

Engagement of the District Health Board in Providing Preventive Measures for Chronic Kidney Disease Care in Thailand: The Perspective of a Multi-Disciplinary Team

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ABSTRACT

Background: Promoting multi-sectoral collaboration to reduce the burden caused by non-communicable diseases (NCDs) has been a challenge to the global community as the policies of the non-health sectors also affect the determinants and risk factors for NCDs. In 2018, the Thai government introduced a new plan to reform District Health Boards (DHB) by encouraging collaboration between the health and non-health sectors at district level to promote health and well-being. Therefore, this study aims to explore the governance mechanisms of the reformed DHB and its contribution to the prevention and control of NCDs.

Method: This study employed several approaches mainly focusing on using a qualitative process to evaluate the program in four piloted districts. Focus group discussion was used to collect data from four groups of key informants including the DHBs, multi-disciplinary teams, community bodies, and diabetic/hypertensive patients with CKD stage 1-2. Thematic analysis was employed for data analysis.

Results: DHB committees consisted of members of public, private, and civil society sectors with the District Chief as the chairperson of the DHB and the District Public Health Officer (DPHO) as the secretary to the board. The roles of DHB members who were non-health sector focused more on addressing the social and environmental factors related to NCDs. The situation of NCDs in the district was shared and discussed at the DHB quarterly meeting and public hearing to enable community in health priority setting.

Conclusion: Although the concept of expanded chronic care model and health of all policies should be related to the rationale behind the movements of the DHB, it remains unclear as to whether the movements under the optimal authorities of the DHB will only affect the area close to clinical practices. To our knowledge, this is the first study in the WHIO South-East Asia Region revealing a

promising multi-sectoral NCD prevention and control model. More studies are needed prior to scaling up the model for wider application in the region.

Keywords: monitoring and evaluation, chronic kidney disease, non-communicable diseases, diabetes, hypertension

INTRODUCTION

Non-communicable diseases (NCDs) or chronic diseases challenge the foundation of clinical treatment due to their complex causation involving both social and cultural influences. NCDs are accountable for more than half of all causes of mortality and those living in low- and middle-income countries are more vulnerable than their high-income country counterparts¹⁻³. This is due to the lack of health services and support system to address shared behavioral risk factors in the society^{1,2}. Thus, the control and prevention of NCDs by controlling these risk factors require multi-sectoral collaboration from both the health and the non-health sectors at every level of governance, from national to local authorities and business sectors.

Chronic kidney disease (CKD) is a major chronic disease threatening the health care system of Thailand^{4,6}. The main causes of the disease are two leading chronic diseases in Thailand, diabetes mellitus type II (DM) and hypertension (HT). According to the Nephrology Society of Thailand⁵, diabetic and hypertensive patients had 2.72 and 1.96 higher odds of developing CKD, respectively. Moreover, the later stages of CKD lead to very high-cost treatments, particularly for renal replacement therapy (RRT) in stage-5 CKD patients. From the governmental perspective, RRT is a significant burden, as the public budget for

RRT in Thailand was more than 10 billion THB per year (around \$330 million USD) in FY 2020 for the universal health coverage scheme in Thailand⁷.

To prevent new cases of CKD patients in the advanced stage, the Nephrology Society of Thailand collaborated with Bhumirajanakharind Kidney Institute (BKI) to develop a model for delaying CKD using Klongklung District as a pilot area. From a 2-year implementation (from 2008-2010), the model was proved successful in delaying the progression of CKD from stage 3 to stage 4 as eGFR in stage 3 CKD patients was reduced from 4 ml/minutes/1.73 cubic meter to 1 ml/minutes/1.73 cubic meter. Contributing factors to the success of the model included efforts to efficiently monitor, treat, and advise patients by the multi-disciplinary care team (MDT) of Klongklung Hospital⁸.

Nonetheless, delaying progression of CKD stage 3 to 4 was not enough to reduce patient's expenditure incurred for direct treatment. Alternatively, prevention of CKD progression in stage 1 and 2 may be more beneficial in terms of reducing future treatment cost⁸⁻¹⁰. As a result, the National Health Security Office (NHSO) and BKI support the implementation of mechanism development to delay CKD stages 1-2 in four piloted districts in Thailand. Addressing the social determinants of health related to treatment of

CKD remains a concern in regard to the efficiency of implementation.

