HIV\textsuperscript{+} Screening Result Report of Renal Dialysis Patients In Four District Hospitals of Kunming City

Jianping Zhang\textsuperscript{1}, Hongbin Lou\textsuperscript{2}, Lizu Fu\textsuperscript{2}, Ling Ma\textsuperscript{3}, Jiayu Shu\textsuperscript{3}, Manhong Jia\textsuperscript{2}

\textsuperscript{1}School of Public Health of Kunming Medical University, Kunming Yunnan 65003
\textsuperscript{2}Yunnan Center for Disease Prevention & Control, Kunming Yunnan 650022; China

**Objective** To understand HIV prevalence of renal dialysis patients by analyzing their demographic characteristics, knowledge about AIDS, sexual behavior and HIV antibody test, therefore providing the evidence for monitoring and preventing blood transmitted infections.

**Method** Continuous sampling for fixed sites is employed for a survey with 401 patients who are receiving renal dialysis at hospitals under Kunming’s jurisdiction. The questionnaire interview is adopted along with HIV serological test.

**Results** More male patients of two age group (31-40, and 41-50) constitute the survey subjects who have less knowledge of AIDS and use condoms less frequently than other subjects. The knowledge levels about AIDS are statistically different by education, age and vocation that subjects have (P<0.001). 41.6% of patients received blood transfusion treatment, of which 15 cases were diagnosed with HCV carriers between 2002 and 2009. The HIV serological test shows negative result for 401 patient’s blood samples.

**Conclusions** Patients receiving renal dialysis are at risk of being infected with HCV/HIV. Health education for renal dialysis patients, condom promotion, safe blood use and strengthened monitoring and management are measures of reducing blood-transmitted infections.

**Keywords.** Patients receiving renal dialysis, HIV antibody test, Analysis
The Influence Multi-Factors Analysis Parent-Child relationship of Discrimination among Methadone Maintenance Treatment Group

Zhang Jianping¹, Zhu Jing², Cai Guo Xi¹, Kang Jiabo¹, Sun Jiayu⁵

¹ Kunming Medicine University
² China’s Center of Disease Control and Health Prevention STD/AIDS Research Center
³ Center of Disease Control and Health Prevention of Lincang of Yunnan Province

Objective To realize the drug network characteristics of MMT groups in Somewhere Yunnan province, to analyze the correlation factors of parent-child relationship of discrimination in order to provide evidence for reducing parent-child of discrimination and improve MMT effect.

Method The Convenient sampling was taken to recruit 150 subjects of MMT drug addicts in somewhere distract among them a questionnaire survey was conducted and the collected data were analyzed by Chi-Square and Logistic regression analysis.

Result The young man is main groups and the most of them was low-income condition, HIV positive status and injection share needle had obvious correlation. The parent-child of discrimination and exclusion sense of the crowd had closely related with the attitude of family numbers/ friends.

Suggestion We should increase treatment education and maintaining MMT population, to reduce drug addiction. We should call for work availability or self-help production projects. More and more support and care to reduce parent-child of discrimination for MMT drug population.

Keywords. Methadone Maintenance Treatment Group, Parent-Child relationship of discrimination; Multi-factor Analysis
Satisfaction of Clients Attending Restorative Dentistry Dental Hospital at Faculty of Dentistry, University of Health Sciences, Vientiane, Lao PDR

Bounnhong Sidaphone

Faculty of Dentistry, University of Health Sciences, Vientiane, Laos

Aim  To study the level of client satisfaction in the restorative dentistry, Dental Hospital at Faculty of Medical Sciences, Vientiane Capital City.

Methods  This is a cross-sectional method using quantitative research approach; recruiting 122 Clients attending the restorative dentistry, Dental Hospital at Faculty of Medical Sciences, Vientiane Capital City were filled question, during September-October, 2006.

Result  The majority of clients were women (62.3%), aged under 35 (70.4%). According to marital status, about 48.3% are single, 27.0% of them finished high school, and 24.5% were students. Regarding to the monthly income, 36.8% of them earned under 300,000 kip per month. Concerning to the living arrangements, 95.0% resided in Vientiane Capital City. Most of them self paid the medical charge, which accounted for 98.3% and frequency of service under 3 times, are 61.4%. Regarding to six aspects of satisfaction was: convenience and comfortable location, human relationship, provider, medical-information, the quality of care and the cost of care. The study showed that of them was highly satisfied of all aspects with a mean (2.6), the mean of satisfaction were provider (2.81), mean of satisfaction of cost of care was (2.18). The study suggested that very much need to be improved at the restorative dentistry, the new dental chair, in order to attract more clients to visit the restorative dentistry in the future.

Keywords. Satisfaction, dental service, Laos
Status of Hepatitis B Virus Infection Among Blood Donors in the Lao PDR

Bounthome Samountry1, Khamtim Samountry1,2, Amnat Yousuk3, Prapan Jutavijittum3, Te Thammavong4, Jerapha Keokhamphue4, Kan Toriyama5

1 Department of Pathology, Faculty of Basic Sciences, University of Health Sciences, Vientiane 01000, Lao PDR
2 Department of Gyneco Obstetric, Faculty of Medicine, University of Health Sciences, Vientiane 01000, Lao PDR
3 Department of Pathology, Faculty of Medicine, Chiang Mai University, Chiang Mai 50200, Thailand
4 National Blood Transfusion Center, Lao Red Cross, Vientiane 01000, Lao PDR
5 Department of Pathology, Japanese Red-Cross Nagasaki Atomic Bomb Hospital, Nagasaki 8528511, Japan

Correspondence: Bounthome Samountry
Tel. (856) 20 55657380, Email: sbounthome@yahoo.com

Aim To determine the status of HBV infection in Lao PDR, we used combination of serological markers.

Materials and methods From March to June 2006, a total of 906 voluntary blood donors were studied. Serum samples were tested for the presence of HBsAg, anti-HBc and anti-HBs antibodies. The HBsAg-positive sera were further investigated for the presence of HBeAg and anti-HBe antibody. All assays were based upon the Microparticle Enzyme Immunoassay operated under the automated AxSYM® system.

Results The 906 blood donors (610 males and 296 females) were aged 16-53 years with a mean age of 23.8 ± 7.4 years. Of these, 9.6% were positive for HBsAg. Anti-HBc antibodies were detected in 43.7% of samples. The presence of anti-HBc antibodies increased with age from 36.3% for age 16-19 years to 60% for age 40-53 years, P < 0.001. Protective levels of anti-HBs antibodies (≥ 10 mIU/mL) were present in 27.5% and increased with age from 23.7% for age 16-19 years to 38.0% for age 40-53 years, P = 0.010. Most of them (94%) developed anti-HBs antibodies from previous HBV infection as evidence by anti-HBc positivity. Out of 85 HBsAg-positive samples, 38 (44.7%) were in stage of HBeAg positive chronic hepatitis B and 47 (55.3%) were HBeAg negative and developed anti-HBe antibody. The latter individuals might be in an inactive HBsAg-carrier state or carry a mutant form of HBV that does not produce HBeAg.

Conclusion Suspected neonatal transmission, natural course of HBV infection, and burden of chronic consequences are predictable similar to those seen in other hyperendemic countries.

Keywords. Lao PDR; Hepatitis B virus; Blood donor; Hepatitis B surface antigen carriers; Immune status; Seroconversion.
Study of Knowledge, Attitude and Practice on Induced Abortion of Reproductive Women Who Come to Use the Service in Hospitals at Xieng Khouang Province

Bounxay Nouanthsim

Xieng Khouang Provincial Health, Lao PDR
Correspondance: bnouan@yahoo.com

Background Each year, approximately 20 million induced abortion take place around the world, resulting in some 80,000 maternal deaths, and hundreds of thousands; The vast majority of these deaths take place in developing countries; induced abortion accounts for at least 13% of global maternal mortality, one in eight maternal deaths, and in some countries is the most common cause of maternal mortality and morbidity. Especially in Laos, the cause death by induced abortion is 4.2% of maternal death in the country.

Objectives Of this study is to describe knowledge, attitude, and practice on induced abortion of reproductive women who utilized the service in hospitals at Xieng khouang province.

Methods A Cross sectional Descriptive Study was conducted to investigate knowledge, attitude, and practice on induced abortion of reproductive women who came to use the service in hospital. 175 service women were recruited into the study. Interview technique was used to collect data. The Data was analyzed by STATA 7 program. Percentage, mean, and standard deviation were presented. Chi-square test was performed for investigating association.

Results This study showed that the age mean of study population was 30 years, highest 47 and lowest 15 years. The majority of respondent are Laolum (62%), Buddhist (56%), high school graduates (44%). the main occupation are farmer 70%. About 88% of respondent du married, The average number of pregnancy 5 time, highest 14 and lowest 1 time, number of mothers have live children 84%, the mater had a children at least 4 (66%), gestation of pregnancy in the fist trimester of pregnancy (100%), average pregnancy 7 weeks, number of women used contraceptive before one month pregnancy only 32% and don’t use 68%. The reasons of don’t use contraceptive they don’t know quality of contraceptive 52%. The respondent who have high level of knowledge of protection unwanted pregnancy, dangerous from complication induced abortion, and about law are 42%, middle 30%, low level 28%; 57% of samples women have a positive attitude, and 43% negative attitude on induced abortion. The practice of induced abortion, majority of respondents reported: the first reason of induced abortion 48% had many children, the second 43% low income; the methods used to induced abortion were dilatation and curettage (63%) and vacuum aspiration (26%), 59% induced abortion in the hospital, 83% decide by themselves 67% introduce to abortion from husband, the first time abortion 73%, had complication of induced abortion 37%, 30% incomplete abortion, 25% bleeding, some decide to use service abortion in the hospital because hospital are safety 97%, They paid money for abortion 120,000 kips per one abortion, and they paid money more thane 250,000 kips for treat complication.

Conclusion This study found that there were not statistically significant between socio-demographic characteristics, knowledge, and attitude of samples women and number of induced abortions. Therefore, health education on mother and child health care should be conducted by concerned sectors how to solve the problem unwanted pregnancy and to know dangerous from induced abortion, Especially young women, and should be done continuously.
Are All Newly Graduated Medical Doctors Recruited in the Government Health Sectors?

Inpong Thongphachanh¹, Loun Manivong¹, Mayfong Mayxay²,³

¹ Department of Personnel, Ministry of Health, Vientiane, Lao PDR
² Faculty of Postgraduate Studies, University of Health Sciences, Vientiane, Lao PDR
³ Wellcome Trust – Mahosot Hospital – Oxford Tropical Medicine Research Collaboration, Vientiane, Lao PDR

Correspondence: mayfong@tropmedres.ac

Rational and Background Medical doctors (MD) are vital human resources for health care in the Lao PDR. Each year, more than 150 doctors graduate from the University of Health Sciences (UHS), but only some are recruited in the government health sector. Among those who are recruited, the turnover due to early retirement and resignation is very high and the reasons for these remain unclear. If these issues were better understood, solutions to increase doctor retention could be considered.

Objectives To study the distribution and migration of Lao doctors within the government health sector in the past 10 years (1997 to 2007)

Methodology (i) reviewed documents related to MD graduated from the UHS in the past 10 years and recruited as government staff, (ii) conducted telephone or face-to-face interview of 248 doctors to determine the reasons of migration, early retirement, and resignation in Vientiane Capital, (iii) conducted face-to-face in-depth interview of 20 doctors and (iv) interviewed 3 personnel managers within the government health sector.

Results During the past 10 years, 782 MD students graduated from the UHS, of which 397 (51%) were recruited as government staff. Of those recruited, 248 people (62%) were contacted and interviewed: 121 (49%) were working for the government health sector, 76 (31%) had retired early, and 51 (20%) had resigned. At the beginning of their employment, 35% of them doing medical practice, 35% working for health promotion and prevention, and 30% working not related to health sectors. All 121 doctors working for the government health sector had moved their working places at least once: the majority (88%) moved from rural area to the cities. The main reasons for migration were family (30%), economic (29%), organization related (25%), and working environment (16%) issues. Similar reasons were found for the early retirement and resignation. The results from the in-depth interview of 20 doctors and 3 senior personnel managers support what have been found for the quantitative study part.

Conclusion Of Lao medical doctors trained in the past 10 years only half were recruited as government staff. Very early retirement and resignation were predominately for financial reasons. The majority of those who remained in government service (90%) moved their working places from rural to central level. Therefore, based on the results of this study, it is recommended that human resource policy and strategy on MD recruitment, movement, and staff turnover should be reviewed in order to find solutions for this problem aimed at improving the efficiency and effectiveness of the health sector implementation in the Lao PDR.

Keywords. Medical doctor, distribution, migration, turnover, retention, retirement, resignation, Laos
External Fixation Open Comminuted Fractures of Tibia with the Lao Army External Fixator (FEAL)

Khammoune Somtakoune

Orthopedic and traumatology department, 103 Army Hospital
Tel. (020) 55808448 and (021) 951116

Background In the current study, the authors reported a modification in the technique applied in 52 cases open comminuted fractures of tibia with the Lao Army External Fixator (Le Fixateur Externe des Armées du Laos) “FEAL”. The average age of the patient was 28,3 years olds and average follow-up was 20 months. In the period from January, 1992 to April, 2009 the Department orthopedic and Traumatology, 103 Hospital received and carried out operations for 52 cases of open comminuted fractures of tibial with the loss of soft tissue 37/52 cases.

Objectives To evaluate the result of operative treatment of open comminuted fractures of tibial with the Lao Army External Fixator and Evaluating to do many function of the Lao Army External Fixator.

Material and method Material: 52 cases open comminuted fractures of tibia. The Lao Army External Fixator. Method: prospective observation, data were presented by descriptive statistics and Wilcoxon Test (SPSS 11.5 Sofware). External fixation open comminuted fractures of tibial with the loss of soft tissue was considered as safe and good method, a specially for infected fracture cases. The external fixation instruments were versatility and can do many function : Pin of FEAL can insert at the bone everywhere, Correction of joint contracture because FEAL can fix and mouvement joint together, Bone gap closure, Bone lengthening and FEAL could fix almosts every fractures in the different site of whole body by changing configuration. The Laos Army external fixator, designed by Khammoune SOMTAKOUNE.

Results They are 52 cases union equal to 100%, we ran into 13 pin tract infections complication equal to 25%.

Conclusion The design of the new instruments is reasonable with the advantages of less technique demanding and invasion, as well as high versatility and feasibility. With the characters mentioned above, it is particularly suitable for the treatment of open comminuted fractures of tibia by gunshot or other high energy injuries in both well-equipped or battle field hospitals. The method is not so difficult to do. FEAL instruments are available to get in our country Laos PDR, cost price of FEAL only $40/1 set.

Keywords. Open comminuted fractures of tibia; External fixation.
Is Hypoglycaemia Related to Mortality in Severely Sick Children?

Sambany E¹, Sayavong E¹, Sayasone S², Raobijaona H³, Pussard E, Barennes H, ¹

¹ Francophone Institute for Tropical Medicine, Lao PDR
² INSP, Laos
³ Hospital Befelatanana Antananarivo (Madagascar)
⁴ Hôpital Kremlin-Bicêtre Paris France

Correspondence: smemercia@gmail.com and barenshub@yahoo.fr

Hypoglycemia is a poor prognosis factor for severe children. This study determined the prevalence of and impact on survival of hypoglycemia in children admitted to the national Hospital in Madagascar. All children aged from 30 days to 15 years admitted to paediatric wards were enrolled from March to June 2010 and blood glucose performed by glucometer finger prick. Physical examination, and standardized questionnaire were used on admission. Severe hypoglycemia was defined at blood glucose <2.2 mmol/l, moderate hypoglycemia between >= 2.2 and <4.4 mmol/l, normoglycemia between >=4.4 and <8.3mmol/l and hyperglycemia at blood glucose >=8.3mmol/l. Children were classified according to the algorithm of IMCI by WHO. Of 420 children, 3.1% had severe hypoglycemia, 20% a moderate hypoglycemia and 10.9% a hyperglycemia. Almost half of children (48.10%) had general danger signs. A significant association was found between hypoglycemia and severe general danger signs, severe dehydration and a P / T <-3SD p <0.005, p <0.000, p <0.03 respectively. The overall case fatality was much higher for children with severe hypoglycemia (53.85%, p <0.001). We therefore suggest routine screening of blood glucose in paediatric settings, associated with systematic prevention of hypoglycemia. This recommendation should be able to reduce the mortality do to hypoglycemia in children in Madagascar.

Keywords. Hypoglycemias, children, IMCI, Madagascar
Safety, Feasibility, and Acceptability of VIA and Immediate Treatment with Cryotherapy in Rural Laos

Phongsavan K1,2, Phengsavanh A3, Wahlström R4, Marions L2

1 Department of Women’s and Children’s Health, Division of Obstetrics and Gynaecology, Karolinska University Hospital/Institutet, Stockholm, Sweden
2 Department of Obstetrics and Gynaecology, Sethathirath Hospital, Vientiane, Laos
3 Faculty of Postgraduate Studies, University of Health Sciences, Vientiane, Laos
4 Division of Global Health (IHCAR), Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden

Objectives Death resulting from cervical cancer is preventable. In most low-income countries population-based screening is not available or poorly utilized. An alternative test as visual inspection with acetic acid (VIA) followed by immediate treatment was carried out to assess the safety, acceptability and feasibility as a single visit approach for initial cervical cancer screening for rural Lao women.

Methods From February to August 2009, women of two provinces were recruited for screening using direct visual inspection of the cervix with acetic acid application. If the inspection showed a well-defined acetowhite lesion close to the os, immediate cryotherapy was offered.

Results A total of 1926 women were included, 134 women were tested positive, 113 undertook immediate cryotherapy and none declined treatment. Seventy-seven women returned for one year follow up, and 68 women were VIA negative. There was no report on major complication during and after treatment. Women highly accepted both VIA and cryotherapy.

Conclusion VIA is a simple, inexpensive, low technology test that requires minimal infrastructure and expenditure. Integrated VIA based screening programs at the primary care level of health services may constitute a feasible method in Laos.
Polymorphism in Merozoite Surface Protein-1 Gene of *Plasmodium falciparum* Isolates from Lao People’s Democratic Republic

Naly Khaminsou\textsuperscript{a}, Onanong Kritpetcharat\textsuperscript{b}, Jureerut Daduang\textsuperscript{c}, Panutas Kritpetcharat\textsuperscript{d}

\textsuperscript{a} Faculty of Medical Technology, University of Health Sciences, Lao DPR
\textsuperscript{b} Department of Pathology, Faculty of Medicine, Khon Kaen University, Thailand
\textsuperscript{c} Department of Clinical Chemistry, Faculty of Associated Medical Sciences, Khon Kaen University, Thailand
\textsuperscript{d} Department of Clinical Microscopy, Faculty of Associated Medical Sciences, Khon Kaen University, Thailand

Correspondence: nalykham@hotmail.com, Tel: 020 22400564

**Background** Merozoite surface protein-1 (MSP-1) is one of the potential vaccine candidate antigens for developing malaria vaccine. However, extensive genetic polymorphism of this antigen in the field isolates of *P. falciparum* represents a major hindrance for the development of an effective vaccine. Moreover, in Lao PDR, there is no data about this genetic data. Our study aim to establish the prevalence of K1, MAD20 and RO33 allele types of MSP-1 gene among *P. falciparum* field isolates from Lao PDR.

**Methods** A total of 230 *P. falciparum* infected blood samples which were collected from patients attending Malaria Clinics in Udomxay, Savannakhet and Xekong provinces were used in this study. The K1, MAD20 and RO33 allele types were detected by nested PCR with specific primers.

**Results** Our study showed that the overall prevalence of K1, MAD20 and RO33 allele types in *P. falciparum* field isolates from Lao PDR were 46.25%, 32.13% and 21.62% of total 3 allele types or 66.95%, 46.52% and 31.30% of sample under study. The single infection with K1, MAD20 and RO33 allele types were 27.83%, 11.74% and 5.22% of total blood samples and the remainder was with multiple infections.

**Conclusion** The distribution of K1, MAD20 and RO33 allele types of *P. falciparum* field isolates from Lao PDR showed that K1 allele type was predominant similar to the other geographic regions.

**Keywords.** Lao PDR, Malaria, Merozoite surface protein-1
To contain H1N1 and other communicable diseases, Lao PDR has set up a National Committee for Emergency Disease Control (NCCDC) which is chaired by the PM, which plays a very important role in the coordination between different line ministries and international donors to mitigate H1N1 outbreak and at to focus all the efforts and existing resources in the country to effectively address pandemic. Similar coordination mechanism also exists at both provincial and district level.

To address H1N1 pandemic preparedness staffs from both public and animal health sectors have been involved through trainings. Desktop exercise was carried out with the involvement of different sectors, line ministries and as well as international stakeholders with the aim to indentify gaps and find common solutions to the problem. During H5N1 outbreak in 2007, efforts have been made to test the samples inside the country, however, test reconfirmation has to be sent to overseas in designed WHO Collaborating Centre, which is relatively time consuming and this has resulted in delay in initiating mitigation measures. Through the efforts, during 2009 H1N1 pandemic, laboratory confirmation could be tested inside the country.

Most of health staffs throughout the country (both in prevention and health care) were trained in H1N1 prevention and case management. However the number of skilled health staffs are still very limited and during the past outbreak staffs have to work overtime. Hospitals are not equipped with all the necessary infrastructure to cope with outbreak (isolation room, BSL3 laboratory, PPM etc…).

For the Asean countries a stock pile of antiviral drug and PPM are available in Singapore and each country member also has its own stockpile of drugs and PPM. Vaccine against H1N1 has been just introduced to Laos and high risk groups are subjected to be vaccinated, however with no dissemination of adequate information on the vaccine to the public at the beginning and later thanks to a better health education campaign the vaccination coverage has achieved its target as expected.

Despite the strong political advocacy and commitment of the GoL there has been increased many folds plus international financial support, the budget is still limited to meet all the needs in terms of diagnostics, case management and compensation, however a lot of investment have been invested in both public and animal health sectors (upgrade laboratories, training of staff, procurement of equipment etc…) and during outbreak period an ad-hoc committee was organized with the aim to follow very closely the trend of H1N1, discuss and report directly to the PM-office. By doing this way the GoL is coordinating H1N1 prevention and control using its existing resources in the most effective way. However, Laos is still relying on external support to overcome this global threat.
Social Meanings, Perceptions, and the Use of Voluntary HIV Counseling and Testing among Male Service Workers in Vientiane, Laos

Sanya Vathanakoune

World Vision, Lao PDR

Correspondence: Email: sanya_vathanakoune@wvi.org
sanya.vathanakoune@gmail.com

Voluntary HIV counseling and testing (VCT) services are component of HIV and AIDS programs in LAOS, and are increasingly being implemented throughout the country. However, studies have found low use of VCT among male service workers (MSW).

The research aimed to understand the use of VCT among MSW, focusing on the social contexts, social meanings and perceptions and their effects on the use of VCT services. The qualitative research design utilized multiple methods, such as in-depth interviews with ten MSW, key-informant interviews, and focus group discussions.

The findings showed there are several social contexts that contributed to the utilization of VCT among MSW. MSW face a double stigma that affected their willingness to use VCT. MSW were considered to be inferior members of society. As entertainment service is a stigmatizing job for lower class and uneducated people, they didn’t want to show their work to the public. The social meanings of VCT label them for HIV prevention. MSW rarely use VCT because they fear to know HIV positive result and being labeled as AIDS patients by society. Other social factors, including the perception of HIV and AIDS, have been found to affect the utilization of VCT.

To encourage MSW to utilize HIV testing, concerned stakeholders should raise HIV and AIDS awareness through peer education among MSW. Building an image of VCT in a non-stigmatized manner is needed. The quality of VCT services provided to clients should be improved in a friendly manner with a variety of choices.

Keyword. Male service workers / Voluntary HIV counseling and testing / Social meanings and perceptions
Abstract No. 24

The Behavior Supporting of Breast Self-examination Among Women in Phitsanulok Province, Thailand

Amornsak Poum1,2, Rossukon Kaewpongpok2, Atipong Sukpen2

1Graduate school, Khon Kaen University, Thailand.
2Phitsanulok Provincial Health Office, Thailand.

Correspondence: amornsak1@hotmail.com

This Participatory Action Research (PAR) aimed to develop an active of breast self-examination behavior for women age between 35-60 years at Nakhonthai District, Phitsanulok Province, Thailand. The study emphasized 8 steps on participation process including, 1) Meeting 2) Selecting areas and pre-evaluation data 3) Planning and presentation 4) Operation plan and implementation 5) Knowledge sharing for exchanging knowledge within network 6) Monitoring and Supporting 7) Evaluation and post evaluation data 8) Establishment of network group. The research was conducted in 4 villages based on criteria. Populations were all 120 women age between 35-60 years, and 40 stakeholders in community representatives. The field study was conducted during July 2009 to August 2010. The structured questionnaires were interviewed since before and after study, the data was analyzed and reported the frequency, percentage, standard deviation, and paired t-test. Information from focus group and in-depth interviews was under gone content analysis. The results were as follows.

The meeting from 4 villages were set 7 action plans and implemented for 6 months that composed of 1) The meeting for all participants 2) Re-check all results from action plans 3) Knowledge for women groups 4) BSE practice by themselves 5) Set the self-record book for BSE data 6) Evaluation and Monitoring the continuous activities of action plan 7) Establishment of Breast self-examination group.

These activities were implemented and then evaluation. It was found that the women aged between 35-60 years were significantly gained more knowledge and changed their breast self-examination behavior including, breast cancer knowledge (P<0.001), perceived of risk factors of breast cancer (P<0.001), perceived of breast cancer symptoms (P<0.001), perceived of breast cancer prevention (P<0.001), knowledge of BSE (P<0.001), perceived of BSE benefit (P<0.001), perceived of BSE barrier (P<0.001), confidence of BSE (P<0.001). Most of women aged between 35-60 years reflected that the breast self-examination behavior has improved after the study end (75.8%). The successfullness of this research was contribution of participants, community participation indecision making and development activities at all steps.

