

BRIEF COMMUNICATION

Assessing the Required Skill Mastery in Public Health Competencies in Thailand

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Introduction

The role of public health in improving the development and delivery of health services has received increased attention in recent years (Nitayarumphong, 1997; Turnock & Handler, 1997; Beaglehole & Bonita, 1998; Plianbangchang, 1999; Fee & Brown, 2000; WHO, 2000). At the same time, there have been concerns about the relevance of public health education (Van der Putten *et al.*, 2001).

In 1995, with funding from the China Medical Board (USA), the College of Public Health (CPH) of Chulalongkorn University, Thailand developed a full-time Master of Public Health (MPH) program. The aim was to create a new type of public health professional, who would be knowledgeable, have critical thinking skills and sufficient discipline content to meet the new challenges in public health. A part-time MPH program with the same objective was added in 1996.

In 2000, the CPH embarked on a review of its MPH programs. The initial step of this review was based on a broad-based assessment of the need for the definition and description of essential public health services, the required competencies and, within each, the skills of public health staff in Thailand. This was done by a panel of national partners in public health, representing the Ministry of Public Health (MOPH), private health institutions, NGOs, the community and academia. In a series of workshops held in 2001, the panel

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accepted the recommendations of the Council on Linkages between Academia and Public Health Practice (CLAPHP, 1998). The panel also assisted in the development of questionnaires to: (1) assess the perceived current performance of public health services, (2) identify public health skills required to implement Public Health Services and (3) identify the required Levels of Mastery by Type of Staff for public health skills. Detailed description of the methods and results related to (1) and (2) was discussed in an earlier report (Van der Putten *et al.*, 2004).

This paper describes the major findings of a survey on the required Levels of Mastery in Core Public Health Competencies and the related skills in Thailand, which might be of use in prioritizing public health competencies and skills for curriculum development.

Methods

The questionnaire, designed by the National Panel, asked the respondents to state:

- (1) Whether each of the 70 Skills was a Core Skill or Not-a-Core Skill and
- (2) If a Core Skill, using ordinal scales with three levels (1 = awareness, 2 = knowledgeable and 3 = proficiency), their professional judgement of the Required Level of Mastery for each group of public health personnel (Front-line, Mid-level and Top-level Management Staff).

The content validity was determined by individual review within the panel and the face validity was examined by ten public health professionals. Using these results, the questionnaire was modified. Reliability was then determined, using 30 professionals (Cronbach's $\alpha = .98$).

The questionnaires were mailed to:

- (1) The 141 academics enrolled as regular staff in postgraduate programs in public health from four universities,
- (2) The 36 MOPH representatives actively involved in human resource development,
- (3) Within 75 provinces in Thailand, excluding Bangkok,
 - (a) 306 public health professionals, including:
The Chief of the Provincial Health Office, the Director of the Provincial Referral Hospital, the Directors of Community Hospitals and the Director of the Private Hospital with the largest bed-capacity.
 - (b) 174 public administrators, including,
The Chief of the Provincial Administrative Office, the Chief of the Municipality Administrative Office, the Chiefs of Sub-District 1st Class Administrative Offices if any.

This data were analyzed using frequencies, percentages, means and standard deviations. For summations of Public Health Skills' Level of Mastery (1–3, where 1 = Awareness, 2 = Knowledgeable and 3 = Proficiency), a weighted mean was applied, assigning ranges for Skill Mastery as follows: 1.00–1.66 Awareness, 1.67–2.33 Knowledgeable and 2.34–3.00 Proficiency using the following schema:

$$\begin{aligned} \bar{x} = & \sum (n \text{ Missing} \times 100/n \text{ Constituency} \times 0) \\ & + (n \text{ Not Core} \times 100/n \text{ Constituency} \times -3) \\ & + (n \text{ Proficiency} \times 100/n \text{ Constituency} \times 3) \\ & + (n \text{ Knowledgeable} \times 100/n \text{ Constituency} \times 2) \\ & + (n \text{ Awareness} \times 100/n \text{ Constituency} \times 1) \\ & \text{Sum of above divided by 400} \end{aligned}$$

Results

The overall response rate was 228/657 (34.7%); 17.7% for academics; 27.8% for MOPH; 38.9% for Public Health Professionals; 42.5% for Public Administrators.