For the health sector, the chronic care model (CCM) has been acknowledged as a means to mitigate chronic diseases due to its emphasis on patient engagement in the treatment of chronic diseases¹¹. The model highlights how the health system can proactively support patients' decision making and participate in controlling chronic diseases. Evidently, the practice has been proved effective in improving access to health services and medications which, in turn, improves individual health¹². Moreover, the approach was proved cost-effective in terms of improving average life-span up to 1 year compared to those receiving traditional treatment regardless of increased incremental cost per year¹³.

However, since the model did not comprehensively address relevant community factors, the Expanded Chronic Care Model (ECCM) was developed to address those factors (e.g., healthy public policy, supportive environment, and community action) and relevant components in the health system. From the model, the collaboration between the community and the health system in tackling chronic diseases like NCDs has been emphasized. The model also shows that its concept might be related to the concept of health promotion and the 'health in all policies' (HiAP) framework as they all emphasize the involvement of multi-sectoral partners, the health and non-health sectors, to participate in attacking the root causes of chronic diseases¹⁴⁻¹⁶.

Thai health service delivery has been built around primary care units (PCU), or Tambon health, promoting hospitals that are located at the sub-district level throughout the country, with more than

10,000 PCUs in 2019¹⁷. There are referral networks from the sub-district to the district level, from the PCU to community hospitals, that have been equipped with better staffing and medical treatment, especially physicians. Tertiary care has been provided at provincial and regional levels with almost 100 hospitals with more than 120 beds in all provinces and in some big districts. For health care delivery, the Ministry of Public Health (MOPH) accounts for 70% of hospital care and manpower¹⁷⁻¹⁹.

For the Thai public health function, the MOPH has an obligation to provide almost all services from the provincial to sub-district levels where public health officers have been assigned active roles in the promotion of health and the prevention of diseases. Disease surveillance and outbreak investigation are the responsibility of the officials of the MOPH from the sub-district level to provincial and national level. This project NHSO and BKI might encourage the participation of other non-health sectors to engage more to solve complex health problems such as chronic kidney disease (CKD).

In 2018, the introduction of the District Health Board (DHB)²⁰ offered an opportunity for the health sector to collaborate with other sectors, including the public and private sectors, and civil society, in mobilizing more resources at district level to solve local health problems since the platform has been set to manage the resources from both other governmental units and the private sector aside from the health sector. In short, the establishment of the DHB in Thailand reflected the concept of multi-sectoral collaboration between health and non-health sectors embodied in the concept of healthy public policy, HiAP and ECCM. However, there is little

evidence to support the effectiveness of ECCM for the treatment of chronic diseases such as CKD, particularly in low- and middle-income countries. As a result, this paper aims to understand the process that has attempted to maintain or to slow the progression of CKD stage 1-2 patients.

OBJECTIVES

1. To explore the practices of the multi-disciplinary care team to support CKD stage 1-2 patients
2. To identify the practices involving the District Health Board of the health and non-health sectors in supporting CKD stage 1-2 patients

METHODS

Data collection

Four focus group discussions were conducted with health personnel from multi-disciplinary care teams (MDTs) in four districts, including Saithongwattana, Pua, Thepa, and Muang Nongkai. Participants included physicians, nurses, nutritionists, medical technicians, pharmacists, and physiotherapists from district hospitals and Tambon health-promoting hospitals. The discussions were conducted in each group with guiding questions covering topics related to the collaborative mechanisms of non-health and health personnel contributing to the delay of CKD stages 1-2. The details of the questions are described in Supplement 1. Personal interviews were also conducted with key personnel at the district hospitals and district authority. Document review was also conducted with publicly-available documents related to the delivery of MDT in addressing CKD stage 1-2 including guidelines and annual reports downloaded from government websites. Other documents related to the collaboration

between health and other agencies or organizations from the public and private sectors and civil society were requested from the authorities.

Data analysis

Information from the focus groups was recorded and transcribed. Thematic analysis was employed to extract the key themes guided by ECCM and the HiAP framework. The extracted themes were reviewed and discussed by the authors.

Theoretical approach: expanded chronic care model

ECCM and HiAP have been used as the guiding framework for the analysis in this paper. Key elements contributing to proactive community and health practice team are as follows:

Data synthesis

Each theme was cross-checked with relevant documents obtained from each district for data triangulation. After the triangulation, the results were synthesized into good practices and recommendations were made.

Ethics

Ethics approval was obtained through the Research Ethics Committee of the International Review Board, Faculty of Social Sciences and Humanities, Mahidol University.

