

REVIEW OF NATIONAL CIVIL REGISTRATION AND VITAL STATISTICS SYSTEMS: *A case study of Thailand*

By Thai Health Information Standards Development Center (THIS)
Health Systems Research Institute

March 2013



Inside Front Cover

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Review of National Civil Registration and Vital Statistics Systems: A case study of Thailand

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Preface

Vital statistics provide essential information for monitoring the progress towards achieving the United Nations Millennium Development Goals (MDGs). Well-functioning and reliable civil registration and vital statistics systems (CRVS systems) are not only needed for national development, monitoring and evaluation systems, but also for organizations to plan and manage their operation and programs. Well-functioning civil registration systems are the best data source for reliable vital statistics. However, more than half of the countries around the world do not have CRVS systems or, if they do, they do not function well. The United Nations (UN) and the World Health Organization (WHO) recognize and are aware of this issue and are facilitating member countries to evaluate and improve their CRVS systems.

In 2011, WHO and the University of Queensland, Australia, developed a standard tool called, “Strengthening practice and systems in civil registration and vital statistics: A Resource Kit”, in order to strengthen CRVS systems. WHO and many UN organizations, such as the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), encourage and assist member countries to use this tool.

CRVS systems have existed in Thailand for many decades, but have not been systematically evaluated. Therefore, an assessment was a key step to understanding the status of the current system and identifying areas that need improvement. The Thai Health Information Standards Development Center (THIS) and other key stakeholders, such as the Ministry of Public Health, National Statistics Office, and Ministry of Interior, came together to evaluate the CRVS system using the WHO Rapid Assessment of National Civil Registration and Vital Statistics Systems tool.

This report outlines the methodology and findings from this rapid assessment. It contains three main sections: chapter one describes the background and history of Thailand’s CRVS system; chapter two describes the assessment objectives, the tool and evaluation process; and the final chapter provides an analysis of results and recommendations.

It is hoped that the assessment will be informed Thai policy makers, administrators and others involved in CRVS of the system’s strengths and weaknesses and hope to gain their support for further system improvement.

Thai Health Information Standards Development Center (THIS)
Affiliated organization of Health Systems research Institute (HSRI)

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This report presents the results of a comprehensive assessment of the national Civil Registration and Vital Statistics (CRVS) system of Thailand. Valuable inputs and comments to each question from the tool were provided by key stakeholders in the CRVS, namely, Ms. Apinya Ounruen, Ms. Tippawan Jitrat, and Mr. Susorod Pungboon from The Bureau of Registration Administration (BORA) of the Ministry of Interior (MOI), Ms. Chujit Nacheewa, and Ms. Orapin Saphon from The Bureau of Policy and Strategies (BPS) of the Ministry of Public Health, and Ms. Pattama Amornsirisombul, and Ms. Orawan Suthangkul from the National Statistics Office (NSO) of the Ministry of Information Communication and Technology and Dr. Kanitta Bundhamcharoen from The International Health Policy Program (IHPP).

Appreciation to Economic and Social Commission for Asia and the Pacific (ESCAP) which support the budget for this project and important contributions were also provided by participants from other institutes, including the Thai Health Information Standards Development Center (THIS) of the Health System Research Institute (HSRI), the National Health Security Office (NHSO), the Institute for Population and Social Research of Mahidol University and the Office of the National Economic and Social Development Board (NESDB).

This report documents a comprehensive assessment of the Thailand CRVS system. It is a continued process recommended from the rapid assessment. This will require the continuing participation of all stakeholders, further strengthening the network and collaboration between actors in the CRVS system. Conducting a comprehensive assessment and implementing the recommendations should increase the quality of information used in the development of national health policies and plans.

Acronyms

BORA	Bureau of registration Administration, Ministry of Interior
CRVS	Civil registration and vital statistics
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ICD-10	International statistical classification of diseases and related health problems, 10th revision
MOI	Ministry of Interior
MOPH	Ministry of Public Health
NHSO	National Health Security Office
WHO	World Health Organization

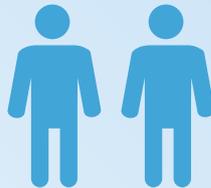
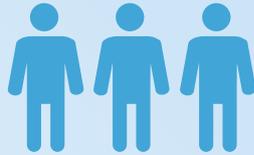
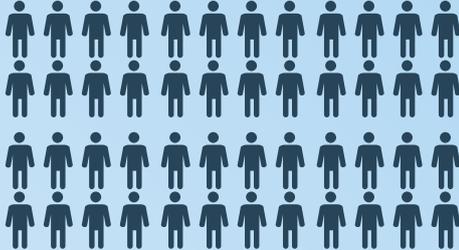
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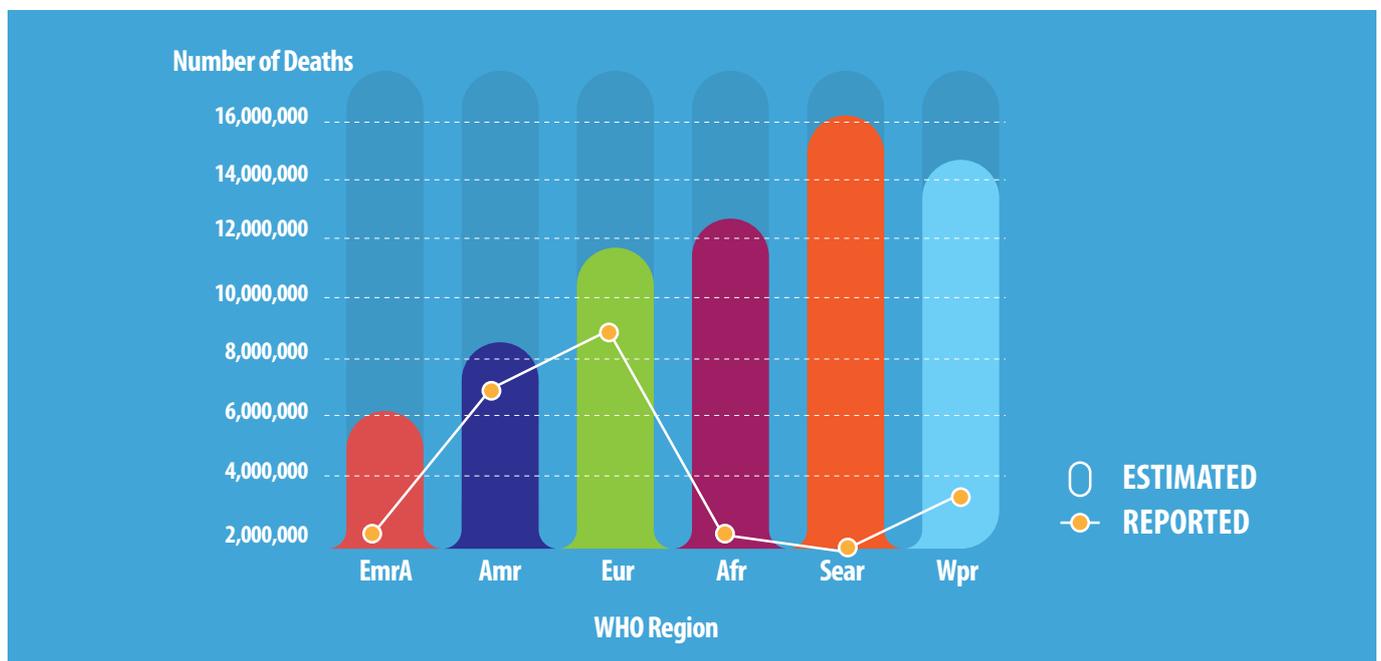
REGISTER SYSTEM



INTRODUCTION

Civil registration systems are used to record vital events such as births, deaths, and marriages. They have the potential to serve as the main data source for national vital statistics. However, in many developing countries, civil registration and vital statistics systems are weak or nonexistent and, as a result, key demographic, fertility and mortality statistics are not available on a continuous basis and do not cover the total population. Vital statistics are the cornerstone of a country's health information system. As **Figure 1** shows, data from 2007 show a huge gap between the estimated versus reported deaths in South East Asia (SEAR) compared to other regions of the world.

FIGURE. 1 REPORTED DEATHS VERSUS ESTIMATED DEATHS, 2007



If continuous and complete information on the number of births and deaths, including the individual's sex, age and "cause of death", is not available, it is difficult to achieve real progress towards the fundamental goal of keeping people alive and healthy for longer. A first step in addressing any weaknesses is to undertake a review of the current status of the CVRS to identify areas that require improvement and prioritize actions. WHO and the University of Queensland (UQ) have developed a framework that provides countries with comprehensive guidance on how to conduct such an evaluation (Improving the quality and use of birth, death and cause-of-death statistics generated by Civil Registration).¹

OVERVIEW OF CIVIL REGISTRATION AND VITAL STATISTICS SYSTEM OF THAILAND

The Thai civil registration system has evolved significantly since its establishment a century ago. During the past three decades, the system has changed from a manual, paper based registration system, to an electronic, centralized and online system. Currently, all provincial registration offices and almost all of the district registration offices are linked online to a central civil registration system. Vital statistics were much improved from 1996 when the civil registration system of the Ministry of Interior (MOI) began providing electronic birth and death data directly into the vital statistics management system of the Ministry of Public Health (MOPH). The country has universal health care coverage, which was implemented when the national health insurance act was promulgated in 2002. Due to this, the insurance reimbursement data of the majority of in-hospital patients, containing standard coded disease data and status at discharge, are now available. These data are being used to enhance the quality of vital statistics.²

Records of births and deaths are accurately kept, but the quality of cause of death (COD) information remains a challenge. Completeness of death records is reasonably high, except for cases of early infant deaths (aged less than one year old). The major shortcoming of the system is the high proportion of ill-defined and misclassified causes of death. There are a number of reasons for this. One is the limited skills of physicians and health professionals to specify COD from a chain of illnesses. This is being addressed by in-service training for physicians and health professionals as well as the incorporation of COD training into pre-service training curriculum. Another reason for misclassification of COD stems from the fact that most deaths (60-70%) occur outside of hospital. These are typically classified as being from natural causes by the head of the village and civil registration officers who lack any medical training.² Thailand is using individual health care services data in the DRG system to validate and improve COD information. This can be done because of the unique citizen ID system and the availability of inpatient data in standard form from almost all hospitals.

Thailand has a long experience of civil registration and maintains a continuous and sustainable system, operated by central administration. Data on the population are kept at a national Computer Centre for Civil Registration, arranged according to the population identification number. The record for every person contains all information taken from a population register. Birth and death certificates are sent from registration offices throughout the country to be kept at the Computer Centre. The history of Thailand's civil registration system, responsible organizations, and regulation practices are summarized in **Table 1** to **Table 3**.³

TABLE I: HISTORY OF THE CIVIL REGISTRATION SYSTEM IN THAILAND

Year	Related history of civil registration system in Thailand
1909	<ul style="list-style-type: none"> The first legislation law was enacted Specifying the establishment and maintenance of a population register and of birth and death registration.
1917	<ul style="list-style-type: none"> Registration of births and deaths was enforced throughout the kingdom.
1936	<ul style="list-style-type: none"> The Civil Registration inMunicipal Area Act of 1936 was issued, which facilitated the creation of a network of local registry offices and acting registrars. It laid down clear guidelines for the registration of births, deaths, fetal deaths (for the first time), household and population registration, and directed the entry of births and deaths into the population register.
1956	<ul style="list-style-type: none"> A comprehensive civil registration act was passed, which was applicable to the entire country and superseded earlier laws. The Act required the population register to be prepared by household, starting with the head of the household. Improved facilities were offered for the reporting of vital events and an increased number of registration offices were created throughout the country.
1970-1972	<ul style="list-style-type: none"> Significant improvements were introduced in the civil registration system with a view to achieving a high level of accuracy and completeness in registration. All forms and registers were reviewed and revised. The birth and death registers were replaced by birth and death certificates, and the household register forms were replaced with new improved forms.
1972	<ul style="list-style-type: none"> The Civil Registration Act of 1956 was revised by Announcement No. 234 of the Revolution Council (established after the military coup d'état). It provided for the appointment of a hierarchy of registration authorities from central government to district level. It also established clear procedures for vital registration, specifying types of registrants, place and time for registration, forms, functions and responsibilities of registrars and other requirements for registration.
1973	<ul style="list-style-type: none"> The MOI issued the Regulation of Central Civil Registration Division of 1973, on the basis of which the provisions of the 1972 Act were implemented.

Year	Related history of civil registration system in Thailand
1982	<ul style="list-style-type: none"> • Significant improvements in the registration of births and deaths and in the population register were made after the MOI established “the Population Identification Number Project”. • This project paved the way to creation of a computerized population database. • A Computer Centre for Civil Registration was established in the Civil Registration Division, and was subsequently transferred to the Bureau of Registration Administration. • The population identification number, comprised of 13 digits, is sometimes called the “13 digits” number and has been used as the entry key to the population files ever since.
1991	<ul style="list-style-type: none"> • The Civil Registration Act of 1991 was passed, superseding the Act of 1956 and 1972.
2008	<ul style="list-style-type: none"> • The civil registration law enacted in 1991 was revised.
2011	<ul style="list-style-type: none"> • Thai citizens can get their ID cards from the age of seven years (previously age 15). The card has to be renewed every 6 years.

TABLE 2: RESPONSIBLE CIVIL REGISTRATION ACTORS IN THAILAND

Role or responsibility in CR	Organization or Position
The national authority for civil registration:	The Civil Registration Division under the Department of Local Administration, MOI
Duties of the central registration authority:	directing, coordinating, and supervising the registration function throughout the country
Registrar-General	Director of the Department of Local Administration
Deputy Registrar-General	Head of the Civil Registration Division
Records vital events in accordance with the regulations and instructions issued by the Civil Registration Division	Primary registration units are located in each municipality and district office.
Operates and maintains the data base for the entire population of the country, and issues identity cards and household booklets.	The Bureau of Registration Administration, MOI.

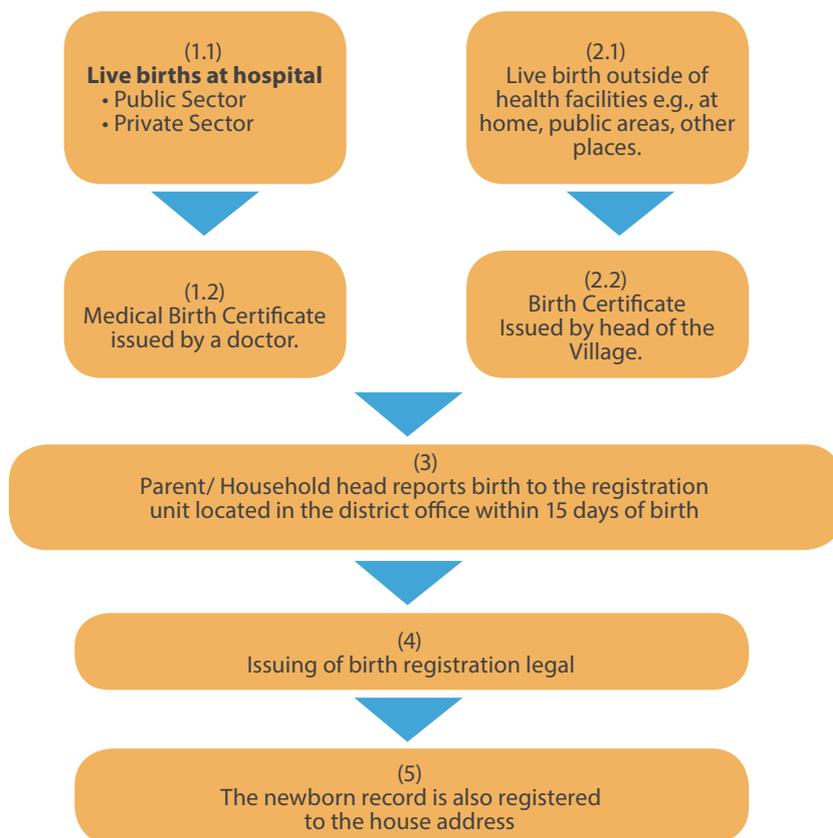
TABLE 3: VITAL EVENTS AND REGULATION PRACTICES IN THAILAND

Vital Event	Regulation practices in Thailand
Birth	<ul style="list-style-type: none"> • Must be registered within 15 days • Fine for late registration is not to exceed THB 1,000. • The head of the household or the baby's mother are responsible for reporting • Required documents for birth registration are the ID card of either the mother or father and a copy of the household booklet. The household booklet is then updated with details of the baby. • Two types of birth are defined: hospital birth, and out-hospital birth. The birth document is issued by the hospital or the head of the village. • Births outside of the country can be reported through the Thai embassy in that country. • The personal identification number is assigned by the District Registrar at the time of registration of birth, or whenever the individual enters into the population register for the first time.
Death and Still Birth	<ul style="list-style-type: none"> • Must be registered within 24 hours. • Two types of death certificates: one for deaths that occur in hospital, and another for deaths outside of hospital. The former case uses standard form of the WHO (Figure 3), and the latter uses the official form of the MOI (Figure 4). • The head of the household or the person who finds the body must report the event. • Required documents for the death report are the ID card of the reporter, the ID card of the dead person (optional), a death certificate from either the hospital or the head of the village, and a copy of household booklet of the dead person (optional). The household booklet of the dead person is then updated. • Locations to report deaths or still births are the same as for birth registration.