Keywords. Participation, Breast self-examination [BSE], Breast cancer
Potential Development of Administration System for Operation and Maintenance of Village Ground Water Supply System at Huai Sam Mor Watershed, Khon Kaen Province

Chatchawal kiratiworasakul 1 Warangkana Sunsithisawad 2 Kiksanachai Ruangjab 3

1 Department of Sanitary Science, Faculty of Public Health, Khon Kaen University
2 Department of Sanitary Science, Faculty of Public Health, Khon Kaen University
3 Water Administration Division, Water Resource Management Region 4, Khon Kaen

Correspondence: chatki@kku.ac.th

Source of the village water supply in the Northeastern area is mostly taken from groundwater through deep well installation. Water quality of groundwater is possibly high with iron and manganese content and hardness. That causes problems for village water supply system if the operation and maintenance are not appropriate. This study was scoped to Huai Sam Mor Watershed, Khon Kaen Province where there are 15 village groundwater supply systems. However, only 8 of them have been currently in operation at Sub Somboon Sub-district, Khok Pho Chai District, Khon Kaen Province. The survey of such 8 village underground water supply systems had been conducted to clarify problems, sources of problem, which then solutions could be proposed. The problems were found that absolutely no-trained of the village water supply administrative committees and the system operators in water supply management, lack of system maintenance, lack of daily system monitoring, no cleaning of filter tank and high tower tank, lack of water pressure adjustment, no chlorination of water before distribution. The potential development as needed by the administrative committees was training and workshop on the good practice on water supply system management. After two months of the potential development, the findings were cleaning up the area around the water supply system location, water pump checking, water pressure adjusting regarding with the tower tanks’ height, cleaning up filter tanks. However, to keep water good water quality supply through the regular and continuous practices schedule still rely on the awareness on the village water supply management committee.

Keywords. Potential development, village ground water supply system, operation and maintenance
Water Quality Situation and Opinions of People on Water Pollution Problems of the Communities near the Landfill Site of Khon Kaen Municipality, Khon Kaen Province

Chiraporn Lapkom¹, Uraiwan Inmuong²

¹Master Student of Environmental Health Science, Faculty of Public Health, Khon Kaen University, Thailand
²Department of Environmental Health Science, Faculty of Public Health, Khon Kaen University, Thailand

Correspondence: Chiraporn Lapkom, E-mail: chirapor_lk@hotmail.com

This study is a cross sectional descriptive study. The objective is to study the water quality situation and opinions of people on water pollution problems of the communities near the landfill site of Khon Kaen Municipality, Khon Kaen Province. The study was conducted between June 2010 – April 2011. Collected information by Survey, Analysis of water quality and questionnaires were conducted with 323 households situated near the landfill site. The data was analyzed using descriptive statistics including frequency percentage and average.

The results showed that drinking water in the residential area near a landfill site is mostly from rain water 90.1%. The majority 69.8% of the resident’s opinions were that drinking water quality has deteriorated. When comparing the quality of the drinking water today with that of 1-5 years ago, resident reported that the quality is worse. Water consumption is mainly from groundwater 80.3%. Analysis of water quality found contaminat with heavy metals, coliform bacteria and fecal coliform bacteria, especially in Ban Kombon, which is located closest to the landfill site. This study found lead and manganese contamination exceeds water quality standards. Water resources for agriculture in the study area include Samjan reservoir and Huai Mak Ngo, BOD, lead and manganese contamination in these resources exceeded surface water quality standards for agriculture and consumption. Communities found to be affected by the problem of water pollution include: Ban Non, Ban Ton, Ban Tonmai and Ban BungKae, because the direction of flow of leachate is northwards, towards Huai Mak Ngo the channel flows into the Pong river.

The results of this study demonstrate which communities near the landfill site experience water pollution problems that are likely cause by contamination from the landfill site. Therefore the relevant agencies should conduct research and formulate a monitoring plan for pollution of the water and the communities.

Keywords. Landfill site, Water Quality Situation, Communities near the landfill site
Food Safety of the Community Hospital Kitchens in Khon Kaen Province

Yospanya J¹, Kunarattanapruk K², Sarakam P³

¹Health Promotion Center Region 6, Nutrition Division, Department of Health, Ministry of Public Health, Thailand
²Department of Nutrition, Faculty of Public Health, Khon Kaen University, Thailand
³Department of Biostatistics and Demography, Faculty of Public Health, Khon Kaen University, Thailand

Correspondence: Yospanya J, jariyos@hotmail.com

A cross-sectional study was conducted to investigate how food safety of kitchens in community hospitals in Khon Kaen was observed. The aim was to assess the physical environment of kitchens and the contamination of food with Coliform bacteria. As standard the guidelines of Ministry of Public Health (MOPH) was used in following the Clean Food Good Taste Standard for Nutritional Service for Patients. Kitchens of all 20 community hospitals of Khon Kaen province were studied. Data were collected during March to April 2006. The information about the management of food safety and the physical environment was obtained by observing and interviewing kitchen supervisors. Samples of food, utensils and wipe offs from the hands of those handing the food were collected to be tested by SI – 2 test kits for Coliform bacteria contamination. Data analyses had been done by using descriptive statistics.

The results from the 20 kitchens of community hospitals revealed that 5 of them (25.0%) reached the standard by the MOPH in terms of running a kitchen with a very good physical environment and another 4 (20.0%) kitchen were found with an environment being good. When applying the test for Coliform bacteria contamination, 7 of them (35.0%) passed the standards as stipulated by the MOPH. The other 5 kitchens (25.0%) passed the Clean Food Good Taste Standard of Nutritional Service for Patients. Therefore, executive staff of the hospitals should emphasize more on the process of management of food handling and the environment and kitchen supervisors who are not nutritionists should be trained to better understand food safety and to monitor and manage a proper food handling and cooking.

Keywords. Community hospital kitchens, physical environment of kitchens, coliform bacteria contamination
Fruit and Vegetable Consumption of Rural Early Adolescent Students in Srithat District, Udonthani Province

Kongla M, Kunarattanapruk K

Department of Nutrition, Faculty of Public Health, Khon Kaen University, Thailand

Correspondence: Kongla M, Email: kwaii20@hotmail.com

Consumption of fruits and vegetables regularly reduces the risk of chronic disease. This cross-sectional study was conducted to assess the consumption of fruits and vegetables from the early adolescent students in rural areas of Srithat district, Udonthani Province. The study population was 577 students, aged 13-15 years, both males and females. The study area was under the Office of Udonthani Educational Service Area 2, Udonthani Province. The sample of 173 students was obtained by cluster sampling method. Data were collected by questionnaire, anthropometric measurement, 24-hour dietary recall of the amount of consumption of fruits and vegetables. The frequency of the consumption of fruits and vegetables was calculated from 7-day food record. Data collected during February to March 2554. INMUCAL- Nutrients was used for analysing nutrients. Data were analyzed using descriptive statistics. The comparison of the amounts of the consumption of fruits and vegetables between adolescent males and females were analyzed using Mann-Whitney U test at the 0.05 level of significance.

The results revealed that most adolescent students, 93.8 percent, consumed fruits and vegetables less than the recommended amount of daily fruit and vegetable intake. The median value of fruit and vegetable intake of the students was 105.9 g/day (Q1-Q3 = 39.5 - 219). Most students, 45.5 percent, consumed fruits and vegetables daily. Adolescent students gained nutrients and fiber from the consumption of fruits and vegetables especially vitamin C. The median value of vitamin C intake of the students was 32.0 mg/day or 45.1 per cent of Dietary Reference Intakes for vitamin C. The median value of dietary fiber was 2.6 g/day (Q1-Q3 =1.0-5.0) which was less than Dietary Reference Intakes for fiber. The adolescent females were significantly consumed more fruits and vegetables than adolescent males (p = 0.010).

Therefore, the consumption of fruits and vegetables of rural adolescent students should be promoted for better health of adolescent students at present and in the future.

Keywords. Fruit and vegetable consumption, early adolescent students, rural area.
Development of Health Promotion and Disease Prevention Activity Management Model by Participation of Tambon Health Fund: a Case Study of Tambon Dondoo, Khon Kaen Province

Niramom Muangsom¹, Pannee Banchornhatthakit¹, Prapapan Comhom ²

¹ Faculty of Public Health, Khon Kaen University, Thailand
² Dondoo Health Promotion Hospital, Nongsons Hong District Health Office, Khon Kaen Province, Thailand

Correspondence: niramuus@yahoo.com

This participatory action research studied the development of a grass roots health promotion model and effects of local health fund committee’s performance. The study was conducted in 4 villages and aimed to identify health problems among the population by using a Strategic Route Map (SRM). It was partially funded from the local health fund in Tambon Dondoo, Khon Kaen province of Thailand. Firstly, a situation analysis was conducted by interviewing 22 key informants made up of health centre personnel, Sub-district Administrative Officers and community’s leaders. The quantitative data were collected from the health center records and screening in the villages was done. Capillary blood glucose levels and waist measurements were used to identify people at risk of diabetes type 2, and mental health screening results were consulted for people at risk of depression. Those at risk were advised to attend appropriate medical services. An evaluation of the process showed that the local health fund committee had participated in the preparation of main SRM and developed the Strategy Linkage Model (SLM) for 4 years under the theme “Mental health well-being, Joyful life and Free of chronic diseases”. Training program for 12 village health volunteers to be community doctors, was implemented. They encourage self-care, health promotion and disease prevention in the community which could help the health personnel’s in service work. The health fund committee committed funds for similar programs into the next fiscal year. It is recommended that empowerment of the people in the community for participation in health promotion and disease prevention activities should be on-going.

Keywords. Health promotion and disease prevention activity management, local health fund, Strategic Route Map, participation
Work Improvement and Health Promotion for Workers in Small Enterprises, Khon Kaen Province

Panee Rithmak¹, Simalak Dithisawadwet², Wilaiwan Tiampracha³, Pichet Chomchalao², Vanpen Vithithep⁴

¹Department of Environmental Health Science, Faculty of Public Health, Khon Kaen University, Thailand
²The Office of Disease Prevention and Control 6, Khon kaen
³Khon Kaen Hospital
⁴Khon Kaen Provincial Labour Protection and Welfare office

Correspondence: Panee Rithmak, E-mail: panrit@kku.ac.th

This study aimed to strengthen knowledge and promote the working condition improvement for the enterprise owners and supervisors in small enterprises by using work improvement in small enterprises (WISE) technique, which consisted of: training; group discussion and set up the working condition improvement plan. The study was conducted between March 2006 to May 2008 in 14 small enterprises at Muang and Banpai Districts, Khon Kaen Province.

The results revealed that after implementing, working conditions of eight enterprises (66.7%) were improved on material storage and handling, safety of machinery, and workers’ welfare. The most difficulties of the improvement in small enterprise with 10-19 employees were lacking of skill on working and environmental conditions improvements of the participants due to they were not from a line of production (i.e. clerical staffs).

The health screening results of 83 workers from three enterprises found that there were 44.6% of workers had a hearing loss at high frequency, 50% of workers have the habit of smoking and alcohol drinking, 25.3% of workers do exercise and 84.3% of workers have muscle and back pains. The results of this study were proposed to Provincial Occupational Health Committee for improving safety management and workers’ health in small enterprises. Suggestions from this study are that clearly policies on work improvement and health promotion are needed for practices of concerned organizations. Those organizations should continuing support to primary care units on proactive health care services for small-scale enterprise workers. The regional and local occupational health networks should be established to integrate activities and collect information for holistic health care for the workers.

Keywords. WISE technique, Work improvement in small enterprises, Worker health promotion
Effectiveness of Brain-Based Learning and VCD Cartoon Animation for Enhancing Healthy Habits in School Children

Pannee Banchonhattakit\textsuperscript{1}, Rujira Duangsong\textsuperscript{1}, Niramon Muangsom\textsuperscript{1}, Theppamorn Kamsong\textsuperscript{2} and Krittiya Phangwan\textsuperscript{3}

\textsuperscript{1}Department of Health Education; \textsuperscript{2}Technology Service Section; \textsuperscript{3}Academic Service Section, Faculty of Public Health, Khon Kaen University, Khon Kaen province, Thailand

Correspondence: Pannee Banchonhattakit: panban@kku.ac.th

The present study aimed to investigate the effectiveness of the brain-based learning (BBL) technique conjoined with a set of video compact discs (VCD) cartoon animation to enhance healthy habits of school children. The experimental study was designed as pre-test and post-test four-group design, and was conducted in 2009 at primary schools in Khon Kaen Province, Thailand. The study was designed to compare the experimental Group One of BBL and VCD cartoon animation, Group Two of BBL only, Group Three of VCD cartoon animation only, and Group Four of the control group. A representative sample of 1,085 school children in the first grade to the third grade of sixteen schools was selected by multi-stratified sampling. Their teachers of 45 classrooms were involved. Healthy habits in terms of perception and practice following on “Thai Ten Commandments for Health” (TTCH) were enacted by the Ministry of Public Health in Thailand. Quantitative and qualitative data collection methods were applied. Data were analyzed by paired t-test for within group and analysis of variance for among groups. Findings of the study indicate that brain-based learning conjoined with VCD cartoon animation significantly improved healthy habits of school children better than the control group. The brain-based learning intervention only and the sole intervention of VCD cartoon animation led to more powerful and significantly improved healthy habits than the control group. Hence, the innovation of brain based- learning conjoined with cartoon animation has a positive impact on schoolchildren’s healthy habits.

Keywords. School health; brain-based learning; healthy habits
Abstract No. 36

Comprehensive Care Center, an Approach to Increase Quality of HIV/AIDS Services
Sanchaisuriya P1, Wirakul W2, Kanjanawattana S3, Thuennadee R3, Asakit T3

1 Faculty of Public Health, Khon Kaen University
2 National Health Security Office Regional 8 Khon Kaen
3 National Health Security Office Regional 9 Nakornrachasim

Correspondence: Sanchaisuriya P, pattara@kku.ac.th

Improving effectiveness of antiretroviral drugs in concomitant with accessing to ARV drugs under universal health care coverage results in increasing a considerable number of HIV/AIDS people enrolling in health care service of public sector. To ensure quality of care, a comprehensive care center (CCC) has been introduced and established at the hospital. This study aimed to investigate the operation and achievement of CCC. Self-administered questionnaire survey was conducted in 27 hospitals of 4 provinces of northeast of Thailand during December 2009-March 2010. Nine hospitals were selected for performing in-depth interviews and focus group discussion. Key informants included person-in-charge of HIV/AIDS section, CCC staff and HIV/AIDS people. Content analysis was performed for analyzing qualitative data. Quantitative data were analyzed using descriptive statistics and presented as percentage, median and inter quartile range (IQR).

Out of 27 participated hospitals, 22 had established CCCs. At present, median registered HIV/AIDS people was 120 individuals/hospital (IQR=177-76). Median new attendants was 26 individuals/year (IQR=41-12). Median member of HIV/AIDS groups was 43 (IQR 100-4). HIV/AIDS service was provided once a week. Median HIV/AIDS people attending the service, was 40 individuals/day (IQR=72.6-33.7). The CCCs mostly were run by the HIV/AIDS group’s members or in-cooperate with the hospital staff. Obligation activities of CCCs included taking part in day care service held once a month, providing counseling 2 days a week and home visit not more than 12 times a month. Based on qualitative information, it was clearly shown that home visit and information distribution were very much helpful to HIV/AIDS services. The increasing coverage of home visit contributed significantly to good adherence of antiretroviral treatment particular in new recipients. However, guideline for operating CCCs was not well-developed as well as job security of CCCs’ staff was not satisfied.

In conclusion, the existence of CCCs is essential to HIV/AIDS services of the hospital in particular drug adherence. However, guideline and career path of the CCCs staff have to be considered and developed to assure the job security and continuous service.

Keywords: HIV/AIDS, Comprehensive care center
Results of Community Participation Planning in Security Fund Management: Nontong Sub-district Kasetsomboon District, Chaiyaphum Province

Niphon Noywised¹, Pontip Kompor²

¹ Kasetsomboon District, Chaiyaphum Province
² Department of Public Health Administration, Faculty of Public Health, Khon Kaen University

Correspondence: pratha1@kku.ac.th

This research was an action research aiming to study the result of community participation in security funds of Nontong Sub-district, Kaset Somboon District, Chaiyaphum Province. The objective of this research is to study result of community participation planning in security funds. The population was 15 funds board committee and village representatives, namely, village head or assistant village head, members of sub-district village committee and Chairman of the health volunteer, 29 chairpersons, 6 health teachers, 50 persons in total. The data was collected from 1 December 2010 to 28 February 2011 both in quantitative and qualitative basis. Three experts had checked the questionnaires on content validity. The category of knowledge content was measured by KR-20; and it revealed the discrimination of 0.23-0.80 and reliability of 0.92. The category of management showed reliability of 0.90. The data was analyzed by software SPSS for widows using descriptive statistics, percentage, mean, standard deviation, maximum and minimum value and inferential statistics Paired t-test. The qualitative data was analyzed by using content analysis.

The general information of most participants revealed the following: 82 percent were males with an average age of 47.8 years old (S.D =6.2); maximum age was 61 and minimum age was 35 years old; 96 percent were marriage couples; 54 percent were junior high school graduates, family income per month was between 5,001 to 10,000 baht; 38 percent had monthly family income at 17,019.8 baht (S.D.=21,093.77); 42 percent used to be security health fund committee; 62 percent used to be security health fund committee from one to two years. The results of the research were: 1.46 percent of the community had knowledge about security health fund before launching the program and it increased to 92 percent after that with a significant statistics (p-value= 0.001, 95%CI=-0.74to-3.3), security health participation increased before studying at 48 percent to 54 percent, after the study with a significant statistics (p-value=0.001, 95%CI=-17.7to-5.4); 2. the result of holding meetings using technique A-I-C led to 11 projects, namely, 1) Fund Management and Community Participation Project of Nonthong Subdistrict, 2) Public Relations Fund Raising Campaign, 3) Knowledge Exchange Network Project, 4) Pregnancy Health Promotion Project, 5) Pre-pregnancy Prevention Project, 6) Health Risk Check Project, 7) Breast and Cervical Cancer Prevention Program, 8) Chronic Disease Follow-up Project, 9) Local Herb Use Project, 10) Epidemic Disease Prevention Project and 11) Chemical Fertilizer Prevention Project. The projects were subsidized by security health fund. The outcome of successful projects had been projects number 2, 3, 4, 5, 6, 7, 9, 10 and project number 11. The researcher would like to express his deep gratitude to the security health fund committee, representatives of leading community committee, governmental officials and the local citizens for their good cooperation.
Hazard Perception and Preventive Performances of Pesticide Applied to Jasmine and Gardenia of the Villagers Living in Sila Sub-district, Muang District, Khon Kaen Province

Yupa Thavornpitak¹, Kingkaew Kedkovit², Witat Chanposri², Prasert Thavondunstid²

¹Department of Biostatistics and Demography, Faculty of Public Health, Khon Kaen University
²Department of Public Health Administration, Faculty of Public Health, Khon Kaen University

Correspondence: pratha1@kku.ac.th

Background and Objective Pesticide misuse was not only dangerous to the user’s health but also harmful to the environment. Additionally, it also harm other people who are not concerning with. This research was conducted in order to examine the hazard perception and preventive performances of the pesticide utilization of the villagers who grow jasmines and gardenias and the one who make garlands.

Methods The research was cross-sectional descriptive study and there were 204 samples selected by simple random sampling. Interview technique with structural questionnaire was used for data collection. Descriptive data analyse were performed with 95% confidence interval.

Results The villagers realized the hazard of pesticide usage at low level of 24.0 percent (95% CI : 18.1 – 30.0) The result found that the performances of the villager who grow jasmines and gardenias in preventing pesticide hazard were not right. One percent (95% CI : 0 -1.4) stirred the pesticide with their hands. Three percent (95% CI : 0.7 – 9.8) opened the pesticide bottles with mouth. Five percent (95% CI : 1.4 – 12.4) blew the nozzle with mouth when it was blocked. Sixty eight percent (95% CI : 57.8 - 77.8) mixed various kinds of pesticide. Twenty six percent (95% CI : 16.9 – 35.8) did not close their mouth and nose while spraying pesticide. Eighty one percent (95% CI : 71.4 – 91.0) pour the water used for cleaning equipment of spraying pesticide in water or area near water sources. Thirty four percent (95% CI : 23.4 – 44.5) collected the flower same day of spraying pesticide. The result concerning with the villager who make garlands found that 52.8 percent (95% CI : 45.4 – 60.1) did not avoid smelling jasmines. Thirty nine percent (95% CI : 32.0 – 46.4) used their hands to take some foods to mouth while making garlands. One percent (95% CI : 0.1 – 3.9) floated jasmines in syrup or coconut milk. Thirty percent (95% CI : 23.1 – 36.5) did not wash their hands with soup after making garlands.

Conclusions It shows that the performances of the villagers in preventing pesticide hazard were not right, especially mixing various kinds of pesticide, pouring the water used for cleaning equipment of spraying pesticide in water or area near water sources and collecting the flower on the same day of spraying pesticide. Natural water sources become contaminated by pesticides and increase the risk of exposing hazardous pesticides.

Keywords. Pesticide, hazard, perception
Net Work Development for Opisthorchiasis Prevention
Khon Kaen Province, Thailand

Rujira Duangsong, Sasithorn Tangsavat, Pannee Banchonhattakit, Supannee Promthet,
Luxana Laithavewat, Churapor Sota, Kesorn Thaewnongiew, Duangruedee Chotklang,
Rapeeporn Phosing, Sirilak Chotiwuthimontri

Faculty of Public Health, Khon Kaen University, Khon Kaen Province, Thailand

Correspondence: druji@kku.ac.th

Opisthorchiasis is the important factor to cholangiocarcinoma. This research was to study an application of community participation to develop net work for opisthorchiasis prevention among people in three communities in Khon Kaen Province, Thailand. Participants were leader of community, cookers, and opisthorchiasis patients. The intervention activities were divided two phases, first phase were to study community situation analysis and risk behavior to opisthorchiasis, the second phase which compose of participation planning by appreciate influence control (AIC) process, leader of community and cookers participated to plan, performance, and evaluate these program. Activities composed of teaching, health information, modeling, demonstration, home visit, campaign for opisthorchiasis prevention rewards, health information, modeling, conference, campaign for opisthorchiasis prevention, group discussion, modeling, a rewards, slogan writing for opisthorchiasis prevention contest folk song contest etc.

Results, after were found as follows, Ban Non Ngue, Ban Hua Sau Ten, and Ban Nhong Tae had mean scores of knowledge, severity perception, and benefit of Opisthorchiasis prevention, intention to prevention, practice more than before and comparison group significantly at level .001 People in Ban Non Ngue were infected with Opisthorchiasis, and Ban Nhong Tae decreased significantly at level .001 and .01 respectively, but Ban Hua Sau Ten did not decrease significantly. However all of three communities did not re – infect with Opisthorchiasis.

Keywords. Net work, prevention, participation
Nutrition – a Key Factor for Health and Disease

Prof. Dr. med. Frank-Peter Schelp

*Faculty of Public Health, Khon Kaen University, Thailand*

Correspondence: f_schelp@kku.ac.th

Low- and middle income countries are facing the double burden of infectious- and non-communicable diseases (NCD). The latter up to now did not get the desired attention yet. So for instance none of the Millennium Development Goals mention NCDs despite the fact that especially in low- and middle income countries NCDs are one of the major reasons for death and illness. Risk factors for NCDs are tobacco use, excessive alcohol consumption, and of major importance inadequate diets accompanied by physical inactivity. Nutrition therefore is one of a pressing issue requiring more attention not only from the public health sector but also from curative medicine in assisting in the prevention and treatment of nutrition related diseases. To raise the interest of the medical establishment but also donor agencies from high income countries in nutrition is an urgent requirement.

**Keywords.** NCD, risk factors, nutrition
Effect of Group Squat Exercises to Perform Activity of Daily Living (ADL) in Elderly People

Sununta Srisiri¹, Prof. Karl J. Neeser¹, Asst.Prof.Ratana Somrongthong¹

¹College of Public Health Sciences, Chulalongkorn University, Thailand

Correspondence: karl.neeser@gmail.com

The general objective of the study was to assess effects of group squat exercise to perform activities of daily living and physical independence in elderly people from Health Centers in Bangkok. This research study was conducted as a quasi experiment research with pretest-posttest design on intervention and control group. The study used simple random sampling by lottery without replacement to select the participants in both groups. In the intervention group, out of 41 participants, 36 completed the program to the end. In the control group, out of 41 participants, 35 completed the program to the end. Data were collected by constructed questionnaire and analyzed by percentage, arithmetic mean, standard deviation, the independent t-test, the Pair t-test, and the Factorial ANOVA. The data were analyzed by using level of significance at 0.05.

The results showed a trend for better performance on activities of daily living in the participants of the eight week’s intervention group as well as a trend for better performance on physical independence function. The intervention group had lower (better) Time-get-up-and-go test mean scores than the control group (P<.05), as well as a higher Chair stand test mean score (P<.05). There was no significant difference on Standing balance test in right and left leg after the program.

The results showed that the practice of specific squat exercises in groups and on regular base has numerous benefits for elderly people, therefore playing an important role to master activities of daily living and to keep physical independence.

Keywords. Squat Exercises, Activity of Daily Living (ADL), Elderly
Assessment on Heavy Metals Contamination and Health Risk of Contaminant Exposure from Consumptions of Fish in Loeng Puay Marsh at Khon Kaen Province

Supansa Kiatsayomphu¹, Sunisa Chaiklieng²*

¹Central laboratory, Faculty of Public Health, Khon Kaen University, Thailand
²Department of Environmental Health Science, Faculty of Public Health, Khon Kaen University, Thailand

*Corresponding author, Email: csunis@kku.ac.th

Drainage and run off from agriculture and waste water in the watershed have polluted Loeng Puay marsh, the fishery resources, with some heavy metals. The heavy metal accumulations in living organisms such as the aquatic fishes lead to health risk of heavy metal exposure from fish consumptions. This study aimed to examine the heavy metal concentration in fish and to assess the potential for contaminant-induced health risk from fish consumptions. This cross-sectional survey research was designed for preliminary data of health risk assessment. Fish samples were collected from Nong Loeng Puay marsh, Khon Kaen Province by random sampling of Common Silver Barb (n=7) and Tilapia Nilotica (n=11). Heavy metal concentrations were analyzed by using atomic absorption (AA), and health risk potential of contaminant exposures were assessed. Results showed that the concentration of lead were exceeded the standard in both Common Silver Barb and Tilapia Nilotica, which were 2.71 ± 0.78 mg/kg and 2.11 ± 1.13 mg/kg, respectively. The concentration of copper, manganese and cadmium were lower than the standard concentration. The results from risk estimation of lead exposure from the consumption, at least 0.284 kg/meal, 2 meals/day and 3 days/week of Common Silver Barb or Tilapia Nilotica were potential for adverse health effect, compared to the provisional tolerable weekly intake. It can be concluded that consumers have a potential health risk to lead exposure from consumption of contaminated fish from the overflow Loeng Puay marsh, depending on eating quantity. Therefore, polluted fish is one source that allows consumers to expose to lead and there should be further investigations of health risk assessment of heavy metal exposure from variously relative sources of contaminated fish.