RESULTS

General information

Forty-two participants joined the focus groups. The number of participants in each group varied between 9 and 12

persons. Most of the participants were females with mean age at around 38 years old. The majority of the participants had a bachelor's degree or equivalent and worked

as nurses, physiotherapists, pharmacists, nutritionists and medical technologists (Table 1).

Table 1. participants from multi-disciplinary care team (MDT)

	Pua District		Saithongwattana District		Thepa District		Muang District	
	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
<i>Age*</i>								
20-29	0	0	1 (50)	0	1 (100)	0	0	0
30-39	1 (50)	2 (28.5)	1 (50)	5 (71.4)	0	6 (60)	0	0
40-49	1 (50)	4 (57.1)	0	2 (28.5)	0	4 (40)	1 (100)	7 (70)
50-59	0	1 (12.5)	0	0	0	0	0	3 (30)
<i>Occupation</i>								
Doctors	1 (50)	0	1 (50)	0	0	0	0	0
Nurses	0	3 (42.8)	0	3 (42.8)	0	5 (45.5)	0	7 (77.7)
Pharmacists	1 (50)	0	0	1 (14.2)	0	1 (9)	0	1 (11.1)
Medical technicians	0	2 (28.5)	0	1 (14.2)	0	1 (9)	0	0
Nutritionists	0	1 (12.5)	1 (50)	0	0	0	0	1 (11.1)
Physiotherapists	0	1 (12.5)	0	1 (14.2)	1 (100)	1 (9)	0	1 (11.1)
Dentists	0	0	0	1 (14.2)	0	0	0	0
Public health practitioners	0	0	0	0	0	1 (9)	1 (100)	0
Psychologists	0	0	0	0	0	1 (9)	0	0
Health educators	0	0	0	0	0	1 (9)	0	0
<i>Education level</i>								
Master or higher	0	1 (12.5)	1 (50)	1 (14.2)	0	2 (18.1)	0	2 (20)
Bachelor's degree	2 (100)	6 (87.5)	1 (50)	5 (71.4)	1 (100)	9 (81.8)	1 (100)	8 (80)
Diploma	0	0	0	1 (14.2)	0	0	0	0
High school	0	0	0	0	0	0	0	0
Primary school	0	0	0	0	0	0	0	0

* Note: 1 missing in Thepa District

Hospital-based service system

Nurses are the focal point in the coordination of care within the team and between the team and the patients. They are the first contact point for monitoring and assessing health conditions through screening and basic physical examination. The nurses inform the doctor in each MDT

about the patient's health condition for further diagnosis, the prescription of medication, and the initial recommendations for the patient. Patients who need specific care such as physical therapy, drug counselling, dietary modification, etc. Are referred by the doctor to other health personnel working at the NCD Clinic.

CKD stage 1-2 patients are treated exclusively at the NCD Clinic in district hospitals and Tambon (sub-district) health promoting hospitals. Counselling is a key process for these CKD patients and also home visits have been introduced by MDT personnel and health volunteers and are organized every 1 to 3 months depending on the patient's condition. Moreover, to ensure the networking of health information, treatment results are shared between Tambon and district hospitals. The medical technologist in each MDT is responsible for checking the accuracy and completeness of data transferred between hospitals as well as analyzing treatment results to communicate to locals on the updated situation of CKD stages 1-2 and other diseases.

Structure of the DHB

The DHB comprises 21 members with the district-chief officer as the chair of the board, and the head of the district health office as the secretary. Other board members also come from health and non-health sectors, including representatives from several public agencies (6 members), private institutes (6 members) and civil society groups (7 members). In all four districts, the DHB meeting has been regularly held with impressive progress in their movements with action plans to meet their own goals. The top priority for most of the boards in our study is waste management, road safety, and the prevention of NCDs, which are significant burdens on society. From this information, it is evident that the goals and movements of all DHBs were influenced by non-health sectors, as waste management is a significant issue.

As the National Health Security Office (NSHO) financially supports several

interventions for disease prevention and the promotion of healthy behaviors at the sub-district level under the title 'Local health Fund,' all 4 DHBs have also appointed sub-district health committees to conduct healthy movements with funding from the Local Health Fund. However, it is also evident that DHBs have not received enough financial support from central government.