The processes for birth and death registrations are shown in **Figure 2** (a) and (b), respectively. **Figure 3** and **Figure 4** provide examples of Thailand's death certificate form for deaths in hospitals and outside health facilities, respectively. The international medical certificate of cause of death (**Figure 5**) is also used for deaths that occur in hospital.

FIGURE 2: PROCESSES OF BIRTH AND DEATH REGISTRATION IN THAILAND

A: BIRTH REGISTRATION



B: DEATH REGISTRATION

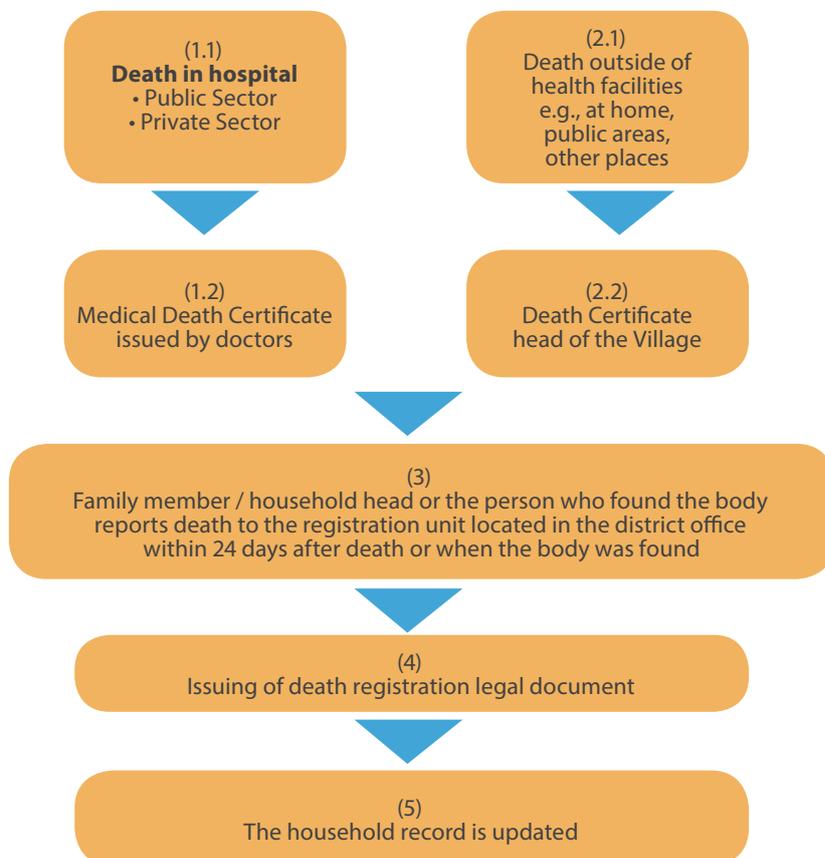


FIGURE 3: THAILAND'S MEDICAL CERTIFICATE FORM FOR DEATH OUTSIDE HOSPITAL

ใบรับแจ้งการตายสำหรับการตายนอกโรงพยาบาล (ท.ร. 4 ตอนหน้า)

At...../.....

Reported Place.....

Reported Date.....

1. Deceased Person Information	1.1 Firstname, Lastname		1.2 Personal ID □-□□□□□-□ □□□□-□□□□		1.3 Gender
	1.4 Age	1.5 Nationality	1.6 Occupation	1.7 Married Status	
	1.8 Address				1.9 Religion
	1.10 Date and Time of Death			1.11 Attending Doctor	
	1.12 Cause of Death Informed by Informant				
2. Place of Death	2.1 Last Hospital visit before death, provide hospital name and address				
	2.2 Address of place of death			2.3 Length of Stay	
3. Legal Document	<input type="checkbox"/> Personal Identification of informant..... <input type="checkbox"/> Authorized paper for head of household. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> House registration document				
4. Parents of Deceased	4.1 Mother: Firstname, Lastname		4.2 Nationality	4.3 Personal ID □-□□□□□-□ □□□□-□□□□	
	4.4 Father: Firstname, Lastname		4.5 Nationality	4.6 Personal ID □-□□□□□-□ □□□□-□□□□	
5. Informant	5.1 Father: Firstname, Lastname			5.2 Personal ID □-□□□□□-□ □□□□-□□□□	
	5.3 Address			5.4 Relation to the	
6. Dead Body	How to cremation		Place		

Signed by informant and authorized death certificate report person

.....

.....

(.....)

(.....)

FIGURE 4: THAILAND'S MEDICAL CERTIFICATE FORM FOR DEATH IN HOSPITAL



Hospital name and address
 Hospital Identification.....
 Report date.....

1. Deceased Person Information	1.1 Firstname, Lastname		1.2 Personal ID □-□□□□-□□□□-□□□□		1.3 Gender
	1.4 Age	1.5 Nationality	1.6 Occupation	1.7 Married Status	
	1.8 Address				1.9 Religion
2. Death information	2.1 Date and Time of Death		2.2 Attending Doctor		
	2.3 Cause of death in English, Capital letter a) b) (due to) c) (due to) d) (due to)			Length of time from diagnosis to death.	
	2.4 Other supported symptom or disease cause of death				
3. Place of Death	2.5 Thai descriptive language for registra to record		2.6 For woman, if pregnant please identify gestational ages or after delivery within 6 weeks.		
	3.1 Name and address of the place		3.2 Length of stay at this place		
4. Parents of Deceased	4.1 Mother: Firstname, Lastname		4.2 Nationality	4.3 Personal ID □-□□□□□-□□□□□-□□□□	
	4.4 Father: Firstname, Lastname		4.5 Nationality	4.6 Personal ID □-□□□□□-□□□□□-□□□□	
5. Certified person	5.1 Father: Firstname, Lastname			5.2 Personal ID □-□□□□□-□□□□□-□□□□	
	Type of health personal: doctor, nurse, other (identify)				

.....
Signed by certified person

FIGURE 5: INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH USED FOR DEATH IN HOSPITAL

Cause of death	Approximate interval between onset and death
<p>I</p> <p>Disease or condition directly (a) Leading to death* due to (or as a consequence of) Antecedent causes (b) Morbid conditions, if any, due to (or as a consequence of) Giving rise to the above cause. Stating the underlying Condition last(c) due to (or as a consequence of) (d)</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>II</p> <p>Other significant conditions Contributing to the death, but Not related to the disease or Condition causing it *this does not mean the mode of dying, e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.</p>	<p>.....</p> <p>.....</p>

Birth and death registration has been routinely used as the main source of birth and mortality statistics since the establishment of the civil registration system. The vital statistics system has evolved along with the civil registration from paper-based to an electronic system. Through close collaboration between MOI and MOPH, timely information regarding the number and health status of the population at national and provincial level are available to be used by any agencies that need them. The history of the vital statistics system and responsible organizations are summarized in **Table 4** to **Table 5**.⁴

TABLE 4: HISTORY OF VITAL STATISTICS SYSTEM IN THAILAND

Year	Related history of vital statistics system in Thailand
1920	<ul style="list-style-type: none"> The compilation of vital statistics was initiated
1942	<ul style="list-style-type: none"> A Vital Statistics Division was established in the MOPH
1993	<ul style="list-style-type: none"> The MOPH was restructured and the vital statistics function was moved to the Health Information Centre, Bureau of Health Policy and Strategy, Office of the Permanent Secretary, MOPH.
Before 1996	<ul style="list-style-type: none"> MOPH officers compiled birth and death statistics from paper forms provided by MOI's local and central registration offices. The process created discrepancies in birth and death counts between reports from provincial health offices sending to MOPH's health information centre and the MOI's Bureau of Registration Administration (Figure 6). In addition, the MOPH was unable to produce timely national vital statistics. A two to three year delay resulted from the labour intensive work required for MOPH officers to transcribe data from copies of MOI's birth/death certificates to the vital statistics system.
1996	<ul style="list-style-type: none"> To improve vital statistics, MOPH signed an agreement with the Department of Local Administration, MOI, regarding utilization of vital registration data from the central registration database of the administration. This was expected to reduce redundancy of birth and death data (Figure 7). Individual birth and death records from vital registrations were transferred electronically to the MOPH on a monthly basis. At the MOPH, the records are coded, using the International Classification of Disease, version 10 (ICD-10). The coded data were analyzed and reported for health planning and policymaking at both ministry and provincial level.
Since 2002	<ul style="list-style-type: none"> Health service records for reimbursement from public health insurance have been used to validate cause of death data from CR system.

Organizations have been allocated responsibility to generate both national and subnational statistics on births and deaths. The Bureau of Registration Administration (MOI) publishes a civil registration report classified by provinces and the Bureau of Policy and Strategies (MOPH) publishes annual vital and health statistics classified by gender, age, and province. Examples of these reports are shown in **Table 6** and **Figure 8**, respectively. Many other vital statistics are published by MOPH and are available at <http://bps.ops.moph.go.th/Statistic/Statistical%20Thailand%202011/statistic%20thailand.html>.

TABLE 5: RESPONSIBLE ORGANIZATIONS OR POSITIONS IN VITAL STATISTICS IN THAILAND

Role or responsibility in VS	Organization or Position
Compilation, statistical processing, and publication of vital statistics	• Ministry of Public Health (MOPH)

The civil registration system is effective. Compared to results from the 2000 national population census, the civil registration system captured 95 percent of the total population. Although counting of the number of births and deaths seems accurate, the quality of information regarding the cause of death (COD) is quite low. There is high proportion of ill-defined and misclassified causes of death.

There are many reasons for the low quality of COD. One of them is the limitation of physicians and health professional's skill on specifying COD from a chain of illness. This challenge is now mitigated by in-service training for physicians and health professionals about specifying COD and also the incorporation of COD training into pre-service training curriculum.

Another reason for the low quality of COD is that 60-70% of deaths occurred outside hospitals. In these cases COD information for the death certificate is provided by a relative of the deceased person to the village registrar who usually has no health or medical background. As a result, large numbers of COD information in civil registration system is ill-defined and questionable. Thailand is using individual health care services data in the DRG system to validate and improve COD information. This can be done because of the unique citizen ID system and the availability of inpatient data in standard form from almost all hospitals.

FIGURE 6: VITAL STATISTICS BEFORE 1996

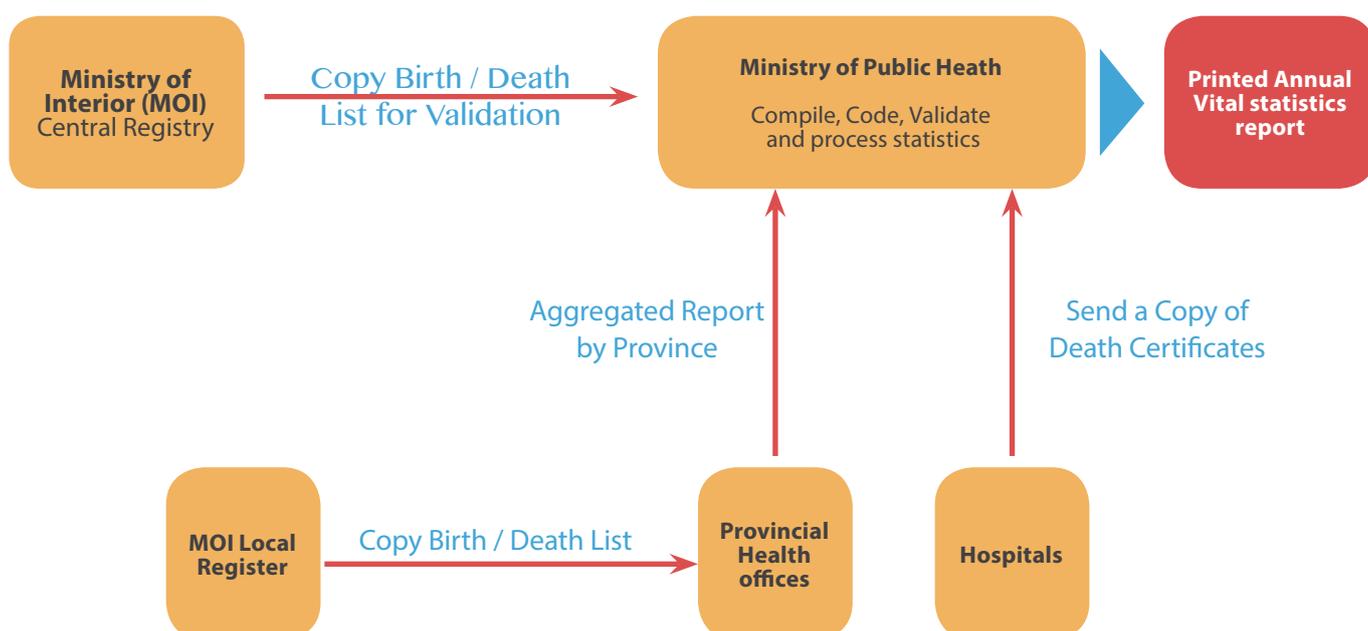
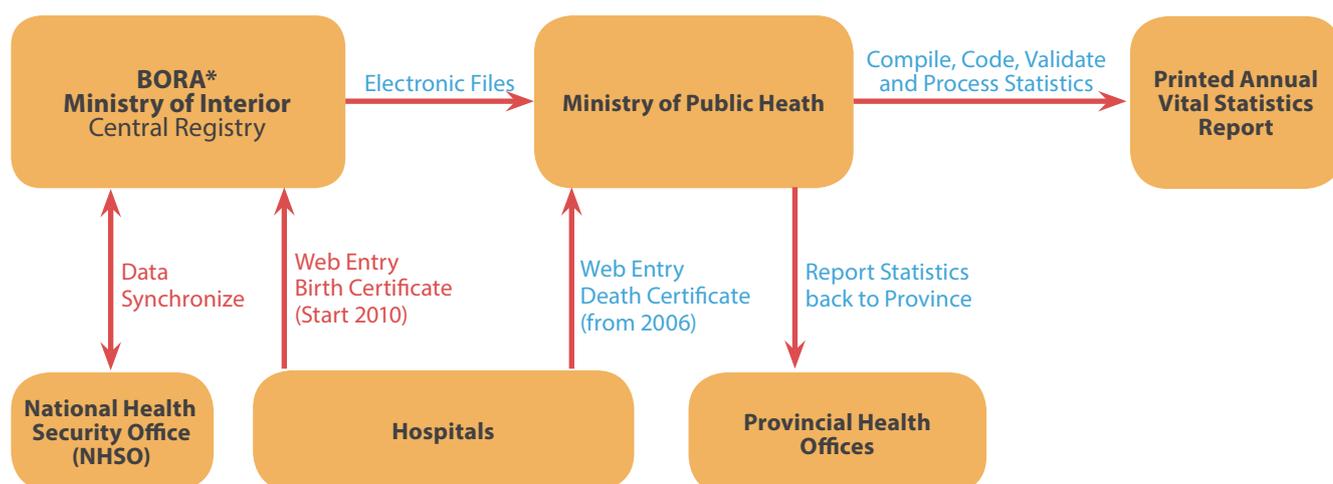


