Research proposal

Development of a population-based screening package in Thailand

Background:

Due to the completion of the epidemiological transition in Thailand, the death rate and prevalence of diseases of chronic conditions and non-communicable diseases has increased in recent years, bringing about higher health expenditure and burden on the health care (1)

Most of these diseases have along asymptomatic stage or identifiable, modifiable risk factors and, therefore, may be amenable to primary (e.g. health promotion, screening for risk) or secondary prevention (e.g. screening for disease).

The core concept of screening is that early detection of these risk factors or early diseases is beneficial for the clinical or public health outcome. According to the UK National Screening Committee, "screening is a public health service in which members of a defined population, who do not necessarily perceive they are at risk of, or are already affected by a disease or its complications, are asked a question or offered a test, to identify those individuals who are more likely to be helped than harmed by further tests or treatment to reduce the risk of a disease or its complications" (Raffle and Muir Gray, 2007)

Screening can be organised in formal screening programmes that aim to reach the whole target population (e.g. cervical cancer screening) or opportunistically (e.g. breast cancer screening). Screening instruments vary from technological procedures (e.g. radiography or laboratory tests), clinical examinations (e.g. blood pressure) to standardized questions or questionnaires (e.g. depression screening in primary care). (Markham et al, 1997; Wilson and Jungner, 1968).

A number of criteria are generally required in order to assess the appropriateness of establishing population-based screening programmes: screening tests should be accurate, simple, cheap, harmless, and easy to apply; the disease (or risk factor) screened must be a major health problem of society, with a detectable presymptomatic stage and prone to effective treatment; high participation (>70%) rate, following investigation and treatment should comply to clinical guideline, appropriate infrastructure and human resource should be available to offer diagnostic, treatment, follow-up, and programme monitoring and evaluation. Last but not the least, it is also necessary to consider the harm caused by screening , such as anxiety and unnecessary investigations resulting from false positives, false reassurance and, sometimes, side effects/complications of treatment due to false negatives. (Holland et al, 2006; Wilson and Jungner, 1968).

In Thailand, there are a number of health screening tests and programmes publicly funded at present; however, some of them either have been introduced in practice without a rigorous assessment of the scientific evidence or not taking into account social and ethical considerations. For instance, there are concerns about effectiveness and equity in the provision of public health screening among the different insurance schemes in Thailand (Braveman and Tarimo, 1994; 1996)

The Civil Servant Medical Benefit Scheme (CSMBS) health examination package offers an exclusive set of screening procedures for both working-age and retired government officers (and soon possibly to their dependants), which does not generally follow accepted criteria for selection of screening interventions (Holland and Stewart, 2005; Holland, 2009; USPTF, 2007). On the contrary, the Universal Coverage scheme offers a range of screening programmes which aim to reach all Thais in their target population, regardless of their insurance scheme. For the

Social Security scheme, it provides a promotion and prevention package in the workplace (e.g., screening for risk factors). (please provide references in Thai of the different benefit packages; for CSMBS criticism, you can cite Dr Surajit's book).

Although evidence-based clinical practice guidelines for clinical preventive services have long been available in Thailand (Suntorntham, 2000), their adoption has been greater at the clinical than at the policy level, probably because of a lack of consensus among Thai stakeholders (public health experts/policymakers, health professionals and non-professional/civil society organization representatives). The developers of the clinical prevention guidelines (a cross-specialty panel of physicians) ranked the priority diseases by using weighted scores (including mortality, disability, morbidity, cost incurred from illness, and preventability) in order to select the screening interventions (and other preventive measures) for assessment (Suntorntham, 2000).

However, there are discrepancies on which the best method to determine health priorities should be. Premature mortality (CDC, 1986), indicators combining mortality and morbidity (Colvez and Blanchet, 1983) or cost effectiveness (Hadorn, 1991) have all been used to estimate the relative importance of a specific condition. In some instances, a Delphi consensus has been employed to set priorities (De Vos et al, 2006; Swinkels et al, 2011), whereas other priority-setting exercises have used other methods to reach a final consensus (Schopper et al, 2000).

