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ORAL PRESENTATION

1. Health System Reform to Address Health Inequity

OP1-1
MICROFINANCE PROGRAM CONTRIBUTES TO REDUCING HEALTH INEQUITIES; A LOOK AT TMSS IN BANGLADESH

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The Beginning of the Microfinance Program

In the early 1980s, TMSS started it social amplification program from the village of Thengamara in the Bogra district in Bangladesh. TMSS kept the family as a central focus of its actions, using microcredit programs to gain access to them. These microcredit programs were particularly helpful in gaining access to women who were often the anchors of the families but were deprived of decision-making responsibilities due to lack of financial contribution to the family. Recognizing their own helplessness, some women in Thengamara began saving a portion of their own rice as start-up fund. Overtime, TMSS evolved from just an association in a small village to a robust national-level social development organization, from a few penniless women to an employer of thousands of women.

Integrating Health

During its growth, TMSS learned of the crucial need for education and better health for women and children, who are the center of the family and the hub for all types of social fruition. In 1990, TMSS started its integrated approach of providing health care to microcredit borrowers and their family members, alongside the microcredit transaction. A typical TMSS microfinance program consists of a group of 30 to 40 women from a particular village. The group meets on a weekly basis to carry out their business, such as borrowing money, repaying loans, participating in deposit schemes, etc. Starting in 1990, TMSS trained health workers and a female paramedic would join the group during their weekly meeting. In addition to attending the meetings, the health workers also visit door-to-door to share information and advertise health information sessions. The health workers conduct these health information sessions, with the assistance of lesson plans and visual aids, to improve the awareness level of the women on primary health care, hygiene, maternal and child health, nutrition, family planning and reproductive health, and the prevention of HIV/AIDS. Once the discussion session is over, the female paramedic begins seeing patients, while microfinance transactions continue to occur. The paramedic’s patients consist mostly of pregnant women coming for ante natal check-ups or children coming for treatment for the common cold and other minor ailment. The paramedic also provides post-natal care and other health care services. There is no fee for services at this point; however, if necessary, the paramedic will refer patients to an actual TMSS health facility. TMSS’s health sector activities closely link with Bangladesh’s government’s plan for achieving health MDGs and reducing health inequities. TMSS refers patients to the appropriate facilities for TB, malaria and HIV/AIDS, while also educating its beneficiaries on prevention.

TMSS has successfully used its microfinance program as an umbrella for its entire social development arena, with a priority placed on maternal health. This is particularly useful, as the application of the microfinance model of shared decision-making to reducing health inequities and communities a greater sense of ownership over their own health and lives.
OP1-2
FAMILY DOCTER,STRATEGIC AND OPERATIONAL HEALTH SERVICES MANAGEMENT MODEL, A REVOLUTION ON PRIMARY HEALTH CARE, IN INDONESIA

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The last health service run for employee (550 families) in company (PLN Malang), own such characteristics it was: individual, curative, fragmented, high cost, non empowerment and tent to exploit. Create more better personal and holistic health service performance, research have been done using the new approach of “Jack. R’s family doctor health service strategic management model” (5 dimension and 10 basic family health services activities and it costing). Data of 5786 ambulatory cases (1987,1988,1999), family doctor activities, hospitalized cases and its cost, was applied as the basis data of research, using qualitative research method with quasi experimental case study design (Robert K Yin).

Result indicates positive outcomes of health service’s indicators and conclusions state that: the Jack’s.R model (more promotive, holistic, advocative, rational intervention, continue), could be applied as an ideal family doctors health service with quality. The idea of the “new proposition” of health cost components equilibrium, as a new health service performance indicator, is discussed. Implication of research study would interfere stakeholders concern to:

• The curriculum material of medical education, the training of family doctor needs strategic and practical competencies. (bottom up approach)
• This health service of family doctor strategic management model (Jack.R) should be adopted in the National and Local Health System, aimed at establishing the fixed family doctor health services networking based on quality and equity, which it would brings to the effective and efficiency of health budgeting and improving the health service quality, equity, and labor intensive, concern to universal coverage 2014 & MDGs, 2015. (pro: growth, job, poor).

• The real discription of Family doctor (FD) Clinic in Indonesia National Health System (NHS), should be: The first strata health service for individual organization, which should functionally conduct the whole basic family doctor health services, using integrative, comprehensive and quality strategic and operational management approach, to the concern objects.
• FD Clinic Vission, would: Be the first contact for healthy life, Mission: increase health status and empowering healthy life (motto: Healthy Life With Family Doctor Team).

KEY WORDS: Individual strata I health service/family doctor, strategic and operational management, quality based, equity, basic family doctor health services, more promotive/preventive, the role of GP practices in NHS.

OP1-3
A MODEL OF HEALTH IMPACT ASSESSMENT FOR THE SUB-DISTRICT MUNICIPALITIES: A CASE STUDY OF THE SONGKHLA LAKE BASIN

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Background: In Thailand Health Impact Assessment [HIA] has currently legislated two laws: the Constitution of the Kingdom of Thailand B.E. 2550 (2007) and the National Health Act B.E. 2550 (2007). Both laws are important for Local authority to use the HIA as a tool for building a healthy public policy well being.

Method: The objective of this study was to develop a health impact assessment model for
the sub-district Municipalities in the Songkhla Lake Basin. This research and development consists of 4 phases, as follows.

The first phase was pre specified model development, where the objective was to explore the HIA model. The second phase was the specified model development, and the and the third phase was model development, the objective were to improve and modify the model of the HIA by specialists. The last phase was public review, and here the objective was to propose and improve the appropriate model for the Sub-District Municipality. The study areas were comprised of 21 sub-district municipalities in the Songkhla Lake Basin. The study data were collected using participatory observation, in-depth interview, and focus group discussion, all of which were finally analyzed using the content analysis method.

Results: The results of the first phase revealed that a possible model for the HIA for the Sub-district Municipality in Songkhla Lake Basin was as follows.

The first model was the model of the HIA for integrating the HIA process regarding policy or project development. The second model was the model of the HIA for the sub-district municipality, where there were significant health impacts or community conflicts or there were uncertain health impacts from project implementation. The third model was the community health impact assessment model [CHIA].

Conclusion: The results of this study will benefit the Sub-district Municipality in terms of applying or conducting the HIA for the benefit of public health policy and the public’s well being.

Keyword: Health Impact Assessment, HIA, Model of Health Impact Assessment, Sub-district Municipality

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**OP1-4**

**CATASTROPHIC HEALTH EXPENDITURES OF HOUSEHOLD IN SELECTED TOWNSHIPS OF LOWER MYANMAR**

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A descriptive study used secondary household survey data to measure the extent of household catastrophic health expenditures in both urban and rural areas of ten selected towns in Yangon Division of Lower Myanmar. Entirely out of pocket catastrophic health expenditures were found in 43% of households. The incidences of catastrophic health care payments was 9.4%, 5.6% and 4.2% and the intensities were 5.9%, 5.1% and 4.6%. Mean Positive Gaps (MPG) were extra ordinarily high and resulted in 62.8%, 92.5% and 112% above the 10%, 20% and 30% catastrophic threshold levels respectively. The concentration indices and rank-weighted versions were more concentrated among the poor households that pay more for health care. This study provides information for policy-makers about re-design of the national health financing system. It proposes that people be access permitted better to services when they needed, and also that households be better protected from financial catastrophe by reducing out-of-pocket spending.

Key Words: Catastrophic Health Expenditures, Health Care, Household, Lower Myanmar
Majority of urban population of developing countries resides in poor housing, water, and sanitation facilities, polluted environment, and under limited knowledge and access of health care services. This calls a need to examine health status of urban population, particularly of urban poor. While it is often assumed that urban residents are better off than their rural counterparts, the reality in many settings is that the urban poor are equally disadvantaged than rural population.

This study examines economic inequality in health and health care utilization between urban poor and non-poor in India. Urban poor is also compared with rural population.


Principle component analysis is used to define urban poor based on household economic proxies. Descriptive statistics and multivariate techniques are used to understand the influence of household poverty status on health and healthcare services in urban India. Poor/non-poor ratio, concentration index, concentration curve, and proportional decomposition are used to measure inequality.

Result shows stark differences between urban poor and non-poor in the dependent variables. Poverty status of household is significantly associated with health and health care use. Interestingly, healthcare utilization is better while health outcome is worse among urban poor than rural population. Services utilization is concentrated among urban non-poor while worse health outcome are concentrated among poor. Decomposition analysis shows that poverty reduction contributed more than 30 percent increase in dependent variable over the period.

In India existing programmes like National Rural Health Mission are designed to improve the reproductive and child health of rural area and excludes urban poor. Thus programmes are also needed to promote health status of urban poor along with rural population in India.
in such issues. Similarly the review covers the nature of health research focusing on the vulnerable and disadvantaged communities, specially the tribal communities. The role of public and private organizations, the autonomous organizations and NGOs in the health research is outlined. The paper aims at commenting on the one hand on effective and ethical research and also on the translation of the health research into products, policies and programmes at improving health.

OP1-7 
EXPLORING POPULATION HEALTH LITERACY: THE GOLD STANDARD MEASURES

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This presentation discusses various definitions of Health Literacy (HL) and the variation of HL measurement tools that have been developed over the past two decades. In an attempt to evaluate HL, the challenge is to find the best measurement tools that will enable exploration of the full set of domains that represent a health literate person. ‘The different definitions of HL imply different sets of abilities make up HL and so different measurement tools likewise do the same (Chisolm & Buchanan, 2007)’ meaning at present, there is no ‘gold standard’ for HL measurement (Parker, 2000). The earlier attempts to evaluate levels of HL have focused on patient information, using Test of Functional Health Literacy in Adults (TOFHLA), and Rapid Estimate of Adult Literacy in Medicine (REALM) which is used in public health and primary care settings. Both of these have been criticised as not adequately testing ‘health literacy’ because of these are limited to measures of the ability to read and correctly pronounce a list of words and so eliminate the elements of ‘oral communication, listening and writing skills or visual literacy (Entwistle & Williams, 2008; Smith et al., 2008), as well as not considering ageing, gender, language, cultural, contextual and setting factors (Rootman & Ronson, 2005; Baker, 2006; Scudder, 2006). On the other hand new measures of HL such as Health Activities Literacy Scales (HALS) (Baker, 2006) and the Newest Vital Sign (NVS) (Weiss et al., 2005) has been develop specifically for population studies, but these require further testing for validity and reliability in diverse population groups. Subsequently, the health literacy scale used in the Canadian survey was then used in the Australian 2006 Adult Literacy and Life Skills Survey (ALLS) (Australian Bureau of Statistics, 2006, 2008), as part of an International Adult Literacy and Life Skills Survey (IALS), which included the domains of literacy, document literacy, numeracy, problem-solving and health literacy as a sub-domain. However, this survey has been criticised because it only measures the abilities related to reading and interpreting written information rather than those relating to other aspects of health literacy (e.g. disease prevention) (Rootman & Gordon-El-Bihbety, 2008). These existing measures are also limited in the extent to which they focus on reading literacy, and are not necessarily a good guide to confidence in oral communication (Nutbeam, 2008). In searching for a ‘gold standard’ of measuring HL much work remains to be done. More recently, skill-based literacy has diversified further to account for rising complexity in knowledge based societies (Bush, et.al, 2010). A more comprehensive measure that explores individual HL in terms of a person’s ability to access, understand and use health information in ways that promote and maintain good health need to be develop and tested. This seems to be a real challenge for public health and social sciences researchers in Malaysia and rest of the world to finalise the best measures of HL.

Keywords : Health literacy, Health Promotion, Public Health
Objective: The objective of this study was to predict health promoting behaviors (HPB) among children. Based on the Pender Health Promotion Model, we posed the following question: does affective state (self-esteem, depression) serve as a mediator for social support (support from teachers and parents) and context (neighborhood safety) as predictors of HPB (healthy eating, physical activity)?

Methodology: The study involved a secondary analysis of longitudinal data collected using the Coordinated Community Student Survey in a sample of 1,444 4th-6th grade students recruited from schools in a mid-Western state (male=42%, Caucasian American=72%, African American=17%).

Findings: Results of the meditational model indicated that both neighborhood safety and social support had an indirect effect on HPB via affective state. Neighborhood safety and social support were both significant predictors of affective state ($p \leq .05$), and these variables did not significantly predict HPB directly. Affective state was a significant predictor of HPB ($p=.01$), and the Sobel test indicated that affective state was a significant mediator between neighborhood safety ($p \leq .001$) and social support ($p \leq .001$).

Conclusions: The results of this study suggest that efforts designed to instill HPB in school-age children must be based on public health models grounded in systems approaches rather than one-solution causal models. Whether individual children will be responsive to attempts to instill HPB will depend on the extent to which prevention efforts are capable of improving affective state (self-esteem and depression) so that children can be receptive to HPB messages. Nursing preventive-intervention approaches, therefore, should be multifaceted, focusing on enhancing self-esteem and reducing depression, while simultaneously working to build support systems that effectively enhance HPB in children. These results can inform health care providers, teachers, parents, and researchers interested in enhancing factors for promoting health behaviors for future interventions.

