

## Performance of Pharmacy and Therapeutics Committees of Public Hospitals in Rural Thailand

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### Abstract

Pharmacy and Therapeutics Committee (PTC) is a group of multidisciplinary professionals within a hospital, responsible for managing an effective drug inventory, control and review of rational drug use and drug costs. Hospital PTCs are supervised by the Thai Ministry of Public Health. We would assess their effectiveness and, identify short-comings for which we offer solutions to improve their performance. The survey was focused on seven public hospitals in lower northern region of rural Thailand, forming an alliance and includes a university teaching unit. Three key PTC participants from each hospital were interviewed face-to-face using a semi-structured guide. Triangulation and content analysis were used for data analysis. PTC members appreciated the importance of their roles, functions and particularly the importance of effective drug selection for the hospital formulary. However, PTC performance was compromised by; over-stretched committee staffs, inadequate budgetary considerations, personal and professional conflicts and prejudices, poor communication and performance monitoring, erratic national directives, and lack of standard criteria for drug selection. We suggest that the whole system be over-hauled via management of human resources, committee membership, and communication, creating tools for effective decision-making for rational drug selection, staff training and integrating PTC and rational drug use into medical curricular, and clear and consistent national regulation. Clearly, PTC effectiveness fell well short of the WHO recommendations. Although cost containment is a major issue, there are numerous cost-neutral changes which could improve PTC operation, effectiveness and which ultimately strengthens patient treatment.

**Keyword:** PTC, Performance, Thailand, Public hospitals

### INTRODUCTION

Currently, the increasing availability of new medications and marketing tactics used by pharmaceutical industries have led to an ever increasing drug prescribing. The World Health Organization (WHO) estimates that almost half of the new medicines are used irrationally resulting in escalating medical expenditure.<sup>1</sup> Furthermore, inappropriate drug use are widespread by; 1) over-treatment of mild illnesses, 2) inadequate treatment of serious illnesses, 3) use of parenteral rather than oral routes, 4) unsuitable self-administration of drugs normally requiring

prescription, all of which can lead to increased antibiotic resistance, adverse drug events, protracted illness, and death.<sup>1-3</sup>

In Thailand, pharmacy and therapeutics committees (PTCs) were established in 1987 for all hospitals under the jurisdiction of the Ministry of Public Health (MoPH). The responsibilities and functions of PTCs in Thailand were embodied in the "Thai Drug Management Manual". This was designed to assist in policy planning and practical guidelines for medical management, development and improvement of the formulary lists, evaluate and select medicines for the formulary lists, manage procurement, and

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to ensure adherence to the administrative guidelines.<sup>4</sup> These requirements could not be enforced in hospitals operating outside of the MoPH.

WHO has recommended that PTC consisting of multidisciplinary professionals be established in all hospitals to ensure rational drug use.<sup>5</sup> This is now being applied in many countries.<sup>6-9</sup> Rational drug use is defined as medication usage appropriate to clinical needs in doses that meet individual requirements for an adequate period of time at the lowest cost for the community.<sup>5</sup>

Previous studies in Thailand indicated that the PTCs work was only focused on evaluating and selecting drugs for their formulary list, an important consideration being to minimise drug expenditure.<sup>10</sup> However, its success in curtailing annual drug expenditures has been masked by rising drug prices.

To better reflect rational drug use, the National Essential Medicines (EM) list, was then introduced in 1999 for application in hospitals under the MoPH. However, the university hospitals regulated by the Ministry of Education, continued to dispense 42.2% of their drugs as non-EMs.<sup>11</sup> Later studies found that university hospitals continued with high use of non-EM (45%) compared to 35% in those under the MoPH,<sup>12,13</sup> although one might expect teaching hospitals to teach rational drug use.<sup>14</sup> Thus, hospital prescribing deviated from the national guide lines.

To address these problems, a PTC network comprised of a university hospital and their affiliated clinical teaching hospitals in lower northern part of Thailand were established to strengthen rational drug use. Therefore, we sought to survey the performance and effectiveness of PTCs in rural Thailand which could then form a basis for their future development.

## RESEARCH METHODOLOGY

The study was undertaken in seven public hospitals in Thailand, situated in various farming areas in the lower northern

part of Thailand, and whose patients comprise a large proportion of rural poor. The seven hospitals formed an alliance centred on a university teaching hospital and associated health sciences faculties, three regional and three general hospitals.

Purposive sampling used three key informants of each of the seven PTCs; namely, the chairperson/vice-president, the secretary/assistant secretary, and a committee member, thus totalling 21 participants.