Keywords. Health risk, heavy metal, fish
Knowledge, Attitude, and Practice toward *Clostridium Botulinum* Outbreak in Home-Canned Bamboo Shoots at Pakaluang Sub-District, Ban Luang District, Nan Province, Thailand

Thanusin Saleeon¹, Pisit Sriprasert², Mark Robson³,⁴, and Wattasit Siriwong¹,⁴*

¹College of Public Health Sciences, Chulalongkorn University, Bangkok, Thailand  
²Nan Provincial Public Health Office, Nan, Thailand  
³New Jersey Agricultural Experiment Station, Rutgers University, New Brunswick, NJ, USA  
⁴Thai Fogarty ITREOH Center at Chulalongkorn University, Bangkok, Thailand

Correspondence: nuut_thanusin@hotmail.com

This study aims to assess the level of knowledge, attitude, and practice (KAP) toward *Clostridium botulinum* outbreak in home-canned bamboo shoots at Pakaluang Sub-District, Ban Luang District, Nan Province, Thailand. A cross-sectional approach was conducted to assess KAP using a structured questionnaire. A total of 280 were randomly responded by face-to-face interview. The results indicated that the knowledge and attitude of the participants were in a moderate level equal 53.2 % and 51.1 %, respectively. The prevalence of good practice level was 89.6 %. Furthermore, the knowledge was significantly associated with social-demographic characteristics (Chi-square, p<0.05) i.e. age group, marital status, education level, and family income. The attitude was associated with age group and family income (Chi-square, p<0.001) and the education level (Chi-square, p<0.05) and the family income and gender are associated with practice level (Chi-square test, p<0.05). The information gained would be utilized for health promotion and use of appropriate tools to increase more knowledge, and changing wrong beliefs concerning food habits and changing some people’s practices that increase the risk of food-borne.

**Keywords.** KAP Survey, *Clostridium Botulinum*, home-canned bamboo shoots.
Ergonomic Risk Factors and Repetitive Strain Injuries among Workers of the Stone Sculpture Industry, Chonburi Province

Watcharakorn Riabroi and Sunita Chaiklieng

Department of Environmental Health, Faculty of Public Health, Khon Kaen University, Thailand

Correspondence: riabroi.w@hotmail.com

This cross-sectional analytic study aimed to investigate ergonomics risk factors and prevalence of repetitive strain injuries (RSIs) among workers of the stone sculpture industry, Chonburi province. Data were collected by using structural questionnaires, assessment of ergonomic risks by rapid upper limb assessment (RULA) and physical fitness test. Descriptive statistics were used to describe the characteristic of workers and work environments and to define the prevalence of RSIs. Inferential statistics, chi-square test and multiple logistic regression analysis at 95% confidence interval of odds ratio (OR), were used to identify risk factors of RSIs.

The result showed that, among 82 participants, 64.63% were male workers and work experience was 6-10 years (32.93%). From Physical fitness tests, the hand grip strength most of workers were at fair level and most of male back strength were at fair level (41.51%) and of female were very good (41.38%). For work ergonomic factors the job was mainly of mortar worked (79.27%). Most workstations level were lower than the elbow height for 78.05%, most were repetitive works (85.37%), needed eye piece focusing (87.80%), often lifting a heavy stone rock <10 kg. in each day. Ergonomic risk assessment by RULA showed that working posture were at high risk (level 4: immediately improvement need) for 61.54% and at level 3 for 38.46% (improvement need). For psychosocial factors, most workers reported that work load were at moderate level, the freedom to make decisions were at high level, and there were high social supports adjustment and all workers had no high work stress. The prevalence of RSIs in the past 7 days and 6 months were 37.80 (95% CI = 27.32 – 49.19) and 51.22 (95% CI = 39.92 – 62.42), respectively. The highest prevalence of RSIs was at the low back (26.21%) and the most severity of pain was at the low back position as well. Risk factors which significantly associated with RSIs were factors of the workers used to be under medication for the neck, shoulder, arms, hands and lower back (p-value = 0.028, OR = 4.03, 95% CI = 1.08 - 18.52) and lifting a heavy stone ≥ 10 kg each day (p-value = 0.034, OR = 2.73, 95% CI= 0.97 - 7.82).

Therefore, there should be improvement of the work environments, workstations and working instruments to avoid awkward posture of the workers. Especially, workers should be aware of the right manual materials handling and good behavior of back pain prevention. Moreover, the occupational surveillance program should be supported to the industrial sculpture workers.
Application of Clean Technology for Reducing Electricity Energy in Huataphan Hospital, Amnatcharoen Province

Montira Srisongkram and Warangkana Sungsitthisawad

Department of Environmental Health, Faculty of Public Health, Khon Kaen University

Correspondence: riabroi.w@hotmail.com

This study was an action research. The purpose of the study is to apply clean technology to reduce the quantity of electricity energy in Huataphan Hospital Amnatcharoen Province. The department has selected appliances use more energy and provide 24-hour, we use two building to get the before and after in different period of time. The first period result was before using the proposal of clean technology. The second period result was the energy-saving campaign. and the third period result was the Install energy-saving devices. Duration of intervals of 1 month and 3 months. Statistics were used was frequency, percentage, standard deviation, median, of average amount of energy before and after bringing the proposal to use clean technology.

The result showed that rate of electricity at IPD during the previous proposal to us clean technology, the average 1.843 Kilowatt per bed per day. Sections energy-saving campaign and the third period result was the Install energy-saving devices the average energy 1.626 and 1.389 Kilowatt per bed per day down 11.78% and 24.63 respectively. Equivalent to the electricity savings 706.34 to 1,477.77 Baht per month or per year 8,476.08 and 17,733.24 Baht respectively. Rat of electricity at Laundry department during the previous proposal to us clean technology, the average 0.079 Kilowatt per time per day. Sections 2 and 3 in the average energy 0.077 and 0.068 Kilowatt per time per day down 2.53% and 13.92 respectively. Equivalent to the electricity savings 3.109 to 17.15 Baht per month or per year 37.3 and 531.65 Baht respectively.

From the result of this study, At IPD it could be concluded that clean technology offers savings on the campaign was more install energy-saving devices, can reduce the amount of real power. And a payback period less than the install energy-saving devices was 0.28 year. Install energy-saving devices to save energy payback period is 2.8 year. At Laundry department it could be concluded that clean technology offers savings on the campaign was more install energy-saving devices, can reduce the amount of real power. And a payback period less than the install energy-saving devices was 64.3 year. Install energy-saving devices to save energy payback period is 94 year.
Health Impact of Computer Used Officers of Primary Care Unit, Udonthani, Thailand

Jarunee Leepitkulchai and Warangkana Sungsitthisawad

Department of Environmental Health, Faculty of Public Health, Khon Kaen University

Correspondence: riabroi.w@hotmail.com

This descriptive study investigated the health problems of officers at Primary Care Units while using computers. Participants of the study had been administrative and financial officers and assistance health officers. Altogether 128 permanent staff of the units had been studied. Information was collected by observing the participants while using the computer. In addition light intensity was measured and the ergonomic of the workplace was investigated. For data analysis conventional descriptive statistics was used in addition to the chi-square test.

The overwhelming majority of the officials were complaining about musculoskeletal pain (96.09%), pain in the neck (71.54%), pain in the left shoulder (65.04%) and in the right shoulder and back pain (55.28%). The reason for this might be wrong sitting positions and inappropriate physiological movements such as bending and lifting the shoulders for enabling wrist movements. Also abnormalities in the vision had been registered such as pain in the eye (74.77%) ‘burning’ eye (54.05%) and blurred vision (45.05%). Problems with the vision occurred usually after 2 hours at work on the computer (63.06%). These problems might be solved in using filters in front of the computer screen because this will dim the light reflection of the screen which will somehow protect the computer users from eye problems. Light intensity at the working place did not meet the criteria set by the Ministry of Labour, being 600 lux.

It is recommended that the ergonomics of the workplaces at the primary care units should be improved. The time working on the computer should be limited and adequate time should be given to the officials to have a break. Lighting at the workplace also should be enhanced. Officials should be advised to take a short break in case they become fatigue.
Community Health Impact Assessment of Thapra Sub-district, Muang District, Khon Kaen Province

Uraiwan Inmuong¹, Yanyong Inmuong¹, Panee Rithmak¹

¹Department of Environmental Health Science, Faculty of Public Health, Khon Kaen University, Thailand

Correspondence: Uraiwan Inmuong, E-mail: uraiwan@kku.ac.th

This action research aimed to 1) assess community health impacts of Thapra community of Khon Kaen Province as its transition from agriculture to industrial regime, and 2) make recommendations to local government on future prevention measures on community health impacts from changing health determinants. The study used health impact assessment (HIA) toolkit to build future healthy community scenario. The study site was conducted during May 2009-June 2010 at Thapra Sub-district Administrative Organization (SAO), Muang District, Khon Kaen Province, which responsible for 14 villages.

The community HIA toolkit included profiling of community socio-economy, environment, and health data which done by community representatives together with researchers. Organizing a community HIA workshop involved by 53 persons representing; community leaders, SAO officers, health authorities, villagers and factory managers. The overall HIA study output could achieve a set of recommendations and measures in prevention of community health impact from various expected changes of community health determinants. The study result was also attributable to guidance on future healthy community and mainstreaming harmonization actions between community and industry.

Keywords. Community health impact assessment, Health determinants, Building healthy community
Climatic Differences of Various Land Use in Muang District, Khon Kaen Province

Warangkhana Worarat\textsuperscript{1} and Ganjana Nathapindhu\textsuperscript{2}

\textsuperscript{1}Master Student of Environmental Health Science, Faculty of Public Health, Khon Kaen University, Thailand
\textsuperscript{2}Department of Environmental Health Science, Faculty of Public Health, Khon Kaen University, Thailand

Correspondence: Warangkhana Worarat, E-mail: Mameow_potter@hotmail.com

This cross-sectional descriptive research was conducted to explore differences in temperature across areas of Khon Kaen Province. Automated equipment was used to store the temperature data recorded. Data was continually recorded every hour, for a period of 5 months. It was during found that the hot day weather the highest temperature are with in the period from 1:00 pm to 3:00 pm. The average maximum temperature recorded in the downtown areas is higher that suburban areas and rural areas at 3.3°C and 5.2°C respectively. The lowest temperature for the day generally occurs from 6:00 am. to 7:00 am. The average minimum temperature recorded in the downtown areas is higher that suburban areas and rural areas at 0.4°C and 1.6°C respectively. During the day the downtown areas has the biggest difference between the highest temperature and The lowest temperature, followed by rural areas and suburban areas, amplitudes are between 12.0-14.5°C, 8.9-11.4°C and 9.4-11.6°C respectively. Use of the statistical analysis of Kruskal-Wallis found that the temperature difference between land use types is statistically significant (p <0.05).

Keyword. Differences in temperature, Climatic differences of various land use
Prevalence of Musculoskeletal Disorders among Informal Sector Workers of Hand-Operated Rebar Bender in Nakhon Ratchasima Province

Wiwat Sungkhabut¹, Sunisa Chaiklieng²*

¹Section of Public Health Emergency Response and Disease Control, The Office of Disease Prevention and Control 5th Nakhon Ratchasima Province, Department of Disease Control, Ministry of Public Health, Kingdom of Thailand
²Department of Environmental Health Science, Faculty of Public Health, Khon Kaen University, Kingdom of Thailand

*Correspondence: Presenting author’s e-mail; csunis@kku.ac.th

Background and Objective Musculoskeletal disorders (MSDs) are obvious problems related to occupational hazards. Among hand-operated rebar benders, work hard with exertion and repetition in long term might cause MSDs. This study, therefore, aimed to determine the prevalence of MSDs and work stress among informal sector workers of hand-operated rebar bender.

Methods The pilot study was designed to investigate the prevalence of MSDs in 30 hand-operated rebar benders in Ban Dan-Kain Tanot Subdistrict Non-Sung District of Nakronrachasima Province. A modified standardized Nordic questionnaire and Kerasek’s job content questionnaire were used in this study. Descriptive statistic and inferential statistics were used to evaluate the prevalence of MSDs at 95% confident interval.

Results: The result showed that most workers were female (66.7%), the minimum and maximum age were 26 years and 74 years, respectively (mean = 51.1±12.1 years). Work experience was minimum 2 years and maximum 12 years. The levels of most workstations were below their elbow height (83.3%). The most prevalence of MSDs during the last 12-month period was found in the following three anatomical areas: wrist/hand 90% (95%CI: 73.5-97.9), low back 80% (95%CI: 61.4-92.3) and neck 56.7% (95%CI: 37.4-74.5). The most prevalence of MSDs during the last 7-day period was found in the same three following areas: wrist/hand 76.7% (95%CI: 57.7-90.1), low back 76.7% (95%CI: 57.7-90.1) and neck 50% (95%CI: 31.3-68.7). Informal sector workers reported the overall stress from working at a moderate level (83.3%). When each hazard was considered, the worker’s latitudes were at a high level of stress caused by hand operated-rebar bending and at a moderate level of stress caused by work environmental hazard or psychosocial hazard.

Conclusions: The findings of the high prevalence of wrist/hand, low back and neck disorders among these workers are very useful for further investigations of risk factors related to MSDs in informal workers of hand-operated rebar bender.

Keywords. Musculoskeletal disorders, Informal sector workers, Hand-operated rebar bender
An Empowerment Model for Promoting Health Behaviors of Diabetes Mellitus Risk Group by Strategic Route Map in Dondoo Sub-district Health Promotion Hospital, Khon Kean Province

Prapapan Comhom and Niramon Muangsom

1 Dondoo Subdistrict Health Promotion Hospital, Khon Kaen Province, Thailand 40000
2 Department of Health education, Faculty of Public Health Khon Kaen University Thailand 40002

Correspondence: niramuus@yahoo.com

The objectives of this participatory action research were to study community participation focusing on aspects of Strategic Route Map (SRM). This is the health promotion model applicable for planning process and practices for Type 2 Diabetes Mellitus (DM) risk group. Furthermore, this study also illustrates diabetes mellitus risk group’s knowledge and practice and community strategic empowerment. The research was divided into 3 phases. The first phase was situation analysis. The second phase was remedy practice and the third phase was evaluation. The samples consisted of the leader groups including Village Health Volunteers, Subdistrict Administration Organization, health officers and the people living in Dondoo subdistrict of Amphur Nong Song Hong, Khon Kaen Province, Thailand. This research employed both qualitative and quantitative means of data collection. Qualitative data were obtained from observation, problem analysis, planning and in-depth interview of key informants. The data were analyzed by using content analysis. Moreover, the quantitative data were compiled from random interviews by using the constructed interview guideline. The descriptive statistics were analyzed by using percentage, mean and standard deviation. In addition, paired samples t-test was used to test the differences of the average points of knowledge, risk perception and practice behaviors before and after the process. In the first phase, it was revealed that the leader groups in community were empowered to detect the problems by SRM. The high risk group for DM in the villages was detected, especially people who were more than 35 years of age. Most of the people in the villages did not know about the self-care practices to reduce the risk of DM. The second phase was problem solving by applying SRM and the empowerment process. The activities consisted of training to enhance knowledge about the causes, symptoms and complications associated with DM. It was found that community leaders participated more in screening campaign, publicizing health information about the diabetes and health promotion activities in their community. In the evaluation phase it was found that the leaders of the community had participated more in supporting community to practice health promotion activities. The people also had more knowledge about the danger of diabetes and risk perception, and their behaviors changed with statistical significance at level 0.05 after the intervention. Places to exercise were held in the villages and people reduced drinking alcohol during major religious festivals.

To conclude, this study indicated that the community leaders participated in doing the action plan or projects by using SRM as the tool to encourage people to have healthy behaviors and reduce the risk of diabetes. The community leaders should be encouraged to continue their activities.
Disease Model of Children Aged 1-6 Years Old in Hung Yen, Quang Nam, and Can Tho Province, Vietnam

Dang Van Chuc and Dang Viet Linh

Haiphong Medical University, Vietnam

Correspondence: dvchuc@gmail.com

Objectives: The study was conducted in June 2009 to find out a current disease model of children aged 1-6 years old in Hung Yen, Can Tho, and Quang Nam province Vietnam.

Population and Methodology: It was a cross-sectional and descriptive study and studied population was children aged 1-6 years old.

Results: Low weight malnutrition was 23.3%, stunting 24.9%. Retardation of language development represented 45.1%, individual-social communication difficulty 36.2%, delay of subtle movement 25.5%, and retardation of rude movement 11.2%. In addition, there were 12.5% of children with phimosis, 9.9% with sore throat, 3% with pneumonia/bronchitis, 6.7% with acute diarrhea, 14.9% with anemia, and 25% with decay.

Conclusion: This was a disease model of developing country mainly including infection, malnutrition, and anemia. Besides, a high rate of psycho-motor development delay was found.

Keywords: Disease Model
Effects of Health Education Program of Applying Self-Efficacy Theory and Motivation for Promoting Positive Sex Behavior among The Sixth Grade Students in Ubon Ratchathani Province

Yaowalak Saenthalwesuk and Pannee Banchonhattachit

Department of Health Education and Health Promotion, Faculty of Public Health, Khon Kaen University

This quasi-experimental research aimed to study the results of the application of effects of health education program of applying self-efficacy theory and motivation for promoting positive sex behavior among the sixth grade students in Ubon Ratchathani province. Total 81 students samples were divided into 41 students of the experimental group and 40 students of the comparison group. The experimental group received health education program includes lectures and modeling, roleplaying, group discussion, practice, demonstration the commitment of youth by rewards, slogan contest. The Program period was implemented for 8 weeks. The comparison group received usual instruction. Data were collected by questionnaires. Descriptive data were used frequency, percentage, mean and standard deviation. Comparative analysis were used Paired Sample t-test and Independent t-test at 0.05 level of significance.

The results showed that after the implementation, the experimental group had higher mean score of knowledge, self-efficacy, outcome of expectancies the results and intention of positive sex behavior higher than before the intervention and higher than the comparison group with statistically significant (p-value < 0.05). The study revealed that health education program that applied self-efficacy theory with motivation was effectiveness enough to develop of healthy sexual behavior of adolescents for preparing sexual hygiene, preventing sexual transmitted diseases, expression and preventing pregnancy.
Prevalence and Ergonomic Risk Factors of Low Back Pain among Solid Waste Collectors of Local Administrative Organizations in Nong Bua Lam Phu Province

Peerapong Juntratep¹, Sunisa Chaiklieng², Pornnapa Suggaravetsiri³, Runghip Puntumetakul⁴

¹Naklang municipality, Nong Bua Lam Phu Province.
²Department of Environmental Health Sciences, Faculty of Public Health, Khon Kaen University
³Department of Epidemiology, Faculty of Public Health, Khon Kaen University
⁴Back, Neck and Joint Pain Research Group, Khon Kaen University

¹Corresponding author: csunis@kku.ac.th

This cross-sectional analytic study aimed to investigate the prevalence of low back pain (LBP) and risk factors related to LBP among solid waste collectors of local administrative organization in Nong Bua Lam Phu Province. There were 160 workers participated in this study. Data were collected by using structural questionnaires and work environmental survey. Descriptive statistics were used to describe the demographic characteristics, work environments and prevalence of LBP. Inferential statistics which were chi-square test and multiple logistic regression analysis at 95% confidence interval (95% CI ) of odds ratio (OR) were used to identify risk factors of LBP.

The prevalence of LBP during the last 7 day and last 12 month period were 62.50% (95% CI = 54.51 – 70.01) and 77.50% (95% CI = 70.23 – 83.71) respectively. Risk factors which significantly associated with LBP were work experience ≥4 years, no breaks during work, work 7 days per week, number of lifting per day >150 times, wrong handling trashcan, hang on the vehicle, weight of lifting >50 kg and no regularly exercise. From multivariate analysis, work experience ≥4 years (OR = 3.37, 95% CI = 1.11 – 10.17), no breaks during work (OR = 10.19, 95% CI = 3.09 – 33.55), number of lifting per day >150 times (OR = 5.14, 95% CI = 1.54 – 17.05), work 7 days per week (OR = 5.10, 95% CI = 1.11 – 10.17) and wrong handling trashcan (OR = 3.07, 95% CI = 1.04 – 9.06).

The findings of work related risk factors to LBP in this study suggest that, there should be improvements of working process, ergonomics conditions, and working posture of workers. Training courses of manual material handling and the health promotion program are recommended for workers to prevent the work-related LBP of solid waste collectors.

Keywords: Prevalence, Low back pain, Solid waste collectors, Ergonomics Risk factors
Effects of Nutrition Education for Eating Promotion in Supporting Staff, Faculty of Public Health, Khon Kaen University

Suwalee Lowirakorn, Benja Muktabhan, Krittya Phangwan, Wippanee Khunphumpat

Faculty of Public Health, Khon Kaen University, Thailand
Correspondence: Suwalee Lowirakorn (suwlow@kku.ac.th)

The faculty of public health, khon kaen university, as an academic institutes conducting health promotion educational program, the faculty’s staff and students should be a role model on health promotion especially food consumption behavior. In addition, physical health examination indicated that there are a number of problems related to food consumption. The objectives of this quasi-experimental study are to conduct nutritional education program in supporting staff of the faculty. Pre- and post-program testing on nutritional knowledge and assessment of nutritional status were conducted. The activities of nutritional education program included providing knowledge on food promoting health, self-assessment of nutritional status, herbal plant consumption for health and food dishes contest. Questionnaire of nutritional knowledge, food frequency, food pattern and exercise were means of collecting data. Nutritional status and energy and nutrients daily intake were obtained by 24-hours recall for 2 working days and 1 weekend day. There were 31 participants in the study. Descriptive statistics including percent, mean, median, standard deviation, quartile1th, quartile 3rd were present. Paired t-test was performed for comparison before and after implementing nutritional education program.

The results found that 41.9% of the supporting staffs were male and 58.1% were female. 45.1% age ranged between 31-40 years old. Average nutritional knowledge score at the beginning was 17.13 and increased to 20.84 by the end of the study which is statistically significant. Majority had good knowledge on benefit of nutrients and food safety. But some staff knew less about source of cholesterol riches food and the best promoting health food. Regarding to food pattern, majority had 3 meals per day and ate more in weekend than weekday.63.1% had exercises. Regarding to food frequency, the staff had consumed vegetables and fruits almost everyday. Majority did not eat unmilled rice and milk. They had taken fried dishes 2-3 times a week. Few staff drink alcohol and energetic beverage, but usually consumed monosodium glutamate whereas soft drink was once a week. Regarding to energy and nutrients intake, staff had energy 91.23% of RDA at the beginning and declined to 78.51 at the end of program implementation. Energy ratios before and after study of carbohydrate:fat:protein was 57:24:17. 45.2% of the staff had normal nutritional status at the beginning and 42.0% at the end of program whereas 41.9% had over nutrition at the beginning and 45.1% at the end. 29.0% had normal waist circumference at the beginning and 22.6% at the end.

In conclusion, there should be health promoting program for the staff continuously to promote nutritional knowledge and understanding on how to choose the quality food for health together with increased exercise activities for normal nutritional status.

Keywords. Nutrition education, consumption pattern, supporting staff
Maternal Behavior in Preventing Infant Diarrhea,
Lao People’s Democratic Republic

Dalasouk Khamlunvilaiwong

Correspondence: dalasouk@hotmail.com

In Lao People’s Democratic Republic diarrhea is a severe disease and major cause of morbidity and majority in infants. The mother’s involvement in the infant’s diarrhea prevention is very important. This descriptive study aimed to study maternal behavior in preventing infant diarrhea, Lao People’s Democratic Republic. The study framework was developed from the diarrhea prevention model of World health Organization and the United Nations Children’s Fund, the diarrhea control project of Lao People’s Democratic Republic’s and literature review. The sample was 674 mothers whose infant attended the pediatric out patient department, well baby clinics, in tertiary hospitals. There were 88, 176, 188 and 222 mothers from Luang Prabang province hospital, Savannakhet province hospital, Champasack province hospital and Mahosot hospital, participated in the study. These samples were purposively selected. The research instrument was the Maternal Behaviors in Preventing Infant Diarrhea Scales developed by the researcher. Data were analyzed by using descriptive statistics.

1. Maternal behavior in preventing infant diarrhea always performed:
   1) Immunization and nutrition dimension through child vaccinations, breastfeeding, not giving any food to the child under 6 months, giving complementary food following the standard of Ministry of health. 2) Water and food hygiene dimension as washing mother’s nipple with clean water before breastfeeding, boiled water for 15 minutes for feeding child and for mixing formula milk, preparing formula by following the instructions on the box, using lids cover milk bottle or water bottle, using proper container to store milk and food or cupboard or put in to the refrigerator, storage formula milk in refrigerator with temperature below 5 Celsius immediately after prepared if do not feeding child, washing raw ingredients thoroughly before cooking food, feeding freshly food to child and warmed food before give to child and not using hand to feeding child. 3) Mother/child’s hand washing and utensils cleaning dimension as washing hands with soap and water before preparing formula milk, washing hands with soap and water after touch snot/saliva, washing hands with soap and water after defecation or using toilet and washing hands with soap and water after cleaning child’s bottom or touching feces, washing child’s hand before taking food, washing hands with soap and water after playing on the floor or ground, washing feeding bottle, water bottle, utensils or container by dishes cleaning liquid immediately after used, and putting in dry and clean place. 4) Environment sanitation dimension as disposing of the child’s feces by removing in to the toilet, disposing of household wastes by dumping them in well covered bin, cleaning floor or play grounds by clean water before child play, and not allowing the child to play on the ground.

2. Maternal behavior in preventing infant diarrhea sometimes performed:
   1) Mother/child’s hand washing and utensils cleaning dimension as washing hands with soap and water before breastfeeding, washing hands with soap and water before preparing supplementary food, washing hands with soap and water before feeding food and washing hands with soap and water after feeding formula milk or supplementary food for child, washing child’s hands with soap and water before eating or taking food. 2) Environment sanitation dimension as washing toy and mop by detergent and dry in the sun after child playing and cleaning the floor.

3. Maternal behavior in preventing infant diarrhea not performed:
   1) Mother/child’s hand washing and utensils cleaning dimension as washing child’s hand after playing toy and not boiling milk bottle or water bottle in hot water 10 minutes after cleaning.

The result of this study showed that mothers should be promoted to perform behaviors in preventing infant diarrhea especially in the sometimes and not performed dimensions.