FROM DISABLING PSYCHE OF HEALTH PROFESSIONALS TO SOCIAL ADVOCACY

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Professor Stephen Hawking, in his forward to the World Health Organisation’s “World Report on Disability” acknowledges that he has been very lucky in many aspects of his life. Yet he recognises that disabled people face many barriers and claims, with some optimism, that “addressing these barriers is within our reach”.

And yet the experiences of many disabled people seem to be attributable more to luck or chance than to health care policies and their underpinning evidence base.

Whereas most would support research based measures to prevent the onset of serious impairments, a very common theme in the experience of disabled people world wide, is that they are not accepted, even by ‘their own’. Deeply ingrained attitudes of rejection, revulsion or fear; perhaps of what we all may become, leads many disabled people classified as ‘other’, ‘half-dead’ or ‘sub-human’.

Policy provides a road-map, research evidence provides a justification but the impact of each will be severely curtailed without also tackling the hearts and minds of citizens. And some citizens exert much more power and influence on the lives of disabled people than others. One such group consists
of the wide family of health professionals, doctors, physical therapists and nurses who play a key role in rehabilitation at certain points in the lives of people with acquired impairments. This impact is also exerted indirectly, but no less powerfully, by the messages they convey, the philosophy they espouse and the cultural, regional, and national tone they set. This amounts to a state whereby the attitudinal, physical and financial aspects of disability are hardly recognised as disabling barriers and as such will not be challenged.

This paper, drawing on a body of work undertaken over a long period of time and contributing to a doctorate in the area models of disability and their influence within healthcare, along with key literature, seeks to explore and challenge the image held in the collective psyche of health professionals.

Without such a fundamental re-examination of the collective psyche, health related research and areas selected for development may merely scratch the surface of the problem or even leave the root causes unscathed and intact making them part of the problem rather than part of the solution. As such this paper will take the largest health discipline, nursing, as a case study to illustrate the role of health professionals in the lives of disabled people.

It is argued that health professionals can and should assume a ‘social advocacy’ obligation in relation to disability and related inequalities.

The implications of this impinge on the curriculum for health related professionals and individual practitioners in a variety of ways.

The issues surrounding disability are by no means confined to health, nor are they primarily the legitimate concern of health professionals. However health professionals are in a unique and privileged position to impact the lives of disabled people at transitional times in their lives. This paper presents an argument that this impact should challenge disability inequalities rather than passively support discrimination.

OP1-10

ASSESSING THE JOINT APPLICATION OF PRECDE-PROCEED MODEL AND THEORY OF REASONED ACTION (TRA) ON PROMOTING SAFETY AND WORKPLACE RELATED BEHAVIORS

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According to the results of evaluation of many accidents occurred in industry nationwide, it may be found that about 85% to 95% of all incidents are due to unsafe practice in workplace. It is therefore beneficial to both employers and employees to focus on educational interventions in workplace as a practical approach to increase safety practices in an aim to prevent accidents and promote health-taking behaviors. This study aims to assess the effectiveness of applying an educational intervention that combined the concepts of Precede-Proceed Model and Theory of Action on safety behaviors among Textiles workers in Borujerd, Iran.

Methodology: This study is a quasi-experimental participatory study, which is conducted as pretest-post-test intervention in 2010. Totally, 85 workers of Borujerd Textiles Factories participated in this study and were assigned at random to four experimental groups. Questionnaires and behavior observation checklists were developed exclusively for this study via direct involvement of end-users (e.g., the workers) and knowledge-users (e.g., researchers and employers). The measurement tolls were applied in pretest and posttest, following the education interventions. The required substantial data for intervention planning were resulted based on findings due to conducting four first phases of preceed-proceed model. A combination concept of Precede-Proceed Model and Theory of Reasoned Action were utilized in planning
and implementing the interventions. The study data were collected through concept focus groups. The interventions included reviewing training/educational pamphlets at workplace as well as spousal education at home. One month and three months post intervention, the participant were asked to respond to similar survey to record any changes in participants’ knowledge and safety practices over tie.

Results: The mean of knowledge and safety practices were not statistically different in pretest among all four experimental groups. The mean scores on knowledge and safety practices showed significant improvement among all four groups in one month and three months post intervention; with group one and three shows the highest improvement.

Discussion and Conclusion: Our findings approved the applicability of combined models on safety practices and knowledge on the safety issues in workplace among the workers of Borujerd Textiles Factories. Our study acknowledges the idea of applying true participatory approach by involving end-users and knowledge-users in planning, designing, and implementing health education intervention to promote safety practices. Our educational interventions have changed participants’ behavior and intention to involve in safety practice at workplace. In conclusion, appropriately developed educational materials can lead to increased safety knowledge and properly application of safety practices among workers who participated in this study over time.

Keywords: Precede-Proceed Model, Theory Reasoned Action, promoting safety, workplace related behaviours

OP1-11 UNDERSTANDING THE ROLE OF TEACHERS ON HEALTH EDUCATION AND PROMOTION AMONG PRIMARY SCHOOL CHILDREN IN NAROK DISTRICT, KENYA

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The school is one of the best settings for health education and promotion with the school teachers as sentinels in upholding student health. Their constant presence in the classroom gives teachers a very good opportunity to promote positive skills among their students. The objective of this study was to understand the teachers’ role in health education and promotion in primary schools in Kenya. Moreover, this study sought to determine the teachers’ practices and extent of participation on health promotion activities in the school. The study was conducted from July 7 to 25, 2011 in three primary schools in Narok District, Kenya. Thirty-seven (37) primary school teachers participated during the course of the study. A self-administered survey was completed by the participants to describe the general characteristics of teachers, their health education and promotion practices, barriers encountered, competencies, and other related topics. In addition to this, group interviews were also conducted among them. There is a dearth of information on the role the teachers play in primary schools in a developing country, such as Kenya. It has been noted that primary school teachers’ perceptions and practices and towards health education and promotion is closely linked to their views on their role in health promotion. Understanding their perceived roles would be instrumental in the strengthening student health activities and programs in the primary school setting.
2. Communicable Diseases

OP2-1
TWO KEY ISSUES TO ELIMINATE MEASLES: CATCH-UP EXPERIENCE IN HUBEI, CHINA

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Objective: To evaluate independently the outcomes, effects and affecting factors of a catch-up immunization campaign in Hubei (2010), China. To summarize the experience, discuss existing problems, and provide the suggestions.

Methods and Indexes: A cross-sectional survey was carried out, using multi-stage stratified sampling to identify 12 survey districts. Choose 2 blocks (counties) randomly and then in each blocks (counties) choose 2 communities (village) as the final survey sites. Utilizing simple random sample size calculation method to determine needed sample size for this external evaluation. Distribute total sample according to the proportion of target children in each survey district. Collect data using field visit and questionnaire survey. Set up database and record data using epidata3.0. The data was analyzed by using spss17.0. Evaluation indexes consist of total immunization coverage rate, massive immune stage coverage rate, reseeding rate after massive immune stage, campaign satisfaction degree etc.

Results: Effective sample contains 1320 children. The results showed that massive immune stage coverage rate was 95.1%, supplementary vaccinate rate after massive immune stage was 26.7%, and total immunization coverage rate is 93.1%. We find that the main reason that contributes to the decreasing coverage rate derives from untimely reseeding partly due to temporary contraindication such as cold and fever. Future analysis shows that inadequate attention on temporary contraindication comes from both parents and clinicians. Some 1.25million targeted children in China should have obtained protection if children were going to get vaccine as soon as the recovery of any temporary contraindication. Among these 1320 children, 8 never received any dose for any type of measles vaccination; accounting for 6‰, (95% confidence interval 2‰, 10‰).

Conclusion and Suggestion: Massive immune stage coverage rate was 95.1%, living up to the expected objective. Ensure children with temporal contraindication get vaccination immediately after the symptoms disappear. Take measures to reduce the number of children who received no measles vaccination at all.

Keywords: Measles, mass immunization, vaccination, external evaluation

OP2-2
EFFECTS ON SYPHILIS PREVENTION OF MOTHER-TO-CHILD TRANSMISSION BY A COMPREHENSIVE INTERVENTION PROGRAM IN SHENZHEN, CHINA

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Background: High prevalence of congenital syphilis was found in 2002 in Shenzhen, China, with a rate of 109.52 per 100 000 live births. With the support from a government special fund, a comprehensive intervention program among pregnant women, their partners and newborn babies was designed and conducted, aiming to reduce maternal morbidity, fetal loss and neonatal mortality and morbidity due to syphilis. This program was the first and largest longitudinal study among pregnant women in syphilis prevention in China.
Method: All pregnant women in Shenzhen were screened for syphilis at the first antenatal visit. The positive samples were sent to Shenzhen Center for Chronic Disease Control and Prevention (SZCCC) or district CCC to confirm. Women with positive results were treated and followed up till 6 months after delivery. Their partners were informed by women and accepted the syphilis testing and treatment voluntarily. Their babies were tested, followed up at least 6 months to confirm the diagnosis and treated if necessary.

Results: From 2003 to 2009, about 1 400 000 pregnant women were screened and 5770 were confirmed to be syphilis seropositive. The average rate of syphilis infection among pregnant women was 0.41%, varying from 0.47% in 2003 to 0.32% in 2009. 61.87% partners of seropositive women had accepted the testing, the rate of which increased from 21.26% in 2003 to 76.64% in 2009. The prevalence of syphilis seropositive among partners was 28.01%, with little change among the seven years. Most of the seropositive partners (98.10%) had got treatment since being diagnosis. 2850 babies were tested and followed up. 141 congenital cases were confirmed, the rate of which decreased from 19.05% in 2003 to 5.46% in 2006 and 1.83% in 2009.

Conclusion: This program has large effects on identifying syphilis cases among pregnant women and has greatly reduced the incidence of congenital syphilis. The high syphilis prevalence among partners indicates the importance of partners’ testing and treatment, while the testing rate in this program needs to be improved. The program in syphilis prevention of mother-to-child transmission should combine the intervention among pregnant women, their new born babies as well as their partners.

OP2-3
IMPACT OF COUNSELLING ON HEALTH AND QUALITY OF LIFE OF HIV/AIDS PATIENTS AND THEIR CAREGIVERS

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Background: Counseling of HIV/AIDS patients as well as their caregivers helps in improving their health and quality of life.
Objectives: The objectives were to assess and compare the impact of counseling among HIV negative, positive and AIDS cases and their caregivers in relation to the health and quality of life.

Material and Methods: The study was conducted on a sample of 300 participants, out of which 150 (50 in each group) were HIV negative, HIV positive and AIDS cases and 150 caregivers. All the participants were selected from ICTC centers on the basis of non-random purposive sampling basis. The obtained data were analysis by applying t-test besides the measures of central tendency and dispersion. Post hoc Duncan’s test was used wherever required.

Results: HIV negative cases and their caregivers scored significantly less on physical distress than HIV positive and AIDS cases and their caregivers. the HIV negative cases had significantly better quality of life than HIV positive and AIDS cases. The AIDS cases scored lowest on overall quality of life. There was a significant reduction in physical as well as psychological distress, after counseling in AIDS cases and their caregivers. The pre and post test counseling mean scores of the caregivers of HIV positive cases on the quality of life were compared and it was found that there was a significant improvement in general health area of quality of life. In case of effectiveness of counseling on quality of life in AIDS cases and their caregivers, It was found that counseling was very effective in case of AIDS cases and their caregivers.

Conclusions: The HIV positive cases and their caregivers were better in terms of health and quality of life compared to AIDS cases.
and their caregivers. Counseling has a significant role in improvement in the health (reduced physical as well as psychological distress) in HIV positive, AIDS cases and their caregivers.

Keywords: Counseling, HIV positive, AIDS, Caregivers, health, quality of life

OP2-4
RAPID DETECTION OF RIFAMPIN- AND ISONIAZID-RESISTANT MYCOBACTERIUM TUBERCULOSIS USING REAL-TIME PCR AND MELTING CURVE ANALYSIS

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Objective: To evaluate the effect of a real-time PCR and melting curve analysis assay for rapid detection of rifampin and isoniazid resistance in Mycobacterium tuberculosis.

Methods: A total of 311 clinical isolates of M. tuberculosis were collected from Shenzhen since 2007-2009. RpoB gene resistance-determining region, ahpC promoter (-44 to -30 and -15 to -3), inhA promoter (-17 to -8), inhA 94 and katG 315 were detected by melting curve analysis after real-time PCR, and the results were compared with that of Proportion method and DNA sequencing.

Results: Real-time PCR and melting analysis is a closed-tube assay that can be performed within 2-3 hours. Compared against results of Proportion method, the sensitivity, specificity and accuracy of the assay for rifampin resistance were 97.8%, 97.1% and 97.4% respectively, and for isoniazid resistance were 86.6%, 98.7% and 92.6% respectively. Conclusions Real-time PCR and melting analysis is a rapid, accurate and closed-tube method that can be used as a screening test to rapid identification of Multidrug-resistant tuberculosis.

