CHAPTER 5

CONCLUSION

DSM is directly related to health care settings ability to address health concerns. In many countries faced the severe problems including ineffective procedures in selection, poor quality control, inefficient economically procurement, irrational use of drugs, etc. To solve these problems, WHO and partners focused on the DSM by trying to set up assessment tool which is useful to diagnose the DSM problems in health care settings.

The assessment tool for DSM was developed in 1994 by MSH. The tool was criticized on drug supply. A set of QIs was used as a mean for assessing drug system at national level. Subsequently, many organizations began emphasizing the QIs for measuring the DSM, WHO developed indicators for monitoring NDP in 1999 and INRUD also developed the drug use indicators at health facilities in 1993, etc. In Thailand, QIs were also developed by MOPH and were applied for evaluation of drug system in some key issues. These QIs were not covered the ten key issues of DSM especially the key issues involving the resource and activity, output and outcome components. Therefore, more QIs are needed to assess the operation of resource and activity components and the performance of output and outcome components.

This study focused on the potential quality indicators for assessing DSM at the community hospitals which covering the ten key issues on DSM. The thesis composed of three parts as follows. Part 1, QIs database were directly searched by systematic review from various data sources available from January 2010 to August 2011. Part 2, two rounds of Delphi technique were used to select the potential QIs by the consensus of twenty experts during March 2012 to June 2012. Part 3, the set of selected potential QIs was tested for correlation and reliability of data collection in thirty community hospitals during June 2012 to July 2012.

Part I. Gathering of QIs related to 10 key issues of DSM

From the systematic reviews, 253 QIs were extracted from various data sources, both international organizations and organizations in Thailand, based on the purposes of ten key issues on DSM. 52 repeated QIs were excluded. The remaining of 201 QIs were selected and classified each QI following ten key issues on DSM. The results were as follows: 15 QIs of policy and regulation, 9 QIs of budgeting and financing, 14 QIs of knowledge management, 19 QIs of human resource, 15 QIs of drug selection, 25 QIs of drug procurement, 24 QIs of drug storage and distribution, 75 QIs of drug use, 3 QIs of accessibility of drugs, and 2 QIs of RUDs. These QIs were represented the resource-activity-output-outcome components in accordance to the Logic model. The QIs should have to be reconsidered in order to fit into the DSM of community hospitals. A Logic model can be useful in planning, implementation, analysis, and evaluation of DSM. Therefore, this model will be useful in moving towards developing QIs of DSM by using Delphi technique for selecting the potential of QIs. However, this part of the study is limited on the searching of papers published because QIs from some studies may be suitable only for some specific area. Many countries or many settings have their own situations which are different from each other. The QIs could be used for monitoring and evaluating the DSM performance at the community hospitals.

Part II. Selecting the potential QIs

In first Delphi round, 201 QIs were measured for importance and validity by twenty experts. Then, 84 were chosen following two criteria. For the first criteria, importance > 4.00, validity > 0.70, 46 QIs felt in the criteria. For the second criteria (importance > 4.00, validity < 0.70), the 38 QIs were agreed with the criteria. Remained 117 QIs were removed as follows. For the third criteria, Mean<4, IOC>0.7, the 4 QIs were felt in the criterian and the fourth criteria 4, Mean<4, IOC<0.7, were decided in the criteria. For selecting QIs covering 10 key issues on DSM, the 38 QIs of the second criteria were picked up and used for studying in the second Delphi round. However, 84 QIs will be reconsidered in the second round for their appropriateness, congruence, and feasibility. Thus, 84 QIs were measured again for the consensus of the same experts on each QI.

For the second Delphi round, 84 QIs were re-tested. The consensus of the experts was considered following the appropriateness, congruence, and feasibility of each QI. The results showed the 48 consensus QIs as follows. For resource component; 5 QIs were in policy and regulation issue, 3 QIs were in knowledge management issue, and 3 QIs were in human resource issue. For activity component; 2 QIs were in drug selection issue, 4 QIs were in drug procurement issue, 6 QIs were in drug storage and distribution issue, and 4 QIs were in drug use issue. For output component; 1 QI was in drug procurement issue, 4 QIs were in drug storage and distribution issue, and 14 QIs were in drug use issue. For outcome component; 1 QI was in RUDs issue. Since OP23 and OP27 were suggested from the experts that they were similar in the meaning and results, the only one QI, OP23 was combined from these two QIs. The findings in this part found that 47 QIs were consensus in the second Delphi round and could be used as a set of potential QIs for testing of DSM at thirty community hospitals.

Part III. Testing a set of potential QIs of DSM

A set of 47 potential QIs was assessed by collecting the data of the DSM at thirty community hospital under MOPH. For most of thirty hospitals, the results of 29 potential QIs in resource and activity component can be collected. Whereas, only the results of four QIs in output and outcome components can be collected in thirty hospitals as follows. OP7 showed that the value of procurement of drugs on the NLED was 92.02%, OP12 showed that the stocking month for drugs in inventory was 2.29 months, OP24 involves the OPD prescribing error was 5.45 times per 1,000 drug prescription, and OP26 relating the OPD dispensing error rate was 5.76 times per 1,000 drug prescription.

For, the potential QIs in output and outcome components, results were as follows. The mean of IPD pre-administration error rate could be collected only from 13 hospitals with the value of 3.98 times per 1,000 drug prescription, ten hospitals for the mean of OPD pre-administration error rate of 5.70 times per 1,000 drug prescription, and four hospitals for the mean value of the patients with CHD, together with a recorded use of an antiplatelet drug within the last 12 months of 89.77 patients per year. It could be noticed that the potential QIs did not be able to collect their data

from all hospitals because some hospitals did not record the data. For the value for internal consistency of a set of potential QIs was calculated only from the results of QIs in resource and activity component. The alpha coefficient of overall 27 QIs was 0.8: 11QIs of resource component was 0.7 and 16 QIs of activity component was 0.7.