FIGURE 7: VITAL STATISTICS AFTER 1996 – PRESENT



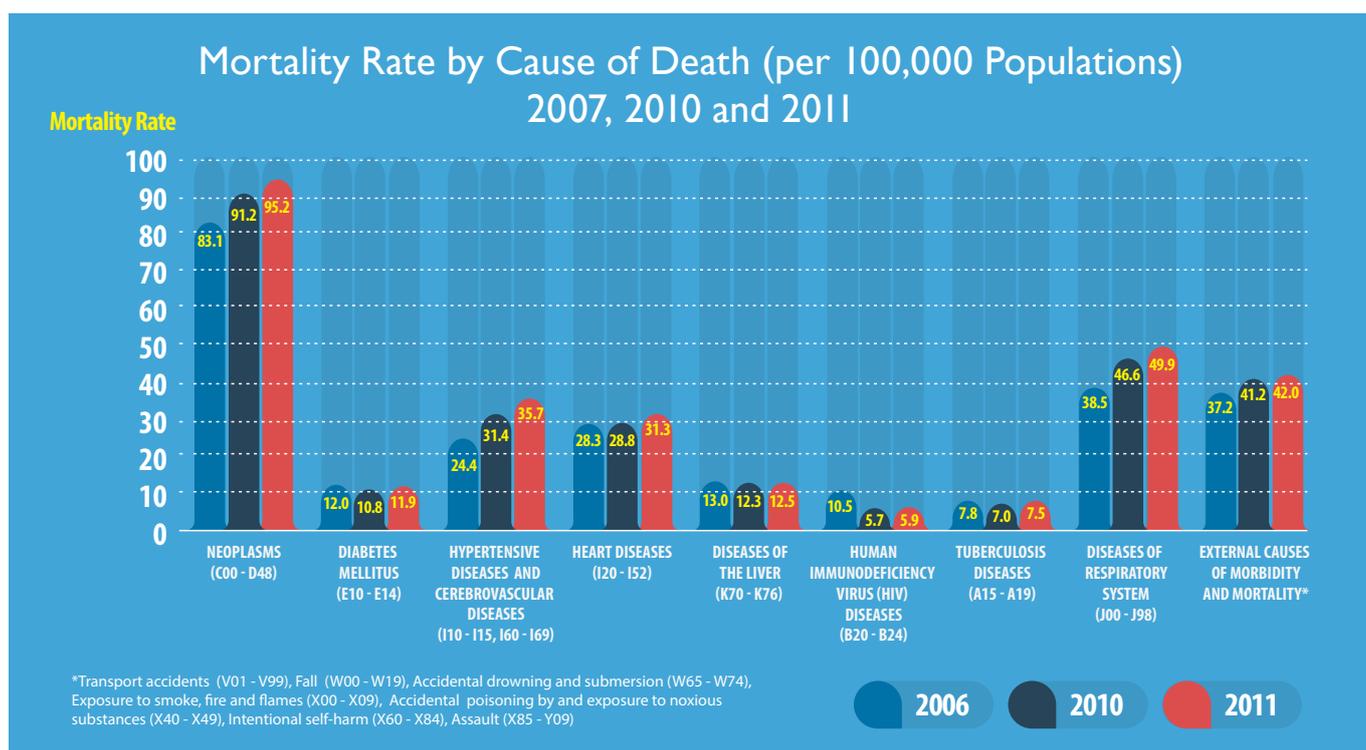
BORA: Bureau of Registration Administration

TABLE 6: NUMBER OF BIRTHS AND DEATHS IN THAILAND

year	Live births			Crude Birth Rate	Deaths			Crude Death Rate
	Total	Male	Female		Total	Male	Female	
2539 (1996)	994,118	486,202	457,916	15.8	342,643	208,950	133,693	5.7
2540 (1997)	897,604	461,916	435,688	14.8	300,323	181,884	118,439	5.0
2541 (1998)	897,201	461,837	435,364	14.7	310,534	181,592	128,942	5.1
2542 (1999)	754,685	389,285	365,400	12.3	362,607	213,432	149,175	5.9
2543 (2000)	773,009	397,523	375,486	12.5	365,741	213,907	151,834	5.9
2544 (2001)	790,425	407,400	383,025	12.7	369,493	213,298	156,195	6.0
2545 (2002)	782,911	403,397	379,514	12.5	380,364	219,480	160,884	6.1
2546 (2003)	742,183	382,621	359,562	11.8	384,131	221,962	162,169	6.1
2547 (2004)	813,069	418,361	394,708	13.0	393,592	225,027	168,565	6.3
2548 (2005)	809,485	416,474	393,011	13.0	395,374	225,622	169,752	6.4
2549 (2006)	793,623	409,231	384,392	12.7	391,126	222,811	168,315	6.2
2550 (2007)	797,588	410,921	386,667	12.7	393,255	222,170	171,085	6.3
2551 (2008)	784,256	404,043	380,213	12.4	397,327	224,090	173,237	6.3
2552 (2009)	765,047	394,555	370,492	12.1	393,916	222,815	171,101	6.2
2553 (2010)	761,689	392,098	369,591	12.0	411,331	232,791	178,540	6.5
2554 (2011)	795,031	409,699	385,332	12.4	414,670	235,189	179,481	6.5

Source: Public Health Statistics A.D. 2011, Bureau of policy and strategy, ministry of public health

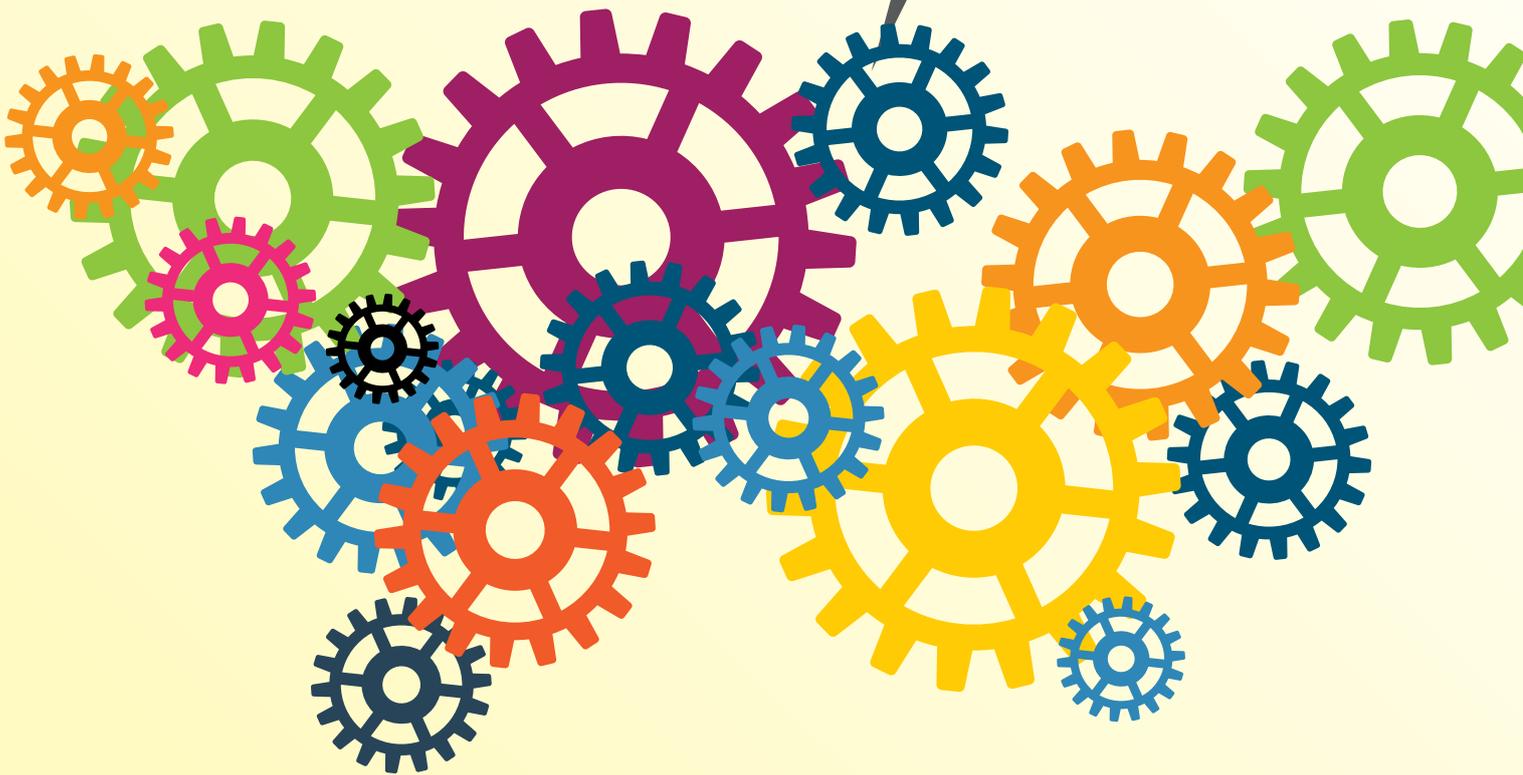
FIGURE 8: MORTALITY RATE BY CAUSE OF DEATH



Source: Public Health Statistics A.D. 2011, Bureau of policy and strategy, ministry of public health

As the unique personal identification number for each citizen is available in both the death registration system and the insurance reimbursement databases, it is possible to map information from the DRG system (which provides morbidity information for patients who subsequently die after discharge from hospitals) against the death registry data. Using this morbidity information (discharge diagnosis) it is possible to determine and collect a valid cause of death for the deceased.

The maternal mortality ratio (MMR) indicates the risk of death a woman faces once she has become pregnant. It is one of the important national health indicators. Calculation of the MMR requires annual data on the number of maternal deaths (numerator) and the total number of live births (denominator). Many countries face challenges in calculating an accurate MMR. In Thailand, reported MMR figures are often inconsistent depend on the source of data used. One way to determine a reliable estimate for Thailand’s MMR is reproductive age mortality studies (RAMOS), which are a costly and time consuming method. For this reason, it is not effective to conduct RAMOS every year. Taking advantage of the unique citizen ID and the availability of inpatient DRG data, it is possible to map data from live births and deaths of women of reproductive age in civil registration against admissions of reproductive age women. By mapping these two data sources, it is possible to estimate a more accurate MMR compared to RAMOS.⁶



REVIEWING THE COUNTRY CIVIL REGISTRATION AND VITAL STATISTICS SYSTEM

2

OBJECTIVES

1. Evaluate the current situation of the civil registration and vital statistics system in Thailand using the WHO assessment framework.
2. Identify gaps in functioning and the quality of the vital statistics, identify potential areas for improvement and develop recommendations for policymakers.
3. Promote collaboration and networking between stakeholders in the CRVS system.

OVERVIEW OF THE WHO ASSESSMENT TOOL ^{7,8}

As part of efforts by the World Health Organization (WHO) Health Metrics Network (HMN) to strengthen national health information, a number of countries expressed the need for a tool to review how well their CRVS system is able to generate useful vital statistics and to identify which part or parts of are deficient and need to be improved. In response, WHO, working with the University of Queensland in Australia, developed a package of materials called *Improving the quality and use of birth, death and cause-of-death information* (referred to as the WHO guidance tool) to guide standards-based reviews of country practices in CRVS.

During the guide's development and field testing phases, countries suggested that, before undertaking a detailed review, it would be useful to first carry out a rapid assessment to quickly determine the strengths and weaknesses of the current system. The results of this rapid assessment could then be used to make the case for a more detailed assessment.

The rapid assessment tool was then developed to accompany the WHO guidance tool, and countries are advised to apply it before undertaking a full review of their systems. It is available as both as a text template and a spreadsheet, for ease of compilation of data. Both the rapid and comprehensive assessment tools were peer reviewed by technical experts and field tested in three countries before being promoted for use by countries.

The WHO guidance tool is intended for the assessment of key vital statistics derived from civil registration and not for the assessment of methods and data quality obtained from household surveys, censuses or sample registration. The tool is mainly intended for use by people responsible for the collection, compilation, and use of vital statistics. It will be most useful in countries (or regions within a country) that have a functioning civil registration system but do not get the maximum benefit from their vital statistics systems.

Although the UN considers vital events to comprise “live births”, deaths, fetal deaths, marriages, and divorces, the WHO guidance tool is concerned only with births, deaths, and causes of death. This focus reflects the fact that births, deaths and causes of death are the fundamental events that countries need to know in order to guide health programmes, monitor population dynamics and measure key health indicators.

The WHO provides a roadmap for using the WHO guidance tool to review and strengthen civil and vital statistics systems. The process has three phases:

- Phase 1 – Leadership coordination and review (i.e. preparing for and carrying out the review);
- Phase 2 – Priority setting and planning (i.e. developing a strategic plan for strengthening the system);
- Phase 3 – Implementation (i.e. implementing the strategic plan).