Key words: Mycobacterium tuberculosis; Drug Resistance, Bacterial; Rifampin; Isoniazid; Mutation; Polymerase Chain Reaction

OP2-5
JINGMEN CITY IN 2009 THE H1N1 INFLUENZA EPIDEMIOLOGICAL ANALYSIS

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Purpose: Analysis of Jingmen city in the 2009 H1N1 influenza epidemic characteristics, to provide basis for prevention and cure of influenza H1N1. Methods: combined with the report of epidemic situation data and field epidemiology survey data analysis. Results: in 2009 Jingmen City reported a total of 314 cases of type A influenza H1N1, reported incidence of 11.07 / 100000, 99.36% cases of mild cases (132 / 134), no death; 7-12 on both pathogenesis; students in accounting for the total incidence of 92.68%; input cases accounted for 1.27% (4 / 314), local infection cases accounted for 98.7 (310 / 314).

Conclusion: The H1N1 influenza pathogenicity moderate; appears in the H1N1 influenza epidemics in a community, School of H1N1 flu outbreak prevention and control will be one of key jobs.

Key words: influenza H1N1 Epidemic situation  Epidemic characteristics

OP2-6
The Role of Mapping Diseases: Dengue and Climate Change

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Nowadays, due to increasing of temperature caused by climate change, dengue vector (Aedes sp) spreads more widely. Climate change affects also the way of people’s life and creates health risk behaviour. Climate change creates negative impact to environments, hygiene and sanitation, housing conditions, and people income levels. All of these factors are contributing to dengue spreading. Every year,
Dengue infection creates 50-100 million cases per year. WHO published that 2.5 billion people in more than 100 countries are now susceptible to this disease. In Indonesia, Ministry of Health reported the significant increasing of dengue patients in the last 6 years. Currently 361 districts and cities have dengue cases while there were only 231 in 2001. Most of the dengue patients come from large cities such as Medan. Surveillance system is the only way to manage dengue. By applying adequate surveillance, many countries has proven evidence-best practise to tackle dengue. However, in low-middle income country and low resources area, Geographic Information System has been developed, integrated to spatial analysis. This technique will give not only the dynamic of dengue and its pattern and cluster, but also give significant information about potential risk and dengue distribution in order to initiate health programme to public health policy maker. Furthermore, mapping disease will give us the role of climate change affecting dengue spreading.

Dengue dynamic in Medan was assessed by using quantitative approach. Two districts were selected base on the highest and the lowest report case. In this study site, 840 respondents were selected by rapid survey method and interviewed to know dengue case experiences, either symptomatic or non-symptomatic. Potential risk factors consist of people behaviour and vector breeding places also were documented. Well trained enumerator and investigator were used to collect the data. Arc View 3.3 was used to create dengue mapping in survey location.

As a result, dengue dynamic and pattern were created along with health behaviour risk and vector breeding places. From mapping technique, there were a close relationship between dengue pattern and human risk factors. This result was an important assessment to develop further surveillance, in order to managing climate change impact to dengue. Mapping dengue and its factors are basic information and play an important role for health policy maker and researcher to decide effective and efficient health programme and intervention technique to prevent, contain, and control dengue.

**OP2-7**  
**CLINICAL AND PARASITOLOGICAL RESPONSE OF DIHYDROARTEMISININ-PIPERAQUIN ON SUBJECT WITH FALCIPARUM AND VIVAX MALARIA ON DAY 3 FOLLOW UP**

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**Background:** Clinical and parasitological response of malaria treatment on day 3 follow-up (D3) is a crucial condition to predict the successful of treatment. D3 is a period time that Early Treatment Failure may happen which may cause severe or complicated malaria. Moreover, if the asexual parasitemia is still detected more than 10% of study subjects, it is assumed parasites resistance against artemisinin. To know the clinical and parasitological response on D3 after DHP treatment, we analyse the clinical and parasitological response of DHP in malaria subjects focus on D3.

**Methods:** This analysis used data from Monitoring Drug Resistance In Subject With P.falciparum And P.vivax Malaria In Kalimantan And Sulawesi. Clinical data was gotten from anamnesis to identify clinical symptoms and physical examination including vital and clinical signs that was notified in case report form (CRF). Parasitological data was cross checked by NIHRD microscopists for parasite species and density, as well as PCR for detection and speciation of Plasmodium. Clinical and parasitological response of DHP was analysed by comparing the condition of falciparum and vivax malaria on D0 (before treatment) and D3 (after 3 days treatment with completed dose).
**Results:** There were 119 falciparum malaria and 87 vivax malaria malaria. Proportion of falciparum and vivax malaria subjects with clinical symptoms decreased significantly by D3 (p<0.05) compared to D0, except diarrhea on subjects with vivax malaria. Proportion of clinical signs also decreased significantly by D3, except dyspneu on falciparum malaria subject. Of the 206 malaria subjects, only one subject (0.8%) with falciparum malaria was still found asexual parasite with low density (10/ul). Proportion of subjects with gametocyte was also decreased significantly on falciparum (p=0.000) and vivax malaria subjects (p=0.000).

**Conclusion:** Clinical and parasitological response of DHP in falciparum and vivax subjects was excellent by D3. Only one falciparum malaria subject (0.8%) was still detected asexual parasite with low density (10/ul). DHP shows rapid action and sign of artemisinin resistance is still unclear.  

Key words: Malaria, dihydroartemisinin-piperaquin, clinical response, parasitological response

**OP2-8**

**IMMUNIZATION OF MICE WITH GAMMA RAY-ATTENUATED PARASITES OF PLASMODIUM BERGHEI INDUCES PROTECTIVE IMMUNITY**

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The irradiated vaccine elicits sterile immunity against plasmodium parasites in rodent hosts and human volunteers. In this experiment, we developed a vaccine from gamma ray attenuated pre-erythrocytic (sporozoite) and erythrocytic (merozoite) stages of *P. berghei* in mouse. *Anopheles farauti* with infective parasites and infected mouse blood were separately irradiated with 150-225 Gy of gamma rays at dose rate of 380 Gy/hour. After injection of attenuated salivary glands containing sporozoites or blood containing merozoites to a number of healthy mouses, parasitemia, protein profile, and immune responses were examined started 4 days post injection followed by 2 days interval up to day 28. The experiments showed that sporozoite vaccine was not seen its effectivity mainly due to low capacity of *An. farauti* as malaria vector. Despite its limited results, merozoite vaccine was effective in eliciting immune response and supressing its infectious pattern. Irradiation dose of 150-175 Gy were enable to suppress the infected erythrocyte cells and supported by the fact that long pre-patent, low parasitemia and lethality of mouse, and macrophage activity were found. The booster two weeks after the first innoculation of 150 Gy irradiated plasmodium could elicit immune response and resulted in low density of plasmodium in the blood. Heat shock protein 70 was expressed only in lower dose (150 Gy) indicating the effectivity of parasite attenuation with irradiation. Complement experiments found that intraperitoneal injection of irradiated plasmodium resulted in longer prepatent period of parasitemia compared to intravenous injection. The delay of injection of plasmodium infected blood for >2 hours post 150 Gy irradiation caused more infectious parasite in mouse.

Keywords : malaria, vaccine, attenuation, *P. berghei*, gamma rays
CONTROLLING *Aedes aegypti* MOSQUITO POPULATION AS DHF VECTOR WITH STERILE INSECT TECHNIQUE IN TWO VILLAGES OF BANJARENEGARA, CENTRAL JAVA

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The program control of Dengue Hemorrhagic Fever (DHF) vector in Indonesia is still problematic due to incomplete approaches. The DHF disease is caused by Dengue virus infection through biting of infected *Aedes aegypti*. One way to overcome this problem is Sterile Insect Technique (SIT) and assumed as an exact and potent strategy for contributing in the DHF control. The technique was done by sterilizing the male pupae or adult mosquito with various doses of gamma irradiation. Sterile male mosquitoes were released continuously to a located area with aim to gain a condition where the populations of mosquito in that area are reduced due to mating between sterile insect and wild type insect so that the disease’s transmission can be stopped. From the results of our experiment on *Aedes aegypti* vector, it was known that the dose of 70 Gy of gamma rays caused the sterility up to 100% of the population with mating competition of 0.31 and dose of 65 Gy sterilized 98.53% with mating competition of 0.45. Experiment on the releasing in Krandegan and Kutabanjar villages, Banjarnegara Distric, Central Java showed that the fourth release of sterilized vectors was significantly could reduce natural population of DHF mosquito. We are also concluded that repeated release of insects can eventually wipe out vector population, though it is often more useful to consider controlling the population rather than eradicating it.

**Keywords**: DHF, gamma irradiation *Aedes aegypti*, SIT, mating competitiveness

THE USAGE OF SYMPTOMATIC AND OTHER DRUGS GIVEN IN ADDITION TO DIHYDROARTEMISIN-PIPERAQUIN IN PATIENTS WITH UNCOMPLICATED MALARIA IN SULAWESI AND KALIMANTAN

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**Background**: The usage of AAQ as a first line antimalarial treatment has been introduced in 2004.\(^1\) According to the study conducted in Papua, Dihydroartemisinin/Piperaquine (DHP) was a more effective and better tolerated treatment for the multdrug-resistant *P. falciparum*.\(^2\) Therefore, the usage of DHP will be extended into other endemic areas. Malaria has symptoms that could lead the health workers to prescribe other drugs in addition to antimalarial treatment. Based on the results from in-vivo study, there are several non-antimalarial drugs were given by the doctor in addition with antimalarial treatment.\(^3\) However, the evaluation about the rational use of these drugs in subject with uncomplicated malaria has not been done yet.

**Aim**: To obtain an overview of medicine (symptomatic and other drugs) given in addition to antimalarial treatment in subjects with uncomplicated malaria.

**Methods**: Cross sectional study, eligible subjects were enrolled and all subjects received standard antimalarial therapy with DHP and non-antimalarial treatment at the first day of visit. The data from the first day of visit was used for a descriptive analysis to
define characteristics of the subjects and non-antimalarial drugs that given in addition to DHP. Bivariate analysis was also done to determine the correlation between symptoms experienced by subjects with the administration of symptomatic drugs (chi square).

**Results:** Symptomatic and other drugs mostly given in this study is antipyretic-analgesic, followed by vitamin and antacid (83.5%, 57.8% and 35%). Children with the age between 5-14 years old received the higher percentage of almost all other drugs given together with treatment of malaria. Subjects with fever were given antipyretic-analgesic more than subjects without fever. The percentage of subjects with GI symptoms given antacid is higher than the subjects not given antacid.

**Conclusions:** Subjects received symptomatic and other drugs in addition to antimalarial drugs. Overall, the usage of symptomatic drugs and other drugs tend to be irrational. However, this study has several limitations. Therefore, further study is needed.

**OP2-11**

**LIPID CORE PEPTIDE AS ADJUVANT AND CARRIER SYSTEM FOR SUBUNIT PROTEIN BASED VACCINES**

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Traditional vaccine derived from pathogens provides efficient protection against certain diseases. Yet, this kind of vaccine raises safety issues such as cross reactivity. Modern vaccines based on subunit protein containing minimal microbial component provides many advantages in vaccine development, including their better safety. However, a short peptide construct could not result in appropriate immune responses. Therefore, adjuvant is needed to strengthen immune responses. Considering the safety and effectiveness, not many adjuvants can be used in human vaccines. Recently, synthetic lipopeptide based vaccine has been intensively investigated as a promising self-adjuvancing vaccine. A lipid core peptide (LCP) system showed self-adjuvancing properties and can be used as delivery system of multiple epitopes to produce vaccine candidates against targeted diseases. The LCP system was assembled by stepwise solid phase peptide synthesis (SPPS). Most importantly, this system has been proven to be successful in inducing strong immune response of synthetic peptide based vaccines on mice.

**OP2-12**

**IMMUNIZATION OF MICE WITH GAMMA RAY-ATTENUATED PARASITES OF Plasmodium berghei INDUCES PROTECTIVE IMMUNITY**

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The irradiated vaccine elicits sterile immunity against plasmodium parasites in rodent hosts and human volunteers. In this experiment, we developed a vaccine from gamma ray attenuated pre-erythrocytic (sporozoite) and erythrocytic (merozoite) stages of *P. berghei* in mouse. *Anopheles farauti* with infective parasites and infected mouse blood were separately irradiated with 150-225 Gy of gamma rays at dose rate of 380 Gy/hour. After injection of attenuated salivary glands containing sporozoites or blood containing merozoites to a number of healthy mouses, parasitemia, protein profile,
and immune responses were examined started 4 days post injection followed by 2 days interval up to day 28. The experiments showed that sporozoite vaccine was not seen its effectivity mainly due to low capacity of An. farauti as malaria vector. Despite its limited results, merozoite vaccine was effective in eliciting immune response and supressing its infectious pattern. Irradiation dose of 150-175 Gv were enable to suppress the infected erythrocyte cells and supported by the fact that long pre-patent, low parasitemia and lethality of mouse, and macrophage activity were found. The booster two weeks after the first inoculation of 150 Gy irradiated plasmodium could elicit immune response and resulted in low density of plasmodium in the blood. Heat shock protein 70 was expressed only in lower dose (150 Gy) indicating the effectivity of parasite attenuation with irradiation. Complement experiments found that intraperitoneal injection of irradiated plasmodium resulted in longer prepatent period of parasitemia compared to intravenous injection. The delay of injection of plasmodium infected blood for >2 hours post 150 Gy irradiation caused more infectious parasite in mouse.

