

Abortion

A2701: Exploring the determinants of unsafe abortion: improving the evidence base in Mexico

Author: Angelica Sousa and Rafael Lozano

Source: Health Policy and Planning, 25, 2 (2010): 300-310

Abstract: Background: Despite the realized importance of unsafe abortion as a global health problem, reliable data are difficult to obtain, especially in countries where abortion is illegal. Estimates for most developing countries are based on limited and incomplete sources of data. In Mexico, studies have been undertaken to improve estimates of induced abortion but the determinants of unsafe abortion have not been explored. Methods: We analysed data from the 2006 Mexican National Demographic Survey. The sample comprises 14 859 reported pregnancies in women between 15 and 55 years old, of which 966 report having had an abortion in the 5 years preceding the survey. We use logistic regression to explore the relationship between unsafe abortion and various socio-economic and demographic characteristics. Findings: We estimate that 44% of abortions have been induced and 16.5% of those were unsafe. We find three variables to be positively and significantly associated with the probability of having an induced abortion: (1) whether the woman reported that the pregnancy was mistimed (OR = 4.5, 95% CI = 1.95–10.95); (2) whether the woman reported that the pregnancy was unwanted (OR = 2.86, 95% CI = 1.40–5.88); and (3) if the woman had three or more children at the time of the abortion (OR = 3.73, 95% CI = 1.20–11.65). There is a steep socio-economic gradient in the probability of having an unsafe abortion: poorer women are more likely to have an unsafe abortion than richer women (OR = 2.48, 95% CI = 1.09–5.63); women with 6–9 years of education (OR = 0.30, 95% CI = 0.11–0.81) and with more than 13 years of education are less likely to have an unsafe abortion (OR = 0.065, 95% CI = 0.01–0.43), and women with indigenous origin are more likely to have an unsafe abortion (OR = 5.44, 95% CI = 1.91–15.51). Thus, the probability for poor women with less than 5 years of education and indigenous origin is nine times higher compared with rich, educated and not indigenous women. We also find marked geographical inequities as women living in the poorest states

have a higher risk of having an unsafe abortion. Interpretation: This analysis has explored the determinants of unsafe abortion and has demonstrated that there are large socio-economic and geographical inequities in unsafe abortions in Mexico. Further efforts are required to improve the measurement and monitoring of trends in unsafe abortions in developing countries.

Keywords: Unsafe abortion, socio-economic inequalities, inequities, Mexico

AIDS/HIV

A2597: Nurse versus doctor management of HIV-infected patients receiving antiretroviral therapy (CIPRA-SA): a randomised non-inferiority trial

Author: Ian Sanne and Catherine Orrell

Source: *The Lancet*, 376, 9734 (2010): 33 – 40

Abstract: Background: Expanded access to combination antiretroviral therapy (ART) in resource-poor settings is dependent on task shifting from doctors to other health-care providers. We compared outcomes of nurse versus doctor management of ART care for HIV-infected patients. Methods: This randomised non-inferiority trial was undertaken at two South African primary-care clinics. HIV-positive individuals with a CD4 cell count of less than 350 cells per μL or WHO stage 3 or 4 disease were randomly assigned to nurse-monitored or doctor-monitored ART care. Patients were randomly assigned by stratified permuted block randomisation, and neither the patients nor those analysing the data were masked to assignment. The primary objective was a composite endpoint of treatment-limiting events, incorporating mortality, viral failure, treatment-limiting toxic effects, and adherence to visit schedule. Analysis was by intention to treat. Non-inferiority of the nurse versus doctor group for cumulative treatment failure was prespecified as an upper 95% CI for the hazard ratio that was less than 1.40. This study is registered with [ClinicalTrials.gov](https://clinicaltrials.gov), number [NCT00255840](https://clinicaltrials.gov/ct2/show/study/NCT00255840). Findings: 408 patients were assigned to doctor-monitored ART care and 404 to nurse-monitored ART care; all participants were analysed. 371 (46%) patients reached an endpoint of treatment failure: 192 (48%) in the nurse group and 179 (44%) in the doctor group. The hazard ratio for composite failure was 1.09 (95% CI 0.89–1.33), which was within the limits for non-inferiority. After a median follow-up of 120 weeks (IQR 60–144), deaths (ten vs 11), virological failures (44 vs 39), toxicity failures (68 vs 66), and programme losses (70 vs 63) were similar in nurse and doctor groups, respectively. Interpretation: Nurse-monitored ART is non-inferior to doctor-monitored therapy. Findings from this study lend support to task shifting to appropriately trained nurses for monitoring of ART.

Keywords: Antiretroviral therapy, HIV, doctor management, nurse management

A2598: Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: a cohort study

Author: Rachel K Jewkes and Kristin Dunkle

Source: *The Lancet*, 376, 9734 (2010): 41 – 48

Abstract: Background: Cross-sectional studies have shown that intimate partner violence and gender inequity in relationships are associated with increased prevalence of HIV in women. Yet temporal sequence and causality have been questioned, and few HIV prevention programmes address these issues. We assessed whether intimate partner violence and relationship power inequity increase risk of incident HIV infection in South African women. Methods: We did a longitudinal analysis of data from a previously published cluster-randomised controlled trial undertaken in the Eastern Cape province of South Africa in 2002–06. 1099 women aged 15–26 years who were HIV negative at baseline and had at least one additional HIV test over 2 years of follow-up were included in the analysis. Gender power equity and intimate partner violence were measured by a sexual relationship power scale and the WHO violence against women instrument, respectively. Incidence rate ratios (IRRs) of HIV acquisition at 2 years were derived from Poisson models, adjusted for study design and herpes simplex virus type 2 infection, and used to calculate population attributable fractions. Findings: 128 women acquired HIV during 2076 person-years of follow-up (incidence 6.2 per 100 person-years). 51 of 325 women with low relationship power equity at baseline acquired HIV (8.5 per 100 person-years) compared with 73 of 704 women with medium or high relationship power equity (5.5 per 100 person-years); adjusted multivariable Poisson model IRR 1.51, 95% CI 1.05–2.17, $p=0.027$. 45 of 253 women who reported more than one episode of intimate partner violence at baseline acquired HIV (9.6 per 100 person-years) compared with 83 of 846 who reported one or no episodes (5.2 per 100 person-years); adjusted multivariable Poisson model IRR 1.51, 1.04–2.21, $p=0.032$. The population attributable fractions were 13.9% (95% CI 2.0–22.2) for

relationship power equity and 11.9% (1.4—19.3) for intimate partner violence. Interpretation: Relationship power inequity and intimate partner violence increase risk of incident HIV infection in young South African women. Policy, interventions, and programmes for HIV prevention must address both of these risk factors and allocate appropriate resources.

Keywords: South Africa, HIV infection, women

A2601: Connecting Discovery and Delivery: The Need for More Evidence on Effective Smoking Cessation Strategies for People Living With HIV/AIDS

Author: Jenine K Harris

Source: American Journal of Public Health, 100, 7 (2010): 1245-1248

Abstract: Smoking prevalence among the 1.1 million Americans living with HIV/AIDS is 2 to 3 times higher than the 19.8% rate among the general population. Since 1990, scientists have worked toward the discovery of health risks related to smoking in people living with HIV/AIDS; however, few studies have evaluated the delivery of smoking cessation interventions for this population. Increasing linkages between discovery science and delivery science may facilitate a faster transition to delivery of smoking cessation interventions for people living with HIV/AIDS.

Keywords: HIV, AIDS, smoking, public health

A2607: The Effect of HAART on HIV RNA Trajectory Among Treatment-naive Men and Women: A Segmental Bernoulli/Lognormal Random Effects Model with Left Censoring

Author: Chu, Haitao and Gange, Stephen J

Source: Epidemiology, 21, 4 (2010): S25-S34

Abstract: Background: Highly active antiretroviral therapy (HAART) rapidly suppresses human immunodeficiency virus (HIV) viral replication and reduces circulating viral load, but the long-

term effects of HAART on viral load remain unclear. Methods: We evaluated HIV viral load trajectories over 8 years following HAART initiation in the Multicenter AIDS Cohort Study and the Women's Interagency HIV Study. The study included 157 HIV-infected men and 199 HIV-infected women who were antiretroviral naive and contributed 1311 and 1837 semiannual person-visits post-HAART, respectively. To account for within-subject correlation and the high proportion of left-censored viral loads, we used a segmental Bernoulli/lognormal random effects model. Results: Approximately 3 months (0.30 years for men and 0.22 years for women) after HAART initiation, HIV viral loads were optimally suppressed (ie, with very low HIV RNA) for 44% (95% confidence interval = 39%-49%) of men and 43% (38%-47%) of women, whereas the other 56% of men and 57% of women had on average 2.1 (1.5-2.6) and 3.0 (2.7-3.2) log₁₀ copies/mL, respectively. Conclusion: After 8 years on HAART, 75% of men and 80% of women had optimal suppression, whereas the rest of the men and women had suboptimal suppression with a median HIV RNA of 3.1 and 3.7 log₁₀ copies/mL, respectively.

Keywords: AIDS, HIV, HIV RNA; viral replication

A2633: Determinants of project success among HIV/AIDS nongovernmental organizations (NGOs) in Rakai, Uganda

Author: Stevens Bechange

Source: The International Journal of Health Planning and Management, 25, 3 (2010): 215–230

Abstract: The aim of the study was to identify the main determinants of grassroots project success among HIV/AIDS NGOs operating in Rakai, Uganda. It was a cross-sectional study using face-to-face interviews in a mixed-methods approach among community members and NGOs involved in providing HIV/AIDS and related health services. The study found that the success of grassroots projects of HIV/AIDS NGOs essentially relies on adequate financial resources, competent human resources, strong organizational leadership, and NGO networking. These data suggest that to increase grassroots project success, HIV and AIDS NGOs in Rakai need to improve not only the budget base and human capacities but as well decision-making processes,

organizational vision, mission and strategies, gender allocation in staffing, and beneficiary involvement.

Keywords: Project success, nongovernmental organizations, HIV, AIDS, Africa

A2674: Early versus Standard Antiretroviral Therapy for HIV-Infected Adults in Haiti

Author: Patrice Severe and Marc Antoine Jean Juste

Source: New England Journal of Medicine, 363, 3 (2010): 257-265

Abstract: Background: For adults with human immunodeficiency virus (HIV) infection who have CD4+ T-cell counts that are greater than 200 and less than 350 per cubic millimeter and who live in areas with limited resources, the optimal time to initiate antiretroviral therapy remains uncertain. Methods: We conducted a randomized, open-label trial of early initiation of antiretroviral therapy, as compared with the standard timing for initiation of therapy, among HIV-infected adults in Haiti who had a confirmed CD4+ T-cell count that was greater than 200 and less than 350 per cubic millimeter at baseline and no history of an acquired immunodeficiency syndrome (AIDS) illness. The primary study end point was survival. The early-treatment group began taking zidovudine, lamivudine, and efavirenz therapy within 2 weeks after enrollment. The standard-treatment group started the same regimen of antiretroviral therapy when their CD4+ T-cell count fell to 200 per cubic millimeter or less or when clinical AIDS developed. Participants in both groups underwent monthly follow-up assessments and received isoniazid and trimethoprim–sulfamethoxazole prophylaxis with nutritional support. Results: Between 2005 and 2008, a total of 816 participants — 408 per group — were enrolled and were followed for a median of 21 months. The CD4+ T-cell count at enrollment was approximately 280 per cubic millimeter in both groups. There were 23 deaths in the standard-treatment group, as compared with 6 in the early-treatment group (hazard ratio with standard treatment, 4.0; 95% confidence interval [CI], 1.6 to 9.8; P=0.001). There were 36 incident cases of tuberculosis in the standard-treatment group, as compared with 18 in the early-treatment group (hazard ratio, 2.0; 95% CI, 1.2 to 3.6; P=0.01). Conclusions: Early initiation of

antiretroviral therapy decreased the rates of death and incident tuberculosis. Access to antiretroviral therapy should be expanded to include all HIV-infected adults who have CD4+ T-cell counts of less than 350 per cubic millimeter, including those who live in areas with limited resources.

Keywords: Antiretroviral therapy, HIV, AIDS

A2699: Financial burden of HIV care, including antiretroviral therapy, on patients in three sites in Indonesia

Author: Sigit Riyarto and Budi Hidayat

Source: Health Policy and Planning, 25, 2 (2010): 272-282

Abstract: This paper assesses the extent of the financial burden due to out-of-pocket payments for health care incurred by people living with HIV (PLHIV) and the effect of this burden on their financial capacity. Data were collected in a cross-sectional survey of 353 PLHIV from three cities in Indonesia (Jakarta, Jogjakarta and Merauke). Respondents in Jakarta were sampled from one hospital and one non-governmental organization working with PLHIV. In Jogjakarta and Merauke, all HIV patients on antiretroviral therapy (ART) who came to selected hospitals during the interview period were asked to participate in the survey. The survey collected data on the frequency and extent of payments for HIV-related care, with answers cross-checked against medical records. Results show that PLHIV had different burdens of payments in the different geographical areas. On average, respondents in Jogjakarta spent 68%, and PLHIV on ART in Jakarta spent 96%, of monthly expenditure for HIV-related care, indicating a substantial financial burden for many ART patients. These patients depended on several sources of finance to cover the costs of their care, with donations from their immediate family being the most common method, selling assets and payments from personal income being the second most common method in Jakarta and Jogjakarta, respectively. Most PLHIV in these two areas did not have insurance. In Merauke, there were little observed out-of-pocket payments because the government covers medical costs via the local budget and health insurance for the poor. The

results of this study confirm previous findings that providing subsidized ART drugs alone does not ensure financial accessibility to HIV care. Thus, the government of Indonesia at central and local levels should consider covering HIV care additional to providing antiretroviral drugs free of charge. Social health insurance should also be encouraged.

Keywords: HIV, AIDS, financial barriers, Indonesia

A2700: Why do health systems matter? Exploring links between health systems and HIV response: a case study from Russia

Author: Elena Tkatchenko-Schmidt and Rifat Atun

Source: Health Policy and Planning, 25, 2 (2010): 283-291

Abstract: Introduction: Studies on the relevance of stronger health systems to the success of vertical programmes has focused mainly on developing countries with fragile infrastructures and limited human resources. Research in middle-income, and particularly post-Soviet, settings has been scarce. This article examines the relationships between health system characteristics and the HIV response in Russia, the country which towards the end of the Soviet period had the world's highest ratios of doctors and hospital beds to population and yet struggled to address the growing threat of HIV/AIDS. Methods: The study is based on semi-structured qualitative interviews with policy-makers and senior health care managers in two Russian regions, and a review of published and unpublished sources on health systems and HIV in Russia. Findings: We identified a number of factors associated with the system's failure to address the epidemic. We argue that these factors are not unique to HIV/AIDS. The features of the wider health system within which the HIV response was set up influenced the structure and capacities of the programme, particularly its regulatory and clinical orientation; the discrepancy between formal commitments and implementation; the focus on screening services; and problems with scaling up interventions targeting high-risk groups. Discussion: The system-programme interplay is as important in middle-income countries as in poorer settings. An advanced health care infrastructure cannot protect health systems from potential failures in the delivery of vertical

programmes. The HIV response cannot be effective, efficient and responsive to the needs of the population if the broader health system does not adhere to the same principles. Strengthening HIV responses in post-Soviet societies will require improvements in their wider health systems, namely advocacy of prevention for high-risk populations, reallocation of resources from curative towards preventive services, building decision-making capacities at the local level, and developing better working environments for health care staff.

Keywords: HIV/AIDS, Health system, Health reform, Russia

A 2706: AIDS-associated Cancers: An Emerging Challenge

Author: Uday A Phatak and Ravindra Joshi

Source: Journal of the Association of Physicians of India, 58 (2010): 159-162

Abstract: Objectives: To study the incidence and effects of anti-retroviral therapy along with cancer chemotherapy on outcome of AIDS associated Cancers in Indian patients. Method: 3832 cancers patients were investigated over a period of 5 years. 46 AIDS-associated cancers were identified. HIV status was evaluated by ELISA, Western Blot, viral load and CD4/CD8 counts. Patients were treated with different modalities of cancer management and anti-retroviral therapy was discussed with the patient and relatives. Patients were followed up 6 monthly. Results: Incidence of AIDS-associated cancers was 1.2 percent. AIDS-Defining Cancers (ADC) were seen in 26 (54.35%) while non-AIDS-Defining Cancers (NADC) were observed in 21 (45.65%). Non Hodgkin Lymphoma was the commonest form of AIDS-defining cancers in 21 (84%) patients, cervical cancers in 4 (16%) women while there was not a single case of Kaposi's Sarcoma. AIDS associated cancers were common in males. Mean age was 38.5 years. Only 33.5% patients received treatment for HIV and cancers. Development of immune reconstitution syndrome was observed in 9.09% patients. Hepatitis B infection was seen in only one patient (2.17%). Conclusions: AIDS-associated cancers are seen in advanced stage of HIV infection. Concurrent chemotherapy and anti-retroviral therapy for ARL is significantly effective. Cervical cancers and non-AIDS-defining cancers do not show predictable response to anti-retroviral

therapy. Mortality in non-AIDS related cancers was significantly higher than AIDS related cancers

Keywords: Cancer chemotherapy, AIDS, Indian patients, immune reconstitution syndrome, hepatitis B infection

A2727: Causes of death in HIV-infected women: persistent role of AIDS. The 'Mortalité 2000 & 2005' Surveys (ANRS EN19)

Author: Mojgan Hessamfar-Bonarek and Philippe Morlat

Source: *International Journal of Epidemiology*, 39, 1 (2010): 135-146

Abstract: Background: Little is known about the causes of death in human immunodeficiency virus (HIV)-infected women in the era of combination antiretroviral therapy (ART). Methods: In the French nationwide Mortalité 2000 and 2005 surveys, physicians reported causes of deaths in HIV-infected adults in 2000 and 2005, using a standardized questionnaire. We used multivariate logistic regression models to study the association between gender and AIDS-defining causes of death, adjusting for other characteristics. Results: Of the 1013 HIV-infected adults who died in 2005, 247 (24%) were women. Half of women were infected through heterosexual contacts, compared with 25% men. In 2005, the proportion of AIDS-defining causes of death was higher in women than in men (43 vs 34%; $P = 0.01$), whereas it had been the same in 2000 (47% in women and men). In 2005, women died less frequently than men from respiratory malignancies (lung, ear/nose/throat) and cardiovascular disease (9% of all causes of death in women compared with 16% in men; $P = 0.004$), and suicides or accidents (4 vs 9%; $P = 0.02$). Socio-economic precariousness, younger age, less alcohol and tobacco consumption and lack of prior ART explained the higher proportion of deaths from AIDS in women compared with men. Conclusions: The higher proportion of AIDS-related deaths in women is probably explained by two factors: (i) some HIV-infected women, especially migrants in poor socio-economic conditions, may not have access to optimal care; and (ii) a lower

prevalence of risk factors for respiratory, cardiovascular and violent deaths means that the risk of dying from non-AIDS causes may be lower in women.

Keywords: AIDS, causes of death, HIV infection

A2734: Measuring the HIV/AIDS Epidemic: Approaches and Challenges

Author: Ron Brookmeyer

Source: *Epidemiologic Reviews*, 32 (2010): 26-37

Abstract: In this article, the author reviews current approaches and methods for measuring the scope of the human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) epidemic and their strengths and weaknesses. In recent years, various public health agencies have revised statistical estimates of the scope of the HIV/AIDS pandemic. The author considers the reasons underlying these revisions. New sources of data for estimating HIV prevalence have become available, such as nationally representative probability-based surveys. New technologies such as biomarkers that indicate when persons became infected are now used to determine HIV incidence rates. The author summarizes the main sources of errors and problems with these and other approaches and discusses opportunities for improving their reliability. Changing methods and data sources present new challenges, because incidence and prevalence estimates produced at different points in time are not directly comparable with each other, which complicates assessment of time trends. The methodological changes help explain the changes in global statistics. As methods and data sources continue to improve, the development of statistical tools for better assessing the extent to which changes in HIV/AIDS statistics can be attributed to changes in methodology versus real changes in the underlying epidemic is an important challenge.