The responses are shown in detail in Table 1 and summarized in Table 2. There were only two Skills considered Not-a-Core Skill and both of these were for Front-line Staff:

From the Basic Public Health Sciences Skills Domain,

Skill # 1.10 'Design a surveillance system'

From the Policy Development Skills Domain,

Skill # 3.3 'Articulate implications of policy options'.

Considering the Public Health Competency Domains:

Front-line staff was expected to have mainly a level of awareness for skills in the 'Policy Development Skills Domain' (6/7) and for certain skills in the 'Basic Public Health Sciences Skills Domain' (6/13) and 'Strategic Management Skills Domain' (8/13) and some in the 'Analytic Skills Domain' (4/12). For all other Competency Domains, levels of knowledge up to proficiency was expected. Mid-level management staff was expected to have a level of knowledge up to proficiency for all, and top-level management staff for all, except two, skills across competency domains.

Discussion

The Council on Linkages between Academia and Public Health Practice (CLAPHP) was largely responsible for the identification of core competencies

Table 1. Public health skills considered to be core and not-core, by competency, by level of skill mastery and by type of public health staff

Public Health Competency Domains & Skills ^a	Front-line Staff		Mid-level Mgt. Staff		Top-level Mgt. Staff	
	Level ^b	Mean ^b	Level	Mean	Level	Mean
<i>1. Basic Public Health Science Skills Domain</i>						
1.1 Identify responsibilities within public health	K	1.89	K	2.26	P	2.45
1.2 Use basic research designs and methods	A	1.46	K	2.26	K	2.11
1.3 Apply basic public health sciences	K	1.87	K	2.15	K	2.19
1.4 Assess and define the health status of populations	K	1.80	K	2.25	K	2.25
1.5 Apply critical thinking	A	1.41	K	2.08	P	2.34
1.6 Identify and access scientific evidence	A	1.57	K	1.96	K	2.04
1.7 Identify limitations of research	A	1.19	K	2.05	K	2.10
1.8 Apply a risk assessment	A	1.47	K	2.09	K	2.30
1.9 Use public health information packages	A	1.45	K	2.15	A	1.65
1.10 Design a surveillance system	NC	0.97	K	2.07	K	1.92
1.11 Operate a surveillance system	K	1.92	K	2.18	K	1.86
1.12 Use computer applications	K	2.00	K	2.24	K	1.90
1.13 Apply ethical conduct	K	1.81	K	2.12	K	2.03
<i>2. Analytic Skills Domain</i>						
2.1 Define a problem	K	1.98	P	2.42	K	2.30
2.2 Determine appropriate use and limitations of data	K	1.69	K	2.31	K	2.21
2.3 Select and define variables	A	1.66	K	2.21	K	2.10
2.4 Use basic research designs and methods	A	1.49	K	2.20	K	1.91
2.5 Partner with communities	P	2.41	K	2.16	K	1.84
2.6 Use appropriate data collection	K	1.75	K	2.06	A	1.32
2.7 Make relevant inferences from data	K	1.80	K	2.27	K	2.09
2.8 Identify relevant data sources	K	2.11	K	2.18	K	1.96

(continued overleaf)

Table 1. (Continued)