Keywords: malaria, vaccine, attenuation, P. berghei, gamma rays

3. Non Communicable Diseases

OP3-1
COST-EFFECTIVENESS ANALYSIS OF MEDICAL INTERVENTION IN PATIENTS WITH EARLY DETECTION OF DIABETIC NEUROPATHY IN A TERTIARY CARE HOSPITAL IN BANGLADESH

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Background and aims: The economic burden resulting from diabetic neuropathy (DN) consumes a major portion of resources allocated for health-care services. Cost-effectiveness of various interventions on DN and its complications has relatively been well explored in developed countries, but these are almost absent in developing countries. The present study was undertaken to assess the cost-effectiveness of medical intervention in patients with DN.

Materials and methods: Two hundred patients with DN, at least 1 year of follow-up, were purposively selected from Out-Patient Department of BIRDEM (tertiary diabetes care hospital), Bangladesh. Of them 100 were late in detection of DN (LDN) & 100 were detected early (EDN). The degree & extent of complications like cardiopathy, retinopathy, nephropathy & vasculopathy, treatment outcome, clinical effectiveness of interventions and direct, indirect & incremental cost of complications were calculated. Comparison was made between the groups.

Results: A total of 200 patients were considered for an average of 365 days, amounting to 656 person-years of observation in total. In LDN group, 22% had Diabetic Peripheral Neuropathy (DPN), 17% had Diabetic Autonomic Neuropathy (DAN), 11% had Diabetic Proximal Neuropathy (DPXN) & 9% had Diabetic Focal Neuropathy (DFN). In EDN group, 16% had DPN and 7% had
DAN. The mean±SD fasting serum glucose of the groups (LDN & EDN respectively) was 10.1±0.4 & 6.1±0.3 mmol/l, TG was 163.7±99.4 & 155.6±94.8 mg/dl, total cholesterol was 205.5±41.6 & 103.2±34.5 mg/dl, HDL cholesterol was 56.2±20.3 & 39.0±14.1 mg/dl, HbA$_1c$ was 9.2±1.5% & 6.5±1.3%, SBP was 172.5 ± 20.9 & 109.5±11.9 mmHg and DBP was 97.7±10.0 & 70.7±9.3 mmHg. About 19% patients in LDN & 36% in EDN were free of diabetic complications other than DN. In LDN & EDN, 32% & 48% had one complication, 29% & 10% had two and 20% & 6% had more than two complications respectively. The most frequent complication was cardiopathy, which affected 33% patients in LDN & 27% in EDN, followed by retinopathy 21% & 18%, nephropathy 17% & 13%, and vasculopathy 10% & 6% respectively. The average annual cost of care was US$ 26846 (direct US$ 17893 & indirect US$ 8953), with an average US$ 134 per patient. Among the average annual cost LDN consumed US$ 18918 (US$ 189 per patient) & EDN US$ 7928 (US$ 79 per patient). US$ 13473 (50%) of costs was attributable to Drugs for both groups of which US$ 10419 (77%) was for LDN & US$ 3054 (23%) for EDN, US$ 7653 (29%) to hospitalizations of which US$ 4914 (64%) for LDN & 2739 (36%) for EDN. In case of diagnostics & visits the corresponding values were US$ 1953 (55%) & 1580 (45%) and US$ 1631 (75%) & 556 (25%) for LDN & EDN respectively. The annual medical costs increased with the increased number of complications from US$ 1320 to 2296 to 3989 & to 6520 in LDN with one, two, three & more than three complications (other than DN) which is increasing at a rapid rate and US$ 917 to 1556 to 1872 & to 2073 in EDN respectively, increasing at a diminishing marginal rate. The regression equation showed that medical cost is significantly related to complications tested in both univariate (P<0.0001) & multiple linear regression analyses (R$^2$ = 0.69; F=81.5, P < 0.0001).

**Conclusion:** Proper management with regular screening substantially reduces the expenditure related to care and complications of patients with DN even in a developing country. Strategies aimed at preventing DN & early detection of the onset of neuropathy will reduce medical costs in a substantial way.

**OP3-2**

**BURDEN OF DISEASE AND INJURY IN A BRAZILIAN STATE**

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**Background:** Injuries cause significant impact on the mortality profile in Brazil. However, no data on its impact besides early mortality are available.

**Objective:** To estimate the burden of disease due to injuries in the southern Brazilian state of Santa Catarina.

**Methods:** Health loss was estimated for injuries using DALYs as the outcome measure. Years of life lost were recorded as the difference between age of death and life expectancy by applying a discount rate of 3%. Cases of hospitalization due to injuries recorded in the Brazilian Hospital Information System were analyzed. Years lived with disability were estimated by multiplying the weight recommended by WHO and its duration for incidence cases. The difference between life expectancy and age of occurrence defined the duration in cases where disability was considered permanent. For the remaining cases time of hospitalization was used. DALYs by cause, age, sex and region of residence for the year 2005 were estimated.

**Results:** It was estimated 74780 DALYs or 1274.7 DALYs lost per 100 thousand inhabitants. Men showed 2.3 higher rates than women. 15- to 29-year-old group had the highest score for both sex. Traffic accident had the highest rate (39.6%) followed by
violence (21.5%). Traffic accidents were the leading cause in eight state regions and violence in one.

Conclusions: A high burden of disease was estimated due to injury, mainly in the early mortality component. Traffic accidents and violence were the main causes in the regions and the state as a whole.

OP3-3

THE EPIDEMIOLOGICAL TRANSITION AND DISTRIBUTION OF CHD MORTALITY IN TIANJIN, CHINA, BETWEEN 1999 AND 2008

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Background: Coronary heart disease (CHD) is the leading cause of death worldwide. Most of the global burden of CHD occurs in developing countries. As a developing country with the largest population in the world, China is facing the threats of increasing death due to CHD and increased social and economical consequences of CHD.

Methods: To demonstrate the disparity of CHD between sexes, ages and urban-rural areas in Tianjin, China, we monitored 104,393 cases of CHD death in Tianjin between 1999 and 2008. Death due to CHD was coded using the International Classification of Diseases (ICD) standard, ICD-9 and ICD-10. Standardized mortality rates of CHD and the trends of CHD mortality rates were analyzed for each age, sex and urban-rural area group.

Results: The proportion of total death due to CHD in Tianjin significantly increased from 16% in 1999 to 24% in 2008. The standardized CHD mortality rate in Tianjin was slightly increased during these 10 years but without statistical differences. Both sexes shared the same trend of mortality rate change. The CHD mortality rate is consistently higher for people of older age, male sex or living in the urban area during this observational study period. The outside hospital CHD deaths proportion was 55.81% with a decline trend in the study period. There were differences between urban and rural areas but in age groups in outside CHD proportion.

Conclusions: The disparities of CHD existed between sexes, ages and urban/rural areas. Further studies identifying the risk factors and population with CHD will be particularly important to prevent CHD. It is necessary to develop strategies for CHD control like the developed countries so that the CHD burden would be decreased in China.

Key Words: Coronary Heart Disease, Epidemiology, Distribution, Risk Factor

OP3-4

TRENDS IN CHILDHOOD INJURY MORTALITY IN TIANJIN, CHINA 1999-2008: SEX, AGE, AND GEOGRAPHY DISPARITIES

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Objectives: To examine the differences between the injury and poisoning related death rates and leading cause among childhood by sex, age, and urban/rural areas so that the effective methods will be implemented to control the priorities of childhood injury in Tianjin.

Methods: Annual all-cause of death records for 1999–2008 provided demographic data of injury mortality including sex, age,
and geography, and cause of death. Trend analyses were conducted using linear regression.

Results: From 1999–2008, the injury mortality rates of children remained around 10-15/100,000 while death rates of male and rural were two- four times more than that in female and urban, also much higher than the total. The unintentional injury was up to over 75% in total. Traffic and drowning were the two leading causes in children, and motor vehicle related death proportions were increased significantly during the study period.

Conclusions: The mortality related injuries among childhood differed by sex, age and geography. This study found important patterns, priorities and disparities in these death rates by genders, age groups and urban/rural areas which can be used for identifying high risk groups and guiding prevention strategies. Tianjin should enforce the regulation of save traffic and put warning sign and isolation fencing alone the water areas. It is important to develop health education of injury prevention in the public. The effective and practice legislation would be enacted for reducing the burden of injury.

OP3-5

ASSESSMENT OF HEPATOMEGALLY IN 100 PATIENTS WITH BETA THALASSEMA MAJOR IN IRAN-MASHHAD

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Background: Thalassemia represents a group of recessively inherited hemoglobin disorder and characterized by reduced synthesis of beta globin chain. The homozygous state results in severe anemia, which needs regular transfusion every 3-4 weeks. Frequent blood transfusion can lead to iron overload especially in liver. Liver has a large capacity to produce proteins which bind the iron and store it in the form of ferritine and haemosiderin, and therefore, it can produce severe iron overload. Chronic iron overload may lead to cirrhosis of the liver. Transfusion – transmitted hepatitis B and C also can develop to cirrhosis. Second cause of death in this patient after 15 years of old is cirrhosis. In these times most of them affected with cirrhosis, hepatitis B and C. This study was aimed to assess hepatomegally in thalassemic patient

Methods: This research is a descriptive – cross sectional study to assess hepatomegally in 100 patient with thalassemia major with ages between 2 – 18 years old who were under follow up in Dr.cheikh’ hospital.

Results: The mean and S. D of hemoglobin, ferritine, deferoxamine dosage and age of starting deferoxamine was 8.5 ± 1.5g / dl, 2183 ± 1528 ng, 30 ± 11.16 mg / kg, 4.1 ± 2.5 years. 46% of them have hepatomegally and more than % 50 suffering from F.T.T. There was a meaningful relationship between hepatomegaly and age, height, existence another case of thalassemia in family (p≤0/05). ALT, AST, ALKPH were above normal value in %65, %61 and %9 respectively.

Conclusion: Hepatomegaly is one of the most finding in thalassemic patient that induced with hemosiderosis and hepatitis. So starting of deferoxamine in the perfect time can prevent hemosiderosis. As serum ferritine and LFT was elevated in most patients in spite of deferoxamine pump use, it seems prudent to reevaluate the current protocol of deferoxamine administration.
THE PREVALENCE OF ANXIETY AND ITS RELATIONSHIP WITH GENERAL HEALTH RELATED QUALITY OF LIFE AMONG PROSTATE CANCER PATIENTS IN A TERTIARY MEDICAL CENTRE IN KUALA LUMPUR

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Background: Anxiety in prostate cancer patients appeared to fluctuate over the clinical timeline in response to stressors and uncertainty (such as at the time of screening and/or biopsy). They are repeatedly exposed to potential anxiety and fear because of the continual prostatic specific antigen (PSA) monitoring. Living with an elevated PSA level may impact health-related quality of life (HRQOL) when they have persistent anxiety. On-going anxiety from fear of recurrence or spread has an important on prostate cancer treatment, and it should be one of the outcome measures in the treatment.

Objectives: The aim of this study is to determine the prevalence of anxiety among prostate cancer patients and to ascertain the association between socio-demographic, medical and cancer status with general health related quality of life among these patients in a tertiary medical centre in Kuala Lumpur.

Methods: This is a hospital based, cross sectional study conducted at the Surgical Clinic over a period of 6 months. Universal sampling was used in this study. Anxiety level was measures using Depression Anxiety Stress Scale (DASS-21) and total quality of life was collected using the Short Form-36 (SF-36). The General Linear Model (GLM) was used for data analysis.

Results: A total of 109 patients were recruited. The prevalence of anxiety was 23.9% (95%CI: 16.0, 32.0). The anxiety ratings were: mild anxiety (7.3%), moderate anxiety (14.7%) and severe anxiety (1.8%). The total quality of life score among anxiety group was 56.47 ± 16.66 and among non-anxiety group was 74.43 ±14.02. Univariate analyses found that there were statistically significant differences in the physical coefficient summary (p<0.001), mental coefficient summary (p<0.001) and total quality of life (p<0.001) comparing those who were in the categories of anxiety and non-anxiety. After adjusting for confounding factors, there was a statistically significant difference in the total quality of life comparing anxiety status among prostate cancer patients [48.75 (95%CI: 41.33, 56.17) versus 60.39 (95%CI: 52.62, 68.16)]. The adjusted mean score of quality of life was confounded by age of the patients (p=0.001) and presenting problem of intermittency (p=0.049).

Conclusion: The prevalence of anxiety among prostate cancer was moderately high. The quality of life among patients with anxiety was significantly lower compare to patients without anxiety. Measures that can be implemented to reduce anxiety are likely to improve the quality of life in patients living with prostate cancer.

CHILDREN’S EXPERIENCE OF VERY LOW FOOD SECURITY IS ASSOCIATED WITH INCREASED DIETARY INTAKES IN ENERGY, FAT, AND ADDED SUGAR AMONG MEXICAN-ORIGIN CHILDREN (6-11 Y) IN TEXAS BORDER COLONIAS

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Background: The dramatic increase in obesity levels among Mexican-origin children coincides with reduced access and greater cost for nutritionally-dense foods and beverages. Food costs and convenience, especially in neighborhoods without supermarkets, may negatively influence the quality and quantity
of food available to eat; thereby compelling families to choose foods that are more energy-dense and less nutrient-dense from alternative retail food sources. With higher energy-dense diets, there is added risk for inadequate intakes of vitamin D, calcium, potassium, and dietary fiber, along with excessive amounts of added sugar, fats, and sodium. This is more pronounced among low-income Mexican-origin families who reside in the growing colonias along the Texas-Mexico border.