Objectives:

To develop an appropriate population-based screening package in Thailand

This study will:

1. prioritize health problems for screening based on available local data and expert opinion,
2. conduct assessment of prioritized screening interventions
3. make recommendations on the selected population-based screening programmes

Conceptual framework:

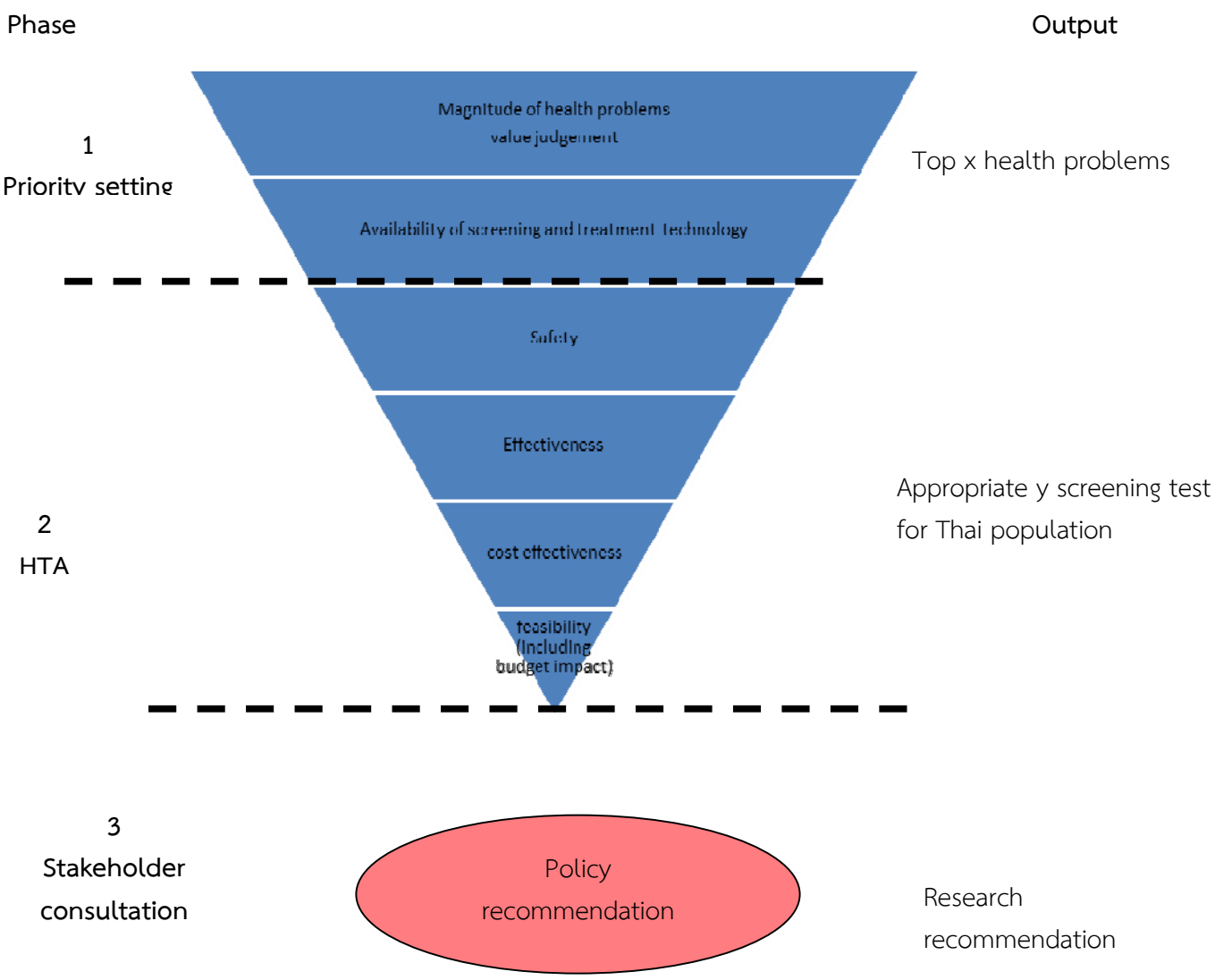

Figure 1 **Conceptual framework**

Methodology:

This study will be divided into three phases according to the objectives set.

The first phase: Prioritization of health problems from the deliberative process

With the aim of developing screening packages, it is very crucial to identify what health problems are in need for population-based screening as priority setting is suggested be useful given the limited budget and time for assessment of a wide range of health technology. The prioritization of important health problems will be conducted using the deliberative process that was adapted from modified Delphi consensus process. There are two steps involving with the prioritization, 1) data preparation and 2) deliberative process.