Keywords. Behavior, preventing, diarrhea.
Introduction of HIV-1 Molecular Diagnostic Testing at the Centre Christophe Mérieux of Lao PDR

Phimpha Paboriboune¹, Sopheak Ngin², Janin Nouhin², Chansy Phimphachane³, François-Xavier Babin⁴, Eric Nerrienet²

¹Centre Christophe Mérieux of Lao PDR
²Pasteur Institute of Cambodia
³Center HIV/AIDS and STI (CHAS)
⁴Fondation Mérieux

Correspondence: phimpha@ccm-laos.org

In 2009, the HIV prevalence in Laos (6.5 million inhabitants) was estimated at 0.3% among adults or 12,000 people. The first HIV/AIDS treatment center was created in 2003. Since then, six other centers have been created. The 1st and 2nd line ARVs treatment are available in Lao PDR. Prior to July 2009, HIV viral load testing (VL) was not available in Lao PDR. Some patients benefited from VL in Thailand but most of the patients could only afford clinical and immunological monitoring. It was impossible to confirm early infant diagnosis (EID) for children <18 months.

- In July 2009, the Centre Christophe Mérieux of Laos (CCML) introduced the viral load process (quantification of the plasma RNA HIV-1).
- In May 2010 has introduced the HIV genotyping for treatment resistance
- In May 2011, introduction of DNA PCR for EID with Dry Blood Spot for sample collection

All technique used at CCML were transferred from Institut Pasteur Cambodia (IPC) with the support of Fondation Mérieux. With the introduction of these tests, CCML organize also the national HIV workshops for the doctors, nurses, and lab technicians of the HIV treatment centers. As of May 2011, VL testing has been performed for 1,222 patients (1,491 samples) from all HIV/AIDS treatment centers. The average age is 36 years. Among them, 1,135 are receiving ARV treatment. The average length of treatment is 3 years. Estimation rate for drug resistance is about 10% of patients on ARVs.

**Keywords.** Diagnosis, HIV-1 RNA and DNA, ARVs, genotype, Centers
Degradation of Xylene with Photocatalytic and Electronic Air Filters

Yuparat Limmongkon1, Pipat Sribenjalux2, Wanna Laowagul3, Sitthisuntorn Supothina4, Jeff Johns5, Paradee Chuaybamroong6, Lertchai Charaentanyarak7

1 Ph.D. Program in Public Health, Graduate School, Khon Kaen University, Thailand
2 Centre for Research and Development of Medical Diagnostic Laboratories, Faculty of Associated Medical Sciences, Khon Kaen University, Thailand
3 Environmental Research and Training Centre, Department of Environmental Quality Promotion, Ministry of Natural Resources and Environment, Thailand
4 National Metal and Materials Technology Center (MTEC), National Science and Technology Development Agency, Thailand
5 Faculty of Pharmaceutical Sciences, Khon Kaen University, Thailand
6 Department of Environmental Science, Faculty of Science and Technology, Thammasat University, Thailand
7 Department of Epidemiology, Faculty of Public Health, Khon Kaen University, Thailand

Correspondence: yuparat240@hotmail.com, yuparatlimmongkon@yahoo.com

Background: Volatile organic compounds (VOCs) are one of the most important hazardous chemicals for indoor air quality. The VOCs can affect human health and work performance. In this present work, the degradation of xylene was investigated by using a combination of photocatalytic oxidation (PCO) reaction and electrostatic field.

Objectives: To investigate the degradation of xylene with using a combination of photocatalytic oxidation (PCO) reaction with using various coating TiO2 suspensions on high air filter and high efficiency particulate air (HEPA) filter and electronic air filter.

Method: Different types of filters, i.e. high air filter, high efficiency particulate air (HEPA) filter and electronic air filter, coated with the commercial P25 TiO2 were evaluated toward degradation of xylene which was conducted in the home-made testing chamber with 0.1 m/s of air flow rate and UV-A at intensity of 4.85 ± 0.09 mW/cm². Different amount of TiO2 was dip-coated on the filters by varying TiO2 concentration, suspension medium and additive substances.

Results: It was found that the PCO performance on coated HEPA filter (~6.84-63.13%) was higher than the coated high air filter (~5.47-46.54%). The optimum coating on the HEPA filter was obtained from the suspension containing 5 wt.% TiO2, 0.05 wt.% dispersant D3005 and 20 wt.% polyethylene glycol (i.e. suspension 3), giving xylene degradation of 24-63%. The lowest xylene degradation of around 7-17 % was observed on the HEPA filter coated with TiO2 suspension 2, and of around 5-25% on the high air filter coated with TiO2 suspension 1.

Conclusion: These results revealed that the xylene degradation by PCO reaction can be enhanced by increasing TiO2 loading on the filters which can be achieved by manipulation of TiO2 concentration as well as additive substances and suspension medium.

Keywords: Photocatalytic and electronic air filters, air cleaner technology, volatile organic compounds (VOCs) removal.
Effects of media coverage of high-profile crash cases on the trend of alcohol-related crashes in Japan

Shinji Nakahara¹, Masao Ichikawa², Kota Katanoda³

¹St. Marianna University School of Medicine, Japan
²University of Tsukuba, Japan
³National Cancer Center, Japan

Correspondence: snakahara@marianna-u.ac.jp

Japanese road traffic law was amended in 2002 and 2007 to increase the penalties for drink-driving in response to media coverage, publicity campaigns and debates following high-profile alcohol-related motor-vehicle crashes in 1999 and 2006. We tested the hypothesis that the proportion of crashes involving drink-driving started to decline before the law amendments, because of changes in social norms and driver behaviour after the high-profile crashes. To assess the impacts of the high-profile crash cases, we examined monthly police data between January 1995 and December 2008 using time-series analysis to determine whether there were abrupt changes in the level or slope at the expected time points; we also examined the trends between January 1995 and May 2002 using joinpoint regression models to identify at which point the change started more precisely. The time-series analysis identified abrupt changes in the proportion of alcohol-related fatal crashes in which the driver had a blood alcohol concentration (BAC) ≥0.5 mg/ml immediately after the high-profile crashes in 1999 and 2006, as well as after the law amendments in 2002 and 2007. The joinpoint regression analysis indentified a change point in the proportion of those with BAC≥0.5 mg/ml from increase to decrease in February 2000. Media coverage of high-profile crashes, and subsequent publicity campaigns and debates might have altered social norms and driver behaviour, reducing the proportion of alcohol-related crashes before the introduction of more severe penalties for drink-driving.

Keywords. Road-traffic injuries, drink-driving, media
The Influences of Using Organophosphate and Carbamat Pesticides on Health of Rice Farmers in Thuathien Hue Province, Vietnam

1Hoang Trong Si, 1Vo Van Thang 2Le Thi Phuong Anh

1Faculty of Public Health, Hue College of Medicine and Pharmacy
2Faculty of Biochemistry, Hue Central Hospital

Correspondence: syhoangtrong@yahoo.com

Introduction Organophosphates and carbamates are two common types of pesticides in Vietnam. Prolonged exposure to pesticides can affect the health of farmers. Objective: To describe the working conditions of rice-farmers who work with pesticides in Thua Thien Hue province and to estimate the cholinesterase serum concentrations and other related factors of chronic poisoning of organophosphates carbamate pesticides among these farmers.

Methodology A descriptive study was carried out in 300 farmers directly spraying pesticides in three communes in Thua Thien Hue province. The questionnaire for interview included working conditions such as pesticides used, the duration of exposure to pesticides, the use of personal protective equipment, storage and disposal of pesticides and signs related to pesticides. The concentrations of serum cholinesterase were analyzed by enzyme catalytic method.

Results On average, rice-farmers used 10 different types of pesticides, mainly consisting of carbamate and organophosphates. Regarding the working conditions of farmers related to pesticides: duration of exposure to pesticides for more than 15 years comprised of 85.8%, using personal protective equipments when spraying pesticides: 83.0%, using a mixture of two or more types of pesticides: 70.3%, personal hygiene practices when spraying pesticides-bathing: 98.7%, taking off their clothes: 86.7%, washing hands with soap: 91.0%. There were 23 signs and symptoms reported by farmers which were recalled after one round of pesticide spraying. The most common signs and symptoms were: fatigue/discomfort (55.7%), headache (51.0%), itching (49.7%), dazzle (38.3%), dizziness (36.7%) and sweating a lot (37.0%). Cholinesterase concentration in the blood of the control group (n = 30) were higher than that of the exposure groups with pesticides (n= 242) (8364±1310 U/L vs. 8094±1830 U/L). However, this difference was not statistically significant (p> 0.05). There were significant relationships between the concentrations of cholinesterase in the blood of these farmers and some factors such as using of personal protective equipments, the duration of exposure to pesticides, the signs of pesticide poisoning (p < 0.05).

Conclusions Although the use of pesticides has many advantages, long-term exposure to organophosphates and carbamates pesticides may significantly affect the health of rice farmers.

Keywords. Chronic poisoning, organophosphate pesticides, cholinesterase.
Objective The purpose of this study was to describe the characteristics of oral cancer patients in the Northeast of Thailand.

Method The 104 subjects from three tertiary hospitals in northeast of Thailand diagnosed as oral cancer with histopathological confirmed during July 2010 to April 2011 were recruited. The data was collected by physical examination by clinician and personal interview using questionnaires.

Results The majority was female (female : male = 62.5% : 37.5%) and the median of age was 68 years (min-max : 25-85). Most subjects were farmer, agriculturist and gardener for their occupation (82.7%) and incomes less than 5,000 bahts/month (73.7%). The stage distribution was stage I = 28.8%, stage II = 14.4%, stage III = 17.3%, and stage IV = 39.4%. We found a prevalence of smoking = 36.5%, alcohol = 60.6%, and betel quid chewing = 54.4% among oral cancer patients.

Conclusion Most oral cancer patients were female and stage IV for their stage distribution. The prevalence of alcohol and betel quid chewing is also rather high.

Keywords. Oral cancer, Characteristics, Descriptive study
Study on knowledge, attitude, practice of adults living at Huong Long commune, Hue city, Vietnam about prevention and treatment of diabetes

Hoang Thi Bach Yen

Hue college of Medicine and Pharmacy, Vietnam

Correspondence: bachyenbs@gmail.com

**Background:** Diabetes is now one of the most common non-communicable diseases all over the world. It is the fourth or fifth reason of death in developed countries and is the in developing countries. According to the International Diabetes Federation, the complications are very popular, seen at about 50% patients. They are reasons of handicap and life expectancy decrease.

**Objectives:** To define the prevalence of diabetes and some related factors. To study KAP of prevention and treatment of diabetes of adults at Huong Long commune, Hue city, Vietnam.

**Methodology:** This is a cross-sectional study and 384 adults were involved.

**Results:** The prevalence of diabetes was 7.3%, all of them were over 50 years old and had hypertension. 64.3% of them were obese. 78.6 % of patients was detected by periodical examination. 100% of patients had been treating by medications in combination to diet, exercise and blood checking regularly. KAP of correspondents were quite good. There was a correlation between knowledge and practice (r = 3.99, p < 0.001), attitude and practice (r = 0.219, p< 0.01), knowledge and attitude (r = 0.284, p< 0.01), knowledge and educational level (r = 0.357, p < 0.01).

**Conclusion:** Having good KAP about diabetes, prevention and treatment helps to decrease prevalence and delay complications of the disease.

**Keywords.** KAP, diabetes, adults.
Knowledge of Cervical Cancer and Frequency of Screening

Supannee Promthet" and Chananya Kasinpila

1Department of Epidemiology, Faculty of Public Health, Khon Kaen University, Thailand

Correspondence: supannee@kku.ac.th

This study aimed to investigate the relationship in Thai women between knowledge about cervical cancer and number of screened tests received. A cross-sectional survey was carried out in 2009 at four hospitals in Thailand. Women free from reproductive diseases aged 30-64 year-old were interviewed using a structured questionnaire consisted of information on number of screening test received and knowledge about cervical cancer. The total knowledge score was computed by totaling the number of correct answer of 22 questions, then classified into three levels. The chi-square test was performed to evaluate the association. A total 260 women were recruited. 80% of subjects had ever undergone cervical cancer screening. The number of tests was significantly associated with knowledge levels (p= 0.04). Women, who had high knowledge, were more likely to have more tests.

Key words: Cervical cancer, Knowledge, Screening tests
Preliminary Survey on Pesticide Exposure and Risk Factors of Susceptible People in an Agricultural Area: A Cross Sectional Study in Chili Farm Communities, Ubon Ratchathani Province, Northeastern Thailand

Nutta Taneepanichskul1, Saowanee Norkaew1,*, Wattasit Siriwong1,2, Mark Robson2,3

1College of Public Health Science, Chulalongkorn University, Bangkok, Thailand
2Thai Fogarty ITREOH Center, Chulalongkorn University, Bangkok, Thailand
3School of Environmental and Biological Sciences, Rutgers University, New Jersey, USA

Correspondence: saowanee.norkaew@gmail.com

In the summer 2011, one hundred and fifty susceptible people such as 50 children, 50 elderly people, and 50 farmers were randomly selected from 14 chili farm communities in Hua Rua sub-district, Muang district Ubon Ratchathani province, Northeastern Thailand. This study aimed to investigate pesticide exposure and risk factors. In this agricultural area, people living in these communities may expose, either directly or indirectly, to pesticides by multi-routes; dermal contact, inhalation and ingestion. Face to face questionnaires were used as measurement tools for all subjects. In this study, children and elderly people, not farmer’s family, were participated. Elderly people and children (by parent) completed a questionnaire and provided with their activity daily and general information; such as age, weight, height, occupational/ parental occupational, family income and household characteristics. For farm workers, they were provided both general information and their behavior, for example, the pesticides used on their crop, the numbers of hours of spraying on the spray day, where work clothes and shoes were changed and where work clothes and shoes were laundered. This study mentioned that the susceptible people living in this area might be exposed to pesticides and their behavior also may contribute to exposure risk factors. The further studies should investigate pesticide residues and biomarkers of the susceptible people in both dry and wet seasons according to better understand risk factors for pesticide exposure among the communities.

Keywords. Non-farmers, Farmers, Exposure, Agricultural Community
Development of a Neuro-Behavioral Test for Thai Children: a Preliminary Study

Juthasiri Rohitrattana¹, Wattasit Siriwong¹,², Nancy Fiedler³, Mark G. Robson²,³,⁴

¹College of Public Health Sciences, Chulalongkorn University, Bangkok, Thailand
²Thai Fogarty ITREOH Center, Chulalongkorn University, Bangkok, Thailand
³Environmental and Occupational Health Science Institute, UMDNJ, Piscataway, NJ, USA
⁴School of Environmental and Biological Sciences, Rutgers University, New Brunswick, NJ, USA

Correspondence: r_juthasiri@yahoo.com

Children living in agricultural area can expose to pesticide residues via inhalation, ingestion and dermal contact. In Thailand, there has been used many pesticides for crop protection purposes. Organophosphate insecticides have been heavily used and known as a neurotoxicant. Children living agricultural area may have more deleterious effects on health, especially in neurodevelopment. The objective of this study is to be a preliminary study of neurobehavioral battery test for children age between 6-8 years old who living in agricultural area, Pathum Thani Province, Thailand. Fifteen healthy children (7 girls, 8 boys) were recruited and tested. The Behavioral Assessment and Research System (BARS) and non-computerized tests including (1) finger tapping, (2) symbol-digit, (3) match to sample, (4) continuous performance, (5) divided attention, (6) digit span, (7) visual motor integration, (8) Purdue pegboard, and (9) object memory tests were used to assess the neurobehavioral performance in children. Overall of the results, most of children complete d all the tests. Age showed significantly different of testing results. These cognitive tests revealed the memory and attention performance of the children. The future study should be suggested to develop and evaluate subtle health effects among children exposed to neurotoxicants. As well as, the cross-cultural development of the neurobehavioral tests should be adjusted to be more suitable for Thai children.

Keywords. Neurobehavioral tests, Behavioral Assessment and Research System (BARS), Thai children
Resistance of *Mycobacterium Tuberculosis* to Antibiotics in Lao PDR: First Multicentre Study Conducted in Hospital, 2010

S. Somphavong¹, V. Iem², Y. Buisson¹, Jl. Berland², N. Steenkeste², P. Paboriboune³

¹Institut de la Francophonie pour la Médecine Tropicale Lao PDR,
²Fondation Mérieux France, ³Centre Christophe Mérieux of Lao PDR

Correspondance: s.somphavong@pasteur.com / silasomphavong@yahoo.com

Lao PDR is considered among the seven highest TB burden countries in the Western Pacific Region. No survey on resistance rates to anti-TB drugs has been conducted.

The objectives of the study were to assess the prevalence of *Mycobacterium tuberculosis* complex (*Mtb*) primary and acquired resistance to anti-TB drugs among suspect TB cases, and *Mycobacterium* other than TB (MOTT) occurrence rate.

All outpatients and hospitalized from three hospitals (Mahosot, Thakhek, Luang Prabang) with clinical signs of suspected TB were included. Sputum were inoculated on Lowenstein-Jensen media, sensitivity assay to anti-TB drugs and identification of MOTT were performed using molecular tools.

416 (83.5%) of the samples were from new untreated cases, 82 (16.5%) were from symptomatic cases under treatment (≥ 2 months) or having their treatment completed. Among positive cultures, 87(75.6%) were confirmed as *Mtb* complex, 17 MOTT and 11 Bacteria Gram+. Among MTB isolates, 74 (85%) were from new untreated cases: 68 (78.1%) were sensitive to INH and RMP and 6(6.9%) were resistant to INH, The 13(14.9%) other *Mtb* isolates were from re-treated cases: 11(12.6%) sensitive to INH and RMP, 1(1.1%) resistant to INH and 1(1.1%) was resistant to INH + RMP. Only one patient was HIV positive and was sensitive to INH and RIF.

This study is the first on *Mtb* resistance conducted in Lao PDR. Although not statistically accurate, it gives evidences that resistant and MDR cases are present which advocates for scale up of DOTS implementation. These results are preliminary, and need further confirmation on larger scales.

**Keywords.** Lao PDR, tuberculosis, resistance
Capacity Building on Food Security and Better Nutrition Project

Bounthom Phengdy¹, Somchith Akkhavong¹, Kaysamy Latvilayvong², Maria Antonia Guillermo-Tuazon³

¹Ministry of Health, Vientiane, Lao PDR
²Lao women Union, Vientiane, Lao PDR
³Nutrition advisor WPRO, WHO, Manila, Philippine

Correspondence: bphengdy@yahoo.com

Background An 18 month (August 2009-March 2011) of multi-sectorial capacity building project implemented through the joint partnership between Ministry of Health and Food and Agriculture Organization of the United Nations. It ultimate goal is to uplift the national food and nutrition security status through building and strengthening capacity in effective and efficient delivery of services and intervention in particular and overall program management in general.

Objectives This project aims to improve food and nutrition security of low-income rural families in areas with high concentration of malnutrition. Joint implementers included Lao women Union, SEADA and PORDEA (non-profit organization)

Methodology Duration of 18 months for Capacity Building on Food Security and Better nutrition Project was conducted in Luangnamtha, Bolikhamxay and Sekong as pilot provinces. The key program areas are summarized as the following: Building capacity toward improved nutrition counseling using Trials of Improved Practices (TIPs) and improving basic nutrition knowledge; building capacity toward sustainable food availability and diet diversity by promoting environment friendly Home Food Production technique; building capacity toward improved food economic access through Food Processing and Preservation and building capacity toward effective Food and Nutrition Program Management.

Results Through capacity building in 4 areas above in Pilot provinces, more than 300 trained on Basic Nutrition Training, 600 home gardens established, production of bioextract and bio-hormone, 8 recipes for complementary feeding and 8 recipes for food processing were develop, kitchen-tested and standardized. As well as training of trainers for TIPS, for Food Processing, for Food Production were also conducted in the project activities. Evaluation of the end of the project shown a lot of importance output for instance, villagers gained many profit from their home food production as well as they can sell some of surplus, and they also earn benefit from food processing product. With these profit, step by step could be support to reduce poverty of target population.

Conclusion Given the short time frame, significant outputs were achieved in various areas of capacity building, which undeniable has the potential for improving the food and nutrition landscape of Loa PDR. However, much remains to be done. With the National Multi-sectoral Capacity Building Plan approved by relevant ministries, there is a need to make investments in five stream identified academic, professional, institutional and governance, extension and research and monitoring and evaluation.

Keywords. Capacity Building, TIPs, Home food production, Food processing
Knowledge, Attitudes, and Practices toward Health Risk Protection Behavior of Scavengers in Municipality Dump Sites in Nakhon Ratchasima Province, Thailand

Phiman Thirarattanasunthon1, Wattasit Siriwong1, 2, and Mark G. Robson2, 3, 4

1 College of Public Health Sciences, Chulalongkorn University, Bangkok, Thailand
2 Thai Fogarty ITREOH Center, Chulalongkorn University, Bangkok, Thailand
3 School of Environmental and Biological Sciences, Rutgers University, New Brunswick, NJ, USA
4 UMDNJ-School of Public Health, Piscataway, NJ, USA

Correspondence: tpiman855@hotmail.com

Scavengers working in the formal recycling sector often exposed to various health hazards from working condition with solid waste. In order to assess the demographic characteristics, knowledge attitude and practice toward health risk protection of scavengers during daily works in municipality dump sites at Nakhon Ratchasima province, Thailand were performed. A total of 95 scavengers were randomly selected from 9 municipality dump sites and interviewed by face to face questionnaires. The results indicated that scavengers (n=49) were 52 % male and (n=46) 48% female. The average mean age was 38 years. Most of their educational levels were primary school. They have been working as scavengers more than 10 years. The income was approximately 180 baht/day. Working hours were in the range of 6-8 hours/day for 5-7 days/week. Most of scavengers had low level of knowledge in term of alertness, wrong attitude about health risk and inappropriate practice on personal hygiene and healthcare for protecting health risk behavior of their health. However some of scavengers used personal protective equipments (PPEs) such as gloves, hat, shoes, long-sleeve shirt, and trousers. Most of them had their food drinking water and moreover they find the food from disposal waste in dump sites and they had rarely cleaned hand or body after working. The self report reveals that they had of injuries and accidents; there was no indication about chronic diseases, severe diseases and above all illness and they never get the health information from any organization. Almost of them was smoking, lacking exercise. For health and social welfare, there were health service providers; they assessed the universal to subsidized health care under the scheme. There are rarely to annual body check.

Keywords. Scavenger; Health Risk Protection Behavior; Personal Protective Equipment (PPEs)
Educational Film on the Consequences of Drink-Driving in Japan

Masao Ichikawa¹, Shinji Nakahara²

¹University of Tsukuba Faculty of Medicine, Japan
²St. Marianna University School of Medicine, Japan

Correspondence: masao@md.tsukuba.ac.jp

Road traffic law penalizing drink-driving is essential to prevent road traffic crashes involving drink-driving. It is widely reported that alcohol-related crashes could be effectively reduced if severe penalties are strictly imposed to law-breakers and the legal limit of a blood alcohol concentration is lowered. What about the effects of social norms opposing to drink-driving? Recently, Nakahara & Ichikawa (Injury Prevention 2011;17:182-188) reported, based on Japan’s statistics, that media coverage of high-profile crashes, and subsequent publicity campaigns and debates might have improved social norms and driver behaviors, reducing alcohol-related crashes, which was observed before the introduction of more severe penalties for drink-driving. This finding highlights the important role of social norm in preventing drink-driving. In Japan, an educational film has been used as a tool to enhance social norms opposing to drink-driving. In our presentation, we will show a short educational film which might be of potential use in rapidly motorized Mekong sub-regional countries where drink-driving is common, killing many road users.

Keywords. Drink-driving, educational film, social norm
Evaluation of a Web-based Intervention for Improving HIV/AIDS Knowledge in Rural Yunnan, China

Songyuan Tang¹, Yao Yang¹, Roger Detels²

¹School of Public Health, Kunming Medical University, China
²School of Public Health, University of California at Los Angeles, USA

Correspondence: songyuantang@ucla.edu

Objective To improve HIV/AIDS knowledge among villagers and students in remote rural counties of Yunnan, China.

Design The University of California at Los Angeles School of Public Health and the Institute of Health Sciences of Kunming Medical College, with the assistance of local health and community agencies, initiated a web-based intervention project. Nanhua county received computers, training on accessing the website, and ongoing logistic support for diffusing information to their village colleagues. Mouding county received computers only, and Dayao county received neither.

Methods Health workers in the two experimental counties were encouraged to disseminate the information from the website to villagers and students. Health knowledge was queried by cross-sectional surveys before and after implementation of the intervention.

Results Health workers, villagers and students in Nanhua experienced the greatest increase in knowledge of HIV/AIDS and sexually transmitted infections, and Dayao the lowest. The improved knowledge was substantial in many, but not all areas (e.g. hepatitis B transmission) assessed.

Conclusion Web-based education is an effective method to increase health knowledge in rural China. Ongoing logistic support is essential for success.

Keywords. Web-based health education, HIV/AIDS, Rural Yunnan
Abstract No. 83

Anthrax Knowledge, Attitudes and Practice Survey in Lao P.D.R.
Singhalath Linthavong1, Vilasone Ouandala2, Francette Dusan3, Bounheuang Kounnavong4, Andrew Corwin4, Chintana Chanthavisouk5, Justin Denny3

1Sayabouli Provincial Health Department, Lao PDR
2LuangNamtha Provincial Agriculture and Forestry Office, Lao PDR
3World Health Organization, Lao PDR
4US Centers for Disease Control, Lao PDR
5National Animal Health Center

Correspondence: sonefet@gmail.com, singfet@gmail.com

Background Animals are no longer routinely vaccinated against anthrax in Southern Lao P.D.R. Since 2008, outbreaks of human and animal anthrax have occurred highlighting this as an ongoing threat in the area. The impact of these outbreaks on human and animal health professionals is unknown. This study aimed to better understand knowledge, attitudes and practice (KAP) to improve prevention and control.

Methods In October 2010, outbreak data was reviewed and front line health and agriculture officials at provincial, district and health centre levels were interviewed in five of eight districts of Saravanh province. Analysis of a standardized KAP survey was done using EpiData software.

Results Interviewees had heard of anthrax and knew it caused infection in humans (81.2%) and animals (79.2%), yet few recognised skin rash (eschar) as a symptom in humans (30.2%). Just over half (56.6%) knew where anthrax cases had occurred in their province but most would not report suspect cattle anthrax (66.0%). Again, over half would seek care from a physician for anthrax symptoms (55.7%). More would report suspect human cases to village health volunteers (53.8%) than to village chiefs (29.2%). Few had received information, education and communication (IEC) about anthrax (18.0%); even less had access to IEC materials (3.8%).

Conclusions While many front line workers had heard of anthrax, there was lack of knowledge of disease symptoms, where outbreaks had occurred, the importance of reporting, and for seeking immediate medical care. There is a need to further support prevention and control of Anthrax in Laos.

Keywords. Lao PDR, anthrax infection, KAP survey
Hospital Admissions for Respiratory Disease in Southern Laos: A Need to Improve Oxygen Therapy Delivery?

