

Abstract

Project Code: RTA/13/2539

Project title: Enhancement of Epidemiological Research Group, Prince of Songkla University

Investigators: (All are from Faculty of Medicine, Prince of Songkla University)

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Project Period: 20 September 1996 – 19 September 1999

Objectives:

1. To produce high quality epidemiological research for the purposes of planning and evaluation of health care.
2. To increase the number of high quality epidemiological researchers

Methodology: various methods e.g. survey, case-control study, cohort study, randomized control trial and diagnostic test.

Results:

Twenty-six publications in international journals were supported by this Senior Research Scholar Program during the funded period. Eight are presented in this report. Eight Thai and five international Ph.D. students are enrolled in the program

Discussion and conclusion

This program has contributed remarkably to scientific development in Thailand and Asia.

Suggestion:

The program needs further funding to ensure continuation of success in the development.

Keywords

Health systems research, international training program, Epidemiology.

บทคัดย่อ

รหัสโครงการ: RTA/13/2539

ชื่อโครงการ: โครงการส่งเสริมกลุ่มวิจัยระบาดวิทยา มหาวิทยาลัยสงขลานครินทร์

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วัตถุประสงค์:

1. ผลิตผลงานการวิจัยทางระบาดวิทยาที่ช่วยการวางแผนและประเมินผลการให้บริการสาธารณสุข
2. ผลิตนักวิจัยทางระบาดวิทยาที่มีคุณภาพสูง

วิธีการ ใช้ระเบียบวิธีวิจัยต่าง ๆ เช่น survey, case-control study, cohort study, randomized control trial and diagnostic test.

ผลลัพธ์:

โครงการได้มีส่วนสนับสนุนงานตีพิมพ์ในวารสารนานาชาติรวม 26 รายการ ส่วนที่อยู่ในรายงานนี้ซึ่งระบุชื่อ สกว. ในกิตติกรรมประกาศ มี 8 รายการ (ทั้ง 8 รายการเป็นผลงานตีพิมพ์ที่ล่าสุดโดยก่อนหน้านี้นี้ที่ไม่ได้ระบุไว้ในกิตติกรรมประกาศภายในวารสารว่าได้รับการสนับสนุนจาก สกว. เนื่องจากรู้เท่าไม่ถึงการณ์)

มีนักศึกษาระดับปริญญาเอกไทย 8 คน ต่างประเทศ 5 คน

อภิปราย

โครงการนี้ได้พัฒนาศักยภาพทางด้านการวิจัยของประเทศไทยและของเอเชีย

ข้อเสนอแนะ:

ควรสนับสนุนการพัฒนาแบบนี้ต่อไป

Executive Summary

This program is based at the Epidemiology Unit, Faculty of Medicine, Prince of Songkla University, in order to strengthen research capabilities of the epidemiological research group. Several research projects were initiated. Eighteen oral presentations were given in international meetings and 4 books were published. Thirteen Ph.D. students enrolled in the program and were involved in the research.

Twenty-six articles were published or accepted for publication in international journals under this support. However, only the most recent eight are presented in this report. The other articles are omitted because they failed to acknowledge support from Thailand Research Fund due to inexperience of the grantee. The following paragraphs summarize the nine publications. Details of each article are in the annexed reprints and manuscripts.

Masrul M, Chongsuvivatwong V, Geater AF. (1999) Factors associated with coverage of iodine deficiency disorders (IDD) control programs in an endemic area in West Sumatra Indonesia. *Asia Pacific J Clin Nutr.* 8(1): 13-18.

This study was carried out in West Sumatra, the endemic area for iodine deficiency of Asia. The program contributed in designing, analysis and preparation of the report. 495 school children aged 6-15 years in one subdistrict were examined and the guardians interviewed. The coverage of iodine capsule distribution was 27% and 48% of the households used iodized salt with an appropriate concentration (≥ 40 ppm). Mothers' lack of knowledge was associated with poor iodine capsule coverage whereas the rich and middle income families tended to miss the iodized salt. Thus education program should be fine-tuned to these poorly covered subgroups.

Tuntiseranee P, Chongsuvivatwong V. (1999) A survey into process and worker's characteristics in the furniture industry in Songkhla Province southern region of Thailand. *Southeast Asia J Trop Med Pub Hlth.* 92(4): 814-819.

This study was carried out to examine the manufacturing process and working conditions of this kind of industry in southern Thailand. Altogether 69 managers and 1,000 workers participated in the study. There are two main types of wood industry, rubberwood and hardwood. The rubberwood industry is semi-automated with advanced technology, has a female-dominated workforce of 200-300 workers per factory and overseas-market orientation. The hardwood industry is based in small-scale workplaces ranging from 20 to 60 workers,

domestic-market oriented and has a male-dominated workforce. Most of the workers were young, single, and of low education and the labor force undertaking arduous work with long working hours per week and a high turnover rate. Solvent was the most frequent chemical exposure. The person-year incidence of chemical exposure in female workers was higher than in male workers for every group of chemicals. The standardized fertility ratio of female wood workers was only 51.6% of that of the Thai female population. There was a high abortion rate among women who became pregnant inside the wood industry. Wood industry workers were exposed to occupational hazards and accident prone work conditions.