Correlation between QI and drug safety score was also analyzed. Only, four potential QIs were positively associated with the drug safety score ($p < 0.05$). The scoring of drug safety score had been evaluated by the pharmacists at the Provincial Public Health Office for the year of study. Most of potential QIs were not associated with the drug safety scores such as potential QIs of policy and regulation issue relating the implementation of NDP, the regulation of DSM and, the responsibility of PTCs. Therefore, these four potential QIs related four issues from thirteen issues of drug safety standard of MOPH as follows. Issue 1, management of drug safety system at the hospitals; issue 3, development of personnel competency; issues 4, service of drug dispensing for out-patients; and issue 5: dispensing drugs for in-patients. Thus, many potential QIs did not affect the drug safety. Most of QIs had individual purpose and meaning for assessing only one aspect

The main point of this thesis was that the 47 QIs have potential to assess the DSM performance at the community hospitals. Additionally, this set of potential QIs can be suitably applied for assessing follow the capacity of community hospital.

Suggestions and future works

(1) The pharmacists in community hospitals can be used the set of potential QIs to assess the DSM performance.

(2) The set of potential QIs can be suitably applied for assessing follow the capacity of community hospital by the pharmacists, inspectors of provincial level.
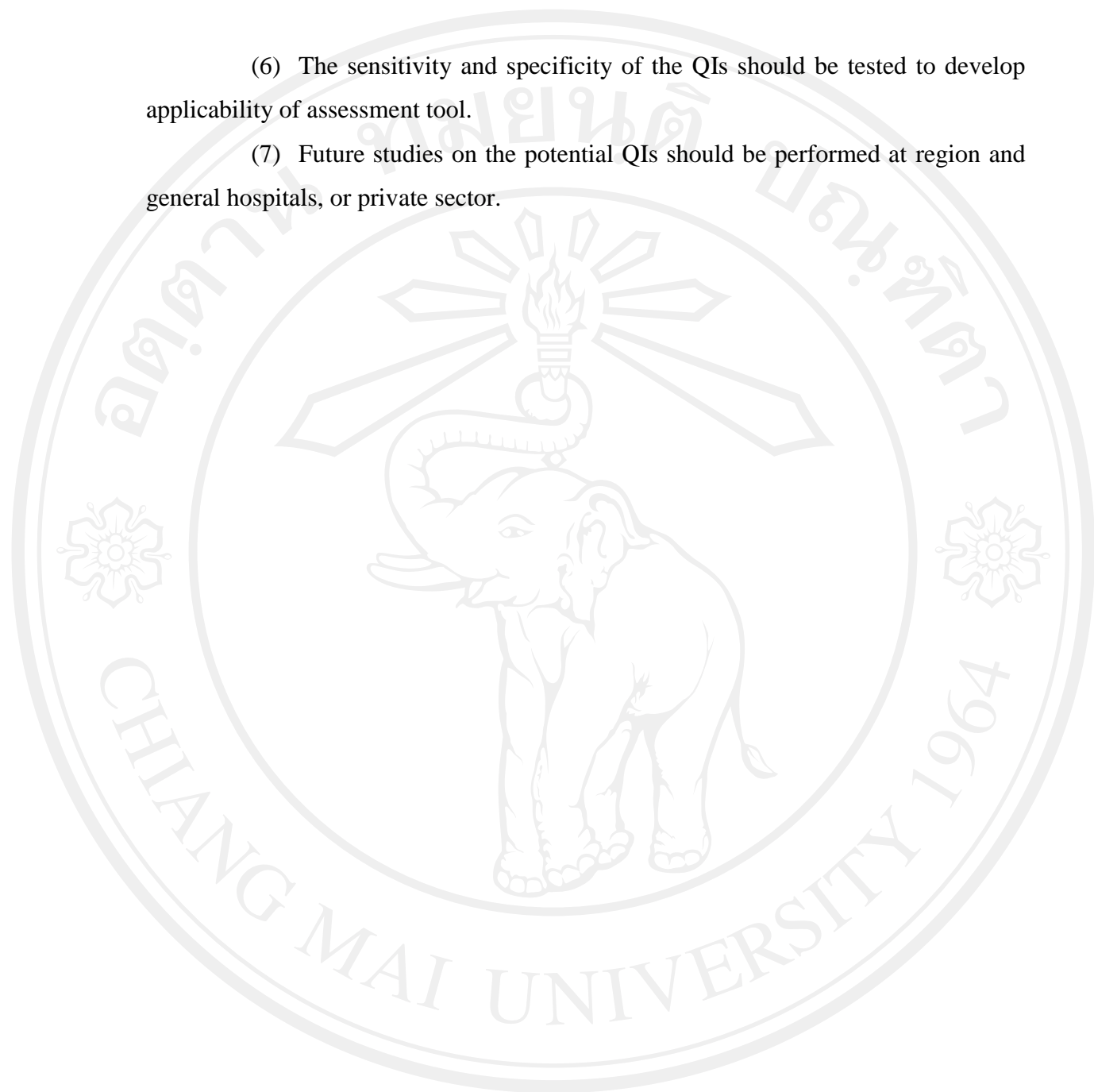
(3) The policy makers, stakeholder, and inspectors can use the QIs to assess the DSM and can apply to create an assessment tool.

(4) The QIs should be further developed and continuously used and improved by the policy maker, stake holder, inspectors, and pharmacists.

(5) Scoring of QI rating scale should be used for developing of the assessment tool.

(6) The sensitivity and specificity of the QIs should be tested to develop applicability of assessment tool.

(7) Future studies on the potential QIs should be performed at region and general hospitals, or private sector.