Keywords: AIDS, epidemiologic methods, HIV

Alcohol and tobacco

A2683: Balancing absolute and relative risk reduction in tobacco control policy: the example of antenatal smoking in Victoria, Australia

Author: Nathan Grills and Bruce Bolam

Source: Australian and New Zealand Journal of Public Health, 34, 4 (2010): 374–378

Abstract: Objective: This descriptive epidemiological analysis aims to explore the benefits, risks and policy balance between a whole-of-population and high-risk reduction approach to reducing antenatal smoking prevalence. Methods: Using Victorian hospital antenatal statistics the rate-ratio for smoking in each hypothesised high prevalence group was calculated and combined with the absolute number of births in each high-risk group. The effect on smoking prevalence of whole-of-population reductions and high-risk group reductions was then modelled. Results: In Victoria, there were higher rates of antenatal smoking among single [RR = 4.67 (3.46–4.42)], teenage women [RR (95%CI) = 3.26 (3.00–3.54)] of indigenous ethnicity [RR = 4.39 (3.94, 4.88)] with low income [RR = 4.67 (4.17–5.22)] and low education attainment [RR = 3.89 (3.47–4.36)] who lived in less accessible areas [RR = 2.14 (1.92–2.39)]. However, as each of these high-risk groups represents a relatively small proportion of mothers, most antenatal smokers are aged 25–34, educated, city-based, non-Indigenous and non-impooverished. Conclusions: The majority of Victorian women who smoke in pregnancy do not belong to traditional high-risk groups. Implications: Absolute reductions in smoking prevalence in high-risk groups can potentially be achieved by whole-of-population prevalence reductions, despite a potential continuance in high relative risk among these groups. Conversely, an exclusive focus on smoking reduction in high-risk groups may fail to reduce the whole-of-population antenatal smoking prevalence.

Keywords: Tobacco, smoking in pregnancy, high-risk approach, social disadvantage

A2684: Compliance and support for bans on smoking in licensed venues in Australia: findings from the International Tobacco Control Four-Country Survey

Author: Jae Cooper and Ron Borland

Source: Australian and New Zealand Journal of Public Health, 34, 4 (2010): 379–385

Abstract: Objective: To examine attitudes towards and compliance with the recent Australian bans on smoking in licensed venues, and to explore effects on smoking behaviour. Methods: Three Australian states (Queensland, Tasmania and Western Australia) implemented a total ban on smoking in all enclosed licensed premises in 2006, and two others (Victoria and New South Wales) did so in mid-2007. We used data from smokers residing in these states for each of the six waves of the ITC-4 country survey (2002–2007; average n=1,694). Results: Consistent with the majority of international findings, observed compliance was reported by more than 90% of smokers from a pre-ban situation of indoor smoking being the norm. Attitudes became more positive in the year before the ban, but more than doubled in the year the bans were implemented. The associations found for the leading states were replicated by the lagging states a year later. We found no evidence for any increase in permitting smoking inside the home after the bans took effect. Further, we were unable to find any evidence of reductions in daily cigarette consumption or any increase in quitting activity due to the bans. Implications: These results add to a growing body of international research that suggests that smokers are readily able to comply with, and increasingly support, smoke-free bars, though the bans may have limited effect on their smoking habits.

Keywords: Licensed venues, smoke-free policy, tobacco use, policy compliance, smoking restrictions

Andrology

A2654: Semen quality, reproductive hormones and fertility of men operated for hypospadias

Author: C. Asklund and T. K. Jensen

Source: International Journal of Andrology, 33, 1 (2010): 80-87

Abstract: The testicular function of men previously operated for hypospadias has been sparsely investigated. Therefore, we investigated semen quality and reproductive hormones of 92 men with isolated hypospadias (IH) and 20 with hypospadias and additional genital disorders (HAGD) and compared with similar results from young men from the general Danish population. All participants lived the Copenhagen area of Denmark. Additionally, fertility information on 1083 men registered as operated for hypospadias was retrieved from national registries. The semen quality of men with IH did not differ from controls, but was reduced in men with HAGD. Median values for IH and HAGD were, respectively: sperm concentration 52 and 32 million (mill)/mL ($p = 0.02$), total sperm counts 173 and 101 mill ($p = 0.03$), motile spermatozoa 70 and 58% ($p = 0.007$) and morphological normal spermatozoa 9 and 4% ($p = 0.004$). Men with IH had a slight increase in follicle stimulating hormone and luteinizing hormone levels, whereas men with HAGD had more pronounced disturbances. 24.0% of the 1083 men operated for hypospadias were registered as fathers to at least one child, whereas the corresponding number in the general age-matched population was 29.4% ($p < 0.01$). In conclusion, the majority of men with IH had normal semen quality, whereas it was reduced for men with HAGD. However, reproductive hormone levels indicated a subtle impairment of testicular function also in men with IH. An observed lower number of fathers among men with hypospadias may be because of psychosocial aspects, sexual dysfunction or reduced semen quality or a combination of these factors. Our results should be reassuring for patients with mild forms of IH and their relatives. They can be informed that hypospadias in such cases is not generally associated with poor semen quality. Particularly among patients with HAGD, several may, however, need fertility treatment to reproduce.

Keywords: Denmark, fertility, hypospadias, reproductive hormones and semen quality

Asthma

A2722: More Effective Home Heating Reduces School Absences for Children with Asthma

Author: S. Free and P. Howden-Chapman

Source: Journal of Epidemiology and Community Health, 64, 5 (2010): 379-386

Abstract: Background New Zealand homes are underheated by international standards, with average indoor temperatures below the WHO recommended minimum of 18°C. Research has highlighted the connection between low indoor temperatures and adverse health outcomes, including social functioning and psychological well-being. Both health effects and social effects can impact on school absence rates. The aim of this study was to determine whether more effective home heating affects school absence for children with asthma. Methods A single-blinded randomised controlled trial of heating intervention in 409 households containing an asthmatic child aged 6–12 years, where the previous heating was an open fire, plug-in electric heater or unflued gas heater. The intervention was the installation of a more effective heater of at least 6 kW before the winter of 2006 in half the houses. Demographic and health information was collected both before and after the intervention. Each child's school was contacted directly and term-by-term absence information for that child obtained for 2006 and previous years where available. Results Complete absence data were obtained for 269 out of 409 children. Compared with the control group, children in households receiving the intervention experienced on average 21% ($p=0.02$) fewer days of absence after allowing for the effects of other factors. Conclusion More effective, non-indoor polluting heating reduces school absence for asthmatic children.

Keywords: Asthma, International standards, health outcomes, psychological well-being

Cancer

A2645: Diet Index-Based and Empirically Derived Dietary Patterns Are Associated with Colorectal Cancer Risk

Authors: Paige E. Miller and Philip Lazarus

Source: *Journal of Nutrition*, 140, 7 (2010): 1267-1273

Abstract: Previous studies have derived patterns by measuring compliance with preestablished dietary guidance or empirical methods, such as principal components analysis (PCA). Our objective was to examine colorectal cancer risk associated with patterns identified by both methods. The study included 431 incident colorectal cancer cases (225 men, 206 women) and 726 healthy controls (330 men, 396 women) participating in a population-based, case-control study. PCA identified sex-specific dietary patterns and the Healthy Eating Index-2005 (HEI-05) assessed adherence to the 2005 Dietary Guidelines for Americans. A fruits and vegetables pattern and a meat, potatoes, and refined grains pattern were identified among men and women; a third pattern (alcohol and sweetened beverages) was identified in men. The fruits and vegetables pattern was inversely associated with risk among men [odds ratio (OR) = 0.38, 95% CI = 0.21–0.69 for the highest compared with the lowest quartile] and women (OR = 0.35, 95% CI = 0.19–0.65). The meat, potatoes, and refined grains pattern was positively associated with risk in women (OR = 2.20, 95% CI = 1.08–4.50) and there was a suggestion of a positive association among men (OR = 1.56, 95% CI = 0.84–2.90; P-trend = 0.070). Men and women with greater HEI-05 scores had a significantly reduced risk of colorectal cancer (OR = 0.56, 95% CI = 0.31–0.99; OR = 0.44, 95% CI = 0.24–0.77, respectively). Following the Dietary Guidelines or a dietary pattern lower in meat, potatoes, high fat, and refined foods and higher in fruits and vegetables may reduce colorectal cancer risk.

Keywords: Dietary patterns, colorectal cancer risk, dietary guidelines and potatoes

A2651: Emerging Research on Equol and Cancer

Authors: Johanna W. Lampe

Source: Journal of Nutrition, 140, 7 (2010): 1369S-1372S

Abstract: Mechanisms of action of equol described using in vitro studies suggest possible effects of this compound in relation to cancer risk. However, experimental data are lacking with regard to the effects of S-(-)-equol (a gut bacterial product of daidzein), racemic equol, or even daidzein on tumorigenesis in vivo. Rodent studies, using racemic equol or daidzein in equol-producing animals, suggest that equol exposure does not stimulate mammary tumor growth, but there is little evidence that it is protective either. Racemic equol has been shown to inhibit skin carcinogenesis in hairless mice. Epidemiologic studies of associations between urinary or plasma isoflavone concentrations and breast cancer risk in women have reported no association nor increased risk associated with higher equol measures in low-soy-consuming populations but have reported a trend toward decreased cancer risk with increased equol in Asian populations. These population-based differences have been reported for prostate cancer too. Several studies in Asian men report lower equol concentrations or a lower prevalence of equol-producers among men with prostate cancer compared with controls, whereas studies in European populations report no association. Studies using intermediate biomarkers of cancer risk and susceptibility in humans also have examined the effects the equol-producer phenotype in relation to soy intake with varying results. Overall, the role of equol in relation to cancer remains unclear. With the availability of R- and S-equol, animal studies of carcinogenesis and human intervention studies addressing effects of the equol enantiomers on intermediate biomarkers may help to ascertain the role of equol in cancer risk.

Keywords: Cancer risk, mammary tumor growth, research, prostate cancer, skin carcinogenesis

A2653: Gonadal dysfunction in male cancer patients before Cytotoxic treatment

Author: Niels J. Van Casteren and Willem P. A. Boellaard

Source: International Journal of Andrology, 33, 1 (2010): 73–79

Abstract: Male patients diagnosed with cancer are often referred for semen cryopreservation before gonadotoxic treatment but often have low semen quality. The aim of this study was to evaluate which type of cancer affects gonadal function and proposes a risk factor for low pre-treatment semen quality. Between January 1983 and August 2006, 764 male cancer patients were referred for semen cryopreservation prior to chemotherapy and radiotherapy. We compared semen characteristics and reproductive hormones between different groups of cancer patients. In addition, we evaluated the role of tumour markers in patients with testicular germ-cell tumours (TGCT) on fertility. Abnormal semen parameters were found in 489 men (64%) before cancer treatment. Patients with TGCT and extragonadal germ-cell tumours had significantly lower sperm concentrations and inhibin B levels than all other patient groups. No semen could be banked in 93 patients (12.2%). Eight hundred and thirty-nine of 927 (90%) produced semen samples were adequate for cryopreservation. Inhibin B in all groups showed to be the best predictor of semen quality. Although pre-treatment raised tumour markers were associated with a decrease in inhibin B and increased follicle stimulating hormone, both predictive for low semen quality; no direct linear association could be found between raised beta-HCG, alfa-fetoprotein and semen quality. Only 1/3 of cancer patients had normal semen parameters prior to cancer treatment. Patients with TGCT and extragonadal GCT have the highest risk for impaired semen quality and gonadal dysfunction at the time of semen cryopreservation.

Keywords: Inhibin B, semen cryopreservation and testicular cancer, cytotoxic treatment

A2712: Body Fatness at Young Ages and Risk of Breast Cancer throughout Life

Authors: Heather J. Baer and Shelley S. Tworoger

Source: American Journal of Epidemiology, 171, 11 (2010): 1183-1194

Abstract: Body fatness at young ages may be related to breast cancer risk independently of adult adiposity. The authors conducted a prospective analysis among 188,860 women (7,582 breast cancer cases) in the Nurses' Health Study (1988-2004) and Nurses' Health Study II (1989-2005) who recalled their body fatness at ages 5, 10, and 20 years using a 9-level pictogram (level 1: most lean; level 9: most overweight). Body fatness at young ages was inversely associated with risk of both premenopausal and postmenopausal breast cancer (per 1-unit increase in adolescent body fatness, relative risk (RR) = 0.88 and RR = 0.91, respectively; $P_{\text{trend}} < 0.0001$). Among all women, the RR for adolescent body fatness of level 6.5 or higher versus level 1 was 0.57 (per 1-unit increase, RR = 0.90; $P_{\text{trend}} < 0.0001$) and was unaffected by adjustment for current body mass index. The association was stronger for women with birth weights under 8.5 pounds (<3.9 kg) than for women with birth weights of 8.5 pounds or more (≥ 3.9 kg) (per 1-unit increase, RR = 0.89 and RR = 0.94, respectively; $P_{\text{interaction}} = 0.04$) and stronger for estrogen receptor-negative tumors than for estrogen receptor-positive tumors (per 1-unit increase, RR = 0.86 and RR = 0.92, respectively; $P_{\text{heterogeneity}} = 0.03$). Body fatness at young ages has a strong and independent inverse relation to breast cancer risk throughout life.

Keywords: Adiposity, adolescent, breast neoplasms, child, obesity

A2613: Risk Factors for Breast Cancer: A Reanalysis of Two Case-control Studies From 1926 and 1931

Authors: Press David J and Pharoah Paul

Source: *Epidemiology*, 21, 4 (2010): 566-572

Abstract: Background: The first major case-control study, published by Janet Lane-Clayton in 1926, provided the first epidemiologic evidence that low fertility increases breast cancer risk. This study in the United Kingdom was replicated in 1931 by JM Wainwright using a US sample. Neither study used modern statistical inference to interpret their data. We have evaluated and reanalyzed data from both studies to assess the validity of the original conclusions about the etiology of breast cancer. Methods: We abstracted data from the published contingency tables

for age at menarche, age at menopause, parity, age at marriage (as a proxy for age at first birth), and duration of lactation for each childbirth (as a proxy for lifetime duration of lactation). Study-specific odds ratios and associated 95% confidence intervals were calculated. Results: Findings from the quantitative reanalysis were consistent with contemporary epidemiologic evidence for age at menopause, parity, age at first birth, and duration of lactation. Conclusions: Lane-Clayton's scientific efforts, as manifested in the 1926 UK study, are an excellent example of how one investigator's work can help develop a field of scientific inquiry.

Keywords: Breast cancer, case-control studies, United Kingdom, United States, scientific inquiries

A2605: Network assessment of Community-Based Participatory Research: Linking Communities and Universities to Reduce Cancer Disparities

Author: Thomas W Valente and Kayo Fujimoto

Source: American Journal of Public Health, 100, 7 (2010): 1319-1325

Abstract: Objectives: We sought to determine whether a community-based initiative designed to reduce cancer disparities among Pacific Islanders in southern California increased communications between community-based organizations and university researchers. Methods: We conducted network analysis among 11 community-based organizations (CBOs) and 5 universities by interviewing 91 and 56 members of these organizations, respectively, at 2 points in time. We estimated random effects probit regression and stochastic actor-oriented network dynamic models. Results: We found that, during the 2-year study period, CBOs increased their connectedness with one another ($b=0.44$; $P<.05$) and to the universities ($b=0.46$; $P<.05$), but that university researchers did not increase their connectedness to each other or to CBOs. Conclusions: Cancer awareness, cancer education and access to cancer services are low among Pacific Island groups and this study provides an initial attempt to reduce these disparities. Community-based initiatives can strengthen a CBO network, creating the potential

for increased community informed cancer research and improved community access to cancer research resources.

Keywords: Community, cancer, cancer education, public health

A2728: Sexual behaviours and the risk of head and neck cancers: a pooled analysis in the International Head and Neck Cancer Epidemiology (INHANCE) consortium

Author: Julia E Heck and Julien Berthiller

Source: International Journal of Epidemiology, 39, 1 (2010): 166-181

Abstract: Background: Sexual contact may be the means by which head and neck cancer patients are exposed to human papillomavirus (HPV). Methods: We undertook a pooled analysis of four population-based and four hospital-based case-control studies from the International Head and Neck Cancer Epidemiology (INHANCE) consortium, with participants from Argentina, Australia, Brazil, Canada, Cuba, India, Italy, Spain, Poland, Puerto Rico, Russia and the USA. The study included 5642 head and neck cancer cases and 6069 controls. We calculated odds ratios (ORs) of associations between cancer and specific sexual behaviours, including practice of oral sex, number of lifetime sexual partners and oral sex partners, age at sexual debut, a history of same-sex contact and a history of oral-anal contact. Findings were stratified by sex and disease subsite. Results: Cancer of the oropharynx was associated with having a history of six or more lifetime sexual partners [OR = 1.25, 95% confidence interval (CI) 1.01, 1.54] and four or more lifetime oral sex partners (OR = 2.25, 95% CI 1.42, 3.58). Cancer of the tonsil was associated with four or more lifetime oral sex partners (OR = 3.36, 95% CI 1.32, 8.53), and, among men, with ever having oral sex (OR = 1.59, 95% CI 1.09, 2.33) and with an earlier age at sexual debut (OR = 2.36, 95% CI 1.37, 5.05). Cancer of the base of the tongue was associated with ever having oral sex among women (OR = 4.32, 95% CI 1.06, 17.6), having two sexual partners in comparison with only one (OR = 2.02, 95% CI 1.19, 3.46) and, among men, with a history of same-sex sexual contact (OR = 8.89, 95% CI 2.14, 36.8). Conclusions: Sexual

behaviours are associated with cancer risk at the head and neck cancer subsites that have previously been associated with HPV infection.

Keywords: Sexual practices head and neck cancer, homosexual, risk factors

Child Health Care & Development

A2608: Early Postnatal Blood Manganese Levels and Children's Neurodevelopment

Authors: Claus Henn, Birgit and Ettinger, Adrienne S

Source: *Epidemiology*, 21, 4 (2010): Page 433-439

Abstract: **Background:** Recent evidence suggests that low-level environmental exposure to manganese adversely affects child growth and neurodevelopment. Previous studies have addressed the effects of prenatal exposure, but little is known about developmental effects of early postnatal exposure. **Methods:** We studied 448 children born in Mexico City from 1997 through 2000, using a longitudinal study to investigate neurotoxic effects of early-life manganese exposure. Archived blood samples, collected from children at 12 and 24 months of age, were analyzed for manganese levels using inductively coupled plasma mass spectrometry. Mental and psychomotor development were scored using Bayley Scales of Infant Development at 6-month intervals between 12 and 36 months of age. **Results:** At 12 months of age, the mean (SD) blood manganese level was 24.3 (4.5) [$\mu\text{g/L}$] and the median was 23.7 [$\mu\text{g/L}$]; at 24 months, these values were 21.1 (6.2) [$\mu\text{g/L}$] and 20.3 [$\mu\text{g/L}$], respectively. Twelve- and 24-month manganese concentrations were correlated (Spearman correlation = 0.55) and levels declined over time ($[\beta] = -5.7$ [95% CI = -6.2 to -5.1]). We observed an inverted U-shaped association between 12-month blood manganese and concurrent mental development scores (compared with the middle 3 manganese quintiles, for the lowest manganese quintile, $[\beta] = -3.3$ [-6.0 to -0.7] and for the highest manganese quintile, $[\beta] = -2.8$ [-5.5 to -0.2]). This 12-month manganese effect was apparent but diminished with mental development scores at later ages. The 24-month manganese levels were not associated with neurodevelopment. **Conclusions:** These results suggest a possible biphasic dose-response relationship between early-life manganese exposure at lower exposure levels and infant neurodevelopment. The data are consistent with manganese as both an essential nutrient and a toxicant.

Keywords: Neurodevelopment, mental development, environmental exposure, Mexico city, longitudinal studies

A2676: Study on the Birth Weight of Tibetan Refugees of Chandragiri, Orissa

Author: Kanhu Charan Satapathy

Source: South Asian Anthropologist, 10, 1 (2010): 39-43

Abstract: Birth weight is an integrated measure of prenatal growth and is used as an indicator of newborn viability. An attempt has been made in the present study the birth weight of the Tibetans living under different environmental conditions along with other variables such as nutrition, body mass index, haemoglobin and haematocrit. The findings conform that the role of environmental factor particularly altitude, and nutrition of Tibetans impose greater protection from intrauterine growth retardation among Tibetans as compared to other native population.

Keywords: Tibetans refugees, Chandragiri, birth weight, Orissa

A2691: Child immunization coverage in urban slums of Bangladesh: impact of an intervention package

Author: Md. Jasim Uddin and Charles P Larson

Source: Health Policy and Planning, 25, 1 (2010): 50-60

Abstract: The study assessed the impact of an EPI (Expanded Programme on Immunization) intervention package, implemented within the existing service-delivery system, to improve the child immunization coverage in urban slums of Dhaka, Bangladesh. This intervention trial used a pre- and post-test design. An intervention package was tested from September 2006 to August 2007 in two urban slums. The intervention package included: (a) an extended EPI service schedule; (b) training for service providers on valid doses and management of side-effects; (c) a screening tool to identify immunization needs among clinic attendants; and (d) an EPI support group for social mobilization. Data were obtained from random sample surveys, service statistics and qualitative interviews. Analysis of quantitative data was based on a 'before and

after' assessment of selected immunization-coverage indicators. Qualitative data were analysed using content analysis. Ninety-nine per cent of the children were fully immunized after implementation of the interventions compared with only 43% before implementation. Antigen-wise coverage after implementation was also significantly higher compared with before implementation. Only 1% drop-out was observed after implementation of the interventions while it was 33% before implementation. At baseline, a significantly higher proportion of children of non-working mothers (75%) were fully immunized compared with children of working mothers (14%). Although the proportion of fully immunized children of both non-working and working mothers was significantly higher at endline, fully immunized children of working mothers dramatically improved at endline (99%) compared with baseline (14%). The findings suggest the effectiveness of a 'package of interventions' in improving child immunization coverage in urban slums. However, further research is needed to fully assess the effectiveness of the package, to assess the individual components in order to identify those that make the biggest contribution to coverage, and to assess the sustainability of this package within the existing service delivery system, particularly on a wider scale.