These three phases are summarized in **Table 7** and shown as a flowchart in **Figure 9**. They align with the phases defined in the Health Metrics Network (HMN) document Framework and standards for country health information systems. Therefore, countries can easily integrate the three phases into a more broadly based strategic development plan. Detailed guidance for **Phases 1** and **2** are provided. Less detail is provided for **Phase 3** because this is likely to vary for each country, depending on national processes and the development environment. However, detailed information on strategic planning is given in the HMN document Guidance for the health information systems (HIS) strategic planning process

TABLE 7: ROADMAP OF ACTIONS AND OUTCOMES OF THE REVIEW

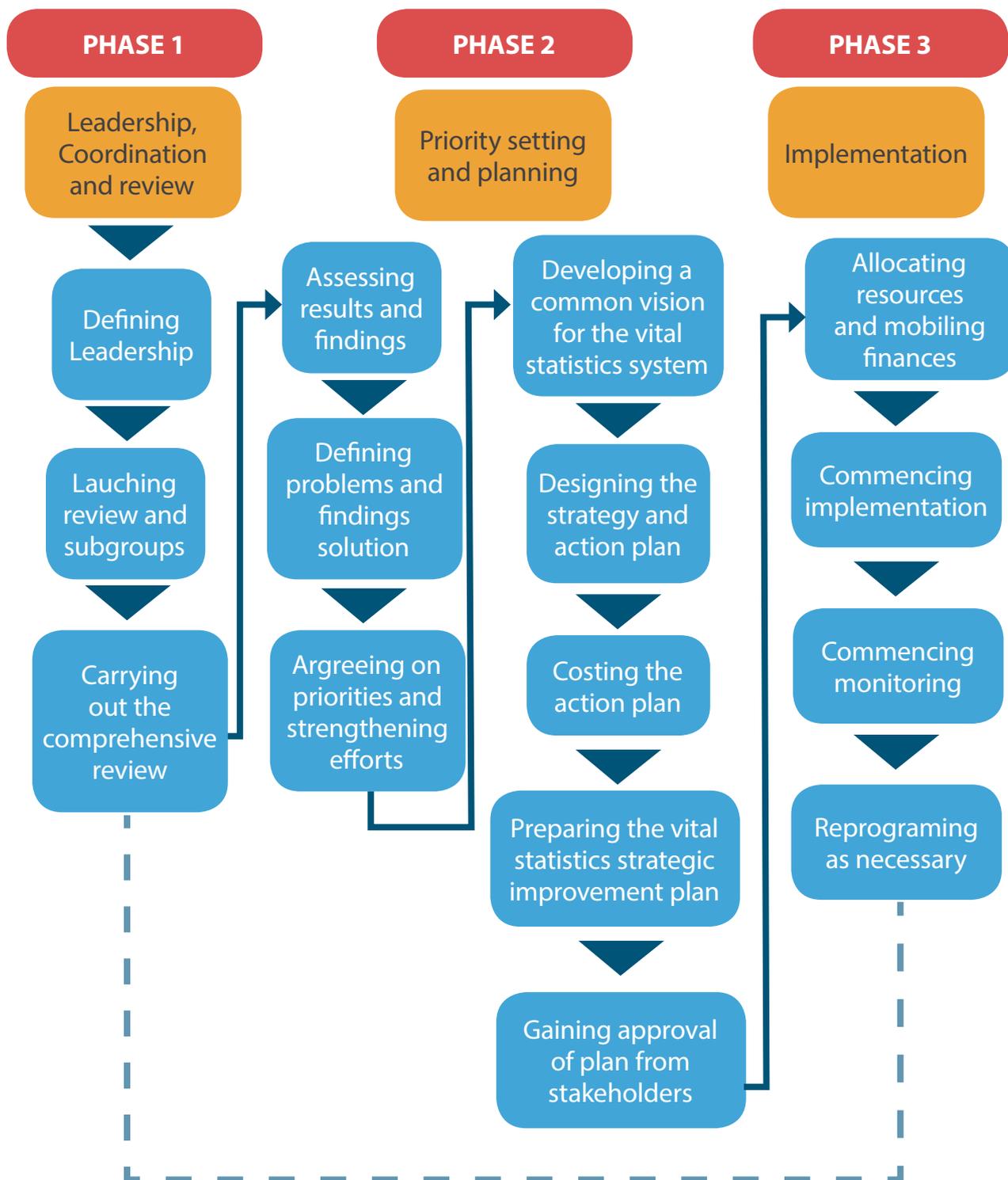
Steps Actions	Outcomes
Phase 1 : Leadership coordination and review	
1. Identify a lead agency that can initiate the process of forming a review committee; identify and invite stakeholders, and make a case to government of the need to improve the vital statistics system	<ul style="list-style-type: none"> • Lead agency identified • Stakeholders identified and invited • Review committee formed • Case made to government

TABLE 7: ROADMAP OF ACTIONS AND OUTCOMES OF THE REVIEW (CONTINUED)

Steps Actions	Outcomes
2. Undertake a rapid assessment of the current system to build the case and prepare for the launch of the review	<ul style="list-style-type: none"> • Rapid assessment undertaken by review committee • Meeting agenda developed
3. Conduct a launch meeting (to raise awareness, expand committee and form subgroups)	<ul style="list-style-type: none"> • Stakeholders invited to launch meeting • Awareness raised among stakeholders of the need to improve vital statistics • Assessment framework and review process introduced to participants • Review committee expanded (if required) • Subgroups formed
4. Conduct an initial committee meeting (without subgroups)	<ul style="list-style-type: none"> • Workplan and review schedule developed • Guidelines, and report template for subgroups, developed
5. Conduct review through subgroup work sessions	<ul style="list-style-type: none"> • Review questions adapted • Detailed review of subcomponents produced • Subgroup reports with recommendations prepared for presentation to review committee
Phase 2 : Priority setting and planning	
6. Conduct a review committee meeting with subgroups	<ul style="list-style-type: none"> • Report presented and its recommendations collectively discussed • Recommendations for action agreed and prioritized • Case made to government
7. Conduct a review committee meeting or meetings without subgroups, to develop strategic plan	<ul style="list-style-type: none"> • Strategic plan for improving the current vital statistics system prioritized and costed
8. Conduct a large stakeholder meeting to improvement plan	<ul style="list-style-type: none"> • Plan to strengthen the vital statistics system approved by present wider stakeholder group
Phase 3 : Implementation	
There are no specific steps for this phase, because the process for achieving the various outcomes will vary by country	<ul style="list-style-type: none"> • Resources allocated and finances mobilized • Implementation commenced • Monitoring commenced • Reprogramming undertaken as necessary

Source: Public Health Statistics A.D. 2011, Bureau of policy and strategy, ministry of public health

FIGURE 9: PROCESS FOR PREPARING A PLAN TO STRENGTHEN THE VITAL STATISTICS SYSTEM



Process for reviewing civil registration and vital statistics systems can be summarized as follow:

1. Phase 1: Step 1 – Form a review committee and raise awareness

- 1.1. Identify a lead agency
- 1.2. Form a review committee
- 1.3. Make a case to government

2. Step 2 – Undertake a rapid assessment

3. Step 3 – Launch the review

- 3.1. Launch meeting
- 3.2. Subgroups

4. Step 4 – Conduct an initial committee meeting

5. Step 5 – Conduct work sessions with subgroups

6. Phase 2: Step 6 – Conduct a results meeting

7. Step 7 – Conduct a review committee meeting to draft a strategic plan

8. Step 8 – Conduct a final stakeholder meeting

9. Phase 3: Implementation

- 9.1. Towards sustainable civil registration and vital statistics systems
- 9.2. Monitoring progress

Each country is free to adapt the suggested roadmap to their specific situation. However, adherence to the overall process is important because this will provide insights into how the CRVS system functions, which is necessary for making improvements.

The roadmap lists only the main steps and the sequence recommended for a country to follow when undertaking a thorough review of its CRVS systems. Each country may add intermediate steps as necessary, to ensure that everyone involved clearly understands how to conduct the review and answer the assessment questions given in the WHO assessment framework in phase 3.

Both the HMN Framework and standards for country health information systems and its associated tool, *Assessing the national health information system*, briefly discuss vital statistics and civil registration. However, the approach used in the WHO guidance tool is much more detailed and comprehensive.

OVERVIEW OF RAPID ASSESSMENT TOOL AND ITS APPLICATION

The rapid assessment tool consists of 25 questions about how the civil registration and vital statistics systems function. The questions are grouped into 11 areas:

1. legal framework for civil registration and vital statistics;
2. registration infrastructure and resources;
3. organization and functioning of the vital statistics system;
4. completeness of birth and death registration;
5. data storage and transmission;

6. International statistical classification of diseases and related health problems (ICD) compliant practices and certification within and outside hospitals;
7. practices affecting the quality of cause-of-death data;
8. ICD coding practices;
9. coder qualification and training, and quality of coding;
10. data quality and plausibility checks; and
11. data access, dissemination and use.

Each question allows countries to select one of four scenarios (labeled A–D) describing a typical range of hypothetical situations. A numeric value (from 3 to 0) is attached to each scenario, allowing a total score to be obtained. The score has no scientific value and should only be taken as a rough indication of the functionality and quality of the civil registration and vital statistics systems. Some countries might find that the score can be used to help decide whether there is a need to carry out the comprehensive review. The rapid assessment tool is not a replacement for the detailed procedures described in the comprehensive guide; instead, it provides a quick overview of how well or how poorly a country’s overall system is functioning.

Rather than the scores themselves, it is the process used to arrive at the scores that is important. The rapid assessment is not a questionnaire that one person should attempt to find suitable replies to; rather, it is a group exercise and should therefore be undertaken by a group of individuals knowledgeable in civil registration and vital statistics. The questions in the tool are designed to initiate a discussion among senior staff responsible for various aspects of the civil registration and vital statistics systems. The composition of the team completing the assessment will vary by country, but it should include staff from national agencies involved with the collection or production of vital statistics such as the national statistics office, ministry of health and office of the registrar general. In principle, this same group would lead and oversee the comprehensive assessment completed using the detailed assessment tool.

The rapid assessment can be carried out in different ways. The group can meet and discuss each question before reaching a consensus on the overall country score. Alternatively, individual group members can score each question after the group discussion and the scores can then be averaged to produce a final result. Based on pilot experiences, the time needed for discussion of the issues raised by the questions would be around two hours.

Table 8 shows how the letter denoting a particular scenario for a question relates to the score.

TABLE 8: SCORING OF SCENARIOS FOR RAPID ASSESSMENT

Scenario	A	B	C	D
Score	3	2	1	0

The group should discuss and score all questions. If a particular scenario does not precisely define the situation in a country, the scenario most closely describing current practice is selected. A comments section is provided to enable respondents to provide additional detail or points of clarification for future reference. Total numeric scores are then converted into percentages. The spreadsheet version of the assessment questions will automatically calculate the scores and convert the absolute numbers into a percentage score. The spreadsheet tool can be downloaded from <http://www.who.int/healthinfo/en/>.

Based on the score obtained, the functioning of the national system can be situated. **Table 9** shows the ratings for the range of possible scores, and outlines the action required for each rating.

TABLE 9: SCORES, RATINGS AND ACTIONS REQUIRED FOR RAPID ASSESSMENT

Score (%)	Rating	Actions required
<34	Dysfunctional	System requires substantial improvement in all areas
35–64	Weak	Many aspects of the system do not function well, and multiple issues require attention
65–84	Functional but inadequate	System works but some elements function poorly and require attention; specific weaknesses of the system should be identified by completing the comprehensive review
85–100	Satisfactory	Minor adjustments may be required in an otherwise well- functioning system

It is clear from Table 8 that countries with ratings below 65% will have much to gain from the careful application of the comprehensive WHO guide, and that even in countries with a score of 65–84%, the comprehensive review will be useful in identifying specific weaknesses.

A central tenet of the assessment approach is that the rapid assessment should be completed through a process of discussion among all group members leading to a common view on the issue. Thus, the purpose of the assessment is not simply to answer a question and decide on a score, but rather to engage in discussion on the possible weaknesses and strengths of the system, which will then be explored more fully in applying the full WHO guide, where necessary.

In some countries, the civil registration system is not the main vehicle for generating certain vital statistics, especially causes of death. Other mechanisms used include sample registration systems (e.g. India), disease surveillance points (e.g. China) and data collection through ministries of health (e.g. many countries in Latin America and the Caribbean). In such settings, it is important to distinguish between statistics derived from the civil registration system and those derived from alternative sources. This should be noted in the comments section of the questionnaire; because the rapid assessment is based on the premise that civil registration systems are the best source of vital statistics.

OVERVIEW OF COMPREHENSIVE ASSESSMENT TOOL AND ITS APPLICATION

After completing the rapid assessment to quickly evaluate the strengths and weaknesses of the current system, the results could be used to make the case for a more detailed assessment in **phase 3**. The WHO assessment framework suggests subgroups used in undertaking a detailed review consist of **the five key components (A – E)** of the CRVS systems. **The components A – E** are broken down into 16 subcomponents (**A1 – E3**). This framework comprehensively covers inputs, processes and outputs from these components, as shown in **Table 10** and **11**.

Each subcomponent consists of questions to be discussed and investigated and the assessment comprises 251 questions in total. Any preparatory work needed to facilitate the discussion and review is highlighted, as well as explanation and guidance provided for specific review questions to give additional context or to highlight important items.

TABLE 10: INPUTS, PROCESSES AND OUTPUTS

Aspect	Components	Areas covered
Inputs	A	Legislative and regulatory frameworks supporting the existence and operation of civil registration and vital statistics systems, as well as the financial, human and technological resources required for proper functioning of civil registration and vital statistics systems.
Processes	B–D	Processes required for obtaining and compiling information such as registration and certification practices. Forms, classifications and coding practices used in obtaining and compiling information. Procedures for the management and transmission of data.
Outputs	E	Type and quality of statistics produced, and methods for disseminating, accessing and using those statistics.

TABLE II: WHO ASSESSMENT FRAMEWORK

Inputs A	<p>Legal basis and resources for civil registration</p> <p>A1 – National legal framework for civil registration and vital statistics systems</p> <p>A2 – Registration infrastructure and resources</p>
Processes B	<p>Registration practices, coverage and completeness</p> <p>B1 – Organization and functioning of the civil registration and vital statistics systems</p> <p>B2 – Review of forms used for birth and death registration</p> <p>B3 – Coverage and “completeness of registration”</p> <p>B4 – Data storage and transmission</p>
C	<p>Death certification and cause of death</p> <p>C1 – ICD-compliant practices for death certification (24)</p> <p>C2 – Hospital death certification</p> <p>C3 – Deaths occurring outside hospital</p> <p>C4 – Practices affecting the quality of cause-of-death data</p>
D	<p>ICD mortality coding practices</p> <p>D1 – Mortality coding practices</p> <p>D2 – Mortality coder qualification and training</p> <p>D3 – Quality of mortality coding</p>
Outputs E	<p>Data access, use and quality checks</p> <p>E1 – Data quality and plausibility checks</p> <p>E2 – Data tabulation</p> <p>E3 – Data access and dissemination</p>

THAILAND’S ASSESSMENT PROCESS

The assessment of Thailand’s CRVS system was undertaken by The Thai Health Information Standards Development Center (THIS) in collaboration with other stakeholders including The Bureau of Policy and Strategies of the MOPH, The Bureau of Registration Administration of the MOI, The National Statistical Office of Ministry of Information Communication and Technology, The International Health Policy Program (IHPP), the National Health Security Office (NHSO), The Institute for Population and Social Research of Mahidol University, and The Office of the National Economic and Social Development Board (NESDB).

An initial workshop to assess the CRVS using the Rapid Assessment (RA) tool was held at the THIS office on 12 July 2012. The main focus of this workshop was to conduct an initial assessment using a Thai language version of the RA tool. A second workshop was held on 14 August 2012, this time also involving participants from the Institute for Population and Social Research of Mahidol University, and The Office of the National Economic and Social Development Board (NESDB). Results from the first workshop were reviewed and participants recommended conducting a comprehensive assessment. The results of the rapid assessment are presented in **chapter 3**.

FIGURE 10: THE FIRST RAPID ASSESSMENT CRVS WORKSHOP.



FIGURE 11: THE SECOND RAPID ASSESSMENT CRVS WORKSHOP.



An inaugural national CRVS workshop was held at the Miracle hotel, Bangkok, on 6 November 2012. Presentations on the upcoming “High-level Regional meeting on CRVS in Asia and the Pacific”, held in Bangkok on 7 December 2012, CRVS concepts, “CRVS International Situation” as well results of Thailand’s rapid assessment result were given and discussed. There were about 50 participants from stakeholder agencies ranging from health facilities at the local level to national level policymakers and international experts from UN agencies. Minor changes to the results were adjusted.

Following this workshop, further discussions and reviews were held between stakeholders to reach a final comprehensive assessment result that can be used to guide the development of improvement plans. The results of the comprehensive assessment are presented in **chapter 3**.

FIGURE 12: THE FIRST NATIONAL CRVS WORKSHOP IN NOVEMBER 2012.