Objectives: This study examines the relationship between children’s experience of food insecurity and nutrient intake from food and beverages.

Methods: Fifty mother-child dyads (mother and child 6-11 years) were recruited by promotora-researchers from forty colonias that were spatially selected from 20 census block groups in Hidalgo County, TX (USA). This analysis focuses on data collected March-June 2010 from participant children during three in-home visits: demographics, food security experience in the previous three months, anthropometrics, dietary recalls. All data were collected in Spanish by trained promotora-researchers. Three 24-hour dietary recalls occurring on randomly selected, nonconsecutive days (one represented intake on the weekend and two for weekdays) were collected from each child in the home using a multiple-pass approach. Nutrient intake from food and beverages were estimated using Nutrition Data System for Research software. Descriptive statistics were calculated and multiple regression models were estimated.

Results: Among the 50 child participants, 62% were girls; 32% were born in Mexico; 100% participated in school nutrition programs; and 54% reported low or very low food security. Using age- and gender-specific recommendations, 28% met the recommendations for calcium, none for potassium or vitamin D, 10% for dietary fiber, and 6% for sodium. Very low food security was associated with greater intakes of total energy, calcium, vitamin D, and percentage of calories from added sugar. In addition, marginal, low, and very low food security were associated with increased intake as a percentage of calories from combined fat and added sugar.

Conclusions: As important as the government nutrition programs are for adequate nutrient intake among children, they may not be enough to keep pace with the nutritional needs of low and very low food secure Mexican-origin children. The present study has several particular strengths. First, this is a study of hard-to-reach Mexican-origin children in border colonias. This population is of increasing national importance because such colonias can be considered an archetype for the new-destination Mexican immigrant communities that are now found in great numbers throughout the U.S. Second, this is the first study that uses children’s report of their food insecurity experiences in the past three months to describe food security status. Future work should focus on expanding our understanding of seasonal variation in the frequency and duration of children’s experiences of food insecurity. Child-reported food insecurity situations could serve as a screen for nutrition problems in children.

OP3-8

Dietary Nitrates, Nitrites and Nitrosamines and Neural Tube Defects, Oral Clefts and Limb Deficiencies

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Background: Dietary intake of nitrates, nitrites and nitrosatable compounds can increase levels of N-nitroso compounds in the stomach. Animal studies suggest that some N-nitroso compounds are teratogenic. Humans are exposed to nitrates, nitrites, and nitrosamines through a combination of exogenous and endogenous means. A recent study [10] found that foods highest in nitrate levels include soy milk, soy yogurt and
vegetables such as spinach, collard greens, squash, broccoli and potatoes. Foods high in nitrites include refried beans and meats such as beef, pork, lamb, cabrito (goat), liver and hot dogs. Foods high in nitrosamines include beef, pork, lamb, cabrito, fish, bacon and cottage cheese.

Objectives: This study examines the relationship between maternal exposure to dietary nitrates, nitrites and nitrosamines and several classes of birth defects including neural tube defects, orofacial clefts and limb malformations.

Methods: For this case-control study we used data from a 58-question food frequency questionnaire, adapted from the short Willett Food Frequency Questionnaire and administered as part of the National Birth Defects Prevention Study, to estimate daily intake of dietary nitrates, nitrites, and nitrosamines in a sample of 6544 mothers of infants with neural tube defects (NTD)s, oral clefts (OC)s, or limb deficiencies (LD)s and 6807 mothers of unaffected control infants. Total daily intake of these compounds was divided into quartiles based on the control mother distributions. Using logistic regression, models were adjusted for daily caloric intake, maternal race, education, dietary folate intake, high fat diet (> 30% of calories from fat), and study center (state of residence).

Results: While there were some unadjusted results for NTDS with 95% confidence intervals [CI] that did not include the null value, none remained so after adjustment for covariates and the effect sizes were quite small (adjusted odds ratios [aOR] <1.12). Similar results were found for OCs and LDs with the exception of animal nitrites and cleft lip with/without cleft palate (aORs and CIs for quartile 4 compared to quartile 1 =1.24; CI=1.05-1.48), nitrosamine and cleft lip (4th quartile aOR=0.74; CI=0.58-0.95), and total nitrite and intercalary LD (4th quartile aOR=4.70;CI=1.23-17.93). In the adjusted logistic regression models, there was a significant relationship between the first and fourth quartiles of total nitrite consumption and intercalary limb deficiency (aOR = 4.70, 1.23-17.93).

Conclusions: This study explored the relationship between maternal consumption of dietary nitrates, total nitrites, nitrites from both animal and plant sources and nitrosamines and specific NTDs, orofacial clefts and limb malformations in offspring. This study’s primary strength is its large and very well-characterized sample. Overall, dietary intake of these compounds did not appear to be a significant risk factor for NTDs, OCs or LDs.
promoting oral health is effective for healthy ageing and longevity.

Methods: From among the 666 people who were subjects of the 8020 data bank construction project in 1997, data were analyzed for 432 individuals who could readily be confirmed to be alive or dead 10 years later. Decision tree analysis and logistic regression analysis were used to estimate the relevance of health status at age 80 and survival status at age 90. The dependent variable was survival status at age 90, with 1 indicating the subject was living, and 0 indicating he/she was deceased. The independent variables were data obtained from oral and medical checkups, a blood test, physical fitness assessment and a lifestyle questionnaire.

Results: Among the 432 individuals, there were 204 survivors (male 62; female 142) and 228 deceased (male 101; female 127), showing a significantly higher survival rate among females (p<0.001). Decision tree analysis showed that longevity was most associated with sex and the factors associated with longevity differed by sex. As a result of logistic regression analysis of the male subjects, survivors had high leg extensor strength (odds ratio (OR)=1.067, 95% confidence interval (CI)=1.026, 1.110), 10 or more remaining teeth (OR=3.710, 95%CI=1.255, 10.962), high chewing ability (OR=8.676, 95%CI=2.759, 27.286), and high blood glucose levels (OR=0.261, 95%CI=0.089, 0.770). Female survivors had a high body mass index score (OR=1.109, 95%CI=1.001, 1.229) and high blood glucose levels (OR=0.399, 95%CI=0.208, 0.763).

Conclusions: It was shown that healthy longevity is related to oral health, as well as internal medical health and physical ability. Moreover, it was found that “chewing ability” had the strongest relation to longevity. It is important therefore important to promote the retention of one’s own teeth as well as to supplement missing teeth with dentures in order to be able to chew food well. The findings suggest that more progressive oral health promotion is needed for many more elderly people to live actively.

OP3-10
THE PREVALENCE OF HYPERTENSION IN TEACHERS OF NORTH KHORASAN PROVINCE, IRAN

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Introduction: Chronic diseases have emerged as a major health threat to the world’s population. Hypertension is one of these disorders and major independent risk factors for coronary heart disease (CHD).

Methods: This was a cross-sectional study, which was performed in 11713 teachers of North Khorasan province during 2009-2010. The demographic questionnaire was completed. Blood pressure was measured twice using a standard mercury sphygmomanometer on the left arm in the sitting position following a 5 minute rest and the mean recorded. A blood pressure level of 140/90 mmHg or higher is considered hypertension. Statistical analysis was done using the SPSS software version 16 and T-test and Chi-square test were used to compare groups.

Results: Total of 11704 (99.9%) volunteers among the 11713 teachers (5730 males and 5983 females, age 50.64 ± 6.62 years), were participated in this study. The hypertension incidence was 8.1% and 11.1% in men and women aged 20-45 years respectively. About 2.8% of men and 3.2% of women had a high blood pressure in the age group 45-70 years. In both males and females, the prevalence of hypertension in the lower age group was more than the older age group (p=0.0001).

Conclusion: The data show that the lower age group exposure to the heart disease more than the upper age group, in North Khorasan province.
Keywords: Hypertension, Teachers, North Khorasan Province, Iran

OP3-11
CHROMOSOME ABBERATIONS IN RADIATION WORKER’S LYMPHOCYTES

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When a body is exposed to ionizing radiation, most of the cells can suffer cytogenetic damages that can be seen as structural alterations of chromosome in peripheral blood lymphocytes. These changes are called chromosome aberrations and categorized as biomarker that specifically induced by ionizing radiation and can be used to get information concerning the level of cell damages in the body. Chromosome aberrations that can be detected in lymphocyte cells could be unstable aberrations such as dicentric or ring chromosomes, and stable aberrations such as translocations. Measurement of dicentric and translocation becomes a very important indicator to predict and assess immediate and late radiation effects, respectively. Dicentric chromosomes have been applied in the estimation of radiation dose received by radiological accident victims especially in the absence of physical dosimeters. Translocation is a cytogenetic biomarker for long-term retrospective biodosimetry. Frequency of chromosome aberrations induced by natural radiation exposure is about 1-5 dicentric and 3-5 translocations in 1000 cells. This paper reports about the mastery, development, and application of chromosome aberration detection techniques in peripheral blood lymphocytes that have been conducted at Cytogenetics Laboratory in BATAN. Giemsa staining method to detect unstable chromosome aberrations has been stated as a standard method and applied for measuring chromosome aberrations in radiation workers at BATAN. Besides that, mastery of fluorescence in situ hybridization (FISH) painting technique as the method for examining translocations has been carried out using variation of whole chromosome probes. In this paper chromosome aberrations were examined on 50 blood samples of radiation workers. The result showed that the frequencies of unstable chromosome aberrations in their lymphocyte cells were still in the normal range. No any translocation was found among samples of these radiation workers. It can be concluded that based on the observed chromosome of workers is still in good condition and within normal limit.

Keywords: chromosome aberration, lymphocytes, dicentric, translocation, FISH, biodosimetry

OP3-12
THE CHANGE IN WEIGHT PERCEPTION OF WEIGHT STATUS AMONG THE OVERWEIGHT: COMPARISON OF KNHANES II, III AND IV

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Objectives: This study seeks to determine whether weight perception among the overweight is different with their social status and find which social determinant more influence weight perception distortion.

Methods: The perception of weight status was compared between overweight participants (BMI above 25.0kg/m²) from KNHANES II (2001), III (2005) and IV (2007-2009). Perception of weight status was assessed by asking participants to classify their weight as about the right weight, underweight or overweight. Comparisons were made across genders, various income levels and educational levels.
Results: In male population, overweight/obesity prevalence is increasing with the increasing income or educational level. In female population, by contrast, overweight/obesity prevalence is decreasing with the increasing level. Fewer overweight people with lower income or educational level perceived themselves as overweight when compared to overweight people with higher level. The change in distortion between the survey periods was greatest among persons with lower income and educational level.

Conclusion: Distorted overweight perception could be one of determinant of higher prevalence of overweight/obesity among the persons with lower social status. To lower overweight/obesity prevalence in South Korea, health care plan targeting this population is needed.

OP3-13
ASSOCIATION OF PRACTICE ON UTILIZING IODIZED SALTS DURING COOKING PROCESS TO IODINE DEFICIENCY DISORDERS AMONG SCHOOL CHILDREN IN IDD ENDEMIC AREA OF DUSUN SIDOWAYAH, PONOROGO, INDONESIA

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Iodine Deficiency Disorders (IDD) is a serious nutritional problem since it may give serious impact to the survival and quality of human resources. Iodized salt is considered as an effective intervention effort to overcome the problem of IDD in communities. Kabupaten Ponorogo is one of districts in East Java which its coverage of iodized salts was higher than the provincial and national coverage (75.8%). However, the prevalence of TGR was still high (23.2%) and could be considered as public health problem according to WHO criteria. This research was aimed to analyze association between iodine content (qualitatively) of salts used in the households, practice of keeping iodized salts and practice of utilizing iodized in the households to IDD among school children in Dusun Sidowayah, Kabupaten Ponorogo.

This cross sectional study was done by involving 67 elementary school children from SDN IV Krebet and SDN V Krebet which were located in Dusun Sidowayah. The sample was selected by using cluster random sampling method. IDD among school children was indicated by the development of goiter (nodular enlargement of the thyroid gland), which was determined through palpation by local health workers. Iodina test kit was used to test iodine content (qualitatively) of salts used by the school children’s household. Data on practice of keeping the iodized salts in the household was obtained from direct observation, while data on practice of utilizing iodized salt during cooking process was obtained from interview to the mothers. Association among variables was tested by using statistical analysis chi – square test, or fisher’s exact test if the criteria for chi-square test could not be met.

This study showed that most of the households (65.7%) already use iodized salt which meet the criteria (contain ≥ 30 ppm of iodine). Regarding household’s practice on keeping and utilizing iodized salts, most of the household (65.7%) applied correct practice on keeping the salts. However, practice on utilizing iodized salts during cooking process was mostly incorrect (80.6%). Statistical analysis showed that iodine content (qualitatively) of salts (p>0.05) and practice of keeping the iodized salts (p>0.05) were not associated to IDD among school children. While practice of utilizing iodized salts was associated to IDD among school children (p<0.001).