Data preparation

Two types of information will be used as prior information for the deliberative process as follows:

1. Burden of disease (BOD) from the International Health Policy Program (IHPP), Ministry of Public Health

   The most recent information on BOD was retrieved from the burden of disease and injuries in Thailand report (2009). Disability-adjusted life years (DALYs) will be used as an indicator for disease burden. The top ten problems, in terms of DALYs, in all age groups (0-14, 15-29, 30-59, $\geq$ 60 years old) are selected. Additional data on the overall DALYs, incidence and prevalence for each health problems, given all age groups, are collected from BOD unit,

IHPP. Note that, routine antenatal care in Thailand is very well established. Therefore, the health problems related to antenatal care will be excluded.

2. Inpatient admissions and reimbursement from Bureau of Policy and Strategy, Ministry of Public Health

Additional data on inpatient admissions and reimbursement in 2010 of the health problem with the same classification as the one BOD unit used will be collected.

The deliberative process

The main method used in the first phase of this study is a modified Delphi consensus process, with the purpose of selecting x high-priority health problems. The difference from the traditional Delphi method used in this study is that the researcher will allow the group dynamics for arriving at consensus among participants in every round of the process; however, the final lists of high-priority health problems will be determined by researchers within this project using both inputs from the process and also overall aspects. Therefore, all approaches used in this phase will be termed as deliberative process. Nonetheless, this deliberative process will maintain other important characteristic of Delphi techniques that are taking individual opinions into account, interaction between participants, feedback and group discussion. Moreover participants can change their opinions through the process.

Details of the deliberative process are described below.

Purposive selection of key informants (or relevant organizations) from three groups of stakeholders, namely public health experts/decision makers, physicians and non-professional/civil society organization representatives, will be employed to allow the variation

of selected groups and, at the same time, to ensure the homogeneity within the groups. Each group contains 20 members with a balance mix between males and females because researchers are well aware of the difference of disease burden across genders and also gender-induced bias. Although other characteristics such as age or socioeconomic status can play an important role in priority settings, it is almost impossible to control them in this process given relevant stakeholders. In addition, empirical evidence suggested that older people are more generous than the younger one when allocating limited healthcare resources (ref social sciences and medicine, Australian and the "Pricing life" Ubel, P.A. (2001)). Prior to a meeting to conduct the deliberative process on prioritizing health problems, information on disease groups with high disease burdens and high inpatient admissions and reimbursement will be distributed to participants. Three rounds of the deliberative process will be conducted (see summary in **table 1**).

1. Listing

   This session will start off with a presentation of the project (include all 3 phases), the meeting objectives, the importance of the project, the previous health screening project, the availability of screening tests- excluding screening test for part of care or complication-, questions and answers for clarification of the objectives.

   Then, the participants will be asked to consider all types of impact, such as frequency, severity, socioeconomic, effectiveness of intervention and screening in their best knowledge before making a decision. Each participant is allowed to list up to 10 health problems. The health problems may be from the 31 health problems (from the data) or from their own opinion. The health problems will be listed as a frequency from high to

low. The top 10 problems classified by stakeholder groups (3 groups) and triangulation will be showed to participants to let them discuss on the result.

2. Ranking

   After the discussion, participants will be asked to rank the top 5 health problems in their opinion. The ranks will be then scored by the researchers, i.e. 5 points for the first rank health problem; 4 points for the second rank health problem, 3 points for the third rank health problem; 2 points for the fourth rank health problem; and 1 point for the fifth rank health problem. All the health problems will be listed as per total scores from high to low. The top 10 health problems by stakeholder groups and triangulation will be showed to participants to let them discuss on the result. If the time left, another round of ranking will be arranged.

3. Making consensus

   The top 10 health problems of each group and triangulation of the results will be showed to participants. Then we will allow them to discuss on the result.

Final consensus

The researchers will assess the 3 lists from the deliberative process and consider with BOD, incidence, prevalence, number and reimbursement of inpatient admissions, socioeconomics, ethics, effectiveness of screening and intervention before making final consensus of the top xx population-based screening interventions. The list of final consensus will be sent to the experts.