RESULTS AND RECOMMENDATIONS

3

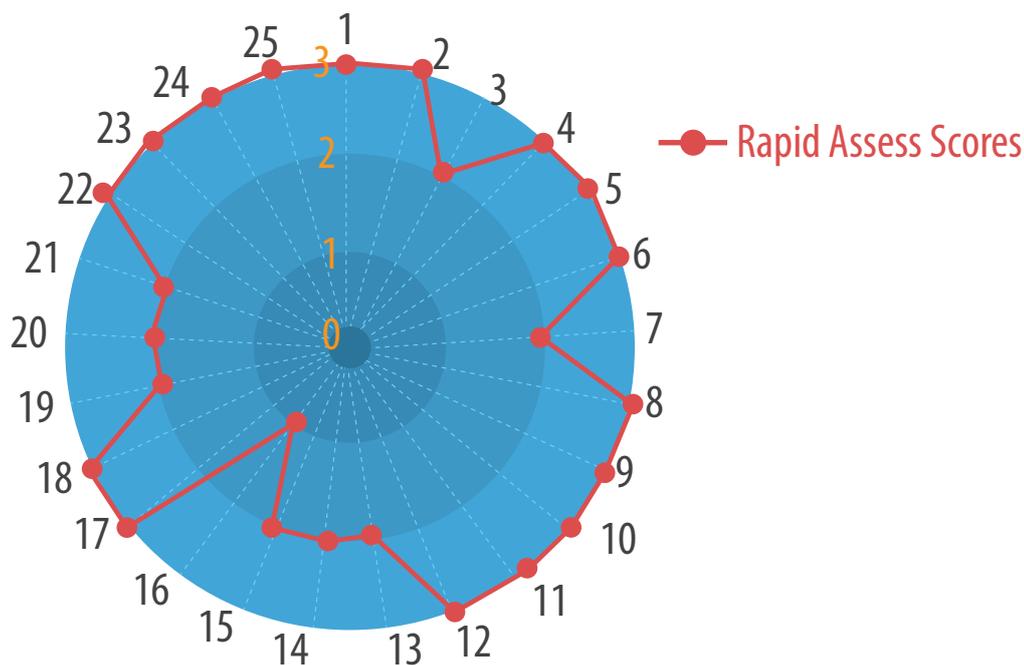
Thailand completed both a rapid and comprehensive assessment of its CRVS system in 2012. According to the results from the rapid assessment, Thailand's system is "Satisfactory," meaning "Minor adjustments may be required in an otherwise well-functioning system." The main issue raised by the rapid assessment was the quality of cause of death data and the quality of coding. A more detailed review of the CRVS system was recommended.

Average scores from the Rapid Assessment are summarized in **Table 12** and **Figure 13**.

TABLE 12: AVERAGE SCORES FROM THE RAPID ASSESSMENT BY 11 MAIN AREAS

Rapid assessment grouping areas	Average Scores
Legal framework for civil registration and vital statistics	2.67
Registration infrastructure and resources	3
Organization and functioning of the vital statistics system	2.5
Completeness of registration of births and deaths	3
Data storage and transmission	3
ICD-compliant practices and certification within and outside hospitals	2
Practices affecting the quality of cause-of-death data	1.5
ICD coding practices	3
Coder qualification and training, and quality of coding	2.5
Data quality and plausibility checks	2
Data access, dissemination and use	3
Total Scores (From 75):	65
Average scores:	2.56
Score (%):	86.67

FIGURE 13: SCORES BY 25 QUESTIONS LISTED IN THE RAPID ASSESSMENT



COMPREHENSIVE ASSESSMENT RESULTS AND RECOMMENDATIONS

After the rapid assessment was completed a more detailed assessment was recommended to inform plans to strengthen the vital statistics system.

According to the WHO assessment framework, the CRVS system consists of **five key components (A – E)**, further broken into 16 **subcomponents (A1–E3)**. These components comprehensively covers each **input (A), process (B, C, D)** and output (E) from the CRVS system, as described in **chapter 2**.

Results of the comprehensive assessment of CRVS for the main components follow.

COMPONENT A

LEGAL BASIS AND RESOURCES FOR CIVIL REGISTRATION

Component A consists of two subcomponents:

1. Subcomponent A1 – National legal framework for civil registration and vital statistics systems;
2. Subcomponent A2 – Registration infrastructure and resources

A1: National legal framework for civil registration and vital statistics

	LIST OF QUESTIONS	THAILAND'S SITUATION
A1.1	Does the country have a law defining a civil registration system?	<p>Yes, the first Civil Registration Act was enacted in 1909 and there have been several revisions since then. The most recent revision was in 2011. Birth and death registration is compulsory under the act.</p> <p>Details of the act include definitions, registrar offices, data collection, birth and death registration, house registration, and penalties.</p>
A1.2	Does the country have a law defining a vital statistics system?	No, there is no law defining a vital statistics system in Thailand.
A1.3	Does the law clearly state that birth and death registration is compulsory?	<p>The Civil Registration Act enacted in 1909 and the recent revision in 2011 has indicated that birth and death registration is compulsory in articles 18-28.</p> <p>Birth registration has to be reported by a parent or authorized person with a birth certificate from the hospital or local authority within 15 days of the birth. If necessary, the birth report can be late, but has to be within 30 days after the birth date. Reporting after the 30 days may be subject to a fine that cannot exceed 1,000 Thai Baht.</p> <p>Death registration has to be reported by a family member with a death certificate from the hospital, or by the house owner where the death occurs outside of a hospital, together with the death certificate from the local authority, within 24 hours of the death or discovery of the body. Late death registration may be subject to a fine that cannot exceed 1,000 Thai Baht.</p>

	LIST OF QUESTIONS	THAILAND'S SITUATION
A1.4	<p>Is there a penalty for non-registration of:</p> <ul style="list-style-type: none"> • Births? • Deaths? 	<p>The Civil Registration Act enacted in 1991 and the recent revision in 2011 provide penalties for non-registration in articles 47-51.</p>
A1.5	<p>If yes, please indicate the nature of the penalty.</p> <p>If there is a financial penalty, specify the current amount.</p>	<p>Article 47 of the Civil Registration Act indicates a financial penalty for late or non-registration. The penalty fee cannot exceed 1,000 Thai Baht.</p>
A1.6	<p>Is the penalty routinely applied?</p>	<p>The financial penalty for late or non-registration indicated by the law is usually applied, but mostly at a minimal amount, i.e., 20 Baht.</p>
A1.7	<p>Does the birth registration law give clear and unambiguous definitions to be used for:</p> <ul style="list-style-type: none"> • Live birth? • Fetal death or stillbirth? 	<p>The law only identifies place of birth or death, i.e., in hospital, outside hospital. Definition of live birth, fetal death or stillbirth is not clear by the law.</p>
A1.8	<p>Are these definitions aligned with the international standards in the Glossary?</p>	<p>The law does not provide a definition of live birth, fetal death or stillbirth. However, the definitions used by health staff align with international standards.</p>
A1.9	<p>Is it stated in law who is responsible for registering births or deaths and who should declare or report births or deaths?</p>	<p>Yes, the law does state who is responsible for registering births or deaths as well as required documents.</p>

LIST OF QUESTIONS	THAILAND'S SITUATION
A1.10	If yes, provide details of all possible informants.
	<p>Birth registration A parent or household head where the birth occurs is responsible for birth registration. For birth out of a house, a parent is responsible for registration. In the case of abandoned babies, the person who found the baby is responsible for reporting to the local authority or local social worker. The social worker is responsible for the registration.</p> <p>Death registration The household head where the death occurred or the person who found the body is responsible for death registration. Required documents are birth or death certificates from the hospital or local authority (depending on the location of the event), personal identification of the person who reports the event, house registration identification of the parent, house registration identification of the deceased (optional).</p>
A1.11	Is there a law or regulation requiring hospitals and health facilities to report births and deaths?
	The law states that births and deaths in hospitals and health facilities are required to have birth or death certificate signed by authorized person.
A1.12	If yes, to what authorities do they report the births and deaths?
	The Director or an authorized person representing the hospital or health facilities is responsible for providing the birth or death certificate, which must be presented to register the event at the district registrar office.
A1.13	Does the law or regulations cover the private sector? Does the law or regulation also include social security and other nongovernmental facilities?
	The type of hospital or health facilities is not classified by the law and therefore all types are covered. Other than hospitals or health facilities, only government local authorities are authorized to register events outside hospitals or health facilities.
A1.14	Does the law state the time within which births and deaths should be registered?
	Yes.

LIST OF QUESTIONS		THAILAND'S SITUATION
A1.15	If yes, how long is the reporting period?	Within 15 days after birth, or within 24 hours after death.
A1.16	Is the reporting period suitable and is it respected throughout the country?	Yes, this is appropriate. However, in case of remote areas, birth registration can be delayed to within 30 days, and death registration to within 7 days.
A1.17	Does the law make provision for: late registration? delayed registration?	Yes, but a small fine will be charged for late or delayed registration.
A1.18	Are there clear procedures for dealing with these cases?	Yes.
A1.19	Is it stated where births or deaths should be registered; for example, according to place of occurrence or place of usual residence?	Yes.
A1.20	Does the law clearly designate the functions, duties and responsibilities of each governmental department involved?	Yes, only for civil registration. The vital statistics function is not defined by the law.
A1.21	Does the law establish how the civil registration and vital statistics systems are to be funded?	No. Civil registration is funded by the government through the Department of Local Administration (MOI). Using data from the civil registration system, vital statistics are produced by the Bureau of Policy and Strategies (MOPH).
A1.22	Does the law stipulate that registration should be free of charge for all?	Yes.
A1.23	If registration is not free, what is the fee to register: • A birth? • A death?	Not applicable.

LIST OF QUESTIONS	THAILAND'S SITUATION
<p>A1.24</p> <p>Is the population covered by civil registration laws clearly defined? Is it, for example:</p> <ul style="list-style-type: none"> • The entire population living in the country? • Only citizens living in the country? • Some other subsets of the population? 	<p>Yes, the law clearly identifies the population covered by civil registration. It includes all births and deaths in Thailand, and all immigrants.</p>
<p>A1.25</p> <p>What does the law require in relation to registering births and deaths of citizens living abroad?</p>	<p>The law includes all citizens living abroad. The events can be reported through the Thai embassy in the country that the events occurred.</p>
<p>A1.26</p> <p>What does the law require in relation to registration of births and deaths of:</p> <ul style="list-style-type: none"> • Foreign nationals living in the country? • Nomadic or displaced populations? • Refugees and asylum seekers? 	<p>Yes. The law covers all births and deaths in the country.</p>
<p>A1.27</p> <p>Does the law include confidentiality measures to protect individuals?</p>	<p>In Thailand, there is a law about government information which was enacted in 1997. Each government agency can access only minimal information based on its role and responsibility.</p>
<p>A1.28</p> <p>Is it specified who can obtain copies of a person's birth and death certificates?</p>	<p>Yes, only by parents or a relative.</p>
<p>A1.29</p> <p>Does the law state who can certify death and the cause of death?</p>	<p>Yes, doctors. However, the head of the village can sign registration death registration form for deaths occurring outside of health facilities.</p>
<p>A1.30</p> <p>Does the law specify the official document(s) needed before a burial or cremation can take place?</p>	<p>Yes, the official document is required.</p>

A2: Registration Infrastructure and Resources

	LIST OF QUESTIONS	THAILAND'S SITUATION
A2.1	What is the annual national operating budget for civil registration?	The annual operating budget for civil registration is included in the routine fiscal budget funded through Department of Local Administration (MOI).
A2.2	Can this budget be separately identified at state and municipal levels? Can the budgets for national, state and municipal levels be separately identified?	Since it is funded through the fiscal budget, the budget can be spent according to the activity plan. This implies that the budget be separately identified for each levels.
A2.3	Are these funds adequate to ensure the proper functioning of the system?	Yes, it adequately covers the costs of operation.
A2.4	Where would additional funding be likely to make the most difference?	In 2012, the computer system crashed a few times and was unavailable for a few hours. Additional budget for investment and maintenance on the old systems would reduce risk from system crashes.
A2.5	How many local civil registrars does the country currently have?	There are 2,482 local civil registration offices and registration points in Thailand at provincial, district, sub-district, and municipal level. There is one or two registrar officer(s) in every office. However, there is no policy to hire new staff to replace retirees so there is a shortage of personnel in some areas.
A2.6	Are they paid by: <ul style="list-style-type: none"> • Central government? • Local government? • Fee-for-service? • Other source? 	Registrar of f icers are civil ser vants or local administrative officers paid by the central government or local government, respectively.

LIST OF QUESTIONS		THAILAND'S SITUATION
A2.7	<p>Are there local variations in the way, and amounts, that registrars are paid?</p> <p>Explain these variations.</p>	All civil servants and local administrative officers are paid using government standards.
A2.8	<p>Are the number and distribution of local civil registration offices or registration points sufficient to cover the whole country?</p>	There are 2,482 local civil registration offices and registration points in Thailand at provincial, district, sub-district, and municipal level, details as shown below. There is one or two registrar officer(s) in every office.
A2.9	<p>Are there subsidiary reporting or registration units, such as hospitals or village officials, with registration duties?</p>	There are registration units in some big hospitals or registration points in large shopping malls or community areas.
A2.10	<p>Is there access to registration 24 hours a day, 7 days a week?</p>	Office hours of provincial and district administration offices throughout the country are during Monday to Friday, except holidays. There are some areas that open mobile registration points in the evening or during weekends. However, data access from related government agencies to the civil registration system is 24 hours a day, 7 days a week through web application.
A2.11	<p>Are mobile registration facilities operational in remote or underserved areas?</p>	Yes. There is policy for every district to provide mobile registration in remote areas.
A2.12	<p>If yes, how many? Is the number of mobile registration services sufficient?</p>	Yes.
A2.13	<p>Is there a separate budget for registration outreach?</p>	Yes. There is additional budget from central office to increase the coverage of registration in remote and outreach areas.
A2.14	<p>Is there a national plan for achieving complete coverage of the country with registration offices or registration points?</p>	Yes. Although there are civil registration offices in every district, mobile registration services are promoted to increase registration coverage in remote and outreach areas.

LIST OF QUESTIONS		THAILAND'S SITUATION
A2.15	Over what period does this plan extend?	This is a common plan. However, there is also a pilot project to promote birth registration as mentioned in question A2.9 .
A2.16	For each type of civil registration point, describe the technical equipment available in all or most offices; for example, telephones, photocopiers, scanners, computers and internet.	District civil registration offices throughout the country have necessary equipment to complete the registration in real-time online. All paper forms are available in the offices. The main challenge is on human resources since registrar staff are not enough and are frequently change their duties.
A2.17	How are civil registrars selected?	There is no special selection process for civil registrars. Since civil registrars are civil servants, they must qualify and are required to pass the government selection process for civil servants.
A2.18	What qualifications do civil registrars need?	They are required to have bachelor degree in political science or law.
A2.19	Is there a budget for training civil registrars and staff involved in registration?	Training budget for civil registrars is included in the fiscal budget.
A2.20	Is there a budget for preparing and disseminating written training materials, such as handbooks on civil registration?	Yes. There are budget for publishing and disseminating the training materials and handbooks on civil registration every year.
A2.21	What is the current budget for the vital statistics unit? (If more than one office is involved, estimate a figure that covers all the vital statistics being compiled, including cause of death data.)	There is no specific unit on vital statistics in the MOPH. The function is part of the Bureau of Policy and Strategies (BPS).

COMPONENT B

REGISTRATION PRACTICES, COVERAGE AND COMPLETENESS

Component B consists of four subcomponents:

1. Subcomponent B1: Organization and functioning of civil registration and vital statistics systems
2. Subcomponent B2: Review of forms used for birth and death registration
3. Subcomponent B3: Coverage and completeness of registration
4. Subcomponent B4: Data storage and transmission

B1: Organization and functioning of civil registration and vital statistics systems

LIST OF QUESTIONS		THAILAND'S SITUATION
B1.1	What are the organizational and administrative arrangements of the civil registration and vital statistics systems (reviewed using the prepared diagrams)?	The bureau of registration administration under the department of local administration, ministry of interior is responsible for civil registration in the country. Bureau of Policy and Strategies, MOPH is responsible for the vital statistics system. Vital event data from the ministry of interior are used as input to the vital statistics system. The WHO's International Classification of Disease (ICD) codes are used for cause of death coding.
B1.2	What have been the main changes in the functioning of the systems over the last 10 years?	Since 2008, every newborn in Thailand is allocated a unique personal identification, so the central database can collect data of all people living in Thailand. Since 2011, Thai citizens can get their ID cards starting at the age of seven years instead of 15.
B1.3	How have these changes affected functioning of the system or systems?	In 2011, the registration offices were busy issuing the new ID cards for students qualified to get the card.
B1.4	What areas need improvement?	The law should be enforced on moving-out of a house or moving-in to a house within 15 days after the events, so the government will have updated household information for administrative purposes.