The semi-structured guide was developed from a literature review and a pilot face-to-face interview with three pharmacists who were previously members of a PTC. The resultant interview guide was composed of 4 parts; 1) general information of the hospitals, its informants, and PTC structure, 2) functions of the PTC, 3) problems of PTC operations, and 4) strategies to improve PTC operations.

Each participant was individually interviewed with consent and tape-recorded for later analysis. Each interview was about one hour. Data were collected between October 2010 and March 2011.

Data triangulation was applied to the contents and verified from official regulatory documents, such as the number of members, the structure and the composition of the various sub-committees from each hospital. Content analysis and data interpretation were conducted by three independent researchers to reduce any analytical bias.

To ensure confidentiality, the researchers allocated a code for each participant, their positions within the hospital and their hospitals, for example P1H5, P is a participant of the hospital, with 1 being the chairperson / vice-president, 2 the secretary / assistant secretary and 3 a representative committee member, and H designates a hospital and 1 - 7 being the individual hospital.

## RESULTS

Findings in this study will be narrative in four parts following the interview guide.

### General information of the hospitals, and PTC's structure

There were 21 key informants, comprising of 57% male and the mean PTC

membership was  $7.05 \pm 1.32$  years. The participants consisted of nine physicians (43%) and 12 pharmacists (57%) as shown in Table 1.

**Table 1.** Characteristics of the participants (n=21)

Characteristics	No. of participants (%)
Gender	
- Male	12 (57.14)
- Female	9 (42.86)
Position in hospitals	
- Director of hospital	3 (14.29)
- Deputy director of hospital	3 (14.29)
- Staff physician	1 (4.76)
- Dean of faculty of medicine	1 (4.76)
- Chief of department of medicine	1 (4.76)
- Chief of pharmacist department	5 (23.81)
- Assistant chief of pharmacist department	1 (4.76)
- Chief of IPD pharmacist	1 (4.76)
- Chief of sub-OPD pharmacy	1 (4.76)
- Drug information pharmacist	4 (19.05)
Position in PTC	
- Chairman	5 (23.81)
- Vice-chairman	2 (9.52)
- Secretary	5 (23.81)
- Assistant secretary	5 (23.81)
- Committee	4 (19.05)
Years of experiences as a PTC member	<b>Mean (years) <math>\pm</math>S.D.</b>
- Professional	22.52 $\pm$ 1.75
- PTC member	7.05 $\pm$ 1.32

PTC positions were usually; 1) the hospital director as chairman, 2) the deputy director of the hospital as the vice-chairman, 3) the head of pharmacy department as secretary, 4) an assistant secretary, and 5) committee members from other departments. For university hospital, PTC comprised of the Dean of the Faculty of Medicine as chairman; the vice-chairman was the hospital director with the other positions selected from lecturers in the Faculties of Pharmaceutical Sciences and Medicine or from general hospital staff. PTC has 13 - 32 members, the majority being physicians and also an average of 2 pharmacists and 1 nurse. However,

two hospitals had no nursing committee member.

The participants stated that in general their PTCs had suitable structures with respect to their composition and the number of committee members.

*"At present, our PTC's structure covers all medical areas in the hospital. Our PTC is not too small and it's not too big... it's a good size for our hospital."* [P2H1]

PTC members were selected according to their position in their hospitals e.g., the head of the medical department. However, due to their other priorities and workload, the members selected from their department may not fulfil their PTC duties fully.

*"I usually have no time to participate in all scheduled meetings. I will attend only if I have free time."* [P3H5]

*"Some PTC members are not good representatives of their departments because they don't consider the general points of view of their staff."* [P3H7]

Normally, PTCs initiated policies on drug use in each hospital and the sub-committees of PTCs were set up to implement these policies. The sub-committee structures varied according to function, varied in number and permanence (some being temporary).

*"We consider all functions. However, we assign sub-committees in order to link the PTC to the medical staff."* [P3H2]

### **Functions of PTC**

All participants realized the importance of the three main functions of PTC; 1) drug evaluation and selection for the hospital formulary, 2) drug policy development, and 3) the drug monitoring system. Other PTC functions recommended by WHO in 2003 were advise medical staff on all issues pertaining to drug use in the hospitals, developing or adopting standard treatment guidelines, and dissemination of information to all medical staff in their hospitals.

Drug evaluation and selection was the function most discussed during this study. Drug evaluation and selection was considered by; 1) the essential drugs in the MoPH list, 2) drug efficacy, 3) drug costs, 4) review problems posed by drug use, 5) hospital procurement policy, and 6) physician prescribing practice.