Chongsuvivatwong V, Ritsmithchai R, Suiyawongpaisal P, Chariyaleertsak S, Kosuwan W, Punyaratabandhu P, Sutiwipakorn W. (1999) High prevalence of drink-driving in Thailand. *Drug and Alcohol Review* 18: 293-298.

This study was conducted to measure the prevalence of drivers with a blood alcohol concentration (BAC) over 50 mg/dl and to identify predictors for such an outcome. A cross-sectional survey was conducted in 8 provinces in Thailand. In each province, with the collaboration of the police, one checkpoint in a suburban area and one on a highway were used to collect data on drivers of 29 motorcycles, 20 4-wheel and 20 6+ wheel motor vehicles, during 1300-1500h, 1700-1900h and 2200-2400h. For each subject, a breath test for alcohol was undertaken using standard breath testing instruments. 4,675 male drivers were tested. The crude prevalence of high BAC was 12.6% (range 5.4-23.7%). The differences in prevalence between the suburban area (8.7%) and the highway (8.4%) and between drivers tested on weekdays (9.8%) and on holidays (7.5%) were not statistically significant. The crude prevalence were 3.4-3.8% and 3.8-3.9% at 1300-1500h and 1700-1900h, respectively. During 2200-2400h the prevalence rose to 19.2% 16.0% and 11.9% among the motorcyclists, the 4-wheel vehicle drivers and the 6+ -wheel vehicle drivers, respectively. High BAC among Thai drivers in the study period was very common, especially at night. Efforts should be focussed on these high-risk groups and this time period.

Chongsuvivatwong V, Nagnaen W, Uga S. (1999) Soil contamination and infection by soil-transmitted helminths in an endemic village in Southern Thailand. Accepted for publication in *Southeast Asian J Trop Med Pub Hlth*. 13 May 1999.

The aim of this study was to test the association between soil contamination and infection of the household members by soil-transmitted helminths in dry and rainy seasons. A lake-side community in southern Thailand with a population of 2340 was studied twice, in the dry season and rainy season. Fifty households were randomly selected. Soil samples near the

latrine, in the yard, at the foot-washing area and under the trees were taken and analysed for presence of helminthic eggs. All members of the selected household were interviewed and stool samples obtained. Age-adjusted odds ratios of presence of *Ascaris* and *Trichuris* eggs in the household soil for ascariasis and trichuriasis were 10.5 (95% CI 1.5-77.1) and 5.5 (95% CI 2.4-12.7) in dry season and 10.4 (95% CI 2.5-43.8) and 8.3 (95% CI 3.4-20.0) in rainy season. The levels of hookworm eggs detected in the soil were too low to test the association. Soil analysis for eggs of *Ascaris* and *Trichuris* may be used to predict infections among the household members but not that for hookworm.

Sangthong RC, Mo-suwan L, Chongsuvivatwong V, Junjana C. (1999) Secular increases in weight, height and body mass index among school children of Hat Yai: a 5-years follow-up study. Accepted for publication in *Southeast Asia J Trop Med Pub Hlth* on 25 June 1999.

Upward trends of growth and overweight have been reported from developed countries. As Thailand has been undergoing rapid economic transitions over the previous decades, we conducted the analysis to demonstrate the secular changes of growth over the five years follow-up. Subjects were a cohort of 2253 primary school children recruited in 1992 for Hat Yai Childhood Obesity Study. Baseline demographic and family data were collected by a questionnaire completed by parents. To quantify the cohort effect, a generalized estimating equations analysis was undertaken. Graphs of median weight, height, BMI and overweight prevalence of each birth cohort against age clearly show secular increases of growth and overweight and age effect. Children who were born one year later weighed 1.22 kg heavier, were 1.25 cm taller, and had a BMI of 0.23 kg/m² greater than those being born earlier.

Thongsuksai P, Chongsuvivatwong V, Sriplung H. (1999) Delay in breast cancer care: a study in Thai women. Accepted for publication in *Medical Care* September 1999

Breast cancer is the second most common cause of cancer death in Thai women. Cancer registry data reveal a high prevalence of late stage disease at diagnosis. Factors resulting delay in Thailand have not been investigated. The objective of this study was to determine the extent of, and the factors contributing to, delay in breast cancer care.

