

health care of older persons. Triangulation of results was done to determine areas for consideration in integrating care for older persons within the public health system. Results and Discussion: Health care for older persons can be improved within the framework of existing community structures. Elderly Filipinos are open to the possibility of being cared for by non-family community members. Socio-cultural considerations, current health challenges, existing community and public health activities, institutional support, and opportunities are discussed.

Conclusion and Recommendation: Integration of care for older persons within the public health system requires holistic approaches, financial support strategies, capacity enhancement for the health workforce, and community involvement.

Oral Track 22- Primary Healthcare and Public Health

OT22-1

Cost Effectiveness of Type 2 Diabetes Screening among Rural Population of Qazvin in 2007: Family Physician Project

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Introduction: Application of economic analysis is one of the decision making elements concerning priority setting and effectiveness of provided services.

Objective: To assess the residents' needs in clinical teaching in order to prepare an educational module to increase their teaching clinical skills. Material and methods: In this descriptive – analytic study, we selected 14 Rural Health Centers to estimate unit cost of diabetes screening in Qazvin family physician project. The project covered 94318 people of over 30 years. The effectiveness has been measured by disability adjusted life years resulting from diabetes screening results. Statistical procedure and the second version of DisMod software were used for data analysis.

Findings: Total life years saved by diabetes screening project in Qazvin's rural population is about 291.24 years and total cost of this project is about 424733000 Rials (\$45000). Incremental cost effectiveness of doing screening project to save each life year in Qazvin's rural population is 101722024 Rials (\$10500).

Conclusion: The result implies that this project is cost effective.

OT22-2

The Effects of Healthcare Staffing on Mortality Rate in Taiwan: A Longitudinal Analysis from 1998 to 2007

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Objective: Literature review shows that physician supply has a negative effect on population health. This study was aimed to investigate the relationship between healthcare staffing and mortality rate in Taiwan.

Method: Data of healthcare staffing and mortality rate of 368 townships in Taiwan from 1998 to 2007 were retrieved from the yearly Bulletin of Manpower Statistics, Department of Health. Socioeconomic status including population density, average household income, racial/ethnic composition, education, unemployment rate and aging index were obtained from National Statistics, Department of Internal Affairs, Taiwan. Statistical analysis including ordinary least squares (OLS) model for cross-sectional analysis and generalized estimating equation (GEE) model for longitudinal analysis were performed to study the effect of healthcare staffing on the mortality rate.

Results: Our results showed that there was a significantly negative association between all kinds of healthcare staff, except LVN, and the mortality rate in cross sectional analysis using OLS model. In the longitudinal analysis with GEE model, we found the number of physician and dentist per thousand were negatively associated with the crude mortality rate among 368 townships. Increasing the number of physicians and dentist by one per thousand will decrease the mortality rate by 0.4% ($p < 0.05$) and 4.8% ($p < 0.05$), respectively.

Conclusions: The physician and dentist supply have a negative effect on mortality rate in Taiwan. The dentist density has a better prediction on mortality rate than the physician, which might represent uneven distribution of healthcare staffing, and rather than a true effect on mortality.

OT22-3

Low Serum Bilirubin Level as An Independent Predictor of Stroke Incidence: A Prospective Study in Korean Men and Women

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Background and Purpose: Bilirubin is not only a waste end-product but an antioxidant. Bilirubin is known to be associated with decrease in cardiovascular risk in men, but its relationship to stroke was not clearly understood. Methods: Serum bilirubin concentrations were measured in 78 724 health examinees (41 054 men, aged 30-89 years) from 1994 to 2001. The subjects with potential hepatobiliary diseases or Gilbert syndrome were excluded from analysis. Stroke incidence outcome was collected from hospital admission records due to stroke from 1994 to 2007.