*"Drug selection process in our hospital is conducted once a year. The Director acts as leader in the meeting. The physicians from the various departments will propose drugs that should be included or excluded in accordance with their own preferences."* [P3H5]

*"Data from the drug use review in the hospital will be used as the selection criteria, plus the drug quality and drug costs."* [P1H7]

*"In our hospital, we use the [PTC] selection criteria using the data from our drug use review."* [P1H4]

*"The selection criterion in this hospital is based on physician demand."* [P2H5]

The university hospital PTC had another strength in the drug selection process with contributions from staffs at the Faculty of Pharmaceutical Sciences. Staffs from the Faculty of Pharmacy and the hospital have more involvement in drug development and systematic evaluation and easy access to drug performance data than the other hospitals. This was supported by the Information Technology Department in the university hospital which supports the hospital pharmacy with up-to-date drug data.

Some participants identified a potential weakness of the PTC drug selection process arising from conflicts between committee members from various departments. For example, drugs used in one department not being discussed or considered by physicians from other departments, drug information prepared by pharmacists was not contributing to decision making process. Some PTCs appeared not to use evidence based medicine while in other PTCs, cost was the main or the only criterion in the drug selection process. The latter arose from tight budgetary mindset within the hospital.

### **Shortcomings in PTC operations**

The problems in PTC operations could be divided into two parts: those internal to the hospitals, and problems external to the hospitals.

#### **Problems internal to the hospitals**

*Work overload.* Some PTC members did not participate in the meetings because of other priorities. PTC decisions would then be delegated to a sub-committee. Furthermore, the PTCs failed to conduct any performance appraisal or feedback in overall effectiveness of the process.

*"I've never measured the success of the PTCs effectiveness, so I cannot answer if they are successful or efficient."*[P2H3].

#### *Leadership and Communication.*

In five hospitals (6 participants), PTC members who may also be poor role models. Some policies were not communicated to all practitioners. Several physicians refused to comply with the PTC's policy, making the whole process unenforceable.

*"The problem is that the policy is issued to medical staff to put into practice... we do not have a good track of what works or does not work."*[P3H7]

Some PTC policies were difficult to manage.

*"Perhaps the policy announcement [by our PTC] was not clear, making the strategy or policy was hard to put into action."*[P2H7]

*Lack of Standard indicators.* PTCs in this study lacked any benchmarks to reflect their performance so that there lacked direction for performance improvements.

*"Indeed, the PTC does not define the indicators to reflect PTC performance."* [P2H5]

### **Problems external to the hospitals**

*Government policies.* Sometimes, national policy is in conflict with policy of the hospitals.

*"The government has to issue a clear policy on which drugs qualify for government reimbursement. We do not like to be in conflict with the patients on reimbursements."*[P1H3]

*"If the policy from the government results in an increased workload ... I cannot make it work."*[P2H3]

### **Strategies to improve PTC performance**

Some participants suggested that strategies to strengthen the performance of PTC should be applied. For problems internal to the hospital, it is suggested that human resource should be developed to

improve PTC performance e.g., training courses to improve the competency of the committee in assimilating drug information selection, increase the methods of communication between the PTC and hospital staff and conducting an effective feedback loop from staff regarding PTC operations. Patients need to be made more aware about drug use and dangers and PTC operations should form part of the medical curriculum.

*"Increase communication channels."* [P3H2]

*"We try to involve physicians in the preparation of drug information for the hospital formulary."*[P2H7]

*"I also want to raise awareness in Thai people. If they learn how to use the drug as prescribed, it will also benefit the user. They will not use the medication in larger quantities as some drugs are harmful. I want the government or related agencies to do something that help people to think how drugs should be used."*[P2H3]

*"Medical schools should teach rational drug use and the role of PTC in hospitals. Medical school courses should include how to select and use appropriate drugs."*[P1H6]

Problems external to the hospitals arise from government policy which obstructed PTC functions. Thus, unambiguous regulation and legislation should be implemented to promote rational drug use.

