



OBSTETRICIANS' PRESCRIBING BEHAVIORS
OF ANTIBIOTIC PROPHYLAXIS FOR
CESAREAN SECTION IN THREE MAIN
GOVERNMENT HOSPITALS IN SONGKHLA
PROVINCE, SOUTHERN THAILAND

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Title Obstetricians' Prescribing Behaviors of Antibiotic Prophylaxis for Cesarean Section in Three Main Government Hospitals in Songkhla Province, Southern Thailand,

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ABSTRACT

This thesis concerns prescribing behaviors of antibiotic prophylaxis for cesarean section in three main government hospitals (the university, regional, and general hospitals), Songkhla province. It consists of two parts. Part I is confined to the university hospital, aiming to assess the pattern of antibiotic prophylactic prescription in cesarean sections and to identify factors predicting intraoperative prophylactic antibiotics. Part II extends to assess the pattern of antibiotic prophylactic prescription in the other two study hospitals and the obstetricians' reasons of practice. The objectives of this part were to assess actual practice, to document obstetricians' beliefs, attitudes, subjective norms, perceived behavioral controls, and the intentions of antibiotic prophylaxis for cesarean sections, and to quantify the relative weight of three determinants (attitudes,

subjective norms, and perceived behavioral control) as to intentions based on the theory of planned behavior (TPB).

In part I, the medical records of all women undergoing cesarean sections in the university hospital from January 1998 to February 1999 were reviewed. Both patient and doctor factors were recorded as independent variables. The dependent variable was whether intraoperative prophylactic antibiotics were given. Among 879 eligible cases, 65 cases (8%) were given a single-dose regimen and 468 cases (53%) were given multiple doses. The longer duration of ruptured membranes, higher number of vaginal examinations, and doctors' aged 30-39 years were significant factors for prescribing intraoperative prescription by multiple logistic regression with random effects. The adjusted odds ratios for intraoperative prescription of ruptured membranes of 7-12 hours duration compared with no ruptured membranes was 4.1 (95%CI 2.0-8.2) and of 6 or more vaginal examinations compared with no vaginal examination was 3.2 (95%CI 1.3-7.9). Doctors' aged 30-39 years had 3 and 7 times of the odds of giving intraoperative antibiotics compared to their younger and older colleagues, respectively.

In part II, the study was carried out both from medical records of women undergoing cesarean sections and from 50 obstetricians performing cesarean sections. Expanded data collections of medical records in the regional and general hospitals were done in the same period and number of medical records as in the university hospital. Data collection of 50 obstetricians was undertaken in three study

hospitals from October 2000 to January 2001 by questionnaire and interview. A structured questionnaire and semi-structured interview were constructed. The questionnaire was evaluated with the content validity index and pre-tested for reliability with Cronbach's alpha. The relative weights of three determinants for predicting intentions were analyzed by multiple linear regression. Qualitative interviews were transcribed and code mapping was done.

Antibiotic prophylaxis was prescribed in 94 percent of 2,726 cesarean sections in three hospitals from January 1998 to February 1999. Obstetricians in the regional and general hospitals prescribed antibiotic prophylaxis intraoperatively in nearly all cesarean sections. Ampicillin was the most common intravenous prophylactic antibiotic for intraoperative and postoperative administration. A single-dose regimen was employed in 9%, 84%, and 41% of women undergoing cesarean section in the university, regional, and general hospitals, respectively. This regimen was consistently uncommon among doctors in the university hospital. On the other hand, single dose was more common in the regional and general hospitals, although there was a high variation among doctors. Most faculty members in the regional hospital usually prescribed single-dose regimen. Only one faculty member in the general hospital prescribed single dose but the others did not. Obstetricians in the university hospital prescribed antibiotics postoperatively (21%) because their patients had complications or contamination during operation in cases of not prescribing intraoperative antibiotics. Moreover, they believed that antibiotic

prophylaxis was benefit only in high-risk women undergoing cesarean sections in reducing postoperative febrile and infectious morbidity and that the intravenous multiple doses with additional oral antibiotics gave a higher prevention from infection.

Nearly 50 percent of obstetricians had negative beliefs on a single-dose regimen and thought that their important referents (infectious disease specialists and clinical practice guidelines) did not recommend prescribing prophylactic antibiotics in all cases. Personal experience was the most important factor for their judgements. Obstetricians considered cost-effectiveness in prescribing antibiotic prophylaxis in cesarean sections, but they also thought that the multiple doses of selected antibiotics with or without oral antibiotics did not increase the costs considerably.

Obstetricians' attitudes on a single-dose regimen were negative because they were not confident in its efficacy, did not trust in aseptic systems of the local setting, and had a fear of infection. Perceived knowledge from textbooks or journals and the authority of direct supervisors during residency training influenced their practices. Specifically, they inferred that supervisors during residency training had a high variation in these practices and they chose to do the same as the respected supervisors. Control systems, especially perceived existence of clinical practice guidelines, influenced the obstetricians' practice in the regional hospital, despite that no written guidelines were available, but only

discussed within a group. Subjective norms were the strongest predictor of intention ($R^2 = 0.55$; $\beta = 0.29$; $p < 0.01$) in overall antibiotic prophylaxis in cesarean section, but attitudes and subjective norms were the significant predictors in the use of prophylaxis ($R^2 = 0.41$) and single-dose regimen ($R^2 = 0.66$).

In conclusion, there is a gap between practice and evidence-based knowledge. Antibiotic prophylaxis was overused in duration and misused in timing of administration. The main reasons for this gap were negative attitudes, misleading authorities and experience during residency training, and too weak control systems. Evidence-based medicine, the new paradigm of medical education, should be introduced to residency training to create positive attitudes, subjective norms, perceived behavioral control, intention, and appropriate behavior in the future.