Public Health Competency Domains & Skills ^a	Front-line Staff		Mid-level Mgt. Staff		Top-level Mgt. Staff	
	Level ^b	Mean ^b	Level	Mean	Level	Mean
2.9 Apply ethical principles	K	1.95	K	2.12	K	1.84
2.10 Evaluate data	K	1.70	K	2.23	K	1.91
2.11 Illuminate issues from data	A	1.25	K	2.05	K	2.22
2.12 Obtain and interpret community risks and benefits	A	1.66	K	2.17	K	2.17
3. Policy Development Skills Domain						
3.1 Collect, summarize and interpret information	A	1.46	K	2.21	P	2.51
3.2 State policy options & write statements	A	1.01	K	2.02	P	2.62
3.3 Articulate implications of policy options	NC	0.87	K	2.05	P	2.59
3.4 State feasibility & outcome of policy options	A	1.09	K	1.98	P	2.58
3.5 Decide on the appropriate course of action	A	1.53	K	2.19	P	2.55
3.6 Utilise techniques in decision analysis & planning	A	1.52	K	2.32	P	2.43
3.7 Identify policies for specific programs	A	1.47	K	2.27	P	2.49
4. Social Skills Domain						
4.1 Interact sensitivity, effectively, and professionally	P	2.42	K	2.26	K	2.24
4.2 Identify the role of cultural factors in service delivery	K	1.85	K	2.04	K	2.06
4.3 Develop problem solving to fit cultural differences	K	2.03	K	2.14	K	2.08
5. Strategic Management Skills Domain						
5.1 Prepare and implement emergency response plans	K	1.70	K	2.30	P	2.49
5.2 Develop plans to implement policies	K	1.67	K	2.32	K	2.31
5.3 Translate policy into plans & programs	A	1.43	P	2.35	P	2.46
5.4 Develop monitoring and evaluation	A	1.55	P	2.35	P	2.47
5.5 Conduct cost-effectiveness-benefit-utility analyses	A	1.22	K	2.16	P	2.50
5.6 Apply theory of organisation	A	1.49	K	2.16	P	2.34

(continued overleaf)

Table 1. (Continued)

Public Health Competency Domains & Skills ^a	Front-line Staff		Mid-level Mgt. Staff		Top-level Mgt. Staff	
	Level ^b	Mean ^b	Level	Mean	Level	Mean
5.7 Contribute to organisational performance standards	A	1.34	K	2.15	P	2.46
5.8 Promote team learning and organization learning	K	1.67	K	2.24	K	2.33
5.9 Create key values and shared vision	A	1.62	K	2.22	P	2.43
5.10 Identify issues that impact delivery of public health services	A	1.34	K	2.23	P	2.50
5.11 Use appropriate methods that effect change	A	1.54	K	2.18	P	2.39
5.12 Ensure participation of key stakeholders	K	1.98	K	2.19	K	2.12
5.13 Create a culture of ethical standard	K	1.80	K	2.14	K	2.22
6. Communication Skills Domain						
6.1 Communicate effectively	K	1.98	P	2.49	P	2.54
6.2 Solicit input from individuals and organizations	K	2.21	P	2.41	P	2.55
6.3 Advocate for public health	A	1.52	K	2.19	P	2.55
6.4 Lead and participate in-groups	K	1.83	K	2.30	P	2.48
6.5 Use appropriate channels to disseminate information	K	2.15	K	2.25	K	2.09
6.6 Listen to others in an unbiased manner	K	2.12	P	2.35	P	2.47
6.7 Make accurate and effective presentations	K	2.14	P	2.43	P	2.50
7. Partnership Skills Domain						
7.1 Maintain linkages with key stakeholders	P	2.36	P	2.37	P	2.43
7.2 Collaborate with community partners to promote health	P	2.45	K	2.23	K	2.12
7.3 Mobilize organizations that operate within the community	K	2.07	K	2.32	P	2.37
7.4 Use management skills to build partnerships	K	1.80	P	2.39	P	2.51
7.5 Identify community assets	K	2.11	K	2.23	K	2.05
7.6 Conduct a community public health assessment	K	2.03	P	2.37	K	2.24

(continued overleaf)

Table 1. (Continued)

Public Health Competency Domains & Skills ^a	Front-line Staff		Mid-level Mgt. Staff		Top-level Mgt. Staff	
	Level ^b	Mean ^b	Level	Mean	Level	Mean
<i>Operational Management Skills Domain</i>						
8.1 Develop and present a budget	K	1.80	P	2.52	P	2.40
8.2 Manage programs without budget constraints	A	1.63	K	2.24	K	2.31
8.3 Apply budget processes	A	1.49	K	2.28	P	2.39
8.4 Develop strategies for determining budget priorities	K	1.70	P	2.36	P	2.52
8.5 Monitor program performance	K	1.67	P	2.42	P	2.57
8.6 Develop proposals for funding	K	1.71	P	2.44	P	2.46
8.7 Apply basic human relation skills	K	1.97	K	2.32	P	2.53
8.8 Manage information systems for decision-making	K	2.00	P	2.36	K	2.25
8.9 Apply ethical conduct in practice, and program management	K	2.05	P	2.34	P	2.44

^aShortened Skill descriptions.