Results: Serum bilirubin measurements were divided into 4 levels: 0-10.2, 10.3-15.3, 15.4-22.1, and 22.2-34.2 $\mu\text{mol/L}$. The number of stroke cases was 1137 in men and 827 in women. In Cox proportional hazard models, participants with a higher level of bilirubin showed lower hazard ratios in men with ischemic stroke after adjustment for multiple confounding factors compared to

the lowest level of bilirubin [Hazard ratio (HR) 0.72, 95% confidence interval (CI) 0.58-0.90 in level 3; HR 0.66, 95% CI 0.49-0.89 in level 4; p for trend= 0.016]. The risk of all stroke types also decreased as bilirubin levels increased (HR 0.81, 95% CI 0.68-0.97 in level 3; HR 0.74, 95% CI 0.58-0.94 in level 4; p for trend=0.0071). However, these associations were neither seen in hemorrhagic stroke nor seen in women. Conclusions: These findings suggest that serum bilirubin might have some protective function against stroke risk in men.

OT22-4

Expanded Program on Immunization in Bangladesh: Assessing Coverage and Gap in Two Selected Districts **Syed Muhammad Baqui Billah¹, Humayun Kabir², Subrina Jesmin³, Mohammad Sanaulla Shohel⁴**

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The study assesses the child immunization coverage through Expanded Program on Immunization (EPI) and performance in two districts namely Jessore and Satkhira in Bangladesh from 2005 to 2007. Target was assessed from the information of Geographical Reconnaissance (GR) report of Bangladesh Health Service, further classified by sub district level, namely Upazila coverage. The purpose is to look at the identify flaws by areas in need of further program attention. The analysis shows the irregular number of vaccination coverage for various types of vaccination; for example the coverage for BCG is not the same for coverage of DPT1 in the same area at same coverage period. It also shows lower coverage over time from BCG to Measles peaking at the coverage time of DPT2. Among the areas studied here, Jessore Municipality has the poorest coverage needing attention whereas Shyamnagar is the 2nd poorest on EPI coverage. After aggregating total coverage we further analyzed removing Municipality and find that not only Jessore Municipality, overall coverage is significantly decreased over time in almost all upazila level, indicating default children prevailing with incomplete immunization. Previous studies have shown that the coverage of child immunization was significantly associated with proximity to outreach clinics and the presence of a health worker in the community. Future studies would investigate the possible contributory factor responsible for the flows in coverage on EPI in the mentioned areas in Bangladesh and to think for alternative approaches for the successful coverage on EPI.

OT22-5

Incidence Rate and Influential Factors of Missed Injuries in Major Trauma Patients

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Objective: This retrospective cohort study was to determine the incidence and influential factors of missed injuries in major trauma patients.

Methods: Medical records on all 976 trauma patients admitted to intensive care units in a tertiary care hospital from January 2006 to December 2007 were reviewed. Missed injuries were defined as those unidentified in the emergency department but recognized later in intensive care units. Injuries with the Abbreviated Injury Scale of ≥ 2 were defined to be clinically significant. Cox regression analysis was applied to control confounders and identify independent risk factors associated with occurrence of missed injuries.

Results: There were 133 missed injuries in 118 patients, for a missed injury prevalence of 12.1%, and 87 of these missed injuries in 78 patients were clinically significant. The incidence rate per 100 person-hours was 3.2 for missed injuries and 2.1 for clinically significant missed injuries. The most commonly involved body region of missed injuries was the head, followed by soft tissues and extremities. Cox regression analysis showed that younger ages, higher levels of injury severity, polytrauma, and absence of soft tissue injury were significantly associated with missed injuries, and younger ages, higher levels of injury severity, and presence of chest and pelvic injuries were significantly associated with clinically significant missed injuries. Conclusions: A considerable amount of injuries can be undetected in the emergency department. Younger ages, higher severity levels of injury, polytrauma, and presence of chest or pelvic injury are related to occurrence of missed injuries.

OT22-6

The Impact of Type 2 Diabetes on the Development of Hepatocellular Carcinoma in Different Viral Hepatitis Statuses

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Background: The risk of type 2 diabetes on the development of hepatocellular carcinoma (HCC) remains inconclusive in different hepatitis statuses.

Methods: We prospectively followed a community-based cohort with 5929 persons (4117 seronegative, 982 anti-HCV(+), 696 HBsAg(+), and 134 co-infected) in southern Taiwan from January 1997 through December 2004. Before the study, 546 participants had developed diabetes. HCC diagnoses were from the National Cancer Registry.