S. Phanatda¹, J. Denny¹, K. Southalack², N. Chanthakumman³, R. Tsuyuoka⁴, M. Phengxay⁴, C.H. Winter⁴

¹Field Epidemiology Training (FET), Lao People's Democratic Republic (PDR)
²National Center for Laboratory and Epidemiology (NCLE), Vientiane, Lao PDR
³National Emerging Infectious Disease Coordination Office (NEIDCO), Vientiane, Lao PDR
⁴Department for Communicable Diseases Surveillance and Response, WHO Country Office, Lao PDR

Correspondence: sisavathphanatda@gmail.com

Background Hypoxaemia is the major fatal complication of respiratory diseases. Despite its importance, hypoxaemia is often not recognised nor managed in resource-limited settings. This study seeks to better characterize respiratory diseases and their management in peripheral hospitals in Laos.

Methods Medical records of one provincial and two district hospitals in Savannakhet Province were reviewed for the year 2009, and 2007-09, respectively. Patients with recorded respiratory diseases were included. The collected demographic and clinical data were analyzed using EpiData. The use of oxygen equipment was assessed during staff interviews.

Results In total, 263 provincial and 387 district level patients were included. Patient ages ranged from 15 days to 98 years and approximately 60% were under five years. The most frequent symptoms were cough (74.9%), fever (72.2%), and dyspnoea (40.9%). Pulse oximetry and oxygen administration were documented for 28 patients (4.3%) and 65 patients (10.0%), respectively. Four hundred ninety-five patients (76.2%) were diagnosed with pneumonia and of these, 234 (47.3%) were considered severe. Of all severe pneumonia patients, 35 (15%) received oxygen therapy. Oxygen cylinders were used exclusively and high costs and replenishment barriers were described by medical staff.

Conclusions Respiratory diseases were most frequent among those under five years of age, when children are known to be at high risk for death. The reasons for the restricted use of life-saving oxygen therapy, even for severely ill patients, need to be further evaluated. A comprehensive strategy which includes improving access to and use of use of oxygen is needed for patients with respiratory disease in peripheral hospitals in Laos.

Keywords. Laos, hypoxaemia, oxygen therapy
Diarrhea in Antiretroviral-naïve HIV-Infected Patients: First Description of Opportunistic Parasites in Lao PDR

Phimpha Paboribouné1, 2, N. Phouinandr3, E. Borei4, S. Phaxayaseng5, K. Sourcingphoumy6, E. Luangkhot4, 7, 8, B. Sengphilom3, Y. Vansilalom3, J. F. Etard2, 9, E. Delaporte2, M. Rabodonirina4, 8.

1 Centre Christophe Mérieux, Vientiane, Lao PDR, 2 UMI 233 (Institut de Recherche pour le Développement – Université Montpellier 1), Montpellier, France, 3 University of Health Sciences, Vientiane, Lao PDR, 4 Université Claude Bernard Lyon 1, Lyon, France, 5 Setthatirath Hospital, Vientiane, Lao PDR, 6 Savannakhet Hospital, Lao PDR, 7 Fondation Mérieux, Lyon, France, 8 Hospices Civils de Lyon, Lyon, France, 9 Epicentre, Paris, France.

Correspondence: phimpha@ccm-laos.org

Background Chronic diarrhea is a major cause of morbidity and an independent marker of mortality in HIV-infected patients. Findings from previous studies demonstrated that parasites, especially Cryptosporidium and microsporidia, are major etiologies. Prevalence rates for these pathogens, which vary among geographical locations, need to be known to guide therapeutic management.

Methods A one-year prospective study in antiretroviral-naïve HIV infected patients was carried out in Setthathirath and Savannakhet hospitals. Clinical, demographic and laboratory data were collected. Stool samples were examined for parasites.

Results One hundred and forty patients were included. Diarrhea was present in 44% of patients; the mean duration was 24 days. 78 patients (56%) were diagnosed at stage 4 (WHO clinical staging). The median CD4 cell count was 121 cells/mm3. Fifty six percent of patients had less than <50 cells/mm3. Opportunistic parasites were identified: Strongyloides stercoralis (20% of patients), Blastocystis sp. (20%), Cryptosporidium sp (6.5%), Isospora belli (4%), microsporidia (2%), Cyclospora cayetanensis (1.5%). Giardia intestinalis was found in 11% of patients. The presence of Cryptosporidium sp in stool samples was associated with a risk of chronic diarrhea (p<0.05).

Conclusions These patients had severe immunosuppression. Nearly half of them presented with diarrhea. The more frequent parasites can be identified in a standard laboratory. Cryptosporidium, microsporidia and Blastocystis were described for the first time in Lao PDR. These infections seem to be less prevalent than in other countries, including neighboring countries. Further studies are needed to confirm these data in HIV-infected patients as in general population, and to identify associated epidemiological factors.

Keywords. HIV, diarrhea, opportunistic parasites, Cryptosporidium
Study on Prevalence, Cause and Practice for Prevention of Traumatic Injuries at Highland Provinces, Vietnam

Hoang Thi Bach Yen

_Hue college of Medicine and Pharmacy, Vietnam_

Correspondence: bachyenbs@gmail.com

Statistics of the World Health Organization showed that traumatic injury was the second reason of hospitalization worldwide and is now an universal concern. Traumatic injuries accounted for 11% burden of disease all over the world. In the recent years, along with overall social-economical development, medical branch of Vietnam had been facing up to alert increasing of traumatic injuries. It is now one of the top reasons of death at hospitals. There is an average of 30 deaths and 70 injuries that can lead to disability for life, in which traffic accident is the first reason then other community accidents such as poisoning, drowning, burn, electric shock.

**Objectives**

1. To define the prevalence of traumatic injuries at highland provinces, Vietnam
2. To define cause and preventive practice of traumatic injuries.

**Methodology**

A cross-sectional study, 2995 households were involved.

**Results**

The prevalence of traumatic injury of the household was 6.6% and of the correspondents was 1.6%, aged 15-19 accounted for the highest prevalence. The two highest causes were traffic accident and falling, 56.3% and 23.1% respectively. For prevention of traffic accident, 93.7% wearing helmet when sitting on motorbike, no driving after drinking beer or alcohol 67.8%. Right practice of falling was 2.9%. There was statistical relationship between household economic and traumatic injury (p<0.05).

**Conclusion**

Traumatic injury in highland provinces need to be concerned.

**Keywords.** Traumatic injury, highland, cause, practice
Anemia Prevalence and Food Intake Especially Iron Rich Food of Students in Khon Kaen Province, Thailand

Nitchatorn Panomai

Department of Nutrition, Faculty of Public Health, University of Khon Kaen, Thailand

Correspondence: rappan@kku.ac.

The propose of this study was to evaluate anemia prevalence, and food intake of Thai school children. A random sample of 158 students aged 9 to 10 years from 4th Grade in four schools located in Si Chomphu district, Khon Kaen province were interviewed by a team of dietitians in the subjects' school. Interviews included general characteristics, food frequency and three days food record. Blood sample were collected to determine hemoglobin, hematocrit and anemia prevalence. Subjects were 86 male and 74 female students. The results were shown that anemia prevalence were high, 12.24% in males, and 12.16% in females by using hemoglobin as a criteria. Mean amount of carbohydrate, protein and fat consumption were sufficiency when compare with %Thai DRI both sexes.

In part of iron intake, average values of iron intake in female group were lower than male group. The results also found that overall daily intake provided adequate energy, fat, protein, vitamin A, and phosphorus except calcium, vitamin C in 2 groups. In iron intake, only in female group was insufficiency.

Conclusions

Prevalence of anemia among school children is high in both sexes. The results indicated that overall daily intake provided adequate energy, fat, protein, vitamin A, and phosphorus except calcium, vitamin C that were inadequate in 2 groups. In part of iron intake only in female group were insufficiency.

Keywords. Anemia, iron deficiency, iron rich food
Analysis of Water, Sanitation, and Hygiene Linkage to Health in Thailand

Theechat Boonyakarnkul¹, Lertchai Charerntanyarak², Wilaiwan Koeythong ¹

¹ Department of Health, Ministry of Public Health, Thailand.  
² Faculty of Public Health, Khon Kaen University, Thailand;

Correspondence: tchat_46@hotmail.com

The study was conducted to analyze the linkage of water, sanitation, and hygiene to health situation by using the burden of disease methodology. This study scoped only diarrhea that is a major caused by water, sanitation, and hygiene (WSH).

The study areas were selected from four parts of Thailand. In each part, the representative province had the highest incidence of diarrheal during the past 5 years. Two studied areas were in urban and rural areas with the total sample of 1957 households which were 699 households in urban area and 1258 households in rural area. Data collections were done by questionnaires, interviewing and analyzed the disability-adjusted life year.

The situation of water, sanitation and hygiene was assessed. Results of the study showed that the disability-adjusted life years for diarrhea was found 0.7898548 years and 0.3973632 years in rural and urban area respectively. The year of life lost was zero. If the data were adjusted to country level, the year of life lost due to disability was 2431.7650 years and the attributable burden to WSH was 680.5051 years.

We recommended that this method should be adjusted and could be a starting point for further provincial or community analysis and for other exposures.

Keywords. Burden of disease, diarrhea, water.
Quality of Dengue Hemorrhagic Fever Surveillance System in Yasothon Province, Thailand

Preecha lakwong 1, Pornnapa Suggaravetsiri 2

1Yasothon Provincial Health Office, Yasothon Province, Thailand.
2Department of Epidemiology, Faculty of Public Health, Khon Kaen University, Thailand.

Correspondence: Lakwong2010@gmail.com

Objective To study quality of dengue hemorrhagic fever (DHF) at government hospitals in Yasothon province.

Material and Methods This study was cross sectional and reviewed from data base of medical records at 9 government hospitals, Yasothon province between 1 January to 31 December 2010.

Results We found 404 medical records from 4 codes of DHF, A90, A91, R509, B349. Morbidity and mortality rate of DHF were 74.93 and 0.19 per 100000 population respectively. The highest of morbidity of DHF at Thai Charoen district (165.96 per 100000 population). Age groups between 10 - 14 years had the highest incidence rate was 380.29 per 100000 population. July was the highest of incidence (17.99 per 100000 population). We found the quality of completed of reports was 84.4 %, timeliness was completed 81.7% and accuracy was 100%.

Conclusion Complete, timeliness and accuracy of DHF report are the most efficiency for surveillance and control in the local area.

Keywords. Quality, report, DHF.
Hypertension Knowledge and Preventive Behavior Among the Elderly in Three Communes of Huong Thuy District, Hue City, Vietnam

Hoang Duc Thuan Anh, Hoang Dinh Tuyen, Hau Nguyen Nhat Minh, Nguyen Thi Nhat Hoa, Hoang Nguyen Nhat Linh (1), Nguyen Thi Nga (2), Nguyen Van Tap (3)

1 Student of Bachelor of Public Health, Hue College of medicine and pharmacy
2 Bachelor of Public Health, Hue College of medicine and pharmacy
3 Associate Professor, Hue College of medicine and pharmacy

Correspondence: bachyenbs@gmail.com

Background Assessment of knowledge, attitudes, and practices (KAP) is a crucial element of hypertension control, but little information is available from developing countries where hypertension has lately been recognized as a major health problem. This study aims to assess the knowledge and preventive behaviors against hypertension and factors associated with the development of hypertension among the elderly of Huong Thuy District, Hue City, Vietnam.

Methods This cross sectional study involved 450 people aged more than 60 selected through a systematic sampling method. Data were collected through interviews using questionnaire. Data were inputted and processed with SPSS 11.5.

Results 30.9% of respondents were diagnosed with hypertension (2010 criteria administered by Vietnam Ministry of Health) in which 22.7%, 7.1% and 1.1% were classified as grade I, grade II and grade III of hypertension respectively. Salt restriction and alcohol consumption restriction were known by 88.9% and 48.5% correspondingly. Most persons had good practice of hypertension prevention which included not smoking (85.6%), not eating high cholesterol foods (84.7%). Hypertension was associated with stressful lifestyle. The practice of regularly checking blood pressure was related to having a sphygmomanometer at home, routine health check up and having knowledge about complications of hypertension. Hypertension preventive behaviors were associated with gender, occupation, education level, knowledge about complications of hypertension and roles of the media in educate on hypertension.

Keywords. Hypertension, knowledge, attitude, behavior, elderly.
The Quality of Drinking Water from Vending Machine

Nara ravadchai\textsuperscript{1} and Warangkana Sangsitthisawad\textsuperscript{2,3}

\textsuperscript{1}Water Analysis Unit, Department of Biochemistry, Faculty of Medicine, Khon Kaen University
\textsuperscript{2}Department of Environmental Health Sciences, Faculty of Public Health, Khon Kaen University
\textsuperscript{3}Integrated Water Resources Management Research and Development Center in Northeast Thailand, Faculty of Agriculture, Khon Kaen University

Correspondence: birdnaras@hotmail.com

There are several commercial drinking water available, but one product that has been popular is drinking water from a vending machine because of its availability and inexpensive price. This study was the cross-sectional descriptive study. It was aimed to investigate the quality of drinking water from vending machines. Three properties of drinking water was investigated including: physical property includes pH-value, turbidity and color; chemical property consists of total hardness, chloride, sulfate, nitrate, iron, lead and cadmium; biological property includes total bacteria and coliform. This study was the comparison between the quality of drinking water from 152 vending machines in the radius of 500 meter-far from Khon Kaen University area and that of the standard quality of drinking water in tight container according to the Ministry of Public Health Notice volume 61 (1981) and volume 135 (1992). The results showed that the quality of 82.2\% of drinking water from vending machine met all the drinking water quality standard criteria in physical, chemical and biological properties. 93.4\%, 100\% and 87.5\% passed the standard in physical, chemical and biological properties respectively. In conclusion, this study demonstrated that most of drinking water from vending machines passed the standard quality, which is safe for consumption.

Keywords. Drinking water from Vending Machine, Quality of drinking water
Using Mathematical Model to Predict Chi River’s Quality

Kannitha Krongthamchat¹, Gumpanat Tongsung ², Somchai Daratat³

¹ Public Health Faculty, KhonKaen University, Khon Kaen 40002, Thailand
² Kaeng Sanam Nang Distric Public Health office, Nakornratchasima, Thailand
³ Thailand Institute of Scientific and Technological Research, Bangkok, Thailand

Correspondence: kkanni@kku.ac.th

The study aimed to assess water quality of Chi River by QUAL2Kw mathematical model and also forecasted Chi River’s water quality in the future. The study area was from Ban Nonpleay, tambon Talat Raeng, Amphor Ban khwao, Chiyapum Province to in Ban Tapra, tambon Tapra, Amphor Muang, Khon Kaen Province, with a total distant of 326.94 km.

The result from calibration of water level and discharges of Chi River in QUAL2Kw showed that water flow rate, water level and velocity were 0.83-2.76 m³/s, 1.84-4.32 m and 0.01-0.06 m/s, respectively. The water quality parameters in QUAL2Kw were compared with those observed by Regional Environment Office 10 during 2005 and 2009 showed that the temperature was 29.98-30.18 °C, the Ph was 7.58-7.99, the conductivity was 109.63-119.00 us/cm, the dissolved oxygen was 4.59-7.40 mg/l, the biochemical oxygen demand was 1.42-2.97 mg/l and the fecal coliform bacteria was 0.00-73.00 MPN/100ml. Verification model were studied the hydraulics and water quality between QUAL2Kw results and field survey data were compared, It was found that all simulated hydraulics data and water quality parameters had good agreement.

For prediction of water quality at the critical condition in the next 5, 10 and 15 years (2014, 2019, 2024 AD), the water quality at the study area was set as class 3 and class 4 of surface water quality standard.

Keywords. Water quality; Calibration; Verification; QUAL2Kw Model; Chi River
Factors Associated with Quality of Life of Thai Women Married Foreigners in Udonthani Province, Thailand

Wongsa Laohasiriwong¹, Prapat Thammawongs¹

¹ Department of Public Health Administration, Faculty of Public Health, Khon Kaen University
² Kumphawapi District Health Office, Udon Thani Province, Thailand
Correspondence: drwongsa@gmail.com

This cross-sectional analytical research aimed to identify factors associated with quality of life of Thai women married foreigners in Udonthani Province. The total of 263 samples were systematic random sampling to response to questionnaire which was tested for validity by experts and had high reliability (Cronbach alpha coefficient = 0.86). Both descriptive and inferential statistics (Multiple linear regression) were used to analyze the data and presented the adjusted OR and 95% CI. The results indicated that the sample’s average age was 37.44 ± 8.54 years old, 28.90% finished primary education. Before married with the foreigners, 38.8% were labors with the median income of 5,000 Baht per month. Almost half were divorced before marrying foreigners (46.7%) and 80.60% had children with their previous husband. The median duration of marriage with foreigners was 4 years. The average age of their foreign husband was 52.56 ± 10.87 years old, 24.30% was German and 27.76% worked in private companies. Their median income was 80,000 Baht per month. Most of the foreign husbands were temporarily lived with their Thai wife in Thailand (74.5%), 43.7% of the Thai women had high level of stress. Most of the wife had good quality of married life (69.20%) but only 54.00% had good quality of life. Factors which were statistically significant associated with quality of life of Thai women married foreigners were living status with their husband of which those whose foreign husbands living permanently with them in Thailand had 1.68 times higher quality of life than those whose husband were temporarily lived in Thailand (95% CI: 1.10–3.00, p-value=0.017). Having children with their foreign husbands was another factor which was associated with quality of life, those who had children with foreign husbands had 2.03 times higher quality of life than those who did not have (95% CI: 1.23–3.34, p-value=0.005)
Coupled Modelling Approach to Scenario Development for Exploring Climate Change Impacts

Angela Bush¹, Chayanis Krittasudthacheewa², Eric Kemp-Benedict³, Yanyong Inmuong¹, Phatcharee Seekuta¹ & Orn-Uma Polpanich²

¹ Faculty of Public Health, Khon Kaen University, Thailand
² Stockholm Environment Institute –Asia Centre, Thailand
³ Stockholm Environment Institute –US Centre, USA

Correspondence: angelalouisebush@gmail.com

Areas of the Greater Mekong Subregion like northeast Thailand are vulnerable due to their semi-arid climate and their resilience is inhibited due to long-lived poverty. The anticipated climate changes for the region include shifts in rainfall volumes and timing, resulting in more pronounced seasonality. This will have impacts for those who are dependent on rainfed agriculture, and may result in a need to change farming practices. Even though it has been proposed that average agricultural yield in most of northeast Thailand will not be diminished by the effects of climate change, there is an expectation of food shortage in the next few decades because of the disparity between food production and population growth. With more competition for nutritious food and clean water, and with potentially increased risks and financial stress from changed practices, it is possible that public health could be subject to new risks.

One way to begin addressing these potential risks is to explore future scenarios under changed climate conditions. This project has developed a hydrological model (using Water Evaluation and Planning: WEAP) for a small sub-catchment of the Mekong Basin, Huai Sai Baht (650 km²). This model is coupled with a groundwater model (using MODFLOW) and a Bayesian belief network (BBN) populated by primary household survey data. Through this method anticipated changes in climate parameters can be input and the effects on other model parameters, such as availability of water resources, may be observed. Then, through the use of the BBN, judgements may be made about the anticipated behavioural responses. In this way the potential risks that future scenarios may present can be explored so that potential impacts on public health may also be investigated.

Keywords. Climate change, catchment modelling, Bayesian belief networks
Friendly Service Assessment For Reproductive Health in Saravan, Sekong and Attapeu Province

Ketsadasak Kiettisak¹
Vanphanom Sychareun²

¹ Health Poverty Action, Lao PDR
² Faculty of Postgraduate Studies. University of Health Sciences Lao PDR

Correspondence: kketsadasak@laopdr.com

As part of a project aiming to reduce maternal mortality, supported by UNFPA, this assessment aimed to understand the perceptions of people of reproductive age towards health services. The assessment was carried out as a cross-sectional descriptive study and applied both quantitative and qualitative research methods. It was conducted between September and December 2010 and consisted of: interviews with 1094 existing clients of 29 target health services: and organized FGD in target villages.

Results showed that villagers sought treatment at the nearest place first - treatment at home, traditional treatment or treatment from VHV's. Only if the first chosen method didn’t cure them, did they go to a health center or hospital. For those that did use health facilities, reasons for doing so included: convenience; ease; proximity to home; prior experience of using a health facility; and the availability of medical equipment. The barriers to accessing health facilities included: the cost of the services; the attitudes of the health providers; long waiting times; the quality of the health services; and the distance of the health facilities from home. Further results showed that only 32.2% of health service users were satisfied with the health services.

The findings were used to inform health providers on how to provide better and more friendly reproductive health services. In addition, the project is providing information on the side effects of self treatment, especially for pregnant women; and recommending the continuation of village health saving funds as additional ways to encourage women to use health services.

The success of the recommendations implemented will be evaluated later in 2011.
Hospital-based Healthcare Efficacy Indicators: Construction and Adaptation In the Lao PDR Context

A Kieffer, P Crépey

EHESP, French School of Public Health, Paris, Rennes, France

Correspondence: Alexia.Kieffer@ehesp.fr

Background Statistical health indicators are necessary tools for health decision making. They give insights on the efficiency of healthcare systems and intervention policies. In Lao PDR, country-wide indicators are commonly used, but there is a need for hospital-based health indicators to guide hospital directors in the current context of national healthcare reform.

Methods In the context of the EHESP+Mekong program, 23 hospital directors and deputy directors from central and provincial hospitals have been asked to define hospital-based quality indicators relevant to their particular context. A case study and theoretical background had been preliminary given. Work session was oriented on health care effectiveness, first performed in subgroups and followed by plenary discussions for fine tuning collection methods and other logistical issues.

Results Four indicators have been constructed covering four dimensions of healthcare effectiveness: mortality (deaths caused by road accidents after admission at hospital), morbidity (prevalence of hepatitis B), appropriateness of provided care (over prescription of antibiotics), and prevention (immunization rate against DTP – whooping). Each indicator applies to a Lao PDR public health priority and uses data usually already collected within the hospital.

Conclusion The proposed hospital-based indicators have been designed with feasibility and ease of implementation in mind. Assessment of their reliability in real life will allow us to refine this approach, and to develop and cover each dimension of health care quality. There is a need for a homogeneous and wide implementation of these indicators to help local and national decision makers to define ways of improving the Lao healthcare system.

Keywords. Laos, Hospital, Health Indicator
Cost-utility analysis of the Early Goal-Directed Therapy (EGDT) for severe sepsis and septic shock patients in Thailand

Suchunya Angkulanon, Thanawat Wongphan, Kumaree Pachanee, Jongkol Lertiendamrong, Phusit Prakongsai

International Health Policy Program (IHPP) – Thailand

Correspondence: suchunya@ihpp.thaigov.net

Severe sepsis and septic shock are associated with high mortality and high costs. Early goal-directed therapy (EGDT) has been shown to decrease mortality in patients with severe sepsis and septic shock. The objective of this study was to determine the cost-utility of the EGDT protocol for the treatment of severe sepsis and septic shock in Thailand compared with the conventional care of severe sepsis and septic shock. Studies comparing both costs and outcome of EGDT in severe sepsis and septic shock were included. All related international literatures until 2010 were searched through the Pubmed, Embase, and Cochrane databases. The result showed that thirty eight studies were reviewed and twenty six studies were excluded. Twelve eligible studies were fully reviewed and three studies were selected due to being clinical trial studies. Outcomes were mostly measured as life year gained and quality-adjusted life years. The cost-utility analysis method using decision-tree model was performed. Mostly, data used in the model were retrieved from systematic review, published literature and clinical trials. Based on the systematic review, EGDT was cost-effective in patient with severe sepsis and septic shock in Thailand compared to the conventional care. The incremental cost-effectiveness ratio (ICER) of EGDT was 122,290 Baht per QALY gained which is approximately 1 GDP per capita in 2010. The budget impact analysis indicates the required additional budget of 5,000 million Baht per year for nationwide implementation of the EGDT. Therefore, this study is very useful information for decision making whether EGDT protocol should be included in the Universal Coverage Benefit Package.

Keywords. Sepsis, septic shock, early goal-directed therapy, cost-effectiveness
Care Seeking Behaviour and Barriers to Accessing Services for Sexually Transmitted Infections Among Female Sex Workers in Laos

Ketkesone Phrasisombath\textsuperscript{1,2}, Sarah Thomsen\textsuperscript{2}, Vanphanom Sychareun\textsuperscript{1,2}, Elisabeth Faxelid\textsuperscript{2}

\textsuperscript{1}Faculty of Postgraduate Studies, University of Health Sciences, Vientiane, Laos.  
\textsuperscript{2}Division of Global Health (IHCAR), Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden.

Correspondence: ketkesone@hotmail.com

Background Prompt, correct diagnosis and treatment with health information are essential components of reproductive tract infection (RTI) and sexually transmitted infection (STI) services. We describe care seeking behaviour and barriers to accessing RTI/STI services among female sex workers (FSWs) in Laos.

Methods A cross-sectional survey using closed and open-ended questions was performed in six districts along Road 9, traversing Savannakhet province from Thailand to Vietnam. In total, 407 FSWs were interviewed. The data were analyzed using STATA and presented descriptively. Multiple logistic regression analysis was applied to assess associations between respondents’ background characteristics and care seeking behaviour.

Results About half of the respondents (49%) were \textless19 years of age, and 50 percent had started or completed secondary school. Fifty-eight percent had been engaged in sex work for less than 1 year. Eighty-six percent of the respondents reported RTI/STI signs or symptoms currently or in the last 3 months but only two-thirds of those with symptoms sought treatment. Source of treatment for the last RTI/STI episode was the drop-in centre (53%) followed by a public hospital (23%), private clinic (12%), private pharmacy (9%), and herbalist (2%). The main barriers to service use were long waiting time, inconvenient location of the clinic, not knowing where to get the services needed, and negative attitudes among healthcare providers. Care seeking behaviour was associated with longer duration of sex work (OR=2.6, 95%CI 1.52-5.36). Forty-four percent received health information from peer educators, 34 percent from fellow friends, 26 percent from a pimp, and 26 percent had received information from a healthcare provider during the visit.

Conclusion There were several barriers to accessing RTI/STI services and they were related to both structural and individual factors. Innovative STI service strategies to inform FSWs about the importance of early diagnosis and treatment should be established. Continuous training for STI service providers focusing on counseling skill and awareness of the sexual health care needs for FSWs is recommended in order to minimize the barriers experienced by FSWs. In addition, effective strategies to address the rights of children and adolescents are urgently needed in this particular setting.