Table 1 Summary of the deliberative process used in the first phrase

	Deliberative processes			Final consensus
	1st round: Listing	**2nd round: Ranking**	**3rd round: Making consensus**	
Information used	- High disease burdens - High inpatient admissions and reimbursement (2 weeks prior to the meeting)	- The top 10 health problems from the 1st round	- The top 10 health problems from each panel, highlight the top 5	- The top 5 health problems from each panel
Process	- Presentation by research team - Participants list 10 health problems individually	- Researcher give presentation on 3 lists - Data triangulation - Discussion - Ranking of 5 health problems by 1-5 scoring	- Data triangulation - Discussion	- Discussion among research team using overall aspects
Output	- Summary the top 10 health problems - Show overall list - Possible 3 lists from 3 panels	- The top 10 health problems from each panel, highlight the top 5	- The top 5 health problems from each panel	- Final list of 5 health problems to be considered in the 2nd phase of this project

Note that the number of health problems can be adjusted according to the deliberative process, if appropriate

The second phase: Health technology assessment of the population-based screening to tackle top priority health problems

The research team will conduct health technology assessment of the appropriate population-base screening for the top priority health problems from the first phase of this study. Researchers will adopt the preset criteria developed in another project of HITAP (**figure 1**). The National Methodological HTA Guidelines will be used for assessment across all screening interventions. However, the Guidelines do not cover assessment of safety. The reviews of international HTA guidelines in particular for the health screening, such as the US guideline and EUNetHTA, will be performed in order to standardise safety assessment. The expert consultation meeting with stakeholders, including representatives from health professional associations, central and provincial government officers and academics in the particular screening interventions, will be organized to discuss on the results derived from the assessment.

The third phase: Making recommendation

The recommended population-based screening packages to tackle top priority health problems will be presented to relevant stakeholders, including representatives from health professional councils, health care purchasers, central and provincial government officers, academics, industry associations, civil society and patient representatives. The presentation will focus on the results derived from studies from the second phase. The results from each screening package should include the availability of technology, safety, effectiveness of the screening and the value for money adding into the Thai society and feasibility issue, both financial and technical feasibility. The final recommendation for population-based screening packages will be derived from this meeting.

Expected outcomes:

Table 2 summary of expected outcomes derived from each phase

Phase	Expected outputs/outcomes
1. Prioritization of health problems from the deliberative process	- Final list of 5 health problems
2. Health technology assessment of the population-based screening to tackle top five health problems	- Appropriate population-based screening packages for the Thai population
3. Making recommendation	- Final recommendation for population-based screening packages

Deliverables

- Research report in Thai
- Journal publication in Thai, such as Health system research on 1) prioritization, 2) HTA studies and 3) the development of screening packages
- Journal publication in English on 1) prioritization, 2) HTA studies and 3) the development of screening packages

Contributions by research team:

- PI: Dr. Patsri Srisuwan
- Tanunya Koopitakkajorn
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- Román Pérez Velasco
- Sitaporn Youngkong
- Sripen Tantivess
- Dr. Yot Teerawattananon

Estimated budget

Activities	Estimated budget (baht)
Pre-proposal preparation	25,000
Developing proposal	25,000
Data collection	50,000
Prioritization of health problems from the deliberative process -voting system Bht. 300,000 -accommodation Bht. 80,000 -participants expenditure Bht. 170,000	550,000
HTA for the 1st health problem	400,000
HTA for the 2nd health problem	400,000
HTA for the 3rd health problem	400,000
HTA for the 4th health problem	400,000
HTA for the 5th health problem	400,000
Feasibility expert meeting (Bht. 30,000 x 5 topics)	150,000
Experts meeting of policy recommendation -accommodation Bht. 80,000 -participants expenditure Bht. 170,000	260,000
Preparation for papers publication (Bht. 20,000 x 6)	120,000
Document and supply	400,000
Thai report publication (Bht. 100 x 500 papers)	50,000
International publication (Bht. 40,000 x 3 topics)	120,000
Present the result to international conferences (Bht. 50,000 x 3 topics)	150,000
Researchers (Bht.30,000/months/person x 6 researchers)	300,000
Research assistances (Bht.15,000/months/person x 2 researchers)	300,000
Research management	500,000
Total	5,000,000

Detail activities of the project

Table 3 Timeframe for research project from January 2012 – March 2013

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Pre-proposal preparation	↔														
Developing proposal		↔													
The first phase															
Prioritization of health problems from the deliberative process		↔	↔	↔											
The second phase															
Expert meeting focusing on the 1st health problem					↔										
HTA for the 1st health problem						↔									
Expert meeting focusing on the 2nd health problem						↔									
HTA for the 2nd health problem							↔								
Expert meeting focusing on the 3rd health problem							↔								