Keywords: Child health, immunization, urban slum, interventions, Bangladesh

A2726: Estimating the distribution of causes of death among children age 1–59 months in high-mortality countries with incomplete death certification

Author: Hope L Johnson and Li Liu

Source: *International Journal of Epidemiology*, 39, 4 (2010): 1103-1114

Abstract: Background: Our objective was to develop a methodology to estimate causes of death among children age 1–59 months in high child mortality countries without adequate vital registration (VR) systems. Methods: We systematically reviewed community-based studies reporting at least two causes of death among children 1–59 months of age identified from published and unpublished sources. We included (i) studies conducted after 1979, (ii) for duration of 12 months or an exact multiple, (iii) with ≥ 25 deaths in children < 5 years, (iv) each

death represented once and (v) <25% of deaths due to unknown causes. A study-based multinomial logistic regression model was applied to country-level data to estimate causes of child death. Results: Of the 216 studies reviewed, 81 were included in the analysis comprising 79 067 under-5 deaths from 25 countries. After adjusting for risk factors and intervention coverage, the estimated distribution of causes of deaths in children 1–59 months of age in sub-Saharan Africa and Southeast Asia was: pneumonia (21 and 31%), diarrhoea (25 and 31%), malaria (26 and 2%), injury (3 and 4%), meningitis (3 and 4%), measles (3 and 2%) and other causes (20 and 27%), respectively. Conclusion: From studies reporting as few as two different causes of death, statistical modelling can be used to estimate the causes of child mortality for settings with incomplete VR. Pneumonia and diarrhoea remain the leading causes of death among children 1–59 months of age in sub-Saharan Africa and Southeast Asia.

Keywords: Cause of death, child mortality, infant mortality, Africa.

Chronic Illness

A2685: Comparing self-reported and measured high blood pressure and high cholesterol status using data from a large representative cohort study

Author: Anne Taylor and Eleonora Dal Grande

Source: Australian and New Zealand Journal of Public Health, 34, 4 (2010): 394–400

Abstract: **Objective:** To examine the relationship between self-reported and clinical measurements for high blood pressure (HBP) and high cholesterol (HC) in a random population sample. **Method:** A representative population sample of adults aged 18 years and over living in the north-west region of Adelaide (n=1537) were recruited to the biomedical cohort study in 2002/03. In the initial cross-sectional component of the study, self-reported HBP status and HC status were collected over the telephone. Clinical measures of blood pressure were obtained and fasting blood taken to determine cholesterol levels. In addition, data from a continuous chronic disease and risk factor surveillance system were used to assess the consistency of self-reported measures over time. **Result:** Self-report of current HBP and HC showed >98% specificity for both, but sensitivity was low for HC (27.8%) and moderate for HBP (49.0%). Agreement between current self-report and clinical measures was moderate (kappa 0.55) for HBP and low (kappa 0.30) for HC. Demographic differences were found with younger people more likely to have lower sensitivity rates. Self-reported estimates for the surveillance system had not varied significantly over time. **Conclusion:** Although self-reported measures are consistent over time there are major differences between the self-reported measures and the actual clinical measurements. Technical aspects associated with clinic measurements could explain some of the difference. **Implications:** Monitoring of these broad population measures requires knowledge of the differences and limitations in population settings.

Keywords: Hypertension, cholesterol, data collection, validity, cross sectional survey

Community Health

A2625: Association between urban or rural locality and hip fracture in community-based adults: a systematic review

Author: Sharon L Brennan and Julie A Pasco

Source: *Journal of Epidemiology & Community Health*, 64, 8 (2010): 656–665

Abstract: Urban or rural locality has been suggested to influence musculoskeletal health, with lower bone mineral density (BMD) and greater prevalence of fracture identified in urban residents. A computer-aided search of Medline, EMBASE, CINAHL and PsychINFO, January 1966 to November 2007 was conducted to identify studies investigating the relationship between urban or rural locality and the occurrence of hip fracture. The methodological quality of studies was assessed, and a best-evidence synthesis was used to summarise the results. Fourteen cohort studies and one case-control study were identified for inclusion in this review, indicating a lack of literature in the field. Best-evidence analysis identified moderate evidence for residents of rural regions to have lower risk of hip fracture compared to urban residents. Examining principal mechanisms for the observed relationship between urban/rural locality and hip fracture, such as factors at the person or area level, may help to identify modifiable risk factors and inform appropriate prevention strategies.

Keywords: Urban Locality, Rural Locality

A2694: Household surveillance of severe neonatal illness by community health workers in Mirzapur, Bangladesh: coverage and compliance with referral

Author: Gary L Darmstadt and Shams El Arifeen

Source: *Health Policy and Planning*, 25, 2 (2010): 112-124

Abstract: Background: Effective and scalable community-based strategies are needed for identification and management of serious neonatal illness. Methods: As part of a community-

based, cluster-randomized controlled trial of the impact of a package of maternal-neonatal health care, community health workers (CHWs) were trained to conduct household surveillance and to identify and refer sick newborns according to a clinical algorithm. Assessments of newborns by CHWs at home were linked to hospital-based assessments by physicians, and factors impacting referral, referral compliance and outcome were evaluated. Results: Seventy-three per cent (7310/10 006) of live-born neonates enrolled in the study were assessed by CHWs at least once; 54% were assessed within 2 days of birth, but only 15% were attended at delivery. Among assessments for which referral was recommended, compliance was verified in 54% (495/919). Referrals recommended to young neonates 0–6 days old were 30% less likely to be complied with compared to older neonates. Compliance was positively associated with having very severe disease and selected clinical signs, including respiratory rate ≥ 70 /minute; weak, abnormal or absent cry; lethargic or less than normal movement; and feeding problem. Among 239 neonates who died, only 38% were assessed by a CHW before death. Conclusions: Despite rigorous programmatic effort, reaching neonates within the first 2 days after birth remained a challenge, and parental compliance with referral recommendation was limited, particularly among young neonates. To optimize potential impact, community postnatal surveillance must be coupled with skilled attendance at delivery, and/or a worker skilled in recognition of neonatal illness must be placed in close proximity to the community to allow for rapid case management to avert early deaths.

Keywords: Community health worker, neonatal illness, Mirzapur; surveillance, care seeking

Demography

A2639: Social, Behavioral and Biological Factors and Sex Differences in Mortality

Author: Richard G Rogers and Bethany G Everett

Sources: *Demography*, 47, 3 (2010): 555-578

Abstract: Few studies have examined whether sex differences in mortality are associated with different distributions of risk factors or result from the unique relationships between risk factors and mortality for men and women. We extend previous research by systematically testing a variety of factors, including health behaviors, social ties, socioeconomic status and biological indicators of health. We employ the National Health and Nutritional Examination Survey III linked mortality file and use cox proportional hazards models to examine sex differences in adult mortality in the United States. Our findings document that social and behavioral characteristics are key factors related to the sex gap in mortality. Once we control for women's lower levels of marriage, poverty and exercise, the sex gap in mortality widens and once we control for women's greater propensity to visit with friends and relatives, attend religious services and abstain from smoking, the sex gap in mortality narrows. Biological factors-including indicators of inflammation and cardiovascular risk-also inform sex differences in mortality. Nevertheless, persistent sex differences in mortality remain: compared with women, men have 30% to 83% higher risks of death over the follow-up period, depending on the covariates included in the model. Although the prevalence of risk factors differs by sex, the impact of those risk factors on mortality is similar for men and women.

Keywords: Social Behavior, Biological Factor, Socioeconomic status.

Diabetes

A2619: Indian Type 2 Diabetes Risk Score also Helps Identify those at Risk of Macrovascular Disease and Neuropathy (CURES-77)

Authors: V Mohan and JL Vassy

Source: Journal of the Association of Physicians of India, 58 (2010): 430-433

Abstract: Aims: To see whether the diabetic individuals identified by the Indian Diabetes Risk Score (IDRS) also have a higher prevalence of diabetes related complications. Methods: Type 2 diabetic subjects were selected from the Chennai Urban Rural Epidemiology Study in south India. Four field stereo retinal colour photography was done and diabetic retinopathy [DR] was classified according to Early Treatment Diabetic Retinopathy Study grading system. Coronary artery disease was diagnosed using Minnesota coding of 12-lead electrocardiograms. Diabetic peripheral neuropathy (DPN) was diagnosed if vibratory perception threshold [VPT] of the right great toe measured by biothesiometry was ≥ 20 . The criterion for diagnosis of peripheral vascular disease (PVD) was an ankle-brachial index < 0.9 . Macroalbuminuria was diagnosed if urinary albumin excretion was ≥ 300 mg/mg creatinine. A total of 1476 individuals who had information on all test parameters were included for analysis. Results: Subjects with IDRS score ≥ 60 had significantly higher prevalence of coronary artery disease (CAD) [9.2% vs 5.4%, $p=0.043$], DPN [29.2% vs 8.8%, $p<0.001$] and PVD [4.8% vs 1.9%, $p=0.038$] compared to subjects with IDRS score < 60 . However, the prevalence of DR and macroalbuminuria did not differ between the two IDRS subgroups. Age explained much of the observed differences in prevalence of CAD, PVD and DPN between the two IDRS subgroups. Conclusions: This study further extends the clinical usefulness of IDRS to predicting diabetic complications like CAD, PVD and DPN as well

Keywords: Macrovascular disease, type 2 diabetic subjects, epidemiology studies, South India

A2620: Validation of the MDRF - Indian Diabetes Risk Score (IDRS) in another South Indian Population through the Bolor Diabetes Study (BDS)

Authors: Prabha Adhikari and Rahul Pathak

Source: Journal of the Association of Physicians of India, 58 (2010): 434-436

Abstract: Objective: To validate the MDRF – Indian Diabetes Risk Score (IDRS) in a south Indian population in coastal Karnataka. Methods: The study was conducted at Bolor locality in Mangalore on adults aged 20 years or more. The study group comprised 551 participants (68.9% response rate). The OGTT was performed using 75 gms of glucose. The MDRF - IDRS was calculated using age, family history of diabetes, physical activity and waist measurement. ROC curves were constructed to identify the optimum value (= 60%) of IDRS for determining diabetes as diagnosed using WHO consulting group criteria. Results: We found that 71 of the study individuals were known diabetic subjects (KD) while 45 subjects were diagnosed to have newly diagnosed diabetes (NDD). An IDRS score of = 60 had the best sensitivity (62.2%) and specificity of (73.7%) for detecting undiagnosed diabetes in this community. Conclusion: Our study confirms and validates the MDRF – IDRS as being a valid simple and reliable screening tool to identify undiagnosed diabetes in the community. The MDRF – IDRS score = 60 had the highest sensitivity and specificity to identify undiagnosed diabetes.

Keywords: Diabetes risk, diabetes study, family histories, physical activity, oral glucose tolerance

A2705: Anemia and Diabetic Retinopathy in Type 2 Diabetes Mellitus

Author: Padmaja Kumari Rani and Rajiv Raman

Source: Journal of the Association of Physicians of India, 58 (2010): 91-94

Abstract: Objectives: To estimate the prevalence of anemia in persons with type 2 diabetes mellitus and its role as a risk factor for the presence and the severity of diabetic retinopathy, in

a population based study. Methods: In all 5999 subjects from the general population aged >40 years were enumerated for the study. A total of 1414 persons identified with diabetes underwent comprehensive eye examination, and stereoscopic digital fundus photography was used for diabetic retinopathy grading. All patients underwent hemoglobin estimation for detection of anemia. Univariate and multivariate analyses were done to determine the independent risk factors for anemia. Results: The prevalence of anemia (Hb <12g/dl in women and <13g/dl in men) was 12.3%. Between 40 and 49 years of age, prevalence of anemia was higher in women than in men (26.4 % vs 10.3%). Men with anemia, and not women, had 2 times the risk of developing diabetic retinopathy. Multivariate analysis revealed independent predictors for anemia: age group more than 69 years OR 2.49 (95% CI 1.44-4.30), duration of diabetes of more than 5 years OR 1.56 (1.09-2.69) and the presence of diabetic retinopathy OR 1.82 (95% CI 1.22-2.69). Conclusion: Every tenth individual in a population of diabetes mellitus could be anemic. Identifying and treating anemia would make a great impact in managing microvascular complications such as diabetic retinopathy.

Keywords: Type 2 diabetes mellitus, diabetic retinopathy, anemia, population based study

A2708: Time Trends in the Prevalence of Diabetes Mellitus: Ten Year Analysis from Southern India (1994-2004) on 19,072 Subjects with Diabetes

Author: G.R Sridhar and Venkata Putcha also others

Source: Journal of the Association of Physicians of India, 58 (2010): 290-294

Abstract: Objective: To assess the time trends in the prevalence of diabetes at our Centre from 1994-2004 (N: 19,072 individuals) on the following parameters: age group, sex, rural or urban area and individuals with freshly diagnosed diabetes versus known diabetes Study Design and Setting: Analysis of data from electronic medical records at a referral Endocrine and Diabetes Centre in Southern India Methods: We have employed the period prevalence method and person-time risk to express the results. The concept of person-time risk can be estimated as the actual time-at-risk in years that all persons contributed to a study. The person-time can be

estimated for each patient when a patient changed from diabetic free to diabetic patient. This can be captured for each patient from the variable onset of first diagnoses as a diabetic patient. Thus person-time is employed to derive information on the rate at which people acquire the disease. Results: Between 1994 and 2004 however there is an increasing trend in the number of individuals in the young, particularly the 18-34 year group. Similarly there is a steadily increasing pattern in both urban and rural areas; the number from rural areas tended to increase compared to urban areas. The number of women with diabetes tended to increase over the 10-year period Conclusion: Between 1994 and 2004 among persons with diabetes who presented at our Centre, there was a trend toward more number of younger persons, particularly women from rural areas.

Keywords: Prevalence of diabetes, Southern India, endocrine and diabetes centre

A2709: Development of 'Quality of Life Instrument for Indian Diabetes Patients (QOLID): A Validation and Reliability Study in Middle and Higher Income Groups

Author: Jitender Nagpal and Arvind Kumar also others

Source: Journal of the Association of Physicians of India, 58 (2010): 295-304

Abstract: Purpose: To develop a reliable and valid quality of life questionnaire for Indian patients with diabetes. Methods: A draft of 75 questions was prepared on the basis of expert opinion, focus group discussions, review of existing literature and detailed semi-structured interviews of patients with diabetes with the intention of including all aspects of diabetes-specific and quality of life considered relevant by patients and care providers to enable construct validity. A Stage 2 questionnaire was then prepared with 13 domains and 54 items (questions) after expert panel review for obvious irrelevance and duplication of issues. It was administered to 150 participants visiting a diabetes center at New Delhi. Factor analysis was done using principal component method with varimax rotation. Reliability analysis was done by calculating Cronbach's Alpha. For evaluating concordant validity the questionnaire was co-administered with DQL-CTQ to 30 participants. The discriminant validity of the questionnaire

was tested using 't' test for metabolic control, co-morbidities, insulin use and gender. Results: Using principal component method 8 domains were identified on the basis of an apriori hypothesis and the scree plot. These 8 domains explained 49.9% of the total variation. 34 items (questions) were selected to represent these domains on the basis of extraction communality, factor loading, inter-item and item-total correlations. The final questionnaire has an Overall Cronbach's Alpha value of 0.894 (subscale- 0.55 to 0.85) showing high internal consistency. The questionnaire showed good concordance (product moment correlation 0.724; $p=0.001$; subscale correlation – 0.457 to 0.779) with the DQL-CTQ. The overall standardized questionnaire score showed good responsiveness to metabolic control and co-morbidities establishing discriminant validity. Conclusion: The final version of questionnaire with 8 domains and 34 items is a reliable and valid tool for assessment of quality of life of Indian patients with diabetes. Abbreviations: WHOQOL : World Health Organization Quality of Life assessment; SF-36 : Short Form- 36 questionnaire; DQLCT-R : Diabetes Quality of Life Clinical Trial Revised version; ADDQoL : Audit of Diabetes Dependent Quality of Life; DQoL : Diabetes Quality of Life; PGI : Patient Generated Index; BMI : Body Mass Index; CAD : Coronary Artery Disease; PDSG : Prospective Diabetes Study Group.

Keywords: Quality of life instrument, Indian diabetes patients, diabetes center

A2711: Insulin Resistance at different Stages of Diabetic Kidney Disease in India

Author: Vijay Viswanathan and Priyanka Tilak also others

Source: Journal of the Association of Physicians of India, 58 (2010): 612-615

Abstract: Objective: Many studies showed that Insulin resistance (IR) is present in chronic renal failure and evidences suggest that IR can also occur in early stages of renal disease. There is paucity of data from India, hence this study was planned to assess the degree of Insulin resistance at different stages of diabetic nephropathy. Study subjects and Methods: This is a cross sectional study with a total of 128 subjects (M: F; 81:47) divided into 3 groups based on their renal function, Group 1 (control) $n=32$, group 2 (Normoalbuminuria) $n=26$, group 3

(Microalbuminuria) n=59 and group 4 (Macroalbuminuria) n=43. Subjects on insulin treatment were excluded. Insulin was estimated by chemiluminescence method. Biochemical investigations were done by enzymatic procedures. Insulin resistance was calculated using HOMA method. The normal cut off value for HOMA IR (2.4) was derived using mean+2SD of control group. Results: There was no significant difference between the study groups with respect to age, BMI, duration of diabetes and glycemc control. Mean HOMA IR increased significantly with decreasing renal function (control: 1.30 ± 0.53 ; Normo: 4.0 ± 2.7 ; Micro: 5.8 ± 4.1 ; Macro: 7.9 ± 5.1 , $p<0.0001$). Larger percentage of subjects had HOMA IR (≥ 2.4) at different stages of diabetic kidney disease (Normoalb: 57.6%; Microalb: 76.2%, Macroalb: 90.6%) compared to normal (3.1%). The results of multiple logistic regression analysis showed an association between HOMA IR and diabetic nephropathy. Conclusion: This cross-sectional study demonstrated an association between IR and diabetic kidney disease in Indian population with type 2 diabetes. Further prospective studies are needed to look for causative relationship between IR and renal function.

Keywords: Insulin resistance, diabetic kidney disease, Indian population with type 2 diabetes

Disease

A2609: A Small-area Ecologic Study of Myocardial Infarction, Neighborhood Deprivation, and Sex: A Bayesian Modeling Approach

Author: Deguen Séverine and Lalloue Benoît

Source: *Epidemiology*, 21, 4, (2010): 459-466

Abstract: Background: Socioeconomic inequalities in the risk of coronary heart disease (CHD) are well documented for men and women. CHD incidence is greater for men but its association with socioeconomic status is usually found to be stronger among women. We explored the sex-specific association between neighborhood deprivation level and the risk of myocardial infarction (MI) at a small-area scale. Methods: We studied 1193 myocardial infarction events in people aged 35-74 years in the Strasbourg metropolitan area, France (2000-2003). We used a deprivation index to assess the neighborhood deprivation level. To take into account spatial dependence and the variability of MI rates due to the small number of events, we used a hierarchical Bayesian modeling approach. We fitted hierarchical Bayesian models to estimate sex-specific relative and absolute MI risks across deprivation categories. We tested departure from additive joint effects of deprivation and sex. Results: The risk of MI increased with the deprivation level for both sexes, but was higher for men for all deprivation classes. Relative rates increased along the deprivation scale more steadily for women and followed a different pattern: linear for men and nonlinear for women. Our data provide evidence of effect modification, with departure from an additive joint effect of deprivation and sex. Conclusions: We document sex differences in the socioeconomic gradient of MI risk in Strasbourg. Women appear more susceptible at levels of extreme deprivation; this result is not a chance finding, given the large difference in event rates between men and women.