^bSkill Level and Weighted Mean: (A = Awareness/1.00 – 1.66), (K = Knowledgeable/1.67 – 2.33), (P = Proficiency/2.34 – 3.00), (NC = Not-Core Skill).

Table 2. Number of not core and core skills across competency domains by type of staff

Type of Staff	Not Core Skills		Core Skills			Total # of Skills across Competency Domains
	# Not Core Skills	# Skills with Mastery Level of Awareness (1.00–1.66)*	# Skills with Mastery Level of Knowledgeable (1.67–2.33)*	# Skills with Level of Proficient (2.34–3.00)*		
Front-line Staff	2	27	37	4	70	
Mid-level Mgt. Staff	0	0	54	16	70	
Top-level Mgt. Staff	0	2	34	34	70	

*Weighted Mean.

and of related skills in Public Health as applied in this paper. However, it is recognized that in the course of this study alternative competency models evolved through the work of WHO, Rockefeller Foundation, and others.

The Public Health Competency Model applied in this paper represents ten years of work on this subject by numerous organizations and individuals in public health academia and practice settings across the globe (CLAPHP, 2001).

The core competencies go beyond the boundaries of the specific disciplines within public health and help to unify the profession. These competencies have also been cross-linked with essential Public Health Services to ensure that these competencies help build the skills necessary for providing these services. However, because competencies only capture the cross-linking for public health practice, it may not contain competencies that are specific to certain disciplines within the field (CLAPHP, 2001).

This study is part of a broad-based needs assessment to facilitate curriculum revision for a graduate public health program in Thailand. Therefore, perceptions of key stakeholders on the overall performance of each Public Health Services were considered appropriate (Van der Putten *et al.*, 2004), next to the use of core competencies in assessing education needs. A report on the latter is currently in process for publication.¹ The degree of detail required depends on the perspective adopted and on the purpose of the assessment. To the authors' knowledge, no study has been undertaken in Asia to assess desirable levels of mastery in Public Health skills for types of Public Health staff.

The authors acknowledge that job categories are defined broadly and the lines of distinction between them are not always clear. However, categories are meant to be flexible and adaptable to a profession, which is still evolving. It is also recognized that, in many public health settings, job category is often related to educational background. However, educational level and years of experience are not included in the job category definitions because they do not necessarily dictate function within a public health organization.

In this study, except one for front-line staff, all skills were considered to be core skills. Across skills, frontline staff was expected to master skills at the level of awareness/knowledge, while mid-level and top-level staff were expected to master skills at the level of knowledge/proficiency.

Based on the purposive sampling strategy and the response rate in this study, the results represent the perceptions of the respondents only and cannot be generalized to all involved in Public Health in Thailand. It should be noted that although the response rates were low in this study, they are significantly higher than usually reported in Thai studies using a mailed questionnaire.^{2,3}

¹Van der Putten M., Inkochasan M., Trayaporn T. & Love E. (2004) Linking public health services with competencies and skills in Thailand. Bangkok: Chulalongkorn University, College of Public Health, in progress.

²Chulalongkorn University (2001). Opinion poll, Chula Newsletter 7–16.

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Conclusion

The Core Competency Model used in this study is a start to capture educational need in public health, but further refinement of the model is desirable; for example inconsistencies in the level of detail in skill descriptions and lack of distinction between knowledge, skills and attitudes. Key stakeholders who identify a need for competencies, from a functional perspective in curriculum design, are public health professionals. Addressing required levels of skill mastery in public health is useful to improve the relevance of education to public health practice by providing focus to teaching/learning needs as well as in supporting public health systems development in Thailand.

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