Keywords. Care seeking behaviour, female sex worker, reproductive tract infections, sexually transmitted infections, Laos
Satisfaction of Caretakers of Children Aged Under Five Years Hospitalizing in Luang Prabang Provincial Hospital, Lao PDR

Bounthiem Siphada¹, Outavong Phathammavong²

¹ Faculty of Postgraduate Studies, University of Health Sciences
² Health System Development Unit, World Health Organization Laos

Correspondence: PhathammavongO@wpro.who.int

Low satisfaction of health care services of public health care facilities in Laos has been reported resulted in its low utilization. This study was to assess satisfaction of health care services of Luang Prabang Provincial Hospital (LPBPH) among caretakers of under five-year patients in IPD, and to identify its factors. The cross-sectional study was carried out from April to June 2011 using 35-item likert scale (1-5 score). The entire caretakers of under five-year patient during study period were eligible recruited in this study, and face to face interview was performed. Three hundred and two caretakers were recruited in this study of with 45.4% were from Luang Prabang district, 64.2% Lao ethnic group and 64.6% female. Of all children, 59.6% were boy and 60.3% were single child. Average score was highest for doctor behavior [mean (SD) = 3.8 (0.4)] and lowest for accessibility to other services [mean (SD) = 3.0 (0.6)]. Factors statistically associated with low satisfaction were living outside Luang Prabang district [OR(95%CI) = 0.5(0.3-0.7)], receiving information of child sickness [OR(95%CI) = 0.5(0.3-0.7)], never used LPBPH service before [OR(95%CI) = 0.5(0.3-0.7)]. The satisfaction was higher among caretakers whose children were hospitalized in LPBPH more than 1 time [OR(95%CI) = 1.7(1.1-2.8)]. Mean of satisfaction was lower among caretakers with lower income. Improvement of communication between health persons and patients who especially are from outside Luang Prabang district and use LPBPH service for the first time may increase their satisfaction of health care services.
Factors That Influence Alcohol Use Among Male Students in Hue University

Dang Nhu Thanh, Hoang Duc Thuan Anh, Nguyen Dinh Luong, Tran Binh Thang, Nguyen Minh Tam

Hue College of Medicine and Pharmacy, Hue University, Vietnam
Correspondence: dr.nmtam@gmail.com

Background Alcohol use is a health risk factor that peaks in persons between 18 and 25 years of age and is prevalent among university students. While this has been widely examined in developed countries, little is known in Vietnam. This study aims to assess drinking patterns and associated factors among male students in Hue University.

Methods Participants were male students (n=353) of Hue College of Medicine and Pharmacy who were randomly selected using stratified sampling method. Questionnaires were self-administered by participants. Alcohol misuse was assessed by using The Alcohol Use Disorder Identification Test (AUDIT) with the cut-off point of 7/8 to identify alcohol use disorder.

Results Only 15.1% participants reported abstinence while 26.8% reported drinking more than two times a month. Drinking usually happened at night time (90.9%) and at weekends (67.1%). More than a quarter (28.3%) of participants were detected as having alcohol problem (having an AUDIT score of 8 or greater). Alcohol misuse was positively associated with type of accommodation (living alone in a rented room; p<0.05) and negatively associated with the fact that parents know where they go when they go out at night (p<0.05). Other factors that might influence the alcohol use is “going out to parties and restaurants with friends” (p=0.08), “playing video/online games or going to karaoke” (p=0.07), and “parents know who they are with when they go out at night” (p=0.09).

Conclusion Alcohol use is not rare among male students in Hue University. In spite of the shortcomings of research in this field, findings of this study provide clear evidence and call for programs to raise awareness of students on preventing alcohol related harms in Vietnam.

Keywords. Alcohol, student, AUDIT
Musculoskeletal and Upper Limb Disorders among Informal Sector Broom Weaving Workers

Thanyawat Homsonbat\(^1\) and Sunisa Chaiklieng\(^2\)

\(^1\)Occupational Therapy unit, Rehabilitation Department, Udon Thani Hospital, Thailand
\(^2\)Department of Environmental Health Science, Faculty of Public Health, Khon Kaen University, Thailand

Correspondence: csunis@kku.ac.th

This cross-sectional analytic study aimed to investigate the prevalence of musculoskeletal and upper limb disorders (MSULDs) and risk factors related to disorders among informal sector Broom Weaving workers. Data were collected by using structural questionnaires, the standard rapid upper limb assessment (RULA), measurement of workplace lighting intensity, and assessment of physical fitness.

The results showed that, among 80 workers, 53.75% were female, 46.25% were male, age between 18-57 years old. Broom weaving workers had mostly mild stress (46.25%), followed by moderate stress (33.75%). Regarding workstation, most seats were chairs with backrests (48.75%) and sitting on the floor (32.50%) without extra supported materials (65.00%). Light intensities at workstation were between 63-462 lux that was lower than the minimum standard requirement (300 lux) at some stations (25.00%). The six month-prevalence of MSULDs among workers was 83.75%, predominantly located at neck (31.25%) low back (28.75%), shoulder (25.00%), and wrist (15.00%). The most often reported symptoms was muscle fatigue (90.00%) caused by prolonged sitting in the same posture at work (92.5%). RULA identified ergonomic risk from working posture of workers at level 2 for 41.2%, level 3 for 41.2% and level 4 for 17.5%. The assessment of physical fitness showed that, hand grip strength and flexibility among workers were at fair to good levels. Back strength of most workers was at low to fair levels. Factors of age, gender, workstation level, backrest of seat, hand grip strength of female workers and back strength of workers, shoulder flexion, wrist extension and deviation, static muscle movement effort and repetitive muscle movement were significantly correlated with MSULDs (p-value < 0.05).

The findings of high prevalence of musculoskeletal and upper limb disorders and the correlation of risk factors and disorders lead to the suggestion that Organization and Broom Weaving workers should improve their working conditions and ergonomic workstation to avoid awkward posture.

**Keywords.** Informal sector workers, Musculoskeletal disorders, Physical fitness
Prevalence of Nosocomial Infection and Multi-Drug Resistance of Gram Negative Bacteria in Roi-Et Hospital, Roi-Et province, Thailand.

Nuntiput Putthanachote ¹, Pornnapa Suggaravetsiri ²

¹Department of Epidemiology, Faculty of Public Health, Khon Kaen University, Thailand. ²Clinical microbiology Laboratories Roi-Et Hospital, Roi-et Province, Thailand.

Correspondence: mtatm10@hotmail.com

Objective To study prevalence of Nosocomial Infection and Multi-Drug Resistance Gram Negative Bacteria.

Material and Methods Cross sectional study of database from clinical microbiology Laboratory Roi-Et Hospital between 1January to 31 December 2010.

Results The present study was done from 7,655 Isolate of organisms. The top five prevalence of gram negative nosocomial infection were Pseudomonas aeruginosa (31.4%), Acinetobacter baumanii (27.8%), Klebsella pneumoniae (17.0%), Escherichia coli (16.9%), and Burkholderia pseudomallei (6.9%) respectively. Patients of ICU were the top prevalence were P.aeruginosa, A.baumanii and K.pneumoniae (43.9%, 40.0% and 19.9% respectively). B.pseudomallei was highest prevalence in department of medicine (66.9%) and major cause of bloodstream infection (57.5%). Respiratory tract infection was the most common site of infection and was highest prevalence of P.aeruginosa (75.8%). E.coli was the highest of prevalence in urinary tract infection (22.0%). Multi-Drug Resistance (MDR) of P.aeruginosa and A.baumanii were highly resistance to Ceftazidime (97.5%, 98.6%), Ciprofloxacin (97.7%, 97.8%) and Trimetho/Sulfa (99.1%, 96.6%). Extended-spectrum beta-lactamase (ESBL) and MDR of K.pneumoniae and E.coli were highly resistance to Ciprofloxacin, Trimetho/Sulfa and Cephalosporins drug group. The duration of highly prevalence of nosocomial infection was July to November.

Conclusion Nosocomial Infection was major problem of infectious diseases especially bloodstream infection. Surveillance and provide education of prevention and control to health worker are the most important for prevention and control of nosocomial infection.

Keywords. Nosocomial Infection, Multi-Drug Resistance Gram Negative Bacteria, Extended-spectrum beta-lactamase
Contact Networks In Lao PDR

P Crépey, B Flaissier, V Souvong, P Paboriboune, X Nicolas de Lamballerie, A Flahault, A Kieffer

1 EHESP, French School of Public Health, Paris, Rennes, France
2 Centre Christophe Mérieux of Laos, Vientiane Capital, Laos
3 UMR 190, IRD-Aix Marseille University, Marseille, France

Correspondence: Pascal.Crepey@ehesp.fr

Background Lack of available data on contact behaviors limits the assessment of the impact of social networks on the dynamics of influenza infection. To address this issue, we conducted a survey on social contacts in Vientiane Capital, Lao PDR, allowing reconstruction of a social network relevant for infectious disease transmission.

Methods This survey is part of a research program on A(H1N1) 2009 virus implemented in Lao PDR (CoPanFlu-Laos), based on a prospective cohort of 807 households (4,072 subjects) representative of Vientiane capital. We assessed age-distribution, intensity and localization of inter-individual contacts on a random sample of the cohort. A subject had to collect prospectively for at least three days information about the persons with whom he/she had contacts during the day. Information collected were: age, sex and usual place of residency of the individual contacted, type of contact (physical or not), localization, total duration and usual frequency and activity performed during the contact.

Preliminary results We recorded 2,335 questionnaires, filled in by 783 subjects (429 households). More than 90% (n=718) of the subjects completed the survey for at least 3 days. The mean size of the participating households was 5.4 subjects (±2.2). Median age of individuals was 28.5 yo [1.4–88.8] and 55% (n=425) were women. In comparison with the CoPanFlu population study, women were more likely to participate; recruited households were slightly bigger.

Perspective Estimation of frequency and nature of social contacts in Lao PDR will allow us to refine predictive accuracy of models. Studies of contact patterns in Laos could optimize control interventions against respiratory infections in developing countries.

Keywords. Laos, Contact Network, Influenza
Prevalence of Smear Positive Pulmonary Tuberculosis New Patients in Yasothon Province, Thailand.

Man Saengpak¹, Pornnapa Suggaravetsiri²

¹Department of Epidemiology, Faculty of Public Health, Khon Kaen University, Thailand. ²Yasothon provincial health office, Yasothon province, Thailand.

Correspondence: saengpak@gmail.com

Objective To study prevalence of smear positive pulmonary tuberculosis (PTB) new Patients in Yasothon province.

Methods and Materials Cross-sectional analytical study from the medical records and clinical PTB Laboratory in 9 government hospitals in Yasothon province. Data were collected between January to December 2010.

Results The prevalence of PTB patients was 70.66 cases per 100,000 population (381 per 539,134). The ratios of gender was 1.89 (249/132). Ninety-four PTB patients had register defaulted (24.67%). The age group with the most PTB patients (≥65 years old). Agriculture were the highest of PTB patients and stay in Kam Kuan Kaeo district (212.90 cases per 100,000 population).

Conclusion From the results of this study it is concluded that default registration of PTB patients still is a severe problem. Further studies about the health care delivery system is providing to PTB patients both in service units of hospital and in the primary health care service should be revised. The correlated factors found in this study from this study might contribute to default registration of PTB patients. The ultimate aim should be to register and treat PTB patients as soon as possible.

Keywords: Prevalence, Smear Positive Pulmonary Tuberculosis, Thailand.
A Study of the Infection of Hepatitis B Virus in Thua Thien Hue Province of Vietnam

Ngo Viet Loc

Faculty of Public Health, Hue College of Medicine and Pharmacy, Vietnam

Correspondence: vovanthang147@hotmail.com

Introduction: Hepatitis B infection is caused by hepatitis B virus (HBV). More than 350 million people around the world are chronically infected by hepatitis B virus (HBV).¹² Hepatitis B is a leading cause of chronic hepatitis, cirrhosis, and hepatocellular carcinoma, accounting for 1 million deaths annually. The objective of this study is to examine the percentage of positive antibodies against hepatitis B virus core antigen (anti HBc) among people aged 6 and over in Thua Thien Hue Province of Vietnam.

Method: A cross-sectional, descriptive study was conducted between 2006 and 2008. A total of 2,525 people aged 6 year and over, who were living in four ecological areas of Thua Thien Hue Province (including mountainous, low land, coastal and Hue city), were selected to participate in this study. The participants were examined to detect their antibodies against hepatitis B virus core antigen (anti HBc) by enzyme immunoassay and were interviewed using a questionnaire.

Results:

- The prevalence of anti HBc positive was 69.50%
- The prevalence of anti HBc (+) in females was higher than that in males (73.52% vs. 65.89%)
- The prevalence of anti HBc (+) increased with age and the highest prevalence was among age group of 60 or above (96.00%).
- The highest prevalence of anti HBc (+) was found among farmers (78.14%).
- The prevalence of anti HBc positive in coastal areas was highest (75.19%) among the four ecological areas.

Conclusions: The prevalence of anti HBc (+) among people aged 6 and over in Thua Thien Hue province was 69.50%. Active methods of prevention of Hepatitis B virus infection are needed.

Keywords: Infection of HBV
Food Consumption Pattern of Newly Diagnosed Type 2 Diabetic Patients and Non-Diabetic Individuals

Pradidthaprecha A, Muktabhant B

Faculty of Public Health, Khon Kaen University, Thailand

Correspondence: benja@kku.ac.th

Inappropriate food consumption is an important risk factor in the development of diabetes mellitus. This analytical study investigated the food consumption pattern of newly diagnosed type 2 diabetic patients (T2DM) and non-diabetic (NDM) controls. Each group consisted out of 123 subjects living at the Naklang District, Nongbualamphu Province. Data were collected through a structured questionnaire and assessed demographic data, as well as food consumption practices. A semi-food frequency questionnaire was used to collect data about the frequency and amount of food items consumed. The data were collected during January to February 2011. Most of the study subjects were females with a mean age of 55 years. More than 80 percent of both groups ate three main meals a day. Eating time was irregular. The amount of food eaten at dinner exceeded meals taken at other times of the day. Frequency of food intake of T2DM subjects was higher for ordinary rice than for the NDM group. NDM subjects consumed meat, offal, eggs, seafood and fatty foods and desserts more frequently and to higher amounts than T2DM patients. On the other hand NDM subjects consumed vegetables and fruits more frequently and for higher amounts than T2DM patients. Conclusion: The non-diabetic group consumed more frequently food risky for the development of T2DM and to a higher amount than the diabetic group. Therefore, reduction of risky food consumption should be encouraged for the non-diabetes subjects to prevent them from developing diabetes later on.

Keywords. Type 2 diabetes mellitus, Food consumption, Food frequency
Factors Associated with Tuberculosis among Adult Hospitalized Community-Acquired Pneumonia in Nakhonphanom Province, Thailand

1Buegun Pilalam, 1Pornnapa Suggaravetsiri, 2Darunee Ditsungnoen, 2Jariya Chaiyakul, 3Supahwat Singsri, 1Prabda Prapasiri

1Faculty of Public Health, KhonKaen University
2Nakhonphanom Public health office Nakhonphanom Province, 3Mahidol University Thailand

Correspondence: buegun@yahoo.com

Pneumonia remains a leading global infectious disease killer. Causing severely morbidity and mortality when immerses with Tuberculosis (TB). We determined prevalence of TB among hospitalized CAP and determined factors associated with TB. Between January 2009 and December 2010, Nakhonphanom public health office and International Emerging Infections Program, collaboration between the Thai Ministry of Public Health and US Center for Disease Control and Prevention has conducted active population-base surveillance for community-acquired pneumonia (CAP) in Nakhonphanom province. Case definition was evidence of acute infection and respiratory signs and symptoms. We performed sputum of AFB positive in CAP adult (≥ 15 years) and were confirmed by culture method at TB referent center. SPSS version 17.0, statistical significance with P<0.05 was applied for this analysis. The results were shown 16,716 cases of clinical pneumonia. 4,018 cases (24%) were performed AFB testing, found 334 (8.3%) were AFB positive and 71.8% were male. AFB positive were proportion highly in 13.1% (42/320) in age group 25-34 years and 13.1% (56/426) in age group 35-44 years and found 18 (5.5%) were HIV positive. Two cases died without HIV positive (age 43 and 51 years). In univariate analysis 9 factors were associated with TB among CAP including sputum production, hemoptysis, crepitation, cough, alveolar, consolidation, atelectasis. On a logistic regression model male (OR=2.45, 95% CI=1.64-3.78) abnormal chest radiograph (OR=2.21, 95% CI=1.12-4.33) and cavitation (OR=3.89, 95% CI=2.01-7.50) were significantly associated with TB among CAP. We can conclude that the prevalence of TB was high among adults hospitalized with CAP. TB case commonly found in male and patient with cavitation evidence.

Keywords. Factors, Tuberculosis, Community acquired pneumonia
The Universal Health Coverage in Thailand Through the Lens of Policy Makers and Patient Representatives

Jintana Jankhotkaew¹, Peter Schröder-Bäck², Helmut Brand², Yongyuth Pongsupap³ & Sumalee Pratoommun¹

1 International Health Policy Program, Thailand
2 Maastricht University, The Netherland
3 National Health Security Office, Thailand

Correspondence: jintana@ihpp.thaigov.net

The Universal Health Coverage (UC), introduced in 2001, primarily aims to improve the accessibility to essential health services for all Thais and prevent catastrophic health payment. Previous studies evaluated the impact of UC but none investigated Good Governance of UC. This study evaluates the process and impact of UC scheme in four selected dimensions of Good Governance: equity, efficiency, participation and transparency. Six policy makers and thirteen patient representatives, who involved in policy making process, were interviewed in 2010. The data was analyzed by a template analysis technique. The results show that UC improved all four Good Governance dimensions contributing to better health system. First, health equity is greatly improved, i.e., low income groups can better access to health services. Second, the study demonstrates an increased efficiency in resource allocation in health services. Third, patient groups and ordinary people through NGOs have better opportunities to participate in UC policy decision-making process. Fourth, the transparency is increased due to establishment of external financial auditing systems of the National Health Security Office which daily operates UC fund. However, there are some major challenges in UC such as geographical barriers to access health care facilities among vulnerable groups and insufficient health professionals, in particular physicians and nurses. Additionally, voices of the poor in UC policy decision-making process is still questionable. Thus, future policy making process should address these challenges in order to make UC better serve the health need for all.

Keywords. Universal health coverage, good governance, Thailand
Knowledge, Attitude and Practices on Disposal of Sharp Waste, Used for Home Management of Type-2 Diabetes Mellitus, in New Delhi, India

Ajit P Singh and Robert S Chapman

College of Public Health Sciences, Chulalongkorn University, Bangkok 10330, Thailand

Correspondence: ajitsingh146@hotmail.com

This was a cross-sectional study to explore the factors influencing practices about household sharp waste management among type 2 diabetics in Delhi, India. The study used self-administered questionnaires to find socio-demographic characteristics, diabetes management characteristics, and knowledge, attitude and practices (KAP) towards household sharp waste management. While there is a large amount of literature on sharp disposal practices in the healthcare setting, to the best of our knowledge sharp disposal at home and associated factors has not been studied in India before.

A total of 303 type 2 diabetics, who were above 18 years of age and gave informed consent, were asked to fill a self-administered questionnaire stating their socio-demographic, diabetes management characteristics, and KAP on household sharp management. Information or education on sharp use and disposal by healthcare provider, pharmacist and sharp manufacturer was collected as influencing factors. Any past injury to self, family member or to pet was also collected as one of the potential influencing factors.

The study did not find any association of socio-demographic factors, diabetes management characteristics, knowledge and attitude with sharp disposal practices of respondents. Household waste bins were frequently used by majority (84.1%) of respondents to discard their sharps, whereas only a few (16.9%) had informed their garbage handlers about presence of sharps in their waste. In contrast, influencing factors like education from healthcare provider, pharmacist and friends were significantly associated with good sharp disposal practices.

Keywords. Household sharp waste, Knowledge, Attitude, Practices, Delhi
Community Participation To Maternal Health Education Program In Shan State, Myanmar

Htoo Htoo Kyaw Soe¹, Ratana Somrongthong¹

*College of Public Health Sciences, Chulalongkorn University, Bangkok 10330*

Correspondence: htoo2ks@gmail.com

**Introduction** Although community participation is seen as central to public health arena, it is poorly understood and there have been few published process evaluations of community participation. Maternal health education program was implemented in three PaO villages in Shan State during 2010 and this study aimed to assess the level of community participation to maternal health education program.

**Methods** Observations, individual in-depth interviews and group discussion using qualitative spider-gram analytical framework approach were employed. Qualitative spider-gram analytical framework was used for five dimensions, (1) needs assessment, (2) leadership, (3) organization, (3) resource mobilization and (5) management for measuring community participation. Ethical approval was acquired from Ethical Review Board, Chulalongkorn University.

**Results** Illustration of the spider-gram framework provided simple and practical way of visually demonstrating the extent of community participation. The assessment of community participation in the study area was carried out before and eight months after intervention program. The findings showed that four key areas such as need assessment, resource mobilization, organization and management were improved but leadership remained the same at the end of the program.

**Conclusion** Although some changes of community participation to maternal health education program were described, these could not be concluded as good or bad participation nor correlated to improved women’s knowledge, attitude and practice regarding maternal health care.

**Keywords.** Community participation, Myanmar, maternal health education program
Reduction of Financial Loss of Government Hospitals under Universal Coverage Policy by Using The Distribution Co-efficient Technique

Thanawat Wongphan¹, ²

¹International Health Policy Program, Ministry of Public Health, Nonthaburi Thailand
²Banmoh Hospital, Saraburi Thailand

Correspondence: thanawat@ihpp.thaigov.net

Background After the implementation of universal coverage (UC) policy, there are a lot of benefits to the Thai healths and in the same time there are a lot of changes in hospital budgeting. This study establishes the co-efficient of per-capital budget distribution factor for decrease the magnitude of financial loss of the hospital.

Methodology A literature review was done with 2005-2006 financial data of all government hospitals (807 places). The co-efficient was made from hospital-factors analysis with linear regression and tests the application effect by applying this co-efficient to the 2006 data.

Results The number of hospital which financial status is not negative decreases and the number of hospital which financial status is negative increases. The total loss increases from 5,442,515,358 baht to 7,549,762,280 baht. The co-efficient of per-capital budget distribution factors range from 0.502 to 1.5. Comparison of hospital income before and after applying the co-efficient shows the loss decreases from 3,615,983,529.30 baht to 2,421,592,181.73 baht (66.97%) The average level of hospital loss decreases from 41,090,721.92386 baht to 26,906,579.79702 baht (65.48 %). The maximum loss reduces from 441,887,716.94000 baht to 276,242,607.94 baht.

The number of hospital with financial loss changes from 88 to 90 hospitals.

Conclusions On the basis of average value in normal distribution, there is a half will be positive to the mean and the rest will be negative. To reduce this effect we can use the co-efficient to reduce the magnitude of loss or profit to the hospital with the same budget. The limitation of calculation is the quality of financial data.

Keywords. Distribution Technique, Universal Coverage, Hospital Financial Loss
Cost-benefit of Diagnosing Multi Drug Resistant (MDR) and Extreme Drug Resistant (XDR) TB in Thailand

Thanawat Wongphan 1,2, Jongkol Lertiendumrongb1, Phusit Prakongsai1

1 International Health Policy Program, Ministry of Public Health, Nonthaburi Thailand
2 Banmoh Hospital, Saraburi Thailand

Correspondence: thanawat@ihpp.thaigov.net

Background In 2010, there were 92,136 new cases of TB of which 2,900 were MDR-TB. Though the number XDR-TB is unknown, best estimate was 145 cases per year. Although the number of MDR-TB and XDR-TB are not large, treatment was so prohibitively high. By national guideline, culture to prove MDR-TB is required for all treatment failure cases. This study compared cost and benefit between new MDR-TB diagnostics for all first visit of TB with the current guideline.

Methodology Systematic review of literature was conducted between January and July 2011. The cost of treatment and MDR-TB diagnosis were compared between the four new diagnostic techniques: Lowenstein-Jensen (L-J), Microscopic Observation Diagnostics (MOD), Overbrooke 7H-10 and gene technique, and the culture after treatment failure.

Findings The cost of treatment for TB ranged from 2,391 to 4,337 Baht, MDR-TB from 165,455 to 218,895 Baht and XDR-TB 1.04 million Baht. Lab duration for L-J, MOD, 7H-10 and gene technique was 6, 0.86, 6, and 0.14 weeks; cost per test was 50, 50, 50 and 600 Baht. Total lab budget was 4.6 million Baht equally for L-J, MOD, 7H-10; while gene technique 55.28 million. Cost saving from new diagnostic tests from inappropriate drug use was up to 2.4, 4.4, 2.4 and 4.7 million Baht.

Conclusions Benefits from screening MDR-TB are cost savings from inappropriate drug treatment, minimize side effects and reduce the probability of community spreading. MOD is cost-beneficial than culture after treatment failure. Challenges were limited capacities in scaling up new diagnostic. Future study may take into account secondary effects from MDR spread and patient quality of life gained.

Keywords. MDR-TB screening, cost-benefit, new diagnostic tools
Health Risk Assessment Associated with Carbonyl Compounds Exposure to Gasoline Workers in Bangkok, Thailand

Sucot Nopparatbundit¹, Tanasorn Tunsaringkarn¹, Daisy Morknoy², and Wattasit Siriwong¹

¹College of Public Health Science, Chulalongkorn University, Bangkok 10330 Thailand
²Environmental Research and Training Center, Department of Environmental Quality Promotion, Pathumthani 12120 Thailand

Correspondence: wattasit.s@chula.ac.th

Human risk assessment of carbonyl group via inhalation exposure route in gasoline workers was studied during February 2011 in Bangkok, Thailand. The objectives of the study were to measure carbonyl concentrations in gasoline station and to assess health risk of gasoline workers from 4 gasoline stations located in urban area and suburb area of Bangkok. Two gasoline workers from each gasoline station were randomly recruited. The results showed the participants age was in the range of 18-36 years old. The average weight (mean ± SD) was 56.7 ± 8.1 kg. The average working time of urban and suburb area was 9.3 and 10.0 h/day, respectively. Exposure assessment of gasoline worker was calculated using reasonable maximum exposure (RME) at the 95th percentile; the inhalation intake of carcinogenic carbonyl i.e. formaldehyde and acetaldehyde in workers was in the range of $1.90 \times 10^{-5}$ to $4.11 \times 10^{-4}$ mg/kg/day. Risk characterization for cancer was in the range of 2 workers in 10 million to 2 workers in one hundred thousand. For non-carcinogenic carbonyl i.e. formaldehyde, acetaldehyde, benzaldehyde, valeradehyde, propionaldehyde, and butyraldehyde, the inhalation intake of non-carcinogenic carbonyl in workers was in the range of $4.88 \times 10^{-3}$ to 1.16 µg/m³. To assess non-carcinogenic health effects, the Hazard Index (HI) was used; the results showed that gasoline workers may not be at risk via inhalation exposure of non-carcinogenic health because the HI was not greater than the acceptable level (HI < 1).