Keywords: Myocardial infarction, neighborhood deprivation, neighborhoods, coronary heart disease

A2610: Outdoor Air Pollution as a Trigger for Out-of-hospital Cardiac Arrests

Authors: Dennekamp Martine and Akram Mohammad

Source: *Epidemiology*, 21, 4 (2010): 494-500

Abstract: **Background:** Epidemiologic studies have reported associations between fine particulate air pollution and cardiovascular mortality or hospitalization for cardiac events. However the evidence regarding the association between air pollution and acute cardiac events, such as out-of-hospital cardiac arrest, is inconsistent. **Methods:** We investigated the association between particulate matter (PM) air pollution and out-of-hospital cardiac arrest using a case-crossover study of adults (age, 35+ years) in Melbourne, Australia. We included 8434 cases identified through the Victorian Cardiac Arrest Registry from 2003 through 2006. We excluded arrests with an obvious preceding noncardiac event such as trauma, poisoning, or drowning, leaving only those events that were presumed to have cardiac etiology. Air pollution concentrations obtained from a central monitoring site were used for day of the arrest and for lag 1, lag 2, and lag 3, including the average lag 0-1. **Results:** An interquartile range increase of 4.26 [μ]g/m³ in PM_{2.5} over 2 days (lag 0-1) was associated with an increase in risk for an out-of-hospital cardiac arrest of 3.6% (95% confidence interval = 1.3% to 6.0%). PM₁₀ and carbon monoxide also showed associations, but not as strong as for PM_{2.5}. Longer lag periods did not show such strong relationships. There was no association of these cardiac events with ozone, sulfur dioxide, or nitrogen dioxide in any lag period. Individuals age 65-74 years old were most susceptible to PM_{2.5} exposure, while those 75 years and older had the lowest risk. **Conclusion:** These findings support an association between daily average PM_{2.5} concentrations and an increased risk of out-of-hospital cardiac arrests.

Keywords: Air pollution, cardiac arrests, epidemiologic studies, cardiovascular mortality

A2611: Long-Term Exposure to Air Pollution and Vascular Damage in Young Adults

Authors: Lenters Virissa and Uiterwaal Cuno S

Source: *Epidemiology*, 21, 4 (2010): 512-520

Abstract: **Background:** Long-term exposure to ambient air pollution has recently been linked to atherosclerosis and cardiovascular events. There are, however, very limited data in healthy young people. We examined the association between air pollutants and indicators of vascular damage in a cohort of young adults. **Methods:** We used data from the Atherosclerosis Risk in Young Adults study. We estimated exposure to nitrogen dioxide (NO₂), particulate matter less than 2.5 [μ m]m in aerodynamic diameter (PM_{2.5}), black smoke, sulfur dioxide (SO₂), and various traffic indicators for participants' 2000 home addresses. Exposure for the year 2000 was estimated by land-use regression models incorporating regional background annual air pollution levels, land-use variables, population densities, and traffic intensities on nearby roads. Outcomes were common carotid artery intima-media thickness (n = 745), aortic pulse wave velocity (n = 524), and augmentation index (n = 729). **Results:** Exposure contrasts were substantial for NO₂, SO₂, and black smoke (5th-95th percentiles = 19.7 to 44.9, 2.5 to 5.2, and 8.6 to 19.4 [μ g/m³, respectively) and smaller for PM_{2.5} (16.5 to 19.9 [μ g/m³). The variability of carotid artery intima-media thickness was less than for pulse wave velocity and especially augmentation index (5-95th percentiles = 0.42 to 0.58 mm, 4.9 to 7.4 m/s and -12.3% to 27.3%, respectively). No associations were found between any of the pollutants or traffic indicators and carotid artery intima-media thickness, although PM_{2.5} effect estimates were in line with previous studies. We observed a 4.1% (95% confidence interval = 0.1% to 8.0%) increase in pulse wave velocity and a 37.6% (2.2% to 72.9%) increase in augmentation index associated with a 25 [μ g/m³ increase in NO₂, and a 5.3% (0.1% to 10.4%) increase in pulse wave velocity with a 5 [μ g/m³ increase in SO₂. PM_{2.5} and black smoke were not associated with either of these 2 outcomes. **Conclusions:** Air pollution may accelerate arterial-wall stiffening in young adults. Small outcome variability and lack of residential mobility data may have limited the power to detect an effect on intima-media thickness.

Keywords: Air pollution, vascular damage, carotid artery, adult, air pollutants

A2689: Lifestyle-related risk factors for cardiovascular disease in a desert population of India

Author: Kripa Ram Haldiya and Murli L. Mathur

Source: Current Science, 99, 2 (2010): 190-195

Abstract: Population aged 20 years and above of three selected villages of Rajasthan was studied (n = 1825) to assess prevalence of lifestyle-related risk factors for cardiovascular diseases (CVD). BMI > 24.99 was found in 13.4%, proportion of females with abdominal obesity (WHR > 0.8) was 62.6%, which was significantly higher (p < 0.00001) than of males (51.2% with WHR > 0.9); 58.3% males and 7.1% females used tobacco. Average salt consumption was 8.3 ± 3.3 g/day. It was more than 5 g/day in 88.0% subjects and was more than 10 g/day in 21.6%. Average oil + ghee consumption was 32.3 ± 14.9 g/day and 40.0% had sedentary lifestyle. Prevalence of hypertension was 23.1%. Results underline the need for increasing community awareness about behavioural risk factors for CVD in rural areas.

Keywords: Blood pressure, cardiovascular diseases, hypertension, lifestyle, risk factors

A2698: Willingness to pay for zinc treatment of childhood diarrhoea in a rural population of Bangladesh

Author: Shamima Akhter and Charles P Larson

Source: Health Policy and Planning, 25, 2 (2010): 230-236

Abstract: Introduction: Young children in the developing world continue to experience a median of between two and four episodes of diarrhoea each year. To better understand adherence to the WHO/UNICEF-recommended diarrhoea management guidelines, which now include zinc, this study aimed to determine how much caregivers were willing to pay for zinc treatment and to explore the characteristics of actual users of zinc in a rural community of Bangladesh. Methods: Initially we conducted a contingent valuation survey among primary caregivers of children aged 6–36 months. We assessed their willingness-to-pay (WTP) for 10 days of zinc

treatment per diarrhoea episode at Tk.15 (US\$0.26) and at Tk.20 (US\$0.34), followed by an open question on the highest WTP amount. Next we conducted a cross-sectional survey in the same area to identify households with children who had received zinc during their most recent diarrhoea episode within the previous 3 months. Results: Field workers interviewed 111 primary caregivers to explore WTP for zinc in childhood diarrhoea. Of these, 92% were willing to pay US\$0.26 and 85% of these positive respondents were also willing to pay US\$0.34. The mean WTP was US\$0.50. We found that higher socio-economic status, better educated fathers and lower mother's age positively influenced the expressed WTP. Actual users, the 51 households whose child received zinc in their most recent diarrhoea episode, were more likely to have educated parents, higher socio-economic status and to have sought care from qualified providers for diarrhoeal illness. Conclusion: The expressed WTP results indicate a high demand for zinc in childhood diarrhoea management in this rural community of Bangladesh. Safety net measures and targeted communication activities specifically aimed at the poor and less educated population could be beneficial to achieve more equitable use of zinc as part of the standard treatment with oral rehydration solution in childhood diarrhoea management.

Keywords: Diarrhoea, willingness to pay, actual user, Bangladesh

A2704: Olmesartan Medoxomil Evaluated for Safety and Efficacy in Indian Patients with Essential Hypertension: A Real World Observational Postmarketing Surveillance

Author: Rajiv Rana and Amarinder Singh

Source: Journal of the Association of Physicians of India, 58 (2010): 77-83

Abstract: Objective(s): To assess the efficacy and safety of once daily olmesartan medoxomil 20 mg in Indian patients with stage 1 essential hypertension. Method(s): This was an open label, multicentre, real world observational postmarketing surveillance conducted in male and female patients (N=825), in age group of 18 to 65 yrs who had clinically diagnosed stage 1 hypertension (JNC-7 guidelines) and were prescribed olmesartan medoxomil 20 mg once daily as treatment. There were total of seven study visits, Visit-1 (day 1) and end of study visit-7 (end of week 8).

Except for those patients who did not achieve the target BP levels, all the patients continued to receive olmesartan medoxomil 20 mg for 8 weeks, given once a day at 24 hourly intervals. At end of surveillance (EOS; week 8) visit-7 clinical response to treatment was determined by “responder rate” and changes in level of systolic blood pressure (SBP) and diastolic blood pressure (DBP). Responder rate criteria was defined as, SBP and DBP levels of < 140 mmHg and < 90 mmHg respectively, and for hypertensive patients with diabetes mellitus SBP and DBP levels of < 130 mmHg and < 80 mmHg respectively. Result(s): There were significant changes in mean sitting systolic and diastolic blood pressure, the primary end point of the study. From baseline visit to the end of the surveillance visit-7 (week 8), a mean change of -18.7 (147.86 to 129.16; p<.0001; 95% ci) in sitting SBP and a mean change of -14.47 (95.99 to 81.56; p<.0001; 95% ci) in sitting DBP respectively was observed with olmesartan 20 mg once daily. The response rate at the end of study was 81.82% and 70.18% for SBP and DBP respectively, in stage 1 hypertensive patients without diabetes mellitus. It was 73.38% and 65.47% respectively for SBP and DBP in patients with diabetes. Overall efficacy of Olmesartan medoxomil 20 mg was excellent to very good in 92.5% patients, only 05 (0.6%) of patients, reported of poor efficacy. Tolerability as assessed globally was reported to be excellent to very good by 92.1% of patient, with only one patient (0.1%) reported it to be poor. The most common adverse events reported were dizziness (82.52%), headache (63%), respiratory tract infection (50.40%) and nausea (40.24%); all the AE’s were mild-moderate in nature which did not require stoppage of treatment. Conclusion(s): Our findings reiterated that Olmesartan medoxomil 20 mg once daily is not only effective in achieving the desired BP in a significant number of patients, it also shows excellent tolerability and hence compliance. Olmesartan is a valuable option for treatment of essential hypertension in adult Indian patients

Keywords: Post marketing surveillance, Indian patients, olmesartan medoxomil, safety and efficacy, hypertension

A2741: Uncertainty in Mapping Malaria Epidemiology: Implications for Control

Author: David Sullivan

Source: *Epidemiologic Reviews*, 32 (2010): 175-187

Abstract: Malaria is a location-specific, dynamic infectious disease transmitted by mosquitoes to humans and is influenced by environmental, vector, parasite, and host factors. The principal purposes of malarial epidemiology are 1) to describe the malarial distribution in space and time along with the physical, biologic, and social etiologic factors and 2) to guide control objectives for either modeling impact or measuring progress of control tactics. Mapping malaria and many of its causative factors has been achieved on many different levels from global distribution to biologic quantitative trait localization in humans, parasites, and mosquitoes. Despite these important achievements, a large degree of uncertainty still exists on the annual burden of malarial cases. Accurate, sensitive detection and treatment of asymptomatic reservoirs important to infectious transmission are additional components necessary for future control measures. Presently spurred by the leadership and funding of Bill and Melinda Gates, the malarial community is developing and implementing plans for elimination of malaria. The challenge for malariologists is to digitally integrate and map epidemiologic factors and intervention measures in space and time to target effective, sustainable control alongside research efforts.

Keywords: Epidemiologic factors, epidemiologic measurements, infectious disease, malaria

Drugs and Drugs Policy

A2723: Mortality and Causes of Death among Drugged Drivers

Authors: Karoliina Karjalainen and Tomi Lintonen

Source: Journal of Epidemiology and Community Health, 64, 6 (2010): 506-512

Abstract: Background Studying drugged drivers gives complementary information about mortality of drug users, which mainly has been studied among opioid abusers. The aim of this study was to analyse mortality rates and causes of death among drivers under the influence of drugs (DUID) in Finland and compare them with the general Finnish population during 1993–2006. Methods: Register data from 5832 DUID suspects apprehended by the police were studied, with a reference group (n=74?809) drawn from the general Finnish population. Deaths were traced from the National Death Register. Survival and differences in mortality hazards were estimated using Kaplan–Meier plots and Cox regression models. Results: The hazard of death was higher among male (HR 9.6, CI 8.7 to 10.6) and female (HR 9.1, CI 6.4 to 12.8) DUID suspects compared to the reference population. Among male DUID suspects, cause-specific hazards were highest for poisoning/overdose, violence and suicide. 24% of DUID suspects and 8% of reference subjects were under the influence of drugs/alcohol at the time of death. Poly-drug findings indicated excess in mortality among drugged drivers. Hazard of death was higher among male DUID suspects who had findings for benzodiazepines only (HR 10.0, CI 8.4 to 11.9) or benzodiazepines with alcohol (HR 9.6, CI 8.2 to 11.2), than with findings for amphetamines (HR 4.6, CI 2.7 to 7.6). Conclusion: DUID suspects had an increased risk of death in all observed causes of death. Findings for benzodiazepines indicated excessive mortality over findings for amphetamines. Preventive actions should be aimed especially at DUID subgroups using benzodiazepines.

Keywords: Drug users, mortality rates, mortality hazards

Education

A2630: Population Literacy and Educational Status of Scheduled Tribes in India

Author: Rao D Pulla

Source: Indian Journal of Population Education, 50, July-September (2010): 18-29

Abstract: Scheduled Tribes (STs) constitute an important segment of the Indian society. As most of them reside in hill areas and they are isolated from the rest of the society due to poor transportation and communication facilities. Educational and economic backwardness is also their common feature. After independence the Government of India provided some constitutional safe guards for the upliftment of STs. The population of STs is increasing faster than overall population of India. The proportion of ST population to overall population increased from 5.2 per cent in 1951 to 8.2 per cent in 2001. The highest concentration of ST population is found in the state of Mizoram and the lowest in the state of Uttar Pradesh. The literacy rate of STs was much lower than the overall literacy rate of the country. The disparities between males and females in literacy rate are still large. The enrollment of ST children including girls at the primary stage³ was about 7-9 per cent during 1990s. And at upper primary stage their enrollment was much lower. The gross enrollment ratios of ST boys and girls in both primary and upper primary stages are higher in Uttar Pradesh. The drop-out rate of ST girls in primary stage is higher in Uttar Pradesh than the other states of the country. In order to reduce the drop-outs among STs the Government needs to undertake some more special measures to encourage them to send their children, especially girl children to school, compulsorily and regularly. The Government should provide attractive financial incentives to enhance the enrollment of the children of STs even at the elementary school stage. Government should set up more schools in the vicinity of Scheduled Tribe habitations. Attempts may be made to utilize the services of voluntary agencies by way of helping the students in opening non-formal education centres and pre-primary schools in the tribal habitations. It is more appropriate to implement some strategies of schooling in tribal areal like mobile schools, alternate intake schools, non-graded schools, mosque schools, learning post schools etc. Attempts shall be

made to involve the parents of the tribal children actively in the educational process of the tribal children such that parents will know in quite advance the end results of education and the need to send their children to the schools regularly and punctually.

Keywords: Scheduled tribes, population literacy, educational status, India

A2632: Educational waste: Dropouts in Upper Primary Schools in Tamil Nadu

Author: V P Matheswaran

Source: Indian Journal of Population Education, 50, July-September (2010): 54-62

Abstract: The analysis reveals that the socio-economic status of the family of dropouts plays a vital role in leaving the school. The problem of dropouts starts at secondary grade level and dropouts mainly belong to downtrodden families, like schedule castes and most backward communities. Most of the parents under this study are from poor educational background, not encouraging their children to continue their study, which result in dropouts. This research paper is based on the report submitted to the Sarva Shiksha Abhiyan of Tamil Nadu by the author.

Keywords: Primary school, Tamil Nadu, socio economic, educational waste

A2641: Nontraditional Families and Childhood Progress through School

Author: Michael J. Rosenfeld

Source: Sources: Demography, 47, 3 (2010): 755-776

Abstract: I use U.S. census data to perform the first large-sample, nationally representative tests of outcomes for children raised by same-sex couples. The results show that children of same-sex couples are as likely to make normal progress through school as the children of most other family structures. Heterosexual married couples are the family type whose children have

the lowest rates of grade retention, but the advantage of heterosexual married couples is mostly due to their higher socioeconomic status. Children of all family types (including children of same-sex couples) are far more likely to make normal progress through school than are children living in group quarters (such as orphanages and shelters).

Keywords: Childhood, nontraditional families, heterosexual married

A2730: Education reduces the effects of genetic susceptibilities to poor physical health

Author: Wendy Johnson and Kirsten Ohm Kyvik

Source: *International Journal of Epidemiology*, 39, 2 (2010): 406-414

Abstract: Background: Greater education is associated with better physical health. This has been of great concern to public health officials. Most demonstrations show that education influences mean levels of health. Little is known about the influence of education on variance in health status, or about how this influence may impact the underlying genetic and environmental sources of health problems. This study explored these influences. Methods: In a 2002 postal questionnaire, 21 522 members of same-sex pairs in the Danish Twin Registry born between 1931 and 1982 reported physical health in the 12-item Short Form Health Survey. We used quantitative genetic models to examine how genetic and environmental variance in physical health differed with level of education, adjusting for birth-year effects. Results and Conclusions: As expected, greater education was associated with better physical health. Greater education was also associated with smaller variance in health status. In both sexes, 2 standard deviations (SDs) above mean educational level, variance in physical health was only about half that among those 2 SDs below. This was because fewer highly educated people reported poor health. There was less total variance in health primarily because there was less genetic variance. Education apparently reduced expression of genetic susceptibilities to poor health. The patterns of genetic and environmental correlations suggested that this might take place because more educated people manage their environments to protect their health. If so,

fostering the personal characteristics associated with educational attainment could be important in reducing the education–health gradient.

Keywords: Physical health, education, socio-economic status gradient, genetic and environmental vulnerabilities

Environment & Pollution

A2720: Association of traffic-related Air Pollution with Cognitive Development in Children

Authors: Carmen Freire and Rosa Ramos

Source: Journal of Epidemiology and Community Health, 64, 3 (2010): 223-228

Abstract: Background Air pollution from traffic has been associated with cardiorespiratory diseases in children and adults, but there is little information on its potential neurotoxic effects. This study aimed to investigate the association between exposure to nitrogen dioxide (NO₂), as a marker of traffic-related air pollution, and cognitive development in children. **Methods** A population-based birth cohort from southern Spain was followed from the age of 4 years for 1 year. Complete data for analyses were gathered on 210 children living in urban and rural areas. NO₂ exposure was predicted by means of land use regression models. A standardised version of the McCarthy Scales of Children's Abilities (MSCA) was used to assess children's motor and cognitive abilities. Multivariate analyses were performed to evaluate the relation between exposure to NO₂ and MSCA outcomes, adjusting for potential confounders. **Results** A negative effect of NO₂ was found across all MSCA subscales, despite low predicted NO₂ exposure levels (5–36 µg/m³). Children exposed to higher NO₂ (>24.75 µg/m³) showed a decrease of 4.19 points in the general cognitive score and decreases of 6.71, 7.37 and 8.61 points in quantitative, working memory and gross motor areas, respectively. However, except for gross motor function, associations were not statistically significant. **Conclusion** Although results were not statistically significant, the associations found between exposure to NO₂ and cognitive functions suggest that traffic-related air pollution may have an adverse effect on neurodevelopment, especially early in life, even at low exposure levels.

Keywords: Traffic-related air pollution, cognitive development, cardio respiratory diseases, multivariate analyses

A2735: Risk of Low Birth Weight and Stillbirth Associated With Indoor Air Pollution From Solid Fuel Use in Developing Countries

Author: Daniel P. Pope and Vinod Mishra

Source: *Epidemiologic Reviews*, 32 (2010): 70-81

Abstract: Exposure to indoor air pollution from solid fuel use (IAP) has been linked to approximately 1.5 million annual deaths (World Health Organization (<http://www.who.int/indoorair/publications/fuelforlife/en/index.html>)) due to acute lower respiratory infections in children <5 years of age and chronic obstructive lung disease and lung cancer in adults. Emerging evidence suggests that IAP increases the risk of other conditions, including adverse pregnancy outcomes. To establish the relation of IAP with birth weight and stillbirth, systematic reviews with meta-analyses were conducted. Studies reporting outcomes of mean birth weight, percentage of low birth weight (LBW; <2,500 g), and/or stillbirth and assessing IAP were identified. Five LBW studies (of 982) and 3 stillbirth studies (of 171) met inclusion criteria for the reviews. Fixed-effect meta-analyses ($I^2 = 0\%$) found that IAP was associated with increased risk of percentage LBW (odds ratio = 1.38, 95% confidence interval: 1.25, 1.52) and stillbirth (odds ratio = 1.51, 95% confidence interval: 1.23, 1.85) and reduced mean birth weight (-95.6 g, 95% confidence interval: -68.5, -124.7). Evidence from secondhand smoke, ambient air pollution, and animal studies—and suggested plausible mechanisms—substantiate these associations. Because a majority of pregnant women in developing countries, where rates of LBW and stillbirth are high, are heavily exposed to IAP, increased relative risk translates into substantial population attributable risks of 21% (LBW) and 26% (stillbirth).