*"The MoPH or other organizations should establish clear criteria regarding what drugs can be used under what conditions enabling the hospital to receive cash refunds for patients in all schemes."*[P3H6]

## **DISCUSSION**

Structures of PTCs in this study were similar to the Drug and Therapeutics Committees-A Practical Guide 2003,<sup>5</sup> the Thai MoPH recommendations<sup>4</sup>, and were similar to equivalent bodies in other countries.<sup>15-17</sup> Each committee consisted of

a chairman, a vice-chairman, a secretary, an assistant secretary, and committee members who were mostly physicians.<sup>16-20</sup> The average number of pharmacists and nurses were similar to other studies,<sup>21</sup> with the PTCs in this medical school network expressing satisfaction with the number of members (13-32).<sup>10,19</sup> This number is similar to PTCs sizes (15-21) of general and tertiary hospitals in other parts of Thailand including those in the same region.<sup>22</sup> PTCs of 13-32 members are a little greater than those found in many other countries (3-19). The number of PTC members varies widely and does not appear to reflect the size of the hospital or the number of subcommittees.<sup>15-17</sup>

The PTCs in the current network expressed satisfaction with the number of members (13-32). However, a study conducted in another Thai setting showed dissatisfaction with the insufficient manpower and motivation to service the PTC.<sup>10</sup> Nevertheless, in our medical school network, the size of the PTC committee did not appear to be correlated with its effectiveness. Perhaps any correlation was concealed by PTC sub-committees also taking on some responsibilities e.g., risk management and drug selection. Even the large PTCs experienced operational problems including: work overload, lack of standard indicators for PTC performance, difficulty in policy implementation, leadership and communication deficiencies, and erratic government policies confusing PTC function.

As shown previously, PTC members in this study were unable to dedicate enough time on PTC activities because of other commitments.<sup>10</sup> PTC member selection seems to be based on rank within the hospital and such appointees are either absent or leave early from the meetings without voting and fail to abide by its decisions. WHO recommends a clear membership representing a wide range of stakeholders but there is little published information about the effectiveness of different PTC appointment models elsewhere. In 1999, a survey of Dutch hospitals demonstrated that their committee members were

mostly drawn from the General Board of Hospital management.<sup>16</sup>

The main functions of our PTCs were drug evaluation and selection for the hospital formulary, and development of drug policies which adhered to previous studies on Thai PTCs,<sup>10,22</sup> according to the recommendations from Thai management manual,<sup>4</sup> WHO,<sup>5</sup> and studies from the PTC in teaching hospitals in five Michigan-based health systems.<sup>17</sup> In contrast, the Northeast region focused on medical errors and management of adverse drug reactions, as these were the major criteria for hospital-accreditation.<sup>23</sup>

Drug evaluation and selection was the most important functions of the PTCs in our network. However, they did not meet all the criteria of the WHO (2003) in the drug selection process, which includes drug efficacy/comparative efficacy, effectiveness/comparative effectiveness, safety/comparative safety, and drug quality. In addition, PTCs in general also take into account many other considerations, e.g., therapeutic factors such as number of indications, number of formulations, compliance (patient convenience/tolerance/dosage frequency), evidence based medicine, incidence and severity adverse reactions, drug interactions, pharmacokinetics, pharmacodynamics, group specific criteria, acquisition costs, drug administration, storage, management of adverse drug reactions, emotional factors such as personal experiences, conflicts of interest (financial factors, evoked set-unconscious criteria), and cultural environment.<sup>5,16,22</sup> Some of our PTCs used only cost as the selection criterion. Another weakness of PTCs was lack of a standard criterion for drug selection. From our study, it seems that personal experiences and government policy were usually the main criteria used to make decisions. These factors influence the trustworthiness of the formulary. If a decision making tool for drug selection is provided and adhered to by the PTC, it may ensure that the drug selection is evidence based and not price or personal bias.

Development of human resource was one recommendation in our study, as a strategy to improve PTC effectiveness. Indeed, this has improved the competency of PTC members in Laos.<sup>20</sup> In the US, continuous self-monitoring of performance using indicators, followed by feedback discussion has also been shown to improve PTC performance.<sup>17</sup>

## CONCLUSION

This study found that the majority of key informants could not fully perform their commitments to the PTC because of other duties. Thus, the PTC selection process needs some overhauling. All PTC members were aware of their roles and the importance of fulfilling the functions required of them. However, in some cases, the criterion for drug selection was price followed by personal choice reflecting particular mindsets. This would exclude the practice of evidence based medicine. Rational decisions were also compromised by unclear policies or no standard criteria for constructing a formulary. Hence, there were conflicts of interest in making drug choices.

Many participants wanted a decision-making tool, and a training program for formulary management. They wanted clear government policies to reflect PTC and physician judgement. Furthermore, government should enhance patient awareness to reduce conflicts with physicians as well as encouraging better use of medication. Communication channels within the hospitals need improvement. PTCs and rational drug use should form an integral part of undergraduate training. Adopting these strategies will improve the overall effectiveness of PTCs and ensure that drug therapy is based on sound analytical decisions and proven performance and these recommendations should apply anywhere.

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