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
HTA for the 3rd health problem								↔							
Expert meeting focusing on the 4th health problem								↔							
HTA for the 4th health problem									↔						
Expert meeting focusing on the 5th health problem									↔						
HTA for the 5th health problem										↔					
Expert meeting focusing on the 6th health problem										↔					
HTA for the 6th health problem											↔				
Summarize and making recommendations for screening package												→	→	→	
The third phase															
Expert meeting focusing on the final recommendations															↔
Writing up report and dissemination of the report															↔

Bibliography:

Raffle AE, Muir Gray JA (eds). Screening: evidence and practice. Oxford, UK: Oxford University Press; 2007. Available at: http://bit.ly/hOtpDE [accessed 7.04.2011].

Markham BA, Hutchison B, Birch S, Goldsmith LJ, Evans CE. Casting the screening net: separating big fish from little fish. Health Policy 1997; 42: 171–184.

Wilson JMG, Jungner G. Principles and practice of screening for disease. Geneva, CH: World Health Organization; 1968. Available at: http://whqlibdoc.who.int/php/WHO_PHP_34.pdf [accessed 7.04.2011].

Holland WW, Stewart S, Masseria C. Screening in Europe. Copenhagen, DK: World Health Organization Europe, in association with the European Observatory on Health Systems and Policies; 2006. Available at: http://www.euro.who.int/__data/assets/pdf_file/0007/108961/E88698.pdf [accessed 7.04.2011].

Braveman PA, Tarimo E. Screening in primary health care: setting priorities with limited resources. Geneva, CH: World Health Organization; 1994. Available at: http://whqlibdoc.who.int/publications/1994/9241544732_eng.pdf [accessed 7.04.2011].

Braveman PA, Tarimo E. Health screening, development, and equity. J Public Health Policy 1996; 17(1):14-27.

Holland WW, Stewart S. Screening in disease prevention: what works?

Oxon, UK: Radcliffe, in association with The Nuffield Trust and the European Observatory on Health Systems and Policies; 2005. Available at: http://bit.ly/gp9BjU [accessed 7.04.2011].

US Preventive Services Task Force. The Guide to Clinical Preventive Services 2007. Rockville, MD: Agency for Healthcare Research and Quality; 2007.Available at: http://www.ncbi.nlm.nih.gov/books/NBK16363/ [accessed 7.04.2011].

Holland W. Periodic Health Examination – a brief history and critical assessment. Eurohealth 2009; 15(4): 16-20. Available at: http://www2.lse.ac.uk/LSEHealthAndSocialCare/LSEHealth/pdf/eurohealth/VOL15No4/Holland%20Vol15No4.pdf [accessed 7.04.2011].

Suntorntham S, editor. Evidence-based clinical practice guideline: periodic health examination.2nd? edition? Bangkok, Thailand: publisher?; 2000.

Centers for Disease Control. Premature mortality in the United States; public health issues in the use of years of potential life lost. MMWR 1986;35:1-11S.

Colvez A, Blanchet M. Potential gains in life expectancy free of disability: a tool for health planning. Int J Epidemiol 1983;12:224-9.

Hadorn D C. Setting health care priorities in Oregon. JAMA 1991;266:2135-141.

Swinkels H, Pottie K, Tugwell P, Rashid M, Narasiah L. Development of guidelines for recently arrived immigrants and refugees to Canada: Delphi consensus on selecting preventable and treatable conditions 2011;183(12):928-32.

De Vos E, Spivak H, Hatmaker-Flanigan E, Sege RD. A Delphi Approach to Reach Consensus on Primary Care Guidelines Regarding Youth Violence Prevention. Pediatrics 2006;118(4):1109-15.

Schopper D, Torres A M, Pereira J, Ammon C, Natividad Cuende, Alonso M. et al. Setting health priorities in a Swiss canton: what do differenct methods tell us ?. J Epidemiol Community Health 2000;54:388-93. 1.

Bundhamcharoen K, Odton P, Phulkerd S, Tangcharoensathien V. Burden of disease in Thailand: changes in health gap between 1999 and 2004. . BMC Public Health [serial on the Internet]. 2011; 11(53): Available from: http://www.biomedcentral.com/1471-2458/11/53.