Keywords: Air pollution, low birth weight, stillbirth, developing countries

Epidemiology

A2652: Equol Improves Menopausal Symptoms in Japanese Women

Authors: Takeshi Aso

Source: Journal of Nutrition, 140, 7 (2010): 1386S-1389S

Abstract: It has been well documented that the frequency of vasomotor menopausal symptoms, such as hot flashes and night sweats, of Japanese menopausal women is less than that of Western women. High intake of soy isoflavones in the traditional Japanese diet has been postulated as the possible explanation of the difference. Epidemiological studies have reported that the content of equol, which is a biologically active metabolite of the isoflavone, daidzein, is lower in the women who complain of severe vasomotor symptoms. To investigate the involvement of equol in the manifestation of menopausal symptoms, especially vasomotor symptoms, and the possible therapeutic role of a supplement containing equol (natural S-equol developed by Otsuka Pharmaceutical) on the menopausal symptoms of Japanese women, 3 randomized clinical trials were conducted. The studies indicated that a daily dose of 10 mg of natural S-equol improved menopausal symptoms. In the confirmation study, menopausal women who were equol nonproducers who consumed 10 mg/d of natural S-equol for 12 wk had significantly reduced severity and frequency of hot flashes as well as a significant reduction in the severity of neck or shoulder stiffness. The equol-ingesting group also showed trends of improvement in sweating and irritability and a significant improvement in the somatic category symptoms. Thus, it is concluded that the supplement containing natural S-equol, a novel soybean-derived functional component, has a promising role as an alternative remedy in the management of menopausal symptoms.

Keywords: Menopausal symptoms, vasomotor symptoms, menopausal women, hot flashes

A2729: Spectrum: a model platform for linking maternal and child survival interventions with AIDS, family planning and demographic projections

Author: John Stover and Robert McKinnon

Source: International Journal of Epidemiology, 39, S1 (2010): i7-i10

Abstract: Background: LiST is implemented in Spectrum, a modular computer program designed to examine the impact of interventions on health outcomes. A typical LiST application uses three other modules in Spectrum addressing demography, family planning and HIV/AIDS. Methods: The demographic module projects the population by single age and sex over time and uses LiST calculations of the mortality rates by age group to calculate the number of deaths. The family planning module uses the proximate determinants of fertility framework to calculate the effects of increasing contraceptive use on the total fertility rate and, thus, the number of births. The HIV/AIDS module calculates the consequences of HIV epidemic trends on child mortality and the effects of programs to prevent mother-to-child transmission of HIV, cotrimoxazole prophylaxis and anti-retroviral treatment on the number of AIDS deaths. Results: These modules provide LiST with estimates of the number of children and number of deaths by single age as they are affected by changes in fertility through family planning and interventions to prevent the transmission of HIV or delay AIDS death. Conclusions: Integrating LiST within the existing Spectrum system of planning models expands the scope of LiST to include the effects of demographic change, family planning and HIV interventions.

Keywords: AIDS, family planning, child survival interventions, HIV

A2739: Randomized Controlled Trials of Interventions to Prevent Sexually Transmitted Infections: Learning From the Past to Plan for the Future

Author: Catherine M. Wetmore and Lisa E. Manhart

Source: Epidemiologic Reviews, 32 (2010): 121-136

Abstract: Globally, sexually transmitted infections (STIs) represent a significant source of morbidity and disproportionately impact the health of women and children. The number of randomized controlled trials testing interventions to prevent STIs has dramatically increased over time. To assess their impact, the authors conducted a systematic review of interventions to prevent sexual transmission or acquisition of STIs other than human immunodeficiency virus, published in the English-language, peer-reviewed literature through December 2009. Ninety-three papers reporting data from 74 randomized controlled trials evaluating 75 STI prevention interventions were identified. Eight intervention modalities were used: behavioral interventions (36% of interventions), vaginal microbicides (16%), vaccines (16%), treatment (11%), partner services (9%), physical barriers (5%), male circumcision (5%), and multicomponent (1%). Overall, 59% of interventions demonstrated efficacy in preventing infection with at least 1 STI. Treatment interventions and vaccines for viral STIs showed the most consistently positive effects. Male circumcision protected against viral STIs and possibly trichomoniasis. Almost two-thirds of behavioral interventions were effective, but the magnitude of effects ranged broadly. Partner services yielded similarly mixed results. In contrast, vaginal microbicides and physical barrier methods demonstrated few positive effects. Future STI prevention efforts should focus on enhancing adherence within interventions, integrating new technologies, ensuring sustainable behavior change, and conducting implementation research.

Keywords: Primary prevention, sexually transmitted diseases, vaccines

Family Planning

A2710: Birth Control Necessary to Limit Family Size in Tribal Couples with Aberrant Heterosis of G-6-PD Deficiency and Sickle Cell Disorders in India: An Urgency of Creating Awareness and Imparting Genetic Counseling

Author: RS Balgir

Source: Journal of the Association of Physicians of India, 58, June (2010): 357-362

Abstract: Objectives: (i) To study the outcome of ignorance and lack of awareness about sickle cell disease and G-6-PD deficiency among Dhelki Kharia tribal families of Orissa, and (ii) to study the reproductive output in relation to clinical genetics and patho-physiological implications. **Methodology:** A random genetic study of screening for hemoglobinopathies and G-6-PD deficiency among Dhelki Kharia tribal community in Sundargarh district of Orissa was carried out for intervention during the year 2000-2004. A total of 81 Dhelki Kharia families were screened and six families with double heterozygosity for above genetic anomalies were encountered. About 2-3 ml. intravenous blood samples were collected in EDTA by disposable syringes and needles after taking informed consent from each individual in the presence of a doctor and community leaders and sent to laboratory at Bhubaneswar for hematological investigations. Analysis was carried out following the standard procedures after cross checking for quality control. **Results:** There were 12 (about 52%) children out of 23 who were either suffering from sickle cell trait or disease in concurrence with G-6-PD deficiency in hemizygous/heterozygous/homozygous condition in Dhelki Kharia tribal community of Orissa. There were on an average 3.83 number of surviving (range 2-6) children per mother in families of G-6-PD deficiency and sickle cell disorders. The average number of children (3.83) born (range 2-6 children) per mother to carrier/affected mother was much higher than the average for India (2.73). **Conclusions:** It is very difficult to maintain the normal health of an affected child with aberrant anomalies due to exorbitant cost of treatment, frequent transfusions and huge involvement of economy. One of the implications of aberrant heterosis is its adverse affects on routine individual physiology and hard activities. It is suggested to limit the family

size in carrier couples to avoid aberrant heterosis of hereditary hemolytic disorders in their offsprings.

Keywords: Birth control, limit family size, tribal families, Orissa

A2740: Family Planning and the Burden of Unintended Pregnancies

Author: Amy O. Tsui and Raegan McDonald-Mosley

Source: *Epidemiologic Reviews*, 32 (2010): 152-174

Abstract: Family planning is hailed as one of the great public health achievements of the last century, and worldwide acceptance has risen to three-fifths of exposed couples. In many countries, however, uptake of modern contraception is constrained by limited access and weak service delivery, and the burden of unintended pregnancy is still large. This review focuses on family planning's efficacy in preventing unintended pregnancies and their health burden. The authors first describe an epidemiologic framework for reproductive behavior and pregnancy intendedness and use it to guide the review of 21 recent, individual-level studies of pregnancy intentions, health outcomes, and contraception. They then review population-level studies of family planning's relation to reproductive, maternal, and newborn health benefits. Family planning is documented to prevent mother-child transmission of human immunodeficiency virus, contribute to birth spacing, lower infant mortality risk, and reduce the number of abortions, especially unsafe ones. It is also shown to significantly lower maternal mortality and maternal morbidity associated with unintended pregnancy. Still, a new generation of research is needed to investigate the modest correlation between unintended pregnancy and contraceptive use rates to derive the full health benefits of a proven and cost-effective reproductive technology.

Key words: Family planning services, pregnancy outcome, pregnancy, reproduction

Fertilization

A2660: Perceived negative consequences of donor gametes from male and female members of infertile couples

Author: Michael L. Eisenberg and James F. Smith

Source: *Fertility and Sterility*, 94, 3 (2010): 921-926

Abstract: **Objective:** To determine the views toward donor sperm and eggs of both men and women. The use of donor sperm or ova becomes an option for some infertile couples. **Design:** Prospective cohort of infertile couples. **Setting:** Eight California reproductive endocrinology practices. **Patient(s):** Infertile couples (n = 377) were recruited after an initial infertility clinic visit. **Main Outcome Measure(s):** From questionnaires administered at recruitment, ratings concerning the impact of the use of donor gametes were assessed. Differences between men and women in attitudes toward donor gametes were compared with analysis of variance (ANOVA). Linear regression was used to identify independent predictors of attitudes toward gametes. **Result(s):** Women's attitudes toward donor sperm were significantly more negative than their attitudes toward donor eggs (5.1 ± 1.4 vs. 4.7 ± 1.6). Similarly, male donor gamete attitude scores were higher for donor sperm compared with donor eggs (4.9 ± 1.6 vs. 4.1 ± 1.6). Both men and women agreed that the use of donor sperm was more likely to have negative effects on their relationship and negative societal ramifications. Female donor gamete attitude scores were predicted by marital status, race, and education, whereas men's scores were independent of all measured factors. **Conclusion(s):** Both men and women view the use of donor sperm with more skepticism compared with the use of donor eggs, suggesting a unique underlying perception regarding the use of male donor gametes.

Keywords: Gametes, vitro fertilization, sperm injections, infertility

A2661: Likelihood of live birth and multiple birth after single versus double embryo transfer at the cleavage stage: a systematic review and meta-analysis

Author: Tarek A. Gelbaya and Ioanna Tsoumpou

Source: *Fertility and Sterility*, 94, 3 (2010): 936-945

Abstract: **Objective:** To determine whether a policy of elective single-embryo transfer (e-SET) lowers the multiple birth rate without compromising the live birth rate. **Design:** Systematic review and meta-analysis. **Setting:** Tertiary referral center for reproductive medicine and IVF unit. **Patient(s)** None. **Intervention(s):** Searches of the Cochrane Controlled Trials Register, Meta-register for Randomized Controlled Trials (RCTs), EMBASE, MEDLINE, and SCISEARCH with no limitation on language and publication year, 1974 to 2008. **Selection criteria:** randomized, controlled trials comparing e-SET with double-embryo transfer (DET) for live birth and multiple birth rates after in vitro fertilization (IVF) with or without intracytoplasmic sperm injection (ICSI). Nonrandomized trials and studies that included only patients who had blastocyst transfer were excluded. **Main Outcome Measure(s):** The likelihood of live birth per patient and multiple birth per total number of live births. Other outcomes included implantation rate, pregnancy rate, miscarriage and ectopic pregnancy rates, clinical pregnancy rate, ongoing pregnancy rate per patient, and preterm delivery rate per live birth. **Result(s):** Six trials (n = 1354 patients) were included in the meta-analysis. Compared with DET, the e-SET policy was associated with a statistically significant reduction in the probability of live birth (RR 0.62; 95% CI, 0.53–0.72) and multiple birth (RR 0.06; 95% CI, 0.02–0.18). **Conclusion(s):** Elective-SET of embryos at the cleavage stage reduces the likelihood of live birth by 38% and multiple birth by 94%. Evidence from randomized, controlled trials suggests that increasing the number of e-SET attempts (fresh and/or frozen) results in a cumulative live birth rate similar to that of DET. Offering subfertile women three cycles of IVF will have a major impact on the uptake of an e-SET policy.

Keywords: Double embryo replacement, double embryo transfer, live birth, multiple birth

A2662: Follicular fluid steroid hormone levels are associated with fertilization outcome after intracytoplasmic sperm injection

Author: Julie D. Lamb and A. Musa Zamah

Source: *Fertility and Sterility*, 94, 3 (2010): 952-957

Abstract: **Objective:** To investigate the association between hormone levels from individual follicles and fertilization outcome among patients undergoing intracytoplasmic sperm injection (ICSI). Differences in concentrations of selected sex steroids and pituitary hormones in individual follicular aspirates between oocytes that fertilize successfully, those that fail to fertilize, and those that degenerate with ICSI were examined. **Design:** Prospective cohort study. **Setting:** Academic medical center. **Patient(s):** Women undergoing ovarian stimulation and ICSI. **Intervention(s):** Follicular fluid was sampled by transvaginal ultrasound-guided aspiration of the hyperstimulated ovary. Each follicle was individually aspirated and collected. Intracytoplasmic sperm injection and subsequent embryo culture were performed using standard laboratory technique. Follicular fluid gonadotropin and steroid hormone levels were measured by immunoassay. **Main Outcome Measure(s):** Oocyte fertilization outcome with ICSI. **Result(s):** Oocytes that fertilized normally came from follicles with higher estradiol (adjusted odds ratio [AOR] = 1.28) and testosterone (AOR = 1.35) concentrations compared with those that degenerated with ICSI. Oocytes that fertilized normally also came from follicles with higher estradiol (AOR = 1.14) and progesterone (AOR = 1.09) concentrations compared with those that failed to fertilize. **Conclusion(s):** The hormonal profile of the follicular fluid yielding a degenerative egg or an egg that fails to fertilize is different from that resulting in normal fertilization. Higher follicular fluid estradiol may be a marker for oocytes that will fertilize normally with ICSI.

Keywords: Follicular fluid, hormone levels, fertilization outcomes, steroid hormones

Food and Nutrition

A2681: Beat the Heat: don't forget your drink – a brief public education program

Author: Tracey Oakman and Helen Byles-Drage

Source: Australian and New Zealand Journal of Public Health, 34, 4 (2010): 346–350

Abstract: **Background:** The Beat the Heat: don't forget your drink program was initiated to enable the general public to recognise and manage heat stress. It was accompanied by a telephone survey to assess program reach and knowledge and behaviours of the general public in managing heat stress. **Methods:** The program was implemented in the Riverina-Murray region of New South Wales, in the summer of 2008/09, through radio and television sound bytes, newspaper announcements, distribution of posters and brochures, and public talks. Computer Assisted Telephone Interviews were conducted with 328 randomly selected participants from across the region. **Results:** Sixty-three per cent of participants reported hearing heat health warnings and 53% changed their heat management strategies, although only 25% recalled the program slogan. On average, participants self-rated their understanding of managing heat health at 7.9 on a 10 point scale. More than 75% of participants said they would recognise the symptoms of heat stress. Most reported exposure to heat and health information from television, radio and newspapers rather than from posters, brochures and talks. Those at greatest risk included people who worked or exercised outdoors, men and those taking medication. **Conclusions:** Television, radio and newspapers were successful media for the program. Knowledge and responses of the general public to heat risks were well developed, with several exceptions – people taking medications, or working or playing sports outdoors, as well as tourists and men. These exceptions should be targeted in future programs.

Keywords: Heat stress disorders, public health, health promotion, education program

A2682: Urinary sodium excretion, dietary sources of sodium intake and knowledge and practices around salt use in a group of healthy Australian women

Author: Karen Charlton and Heather Yeatman

Source: Australian and New Zealand Journal of Public Health, 34, 4 (2010): 356–363

Abstract: Objective: Strategies that aim to facilitate reduction of the salt content of foods in Australia are hampered by sparse and outdated data on habitual salt intakes. This study assessed habitual sodium intake through urinary excretion analyses, and identified food sources of dietary sodium, as well as knowledge and practices related to salt use in healthy women. Methods: Cross-sectional, convenient sample of 76 women aged 20 to 55 years, Wollongong, NSW. Data included a 24 hour urine sample, three-day food diary and a self-administered questionnaire. Results: Mean Na excretion equated to a NaCl (salt) intake of 6.41 (SD=2.61) g/day; 43% had values <6 g/day. Food groups contributing to dietary sodium were: bread and cereals (27%); dressings/sauces (20%); meat/egg-based dishes (18%); snacks/desserts/extras (11%); and milk and dairy products (11%). Approximately half the sample reported using salt in cooking or at the table. Dietary practices reflected a high awareness of salt-related health issues and a good knowledge of food sources of sodium. Conclusion: These findings from a sample of healthy women in the Illawarra indicate that dietary sodium intakes are lower in this group than previously reported in Australia. However, personal food choices and high levels of awareness of the salt reduction messages are not enough to achieve more stringent dietary targets of <4 g salt per day. Implications: Urinary Na excretion data are required from a larger nationally representative sample to confirm habitual salt intakes. The bread and cereals food group are an obvious target for sodium reduction strategies in manufactured foods.

Keywords: Salt, dietary sodium, consumer perceptions, urinary sodium excretion, Australian women

A2646: Diet Quality, Physical Activity, Smoking Status, and Weight Fluctuation Are Associated with Weight Change in Women and Men

Authors: Ruth W. Kimokoti and P. K. Newby

Source: Journal of Nutrition, 140, 7 (2010): 1287-1293

Abstract: The effect of diet quality on weight change, relative to other body weight determinants, is insufficiently understood. Furthermore, research on long-term weight change in U.S. adults is limited. We evaluated prospectively patterns and predictors of weight change in Framingham Offspring/Spouse (FOS) women and men (n = 1515) aged 30 y with BMI \geq 18.5 kg/m² and without cardiovascular disease, diabetes, and cancer at baseline over a 16-y period. Diet quality was assessed using the validated Framingham Nutritional Risk Score. In women, older age (P < 0.0001) and physical activity (P < 0.05) were associated with lower weight gain. Diet quality interacted with former smoking status (P-interaction = 0.02); former smokers with lower diet quality gained an additional 5.2 kg compared with those with higher diet quality (multivariable-adjusted P-trend = 0.06). Among men, older age (P < 0.0001) and current smoking (P < 0.01) were associated with lower weight gain, and weight fluctuation (P < 0.01) and former smoking status (P < 0.0001) were associated with greater weight gain. Age was the strongest predictor of weight change in both women (partial R² = 11%) and men (partial R² = 8.6%). Normal- and overweight women gained more than obese women (P < 0.05) and younger adults gained more weight than older adults (P < 0.0001). Patterns and predictors of weight change differ by sex. Age in both sexes and physical activity among women as well as weight fluctuation and smoking status in men were stronger predictors of weight change than diet quality among FOS adults. Women who stopped smoking over follow-up and had poor diet quality gained the most weight. Preventive interventions need to be sex-specific and consider lifestyle factors.

Keywords: Weight change, smoking status, body weight, cardiovascular disease, nutritional risk

A2647: Fruit and Vegetable Intakes are Associated with Lower Risk of Breast Fibroadenomas in Chinese Women

Authors: Zakia Coriaty Nelson and Roberta M. Ray

Source: Journal of Nutrition, 140, 7 (2010): 1294-1301

Abstract: Fibroadenomas are common benign breast conditions among women and account for 50% of breast biopsies performed. Dietary factors are known to influence benign breast conditions in the aggregate, but little is known of their association specifically with fibroadenoma. Our objective in this study was to evaluate the association between dietary and other factors and fibroadenoma risk. A case-control study, nested in a randomized trial of breast self-examination (BSE) in Chinese textile workers in Shanghai, China, was conducted between 1989 and 2000. The study sample included 327 affected women and 1070 controls. Women were administered a FFQ and a questionnaire that elicited reproductive and gynecological history and other information. Odds ratios, as estimates of relative risks, were calculated using multivariate conditional logistic regression. Significant decreasing trends in risk of fibroadenoma were observed with intake of fruits and vegetables and with number of live births, and a reduced risk was also associated with natural menopause, oral contraceptive use, and moderate exercise (walking and gardening). Increased risk of fibroadenoma was associated with heavy physical activity in one's 20s, breast cancer in a first-degree relative, and a history of prior benign breast lumps; and significant increasing trends in risk were observed with numbers of BSE per year and years of education. In conclusion, a diet rich in fruits and vegetables and the use of oral contraceptives may reduce risk of fibroadenoma.

Keywords: Breast biopsies, Breast self-examination, Chinese textiles, logistic regression and breast cancer

A2648: Biomarkers of Dietary Exposure Are Associated with Lower Risk of Breast Fibroadenomas in Chinese Women

Authors: S. Coosje Dijkstra and Johanna W. Lampe

Source: Journal of Nutrition, 140, 7 (2010): 1302-1310

Abstract: Fibroadenomas are the most common benign breast condition among women and account for up to 50% of all breast biopsies being performed. Although considered a benign condition, fibroadenomas utilize substantial resources for management and treatment to rule

out potential malignancies. Dietary factors may influence benign fibrocystic breast conditions, but little is known of their association with fibroadenomas. We examined possible associations between a broad spectrum of circulating biomarkers of dietary intake and risk of fibroadenomas. Participants were women in a breast self-examination trial in Shanghai, China who were diagnosed with fibroadenomas (n = 258) and 1035 controls. Conditional logistic regression was used to estimate adjusted odds ratios (OR) and 95% CI. Isoflavone concentrations were inversely associated with risk of fibroadenomas. Adjusted OR (95% CI) for the highest versus the lowest quartile of plasma concentration were 0.36 (0.16–0.79; P-trend < 0.001) for daidzein and 0.39 (0.19–0.84; P-trend = 0.010) for genistein. We also observed inverse associations between higher percentages of the RBC (n-3) fatty acids, eicosapentaenoic acid (EPA) ([0.38 (0.19–0.77); P-trend = 0.007] and docosapentaenoic acid (DPA) [0.32 (0.15–0.70); P-trend = 0.024], and fibroadenoma risk. Circulating concentrations of carotenoids, vitamin C, retinol, and ferritin were not associated with fibroadenoma risk. The inverse associations between plasma isoflavone concentrations and RBC EPA and DPA and fibroadenoma risk suggest that higher intakes of soy foods and fatty fish may lower the risk of fibroadenomas.