Keywords. Carbonyl compounds, Inhalation exposure, Gasoline worker, RME
Cost-utility Analysis of the Early Goal-Directed Therapy (EGDT) for Severe Sepsis and Septic Shock Patients in Thailand

Suchunya Angkulanon, Thanawat Wongphan, Kumaree Pachanee, Jongkol Lertiendamrong, Phusit Prakongsai

*International Health Policy Program (IHPP) - Thailand*

Correspondence: suchunya@ihpp.thaigov.net

Severe sepsis and septic shock are associated with high mortality and high costs. Early goal-directed therapy (EGDT) has been shown to decrease mortality in patients with severe sepsis and septic shock. The objective of this study was to determine the cost-utility of the EGDT protocol for the treatment of severe sepsis and septic shock in Thailand compared with the conventional care of severe sepsis and septic shock. Studies comparing both costs and outcome of EGDT in severe sepsis and septic shock were included. All related international literatures until 2010 were searched through the Pubmed, Embase, and Cochrane databases. The result showed that thirty eight studies were reviewed and twenty six studies were excluded. Twelve eligible studies were fully reviewed and three studies were selected due to being clinical trial studies. Outcomes were mostly measured as life year gained and quality-adjusted life years. The cost-utility analysis method using decision-tree model was performed. Mostly, data used in the model were retrieved from systematic review, published literature and clinical trials. Based on the systematic review, EGDT was cost-effective in patient with severe sepsis and septic shock in Thailand compared to the conventional care. The incremental cost-effectiveness ratio (ICER) of EGDT was 122,290 Baht per QALY gained which is approximately 1 GDP per capita in 2010. The budget impact analysis indicates the required additional budget of 5,000 million Baht per year for nationwide implementation of the EGDT. Therefore, this study is very useful information for decision making whether EGDT protocol should be included in the Universal Coverage Benefit Package.

**Keywords.** Sepsis, septic shock, early goal-directed therapy, cost-effectiveness
Uterine Prolapse: A Silent Tragedy

Ashma Baruwal¹, Ratana Somrongthong¹, Samita Pradhan²

¹College of Public Health Sciences, Chulalongkorn University
²Women’s Right Reproductive Program, WRRP-CAED, Kathmandu, Nepal

Correspondence: baruwalashma@gmail.com

Uterine prolapse is a significant health problem amongst women of Nepal. It is a condition in which women’s uterus slips or sags out of its normal position. A study by UNFPA in 2005 reported that 600,000 women in Nepal suffer from uterine prolapse out of which 200,000 women need immediate surgery. Unlike western countries where prolapse usually occurs in old age women, in Nepal girls as young as 15 years have been found to suffer from prolapse while some have been suffering from it for as long as 45 years. The prevalence of uterus prolapse has been reported to be high in the west but no study had been carried out in the study area. It was a cross sectional analytical community based study carried out amongst the married women of reproductive age in the mid western region of 8 village development committees (VDCs) of Surkhet district of Nepal. A total of 267 participants were selected by systematic random sampling. The prevalence of uterine prolapse were found to be 24.7%. Analysis of the data using chi square revealed total pregnancies (p value=.049) and knowledge level (p-value=0.002) to be significant with the status of uterine prolapse. Two focus group discussions were carried out amongst women with and without uterine prolapse. It was found that women had knowledge about the risk factors of uterine prolapse but were unable to practice due to lack of support from family members. Gender discrimination and lack of education seems to be the root of it all.

Keywords. Uterine Prolapse, Prevalence, Nepal
High Blood Pressure Among Adult Population in Sambo Commune of Prasat Sambo District, Kampong Thom Province

Chhorn Samnang

School of Public Health, National Institute of Public Health, Phnom Penh, Cambodia

Correspondence: research03@nchads.org

Introduction
High blood pressure continues to be a big public health challenges in Cambodia as well as in the world. A clear magnitude of this problem needs to be identified in this rural community to inform decision making for better planning of health services.

Objective
To determine the prevalence of high blood pressure and its risk factors among adult population aged 25 and over.

Methodology
197 study participants will be selected from adult population aged 25 years old and over living in Sambo commune of Prasat Sambo district, Kampong Thom Province using a two-stage cluster sampling design. Data collection involves using structured questionnaire interview on food consumption, use of tobacco and alcohol, physical activity and physical measurement for weight, height and blood pressure.

Results
The survey found that the prevalence of high blood pressure among adult population of this community is 22.6%. Prevalence of risk factors was also high. 9.6% of the population was overweight or obese. 46.6% and 61.9% were consumers of tobacco and alcohol respectively. 27.1% was physically inactive workers and only 13.1% performed some physical exercise. For food consumption, people mostly eat fish and vegetables and less consumed meat and fruits and one third of them preferred and frequently consumed salty food.

Conclusion
Hypertension is a big public health problem of this rural poor community. An appropriate health service should be in place to provide counseling, treatment and care for patient with high blood pressure and health promotion activities should aim at changing all above risk behaviors.
Premarital HIV Testing Trend among VCCT Client
In Cambodia, 2007-9

Vonthannak Saphonn

National Institute of Public Health (NIPH)
Head, School of Public Health at NIPH

Correspondence: research03@nchads.org

Introduction
From 1998 to 2006, the National HIV prevalence rate declined from 2.0% to 0.9%. Despite this, the prevalence among housewives remained high (1.1%) due to transmission from husband to wife. Premarital HIV testing may help protect individuals from getting infected by their spouses. Voluntary Confidential Counseling and Testing (VCCT) offer to the general population. Clients can get free HIV counseling and testing at designated clinics. Each client is interviewed and data entered into a database. This study reviewed the VCCT database to determine premarital voluntary HIV testing trends from 2008 to 2009.

Method
The study population was clients greater than or equal to 15 years old register in VCCT database from January, 1st 2008 to December, 31st 2009. This study sample was obtained by multistage cluster sampling. Of 50 VCCT clinics in the electronic database we randomly selected 26 and from each of 26 clinics we randomly select 50 clients per clinic. We selected 1,300 clients in 2008 and 1,300 clients in 2009.

Result
We found that there was no change in age of client, median of age were 28 years (range: 15 - 80 years) in 2008 and 28 years (range: 15 - 87 years) in 2009. Women clients were slightly increase from 51.2% (95% CI: 48.5 - 54.0) in 2008 to 56.0% (95% CI: 53.2 - 58.7) in 2009. While, single clients were decline from 40.1% (95% CI: 37.4 - 42.8) in 2008 to 35.1% (95% CI: 32.5 - 37.8) in 2009 and their education were almost the same both year which majority of them has less than 6 years of study or never.

There was significantly decline of percentage among VCCT client come to test for premarital purpose from 21.2% (95% CI: 19.1-23.6) in 2008 to 16.5% (95% CI: 14.5 - 18.6) in 2009. Among them 0.7% (95% CI: 0-2.6) in 2008 and 0.5% (95% CI: 0-2.6) got HIV positive in 2009.

Conclusion
There was decline of client who came to test for premarital status during the period of 2008 to 2009. NCHADS and stakeholder should take measures to increase people test for HIV before marriage such as advocate to introduce mandatory testing before marriage and accelerate the people’ awareness of advantage of the premarital HIV testing through drama, comedies and campaign.
Mapping Sexual and Social Networks of Men Who Have Sex with Both Men and Women in Vientiane, Lao PDR

Kongchay Vongsaiya 1, Chad Hughes 2, Amphoy Sihavong 3, Chansy Phimphachanh 4, Inlavanh Keobounphanh 5, Niramonh Chanlivong 1, Mike Toole 2

1 Burnet Institute, Vientiane, Lao PDR, 2 Burnet Institute, Melbourne, Australia, 3 Vientiane Capital Health Department, Ministry of Health, Vientiane, Lao PDR, 4 Centre for HIV, AIDS and STI, Ministry of Health, Vientiane, Lao PDR, 5 Ministry of Health, Lao PDR

Correspondence: kongchay@burnet.edu.au

Background HIV prevalence among men who have sex with men in Vientiane is much higher than among adults in the general population (5.6% as compared to ~0.2%). Men who report sexual contact with both women and men and/or transgender people in Vientiane may constitute a bridge between ‘high-risk’ and ‘low-risk’ populations for transmission of STIs including HIV.

Objective This study explored the reasons bisexually active men have sex with both men and women, where they meet sexual partners, and factors that may exacerbate risk of HIV transmission.

Methods Twelve peer-lead focus group discussions involving 73 male participants who reported bisexual behaviour in the previous six months. Pair-wise ranking and mapping exercise were used to identify the locations where participants most commonly sought sex.

Results Participants predominantly do not self identify as bisexual. The men were not homogenous in their sexual orientations, identities or behaviours. The men were most likely to meet other men or transgender partners for sex at night clubs/bars/pubs, beer shops and massage parlors/saunas. Female partners were more likely met at night clubs/bars/pubs, beer shops and dormitories. Reported condom use differed depending on the partner’s gender and for a range of reasons. Condom use was generally less common when they were intoxicated.

Conclusion Bisexually active men are more difficult to reach with traditional public health approaches for STI control and meet their partners in a range of settings. Public health interventions will need to focus on these settings to access men at higher risk of HIV.

Keywords. Lao sexual network; bisexual men; HIV
Sexual Behaviour and Vulnerability of Young Females, Vientiane Capital, Lao People’s Democratic Republic

I. Keobounphanh¹, C. Phimphachanh², P. Ounaphom¹, L. Vongsavanthong¹, T. Songbandith³, S. Sheridan⁴, N. Chanlivong³, M. Toole⁴

1. The Vientiane Capital Health Department, Ministry of Health (MOH), Lao People’s Democratic Republic
2. The Centre for HIV/AIDS and STI, MOH, Lao People’s Democratic Republic
3. The Macfarlane Burnet Institute for Medical Research and Public Health, Vientiane, Lao People’s Democratic Republic,
4. The Macfarlane Burnet Institute for Medical Research and Public Health, Melbourne, Australia

Correspondence: niramonh@burnet.edu.au

Background Little is known of the sexual behaviour and vulnerability of young urban Lao women to HIV, although findings from a male sexuality study (Toole et al 2006) suggest that pre-marital sex among young women may not be uncommon. A study of young female sexuality was undertaken in Vientiane Capital, Lao PDR in 2007 with the objective of increasing our understanding of the nature and extent of sexual behaviour among young urban Lao women.

Methods Qualitative and quantitative research was undertaken among Lao women 15-24 years of age, resident in Vientiane. Eighteen focus group discussions and 13 in-depth interviews were undertaken with a range of young women. A questionnaire survey was conducted with a purposive sample of 812 young women.

Results Over 26% of young females had had sex, including 19% of never married females. Respondents reported a range of regular, non-regular and transactional partners (24%, 6.5% and 4% in the last six months, respectively), with over 30% of sexually active females having multiple partners over this period. Young females reported beginning sexual activity in their teenage years; a pattern of behaviour they linked with changing patterns of social activities including attending entertainment venues, having boyfriends, and consuming alcohol. Findings indicated young women’s lack of power to negotiate both sexual activity (>25% reporting coerced sex), and condom use. Less than 50% used a condom in last sex with regular and non-regular partners, and 69% in last occasion of transactional sex. Alcohol consumption and misconceptions about the safety of having sex with men who appeared “good” or “clean” were also factors leading to lack of condom use.

Conclusions A significant minority of young females are sexually active and vulnerable to unwanted, unplanned and/or unprotected sex. Youth-friendly sexual and reproductive health education and services are required to promote young women’s health and prevent HIV.

Keywords. Female sexuality study, Lao woman HIV, female sexual behavior
Study on Causes and Activities in First-aid of Injuries in Coastal Provinces of the Central of Vietnam in 2010

Dang Thi Anh Thu and Vo Van Thang
Hue College of Medicine Pharmacy
Correspondence: vovanthang147@gmail.com

Objectives Define the causes of injuries in coastal provinces of the central of Vietnam in 2010 and describe the first-aid activities for several common accident injuries.

Methodology The cross-sectional descriptive research was conducted in nine coastal provinces of the central of Vietnam in 2010. All 464 accidents happened in 7900 households that derived from a systematic random sample provided by the Vietnamese General Department of Statistics were put into account. Related information of the accidents was obtained from a structured questionnaire.

Result Traffic accident and falling were the most common causes of accident injuries in the study areas (51.9% and 26.1% respectively) while drowning accident was only account for 0.2% of the total accidents. More than 50% of the accidents caused mild injuries and nearly 95% of them happened unintentionally. Common injuries included skin break (28.4%), fracture (28.0%) and scratch (13.9%). The majority of accidents happened in the roads (62.5%) and when the victims were on work for money (33.2%) or not (22.6%). The average off-work time of the victims was 30.27±54.19 days. Regarding the first-aid activities of accident injuries, 47.8% of accident victims experienced the activities while 80.7% of victims got in hospitals. In the group of people experienced first-aid activities, 36.2% received those help from family members and other helpers were traffic participants (23.4%), health workers (14.0%) while 20.4% was from the victims themselves. Some first-aid activities conducted were bandaging (42.1%), stanching (29.1%), bone fixing (12.2%) and artificial respiration (2.2%).

Conclusion The study confirmed that traffic accident was still the leading cause for injuries in the coastal provinces of the central of Vietnam. The rate of accident victims received first-aid care before moving to the hospital was low. Accident preventive programs should take the epidemiological findings into account when future campaigns are designed in order to target high-risk population and causes, and improve the first-aid care for the victims so that it may help to reduce the severity of injuries from accidents.

Keywords: Injury, causes, first-aid activities, coastal areas
A Study of Respiratory Status of Casting Workers in a Traditional Trade Village in Vietnam

Dang Thi Anh Thu¹, Kim Jeong-Ah², Terry Farr², Mike Capra³

¹Hue College of Medicine Pharmacy  
²Queensland University of Technology  
³Queensland University

Correspondence: vovanthang147@gmail.com

Objectives To examine the health status focusing on respiratory problems of workers who are daily exposed to casting processes in Phuong Duc Trade Village, Central of Vietnam and to evaluate the relationships between some environmental factors relating to metal casting processes and respiratory problems of these workers.

Methodology This research comprised of a cross sectional study conducted in Phuong Duc Bronze Casting Trade Village, central of Vietnam. Participants included 189 full-time casting workers in seven casting enterprises in the area and concerned information was obtained from an interview structured questionnaire, respiratory function tests of the casting workers and a structured checklist for workplace assessment.

Result The majority of the participants were males (81.5%). The average age of casting workers in Phuong Duc village was 44 years with a standard deviation of 14.3. Most of them were educated in secondary school (50.8%). Reused bronze was the most common metal used in the casting process in this area. Regarding occupational health and safety practices in the workplace, the researcher did not find many good practices in these enterprises. Continuous noise, silicate dust and toxic gases seemed to be the most considerable issues in these workplaces. The most common respiratory symptom in these workers was bringing up phlegm from the chest first thing in the morning (nearly 30%). Results of the medical respiratory function test found that 37.3% of the workers had abnormal lung function (20.6% of them got restrictive impairment; over 8% got obstructive impairment or combined impairment). Only aluminum exposure and the number of hours working per day were found significantly related to lung function of these casting workers.

Conclusions The present study found high frequencies of respiratory problems in the casting workers of Phuong Duc trade village. However, limitations of the present study made it hard to reveal relationships between the health status of the workers and related occupational determinants. Therefore, further population based case-control studies, or longitudinal studies to explore causality between the health problems and exposure in the casting environment are needed.

Keywords. Casting workers, trade village, and respiratory problems.
Hypertension And Some Related Factors In Adults In Buon Ma Thuot City Of Daklak Province

Doan Phuoc Thuoc¹, Duong Chi Uy²

¹Hue College Of Medicine and Pharmacy, Vietnam  
²Hospital of Daklak Province, Vietnam

Correspondence: doanphuocthuoc@gmail.com

A study of the prevalence of hypertension and related factors was conducted among 393 people aged 25 years and over in Buon Ma Thuot city, Daklak province of Vietnam in 2010.

Objectives 1) To determine the prevalence of hypertension among people aged 25 years and over in Buon Ma Thuot city and 2) to determine some related factors of hypertension.

Study Design Cross-sectional study.

Results Prevalence of hypertension was 24.4%, of which level 2 of hypertension comprised of 12.2%, level 1: 10.7% and level 3: 1.5%. The prevalence of hypertension was high among those who smoked (69.6%), had alcohol abuse (61.5%); sedentary life styles/less physical activity (68.1%), who had the habit of salt eating (48.7%) and in obese persons (45.5%) (p<0.05). Habit of high fat diet was not significantly related to the acquisition of hypertension.

Conclusion The prevalence of hypertension among people of 25 years and over in Buon Ma Thuot city, DakLak province was 24.4%. Some factors related to the high risk of hypertension included salt-eating habit, smoking, alcohol abuse, sedentary life style/ less physical activity and obesity. Intervention to reduce the prevalence of hypertension is needed.

Keywords. Hypertension, related factor, Daklak
Study on Injuries and First Aids Activities among the Elderly in 14 Provinces in Coastal Central and Highland Areas, Vietnam

Hoang Dinh Hue

Public Health Faculty, Hue College of Medicine and Pharmacy, Vietnam

Correspondence: vovanthang147@gmail.com

This study examines the prevalence and related factors of injuries among the elderly living in 14 provinces in coastal central and highland areas of Vietnam. The study used a cross-sectional design and was conducted in January 2011. A total number of 42,273 people in 14 provinces was selected to participate in the interview and was observed for their situation of injuries and the first aids they received.

Results showed that the prevalence of injuries among these elderly was 10.5%. Among the injured people, most of them were retired and old (53.0%). The average number of hospitalized days was 9.1 and that of rest days was 47.7. About 39% of patients were given first aids at the places occurring accidents and 82.9% of them were transferred to hospitals as early as possible.

Keywords. Injury, the elderly, first aids
Study on the Real Situation, Risk Factors, and Preventive Practices of Injuries in 14 Provinces in Coastal Central and Highland Areas, Vietnam

Hoang Dinh Hue

Public Health Faculty
Hue College of Medicine and Pharmacy, Vietnam

Correspondence: vovanthang147@gmail.com

This study tries to examine the prevalence and related factors of injuries among people living in 14 provinces in coastal central and highland areas of Vietnam. The study used a cross-sectional design and was conducted in January 2011. A total number of 42,273 people among 10,895 households in these 14 provinces were selected for interview and were observed for their situation of injuries and their preventive practices.

Results showed that the prevalence of injuries was 1.57%. Among the injured individuals, 17.35% had died. It was noticed that 18.4% of participants had drunk when driving and only 17.4% of indoor staircases had handrails. There were also only 29.9% of dogs had been vaccinated.

Keywords. Injury, preventing practices
A Study on Knowledge, Attitude and Practice Towards Prevention and Treatment of Diabetes Among Adults Living at Huong Long Commune, Hue city, Vietnam

Hoang Thi Bach Yen
Hue college of Medicine and Pharmacy, Vietnam
Correspondence: bachyenbs@gmail.com

Diabetes is now one of the most common uncommunicable diseases all over the world. It is the fourth or fifth leading cause of death in developed countries and is the in developing countries. According to the International Diabetes Federation, complications of diabetes are very popular, seen at about 50% of patients. They are reasons of handicap and decrease in life expectancy.


Methodology This is a cross-sectional study and 384 adults were involved.

Results The prevalence of diabetes was 7.3%, of whom all were over 50 years old and had hypertension, 64.3% were obese. About 79 % of patients was detected by periodical examination. All patients were treated by medications in combination with diet, exercise and regular blood checking. KAP of correspondents were quite good. There were significant associations between knowledge and practice (r = 3.99, p < 0.001), attitude and practice (r = 0.219, p< 0.01), knowledge and attitude (r = 0.284, p< 0.01), knowledge and educational level (r = 0.357, p < 0.01).

Conclusion Having good KAP about diabetes, prevention and treatment helps to decrease the likelihood of developing the disease and delay its complications.

Keywords. KAP, diabetes, adults
Epidemiological Features and Risk Factors of the Breast Cancer in Thua Thien Hue Province

Hoang Thi Lien and Phung Phuong

*Hue College of Medicine and Pharmacy*

Correspondence: vovanthang147@gmail.com

**Objectives** Describe epidemiological features of the breast cancer and study risk factors associated to breast cancer among women in Thua Thien Hue.

**Methodology:** cross-sectional study combined with case control design. Study on 160 women who had breast cancer diagnosed in Hue central hospital and teaching hospital of the Hue college of Medicine and Pharmacy.

**Results:** The breast cancer epidemiology: Age group 40-49 of patients occupied highest rate of 40.6%. 46.9% of patients were farmers. The patients living in rural areas occupied 46.3% and in cities 53.7% respectively. Kinh patients occupied 98.8%. 63.8% patients did self-discovered breast cancer through symptoms of breast pain (12.5%), nipple discharge (7.5%), pull breast skin (8.7%), periodic health examination (5%). The time since patients discovered the tumors till they were hospitalized was ≤ 1 week (22.5%), 1 to ≤ 4 weeks (57.5%); > 4 to ≤ 8 weeks (15.6%), > 8 weeks (4.4 %). Cancer tumors located at right breast 53.1%; left breast (4.4%). The risk factors of the breast cancer: Nulliparous women was 2.4 times at risk of breast cancer higher than multiparous women. There were only 47.5% women who had knowledge of breast cancer disease.

**Conclusions** the rate of breast cancer among women was at aged ≥ 40 years old. The rate of self-diagnosis among patients was high of 63.8%. Patients were lately hospitalized after breast cancer diagnosis from 1 to ≤ 4 weeks (57.5%). Nulliparous women were 2.4 times at risk of breast cancer compared with those were multiparous.

**Keyword.** Breast cancer, risk factors, knowledge
Drinking and Driving in Vietnam: an Overview of Perception, Risks, and Cost-Effectiveness Interventions

Nguyen Minh Tam*,1,2,4, Michael P Dunne2, Peter S Hill3, Ross McD Young4

1Hue College of Medicine and Pharmacy, Hue University, Vietnam
2School of Public Health, Queensland University of Technology, Australia
3School of Population Health, The University of Queensland, Australia
4Institute of Health and Biomedical Innovation, Queensland University of Technology, Australia

Correspondence: vovanthang147@hotmail.com

Background Rapidly increasing motorization and an expanding alcohol industry in Vietnam have placed road traffic injury among the leading causes of death. The current paper reviews the problem of drinking and driving in Vietnam in terms of perception toward drink-driving, risk of driving after drinking and cost-effective interventions to reduce the burden of drink-driving in Vietnam.

Methods Available data, including studies of authors, on drinking and driving in Vietnam are put under the review.

Results A high prevalence of respondents reported drinking more than once a week in the past year and driving after drinking 3 drinks or more, more than once a week. A major of male patrons had a BAC over the legal limit when exiting the restaurants. Most respondents over-estimated the number of drinks they could consume in one hour and still drive safely and legally, and most had never planned to avoid driving after drinking. Most men denied any peer disapproval for drink-driving while generally perceiving the possibility of being caught or suffering a punishment for drink–driving to be very low. Among the sample of male traffic injury patients, 57.5% had a BAC over the legal limit of 0.08g/100ml. There was a very high proportion (45.6%) of male injured patient that had a BAC above 0.15g/100ml. The odd-ratio of traffic injury for patients who drank alcohol within 6 hours prior to injury was 8.5 (95% CI = 5.34 – 13.51) and this followed a clear dose-response relationship. Increase tax is the most cost-effective interventions to reduce the burden of drink-driving in Vietnam. Random breath testing is cost-ineffective due to high cost and low effect. However, this intervention should be encouraged due to the strength of evidence, the acceptance of stakeholders and the positive effects to the society.

Conclusion In spite of the shortcomings of research on drinking and driving in Vietnam, this review provide policy makers with clear evidence on size of the problem and suggest the solutions to curtail drink-driving in Vietnam.
Clinical Symptoms and Causes of the Lower Reproductive Tract Infection Among Female Workers in Ba Ria Rubber Company

Nguyen Quang Minh, *Vo Van Thang

*Public Health Faculty, Hue College of Medicine and Pharmacy

Correspondence: vovanthang147@gmail.com

A study to define causes of lower reproductive tract infections and remark some specific clinical symptoms of lower reproductive tract infections among ever-married female workers of Vung Tau Ba Ria rubber farming were selected randomly, using cross sectional study design, was done by clinical diagnosis and tests. The findings showed that RTIs prevalence was 43.1%. RTIs were caused by *Candida albicans* (25.23%), *Trichomonas vaginalis* (1.83%), *Gardnerella Vaginalis* (15.14%) and bacteria (57.80%). Clinical symptoms were characterised by vaginal discharge (46.8%), vaginialis itchiness 15.2%, burning pain of vulva 3.2% and pain during urination 2.0%. Characteristics of vaginal discharge were white, no smell 38.7%, green with bad smell 0.8%, with blood 2.2%, white, lumpy 29.2%, yellow 22.7% and white with fishy smell 6.5%.

**Keywords.** Reproductive tract infections (RTIs), discharge
A Study of Causes of Death in Central and Highland Provinces of Vietnam

Nguyen Thi Huong, Vo Van Thang, Hoang Thi Lien

Public Health Faculty, Hue College of Medicine and Pharmacy

Correspondence: vovanthang147@gmail.com

Mortality data are considered to be essential for developing evidence-based health policy and health management. However, information on causes of death in Vietnam is mainly collected from hospitals. Therefore, studies on mortality patterns in communities are needed to fully describe the causes of death in this country. The current study applied a cross-sectional design and used VA as a tool to interview 769 cases of deaths in 14 central provinces of Vietnam. Results showed that main causes of death in Vietnam included cardiovascular diseases (23.5%), cancers (17.9%) and injuries (12.6%). Among cardiovascular diseases, major causes of death were cerebral vascular accident (48.6%), stroke (13.8%) and hypertension (10.5%). Liver, gastric and lung cancer were the leading causes of deaths due to cancers, which accounted for 29.7%, 16.7% and 9.4%, respectively, of the total deaths of all types of cancers. Drowning and accidents were the most common causes of death by injuries (21.6% and 48.5% respectively).

Keywords. Mortality, cancer, accident, injury
The Situation of Childhood Injury and Risk Factors in 14 Central and Highland Provinces of Vietnam

Nguyen Thi Thanh Nhan and Vo Van Thang

Hue College of Medicine Pharmacy

Correspondence: thanhnhan2904@yahoo.com

Objectives To describe the status of childhood injury in 14 provinces in the central and Highland regions of Vietnam and to identify related factors of childhood injury.

