CHAPTER IV
SUMMARY, CONCLUSION, AND SUGGESTIONS

1. Summary and conclusion

In this thesis the main aim was to estimate an average survival time to update of PCG reviews by simulation technique. The study was designed in two phases; first phase was the identification of updating situation of complete PCG reviews and ascertainment of factors associated with updating, and second was the simulation method for estimating average time to update.

The first phase to describe the updating situation of complete PCG reviews in chapter II. The retrospective cohort study was conducted from 101 completed reviews that published in 2007 volume, issue 3. Most of these reviews had been updated only once (67.3%, 68/101), and the other had been updated 2 to 6 times. Our results were focus on the reviews of first update only. The median time to update was 3.3 years (95% CI, 2.8 to 4.6). Only 32.7% (33/101) reviews had been updated within the recommended interval of 2 years. More than half of the cohort, 53% (54/101) reviews that included new trials could indicate the quantitative change in the update meta-analyses. Of these reviews, the median change in effect size was 18.2% (95% CI, 13.2% to 23.1%), and the median change in 95% CI width was 30.8% (95% CI, 19.4% to 32.9%). Only 18.5% (10/54) reviews had a change in statistical significance: 8 reviews had changed from non-significance ($p>0.05$) to significance ($p<0.05$) and 2 reviews had changed from significance ($p<0.05$) to non-significance ($p>0.05$). Only two update reviews resulted in major quantitative changes that altered their conclusions. These 2 reviews had quantitative changes higher than 50% and they had the shorter time of the first update than 2 years recommendation.

The univariate analysis indicated 3 factors statistical significant association with the time to first update. They were the inclusion of additional trials with < 3 trials (HR 0.51; 95% CI, 0.32 to 0.83), searching an additional database (HR 0.59; 95% CI, 0.38 to 0.92), and Cochrane pregnancy and childbirth topic in intrapartum issues (HR 1.86; 95% CI, 1.03 to 3.37). They were subsequently added to the

multivariate Cox proportional hazard model. Only the number of additional with < 3 trials was associated with shorter time to update (adjusted HR 0.53; 95% CI, 0.31 to 0.92).

The second phase was to simulate time to update of systematic reviews under various scenarios. Two simulation models were conducted for generating parameters of time to update. The first model was for generating time to update without considering any quantitative change. Three associated factors of time to update from the first phase were used as parameters for the simulation by survival function with Weibull distribution. For the second model, times to out-of-date were simulated using the 50% changes in magnitude of effects (effect size and/or 95% CI) as the cut-off point. Only percentage of increasing participants was used as a parameter for the simulation by survival function with Weibull distribution. The Monte Carlo procedure in STATA was used to generate 1,000 simulated times for each scenario with 10,000 iterative loops. The median time to update without considering any quantitative change was 2.56 years (95% CI, 2.54 to 2.58 years). The lowest median time to update was found in the reviews of postpartum issues and highest in the reviews of antenatal care issues. The median time to out-of-date was 4.16 years (95% CI, 4.05 to 4.27 years). The simulation results show shorter time to out-of-date with increasing percents of additional participants at update period.

In conclusion, our study indicated most of the PCG reviews were updated longer than 2 years period of the Cochrane updating policy recommendation. Very few update reviews were changed in their conclusion with very much higher than 50% quantitative changes. The simulation results indicated that time to out of date of the PCG reviews could be longer than the 2-years recommendation of Cochrane policy. However, the different simulated times to update of various PCG topics were seen. This may be reflected the different frequencies of trial development among the PCG areas.

2. Suggestion

Our study indicated useful information for those who produce, publish, and use PCG reviews. Updating reviews within 2 years period as the Cochrane updating policy recommendation may not show the change in effect estimate or conclusion which would be waste of resources. International policy guidelines could help increasing international harmonization in aspects of the updating process and reduced time consuming. Tools for identifying appropriate updating time should be developed for better decision in the systematic reviews of Pregnancy and Childbirth care.

Further study should focus on identifying the updating time for variety topics of CR. The study of rate of trial development should be developed for help find the appropriate updating time. Because of new trials of different clinical areas were developed at various speeds.