This study concludes that practice of utilizing iodized salts was associated to IDD among school children in Dusun Sidowayah, Kecamatan Jambon, Kabupaten Ponorogo. This study suggests the local health authority and other relevant institutions to provide nutrition education about IDD prevention to mothers in goiter endemic area, which
emphasizing on the correct practice on utilizing iodized salts, in order to improve mother’s knowledge and practice on IDD prevention.

Keywords: IDD, iodine, iodized salt, school children, goiter

OP3-14

*CITRUS RETICULATA’S PEELS MODULATE BLOOD CHOLESTEROL PROFILE AND INCREASED BONE DENSITY OF OVARIECTOMIZED RATS*

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Hormone Replacement Therapy is a common therapy for estrogen deficiency but in other side it will increase the risk of cardiovascular disease. Another alternative therapy which relatively safer is using phytoestrogen. The *Citrus reticulata*’s peel contain flavanone and polymethoxyflavone which are suspected to give estrogenic effect, therefore it is potential to be used as phytoestrogen. The purpose of this study was to examine the estrogenic effect of *Citrus reticulata*’s peel extract in modulation of bone density and blood cholesterol profile of ovariectomized rats (OVX), an animal model of postmenopausal osteoporosis.

Thirty six 7-weeks-old female Sprague Dawley rats were assigned to six groups: a SO group, an OVX group, an OVX+CMCNa group, an OVX+extract dose 500mg/kgBW group, an OVX+extract dose 1000mg/kgBW group, and an OVX+estradiol group. After 7 weeks, the rats were killed then blood and femoral were collected immediately. The rontgenogram indicated that extract and estradiol administration increase the bone density. And the data analysis with one-way ANOVA test, followed by Scheffé test (P<0.05) showed that extract can improve blood cholesterol profile in dose dependent manner. These result suggest a possible role of *Citrus reticulata*’s peel extract as women’s health agent because of it’s beneficial effects on bone and lipids.

Keywords: *Citrus reticulate*, estrogenic, bone density, blood cholesterol profile
4. Maternal and Child Health

OP4-1

HOUSEHOLD ECONOMIC COSTS OF MATERNAL DEATH AND COPING STRATEGIES IN RURAL CHINA: A QUALITATIVE STUDY

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Background: There were very few studies on the costs of maternal death, but no study on the coping strategies adopted by families that suffered a maternal death. The qualitative study aimed to identify the economic costs of maternal death and coping strategies at the household level in rural China.

Methods: We conducted in-depth interviews with 25 members of families with maternal death, 50 members of families where a woman had given birth, and 25 maternal health workers in the villages. Collected data of household economic costs of maternal death and coping strategies were analyzed by using a semistructured systematic approach.

Results: We found the families where the mother died experienced higher direct costs than families where both the mother and baby survived. Maternal death had negative impacts on other family member's labor productivity as they had psychological/emotional problems and shifted roles to domestic work that the deceased woman previously did. Seeking hospital compensation and borrowing money were the two main strategies used by families to cope with the financial costs of maternal death. The family with no or insufficient hospital compensation had huge debts. The families where the deceased woman played important roles or having members with disability or serious diseases had more difficulties to reallocate her tasks.

Conclusions: We found that although monetary income of woman was low, the maternal death resulted in catastrophic household-level costs. Although the families had taken coping strategies, some of them were at risk being pushed into poverty and calamity. Sustained and sensitive social services -- in addition to financial support mechanisms -- will be needed to assist these families to survive this shock.

OP4-2

STATUS AND IMPACT FACTORS OF DEMANDING, UTILIZATION AND SATISFACTION OF IMMUNIZATION SERVICE OF MIGRANT CHILDREN IN DENSELY POPULATED AREAS OF ZHEJIANG, CHINA

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Background: Sharp rise in the number of migrants in Zhejiang Province pose serious challenges to the work of the Expanded Program on Immunization (EPI). In order to evaluate the status and impact factors of demanding, utilization and satisfaction of immunization service of migrant children, we implemented a survey in this 3 counties(Beilun of Ningbo City, Jiashan of Jiaxing City and Shangyu of Shaoxing City), in April 2010.

Methods: A Probability Proportion to Size(PPS) sampling was adopted.453 migrant children aged 0~35 months were surveyed by standardized face-to-face interviews. We collected demographic characteristics of the migrant children and their caregivers, children's migrant information, demanding and utilization of immunization service, the satisfaction of the immunization service provided by local immunization clinics. Impact factors for utilization and satisfaction of immunization service were explored using single-level multinomial logistic regression models, we then calculated the Odds Ratio[OR], with 95% confidence interval[CI].
Results: The migrant children’s caregivers had shown 13.47%-69.98% with immunization service demanding varied according to contents of service. 62.25% of migrant children had received the immunization service from local clinics including: investigation and notice, vaccination, health education et al. 46.36% migrant caregivers were satisfied with service provided by local clinics. We found that age of migrant children(OR=2.25, 95% CI: 1.45~4.50), mother’s education level(OR=2.135, 95% CI: 1.12~3.61), birthplace(OR=9.64, 95% CI: 5.31~27.43), duration of the child’s residence in surveyed areas(OR=3.17, 95% CI: 1.64~6.91), space facilitation to the immunization clinic(OR=2.35, 95% CI: 0.94~4.73) were associated with utilization of immunization service; and physical examination before immunization(OR=0.38, 95% CI: 0.15~0.98), appointing the next immunization(OR=20.64, 95% CI: 2.31~184.43), form of appointing(OR=1.87, 95% CI: 1.15~3.04), health education in immunization clinics(OR=2.28, 95% CI: 1.24~4.20) significantly influenced the satisfaction of immunization service.

Conclusion: Future intervention to improve the utilization of immunization service should be primarily aimed at the child with one or more characteristics as followed: aged 25-35 months, born out of hospital, having the caregiver with lower educational level, duration residence time less than 3 months, having an inconvenient access to immunization clinics. Strategies to improve satisfaction of immunization service of migrant children could be explored toward both users and providers. We suggested that interventions such as establishing immunization service standard, improving service quality and implementing health education should be more emphasized.

Keywords: Immunization; Demanding; Utilization; Satisfaction; Impact factors; Migrant children

OP-43

CHOCOFORT: IRON FORTIFICATION ON CHOCOLATE CANDIES AS AN ALTERNATIVE TO OVERCOME ANEMIA IRON DEFICIENCY IN CHILDREN (ORGANOLEPTIC TEST IN PRIMARY SCHOOL CHILDREN)

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Background: The prevalence of anemia in school age children in Indonesia based on the Household Health Survey 2001 is 47%, in detail in age 5-14 years old is 428 per 1,000 boys and 492 per 1,000 girls. In school age children, iron deficiency anemia can cause growth and brain development disorders, cognitive disorders, and immunosuppression. One of the solutions to control iron deficiency anemia is iron fortification in foodstuff that commonly used by the community. Iron fortification in food is expected to be an alternative in the improvement of the nutritional value of food itself and reduction the prevalence of iron deficiency anemia. This study used chocolate candy as a carrier material of iron fortificant because the typical taste and sharp smell of chocolate were expected to suppress the iron’s taste that in disfavour with children, so this fortified food (chocolate candy) will be preferred by the target group.

Objectives: To find out the differences in organoleptic acceptability between iron fortified-chocolate candy and the control in primary school children.

Methods: This study was an experimental study. The subjects of this study were 80 untrained panelists, consisted of primary school students aged 10-12 years met the criteria of: willingly be a panelist, physically and mentally healthy, and in circumstances not hungry when testing is done. Panelists tasted three chocolate candies that have been
fortified with iron (FeSO4) in various dosage (0 ppm, 30 ppm and 50 ppm). Only then, they filled the available hedonic test sheet (divided into like and dislike scale) to determine the level of panelists’ predilection on organoleptic properties (color, aroma, texture, and flavor) of iron fortified-chocolate candy.

**Results:** One way Bonferroni statistical test indicated that the color and aroma of 30 ppm iron fortified-chocolate candy were the most preferred by the panelists (p ≤ 0.05), the texture and flavor of 50 ppm iron fortified-chocolate candy were the most preferred by the panelists children (p ≤ 0.05) compared to control candies.

**Conclusion:** The most favorite candy is 50 ppm iron fortified-chocolate candy in terms of texture and flavor. It means the addition of iron does not change the flavor, one of important aspects in consumer acceptance. The main issue in food fortification is the changes in flavor and it does not happen in this study. Henceforth, suggested further research is to know the effect of consuming iron fortified-chocolate candy in changing levels of children hemoglobin.

**Keywords:** iron fortification, chocolate candy, organoleptic test

**OP4-5**

Newborn Care Practices in an Urban Slum of Dhaka: Comparison of Use of Care at BRAC Delivery Centers and at Homes – A Cross Sectional Study

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Background: Neonatal mortality in urban slums of Dhaka is twice than in urban non-slums areas. BRAC, a Bangladeshi NGO, initiated a community based Manoshi program and established delivery centers in urban slums to improve maternal, newborn, and child health. This study was undertaken to compare newborn care practices related to cord care, thermal care, bathing and initiation of breastfeeding in BRAC delivery centers and at homes, in an urban slum of Dhaka.

Methods: A cross-sectional study included 130 mothers; 99 who delivered at centers and 31 at homes from January to November 2010. Six in-depth interviews were also conducted from mothers to explore newborn care practices.

Results: About 99% center-delivered and 93.5% home-delivered mothers received the ANC during their last pregnancy. All centered deliveries were conducted by the BRAC trained urban birth attendants (UBAs) whereas all home deliveries were conducted by traditional birth attendants (TBAs). In center deliveries, 96% used new blade and all used new thread to cut the cord. Of those, 70% boiled thread and 28% boiled blade. In home deliveries, all used new blade and thread to cut and tie the umbilical cord. Of those, 84% boiled blade and 39% boiled thread. Overall, 91% newborns were dried and 96% wrapped immediately after birth in new/clean clothes. Of those, 76% were dried before and 70% wrapped after the delivery of placenta. In center-deliveries, 96% newborns were placed on mother’s abdomen and 92% given bath on/or after third day. About 98% mothers initiated breastfeeding within 24-hours and all gave colostrum to their babies. In home-deliveries, 26% newborns were placed onto surface and 62% not given bath on/or after third day. About 23% mothers discarded colostrum.

Conclusion: Newborn care practices were comparatively better in center deliveries but still remain a great cause of concern among home deliveries that may hamper the health of newborns.

OP4-6

LEVELS AND PROFILES OF PCDD/Fs, PCBS IN MOTHERS’ MILK IN SHENZHEN OF CHINA: ESTIMATION OF BREAST-FED INFANTS’ INTAKES

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Objectives: Persistent organic pollutants (POPs), such as polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs) and polychlorinated biphenyls (PCBs), are a family of lipophilic stable toxic compounds that occur widely in the environment. Humans, due to their unique position on the food chains, may be exposed to higher levels of environmental pollutants through intake of contaminated food. Human breast milk is usually used a good indicator for POPs exposure of human being especially for infants, also can reflect maternal contaminants body burden and POPs intakes for the infants. Moreover, collection of human milk is convenient and noninvasive and is easily replicated. For these reasons, sixty breast milk samples were collected in Shenzhen, China from July to November in 2007 to investigate the body burdens of dioxins of Shenzhen maternal and carry out a health risk assessment for breast-fed infants.

Methods: The samples were analyzed of the concentrations of polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs) and polychlorinated biphenyls (PCBs) by Isotope HRGC/HRMS.

Results: The range of upper-bound for ΣTEQ-(PCDD/Fs+PCBs) in the samples was 4.10 - 35.3 pg TEQ g⁻¹ lipid (median: 10.6 pg TEQ g⁻¹ lipid; mean: 11.9 pg TEQ g⁻¹ lipid). The levels of the measured contaminants in the breast milk had significant correlations with the length of inhabitation period in
Shenzhen (r = 0.487, p < 0.05 for PCDD/Fs, r=0.431, p<0.05 for PCBs and r = 0.478, p < 0.05 for ∑TEQ-(PCDD/Fs+PCBs)), and the consumption rate of fish (r = 0.366, p < 0.05 for PCDD/Fs, r = 0.486, p < 0.05 for PCBs and r = 0.416, p < 0.05 for ∑TEQ-(PCDD/Fs+PCBs)), respectively. Moreover, significant positive correlations were also detected between the participant’s age (r = 0.305, p < 0.05 for ∑TEQ-PCBs and r = 0.275, p < 0.05 for ∑TEQ-(PCDD/Fs+PCBs)) and the body burdens of these contaminants respectively. It is estimated that the daily intake (EDI) of the sum of PCDD/Fs and DL-PCBs by the breast-fed infants was 5.60-161 pg TEQ kg⁻¹ bw per day (mean: 48.2 pg TEQ kg⁻¹ bw per day; median: 42.2 pg TEQ kg⁻¹ bw per day). The result showed that both the body burdens of PCDD/Fs and PCBs of the recruit population and the calculated EDI of the breast-fed infants were higher than those in the non-exposed areas in mainland China.