Methodology A cross-sectional study was conducted in 14 provinces by reviewing the injuries collected from the data of National Statistic Agency. Other related information was collected via interview using questionnaires.

Results 259 cases of childhood injuries were reviewed in the year 2010. The most likely affected age group was 11-14 years old (44.5%). The rate of childhood injuries was found to be higher in boys rather than in girls, in urban than in rural area. The place of injuries was mainly on the way to school (56.4%). Leading causes of injuries were transport accidents (41.5%), falling (34.1%). Participants had relatively good awareness of transport accident while less attention was paid to falling, animal bite, drowning and toxicosis. There were significant associations between age of child, parental occupation, babysitters’ awareness of injury and the prevalence of childhood injury.

Conclusions It is recommended to improve people’s awareness of childhood injury, especially for babysitters. Transport regulations should also be popularized at school.

Keywords. Accident injury, prevalence, risk factors, preventive practice, coastal areas
Nutritional Status of Three to Five Years-Old Children in Some Kindergartens in Hue City

Nguyen Thi Thanh Nhan and Vo Van Thang

Hue college of Medicine and Pharmacy, Vietnam

Correspondence: thanhnhan2904@yahoo.com

Introduction Malnutrition has been considered a double burden including underweight and overweight-obesity. It is estimated that about 350 millions and 22 millions of under five year-old children are underweight and overweight, respectively. Childhood with underweight or overweight-obesity both result in various health problems afterward. Objectives To describe the nutritional status of three to five year old children in some kindergartens in Hue city and to identify the related factors of the nutritional status in these individuals.

Methodology A descriptive cross-sectional study was conducted among 1651 children and their parents using questionnaires.

Results The prevalence of wasting malnutrition was 9.6%, stunting malnutrition was 10.9%, underweight malnutrition was 5.9%; combined malnutrition was 0.7% and obesity was 12.4%. All the underweight children were in grade 1 and 2, none of them was in grade 3. There was a significant correlation between knowledge and practice of caring and feeding of mother and children’s nutritional status (p<0.05). A difference in the rate of malnutrition between the groups of children in terms of time of breastfeeding and supplementary food supply was found. There was also a significant correlation between parental awareness of malnutrition and children nutritional status (p<0.05). Conclusion Children nutritional status was affected by multifactor, including weight at birth, hereditary factor, feeding and recent morbidities.

Keywords. KAP, malnutrition, obesity, children
Study on Anemia and Worm Exposure in Pregnant Women in the Central Highland, Vietnam

Nguyễn Văn Hòa (1), Trần Đình Bình (2), Cao Ngọc Thành (3), Mạc Văn Thắng (4)

Hue College of Medicine and Pharmacy
Gia Lai Maternal and child health care and protection

Correspondence: vovanthang147@gmail.com

Anemia is a public health concern in developing countries, especially among vulnerable populations. The prevalence of anemia among pregnant women in the rural communes of Vietnam is largely unknown.

Objective To evaluate anemia situation and the status of infection by intestinal parasites, this hopefully will provide a practical evidence for having early effective intervention on these issues.

Subjects and methods A cross-sectional design was used. The study applied an administered questionnaire and a laboratory analysis of hemoglobin for data collection. The sample included 416 pregnant women in their first trimester (three months) of 16 districts in Gia Lai province in the Central Highland, Vietnam. Examination of blood, quantitative Hemoglobin, test intestinal parasites.

Results Of the 416 pregnant women, 72.4% were anemic and 23.6% had common worm infection. The prevalence of worm infection was higher in some districts such as in Ia Grai (61.5%), Krong Pa (57.7%), Mang Yang (57.7%) and Phu Thien (46.2%). There were two districts with worm infection prevalence of 0%. Most of such infections were caused by hookworm and roundworm. The prevalence of anemia was much higher in some districts, for example, over 90% in Ia Grai, KBang and Ayun Pa, where the majority of populations belonged to ethnic groups. Chu Pah district was the one with lowest prevalence of anemia (34.6%). Prevalence of anemia was higher among people with worm infections than among those with non-infected worms (82.7% vs. 69.2%).

Conclusion The prevalence of worm infection was 23.6%, and anemia was 72.4%. Prevalence of anemia was higher among people with worm infections than among those without infected worms (82.7% vs. 69.2%).

Keywords. Anemia, hookworm, women, pregnant, ethnic, central highland.
A Study on Causes of Injuries and First Aids at Four Central Highland and Provinces of Vietnam

Tran Thi Thanh Nhan and Nguyen Van Tap

Faculty of Public health Hue college of Medicine and Pharmacy

Correspondence: vovanthang147@gmail.com

Background Injuries are among the leading causes of death in hospitals in Vietnam. There are approximately 30 deaths and 70 wounded happening everyday that cause lifelong disability in this country. With an aim to enhance the prevention of injuries and improve first aid to victims of injuries, the objectives of this study were to: (1) examine possible causes and related factors of injuries among people living at 4 central highland provinces of Vietnam; (2) investigate the situation of first aid of victims of injuries in these areas. Subjects: people living in 4 provinces of Dak Lak, Dak Nong, Gia Lai and Kon Tum (from 01/11/2009 to 11/01/2010).

Methods A cross-section design was applied. A random sample of 12,447 individuals was interviewed using a structured questionnaire. Data analysis was performed using Excel 2007 and SPSS version 11.5

Results 1.60% of the sample had injury accidents (male: 74.37%, female: 25.63%). Of whom, traffic accident constituted of 56.28%; falling down: 23.12%; falling materials/objects: 6.03%; attacked by animals/ bitten by insects: 5.53%; sharp objects: 5.53%; fighting/assault: 2.51%; burns: 1.01%. There were 37.69% of the victims received first aids at the places occurring accidents. Examples of first aids included bandages (45.61%); prevention of bleeding (3.33%), osteoarticular fixation (10.53%); Artificial respiration (3.51%); referring to medical facilities (72.36%).

Keywords. Injury, first aid, medical facilities.
Associations Between Perceived Risks and Self-Reported Driving After Drinking Among Males Students in Hue University

Tran Binh Thang, Dang Nhu Thanh, Hoang Duc Thuan Anh, Nguyen Dinh Luong, Nguyen Minh Tam

Hue College of Medicine and Pharmacy, Hue University, Vietnam

Correspondence: vovanthang147@gmail.com

Background Traffic injury is among the leading causes of death in Vietnam and alcohol use is likely to be an important contributing factor. However, there is little local research into the socio-cultural contexts of drink-driving. The current study aims to explore the associations between perceived risks and self-reported driving after drinking among male students in Hue University.

Methods Male students (n=353) in Hue College of Medicine and Pharmacy were selected through a stratified sampling method. Participants were asked to complete a self-administered questionnaire, which included questions about drink-driving behaviour in the past year and perceptions towards drink – driving of the students.

Results A high prevalence of respondents reported driving after drinking (62.5%) while 44.3% reported riding with a drunk driver in the past year. Driving under influence of alcohol (DUI) was associated with perceived physical risk (being injured in a crash [OR=0.52, 95% CI = 0.30 - 0.89] and injuring someone else [OR =1.95, 95% CI = 1.11 – 1.41]), perceived peers disapproval of DUI (OR = 1.93, 95% CI = 1.31 – 2.97), perceived parents disapproval of DUI (OR = 0.65, 95% CI = 0.48 – 0.88), perceived DUI by peers (OR = 1.58, 95%CI = 1.12 – 2.24).

Conclusions This study reveals a high prevalence of driving after drinking and riding with drunk driver among male students. The findings suggest an urgent need for programs to raise awareness of the community in general and young people in particular.
Factors Influencing Lower Reproductive Tract Infections Among Female Workers of Ba Ria Rubber Company

Vo Van Thang and *Nguyen Quang Minh

Public Health Faculty, Hue College of Medicine and Pharmacy
*Health center of Vietnam rubber company

Correspondence: vovanthang147@gmail.com

A study to define the prevalence and factors related to lower reproductive tract infections among female workers of Ba Ria rubber company, using design of cross-sectional study from June 2009 to May 2010, a total number of 506 female workers of Ba Ria rubber company had been chosen to be interviewed, examined and tested for diagnosing of lower reproductive tract infections and related factors. Results showed that the prevalence of lower reproductive tract infections (RTIs) was 43.1%, in which Candida albicans, Trichomonas, Gardneralla and bacteria were 25.23%, 1.83%, 15.14% and 57.80%, respectively. Some related factors were work place, job, economical situation, water supply, history of abortion, contraceptive methods, bathroom and working environmental condition at work place.

Keywords. Reproductive tract infections (RTIs), working environmental condition.
An Epidemiological Study of UXO and Landmine Accidents in Quang Tri Province, Vietnam

Tran Kim Phung ¹ and Vo Van Thang ²

¹ Quang Tri Provincial Health Department
² Hue College of Medicine Pharmacy

Correspondence: vovanthang147@gmail.com

Objectives define the actual situation of the landmine/UXO victims in Quang Tri Province since the end of War (1975 to 2009) and analyse factors that related to landmine/UXO accidents.

Methodology The cross-sectional descriptive research was conducted in nine districts and towns of Quang Tri Province on UXO accidents victims and KAPB of victims or members of victim family

Result Since the war ended (over the period 1975-2009), there have been 7,030 accident victims, comprising 1.12% of the provincial population, including 2,620 deaths and 4,410 injuries. Proportions of Fatal victims 37.34%. People living in mountainous areas, ethnic minority groups, the poor have had a higher landmine/UXO accident rate. Landmine/UXO victims come from all age groups, but the vast majority are children, teenagers and middle-aged adults. Most victims are farmers (52%), and students (31%). Activities led to landmine/UXO incidents: farming (38.6%); collecting scrap metal (11.2%); herding cattle (8.3%) and tampering with landmine/UXO devices (6.3%).

Conclusions Till this day the people of Quang Tri province have suffered heavily due to the legacy of mines and UXO left by the Anti-American war. The study confirms that one percent of the population has been involved in mine and UXO accidents, unexploded cluster munitions representing the main problem. Mine and UXO injuries are severe with higher mortality than other types of trauma. The problem mainly affects low-income households in remote rural areas. Mine Risk Education programs should take the epidemiological findings into account when future campaigns are designed in order to target high-risk areas and activities.

Keywords. Landmine victims, Unexploded Ordnance (UXO), Contamination, Knowledge, Attitudes, Practices, and Belief (KAPB)

Dang Thi Anh Thu and Vo Van Thang

Hue College of Medicine Pharmacy

Correspondence: vovanthang147@gmail.com

Objectives To describe the actual situation of injuries in coastal provinces of the central of Vietnam in 2010, evaluate the preventive practices of common accident injuries and analyze several risk factors that related to these injuries.

Methodology The cross-sectional descriptive research was conducted in nine coastal provinces of the central of Vietnam in 2010. A systematic random sample of 7900 households, based on the list provided by Vietnamese General Department of Statistics, was used to recruit participants for the study. A total of 29,826 people were interviewed with a structured questionnaire.

Result In 2010, there were 459 accident victims, comprising 1.54% of the study population, including 4 deaths and 455 injuries. Accident victims come from all age groups, but the vast majority was people at the working age (15-65 years old, 77.4%). Male, people living in urban areas, the Kinh, people educated at primary and secondary school level, and married people had higher accident rates. Most victims were workers in agriculture, forestry and fishery (29.2%) and students (19.0%). Regarding preventive practices of common accident injuries, in general, people of the study population had good practices for preventing electric accident, burned accident and sharpen and pointed item-caused accidents. Preventive practices for traffic accident were considered as moderate. And the people had poor preventive practices for falling, animal biting, drowning, poisoning and asphyxiation. There were significant associations between accident injuries and age, gender, education level, marital status, occupation, and preventive practices for falling.

Conclusions Although accident injuries have recently received more concern in Vietnam at many levels, the study results found no improvement in the accident injuries rate in the study population (compared to the national rate of 1.22% in 2008). Further studies on causality and risk factors of accident injuries should be made and different population interventions need to be carried out to reduce the rate and the severity of accident injuries in Vietnam.

Keywords. Injury, prevalence, risk factors, preventive practice, coastal areas
Causes of Childhood Injury and First Aid Activities in 14 Central and Highland Provinces of Vietnam in 2010

Nguyen Thi Thanh Nhan and Vo Van Thang

Hue College of Medicine Pharmacy
Correspondence: vovanthang147@gmail.com

Objectives to describe the patterns and causes of childhood injury in 14 provinces of the central and Highland region of Vietnam and to study the first aid activities in these areas.

Methodology two hundred fifty eight accidents, collected from the National Statistic Agency, were reviewed in a cross sectional study using questionnaires.

Result Traffic accident, falling and bite were the most common causes of accident injuries in the study areas (43.0%, 27.8% và 13.9%). Other less common causes were electric shoke, drowning, and exposure to explosion. Most of the accidents caused mild lesions (58%) and 98% of them were non intentional. Popular injuries were bone fracture (29.4%), soft tissue lesions (31.2%). Common places of injuries were: on the way to school (65.3%), at home and at school. 46% of the children received first aid. First aid were done by parents, babysitters (57%), passengers (26%) and health care providers (16%). First aid activities included bandage (45%), external fixation (32%) and airway cleaning (9.8%).

Conclusion Transport accident was the leading cause of childhood injuries. The rate of first aid was relatively low. First-aid was done mostly by parents and passengers.

Keywords. Accident injury, causes, first-aid activities, central and highland province, children.
The Role and Participation of the Local Government Administrators and the Members of the Executive Council for the Implementation of the Alcohol Consumption and Control Act B.E. 2551: A case Study of the Northeast Region of Thailand

Terdsak Promarak

Faculty of Public Health, Mahasarakham University, Thailand

Correspondence: songkramchai@gmail.com

This study aimed to study the role and participation of the Local Government Administrators and the members of the Executive Council for the implementation of the Alcoholic Beverage Control Act B.E. 2551 in the Northeast region of Thailand. The sample size of the population was selected in the Northeast, as 406 people such as Surin province were 125, Buriram province were 77, Roi Et province were 141, and Chaiyaphum of 163 people at the school during November 2009 to March 2010. An interviewing technique was approached to data collecting. The statistics both descriptive and inferential were applying as frequency, mean average, maximum, minimum and standard deviation.

The results showed that the administrators and Executives and Tambon Council members were including the males 74.4%, age average as 43 years, graduated high school 56 percent majority status, with 97.6 percent and occupants in agriculture by 56.8%. They have had their experience with alcohol control between 1-7 years as around 53.9% with income average between 10,000 to 15,000 baht per month with 63.8 percent. They were mainly awareness, get information, and understand an enforcement of the Alcohol Consumption and Control Act B.E. 2551, as 96.8 percent and 88.8 percent. They have been to drink as 60.9% which they have to take in the party and local festival as around 77 percent. They had participated in the campaign to reduce and alcohol control as 96.8 percent.

The role and participation of their in the implementation of the Alcohol Consumption and Control Act BE 2551, had activities in more moderate 58.4 percent for participants that are involved in the most and moderate and 92.3 percent. This study indicate that when we are assessing the problem and the effects of drinking alcohol. It found that Administrators and members of the Tambon Administrative Organization are very high level of risk to be alcoholic people as 68.8 percent of those who drinking alcohol.
The Effectiveness of Future Search Conference Technique on Health Behavior Development of Health Promotion Members-Club in Kumpawapi District, Udon Thani Province.

Surasak Thiabriti and Anek Nuanchaidee

Faculty of Public Health, Mahasarakham University, Thailand

Correspondence: songkramchai@gmail.com

The Quasi-experimental study was to study the effectiveness of the Future Search Conference (F.S.C) technique on Health Promotion Behaviour development of members of Kumpawapi Health Promotion Club, Udon Thani Province. The experimental group comprised 40 members of Chaing-wae Sub-district Health Promotion Club and 40 representatives from of Chae-lae Sub-district Health Promotion Club were included in a comparison group. Only the experimental group participated in three days learning program by used the F.S.C technique which emphasized group learning through 13th activities. The questionnaires were used to collected data 1 week before and 8 weeks after the experimentation. The results of study showed that the F.S.C could significantly enhance health behavior including knowledge, attitude, and practice in food consumption, exercise, stress management, housing and community environment care, helmet use and safety belt use, smoking, alcohol consumption and prevent and control diarrhea of the experimental group. The experiment group practices regarding health behavior also significantly better than before the experiment and better than the comparison group (p<.05).

Keywords. Future Search Conference (F.S.C), Health Behavior, Health Promotion Club.
The Preliminary Study on Hazardous Identification and Health Risk Factors for Workers in Incense and Joss Stick Household factories

Sangchom Siripanich¹,²*, Pannapa Mhaupueng², and Wattasit Siriwong¹,³

¹ College of Public Health Science, Chulalongkorn University, Bangkok, Thailand
² Bureau of Epidemiology, MoPH. Thailand
³ Thai Fogarty ITREOH Center, Chulalongkorn University, Bangkok, Thailand

*Correspondence: sangchom@gmail.com

Introduction The economic crisis in Thailand in the past decade years resulting small and medium scale enterprises (SMEs) has been increasing to support in the community. Incense and joss stick is one of the significant product that raising revenue in the village. The main components of incense products such as powder incense, sawdust, color and aromatic substance may be cause of health effect on the respiratory system.

Objectives The aims of the study was to describe the incense production and hazards identification and preliminary assessment for health factors of incense and joss stick workers in household factories.

Methods The study was a basic survey by using walkthroughs survey form. The purposive areas study was in a village, Dong Dang at Roi-Et province. The purposive selected were nine household factories. The study was conducted from October to December 2010.

Results Of nine factories, each factory had the number of workers was around 5-9 workers, most of them were males with forty one workers (80%) and ten females(20%). There were four workplaces which were operated in house and five factories were separated nearby their house. The manual incense and joss stick-making process consists of the six steps such as (1) preparation of bamboo stick, (2) Mixing incense powders, (3) immerse a bundle of bamboo stick in water, rolling and shaking, (4) dipping colored, (5) drying, and (6) spraying and packing. Most of male workers worked in almost steps except packing step that was done by female workers. The walkthroughs survey identified that dust was the majority of hazards and the workers had exposed to wood dust during incense making. In same time of making process, they might expose to heavy metals (i.e. lead) and other several volatile substances form color and fragrance in which it may affect to respiratory system and skin disorder. In addition, more than 90 percent, the workers did not wear any personal protection equipment and also worked in unsafe conditions.

Conclusion The result of this study had demonstrated the incense production processes and identified threats that may affect to health in longer term of exposure such as respiratory and skin effects. This study suggests that the occupational health among incenses and joss stick makers should be awareness and protected. And further study should focus on health risk assessment among incense workers.

Keywords. Hazardous, incense and joss stick, household factories
Health Risk Assessments of Carbonyl Compounds Exposures and Their Associations with Health Effects among Gasoline Station Workers in Bangkok Metropolitan, Thailand

Tanasorn Tunsaringkarn¹, Daisy Morknoy², Wattasit Siriwong¹, Anusorn Runngsiyothin¹ and Sucot Nopparatbundit³

¹College of Public Health Sciences, Chulalongkorn University, Bangkok 10330, Thailand
²Environmental Research and Training Center, Ministry of Natural Resources and Environment, Technopolis Tombol Klong 5, Amphoe Klong Luang, Pathumthani 12120, Thailand
³Master of Public Health Program in Public Health, College of Public Health Sciences, Chulalongkorn University, Bangkok 10330, Thailand

Correspondence: tkalayan@chula.ac.th

The carbonyl compounds exposures were evaluated in twenty gasoline station workers of ten gasoline stations in inner and outer areas of Bangkok, Thailand from February to March 2011. The average worker exposures of formaldehyde, acetaldehyde, propionaldehyde, butyraldehyde, benzaldehyde and valeraldehyde were 14.78, 7.07, 1.36, 1.77, 0.46 and 0.46 µg/m³ which were not different from their concentrations at roadsides in front of gasoline stations. In addition, they were not significant different concentrations between exposures in gasoline stations of inner and outer areas. The average lifetime cancer risk of worker exposures to formaldehyde and acetaldehyde were determined as the values of 1.85E-06 and 4.15E-07, respectively, which were in acceptable criteria defined as 1.00E-06. For non-cancer risk of health effects, the hazard quotients (HQs) of the worker exposures to formaldehyde, acetaldehyde, propionaldehyde, butyraldehyde, benzaldehyde and valeraldehyde were found at the ratio of 0.62, 0.37, 0.16, 0.10, 0.12 and 0.57, respectively. As of these results, the hazard index (HI) was more than 1 indicated that total of carbonyl compounds may effect to increase risks of other health effects. Most of symptoms prevalence were headache, fatigue and throat irritation at 58.9%, 25.0% and 12.5% respectively. There were not associated between carbonyl compounds and all of symptoms in this study. In conclusion, mean concentrations of major sources of carbonyl compounds, including formaldehyde and acetaldehyde, are not cancer risk for gasoline station workers but they may have some other health effects. The carbonyl compounds exposures were not associated with all symptoms of worker complaint.

Keywords. Carbonyl compounds, health risk assessment, gasoline station
Healthy Market Development in Chiang Yuen Sub-district Municipality, Mahasarakham Province

Lucksaneeya Uparisarn and Warangkana Sangsitthisawad

Department of Environmental Health Science, Faculty of Public Health, Khon Kaen University, Kingdom of Thailand

Correspondence: lucksaneeya_nurse@hotmail.com

This is the quasi-experimental research aimed to study condition of environmental sanitation, food safety, customer protection, knowledge and attitude of vendors, and problems and obstacles of market development at the first municipal market of Chiang Yuen Sub-district. The population used in this study consisted of 80 vendors at the first municipal market of Chiang Yuen Sub-district. There were 18 types of the food sample used in the study. The instruments used for collecting the data were the questionnaires on attitude of the vendors toward developing the market to be a healthy market, the assessment forms on healthy market development and elevation on the aspects of environmental sanitation, food safety, and customer protection following to the Department of Health, and the safety test kits for six kinds of food. The statistics used for analyzing the data were frequency, percentage, mean, standard deviation and paired t-test. The findings revealed that condition of environmental sanitation of the first municipal market of Chiang Yuen Sub-district passed the determined criteria at very good level totally 38 items. For food safety and customer protection, it was found that these two aspects passed the determined criteria every item. It could be concluded that the municipal administrators should set the clear policies and operate according to the policies continuously to develop and raise level of the market to be the healthy market. The administrators should set operational strategies and receive opinions from vendors and consumers continuously. Moreover, they should evaluate development and elevation of the healthy market every three months to encourage the vendors to develop the healthy market sustainably.
Willingness to Pay for Cleaning Up Road Dust in Vientiane

Phouphet KYOPILAVONG\textsuperscript{1} and Jeff BENNETT\textsuperscript{2}

\textsuperscript{1}Department of Economics, Faculty of Economics and Business Management, National University of Laos

\textsuperscript{2}Crawford School of Economics and Government, Australian National University

And Environmental Economics Research Hub

Correspondent E-mail: Phouphet20007@hotmail.com

This paper sets out to estimate residents’ Willingness to Pay (WTP) for cleaning up road dust in urban areas of Vientiane, Laos. The analysis relies on the Contingent Valuation Method (CVM) and seeks to identify the factors affecting WTP. Based on a sample of 6,590 respondents, the results show a mean WTP of 7069 kip (USD0.86) per person per month. This amounts to 4.7\% of residents’ average monthly income. Education and income have a statistically positive impact on WTP. Conversely, the number of children in family has a statistically negative impact on WTP. These results offer information to policy makers dealing with the dust problem on urban roads in Vientiane.

\textit{Keywords}: Road dust, contingent valuation method (CVM), willingness to pay, Vientiane.
Students’ Health Promotion Life style in Faculty of Public Health, Khon Kaen University and Sirhinhorn Public Health College, Khon Kaen Province, Thailand

Chulaporn Sota¹, Pannee Banchornhathakit¹, and Boonraum kaeboonreung²

¹Faculty of Public Health Khon Kaen University, Thailand.
²Sirhinhorn Public Health College, Khon Kaen Province, Thailand

Correspondence: chusot@kku.ac.th

This descriptive research aimed to study health promotion life style of students from Faculty of public health, Khon Kaen University and Sirhinhorn Public Health College, Khon Kaen Province, Thailand. The samples 863 students were recruited. The data were collected by questionnaires for quantitative data on the other hand using in-depth interview and focus group discussion in addition to observation for qualitative data. The data were analyzed by SPSS program. The statistics were analyzed descriptive data such as percentage, distribution, arithmetic mean and standard deviation meanwhile using content analysis for qualitative data.

The result showed that:
1. The subjects had mean score of predisposing such as knowledge and attitude toward health promotion including practice on health promotion in high level score.
2. Both institutes have been available enabling and reinforcing factors for health promotion lifestyle among students in both institutes and communities.
3. Both institutes have conducted health promotion implementation by providing health promotion media and integrate in learning process as well as various activities such as exhibition, meeting, projects, research and interesting intervention for health promotion both inside and outside.

Keywords. Health Promotion Lifestyle, Students, Public Health.
The Effect of Self Health Promotive Care Program For Diabetic Patients Type 2 In Phen Hospital Udonthani Province

Paricha Nippanon¹, Nikom Thanomsieng ², Jutarat Lomoon ³

¹ Department of Health Education, Faculty of Public Health, Khon Kaen University, Thailand.
² Department of Biostatistics and Demography, Faculty of Public Health, Khon Kaen University, Thailand.
³ Phen Hospital, Udonthani Province, Thailand.

Correspondence: nipnoi@kku.ac.th

Diabetes is a common chronic disease worldwide. Its long term complications both microvascular and macrovascular lead to increased medical expenses, hospitalization and death in diabetic patients.

The main objective of this quasi–experimental research was to study the effects of self health promotive care program for diabetic patients type 2 in Phen hospital Udonthani province. The samples were 36 diabetic patients type 2, 18 were in the experimental group and 18 were in the control group. The self – efficacy theory and group process were applied to develop a conceptual framework for experimental group. The data were collected by questionnaires and the self care records. The data were analyzed by descriptive statistics: frequency distribution, percentage, mean, standard deviation and inferential statistics: paired t-test, independent t-test at 0.05 level of significance. The results revealed as follows:- after the study the experimental group gained significantly higher mean scores on attitude about diabetes mellitus, perceived self – efficacy of self care body weight control, appointment for treatment, perceived outcome expectation of self care body weight control, appointment for treatment, practices of self care body weight control, appointment for treatment than before intervention and more than control group (p-value < 0.01) After implementation program, the mean body mass index was reduce but not significantly.

The recommendation of this study, it is necessary to the member of family take to reinforcing for self care diabetic patients; i.e supporting in body weight control, exercise body, food consumption and making and appointment for treatment.

Keyword. Self Health Promotive Care, Diabetic Patient