LIST OF QUESTIONS		THAILAND'S SITUATION
B 1.5	What are the current communication mechanisms between the civil registration authority and others involved in the collection and production of vital statistics?	Data collections from district offices to the central office are real-time online through web application provided by the department of local administration, MOI. Collaboration between the department of local administration under the ministry of interior and the Bureau of Policy and Strategies under the MOPH to use civil registration data in producing vital statistics is under a MOU between the ministries.
B 1.6	Are there any areas where the responsibilities for specific functions overlap or are unclear?	No. Civil registration functions and vital statistics functions are clearly identified. The former is the responsibility of the ministry of interior; the latter is the responsibility of MOPH.
B 1.7	Are national, state or provincial and local responsibilities clearly defined?	Yes. However, the vital events can be reported at any district office.
B 1.8	Are there any areas where bottlenecks regularly occur?	No.
B 1.9	Review in detail the country's practices for birth and death registration. Which types of births and deaths are likely to escape the civil registration system?	Births and deaths of immigrants, stateless, remote and outreach areas.
B 1.10	Are these types of births and deaths also missed by the vital statistics system?	The vital statistics system produced by the MOPH includes only Thai citizen from the civil registration. Therefore, only vital events occurring in remote or outreach areas, which are very low percentages, may be missing.
B 1.11	Are there some vital events that cannot be registered through the normal system?	No.
B 1.12	Are the same data on births and deaths collected across the country and at every level of the system (including state or provincial, national and local levels)?	Yes. The Civil registration database is centralized. Data are collected from local levels in real-time online. All local offices have access to the same data.

LIST OF QUESTIONS		THAILAND'S SITUATION
B 1.13	Is there an entity responsible for national vital statistics standards and coordination?	The MOPH is responsible for national vital statistics standards and coordination.
B 1.14	Is cause of death included on the death registration form?	Cause of death is included on the death registration form. However, it is in descriptive text form, coding is done at the MOPH.
B 1.15	If not, is information about the cause of death collected at the same time as the death is registered but using a different form? Also discuss what happens with coronial cases and deaths from suspected non-natural causes.	There is no separated form for cause of death. All death reports require death certification from an authorized person.
B 1.16	Who decides what details to collect on births and on causes of death?	The bureau of registration administration under the department of local administration, ministry of interior.
B 1.17	How is medical information on births and deaths exchanged among the different government agencies involved?	In Thailand, there is a law about government information legislated in 1997. Civil registration data from the ministry of interior are used to identify individuals using the unique personal identification by other government agencies. Each government agency can access only minimal information based on its role and responsibility. Medical information from the civil registration system is shared with the MOPH and the National Health Security Office.
B 1.18	Is this process currently working well or does it need improvement?	It is working well. However, data transmission from civil registration to the vital statistics system should be automated to increase efficiency and the timeliness of the vital statistics system.
B 1.19	Is there a national population register?	Yes.

LIST OF QUESTIONS		THAILAND'S SITUATION
B 1.20	If so, how does information flow between the national population register and the civil registration system, and which government agency is responsible for maintaining the national population register?	The department of local administration, ministry of interior is responsible for national population register and civil registration. All registered data are provided to the central database through a web application.
B 1.21	Is each individual assigned a PIN at birth registration or at the time of receiving identity papers, and is this PIN used throughout the government's administrative databases?	Each individual is assigned the 13-digit unique personal identification. The identification is used by government agencies and other private businesses to identify persons.
B 1.22	If a PIN is not given, how are records from various data systems linked, and how is the population register updated?	NA
B 1.23	Are computers used at any stage of the birth and death registration process?	Yes, all processes are computerized.
B 1.24	Are computers used for any or all of: • Data compilation? • Data transmission? • Data validation? and data storage?	Yes, all processes are computerized.
B 1.25	Are there any plans for further computerization in the near future.	NA
B 1.26	If so, what are the priorities?	NA
B 1.27	What procedures for checking the completeness and consistency of information collected at points of registration are currently being carried out at the points of registration?	There are procedures to checking completeness and consistency of information, e.g., confirmed with birth certificate, sequential queries.

LIST OF QUESTIONS		THAILAND'S SITUATION
B 1.28	What procedures for checking completeness and consistency of information are carried out at central and other levels?	Data collection at local levels is electronically transferred to central level. There is no manual process involved.
B 1.29	Are monthly or quarterly registration data routinely checked to ensure that they are comparable with previous years?	Data are routinely checked annually.
B 1.30	At the central level, are the expected numbers of births and deaths that should occur each year routinely estimated for each registration area, and compared to the actual numbers of registered events?	The Bureau of Registration Administration of the MOI generates an actual birth and death registration report. The National Statistical Office generates population survey reports including births and deaths to compare with the registration reports. The National Economic and Social Development Board (NESDB) forecast population numbers classified by region every five years.

B2: Review of forms used for birth and death registration

B 2.1	Which of the UN-recommended items are collected on birth and death registration forms?	All listed items of the UN-recommended items are collected.
B 2.2	Which of the UN-recommended items that are not collected on the birth and death registration forms would be useful?	-
B 2.3	What additional items are collected on the birth and death registration forms? List and discuss these items.	-
B 2.4	Are any medical details collected (either on the birth registration form or a separate form) regarding the health of the child or the birth process?	Basic medical conditions of the child, e.g., body weight, birth place are collected on birth registration. Additional information of birth defects may be collected to identify congenital disability.

LIST OF QUESTIONS	THAILAND'S SITUATION
<p>B 2.5 Review all the forms used for registering and certifying births and deaths and answer the following questions for each set of forms:</p> <ul style="list-style-type: none"> • Is all the information collected used? • How long does it take, on average, to fill out each set of forms? • Is the layout of the forms user-friendly? Explain why or why not. Is the form available in each of the main national languages? • Which items come from the “declarant” and which are transcribed from other documents; for example, is the cause of death transcribed from the death certification form? 	<p>Most of all collected information is used by government agencies.</p> <p>It takes about 5-10 minutes to fill out the form. Yes, the form is user-friendly and easy to understand because it has been continually improved over several decades.</p> <p>The form is only available in Thai language.</p> <p>Most of information comes from declarant, with required information about births and deaths coming from the birth or death certificates.</p>

B3: Coverage and completeness of registration

<p>B 3.1</p>	<p>What proportion of the population has access to civil registration in the area where they live?</p>	<p>Most of population has access to civil registration. According to the latest population survey from the National statistics Office, the coverage of birth registration and death registration are 96.7% and 95.2%, respectively.</p>
<p>B 3.2</p>	<p>Has access over time: improved? If so, why? remained stable? If so, why? decreased? If so, why?</p>	<p>The access has been improved over time, since it is one of a key indicators for the government. There have also been many pilot projects to promote birth and death registration not only for remote or outreach areas but also in big cities.</p>
<p>B 3.3</p>	<p>If access has improved, what has led to the improvements?</p>	<p>The main reasons may come from increasing a number of mobile service points and the flexible policy where the population can report the vital events at any district local administrative offices throughout the country at their convenience.</p>

LIST OF QUESTIONS	THAILAND'S SITUATION
<p>B 3.4</p> <p>How complete are the birth registration data (i.e. what is the percent completeness level)?</p> <p>Please indicate what method you used to estimate completeness.</p>	<p>The coverage of registrations are high as described in question B3.1. In terms of completeness of data in the system, we believe that it is high because there are required data to complete the registration. Required constraints are consolidated into the applications. Although completeness and quality of civil registration data before the establishment of the central system may have been low, the data was able to be updated with individual access to the service at the provincial or district administration offices.</p>
<p>B 3.5</p> <p>How complete are the death registration data (i.e. what is the percent completeness level)?</p>	<p>The same as for births as described in question B3.4.</p>
<p>B 3.6</p> <p>Has completeness over the last decade been: improving? If so, why? stable? If so, why? decreasing? If so, why?</p>	<p>The completeness of death registration has been improving over time, since it is a key indicator for the government. There have also been many pilot projects to promote birth and death registration not only the remote or outreach areas but also in big cities. Furthermore, the dead body cannot be cremated without a proper death certificate.</p>
<p>B 3.7</p> <p>What subpopulations are most likely to be undercounted in vital registration?</p> <p>(Note: undercounting may be different for births and deaths.)</p>	<p>Illegal immigrant workers, minority groups, remote outreach areas.</p>
<p>B 3.8</p> <p>If only part of the country is covered (e.g. urban areas), have alternative ways of obtaining vital statistics for non-covered populations been considered or implemented; for example, a "sample registration system" (SRS) or a demographic surveillance system (DSS)?</p>	<p>-</p>

LIST OF QUESTIONS		THAILAND'S SITUATION
B 3.9	What has been done in the last 10 years to increase: <ul style="list-style-type: none"> • Birth registration? • Death registration? 	Any birth or death not only of Thai citizens but also other nationalities living in Thailand can be registered.
B 3.10	Is late registration tracked and monitored over time and at the subnational level?	-
B 3.11	Is late registration more common in some areas than others?	Yes, in remote outreach areas such as high mountainous areas.
B 3.12	What proportion of registered births take place in health facilities?	Health facilities have the responsibility of issuing birth certificates. Parents are responsible for bringing the birth certificate to register at any district administration office. The proportion of births in health facilities is higher than 93%.
B 3.13	What proportion of registered deaths take place in health facilities?	Health facilities have the responsibility of issuing death certificates for deaths in hospitals. A family member or a person who found the body is responsible to report death to the authorities and bring the death certificate to register at any district administration office. However, the proportion of deaths in health facilities in the country is in the range 40-43%, or as high as 70% in Bangkok, and about 50% in the Central region.
B 3.14	What proportion of hospitals or other health facilities have registration officers on the premises?	Only in big hospitals in the Bangkok Metropolitan Area where rate of birth delivery is high. This is as a pilot project.
B 3.15	Do midwives or other health personnel attending home births also report these births? If so, to whom?	They are required to report to head of the village in order to get birth certificate for subsequent registration at the district administration office.
B 3.16	Are reported births from such sources routinely compared with registered births?	The reported births from such sources are also required to register.

LIST OF QUESTIONS		THAILAND'S SITUATION
B 3.17	What proportion of births take place in nongovernmental health facilities?	According to Thailand's Health Statistics in 2011, the proportion of births outside health facilities is 6.9%. The report did not classify births by type of health facilities.
B 3.18	What proportion of deaths take place in nongovernmental health facilities?	According to Thailand's Health Statistics in 2011, the proportion of deaths outside health facilities is 56.4%. The report did not classified deaths by type of health facilities.
B 3.19	Does registration involve any financial costs to the family or informant: <ul style="list-style-type: none"> • for births? • for deaths? 	No, except transportation cost from their house to any registration office near their home.
B 3.20	What social services or benefits are linked to birth registration?	Government Health insurance, election right, education, other benefits tied to the parents work.
B 3.21	What social services, insurance benefits or inheritance transfers are linked to death registration?	Inheritance transfers, insurance benefits (if they have), the right to be cremated. Without death certificate, the dead body cannot be cremated.
B 3.22	If the country uses identity cards, how does that system affect vital events registration?	It is easy to identify individuals.
B 3.23	What are the main obstacles to improving civil registration? For example: <ul style="list-style-type: none"> • lack of registrars or places to register; • lack of access to health facilities; • lack of knowledge about the need to register births and deaths; • social stigma of illegitimate children; • cultural barriers; • financial barriers; • illiteracy; • shortage of physicians and midwives; • other obstacles (please specify). 	Lack of long term budget to maintain the centralized computer systems.

LIST OF QUESTIONS		THAILAND'S SITUATION
B 3.24	When did the country last have a campaign to increase public awareness of the need to register vital events?	There are routine campaigns both at national and local level.
B 3.25	Were the results evaluated?	According to the bureau of registration administration, ministry of interior, after a campaign the registration rate is increased.
B 3.26	Is there a committee that regularly monitors and evaluates civil registration completeness?	Yes.

B4: Data storage and transmission

B4.1	Do local registration offices record and store the collected information on births and deaths by: <ul style="list-style-type: none"> • Registry books? • Electronic files? • Other (please specify)? 	Local registration offices record and store the collected information on births and deaths in computer systems connected to national database system in the central office.
B4.2	Are birth and death records filed by: <ul style="list-style-type: none"> • date of registration? • Name? • A numbering system or other numerical index? • Other (please specify)? 	There are unique keys to identify related entity, e.g., house id, province id, personal id. Data is stored in a relational database.
B4.3	What method of record backup is used and how frequently is this done?	District administration offices store information of their population in their computer system. Data from every district offices are real-time online stored in the national database in the central office. The database backup is routinely done.
B4.4	How are birth and death records archived?	All birth and death records are archived in the central system. The updated data are stored both at the local offices and central offices.
B4.5	Have records ever been lost or destroyed?	Never. The only time data accessing problems have occurred is during the few times when the system crashed.

LIST OF QUESTIONS		THAILAND'S SITUATION
B4.6	How can the loss or destruction of records be avoided in the future?	-
B 4.7	Can individual birth or death records easily be retrieved if needed?	Yes. Data are stored in relational database and can be easily retrieved.
B 4.8	Have there been instances of fraudulent or multiple registrations?	Yes, in the case of the same name and last name. However, it can be verified using other identification, e.g., unique personal identification, address, birth date.
B 4.9	What precautions are built into the system to avoid fraudulent or multiple registrations?	There are warning messages from the system, e.g., invalid personal ID, unrelated data, dangerous person.
B 4.10	Using the flowcharts of data transmission prepared for birth and death records, explain where and how data are being consolidated before transmission.	Births and deaths records are consolidated in central system. Data are stored in a relational database. Application from local or central offices have access to the same data.
B 4.11	Reflecting on the data-flowchart prepared, is there a fixed schedule for transferring data in a timely manner?	Births and deaths records are consolidated in central system automatically. There is no need to set a schedule to transfer data.
B 4.12	Is this schedule strictly adhered to?	-
B 4.13	Is this schedule routinely monitored by those receiving the data?	Data processes are automatic consolidated to the central database. However, warning messages are generated to report result status to related officers. If error(s) occurs, the responsible team can respond immediately.
B 4.14	Are there procedures in place to deal with late or non-reporting from local civil registration offices?	Data are frequently stored and up dated to the centralized system automatically by the application.
B 4.15	If there are procedures in place, what are they?	-
B 4.16	Is the information on the birth and death registration forms kept confidential?	Yes, only authorized people can access the data. Any activities are recorded into a logging system, so any suspicious activities can be tracked.

LIST OF QUESTIONS		THAILAND'S SITUATION
B 4.17	How is confidentiality maintained?	See question B4.16
B 4.18	Who can access the data and for what purposes?	Accessing to the data is authorized to government officers according to their responsible roles.
B 4.19	What checks are made on individual birth and death records to ensure that they are accurate and complete when transferred?	There is warning message to show whether the transmission is complete or not.
B 4.20	Are local registration offices routinely contacted for clarification about the statistics by the regional or central level?	Yes.
B 4.21	If so, how frequently is clarification sought?	Monthly, or as needed.
B 4.22	Is there two-way communication and data transfer between central and peripheral offices?	Yes.
B 4.23	Do regional registration authorities routinely receive reports on how the characteristics of their populations compare with the national average?	Yes, there are reports from the system to compare to the national average.