Women with breast cancer who were first treated at Songklanagarind Hospital between Jun 1994 and June 1996 were interviewed with retrospective chart audits of care. Dependent variables included patient delay (symptom recognition to first care) and system delay (first

care to treatment). Independent variables tested included demographic factors, help-seeking behavior and cancer knowledge. Non-parametric rank sum tests were used for univariate analysis and Cox regression was used for multivariate analysis. Hazard ratio (HR) from this type of regression reflects the relative risk for delay.

94 cases were included in the study. The median patient and system delay were 4 weeks. 26.6% and 24.4% of patient and system delay were longer than 12 weeks, respectively. Only marital status (unmarried compared to married women) was significantly associated with patient delay (HR 2.78, 95%CI 1.23-6.25). Contacting a provincial hospital instead of a university hospital as first medical care (HR 2.50, 1.23-5.26), being given a diagnosis rather than being told nothing (HR 2.04, 1.15-3.57) and being given treatment rather than being immediately referred (HR 4.55, 2.22-9.09) were associated with system delay.

Patient delay and system delay in breast cancer care are important weaknesses of disease control in Thailand. Educational program should target unmarried women who are at higher risk of delay. System delay in hospitals outside the university needs to be improved by a good referral system.

Tran TS, Jamulitrat S, Chongsuivatwong V, Geater A. (1999) Risk factors for surgical site infections and febrile morbidity following cesarean section: a prospective study. Accepted for publication in *Obstetric & Gynecology* October 1999.

Cesarean section is one of the most common obstetric life-saving procedures. However, the operation often leads to infection and burden to the woman and the family. The objectives of this study were to determine post-cesarean infection complications and to identify the independent risk factors for surgical site infections.

A cohort of 969 cesarean sections from May to August 1997 was prospectively studied. Infections were identified by ward round, review of laboratory results and patient follow-up until 30 days after hospital discharge. Risk factors were identified via unconditional multiple logistic regression.

Surgical complications were rare. Febrile morbidity and infection complications were documented in 16.2% and 12.4% of subjects, respectively. Eighty-five subjects developed 95 surgical site infections (9.8%). Eight risk factors are independently associated with post-cesarean surgical site infections. Identified here are preoperative remote infections (adjusted OR = 16.1, 95% CI = 2.1-125.2); chorioamnionitis (aOR = 9.1, 95%CI = 1.8-45.2);

preoperative condition of patients (aOR = 5.1 for ASA score \geq 3 95%CI=1.1-23.1); rupture of membrane (aOR = 2.5 for ROM \geq 24 hours, 95%CI = 1.1-3.1); pre-eclampsia (aOR=2.2 95%CI = 1.03-4.7); higher body mass index (aOR = 2.0 for every 5-unit increment, 95%CI = 1.2-3.0); nulliparity (aOR = 1.8, 95%CI = 1.1-3.2); and increased volume of surgical blood loss (aOR = 1.3 for every 100 ml increment, 95% CI =1.1=1.5). Five factors were documented as independent predictors of febrile morbidity following cesarean section. They are chorioamnionitis (aOR = 16.0, 95%IC =3.1-83.3); preoperative condition of patient (aOR = 13.6 for ASA \geq 3, 95%CI= 2.8-65.7), preoperative fever (aOR = 9.5, 95%CI = 3.8-23.7); pre-eclampsia (aOR = 2.4, 95%CI =1.2-4.6); and blood loss (aOR = 1.3 for every 100 ml increment, 95%CI = 1.1-1.5).

Teapaisan R, Nittayananta W, Chongsuivatwong V. (1999) Biotypes of *Candida albicans* isolated from HIV and HIV-free patients. Accepted for publication in *Journal Oral Medicine Pathology* October 1999.

This study was conducted to examine biotypes and antifungal susceptibility patterns of oral *Candida albicans* isolated from HIV-infected patients, HIV-free patients with candidiasis and healthy subjects. All isolates were biotyped using a typing system based on enzyme profiles, carbohydrate assimilation patterns and boric acid resistance. A total of 38 biotypes were found amongst 218 oral *C. albicans* isolates. The major biotype found was A1S, which accounted for 32.6% of all isolates and this biotype was the most common in all groups. There were more different biotypes of *C.albicans* in HIV-infected groups than the in others; however, there was no statistically significant difference between the groups. The minimum inhibitory concentrations (MICs) of a total of 118 isolates were determined for amphotericin B, and ketoconazole using the National Committee for Clinical Laboratory Standards (NCCLS) broth macrodilution method and the E-test. When the antifungal susceptibility pattern among the groups were compared, a statistically significant difference was found only with amphotericin B. The median MIC of amphotericin B in the HIV-infected group was higher than in the healthy group ($p = 0.013$, NCCLS's method; $p = 0.002$, E-test). However, this difference in sensitivity was not restricted to any sub-type investigated. Our results showed that the biotype patterns of *C.albicans* isolates that colonize HIV-infected patients are similar to those of HIV-free subjects, and there is no relation between antifungal susceptibility patterns and the biotypes.