Conclusions: Continuous surveillance on PCDD/Fs and PCBs levels in human milk is critical to more precisely evaluate human health risk posed by the negative environmental impact in Shenzhen in the future.

Keywords: Body burden, Polychlorinated dibenzo-p-dioxins, Polychlorinated dibenzofurans, Polychlorinated biphenyls, estimated daily intakes (EDI), Human breast milk

OP4-7
RECOMBINANT BCG AND SUBUNIT PRIME-BOOST VACCINATION STRATEGY FOR EV71

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Enterovirus 71 (EV71) is one of the causative agent for hand foot and mouth disease (HFMD) and may cause severe neurological complications in young children. Currently, no EV71 vaccine is available for the prevention of the infection. Prime-boost vaccination strategies are powerful methods for inducing immune response and protective efficacy against various diseases. In the present study, the immune response and protective efficacy of a recombinant BCG vaccine expressing the UbGR-VP1 antigen of EV71 (rBCGV1) in prime-boost immunization with a subunit vaccine containing the truncated nucleocapsid protein VP1 (NPt-VP1₁₋₁₀₀) against EV71 infection were determined. One-day old ICR suckling mice were immunized subcutaneously at day 1 and boosted at day 7 with either rBCGV1 or NPt-VP1₁₋₁₀₀. The same vaccines were used to prime and boost for homologous vaccination whiles the different vaccines were used in heterologous prime-boost vaccination. One week after the last immunization, the mice were challenged intraperitoneally with EV71₁₀⁵ strain at 10⁻⁵ TCID. The mice were observed daily for clinical signs and symptoms. The results demonstrated that the group which was primed with rBCGV1 and boosted with NPt-VP1₁₋₁₀₀ showed the highest survival of mice (5/7) (71.4%) compared to the groups receiving the same vaccine (rBCGV₁-rBCGV₁ and NPt-VP1₁₋₁₀₀-NPt-VP1₁₋₁₀₀) with (2/7) (28.5%) and (3/7) (42.8%), respectively. The significant of immune responses in the rBCGV₁-NPt-VP₁₁₋₁₀₀ group showed that the heterologous prime-boost immunization is the good strategy for EV71. As a conclusion, the heterologous prime-boost immunization with rBCGV1 and subunit vaccine (NPt-VP₁₁₋₁₀₀) induces superior protection compared to homologous prime-boost immunization with rBCGV1 alone.

Keywords: Enterovirus 71, recombinant BCG, subunit vaccine, prime-boost immunization
CURRENT SITUATION OF MATERNAL AND CHILD HEALTH AMONG INDIGENOUS PEOPLES IN THE PHILIPPINES: CASE OF TAGBANUA MOTHERS AND CHILDREN IN CORON ISLAND, PALAWAN

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The Philippines, an archipelago composed of more than 7,000 islands, is home to several indigenous groups who make up about 15% of the general population. This study has a general objective of determining the maternal and child health status of Tagbanua mothers and children in Coron, Palawan, Philippines. This is a cross-sectional descriptive study, which aimed to determine the knowledge and practices of Tagbanua mothers on maternal and child health. Fifty mothers participated in the survey completed in 2009. On antenatal care, five mothers (10%) knew the pregnancy risk factors and only 8 (16%) knew that pregnant mothers need to consume 90 iron tablets during pregnancy. Only four mothers had three or more prenatal consultations, while only 14% had their first prenatal consultation during the first trimester. On birth care, 14% knew the pregnancy/delivery complications; only two mothers consulted a healthcare provider after pregnancy and with 16% of the mother had health personnel as the birth attendant. For post-natal care, 42% of the mothers were aware that medical consultations are needed after pregnancy while 46% knew the family planning methods. On child care, a very low percentage were familiar with the frequency of giving vaccinations, with only 2% for Polio, 4% for DPT, and 10% for both BCG and measles. When asked to assess their knowledge on child care, only 26% of the mothers assessed themselves to have excellent knowledge. Almost half knew the importance of maternal and child health information (46%). For questions on record keeping, only six mothers referred to the existing health records for health information. From the survey, the current maternal and child health status of Tagbanua mothers is in dire need of improvement. Geographical barriers pose one of the challenges in accessing vital health care services, which threatens their access to primary health care. Through this endeavour, the case of Tagbanua mothers and their children on Coron Island, Palawan, gave a snapshot view of the indigenous peoples’ health in the Philippines.

THE ASSOCIATION BETWEEN CHRONIC CALORIE DEFICIENCY DURING PREGNANCY AND LOW BIRTH WEIGHT IN KLUNGKUNG DISTRICT 2010

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The number of pregnant women with chronic energy deficiency and babies with low birth weight are increasing in Klungkung district. The study aims to determine the association between chronic energy deficiency among pregnant women and the outcome of low birth weight in Klungkung in 2010.

The study was conducted at all primary health care (PHC) in Klungkung. The study is an analytical study using non matched case control design. Cases are women who giving birth to low birth weight baby and otherwise control are women who giving birth to baby with normal weight. The chronic energy deficiency status was determined based on mid upper arm circumference (MUAC) prior to pregnancy, the body weight gained during pregnancy and calorie and protein intake during pregnancy. The association between chronic energy deficiency and low birth weight was analyzed using Chi-Square Test at $\alpha=0.05$. 
The study shows that the proportion of pregnant women with chronic energy deficiency among cases was 89.4% and among control was 55.3%. Moreover, chronic energy deficiency status of mothers is significantly associated with baby’s low birth weight, the p value=0.01. The OR for the relationship is 6.785 that signify pregnant woman with chronic energy deficiency is almost seven times more likely to giving birth to a low birth weight baby than women without chronic energy deficiency.

Based on the finding of the study, the recommendation toward pregnant women in Klungkung District to improve their nutritional intake especially food that contain high protein to improve their nutritional status in order to get a well born baby.

Keyword: low birth weight, MUAC, pregnant women, body weight gain, chronic energy deficiency

OP4-10
MARRIED MEN’S PERCEPTIONS AND FACTORS FACILITATING THEIR INVOLVEMENT IN ANTENATAL CARE IN IBADAN NORTH LOCAL GOVERNMENT AREA, OYO STATE, NIGERIA

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Over the years, maternal health has been seen and treated as a purely feminine matter with little or no involvement of the males. However, anecdotal evidence has shown that men do influence women’s access to prenatal care but not much systematic documentation has been done on male involvement in Antenatal Care (ANC). This study was therefore designed to determine the perceptions of married men on ANC and factors facilitating their involvement in Ibadan North Local Government Area, Oyo State, Nigeria.

The cross-sectional study was community based and a three-stage sampling technique was used to select 500 married men from households. They were interviewed using pretested semi-structured questionnaires. Eight Focus Group Discussions (FGDs) were also conducted among men in 4 randomly selected wards out of 12 wards in the LGA. Perceptions of ANC were determined using an 18-point perception scale. A positive perception attracted 2 points while a negative perception was scored zero. Scores of ≤ 9 and ≥ 10 points were considered negative and positive perceptions respectively. The FGDs were tape recorded, transcribed and subjected to content analysis. The quantitative data were analysed using descriptive statistics and Chi-square.

The mean age of respondents was 43.6 ± 12.6 years, 74.8% were Yoruba and 57.6% were Muslims. About a third (35.0%) had either Ordinary National Diploma (OND) or National Certificate of Education (NCE) and 84.8% were in a monogamous relationship. Respondents’ mean perception score was 8.2 ± 4.7 and 46.8% were of the perception that husbands should only follow their wives to ANC facilities when their attention is needed. The perception of 34.8% was that attending ANC with one’s wife is a waste of time. The mean perception scores of respondents with Master, First degree, OND/NCE and SSC were 11.3, 8.3, 9.6, 7.4 points respectively (p<0.05). Most (93.2%) respondents were of the opinion that it is the duty of a man to ensure that his wife takes ANC related medicine regularly, men should only remind their wives to keep their ANC appointment (89.2%) and 83.8% believed that it is the duty of a man to tell his wife to register for ANC. Suggested factors that could facilitate men’s involvement in ANC included true love between couple (95.0%), enforcement by medical staff (89.6%) and wife’s behaviour (89.4%). The FGD discussants were of the view that pregnant woman should commence ANC when the pregnancy is 3 months while husbands should assist their wives in doing house chores to reduce her stress during pregnancy. Men should provide transport fare and other things their wives may need at the clinic. Listed factors that can facilitate men’s
involvement included government policy and motivation from wife. Negative perceptions of male involvement in antenatal care existed among respondents. Community sensitization programmes aimed at improving male involvement in maternal health should be provided by government and non-governmental agencies.

Keywords: Antenatal care, Men Involvement, Facilitating factors

OP4-11

LOCAL GOVERNMENT LEGISLATORS’ AWARENESS, PERCEPTIONS AND SUGGESTED POLITICAL STRATEGIES FOR REDUCING MATERNAL MORTALITY IN IBADAN, NIGERIA

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Nigeria has one of the highest Maternal Mortality (MM) ratios in the world, yet the political commitment needed to reduce its magnitude is low. Local Government Legislators (LGLs) have important roles to play in formulating policies and enacting laws for ameliorating this public health problem. However, the awareness and perceptions of LGLs regarding the burden of MM have not been adequately documented. This study was therefore designed to determine the awareness and perceptions of LGLs in Ibadan relating to MM and political strategies for its reduction.

A cross-sectional study was conducted in the five metropolitan and six peripheral Local Government Areas (LGAs) that constitute Ibadan. Eleven legislators who were Chairmen of House Committees on Health (CHCH) were purposively selected and interviewed using an In-Depth Interview (IDI) guide while 110 consenting Legislators out of 113 were interviewed using a semi-structured questionnaire to collect information on awareness, perceptions and strategies for reducing MM. Perceptions of MM were determined using an 11-item perception scale. A positive perception attracted a score of 2 points while a negative perception was zero making a total of 22-points. A total score of < 12 and ≥ 12 points were considered negative and positive perceptions respectively. Descriptive statistics and Chi-square were used to analyse the quantitative data and the qualitative data were subjected to thematic analysis.

Mean age of respondents was 36.5 ± 7.2 years, 81.8% were males and 91.8% were married. Many (41.8%) had either Ordinary National Diploma (OND) or National Certificate of Education (NCE) and 34.5% had Secondary School Certificate (SSC). Some (39.1%) were not aware that MM is high in Nigeria. Majority (60.9%) were aware of women who died during pregnancy or childbirth in their LGAs. Most respondents (91.8%) were not aware of any existing policies for reducing MM. Respondents mean perception score was 10.6 ± 4.4 and 54.5% were of the perception that a legislation on compulsory use of antenatal care would not reduce MM. The perception of 78.2% was that abortion should not be legalized inspite of its association with MM when done illegally. The opinion of 60.9% was that legislators should not finance maternal health projects from their constituency allowance. The mean perception scores of respondents with first degree, OND/NCE and SSC were 10.6, 9.9 and 9.4 points respectively (p<0.05).

Proffered political strategies for reducing MM included training workshop for political leaders (100%), involvement of party leaders in maternal health programmes (88.2%) and provision of evidence to show political leaders that MM is a public health problem (87.3%). The CHCH suggested establishment of rapport with political leaders and involvement of traditional leaders. In-depth interviews also revealed that HIV/AIDS, Immunization, Tuberculosis and Leprosy control were the top priority health programmes in the LGAs and unsafe abortion was identified as the main cause of MM in their constituencies.

Negative perceptions of maternal mortality existed among the legislators. Advocacy and
the integration of their suggestions into control efforts have potential for ameliorating the problem.

Key words: Local Government, Legislators, Maternal mortality, Political strategies

5. Others (Environmental Health, Urban Health and Related Issues)

OP5-1
HEALTH RISK DUE TO USE OF THE ORGANOPHOSPHATE INSECTICIDE, CHLORPYRIFOS, BY RICE FARMERS IN VIETNAM

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Vietnam is an agricultural developing country with over 80 per cent of workers employed in agriculture, mainly rice farming cultivation. Farmers use back-pack reservoirs with hand pumps to apply pesticides, but their knowledge of safety in pesticide application is low. Hospitalisation and a range of adverse effects are currently observed in many developing countries including Vietnam. Chlorpyrifos is the most common organophosphate insecticide registered for agricultural use in Vietnam. Health risk assessment of chlorpyrifos use in the Vietnamese environment has not been carried out and limited investigation of this commonly used pesticide has occurred in other developing countries.

The objective of this study is to evaluate the health risk of chlorpyrifos exposure to a typical group of rice farmers after application in Vietnam, using a probabilistic approach. The standard process of health risk assessment using exposure and dose-response relations to characterise the risk was applied. However, probabilistic techniques for exposure assessment and risk characterisation were used.

Biological monitoring of rice farmers was used to estimate chlorpyrifos exposure from all pathways during application. Urine samples (24 h) were collected from farmers (18), from 1 day prior to application and over 5 days post-application, and then analysed for TCP, the main metabolite of chlorpyrifos,
using HPLC-MS/MS. Urinary TCP levels were converted into an absorbed daily dose (ADD) of chlorpyrifos for each farmer. The health risk of chlorpyrifos exposure for the rice farmers was characterised by comparing exposure doses (ADD) with acute guideline doses for chlorpyrifos used by USA and Australian agencies.