COMPONENT C

DEATH CERTIFICATION AND CAUSE OF DEATH

Component C consists of four subcomponents:

1. Subcomponent C1: ICD-compliant practices for death certification
2. Subcomponent C2: Hospital death certification
3. Subcomponent C3: Deaths occurring outside hospital
4. Subcomponent C4: Practices affecting the quality of cause-of-death data

C1: ICD-compliant practices for death certification

	LIST OF QUESTIONS	THAILAND'S SITUATION
C 1.1	How many registered deaths (as a percentage) have a medically certified cause of death?	All death registers, both in hospital and outside hospitals, are required to get death certificates. Only deaths in hospital are required to have a medical cause of death. According to Thailand's Health Statistics report in 2011, registered deaths that have a medically certificated cause of death have increased from 61.77% in 2007 to 65.50% in 2011. The rest of the registered deaths have cause of death as symptoms or signs (R00 – R99 of the WHO ICD-10 code)
C 1.2	In the cause-of-death data, is it possible to separate medically certified deaths and those certified by a layperson?	There is no such the classification. The only classification is place of deaths, i.e., in or out health facilities. In case of unnatural deaths or crimes, autopsy report from medical doctors may be required.
C 1.3	Are these data compiled separately in the cause of death statistics for the country?	No. Death registration data collected from the ministry of interior are transferred to Bureau of Policy and Strategies, MOPH in order to analyze cause of death.
C 1.4	Are ICD-compliant practices used for death certification in the country?	Death certificates issued by doctors in health facilities describe the cause of death in the Thai language. The coding based on ICD-compliance is done at the MOPH when producing vital statistics.

LIST OF QUESTIONS		THAILAND'S SITUATION
C 1.5	<p>Is the standard international form of medical certificate of cause of death (Box 3.4) used for:</p> <ul style="list-style-type: none"> • All deaths? • Only deaths occurring in hospitals not for those taken place outside hospitals? • Only deaths occurring in some specific hospitals, such as university or regional hospitals? • Other deaths (please specify)? 	<p>The standard international form is used only deaths occurring in hospitals.</p> <p>For deaths occurring outside hospitals, the national form designed by the ministry of interior is used.</p>
C 1.6	<p>If the country does not use the standard International form of medical certificate of cause of death, how could it be introduced (specify steps)? What potential actions (e.g. sensitization of medical establishment) would be required?</p>	-
C 1.7	<p>Do doctors know how to correctly complete the death certificate, including the causal sequence and the underlying cause?</p> <ul style="list-style-type: none"> • Yes, generally. • Yes, always. • No, they do not. 	<p>Yes, generally. However, they may not be able to identify all causes of death.</p>
C 1.8	<p>Is there a booklet, brochure or other guideline for doctors explaining how to certify the cause of death and complete the international form properly?</p>	<p>There is a manual on how to certify the cause of death published by the MOPH and it is available for every doctor to use.</p>
C 1.9	<p>If such material is not available, what would be involved in preparing it and how could it be distributed?</p>	-

LIST OF QUESTIONS		THAILAND'S SITUATION
C 1.10	What proportion of death certificates list only one cause of death? (See Box 3.4 about the need to state not only the disease directly leading to death, but also the underlying conditions without which the person would not have died.)	Most of death certificates list only one cause of death. However, other causes of death may be provided.
C 1.11	What proportion of death certificates report the mode of death instead of the underlying cause of death?	According to Thailand's Health Statistics report in 2011, registered deaths that have cause of death as symptoms or signs (R00 – R99 of the WHO ICD-10 code) has decrease from 38.23% in 2007 to 34.50% in 2011.
C 1.12	What proportion of death certificates do not indicate the interval between onset of disease and death?	100%

C2: Hospital death certification

C 2.1	In hospitals, who completes the death certificate: <ul style="list-style-type: none"> • The attending doctor? • Another doctor who did not treat the deceased person before death occurred? • A nurse? • A medical records officer? • Other (please specify)? 	The doctor who treated the deceased person.
C 2.2	How are cases of DOA certified?	There is no record of dead on arrival.
C 2.3	How common are DOA deaths in hospitals? Do they constitute: <ul style="list-style-type: none"> • Less than 10% of deaths? • 10–20% of deaths? • More than 20% of deaths? 	No available data.

LIST OF QUESTIONS	THAILAND'S SITUATION
<p>C2.4 Are the vital events that take place in hospitals registered in the country:</p> <ul style="list-style-type: none"> • At civil registration points in hospitals? • By the hospital sending forms to the civil registration office? • By the individual family registering after the birth or death has occurred? 	<p>Vital events that take place in hospitals are registered by the individual family after the birth or death has occurred. However, there is a few big hospitals that have civil registration services in hospitals.</p>

C3: Deaths occurring outside hospital

<p>C 3.1</p>	<p>Is it mandatory to issue a death certificate with the cause of death indicated for people who die at home?</p>	<p>Yes, death outside of hospitals have to report to the head of the village to get a death certificate to be registered at the district office.</p>
<p>C 3.2</p>	<p>If so, are there any quality problems with these certificates and are they ever reviewed?</p>	<p>Yes, there are quality problems because the head of the village does not usually have medical knowledge.</p> <p>Thailand is in a process of reviewing the verbal autopsy tool to modify it so that it is appropriate to Thai contexts. There are some pilot projects that use the modified verbal autopsy tool. In 2011, the tool was promoted for use by health staff of health promotion hospitals (health centers) in 15 provinces, i.e., Ubonrachatani, Umnardcharoen, Mahasarakam, Phayao, Chiangrai, Marhongsorn, Kamphangphet, Nakhonsawan, Rachaburi, Suratani, Samutprakarn, Rayong, Pattaloung, Roiet, and Phissanulok .</p> <p>In 2012, the tool was promoted for use by registrars of the district administration offices in 5 provinces, i.e., Srisaket, Yasothorn, Ranong, Chumporn, and Sakeaw.</p> <p>There is a plan to expand the pilot provinces until coverage is nationwide.</p>

LIST OF QUESTIONS		THAILAND'S SITUATION
C 3.3	Is the same cause-of-death form used for deaths in and outside hospital?	Deaths in and outside of hospitals use a different cause of death form.
C 3.4	If a different form is used for deaths outside hospital, what information is recorded about the cause of death?	Most information in both forms is the same except that the form for deaths outside hospital requires more information, i.e., evidence of death, record information from the registrars.
C 3.5	Who prepares the death certificate and certifies the cause of death for people dying outside of hospital: <ul style="list-style-type: none"> • A general practitioner? • A coroner or similar? • A health official? • A civil registrar? • Other (please specify)? 	A civil registrar.
C 3.6	If a doctor is needed, is that person required to examine the deceased person before they have died?	It is required to be the doctor who examined the deceased person before they died, or the doctor who undertook the autopsy after death.
C 3.7	How are deaths certified in cases where the certifying physician is not the person who treated the patient?	There is no difference for both cases.
C 3.8	Are hospital medical records usually accessible to general practitioners when one of their patients dies at home?	Yes.
C 3.9	Is verbal autopsy routinely used to obtain the cause of death for any non-medically certified deaths in the country?	The tool is not routinely used in the country. However there are pilot projects to promote the use of a modified verbal autopsy in the country, details are described in question C3.2 .
C 3.10	If verbal autopsy procedures are routinely used, do they conform to the WHO standards (31)?	Verbal autopsy used in Thailand was modified from the WHO standard to be suitable for the Thai context.

LIST OF QUESTIONS		THAILAND'S SITUATION
C 3.11	Has the WHO standard procedure been modified in any way to make it more applicable to the country? (If so, please specify the modification.)	Yes, to modify diseases and pathological conditions to be more appropriate to the Thai context.

C4: Practices affecting the quality of cause-of-death data

C 4.1	To whom, other than the family, is the cause-of-death information for individuals provided (including upon request)?	Individual authorized by the family member.
C 4.2	What information is provided to the family on the death certificate: <ul style="list-style-type: none"> • All the information on the cause-of-death form? • An extract for laypersons about the cause of death? • Other (please specify)? 	All information on the cause of death form
C 4.3	Is it likely that many cases with a sensitive or stigmatizing cause of death (e.g. suicide or HIV/AIDS) would be assigned to a more socially acceptable cause of death?	Yes.
C 4.4	Does the death certificate state whether a woman was pregnant, or had recently been pregnant?	Yes. Gestational age of the pregnancy or if death occurs within 6 weeks after delivery is also provided.
C 4.5	Are maternal deaths reviewed separately from other deaths?	No, all deaths use the same form and are reported together.
C 4.6	Are perinatal deaths monitored using a special form, as recommended by the WHO?	No.

	LIST OF QUESTIONS	THAILAND'S SITUATION
C 4.7	<p>What training and practice do doctors receive in certifying the cause of death:</p> <ul style="list-style-type: none"> • None? • One lecture in medical school or at the hospital? • An ICD-compliant training course on certification? • On-the-job training? • Other (please specify)? 	<p>There is no specific course on cause of death in Medical curriculum. However, some medical schools do provide a short course to medical students and interns. There is only one institute, i.e., Kanchanabhishek Institute of Medical and Public Health Technology that provides training on cause- of-death in its curriculum.</p>
C 4.8	<p>Would most doctors be aware of the important public health uses of the information they provide on the death certificate?</p>	<p>Yes, most doctors are aware of the important public health uses of the information they provide on the death certificate. Furthermore, the cause of death is also important for the deaths that have life insurance or legal issues.</p>
C 4.9	<p>Has the country evaluated the quality of medical certification?</p>	<p>Evaluation of the quality of medical certificate is done at the MOPH from random samples, especially the “ill-defined and unknown causes of death”.</p>
C 4.10	<p>If yes:</p> <ul style="list-style-type: none"> • When was the evaluation done? • How was it done? • What did it conclude? • What follow-up was undertaken to improve certification practices? 	<p>The evaluation is done by the Bureau of Policy and Strategies in the process of producing vital statistics. Recommendations and issues are be included in the manual and training courses for medical doctors.</p>
C 4.11	<p>Are hospital medical records generally:</p> <ul style="list-style-type: none"> • Complete? • Reliable? • Easily accessible to the certifier? 	<p>Most of hospital medical records are complete, reliable, and easily accessible to the certifier because most of hospital information systems are centralized within each hospital.</p>
C 4.12	<p>Are other health records, such as from health clinics, general practitioners or family doctors:</p> <ul style="list-style-type: none"> • Complete? • Reliable? • Easily accessible to the certifier? 	<p>They are usually incomplete. It's usually recorded separately, except for clinics within hospitals where all data are recorded in the hospital system.</p>

LIST OF QUESTIONS		THAILAND'S SITUATION
C 4.13	Who certifies whether the cause of death is unnatural (i.e. accident, suicide or homicide)?	Medical doctor
C 4.14	If there is a special system for certifying these deaths, please describe how this works and how well it works.	Cause of death is examined using international standards. In case of unnatural deaths, an autopsy may be required to identify cause of death.
C 4.15	Are certifying doctors aware of how to report deaths from injuries and external causes according to the ICD rules?	Yes.

COMPONENT D ICD MORTALITY CODING PRACTICES

Component C consists of four subcomponents:

1. Subcomponent D1 – Mortality coding practices;
2. Subcomponent D2 – Mortality coder qualification and training;
3. Subcomponent D3 – Quality of mortality coding.

D1: Mortality coding practices		
	LIST OF QUESTIONS	THAILAND'S SITUATION
D 1.1	Is the ICD used for cause-of-death statistics?	Yes.
D 1.2	If so, which revision and edition is currently being used?	WHO ICD10 version 2010 (International Statistical Classification of Diseases and Related Health Problems 10th Revision). A Thai modification is used.
D 1.3	Is a national-language version of the ICD used?	Yes, there is Thai version of WHO ICD-10.
D 1.4	Who is responsible for coordinating the implementation of the ICD?	MOPH
D 1.5	Who is responsible for training ICD coders?	Mortality coders in hospitals are required to pass the Medical Record Librarian School, currently merged to Kanchanabhishek Institute of Medical and Public Health Technology, where they have learnt coding mortality in accordance with ICD principles and rules. The MOPH also provides training for doctors and health staff annually.
D 1.6	Are the codes selected for cause-of-death reporting chosen from the complete ICD list, or is coding done from a summary tabulation list of the ICD?	The codes are selected from a summary tabulation list from the MOPH.
D 1.7	If a summary list is used, which list is it?	A summary tabulation list provided from the MOPH.

LIST OF QUESTIONS		THAILAND'S SITUATION
D 1.8	Are coding and ICD selection rules for underlying cause-of-death data applied?	Yes.
D 1.9	Is mortality coding centralized or decentralized?	It is centralized by the MOPH.
D 1.10	If coding is decentralized, what quality measures and procedures are in place to ensure national consistency in the application of ICD coding rules?	-
D 1.11	Is cause-of-death coding done from a copy of the original death certificate or from a transcribed list provided by the civil registration office, or from some other summary document?	It is done from a copy of the original death certificate for deaths in hospitals and a transcribed list provided by the head of community for deaths outside of hospitals. All documents are collected by the civil registration offices and transferred to the MOPH for coding.
D 1.12	Is all the information on the death certificate coded, or only the presumed underlying cause of death?	Cause of death Information on the death certificate is in text description that can be coded later by the MOPH.
D 1.13	Is there an established mechanism to query the certifier (doctor) in cases where the coder cannot understand or interpret the reported causes of death on the certificate?	The coding is done at the MOPH. There is no standard mechanism to query the certifying doctor. However, the coder can contact the hospital to clarify with the doctor.
D 1.14	If so, please describe these procedures and discuss their efficacy.	-

D2: Mortality coder qualification and training

D 2.1	What categories of staff (e.g. physicians, statisticians, and health professionals) are doing mortality coding in the country?	Medical statisticians
D 2.2	What level of education do mortality coders typically have?	Bachelor degree on Medical statistics from Kanchanabhishek Institute of Medical and Public Health Technology, where they have learnt coding mortality in accordance with ICD principles and rules.

LIST OF QUESTIONS		THAILAND'S SITUATION
D 2.3	Are specific training courses provided for mortality coders or do they learn on-the-job?	There are specific training courses.
D 2.4	If coders are specifically trained to code: <ul style="list-style-type: none"> • Are there sufficient local ICD trainers to meet the needs? • Who is responsible for delivering the training? • What is the length of training and is there a standard curriculum? • How often is coder training conducted? 	The institute, in collaboration with other government agencies such as MOPH and the National Health Security Office (NHSO), provide short course training for health staff annually.
D 2.5	Is there a high turnover among coders?	No, because most of medical statistics choose to work in hospitals near their residence.
D 2.6	Are coders recognized within staffing structures as a separate cadre, and are coding qualifications recognized separately to other administrative officers?	Yes.
D 2.7	Are there local senior trainers who have been trained at WHO-FIC supported training courses?	Yes.
D 2.8	Do coders have opportunities for ongoing education?	There is on the job training or related short course training. However, they can pursue higher degree in other health disciplines such as public health, health informatics.
D3: Quality of mortality coding		
D 3.1	Do all coders have a complete set of ICD volumes available to them when they code?	Yes, the MOPH in collaboration with other government agencies published the WHO ICD-10 manuals distributed to every hospitals and health facilities every year.
D 3.2	Do all coders have a set of the ACME decisions tables?	No. However, they can access to the online version of the ACME decisions tables as needed.