Keywords: Fibroadenomas, biomarkers, dietary exposures, red blood cells, dietary factors

A2649: Adequate Nutrient Intakes Are Associated with Traditional Food Consumption in Nunavut Inuit Children Aged 3–5 Years

Authors: Louise Johnson-Down and Grace M. Egeland

Source: Journal of Nutrition, 140, 7 (2010): 1311-1316

Abstract: Dietary habits among Arctic preschoolers are unknown. A cross-sectional health survey of 388 Inuit, aged 3–5 y, was conducted in 16 communities in Canada's Nunavut Territory. Twenty-four-hour recall and FFQ with parents and primary caregivers quantified diet from market and traditional foods (TF). The Institute of Medicine's Dietary Reference Intakes estimated adequacy comparing intakes with Estimated Average Requirement or Adequate

Intakes (AI). High-sugar and high-fat food and sugar beverage consumption and the extent to which dietary habits followed the Canadian Food Guide were evaluated. The children's mean age was 4.4 ± 0.9 y and the mean BMI percentile was 90.2%. Consumption of nutrient-poor and energy-dense food and beverages contributed to 35% of energy. Most children met the requirements for many nutrients despite not eating the recommended servings from Eating Well with Canada's Food Guide First Nations, Inuit and Métis. Higher intake of TF resulted in higher intakes of cholesterol, vitamins A and D, iron, magnesium, and zinc. The percent above the AI for vitamin D was 43.1, 56.8, and 83.2% among no, low, and high TF consumers, respectively (src="/emath/chi.gif" border="0">2 test; P-trend < 0.0001). Dietary habits indicate a population at risk for overweight, obesity, and tooth decay. Interventions should encourage TF, including plant-based TF; healthy market food choices, including fruit and vegetables; and milk or alternative sources of vitamin D and calcium and discourage unhealthy market food choices.

Keywords: Traditional foods, nutrient intakes, dietary habits, vitamin D, tooth decay

A2650: Eating Competence of Elderly Spanish Adults Is Associated with a Healthy Diet and a Favorable Cardiovascular Disease Risk Profile

Authors: Barbara Lohse and Tricia Psota

Source: Journal of Nutrition, 140, 7 (2010): 1322-1327

Abstract: Eating competence (EC), a bio-psychosocial model for intrapersonal approaches to eating and food-related behaviors, is associated with less weight dissatisfaction, lower BMI, and increased HDL-cholesterol in small U.S. studies, but its relationship to nutrient quality and overall cardiovascular risk have not been examined. Prevención con Dieta Mediterránea (PREDIMED) is a 5-y controlled clinical trial evaluating Mediterranean diet efficacy on the primary prevention of cardiovascular diseases (CVD) in Spain. In a cross-sectional study, 638 PREDIMED participants (62% women, mean age 67 y) well phenotyped for cardiovascular risk factors were assessed for food intake and EC using validated questionnaires. Overall, 45.6% were eating-competent. EC was associated with being male and energy intake ($P < 0.01$). After

gender and energy adjustment, participants with EC compared with those without showed higher fruit intake and greater adherence to the Mediterranean diet ($P < 0.05$) and tended to consume more fish ($P = 0.076$) and fewer dairy products ($P = 0.054$). EC participants tended to have a lower BMI ($P = 0.057$) and had a lower fasting blood glucose concentration and serum LDL:HDL-cholesterol ratio ($P < 0.05$) and a higher HDL-cholesterol concentration ($P = 0.025$) after gender adjustment. EC participants had lower odds ratios (OR) of having a blood glucose concentration >5.6 mmol/L (0.71; 95% CI 0.51–0.98) and HDL-cholesterol <1.0 mmol/L (0.70; 95% CI 0.68–1.00). The OR of actively smoking, being obese, or having a serum LDL-cholesterol concentration 3.4 mmol/L were <1.0 , but the 95% CI included the 1.0 ($P > 0.1$). Our findings support further examination of EC as a strategy for enhancing diet quality and CVD prevention.

Keywords: Cardiovascular disease, mediterranean diet, food intakes, dairy products and fasting blood glucose

A2733: Maternal Nutrition and Birth Outcomes

Author: Kathleen Abu-Saad and Drora Fraser

Source: Epidemiologic Reviews, 32 (2010): 5-25

Abstract: In this review, the authors summarize current knowledge on maternal nutritional requirements during pregnancy, with a focus on the nutrients that have been most commonly investigated in association with birth outcomes. Data sourcing and extraction included searches of the primary resources establishing maternal nutrient requirements during pregnancy (e.g., Dietary Reference Intakes), and searches of Medline for “maternal nutrition”/[specific nutrient of interest] and “birth/pregnancy outcomes,” focusing mainly on the less extensively reviewed evidence from observational studies of maternal dietary intake and birth outcomes. The authors used a conceptual framework which took both primary and secondary factors (e.g., baseline maternal nutritional status, socioeconomic status of the study populations, timing and methods of assessing maternal nutritional variables) into account when interpreting study findings. The authors conclude that maternal nutrition is a modifiable risk factor of public

health importance that can be integrated into efforts to prevent adverse birth outcomes, particularly among economically developing/low-income populations.

Keywords: Pregnancy outcome, premature birth, maternal nutrition, birth outcomes

Gynaecology

A2629: Epidermal clitoral inclusion cysts: not a rare complication of female genital mutilation

Author: Abdulrahim A. Rouzi

Source: Human Reproduction, 25, 7 (2010): 1672-1674

Abstract: Background: Although female genital mutilation (FGM) does not feature in Judeo-Christian populations, it is estimated that, 100–140 million women in the world have undergone some form of FGM. Given the increasing diversity of the western populations, a review of specific complications of FGM is of paramount importance to practicing clinicians. The objective of this study is to report a case series of epidermal clitoral inclusion cysts after FGM in a Muslim population primarily from the Middle East. **METHODS:** Between January 1998 and July 2009, 32 females underwent surgical removal of epidermal clitoral inclusion cysts in a tertiary referral university hospital. Data regarding age, clinical presentation, operation time, estimated blood loss, presence of intraoperative and post-operative complications, duration of admission to the hospital and long-term follow-up were extracted from the records. **RESULTS:** There were 15 women (46.9%) with a definitive history of FGM, 14 (43.8%) did not know whether they had FGM or not and 3 (9.3%) had no history of FGM and were excluded from the analysis. The mean age of subjects was 28.1 years (range 5–91 years). All presented with increasing clitoral mass over a mean duration of 5.2 ± 4.1 years. The mean diameter of the cyst was 4.2 ± 2 cm. Regarding treatment, 28 subjects underwent surgical excision, and one underwent incision and drainage of a clitoral abscess. No short- or long-term complications occurred. **CONCLUSIONS:** Clitoral cysts appear to be a more common complication of FGM than previously thought. Publication of studies that highlight the medical complications of FGM should be encouraged to advocate abandonment of the procedure.

Keywords: Epidermal clitoral cysts, female genital mutilation

Health Care

A2635: Location context for knowledge management in healthcare

Author: Kamran Ahsan, Hanifa Shah and Paul Kingston

Source: International Journal of Healthcare Technology and Management, 11, 1/2 (2010): 3-12

Abstract: Enterprise Architecture (EA) is an appropriate tool for business and IT alignment. It is also possible to use EA for design and implementation of healthcare applications, since it has the potential to represent healthcare processes effectively. Our research aim is to develop an EA framework for managing contextual knowledge by exploiting object location deduction technologies in healthcare processes that involve the movement of patients. Such a framework is intended to facilitate healthcare managers in adopting location deduction technologies for patient care resulting in improvements in clinical process management and healthcare services.

Keywords: Knowledge management, healthcare process integration, enterprise architecture, context-based technology

A2636: Exploring how security features affect the use of electronic health records

Author: Barbara Hewitt

Source: International Journal of Healthcare Technology and Management, 11, 1/2 (2010): 31-49

Abstract: While individuals in most organisations routinely use computers to conduct business, few healthcare organisations have Electronic Health Record Systems (EHRS). Healthcare organisations face many obstacles and challenges when implementing EHRS including healthcare staff and physician resistance, security issues, and costs. While previous studies explored physician and healthcare organisation adoption issues, this study uses Smart PLS to explore why staff members resist EHR usage using a hybrid Technology Acceptance Model (TAM). It examines whether security measures including biometrics for authentication

purposes, multiple access features provided to healthcare provider, and use of Single Sign-On (SSO) systems influences these individual's attitude toward EHRs.

Keywords: Electronic health records, hybrid TAM, technology acceptance model, innovation diffusion theory

A2637: Evaluating task-technology fit and user performance for an electronic health record system

Author: Omar F. El-Gayar, Amit V. Deokar, Matthew J. Wills

Source: International Journal of Healthcare Technology and Management, 11, 1/2 (2010): 50-65

Abstract: Assessing user satisfaction, acceptance and performance impacts of information systems have long traditions in information systems research. With an increasing focus on broader international adoption and implementation of electronic health records, research examining performance impact resulting from system use will play an essential role in the successful design, implementation, and efficient use of these systems. In this study, we analyse user evaluations of an electronic health record system and assess the impact on self-reported, perceived individual performance using the task-technology fit theory. Overall, user evaluations for the eight dimensions of task-technology fit considered in this study are positive.

Keywords: Task-technology fit, electronic health records, EHRs, user evaluation, performance impact

A2638: Understanding an electronic medical records system implementation through the punctuated equilibrium lens

Author: Jennifer Gonzalez-Reinhart

Source: International Journal of Healthcare Technology and Management, 11, 1/2 (2010): 79-95

Abstract: For many years, organisational literature has focused on answering the numerous questions surrounding organisational change. This case study will apply Gersick's (1991) adaptation of punctuated equilibrium for understanding the change process within the context of an Electronic Medical Record (EMR) system implementation. The punctuated equilibrium model depicts system changes as alternating equilibrium periods, only allowing for incremental change; and revolution periods, whereby the structure is changed fundamentally. By examining these stages of the punctuated equilibrium model, the hope is to further the understanding of how to manage a change process by highlighting one organisation's successful implementation of an EMR system.

Keywords: Electronic medical records, punctuated equilibrium, organisational change, Deep structure

A2678: Child Delivery Practices among the Himachali Women of Kangra District, Himachal Pradesh

Author: Reetinder Kaur and Anil K. Sinha

Source: South Asian Anthropologist, 10, 1 (2010): 79-85

Abstract: The Present study was conducted to know the relationship between place of delivery and health of mother and child and to enquire about the relationship between education level of mother and family members and mother and child health. For the present study, two theoretical models, "four As" and the "four pillars" of safe motherhood model have been used. The present study was carried out in the two villages, namely Ghughar and Menjha of Tehsil Palampur, District Kangra, Himachal Pradesh.

Keywords: Child delivery practices, safe motherhood, Himachal Pradesh, Kangra

A2622: Quantifying the duration of pre-diabetes

Author: Melanie Y. Bertram and Theo Vos

Source: Australian and New Zealand Journal of Public Health, 34, 3 (2010): 311–314

Abstract: Objective: Interventions for individuals with pre-diabetes are efficacious, however, identification of people with pre-diabetes does not occur in Australia. This study aims to calculate the duration of pre-diabetes, in order to provide supporting evidence for a screening program. Methods: We carried out a systematic review and random effects meta-analysis to identify if an increased risk of mortality is present in people with pre-diabetes. The result of this meta-analysis as well as information on prevalence, remission of pre-diabetes and transition to diabetes from an Australian cohort study, were used in the software program DisMod to calculate duration. Results: From 2,578 articles identified, 11 studies met the inclusion criteria. The pooled relative risk of all-cause mortality was 1.26 (1.17-1.34) with no sign of heterogeneity between the studies. The average duration of pre-diabetes was 8.5 years in males aged 30+ and 10.3 years in females aged 30+. Conclusions: The duration of pre-diabetes in Australia is long enough to warrant a screening program. The finding is robust to sensitivity testing of very large variations in the epidemiological parameters. Implications: If the interventions following screening are shown to be cost-effective, a strong rationale for the implementation of a screening program exists.

Keywords: Pre-diabetes, epidemiology, screening

A2624: Multidisciplinary primary healthcare clinic for newly arrived humanitarian entrants in regional NSW: model of service delivery and summary of preliminary findings

Author: Gillian Gould and Kerri Viney

Source: Australian and New Zealand Journal of Public Health, 34, 3 (2010): 326–329

Abstract: **Objective:** To describe a multidisciplinary primary healthcare clinic for newly arrived humanitarian entrants in regional New South Wales and report health problems and issues encountered during the initial period of operation. **Methods:** A quality assurance study of the Coffs Harbour Refugee Health Clinic (a collaboration between the Area Health Service and general practitioners) was undertaken from February to December 2006. **Results:** Seventy-six patients received a comprehensive health assessment: 69 of these within 12 months of arrival. The median time from arrival in Australia to the first clinic visit was five days. Problems detected were categorised according to their management options. GP clinic providers expressed concern about referring patients to GPs in the community for ongoing care. **Conclusions:** The Coffs Harbour Refugee Health Clinic represents a successful collaboration between relevant stakeholders. It was well utilised by the target community. **Implications:** The service delivery model used in the clinic could be replicated in other areas in regional Australia, provided financial and human resources are available.

Keywords: Refugee, primary healthcare, health assessment, screening

A2643: Work Schedules and Health Behavior Outcomes at a Large Manufacturer

Author: P. Timothy Bushnell and Alberto Colombi

Source: *Industrial Health*, 48, 4 (2010): 395-405

Abstract: There is evidence that work schedules may influence rates of unhealthy behaviors, suggesting that addressing work schedule challenges may improve health. Health Risk Assessment (HRA) survey responses were collected during 2000-2008 in a multinational chemical and coatings manufacturer. Responses of 26,442 were sufficiently complete for analysis. Rates of smoking, lack of exercise, moderate to high alcohol use, obesity (BMI=30), and short sleep duration were compared by work schedule type (day, night, or rotating shift) and daily work hours (8, 10, or 12 h). Prevalence rate ratios (RRs) were calculated, adjusting for age group, sex, marital/living status, job tenure, and occupational group. The reference group was 8-h day shift employees. Overall prevalence rates were: sleep duration of 6 h or less per

night 47%, smoking 17.3%, no exercise 22.0%, BMI=30 28.3%, and moderate to heavy alcohol consumption 22.2%. Statistically significant RRs include the following: Short sleep duration: 10 h rotating shift (RR=1.6), 12 h day and 12 h rotating shifts (RR=1.3); Smoking: 12 h day and rotating shifts (RR=1.6), 10 and 12 h night and 8 h rotating shift (RR=1.4); No exercise: 8, 10, and 12 h rotating shifts (RR=1.2 to 1.3), 12 h day schedules (RR=1.3). Obesity (BMI=30): 8 and 10 h night shifts (RR=1.3 and 1.4, respectively).

Keywords: Shift work, occupational health, health behavior, work schedule intolerance, shift length

A2644: Brief Hourly Exercise during Night Work can Help Maintain Workers' Performance

Authors: Tomoaki Sato and Tomohide Kubo

Source: *Industrial Health*, 48, 4 (2010): 470-477

Abstract: Increased night work is an important issue because of its implications on workers' health, safety and performance. This study examined the effects of brief hourly exercise as a countermeasure against the adverse effects of night work, especially for workers requiring sustained attention while working in a prolonged sitting posture. During simulated night work (22:00-08:00), participants were required to follow an hourly schedule comprising a 30-min task, 15-min test and 15-min break. The study included 2 experimental conditions: (1) hourly exercise (HE; hourly exercise for 3 min during breaks) and (2) control (without exercise during breaks). Throughout the test period, work performance in the last 10 min of each 30-min task was better under the HE condition than under the control condition ($p < 0.01$). During the second half of the test period, exercise showed an effect on sustained attention ($p = 0.02$). Parasympathetic nerve activity under the HE condition was less than that under the control condition ($p < 0.01$). However, exercise was not effective in reducing subjective fatigue and sleepiness. These results suggest that brief hourly exercise acts as a restraint on

parasympathetic nerve activity and is capable of sustaining attention levels during the circadian rhythm nadir that occurs during early morning.

Keywords: Brief hourly exercise, night work, work performance, sustained attention and early morning

Health Economics

A2631: Economic Reforms and Expenditure on Health in India

Author: Shiddalingaswami Hanagodimath

Source: Indian Journal of Population Education, 50, July-September (2010): 30-42

Abstract: In this paper an attempt has been made to analyse the impact of economic reform on public health expenditure of centre and states combined, centre, all states and each of 15 major states. For the purpose public health expenditure is measured in per capita terms, as a share of total expenditure, as a share of GDP/NSDP. 30 years of times period (from 1976-77 to 2005-06) have been selected and that has been divided in two parts-15 years of pre reform period (1976-77 to 1990-91) and 15 years of post reform period (from 1991-92 to 2005-06). We have considered health expenditure as expenditure on a) Medical and public health, water supply and sanitation and b) Family welfare. Both capital and revenue accounts of plan and non-plan expenditures have been taken for the analysis. The paper finds that economic reforms did affect negatively on public health expenditure of centre and states combined, and all states. While in case of central government it affected positively. In case of major 15 states- public health expenditure as a share of total expenditure and as a share of NSDP has decreased, while in growth rates of per capita public health expenditure 7 out of of 15 states show an increase during the reform period. The paper suggests that huge investment is necessary for the development of the health condition of the people.

Keywords: India, health expenditure, economic reform

A2690: Learning from International Policies on Trans Fatty Acids to Reduce Cardiovascular Disease in low- And middle-income Countries, Using Mexico as a Case Study

Authors: Carolina PÉRez-Ferrer and Karen Lock

Source: Health Policy and Planning, 25, 1 (2010): 39-49

Abstract: Trans fatty acids (TFA) are a major risk factor for cardiovascular disease (CVD), and are consumed in large quantities in low- and middle-income countries as they are used to produce low cost, commonly eaten processed food products. International organizations agree that evidence linking TFA and CVD is strong enough to warrant public health action. This study investigates barriers and opportunities that exist for TFA policy development in low- and middle-income countries, through a literature review of international TFA policy and stakeholder analysis. Previous national policy responses have mostly been in developed countries. Voluntary reduction of TFA by the food industry, following food labelling and/or consumer lobbying, has been the approach in several countries but with varying levels of success, and resulting in major differences in formulation of products between countries. Canada and New York have now moved from voluntary to mandatory approaches. Only three countries have regulated the TFA content of food. Common factors for successful TFA reduction include increased consumer and political awareness of the health impacts of TFA and the need for champion consumer organizations. A stakeholder analysis, using the Mexican policy context as a case study, explored contextual issues influencing implementation of TFA regulation in low- or middle-income countries. Although the public health context seemed to be appropriate to promote TFA policy, the issue is not on the political agenda because it lacks legitimacy and support as a health or regulatory issue. The food industry and government resist the need for regulation, and there is no organized health or consumer lobby to counter this. This is likely to be the case in other middle- and low-income countries.

Keywords: Trans fatty acids, nutrition policy, nutrition legislation, cardiovascular disease, Mexico

A2692: This body does not want free medicines: South African consumer perceptions of drug quality

Author: Aarti Patel and Robin Gauld

Source: Health Policy and Planning, 25, 1 (2010): 61-69

Abstract: Objectives: Like many other developing countries, South Africa provides free medicines through its public health care facilities. Recent policies encourage generic substitution in the private sector. This study explored South African consumer perceptions of drug quality and whether these perceptions influenced how people procured and used their medicines. Methods: The study was undertaken in Durban, Cape Town and Johannesburg in South Africa between December 2005 and January 2006. A combination of purposive and snowball sampling was used to recruit participants from low and middle socio-economic groups as well as the elderly and teenagers. Data were collected through 12 focus group discussions involving a total of 73 participants. Interviews were tape-recorded. Thematic analysis was performed on the transcripts. Results: Irrespective of socio-economic status, respondents described medicine quality in terms of the effect the medicine produced on felt symptoms. Generic medicines, as well as medicines supplied without charge by the state, were considered to be poor quality and treated with suspicion. Respondents obtained medicines from three sources: public sector hospitals and/or clinics, dispensing doctors and community pharmacies. Cost, avoidance of feeling 'second-class', receiving individualized care and choice in drug selection were the main determinants influencing their procurement behaviour. Selection of over-the-counter medicines was influenced by prior knowledge of products, through advertising and previous use. Participants perceived that they had limited influence on selection of prescription medicines. Generic substitution would be supported if the doctor, rather than the pharmacist, recommended it. Conclusions: Our findings emphasize the importance of meaningful consumer involvement in the development of national medicines policies, and strategic campaigns targeting consumers and prescribers regarding the quality of generic and essential medicines. Where consumers perceive free or generic medicines as inferior, this could significantly undermine attempts to implement national medicines policies aimed to improve access to medicines.