The engagement of members of the DHB

Despite minimal financial support, some members of the DHB could conduct their work successfully. One permanent secretary of the district officer (a high-ranking non-health official) in one district visited patients' homes to observe their cooking and eating habits. From in-depth interview of health authorities in the district, the engagement of the permanent secretary of the district officer may reflect a deliberative process to regularly provide health information regarding CKD to the district author meeting. Furthermore, the permanent secretary had demonstrated his ownership of the issue by narrating a book telling amusing stories regarding his contribution during home visits to patients. Apart from Nongkai (Muang), the directors of the community hospitals in districts have been appointed as members of their DHB and could use their knowledge to support the decisions of the boards as the prevention and control of CKD requires clinical information to guide the practices. With sufficient knowledge provided by the health sector, many non-health members of the DHB are positive about their engagement to mitigate the challenge of NCDs, including support for the movements for screening and persuading patients' in their communities to adopt healthy behaviors.

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6. International Health Policy Program. Years of lives loss: a report on burden of diseases and injuries of Thai people B.E. 2557 (in Thai). The Graphico Systems: Nonthaburi. 2017
7. Hfocus. The management of national health security fund B.E. 2563 (in Thai) [Internet]. [cited on 2019 Jul 10]. Available from: <https://www.hfocus.org/content/2019/08/17592>
8. Leesmidt V, Suwatthanarak S, Phromnim S, Punruenothai S. A study for delaying kidney deterioration of chronic kidney disease patients: from research to practice (in Thai). *J Health Sci.* 2017;26(1):112-24.
9. Jiamjarasrangsi V. Chronic care model (in Thai). *Journal of Health Systems Research.* 2008;2(1):82-90.
10. Pattanamongkol O, Chantaracha D, Chalongsuk R, Pongchaidecha M, Rungprai D, Muongmee S. Cost-effectiveness of The cost-effectiveness of pharmaceutical care to slow progression of the kidney in chronic kidney disease with diabetes patients at Laem Chabang hospital, Chonburi province (in Thai). *TJPS.* 2018;13(1): 53-67.
11. Barr V, Robinson S, Marin-Link B, Underhill L, Dotts A, Ravensdale D, et al. The Expanded Chronic Care Model: An Integration of Concepts and Strategies from Population Health Promotion and the Chronic Care Model. *Healthcare Quarterly.* 2003;7(1):73-82.
12. Epping-Jordan JE. Improving the quality of health care for chronic conditions. *Qual Saf Health Care.* 2004;13(4):299-305.
13. Dijkstra RF, Niessen LW, Braspenning JC, Adang E, Grol RT. Patient-centred and professional-directed implementation strategies for diabetes guidelines: a cluster-randomized trial-based cost-effectiveness analysis. *Diabet Med.* 2006;23(2):164-70.
14. WHO. Milestone in Health Promotion: Statements from Global Conferences. WHO Press. 2009.
15. WHO. Health in all policies: Helsinki statement. Framework for country action. WHO Press. 2014.
16. Shankardass K, Muntanes C, Kokkinen L, Shahidi VF, Freiler A, Oneka G, Bayouni AM, O'campo P. The implementation of Health in All Policies initiatives: a systems framework for government action *Health Research Policy and Systems.* 2018; 16:26.
17. WHO. Primary health care systems (PRIMASYS): case study from Thailand, abridged version. Geneva: World Health Organization. 2017.
18. Kasemsup V, Sakunphanit T, Bundhamchroen K, Nippaporn S, Tan-sirisithikul R. Thai Country Case Study. In *Health System Responses to Population Ageing and Non-communicable Disease in Asia.* Vasoontara Yiengprugsawan, Judith Healy, & Hal Kendig (ed.). New Delhi: WHO Regional Office for South-East Asia. 2016.
19. Tangcharoensathien V (ed.), Jongudomsuk P, Srithamrongsawat S, Patcharanarumol W, Limwattananon S, Pannarunothai S, et.al. *The Kingdom of Thailand Health System Review.* Geneva: World Health Organization; 2015.
20. The Office of Prime Minister. Regulation of the office of prime minister on the improvement of quality of life B.E. 2561 (in Thai). Bangkok: The Office of Prime Minister. 2561.
21. Han T K, Hongkrait N, Mongkolchat A, Laosee O, Sihapark S, & Singto S. Determinants of District Health Board on Community Satisfaction with Healthcare Services in Thailand. The 8th International

Graduate Student Conference on Population and Public Health Sciences (IGSCPP) July 25, 2017. College of Public Health Sciences, Chulalongkorn University.

22. Tejavivaddhana P, Briggs DS, Thonglor R. From Global to Local: strengthening district health systems management as entry point to achieve health-related sustainable development goals. *Asia Pac J Public Health*. 2016; 11: 3: 81 – 86.