LIST OF QUESTIONS		THAILAND'S SITUATION
D 3.3	<p>Do you regularly check:</p> <ul style="list-style-type: none"> • The ICD web site for updates to codes and coding practices? • The department of health's web site for updates on coding practices? 	Yes, coders always check the update information from web sites of WHO and the MOPH.
D 3.4	What processes are in place to assess the quality of cause of death coding, and how frequently is this assessed?	There is no standard process to assess the quality of cause of death coding. However, the assessment process is done by coders by comparing with statistics from past years and querying unexpected differences.
D 3.5	Has the quality of mortality coding ever been evaluated?	Yes, the evaluation has been done by comparing with statistics from past years at the MOPH.
D 3.6	If so, was the level of accuracy deemed satisfactory? What systemic issues were identified?	It is satisfied at some level. The issue is that the numbers of "ill- defined and unknown cause of death" is still high.
D 3.7	What mechanisms are in place to provide feedback to coders on the quality of coding, and to correct the problems and issues identified through evaluation and practice?	No direct mechanism. However, problems and issues will be included in the next training course.

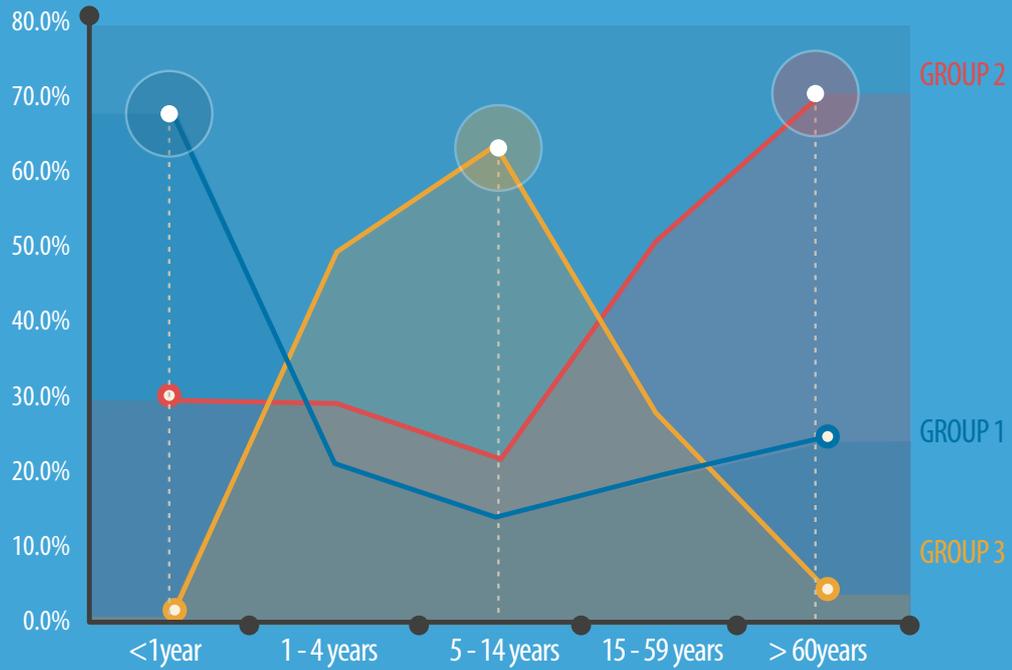
Component E – Component E consists of three subcomponents:

1. Subcomponent E1 – Data quality and plausibility checks;
2. Subcomponent E2 – Data tabulation;
3. Subcomponent E3 – Data access and dissemination.

E1: Data quality and plausibility checks		
	LIST OF QUESTIONS	THAILAND'S SITUATION
E 1.1	Are fertility indicators (e.g. crude birth or fertility rate, age-specific fertility rate and total fertility rate) routinely calculated from the civil registration and vital statistics data?	Yes, they are done by the MOPH.
E 1.2	If so, which indicators are calculated?	Most of the standard international indicators.
E 1.3	Are mortality indicators (e.g. crude death or mortality rate, age-specific mortality rate, infant mortality rate, neonatal mortality rate and maternal mortality rate) routinely calculated from the civil registration and vital statistics data?	Yes, they are done by the MOPH.
E 1.4	If so, which indicators are calculated?	Most of international standard indicators
E 1.5	What data sources are used as the denominators to calculate these rates?	Total population at the mid fiscal year. Since total population is derived from the civil registration, the period of time to count the population can be changed, e.g., at the beginning of the period, the end of the period.
E 1.6	Describe the plausibility and consistency checks that are carried out on the data and indicators before they are released for use (see Box 3.9).	Standard plausibility and consistency checks (Box 3.9) are applied. There are also processes to validate source data, to evaluate and to compare the results with other sources.

LIST OF QUESTIONS		THAILAND'S SITUATION
E 1.7	Are the civil registration and vital statistics data used to investigate variations in fertility and mortality within the country? If so, describe how this is being done.	Yes. Civil registration data from the MOI are shared with other related government agencies, e.g., the MOPH, the NHSO. The data are used to analyze and compare with other sources.
E 1.8	Are fertility rates derived from civil registration and vital statistics compared with rates derived from other sources?	Yes.
E 1.9	Are mortality rates derived from civil registration and vital statistics compared with rates derived from other sources?	Yes.
E 1.10	Did the last census include a question on births or deaths; for example: <ul style="list-style-type: none"> • Number of children ever born alive and still alive? • Date of birth of last child born alive? • Whether the last birth was registered? • Whether the last death was registered? • Deaths in the household in the past 12–24 months? 	Yes.
E 1.11	If so, have the data been analysed and compared with the vital statistics data?	Yes.
E 1.12	Are other sources used to complete and verify birth and death data?	Yes, researchers from other universities or government agencies.
E 1.13	If so, describe these.	For example, the population survey by the National Statistics Office, population research by population institutes of universities.

LIST OF QUESTIONS		THAILAND'S SITUATION
E 1.14	What is the proportion of all deaths allocated to ill-defined categories? (See Annex 1 of Volume 2 of ICD-10 and Section 4.1.10 of ICD-10, Rule A on Senility and other ill-defined conditions.)	According to Thai health statistics report 2011, the percentage of cause-of-death defined with the ICD10 codes between R00 to R99 to all deaths has decreased from 38.23% in 2007 to 34.50% in 2011
E 1.15	Has the proportion of deaths allocated to the ill-defined categories changed over time?	See question E1.14
E 1.16	What is the proportion of unknown causes of death among all deaths?	See question E1.14
E 1.17	Is the consistency of the national cause-of-death pattern checked over time, including disaggregation comparisons?	Yes.
E 1.18	Does the overall cause-of-death distribution seem plausible, e.g. does it fit the expected disease and injury patterns given current national levels of life expectancy (see Box 3.10)?	The mortality of group I cause of death (communicable diseases, maternal, perinatal and nutritional conditions) and group II cause of deaths (Noncommunicable diseases) is 23.6% and 60.5%, respectively. However, the list of cause of deaths from the Thailand Public Health Statistics, 2011 do not cover all the ICD-10 codes listed in Box 3.10.
E 1.19	Is the age pattern of causes of death obtained from civil registration for major disease groups and injuries consistent with expected patterns? (see Box 3.11)	Two thirds of all deaths at age < 5 years are due to group I causes of death. About 60% of deaths of age 5-14 years are due to group III causes of death (Intentional and non-intentional injuries, including homicide and suicide). At higher ages, the percentage of deaths due to group II causes of death (Noncommunicable diseases) rises sharply, and they account for about 70% of deaths of age > 60 years. The patterns are shown in the following figure.



	<1 year	1-4 years	5-14 years	15-59 years	> 60 years	Unknown age	total
Group 1	3,116	347	458	22,403	33,894	26	60,244
Group 2	1,391	467	713	57,589	94,216	32	154,408
Group 3	112	769	1,983	30,683	7,128	7	40,682
total	4,619	1,583	3,154	110,675	135,238	65	255,334

LIST OF QUESTIONS	THAILAND'S SITUATION
<p>E1.20 Further checks on the quality of cause-of-death data can be made using the three measures below. In properly functioning systems with good death certification, the percentage of all cardiovascular, cancer or injury deaths assigned to these codes should not exceed about 10–15%.</p> <ul style="list-style-type: none"> • What is the proportion of cardiovascular disease deaths assigned to heart failure and other ill-defined heart-disease categories (ICD-10 codes I472, I490, I46, I50, I514, I515, I516, I519, I709)? • What is the proportion of cancers with an ill-defined primary site (ICD-10 codes C76, C80, C97)? • What is the proportion of injury deaths that are of undetermined intent (ICD-10 codes Y10-Y34, Y872)? 	<p>According to Thai Health Statistics, 2011,</p> <ul style="list-style-type: none"> • cardiovascular disease deaths assigned to heart failure and other ill-defined heart-disease categories is 31.3 per 100,000 population. • cancers with an ill-defined primary site is 95.2 per 100,000 population. • injury deaths that are of undetermined intent is 52.8 per 100,000 population.

E2: Data tabulation

E 2.1	Are births and deaths compiled according to date of occurrence or to date of registration?	They are compiled according to date of occurrence. However, both date of occurrence and date of registration are recorded.
E 2.2	Are births and deaths compiled according to place of occurrence as well as place of usual residence?	They are usually compiled according to place of usual residence. However, both place of occurrence and place of usual residence are recorded.
E 2.3	At what level of disaggregation are the birth data tabulated? Report separately for: <ul style="list-style-type: none"> • Sex; • Sex, and age of mother; • Sex, age of mother and subregion. 	Birth data can be tabulated at any dimension as needed, e.g., by sex, birth weight, sex and age of mother, location of birth(province, district, and sub-district), usual residence of mother.

LIST OF QUESTIONS		THAILAND'S SITUATION
E 2.4	<p>At what level of disaggregation are the deaths and cause-of-death data tabulated? Report separately for deaths and cause of death for:</p> <ul style="list-style-type: none"> • Sex; • Sex, and age of mother; • Sex, age of mother and subregion. 	Death data can be tabulated at any dimension as needed, e.g., by cause-of-death, sex, age, death location (province, district, and sub-district), usual residence of decrease.
E 2.5	Are standard WHO age groups used to tabulate mortality and cause-of-death data?	Yes, it can also be grouped by any age as needed.
E 2.6	<p>What is the smallest subnational level used for tabulating vital statistics?</p> <p>Is this Appropriate given the potential uses for disaggregated data?</p>	Provincial level.
E 2.7	Are any of the four standard mortality tabulation lists suggested by the ICD used for data presentation purposes?	<p>Yes.</p> <p>The standard mortality tabulation lists suggested by the ICD below are used.</p> <p>List 1 - General mortality - condensed list</p> <p>List 2 - General mortality - selected list</p> <p>List 3 - Infant and child mortality - condensed list</p> <p>List 4 - Infant and child mortality - selected list</p>
E 2.8	If not, which condensed list is used? How was this list derived?	-
E 2.9	Are data compiled into 10 leading causes (separately for men and women and children)?	Yes.
E 2.10	From which list are the 10 leading causes selected?	List 1 and List 3.
E 2.11	Are ill-defined causes included in the ranking as a category?	Yes.
E 2.12	What proportion of deaths is accounted for by the 10 leading causes of death?	More than 50%

E3: Data access and dissemination

LIST OF QUESTIONS		THAILAND'S SITUATION
E3.1	<p>Who are the main users of the vital statistics:</p> <ul style="list-style-type: none"> • Within government? • Outside the government? 	Government agencies with responsibilities related to health policies and plans, social and economic policies, researchers, students, public.
E3.2	<p>Is there an engagement strategy to regularly discuss data needs with the main data users? If so, describe this.</p>	Yes, mostly are in informal collaborations between officers. However, the National Statistics Plan in 2007 established the National Statistics Committee. Sub-national committees on 21 areas including healthcare area were also established. The healthcare sub-national committee is chaired by the Permanent Secretary of the ministry of public health.
E3.3	<p>Is it possible to provide an example of how vital statistics have been used to guide policy and practice?</p>	Vital statistics have been used to guide policy and practice, e.g., to review government health insurance benefit packages, health promotion and prevention activities and plans on high risk groups, public campaign.
E3.4	<p>What is the time from the end of the reporting period (e.g. end of calendar year in which births and deaths occurred) to the dissemination of:</p> <ul style="list-style-type: none"> • Birth and death statistics? • Cause-of-death statistics? 	An official report is usually released within 6 months after the end of the period. However, the statistics can be calculated as needed.
E3.5	<p>Are analytical reports about birth, deaths and causes of deaths derived from vital registration produced? If so, include examples.</p>	Yes. There is also other analysis with health service data from hospitals as needed.
E3.6	<p>Is there a data-release schedule?</p>	Yes.
E3.7	<p>Are vital statistics made available to users as:</p> <p>Print?</p> <ul style="list-style-type: none"> • Electronic files? • Web sites? • pdfs? • Interactive tables? 	Yes, in all formats as appropriate.

LIST OF QUESTIONS		THAILAND'S SITUATION
E 3.8	Are the vital statistics available free of charge or at a cost? Please explain.	It is free of charge, or in some cases a small administrative charge may be levied for special requests.
E 3.9	What agency publishes the official vital statistics?	Bureau of Policy and Strategies (MOPH)
E 3.10	How regularly are the data published or released?	Annually.
E 3.11	Are all definitions and concepts used in vital statistics publications clearly explained?	Yes.
E 3.12	What analyses are being routinely carried out on the data (e.g. fertility patterns, mortality differentials, disease mapping, etc.)?	Most analysis follows international standard reporting.
E 3.13	Along with the statistical tables, are analyses of the data published regularly?	Yes.
E 3.14	How are these data being used at various levels?	At national and provincial levels, they are used for policy planning. At lower levels, they are used to improve the quality of care.
E 3.15	Is there any attempt to build analytical capacity among staff who collect and compile vital statistics to perform basic analyses of the data to help them better understand the value and purpose of the data which they collect? If not, how could this be achieved?	Short courses are provided by the MOPH in collaboration with other central government agencies, e.g., the NHSO, SSO. However, lack of qualified staff is still a big concern.

Conclusions and Recommendations

Conducting a rapid assessment of CRVS systems in Thailand revealed that, although computerized and with a high coverage of registration, the system has room for improvement, especially in coding of causes of deaths. The overall score of the rapid assessment was 86.67% “Satisfactory”, meaning “Minor adjustments may be required in an otherwise well-functioning system.”

According to the rapid assessment scores, the five areas that showed the most concern were:

- Legal framework for civil registration and vital statistics
- Organization and functioning of the vital statistics system
- ICD-compliant practices and certification within and outside hospitals
- Coder qualification and training, and quality of coding
- Data quality and plausibility checks

Examination of the detailed scores in the RA tool, shows that the lowest score is 1 for question 16 (quality of cause of death data). Seven of the remaining questions, (questions 3, 7, 13-15, and 19-21), were given a score of 2.0, indicating they could be improved. The result show that quality of coding in-ill defined and unknown cause of death should be targeted for further improvement.

Recommendations from the assessment are:

1. The areas that are functioning well, i.e., “Registration infrastructure and resources”, “Completeness of registration of births and deaths”, “Data storage and transmission”, “ICD coding practices”, and “Data access, dissemination and use”, should not be ignored for sustainable development reasons. It is necessary to improve computer and network system for the registration system, provides training to registrars in order to support registration utilization.
2. Training on cause of death should be conducted on both health care professionals and registrars or related officers to increase the reliability of cause of death statistics and reduce unknown causes of mortality.
3. It is recommended to increase awareness of data verification and validation before publishing vital statistics. Data should be compare other to other source.
4. Establish standard consistency and plausibility checks on fertility and mortality levels as well as cause of deaths to be carried out before the data are released.
5. Establish a network of collaboration between stakeholders in the CRVS system to improve the quality and increase use of vital statistics, not only by government but also for consumers and the general public.

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