Keywords: Drug quality, developing countries, national medicines policies, generic medicines, consumer perceptions

A2693: Medicine prices in urban Mozambique: a public health and economic study of pharmaceutical markets and price determinants in low-income settings

Author: Giuliano Russo and Barbara McPake

Source: *Health Policy and Planning*, 25, 1 (2010): 70-84

Abstract: It has been suggested that medicines are unaffordable in low-income countries and that world manufacturing and trade policies are responsible for high prices. This research investigates medicine prices in urban Mozambique with the objective of understanding how prices are formed and with what public health implications. The study adopts an economic framework and uses a combination of quantitative and qualitative methods to analyse local pharmaceutical prices and markets. The research findings suggest that: (a) local mark-ups are responsible for up to two-thirds of drugs' final prices in private pharmacies; (b) statutory profit and cost ceilings are applied unevenly, due to lack of government control and collusion among suppliers; and (c) the local market appears to respond effectively to the urban population's diverse needs through its low-cost and high-cost segments, although uncertainty around the quality of generics may be inducing consumers to purchase less affordable drugs. We conclude that local markets play a larger than expected role in the determination of prices in Mozambique, and that more research is needed to address the complex issue of affordability of medicines in low-income countries. We also argue that price controls may not be the most effective way to influence access to medicines in low-income countries, and managing demand and supply towards cheaper effective drugs appears a more suitable policy option.

Keywords: Health economics, health sector reform, pharmaceutical industry, pharmaceutical policy

Health Policy and Planning

A2626: Herpesvirus reactivation and socioeconomic position: a community-based study

Author: Raymond P Stowe and M Kristen Peek

Source: *Journal of Epidemiology & Community Health*, 64, 8 (2010): 666–671

Abstract: **Background:** Elevated antibodies to latent herpesviruses have been demonstrated to be a reliable marker of diminished cellular immunity and recently have been associated with low socioeconomic position (SEP) in older adults. Extending these observations in a community-based study over a wide age range would provide an important new direction for investigating mechanisms underlying poor health outcomes in individuals with low SEP. **Methods:** Anti-herpes simplex virus (HSV)-1 and anti-Epstein-Barr virus (EBV) antibodies were measured in blood samples from 1457 adults aged 25–90. Regression models were then used to determine the relationships between viral reactivation, age, gender, ethnicity and SEP. **Results:** Individuals were significantly more likely to have higher antiviral antibodies (ie, reactivation) to both EBV and HSV-1 than one virus alone. Individuals in the lowest age group had less reactivation, whereas greater reactivation was observed in women and those with the least education. Compared to white non-Hispanics, Hispanics and black non-Hispanics experienced more viral reactivation. These relationships remained strong after controlling for sociodemographic factors as well as smoking status, body mass index and physical activity. **Conclusions:** These results demonstrate that herpesvirus reactivation is associated with variables such as age, gender, ethnicity and education, and may play a role in poorer health outcomes in both younger and older adults.

Keywords: Socioeconomic, adults, herpesvirus

A2695: Community health insurance in Gudalur, India, increases access to hospital care

Author: Narayanan Devadasan and Bart Criel

Source: Health Policy and Planning, 25, 2 (2010): 145-154

Abstract: **Background:** To reduce the burden of out-of-pocket payments on households in India, the government has introduced community health insurance (CHI) as part of its National Rural Health Mission. Indian CHI schemes have been shown to provide financial protection and have the potential to improve quality of care, but do not seem to improve access. This study examines this dimension of CHI performance and explores conditions under which a CHI scheme can improve access to hospital care for the poor. **Methods:** We conducted a panel survey at the ACCORD-AMS-ASHWINI (AAA) CHI scheme in India. The AAA CHI scheme protects the poorest sections of society against hospitalization expenses. 297 insured and 248 matched uninsured households were observed by village volunteers on a weekly basis for 12 months. Any patient presenting with a 'major ailment' in these households was interviewed using a structured questionnaire. Outcomes measured were utilization of hospital services, cost of treatment and quality of treatment received. **Results:** The two cohorts were similar regarding demographic, social and economic parameters. More insured than uninsured households expressed trust in the CHI scheme organizers. Both groups had similar levels of minor ailments, but the insured had higher incidence of chronic and major ailments. Insured patients had a hospital admission rate 2.2 times higher than uninsured patients, independent of confounding factors. This higher rate among the insured was also found in children and those with pre-existing conditions. Vulnerable sections of the insured population—children, pregnant women, the poorest—had the highest admission rates. Most admissions, in both cohorts, took place in the ASHWINI hospital. Credible and trustworthy organizers, effective providers, low co-payments, and low indirect costs contributed to this result. **Conclusions:** A well-designed CHI scheme has the potential to improve access to hospital care, even for vulnerable sections of the community—the poorest, individuals with pre-existing conditions like diabetes and hypertension, and pregnant women.

Keywords: Community health insurance, India, utilization, access to care, Gudalur

A2696: Willingness to pay for community-based health insurance in Nigeria: do economic status and place of residence matter?

Author: Obinna Onwujekwe and Ekechi Okereke

Source: Health Policy and Planning, 25, 2 (2010): 155-161

Abstract: **Objective:** We examine socio-economic status (SES) and geographic differences in willingness of respondents to pay for community-based health insurance (CBHI). **Methods** The study took place in Anambra and Enugu states, south-east Nigeria. It involved a rural, an urban and a semi-urban community in each of the two states. A pre-tested interviewer-administered questionnaire was used to collect information from a total of 3070 households selected by simple random sampling. Contingent valuation was used to elicit willingness to pay (WTP) using the bidding game format. Data were examined for correlation between SES and geographic locations with WTP. Log ordinary least squares (OLS) was used to examine the construct validity of elicited WTP. **Results:** Generally, less than 40% of the respondents were willing to pay for CBHI membership for themselves or other household members. The proportions of people who were willing to pay were much lower in the rural communities, at less than 7%. The average that respondents were willing to pay as a monthly premium for themselves ranged from 250 Naira (US\$1.7) in a rural community to 343 Naira (US\$2.9) in an urban community. The higher the SES group, the higher the stated WTP amount. Similarly, the urbanites stated higher WTP compared with peri-urban and rural dwellers. Males and people with more education stated higher WTP values than females and those with less education. Log OLS also showed that previously paying out-of-pocket for health care was negatively related to WTP. Previously paying for health care using any health insurance mechanism was positively related to WTP. **Conclusion:** Economic status and place of residence amongst other factors matter in peoples' WTP for CBHI membership. Consumer awareness has to be created about the benefits of CBHI, especially in rural areas, and the amount to be paid has to be augmented with other means of financing (e.g. government and/or donor subsidies) to ensure success and sustainability of CBHI schemes.

Keywords: Community-based health insurance, willingness to pay, contingent valuation, Nigeria.

A2697: Country-level governance of global health initiatives: an evaluation of immunization coordination mechanisms in five countries of Asia

Author: John Grundy

Source: Health Policy and Planning, 25, 2 (2010): 186-196

Abstract: Background: In recent years there have been innovations in immunization financing and new technologies, and the scaling up of investment by the Global Alliance for Vaccines and Immunization (GAVI) in the Asia region. The main mechanism for coordination of this global health initiative (GHI) investment is country-level 'Inter-Agency Coordination Committees' (ICCs). Aim: The aim of the evaluation was to determine the utility and future perspectives of stakeholders regarding the role of ICCs in improving immunization services in the Asian Region. Methods: A literature review, documentary analysis and semi-structured interviews (n = 65) were undertaken in five countries (India, Bangladesh, Nepal, Sri Lanka and Indonesia), with senior level members of Ministries of Health and the GAVI partnership. Results: The evaluation has identified that there have been significant changes recently in the strategic environment for immunization, including developments in new vaccines, increasing GAVI investment, trends towards health system integration and decentralization, and institutional development of the non-government sector. This evaluation found that ICCs are functioning well in relation to information sharing and GAVI application processes. However, they are performing less well in the areas of evaluation, strategic gap analysis and coordination of immunization technical co-operation. Conclusions: There are high levels of institutional and contextual complexity at country level that require a more focused global response by GAVI to the governance challenges of institutions and partners implementing GHIs at the country level. ICCs should be maintained and strengthened in the more pluralistic context of an 'immunization coordination system' that is represented by the wider health sector, regulatory authorities, and civil society

and private sector interests. Managing through systems, rather than being over-reliant on committees, will broaden participation in implementation and, in doing so, expand the reach of immunization and maternal and child health care services in developing countries.

Keywords: Health systems, immunization, health policy, health planning, global health initiatives.

A2703: Exploring referral systems for injured patients in low-income countries: a case study from Cambodia

Author: Shinji Nakahara and Saly Saint

Source: Health Policy and Planning, 25, 2 (2010): 319-327

Abstract: Injury is a growing public health concern worldwide. Since severe injuries require urgent treatment, involving smooth, timely patient referral between facilities, strengthening of the referral system would reduce injury mortality. Smooth referral consists of identification of severe cases, organization of transportation, communication between facilities and prompt care at the receiving facility. This study examined these components of referral of injured patients in a representative sample of health centres (HCs) and referral hospitals (RHs) in Cambodia. We analysed data from a survey carried out in 80 HCs and 17 RHs by interview or mailed questionnaire from December 2006 to April 2007. Collected information on referral included the presence of referral guidelines for injured patients, distance of referral, commonly used transportation and its cost, communication with receiving facilities, and fast-tracking at receiving facilities. Formal referral systems were not functioning well in some areas (insufficient communication and underutilization of ambulances), and informal systems were frequently involved (patient transfer by taxi or referral by community volunteers, and treatment by traditional healers) but were not fully integrated into the referral network (traditional healers seldom referred patients to public facilities). The referral distance was long for most of the surveyed facilities and transportation costs were high when transferring from remote areas, even by ambulance. This study identified the weaknesses and strengths of the emergency

referral system in Cambodia. Streamlining referral mechanisms will require organization of each component of the referral mechanism by strengthening the existing system and mobilizing local resources, which would allow Cambodia to develop an efficient system at reasonable cost, though it may differ from Western models. Guidelines including these components along with training and supervision, and expansion of the system to cover other disease conditions, would strengthen the health care system as a whole in this country.

Keywords: Referral system, injury, cambodia, transportation, communication

A2736: Global Health and Foreign Policy

Author: Harley Feldbaum and Kelley Lee

Source: *Epidemiologic Reviews*, 32 (2010): 82-92

Abstract: Health has long been intertwined with the foreign policies of states. In recent years, however, global health issues have risen to the highest levels of international politics and have become accepted as legitimate issues in foreign policy. This elevated political priority is in many ways a welcome development for proponents of global health, and it has resulted in increased funding for and attention to select global health issues. However, there has been less examination of the tensions that characterize the relationship between global health and foreign policy and of the potential effects of linking global health efforts with the foreign-policy interests of states. In this paper, the authors review the relationship between global health and foreign policy by examining the roles of health across 4 major components of foreign policy: aid, trade, diplomacy, and national security. For each of these aspects of foreign policy, the authors review current and historical issues and discuss how foreign-policy interests have aided or impeded global health efforts. The increasing relevance of global health to foreign policy holds both opportunities and dangers for global efforts to improve health.

Keywords: Economics, health policy, international cooperation, global health, world health

Health Survey

A2655: Physical and Sexual Abuse of Wives in Urban Bangladesh: Husbands' Reports

Author: William Sambisa and Gustavo Angeles

Source: *Studies in Family Planning*, 41, 3 (2010): 165–178

Abstract: Using data from 8,320 husbands' self reports for the 2006 Urban Health Survey, this article examines the prevalence of physical and sexual intimate partner violence (IPV) perpetrated by husbands against their wives in Bangladesh and identifies risk markers associated with such violence. Of the men included in the sample for this study, 55 percent reported perpetrating physical IPV against their wives at some point in their married lives, 23 percent reported perpetrating physical IPV in the past year, 20 percent reported ever perpetrating sexual IPV, and 60 percent reported ever perpetrating physical or sexual IPV. Bivariate analyses revealed that men residing in slums had a greater likelihood than those residing in nonslum areas and in district municipalities of perpetrating lifetime and past-year physical IPV, and any lifetime (physical or sexual) IPV. Lifetime sexual IPV prevalence, by contrast, was highest in district municipalities (26 percent), followed by slum (20 percent) and nonslum (17 percent) areas. Net of other factors, low socioeconomic levels were associated with men's increased likelihood of perpetrating IPV. Alcohol and drug use, sexually transmitted disease infection, poor mental health, and holding attitudes supportive of wife beating were predictive of IPV perpetration. These results suggest that IPV-prevention programs targeting men should consider spousal abuse, substance use, and sexual risk behaviors as social and public health problems and should also consider the sociocultural context within which men who abuse their partners are embedded.

Keywords: Physical abuse, health survey, husbands' reports, Bangladesh

A2656: Women and High Fertility in Islamic Northern Nigeria

Author: Chimaraoke O. Izugbara and Alex C. Ezeh

Source: *Studies in Family Planning*, 41, 3 (2010): 193-204

Abstract: Research on fertility trends in Islamic northern Nigeria has rarely sought the perspectives of the people of that region concerning the causes of high fertility in the area. Relying on qualitative data elicited from women in northwestern Nigeria, we explore their views on high fertility in the region. A principal finding is that respondents ascribed to their husbands the responsibility for high parity; these women reported deliberately giving birth to many children in order to inhibit men's tendency to divorce or engage in plural marriage. We contend that the social meanings that women ascribe to their husbands' behaviors and the ways they respond to them are significant contributors to current high fertility in northern Nigeria.

Keywords: Women fertility, Islamic Northern Nigeria

A2688: Relationship between self-reported health status and the increasing likelihood of South Australians seeking Internet health information

Author: Nova Reinfeld-Kirkman and Elizabeth Kalucy

Source: *Australian and New Zealand Journal of Public Health*, 34, 4 (2010): 422-426

Abstract: Objective: To determine the proportion of South Australians seeking health information on the Internet and the relationship between searches for health information and self-reported health status. Methods: Face-to-face interviews were conducted with 3,034 South Australians in 2008 using a clustered, multi-stage, self-weighting area sample. Results: Compared to 2001, rates of Internet usage were 48% higher and Internet health seeking increased by 57%. All participant categories, except those in school or younger than 25, showed an increase in use of the Internet and online health information seeking. In multiple logistic regression, poorer self-reported physical and mental health were associated with greater likelihood of Internet health information searches but also less use of the Internet. Conclusions: South Australians' use of the Internet as a source of health information has risen between 2001

and 2008, even among groups that historically made little use of the Internet to search for health information. In Australia, health information on the Internet may be appropriately targeted towards groups who have previously been under-serviced in this medium.

Keywords: Internet, demographic and health surveys, South Australia

H1N1

A2621: Lower than expected adult Victorian community attack rate for pandemic (H1N1) 2009

Author: Nathan Grills and Leonard S. Piers

Source: Australian and New Zealand Journal of Public Health, 34, 3 (2010): 228–231

Abstract: Objectives: To determine the community seropositivity of pandemic (H1N1) 2009 influenza in order to estimate immunity and the community attack rate. Methods: Selected clusters of participants (n=706) in the 'Victorian Health Monitor' (VHM), from whom blood samples were taken between August and October 2009, were tested opportunistically for antibodies to pandemic (H1N1) 2009 influenza virus. A titre of $\geq 1:40$ was chosen as the cut-off for recording seropositivity. The proportion (95% CI) of seropositive participants, aged 18 to <65 years of age, were computed for groups of census collection districts (CDs) across metropolitan Melbourne. Results: The observed pandemic (H1N1) 2009 seropositivity rates for all CDs tested in metropolitan Melbourne was 16.0% (95% CI:12.9-19.1%); in northern Melbourne subset was 14.4% (95% CI:12.4-16.3%); and in eastern subset was 16.2% (95% CI:9.7-22.6%). The pre-pandemic (H1N1) 2009 positivity rate was estimated at 6%. Conclusion: Given this study's estimate of 16.0% seropositivity in adults in metropolitan Melbourne, and given the WHO laboratory's estimate of 6% pre-pandemic positivity, the estimated adult community attack rate was 10% for metropolitan Melbourne. Implications: This community attack rate is lower than anticipated and suggests that levels of immunity to Pandemic (H1N1) 2009 might be lower than anticipated. Although limited by a low response rate of 34%, this study suggests low adult seropositivity, which may be useful for public health professionals when encouraging the community to get vaccinated.

Keywords: Pandemic, seropositivity, community attack rate H1N1

Hypertension

A2707: Spectrum of Hypertension in Post Transplant

Author: A Kaul and RK Sharma also others

Source: Journal of the Association of Physicians of India, 58, April (2010): 221-224

Abstract: Aim: Elucidate the incidence and causes of post transplant hypertension in our transplant population. Methods: All patients transplanted between June 1989 Dec 2002 who had a functioning graft of 6 months post transplant were studied. Hypertension was defined as Systolic BP >140 mmHg/Diastolic BP >90 mmHg/usage of antihypertensive medication. Donor and recipient characteristics were recorded and compared. 86.2% (485) were hypertensive in post renal transplant period. Results: Age >40 years, male sex, graft dysfunction, use of calcineurin inhibitors, high doses of steroids, chronic rejection were statistically significant correlate of post RTHT in univariate analysis. On multivariate analysis, age>40 yrs (RR 2.06, 95% CI, 1.20-3.54), use of cyclosporine (RR 2.70, 95% CI, 1.54-4.75), usage of high doses of steroids (RR 2.56, 95% CI, 1.31-4.98) only were associated with post transplant hypertension. The patient and graft survival was inferior in patients with post transplant hypertension. The systolic BP at 12 months, diastolic BP at 6 months and 12 months post transplant, had significant detrimental effect on renal allografts survival. Conclusion: Diagnosis, identification of risk factors and aggressive treatment of post transplant HT and of the various modifiable risk factors is important for improving renal allograft and patient survival.

Keywords: Spectrum of hypertension, transplant population, post transplant hypertension

A2721: Ten-year Change in Blood Pressure Levels and Prevalence of Hypertension in Urban and Rural Cameroon

Authors: L Fezeu and A P Kengne

Source: Journal of Epidemiology and Community Health, 64, 4 (2010): 360-365

Abstract: Background Hypertension is becoming increasingly important in sub-Saharan Africa. However, evidences in support of this trend with time are still not available. The aim of this study was to evaluate the 10-year change in blood pressure levels and prevalence of hypertension in rural and urban Cameroon. Methods Two cross-sectional population-based surveys in Yaounde (urban area) and Evodoula (rural area) in 1994 (1762 subjects) and 2003 (1398 subjects) used similar methodologies in women and men aged ≥ 24 years. Data on systolic and diastolic blood pressures (SBP and DBP), body mass index, educational level, alcohol consumption and tobacco smoking were collected during the two periods. Results Between 1994 and 2003, blood pressure levels significantly increased in rural women (SBP, +18.2 mm Hg; DBP, +11.9 mm Hg) and men (SBP, +18.8 mm Hg; DBP, +11.6 mm Hg), all $p < 0.001$. In the urban area, SBP increased in women (+8.1 mm Hg, $p < 0.001$) and men (+6.5 mm Hg, $p < 0.001$), and DBP increased only in women (+3.3 mm Hg, $p < 0.001$). The OR (95% CI) adjusted on confounders comparing the prevalence of hypertension (blood pressure $\geq 140/90$ mm Hg and/or treatment) between 2003 and 1994 ranged from 1.5 (1.1 to 2.2) in urban men to 5.3 (3.2 to 8.9) in rural men. Conclusion Blood pressure levels of this population have deteriorated over time, and the prevalence of hypertension has increased by twofold to fivefold. Adverse effects of risk factors could account for some of these changes. Prevention and control programmes are needed to reverse these trends and to avoid the looming complications.

Keywords: Blood pressure, hypertension, diastolic blood pressure

Infertility

A2668: Prevalence of hyperprolactinemia and abnormal magnetic resonance imaging findings in a population with infertility.

