded and available in the IHPP website ([www.ihpp.thaigov.net](http://www.ihpp.thaigov.net)).

IHPP did not conduct estimate every single year, but on a batch mode nature. For example, by the end of 2006, a new series of 2002 to 2005 NHA was available; this added to the long series of 1994 to 2005. By the end of 2008, a new series of 2006 and 2007 NHA would be available, and would add to a complete series of 1994 to 2007.

It should be noted that in 2002, Thailand had achieved universal coverage. The UC funded by general taxation significantly eases financial burden on health by the households. When household spending become a smaller proportion in THE, it increases the accuracy of NHA estimates as data capturing on the spending by public financing sources was very accurate at least in an aggregate term.

In 2004, the production of the National AIDS Account (NAA) supported by UNAIDS, applied the concept and principle of NHA, experiences and human capacity on NHA production. Similar to Mexico who was the lead in NAA in the Latin America region; Thailand was the lead in Asia Pacific. A four year series of Thai NAA 2000 to 2003 [13] was produced, with the aim of informing national policy makers on the magnitude and profile of HIV/AIDS expenditure. IHPP continued updating NAA and contributed to the estimate for UNGASS 2008 report. [14]

Based on Thai NAA, UNAIDS sponsored the development of National AIDS Spending Assessment (NASA a new name which is similar to NAA) in countries in Asia Pacific (Cambodia, Lao PDR, Philippines, Thailand and Vietnam) with technical supports by IHPP; a five year series of 2000-2004 NASA was produced on a two matrix of healthcare function X financing agencies. Five main functions of NASA were (1) prevention-related activities, (2) treatment and care components, (3) orphan vulnerable children, (4) AIDS program costs, and (5) Human resources receiving wage benefits.

By mid 2008, a long term (20 years) financial projection of total health expenditure, based on 1994 to 2005 NHA, to 2006 to 2026 was almost finalized, by EU Funded Health Care Reform Project hosted by the National Health Security Office [15]. The long term projection relied on the NHA long term series. See Figure 3.

By October 2008, IHPP conducted a Medium Term Economic Framework for health sector for the 10th National Economic and Social Development Plan which proposed several
scenarios for the government to invest more in prevention and health promotion to address the chronic non-communicable epidemics.\textsuperscript{[16]}

There was an exponential growth in the development of hospital administrative data especially on clinical data, such as ICD and diagnostic related group for inpatients and expenditure for each of the clinical services provided for an individual record. This national IP dataset facilitates another major methodological advancement for NHA to estimate total health expenditure (especially curative care) by diseases categories which is able to link with the burden of diseases. IHPP and partners has recently developed a methodological approach to diversify the conventional three dimensional matrices to expenditure by diseases categories, age group and gender.

In 2008, a working group between NESDB and IHPP was appointed to harmonize the data in UNSNA using the conventional drug and non-drug approaches but with better data and estimate of percent mark up. The results would be a new revised version of National Account report.

Based on a solid OECD SHA NHA report, IHPP and partners continued to diversify and seek for methodological advancement to improve the NHA for advance policy utilities.

\textbf{III. Utility of NHA}

NHA were posted on the IHPP Website (www.ihpp.thaigov.net) in various types of presentation e.g. three dimensional matrices, Excel form to facilitate further analysis by interested parties and policy briefs.

The most important entry points of NHA policy utility is when a policy decision required information on health expenditure. For example the long term forecast of financial needs for universal access to anti-retroviral drugs or renal replacement therapy when compares with the long term forecast of Total Health Expenditure, with the application of long series of NHA, provides strong foundation for policy decision if country can afford these universal programs.

\textbf{F. The assessment}

In April 2001, an in-depth interview survey of 33 key informants who are executives in public agencies and academics was conducted by IHPP. The response rate was 61%. We found that almost all key informants have heard of, read about NHA and other documents referring to NHA, but they do not have a thorough comprehension of NHA.

In their perspectives, NHA is a health system diagnostic tool for evidence base policy making. It is very essential for technical level policy analysts but does not significantly play in policy making processes as such. NHA has limited use for health systems reform as reform requires multiple tools outside NHA. It is useful for teaching and academic purposes. Unfortunately, NHA is not used for official reference; it also generates a conflicting result with NESDB existing official series. It is useful to provide a breakdown
of expenditure to ambulatory, hospitalization, public health programs by type of providers, whereby SNA could not.

Current limitations were identified (in 2001). NHA was working under several limitations, for example, the fragmentation of financing schemes and lack of national body responsible for overall health expenditure direction and reorientation. NHA has yet to reflect issues of efficiency and equity. However, it does not link with current resource allocation and budget preparation and re-allocation of resources. The Bureau of Budget still maintains the itemized budget by program instead. This posed severe limitations to fill up NHA matrix

Key informants reflect the potential uses of NHA; for example, there is a possibility to further breakdown by beneficiary group to reflect equity and redirect spending towards societal goals of efficiency and equity. A good time series NHA data facilitate projections and modeling.

In conclusion, there is limited utility of the NHA by health policy makers. Problems regarding contradictory figures between the two estimates are waiting to be solved. The recent World Health Report 2000 on health system performance comparing health system goal attainments and per capita health expenditure in international dollar term; if the NHA data (having lower spending) was used as reference, it would place Thailand in a better performance rank. The World Health Report 2000, referred to the NESDB estimate (with higher spending) which is the official reference.

G. Progress to date

By 2008, most of the problems identified in 2001 survey were addressed, for example the achievement of Universal Coverage results in greater role of public sources of financing whereby systems for data capturing was well designed with strong involvement by IHPP and other partners. The diversification of NHA to diseases categories, burden of diseases and genders were accomplished by 2008; except the spending by geographical provinces.