Post-application chlorpyrifos ADD of farmers varied from 0.4–94.2 µg/kg/d, with a 50th percentile exposure level of 8 µg/kg/d which was about 80-fold higher than the 50th baseline exposure level (0.11 µg/kg/d). In comparison with acute guideline doses, the 50th value of post-application exposure among the rice farmers in Vietnam was over 2 times higher than the acute MRL of chlorpyrifos recommended by ATSDR (3 µg/kg/d) and 1.5 times higher than that recommended by US EPA (5 µg/kg/d), but slightly lower than the acute guideline recommended by Australian NRA (10 µg/kg/d). The 95th percentile for the ADD values of the farmers exceeded the acute dose guidelines by a factor of 10 or more.

This case study in Vietnam has shown that rice farmers are at a high risk of chlorpyrifos exposure and resultant adverse health effects, mostly neurotoxicity.

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**OP5-2**

**EFFECT ON DENTAL FLUOROSIS EPIDEMIC STRENGTH OF WATER IMPROVEMENT PROJECTS IN DRINKING-WATER TYPE FLUOROSIS AREAS IN INNER MONGOLIA**

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**Objective:** To understand the fluoride content and the condition of dental fluorosis in drinking-water type fluorosis areas in Inner Mongolia after water changing, and to analyze the effect of water improvement projects, in order to provide scientific basis to fluorosis prevention and control strategy.

**Methods:** The investigation was taken by the method of cross-sectional investigation. 10 counties were sampled randomly from 85 fluorosis area counties, and 3 fluorosis area villages were then sampled randomly in each selected county. According to whether having changed water and whether the fluoride content is qualified (< 1.20 mg/L is qualified) after water changing the 30 villages was divided into three groups: qualified changing water villages, unqualified changing water villages, and not changing water villages. Collect and test the fluoride content of drinking water of every sampled village, and survey the dental fluorosis of 8 to 12 years old children in the villages. The dental fluorosis was diagnosis by Dean’s method. Calculate the dental fluorosis index and the epidemic strength of different groups of villages. Compare the differences of water fluoride content, the relevance ratio of dental fluorosis among the three groups.

**Results:**

1. The difference of the water fluoride content among the three groups is significant (F = 10.54, P < 0.01), pairwise comparison between the three groups of water fluoride content are also show significant difference (P < 0.05, P < 0.01 and P < 0.05).
2. The difference of dental fluorosis relevance ratio of 8 to 12 years old children among the three groups is significant (P < 0.01). Pairwise comparison between qualified changing water villages and unqualified changing water villages, qualified changing water villages and not changing water villages are also show significant difference (P < 0.01), but there are no significant difference between unqualified changing water villages and not changing water villages P>0.05.

3. The fluorotic teeth index of qualified changing water villages unqualified changing water villages and not changing water villages were 0.64, 1.31, 1.07, the epidemic strength of the three groups was mild, moderate and moderate, respectively.

Conclusion: The changing water projects in drinking-water type fluorosis areas in Inner Mongolia are effective, but the effect is not ideal in some areas.

Keywords: Drinking water fluorosis Change water to reduce fluoride Effect

OUTDOOR AIR POLLUTION (SO₂, NO₂, OZONE) AND CHILDHOOD ASTHMA IN JAKARTA: A GIS-BASED ECOLOGY STUDY

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Background: Asthma is the most common chronic disease in childhood. Several studies have observed that outdoor air pollution, such as Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂), and ozone (O₃) have been consistently shown to exacerbate existing asthma. Consequently, an asthma intervention program must be started from environmental factor, especially outdoor air pollution.

Objectives: We purpose to better understand the relation between outdoor air pollution (NO₂, SO₂, and O₃) and childhood asthma in Jakarta.

Method: We are going to use ecology by time trend design to better understand the relation between outdoor air pollution (NO₂, SO₂, and O₃) and childhood asthma in Jakarta. Besides that, this study is going to use the spatial model to show the annual average concentration of outdoor air pollution (NO₂, SO₂, and O₃) from Meteorology, Climatology and Geophysics Agency (BMKG) in Indonesia and the annual data of childhood asthma from medical record in 10 hospitals. After that, the data will process on SPSS version 13.0 that exist in the computer laboratory facility in Faculty of Public Health to get the regression value (r-value) and GIS platform to describe the annual average concentration of outdoor air pollution (NO₂, SO₂, and O₃).

Result: Some tables and graphics will be resulted to show regression value (r-value). This value will show the relation between air pollution (NO₂, SO₂, and O₃) and childhood asthma in Jakarta. Besides that, some maps will be created to show the average concentration of SO₂, NO₂, and O₃ from 2000-2010. These maps will be divided into three spatial, high, moderate, and low concentration.

Keyword: NO₂; SO₂; Ozone; Asthma; Ecology Study; GIS

POVERTY AND THE CHALLENGE OF URBAN HEALTH IN NIGERIA

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Poverty and rapid urbanization are two of the greatest challenges facing Africa today. UN-Habitat estimates that Sub-Saharan Africa cities have over 166 million slum dwellers most of who work in the informal sector where they simply do not earn enough to afford decent shelter and services. Health is a major urban policy issue in Nigeria because poverty and slum conditions pose a serious
public health threat to the country's rapidly expanding urban population. In vast areas of Nigerian and other African cities environmental amenities lag behind population growth; inadequate sanitation and waste management, and the poor state of public health infrastructure have led to the spread of a wide variety of water-borne and other communicable disease. Barely five years to the 2015 date for attaining the Millennium Development Goals, it looks very unlikely that the development targets in health, education, environmental sustainability, poverty reduction and enhanced international development assistance will be met in Africa, despite noticeable improvements in some areas. Poverty, slum conditions and infectious disease remain pervasive and persistent. The level of preventable child and maternal deaths is still high, and the pattern of government spending on the health sector remains inequitable as it tends to favor the well-off in society. The paper considers ways to forestall the growth and spread of slums in the future, and ensure that the existing ones are upgraded and progressively integrated into the urban mainstream; how poverty which leads to slum conditions can be alleviated in order to reduce the worsening disparities in access to health care. The central argument is that human development ought to be at the centre of the concern for sustainable urbanization in Africa. To achieve this, the paper considers how best to promote the growth of more inclusive and humane cities by reviewing discriminatory laws and codes which tend to inhibit the access of the poor to affordable land, healthcare and housing security. The concluding section cautions that the mere presence of health facilities in the cities should not be confused with these facilities being accessible to and affordable by the poor. It stresses the need for appropriate and well targeted urban health and other interventions by state and local authorities, the international development community, private sector and civil society organizations, and the urban poor themselves in a collaborative effort to build safer, healthier and more equitable cities

Keywords: Urban poverty and inequality; environmental health, equitable healthcare, inclusive cities, Africa

OP5-5
MAPPING THE QUALITY OF DRINKING WATER AND CLEAN WATER IN SERANG DISTRICT YEAR 2011

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Water is one of the primary needs of human being. Without water, humans can not live with balance. Increased human activities contribute in lowering the quantity and quality of water that would lead to health problems. Therefore, carried out a mapping of water quality and drinking water in the community to see the picture quality of water consumed daily.

In carrying out one of the main tasks and functions, BBTKL PPM Jakarta conducted a mapping in the district of Serang in 2011. Implementation of this mapping using cross-sectional study design by observing household environment sanitation and water quality in one period of implementation. Conducted sampling of clean water and drinking water in 104 households who meet the inclusion criteria of using groundwater as a source of clean water and clean water is used as drinking water. Point spread evenly sampled in each district of Serang Regency. Each district would have taken a sample point that represents residential high-potential pollutants, and settlements in the contaminated areas of low pollution.

Results of total coliform in drinking water community, the majority still do not meet health requirements (57.7%) while for the parameter E. coli largely complies with the requirements of health (57.7%). For Coliform parameters on the quality of clean water, the majority (62.5%) no longer meets the health
requirements. Most of the physical parameters of the chemical in water supply still meets health requirements. There are several parameters that go beyond health such as hardness (1.8%), sulfate (2.8%), color (3.8%), pH (4.8%), nitrite (4.8%), turbidity (4.8%), chloride (4.8%), organic matter (5%), manganese (16%), iron (19%), and TDS (23%). Based on the results of bivariate analysis found that the factors that have a risk of contaminating drinking water for the behavior of society in maintaining the cleanliness of drinking water containers that are used everyday.

OP5-6
A CITY WITH MORE THAN 14 MILLION IMMIGRANTS—SHENZHEN
HOW TO DEAL WITH THE HEALTH PROBLEMS OF INHABITANTS

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Shenzhen is a city of migrants, adjacent to Hong Kong only with areas of 1960 km². There were three hundred thousand populations in Shenzhen when China Central approved it to be the special economic zone in 1980. However, with an extremely rapid rate of population increase, so far it has a population of 14 million. And different identities exist in the city, 2.8 million peoples has Shenzhen residents identity card, 8 million peoples only obtain a temporary residence permit and others (3.2 million). In the face of the features population structure and how to resolve the problems of healthcare including medical security, seeing the doctor, disease control and preventive and health care. These all put forward the serious challenge to the local health decision makers.

A survey of 2008 found that the two-week prevalence rate was 22% in Shenzhen residents, the rate of seeking medical care was 16.4%, prevalence rate of chronic disease was 14.7%, and admission rate was 7.9%. According to the statistical data of Shenzhen health department in 2009, there were 75.5 million patients with emergency treatment, eight hundred thousand inpatients, five hundred and seventy thousand children have got services of vaccination and health care, one hundred and sixty thousand peoples have maternal health care, 29715 cases of reported communicable diseases and have almost 30 million severe mental patients.

Shenzhen government adopted the classification solution in a creative way. For Shenzhen resident, it's basically with comprehensive medical insurance, for other two groups of population, medicare for labor workers and hospitalisation medical insurance were used respectively and children's medical insurance for school children. Until 2010, the whole city has achieved medical insurance coverage, up to 1014 million people insured. Including comprehensive medical insurance (2.1million), medical insurance for labor workers (5.336 million), hospitalisation medical insurance (2.034 million) and children's medical insurance (0.67million).

“One big, One small” plan have been put into effect by local government in order to resolve the problem of seeing the doctor. “One big” meant government would increase the inputs in medical establishment which with high level, reasonable layout and comprehensive medical and specialized. And “One small” indicated that government would also increase the inputs on developing community health service center based on community. So far, 101 special hospitals, 356 out-patient departments, 625 community health service centers and 1020 private clinics have been established. With 21399 accumulated beds and 67000 medical staffs. During the plan of “12·5”, twenty billion would invest in adding nine comprehensive medical institutions with 12000 beds.

In order to resolve a series of problems including disease control and preventive in Shenzhen resident, health care of woman, child and senior citizen and mental health, Three-level(city, district and community)
specialist agencies relate to disease control and preventive, health care of woman, child and senior citizen and mental health have been established. Center for Disease Control and Preventive, Maternal and Child Health Hospital and Mental Health Center have adopted and implemented the equalization programs of public health service, such as resident health records, health education, vaccination, control of communicable diseases, management of chronic diseases (hypertension and diabetes etc.) and severe mental illness, child care, maternal healthcare and the elderly care which were the basic public health program. The public health of major projects, implementation of prevention and control of tuberculosis, AIDS and virus hepatitis and other major diseases, the National Immunization Program, rural women, maternity hospital, rural waterworks, Latrines, resow hepatitis B vaccine for children aged below 15, pregnant and early pregnancy supplement folic acid to prevent neural tube defect (NTD), breast cancer, cervical cancer screening and other major public health projects.

For nearly 30 years, Shenzhen has achieved remarkable success in public health, the incidence rate of infectious disease decreased from 2170.3/100,000 to 336.1/100,000, maternal mortality rate decreased from 63.8/100,000 to 16.1/100,000 as well as the infant mortality rate decreased from 19.4/100,000 to 2.0/100,000. In terms of the equity of medical service, the local government did highly effective work on it. However, there were still some unfair problems have to resolve, such as resource configuration, medical security and medical service and so forth.

OP5-7 USING GEOSPATIAL INFORMATION TO ESTIMATE HEALTH VULNERABILITY DUE TO SEA LEVEL RISE: CASE STUDY IN NORTH JAKARTA

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Global warming is believed to have affected climate change, and one of the results is sea level rise. Indonesia as an archipelagic country in the equator of which two third the areas consist of waters is highly influenced by the sea level rise phenomenon. Some impacts to the coastal areas are shoreline retreat and inundation. In addition, some other problems such as land subsidence, tidal wave and tidal flood often endanger the coastal areas. This condition certainly affects the population living in the areas. One aspect that needs a serious attention is health vulnerability of the population, considering that many diseases spread quickly in flooded areas. For that purpose this research is conducted, taking a study area at Jakarta Bay which is highly populated.

Using geospatial data such as digital base map of North Jakarta, tidal data, land subsidence, demografi, and so on, combined with population health data, in this paper will be presented sea level rise in North Jakarta from year to year, and the impact to the health of population. It is hoped this research can become an input to local government in order to perform appropriate mitigation and adaptation methods to the areas impacted by sea level rise.