IV. Conclusions

From the assessment of NHA institutionalization, we perceive institutionalization as capacity strengthening in different dimensions (development objectives, technical objectives and human resources objectives) at different stages of development.

Table 2 summarizes the strategic approaches, strengths and weakness and lessons learned for other developing countries. This includes various stage of NHA institutionalization where different development, technical and human resource development objectives applied. It is not necessary to apply the same method of data collection and single reporting format for all countries, but it must come from the national health system and financing contexts. For example, the Thai NHA had modified the International Classification of Health Care Function (ICHC) and Health Financing sources, to suit the Thai health system context. It is not suitable to adopt all recommendations provided by OECD SHA.
National policy utility is the “primary objective” of having a NHA. It is the most important factor to ensure ownership and sustainable NHA, whereas international comparison is the “secondary objective” which will follow when there is more capacity and policy needs to do so.

Capacity building is complex and time consuming processes [17]. However, experiences demonstrate a number of enabling factors. First and foremost is the commitment by NHA team. It is not difficult to learn how to conduct NHA, but the most difficulty is to maintain interest and long term commitments. Unavoidably, experiences showed turnover of members of NHA team in different agencies, but the lead institute (now is IHPP) remains. This ensures continuity, experiences and memories. Second, self-initiation ensures sustainability and ownership. Third, NHA team is not only responsible producing NHA, but also diversifies its function to a broader research and policy works related to healthcare financing and health systems. This broadens their scope and understanding of financing and potential use of NHA. Finally, intersectoral collaboration and access to national dataset is important for successful input for NHA.

NHA institutionalization must be generated by local initiatives with possible supports from outside expertise whereby donors can play a role. Fast or slow pace of institutionalization depends on commitments and other determinants. It does not matter how fast the process it as long as NHA is well rooted. Experiences showed no quick-fix of NHA institutionalization.

Acknowledgments

The authors wish to acknowledge the financial contributions by HSRI for the development of Thai NHA since the inception in 1994, and MOPH continued support to maintaining and updating NHA. Special thanks go to other government partners in their efforts to support a sustainable development of NHA in Thailand. We wish to recognize the contribution on NHA by Drs Adit Laixuthai, Sathirakorn Pongpanich, Sopon Tatiyanunphong and other colleagues in various agencies since 1994
Table 1 Total Health expenditure of Thailand 1994, 1996 and 1998 comparison of two sources

<table>
<thead>
<tr>
<th>Data source</th>
<th>Public sources</th>
<th>Private sources</th>
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<tbody>
<tr>
<td>NHA-IHPP</td>
<td>49%</td>
<td>53%</td>
</tr>
<tr>
<td>UNSNA-NESDB</td>
<td>23%</td>
<td>26%</td>
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Table 2 strategic approaches in institutionalizing NHA at different stages

<table>
<thead>
<tr>
<th>Phases of NHA institutionalization</th>
<th>Development</th>
<th>Technical</th>
<th>Human resource</th>
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<tbody>
<tr>
<td>Phase 1 Incubation phase.</td>
<td>1. Local initiatives, research project base 2. Local funding from HSRI for NHA development 3. Involvement of strategic partners into the team since the beginning 4. No policy utilities, discrepancies between two estimates (NHA and UNSNA)</td>
<td>1. Establish country specific methodologies 2. Definition and scope of health expenditure</td>
<td>Team building, local initiation, ownership and long term commitments,</td>
</tr>
<tr>
<td>By product: prototype of 1994 NHA</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Phase 2 Consolidate phase,</td>
<td>1. Continued local funding from HSRI 2. NESDB involvement in steering committee aims to facilitate long term harmonization NHA UNSNA 3. Strategic partnership with NSO for SES amendment 4. Limited policy utility, discrepancies between NHA and UNSNA exists</td>
<td>1. Application of OECD SHA facilitated international comparison and policy utility of 3 dimensional matrices 2. Improvement of the accuracy of household health expenditure in SES, modification of questionnaire in consistent with NHA matrices 3. Improvement of reporting of public source of finance consistent with NHA matrices, but not successful</td>
<td>1. Foster team building, 2. Retention of expertise, more than 90% of the team members were from the phase 1</td>
</tr>
<tr>
<td>Product: 1996 and 1998 NHA</td>
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<tr>
<td>Phase 3 Institutionalization phase.</td>
<td>1. continued funding from HSRI 2. Appointment of IHPP as national NHA focal point 3. Full use of NHA for policy analysis 4. NHA was use for long term financial project by IHPP-ILO project [18]</td>
<td>1. Attempt of post-enumeration survey to produce correcting factors between proxy and non-proxy respondents was not successful</td>
<td>1. Full functioning of NHA team 2. Continuity of expertise</td>
</tr>
<tr>
<td>Product, 1994 to 2001 NHA</td>
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<tr>
<td>Beyond NHA institutionalization.</td>
<td>1. Regular funding is secured for the maintenance and updates of NHA 2. Extensive use of NHA for long term financial forecast, application for MTEF</td>
<td>1. Diversification of NHA to National AIDS account, expenditure by diseases categories, gender and age groups</td>
<td>Full functioning of NHA team</td>
</tr>
<tr>
<td>Products NHA, with three dimensional matrices, and diversification to diseases account and health expenditure by disease categories</td>
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Figure 1 Amount of THE and ratio of THE to GDP, constant price, 1994-2001

![Amount of THE and ratio of THE to GDP, constant price, 1994-2001](image)

Figure 2 Trend of recurrent expenditure by provider, 1994-2001

![Trend of recurrent expenditure by provider, 1994-2001](image)
Figure 3 Long term THE projection 2006 to 2026 based on 1994-2005 NHA

Expenditure Share in GDP of Financing Agencies - Long-term Trends
References