Author: Irene Souter and Lina M. Baltagi

Source: Fertility and Sterility, 94, 3 (2010): 1159-1162

Abstract: Hyperprolactinemia is rare among asymptomatic patients with infertility. Its prevalence and the mean PRL levels did not differ with [1] the infertility diagnosis, [2] the presence or absence of menstrual irregularities, or [3] the severity of menstrual dysregulation. Abnormal magnetic resonance imaging findings, though, are not uncommon among women with hyperprolactinemia despite the lack of symptoms and the mild PRL elevations.

Keywords: Hyperprolactinemia, infertility, pituitary MRI and microadenoma

A2670: Soluble HLA-G is an independent factor for the prediction of pregnancy outcome after ART: a German multi-centre study

Author: V. Rebmann and M. Switala

Source: Human Reproduction, 25, 7 (2010): 1691-1698

Abstract: Background: Soluble HLA-G (sHLA-G) has been suggested as a non-invasive marker for embryo selection to improve pregnancy rates after assisted reproduction technique (ART). Our study aimed at the identification of parameters influencing the detection of sHLA-G in embryo cultures (ECs) and at the prognostic relevance of sHLA-G in a multi-centre study. METHODS: In total 4212 EC from 2364 cycles were randomly collected from 29 German ART centres and analysed for sHLA-G by Luminex®-based technology. RESULTS: Among test and culture conditions, only the cleavage stage of the embryo was identified as an independent factor for sHLA-G detection ($P < 0.001$). Overall, sHLA-G was significantly associated with pregnancy after ART [$P < 0.001$; odds ratio: 2.0 (95% CI: 1.7–2.4)], suggesting that sHLA-G testing might improve

the pregnancy rate from 30 to 40%. Importantly, the sHLA-G status of embryos could be associated with pregnancy after single embryo transfer [P = 0.002; odds ratio: 3.3 (95% CI: 1.5–6.8)] doubling the probability of pregnancy rate to 26% after sHLA-G testing. The patient's age, number of transferred embryos, morphological grading [EXP(B): 4.3 (95% CI: 2.1–8.9)] of embryos and sHLA-G status [EXP(B): 2.3 (95% CI: 1.8–3.1)] were independent predictors of pregnancy, with the latter two being most powerful. CONCLUSIONS: This study provides significant evidence that the morphological scoring system is still the best strategy for the selection of embryos but that sHLA-G might be considered as a second parameter if a choice has to be made between embryos of morphologically equal quality.

Keywords: Pregnancy outcome, immunology outcome, soluble HLA-G, ICSI outcome

Male Factor

A2663: *Withania somnifera* improves semen quality by regulating reproductive hormone levels and oxidative stress in seminal plasma of infertile males

Author: Mohammad Kaleem Ahmad and Abbas Ali Mahdi

Source: *Fertility and Sterility*, 94, 3 (2010): 989-996

Abstract: **Objective:** To investigate the impact of *Withania somnifera* roots on semen profile, oxidative biomarkers, and reproductive hormone levels of infertile men. **Design:** Prospective study. **Setting:** Departments of Biochemistry and Urology, Chhatrapati Shahuji Maharaj Medical University, Lucknow, India. **Patient(s):** Seventy-five normal healthy fertile men (control subjects) and 75 men undergoing infertility screening. **Intervention(s):** High-performance liquid chromatography assay procedure for quantization of vitamin A and E in seminal plasma. Biochemical parameters in seminal plasma were estimated by standard spectrophotometric procedures. Estimation of T, LH, FSH, and PRL in blood serum by RIA methods. **Main Outcome Measures(s):** Before and after the treatment, seminal plasma biochemical parameters, antioxidant vitamins, and serum T, LH, FSH, and PRL levels were measured. **Result(s):** *Withania somnifera* inhibited lipid peroxidation and protein carbonyl content and improved sperm count and motility. Treatment of infertile men recovered the seminal plasma levels of antioxidant enzymes and vitamins A, C, and E and corrected fructose. Moreover, treatment also significantly increased serum T and LH and reduced the levels of FSH and PRL. **Conclusion(s):** The treatment with *W. somnifera* effectively reduced oxidative stress, as assessed by decreased levels of various oxidants and improved level of diverse antioxidants. Moreover, the levels of T, LH, FSH and PRL, good indicators of semen quality, were also reversed in infertile subjects after treatment with the herbal preparation.

Keywords: *Withania somnifera*, male infertility, alternative therapy, reproductive hormone

A2664: Clinical studies show no effects of soy protein or isoflavones on reproductive hormones in men: results of a meta-analysis

Author: Jill M. Hamilton-Reeves and Gabriela Vazquez

Source: *Fertility and Sterility*, 94, 3 (2010): 997-1007

Abstract: Objective: To determine whether isoflavones exert estrogen-like effects in men by lowering bioavailable T through evaluation of the effects of soy protein or isoflavone intake on T, sex hormone-binding globulin (SHBG), free T, and free androgen index (FAI) in men. Design: PubMed and CAB Abstracts databases were searched through July 1, 2008, with use of controlled vocabulary specific to the databases, such as soy, isoflavones, genistein, phytoestrogens, red clover, androgen, testosterone, and SHBG. Peer-reviewed studies published in English were selected if [1] adult men consumed soy foods, isolated soy protein, or isoflavone extracts (from soy or red clover) and [2] circulating T, SHBG, free T, or calculated FAI was assessed. Data were extracted by two independent reviewers. Isoflavone exposure was abstracted directly from studies. Main Outcome Measure(s): Fifteen placebo-controlled treatment groups with baseline and ending measures were analyzed. In addition, 32 reports involving 36 treatment groups were assessed in simpler models to ascertain the results. Result(s): No significant effects of soy protein or isoflavone intake on T, SHBG, free T, or FAI were detected regardless of statistical model. Conclusion(s): The results of this meta-analysis suggest that neither soy foods nor isoflavone supplements alter measures of bioavailable T concentrations in men.

Keywords: Soy, isoflavones, testosterone, phytoestrogens

A2665: Adverse effect of paroxetine on sperm

Author: Cigdem Tanrikut and Adam S. Feldman

Source: *Fertility and Sterility*, 94, 3 (2010): 1021-1026

Abstract: Objective: To assess the effects of a selective serotonin reuptake inhibitor on semen parameters. Design: Prospective study. Setting: Academic medical center. Patient(s): Thirty-five healthy male volunteers, 18–65 years old. Intervention(s): Paroxetine administration for 5 weeks. Main Outcome Measure(s): Serum hormone levels, semen analyses, percent sperm DNA fragmentation, and questionnaire assessment of sexual function assessed before, during, and 1 month after drug administration. Result(s): Mean sperm DNA fragmentation was significantly higher for men while on paroxetine (30.3%) versus baseline (13.8%). Before paroxetine, 9.7% of patients had a terminal deoxynucleotidyl transferase dUTP nick end labeling (TUNEL) score $\geq 30\%$ compared with 50% at week 4 of treatment. The odds ratio (OR) of having abnormal DNA fragmentation while taking paroxetine was 9.33 (95% confidence interval, 2.3–37.9]. Multivariate logistic regression correcting for age and body mass index confirmed this correlation (OR, 11.12). Up to 35% of men noted significant changes in erectile function and up to 47% of men reported ejaculatory difficulties on medication. Recovery to near-normal sexual function was noted after stopping treatment. Standard semen parameters were not significantly altered during paroxetine treatment. Conclusion(s): In men with normal semen parameters, paroxetine induced abnormal sperm DNA fragmentation in a significant proportion of subjects, without a measurable effect on semen parameters. The fertility potential of a substantial number of men on paroxetine may be adversely affected by these changes in sperm DNA integrity.

Keywords: Male infertility, semen analysis, antidepressants, sperm, DNA fragmentation

Male Fertility

A2680: Sperm banking for male reproductive preservation: a 6-year retrospective multi-centre study in China

Author: Ping Ping and Wen-Bing Zhu

Source: *Asian Journal of Andrology*, 12, 3 (2010): 356-362

Abstract: Sperm banking can preserve male fertility effectively, but the current conditions of sperm cryopreservation in China have not been investigated. This retrospective investigation was based on data collected at multiple centres in China from January 2003 to December 2008. The collected data included urogenital history, indication for cryopreservation, semen parameters, use rate, type of assisted reproductive technique (ART) treatment and pregnancy outcome. The study population included 1 548 males who had banked their semen during the study period at one of the clinics indicated above. Approximately 1.9% (30/1 548) of the cryopreserved semen samples were collected from cancer patients; about 88.8% (1 374/1 548) of the patients had banked their semen for ART and 8.6% (134/1 548) had a male infertility disease (such as anejaculation, severe oligozoospermia and obstructive azoospermia). The total use rate of cryopreserved semen was 22.7% (352/1 548), with 119 live births. The cancer group use rate was 6.7% (2/30), with one live birth by intracytoplasmic single sperm injection (ICSI). The ART group use rate was 23.2% (319/1 374), with 106 live births. The reproductive disease group use rate was 23.1% (31/134), with 12 live births. The semen parameters in each category varied; the cancer patient and infertility disease groups had poor semen quality. In vitro fertilization (IVF) and ICSI were the most common ART treatments for cryopreserved sperm. Semen cryopreservation as a salvage method is effective, but in many conditions it is underutilized, especially in cancer patients. Lack of awareness, urgency of cancer treatment and financial constraints are the main causes of the low access rate. The concept of fertility preservation should be popularized to make better use of this medical service in China.

Keywords: Cancer, cryopreservation, infertility, sperm

Maternal and Child Health

A2612: Mortality Risk Among Preterm Babies: Immaturity Versus Underlying Pathology

Authors: Basso Olga and Wilcox Allen

Source: *Epidemiology*, 21, 4 (2010): 521-527

Abstract: Background: Deaths among preterm births are presumably due to both immaturity and the conditions that cause preterm birth. Their relative contributions are unknown. Methods: Using US birth certificates (1995-2002), we estimated what portion of preterm neonatal mortality may be attributable to immaturity alone. Twins have elevated mortality, yet they usually have lower mortality than singletons at most preterm weeks. Twinning itself is a cause of early birth. Thus, at any given preterm week, singletons are more likely than twins to have pathologic causes of preterm delivery. If any such cause is associated with a mortality risk higher than that conferred by twinning, it is possible for singletons to have higher mortality than twins at some preterm weeks. Thus, mortality of twins at those weeks comes closer to describing the risk due to immaturity itself. To exclude high-risk babies, we focused on singletons and twins least likely to have suffered fetal growth disruptions (ie, those with "optimal" birth weight). At each gestational week from 24 to 36, we identified (for twins and singletons separately) the 500-gram weight category with the lowest neonatal mortality, and selected the lower of the 2 mortality rates. Results: Using the above as our best estimates of mortality due to immaturity alone, we calculated that about half the mortality of singleton preterm babies was due to the pathologies that cause early delivery. Conclusions: Factors that cause preterm birth apparently contribute a large proportion of preterm mortality. If so, the prevention of preterm mortality requires more than the postponement of delivery.

Keywords: Mortality risk, babies, neonatal mortality, births, United States

A2618: Psychological distress is associated with a range of high-priority health conditions affecting working Australians

Author: Libby Holden and Paul Scuffham

Source: Australian and New Zealand Journal of Public Health, 34, 3 (2010): 304-310

Abstract: Background: Psychological distress is growing in prevalence in Australia. Comorbid psychological distress and/or depressive symptoms are often associated with poorer health, higher healthcare utilisation and decreased adherence to medical treatments. Methods: The Australian Work Outcomes Research Cost-benefit (WORC) study cross-sectional screening dataset was used to explore the association between psychological distress and a range of health conditions in a sample of approximately 78,000 working Australians. The study uses the World Health Organization Health and Productivity Questionnaire (HPQ), to identify self-reported health status. Within the HPQ is the Kessler 6 (K6), a six-item scale of psychological distress which strongly discriminates between those with and without a mental disorder. Potential confounders of age, sex, marital status, number of children, education level and annual income were included in multivariate logistic regression models. Results: Psychological distress was significantly associated with all investigated health conditions in both crude and adjusted estimates. The conditions with the strongest adjusted association were, in order from highest: drug and alcohol problems, fatigue, migraine, CVD, COPD, injury and obesity. Conclusions: Psychological distress is strongly associated with all 14 health conditions or risk factors investigated in this study. Comorbid psychological distress is a growing public health issue affecting Australian workers.

Keywords: Psychological stress, health conditions, comorbidity

A2702: Challenges to maternal health care utilization among ethnic minority women in a resource-poor region of Sichuan Province, China

Author: Amanda Harris and Yun Zhou

Source: Health Policy and Planning, 25, 2 (2010): 311-318

Abstract: We present a simple descriptive study of maternal health care utilization among ethnic minority women in a remote region of China. Factors that affect women obtaining care and their decision-making are explored. Results show that utilization of maternal health care services is associated with a range of social, economic, cultural and geographic factors as well as the policies of the state and the delivery of services. Utilization is not necessarily increased through easy access to a health facility. We identify potential for improving utilization through developing the role of village-based health care workers, expanding mobile antenatal care clinics and changing the way township hospital services are provided and funded. This would include modifications to rural health insurance schemes. Several of these changes are achievable at the township or county level. The findings of this study provide insights that can be used by local health providers, planners and decision-makers to improve the provision of maternal health care services to ethnic minority women.

Keywords: Maternal health care services, health care utilization, ethnic minority women, remote region, China

A2719: Smoking in Pregnancy and Disruptive Behaviour in 3-year-old Boys and Girls: An Analysis of the UK Millennium Cohort Study

Authors: J. Hutchinson; K E Pickett;

Source: Journal of Epidemiology and Community Health, 64, 1 (2010): 82-88

Abstract: Background: Maternal smoking during pregnancy has been consistently associated with disruptive behaviour in male offspring; however, results for girls are inconsistent and little is known about emergent patterns in young children. Additionally, it is unclear whether maternal smoking is independently associated in offspring with hyperactivity-inattention or only when it co-occurs with conduct problems. Further, few studies have controlled for a broad range of maternal psychosocial problems. Methods: Associations between self-reported smoking in pregnancy and maternal reports of externalising behaviour were analysed in more than 13?000 3-year-old boys and girls in the UK Millennium Cohort Study. Conduct and

hyperactivity–inattention problems were assessed using the Strength and Difficulties Questionnaire. Results: Boys whose mothers persistently smoked throughout pregnancy were at significant risk of conduct and hyperactivity–inattention problems compared with sons of non-smokers: the effect was stronger for heavy smokers. After excluding children with co-occurring problems, conduct-only problems remained a significant risk for sons of heavy smokers, OR 1.92 (95% CI 1.29 to 2.86); and hyperactivity–inattention only for sons of light or heavy smokers, OR 1.79 (95% CI 1.27 to 2.51) and 1.64 (1.10 to 2.46). Daughters of light or heavy smokers were at significant risk of conduct-only problems, OR 1.73 (95% CI 1.14 to 2.61) and 1.73 (1.06 to 2.83). Relative to non-smokers, daughters of pregnancy quitters had significantly reduced odds of having conduct 0.61(0.39 to 0.97) or co-occurring problems 0.26(0.08 to 0.82), although only 79 and 20 girls met these criteria, respectively. All findings were robust to controlling for key social and psychosocial factors. Conclusions: Associations between maternal smoking during pregnancy and disruptive behaviour in 3-year-old children vary by sex, smoking status and whether or not conduct or hyperactivity problems occur together or separately.

Keywords: United Kingdom, maternal smoking, psychosocial problems, psychosocial factors, smoking status

Menopause

A2666: Serum leptin levels, hormone levels, and hot flashes in midlife women

Author: Carolyn Alexander and Chrissy J. Cochran

Source: *Fertility and Sterility*, 94, 3 (2010): 1037-1043

Abstract: **Objective:** To examine the associations between serum leptin levels, sex steroid hormone levels, and hot flashes in normal weight and obese midlife women. **Design:** Cross-sectional study. **Setting:** University clinic. **Patient(s):** 201 Caucasian, nonsmoking women aged 45 to 54 years with a body mass index of <25 kg/m² or ≥ 30 kg/m². **Intervention(s):** Questionnaire, fasting blood samples. **Main Outcome Measure(s):** Serum leptin and sex steroid hormone levels. **Result(s):** Correlation and regression models were performed to examine associations between leptin levels, hormone levels, and hot flashes. Leptin levels were associated with BMI, with “ever experiencing hot flashes” (questionnaire), with hot flashes within the last 30 days, and with duration of hot flashes (>1 year, $P=.03$). Leptin was positively correlated with testosterone, free testosterone index, and free estrogen index and inversely associated with levels of sex hormone-binding globulin. In women with a body mass index ≥ 30 kg/m², leptin levels no longer correlated with testosterone levels. **Conclusion(s):** Serum leptin levels are associated with the occurrence and duration of hot flashes in midlife women; however, no correlation was found between leptin and serum estradiol.

Keywords: Hot flashes, leptin, menopause

Pregnancy

A2659: Expression of inducible nitric oxide synthase in the human fallopian tube during the menstrual cycle and in ectopic pregnancy

Author: Majedah Al-Azemi and Bassem Refaat

Source: Fertility and Sterility, 94, 3 (2010): 833-840

Abstract: Objective: To investigate the production of inducible nitric oxide synthase (iNOS) in the fallopian tube (FT) during the menstrual cycle and whether epithelia from FTs bearing an ectopic pregnancy differ from healthy tubes in iNOS expression. Design: Prospective study. Setting: Academic unit of reproductive and developmental medicine. Patient(s): Fallopian tubes from the different stages of the menstrual cycle (n = 12), FTs bearing an ectopic pregnancy (n = 15), and FTs from pseudopregnant women (n = 6) were collected. Intervention(s): In the pseudopregnant group, patients were injected with hCG in the days leading up to hysterectomy. Samples were processed for immunohistochemistry staining and quantitative reverse transcriptase polymerase chain reaction. Main Outcome Measure(s): To compare iNOS protein and messenger RNA expression between the different groups. Result(s): This is the first report on cyclicality in iNOS production by human fallopian tube during the menstrual cycle. The intensity of expression of iNOS was higher in the ectopic pregnancy group compared with the pseudopregnant group ($P < 0.05$). Conclusion(s): The cyclicality in iNOS expression by the tube suggests its involvement in fertilization and early embryonic development. Pathologic generation of nitric oxide through increase iNOS production may decrease tubal ciliary beats and smooth muscle contractions and thus affect embryo transport, which may consequently result in ectopic pregnancy.

Keywords: Early embryonic development, ectopic pregnancy, fallopian tube, menstrual cycle

A2724: Opportunity for catch-up HPV Vaccination in Young Women after first Delivery

Authors: Cristina Helena Rama and Luisa L Villa

Source: Journal of Epidemiology and Community Health, 64, 7 (2010): 610-615

Abstract: Background Early age at first delivery has been identified as a risk factor for high-risk HPV-type infection and cervical cancer development. Methods A cross-sectional study was carried out in a large public maternity hospital in São Paulo, Brazil. During June 2006 to February 2007, 301 women aged 15–24 years who gave birth to their first child were recruited between 43 and 60 days after delivery. Detection of HPV DNA in cervical specimens was performed using a standardised PCR protocol with PGMY09/11 primers. The association of selected factors with HPV infection was assessed by using a Generalised Linear Model. Results HPV DNA was detected in 58.5% (95% CI 52.7% to 64.0%) of the enrolled young women. The most common types of HPV found were: HPV16, HPV51, HPV52, HPV58 and HPV71. The overall prevalence of HPV types targeted by the HPV prophylactic vaccines was: HPV 16-12.0%, HPV 18-2.3% and HPV 6 and 11 4.3%. In the multivariate analysis, only age (inversely, p for trend=0.02) and smoking habits were independently associated with HPV infection. Conclusions The findings show that these young primiparous women had high cervical HPV prevalence, suggesting that this is a high-risk group for cervical cancer development. Nevertheless, 17.3% were positive for any of the four HPV types included in HPV vaccines (HPV6, 11, 16 or 18), with 13.3% positive for HPV 16 or 18 and only 1.0% having both vaccine related-oncogenic HPV types. Thus, young primiparous women could benefit from catch-up HPV vaccination programmes

Keywords: Pregnancy, HPV-type infection

Psychology

A2671: Development and preliminary validation of the fertility status awareness tool: FertiSTAT

Author: L. Bunting and J. Boivin

Source: Human Reproduction, 25, 7 (2010): 1722-1733

Abstract: Background: The aim of our research was to create a fertility status awareness tool (FertiSTAT) that would enable women to gain personalized guidance about reducing risks to their fertility and seeking timely fertility medical advice based on their own lifestyle and reproductive profile. **METHODS:** Independent risk factors associated with female fertility impairment were identified. Associations between risk indicator and fertility status were examined in 1073 women who completed the Fertility Risk Factors Survey (FRFS) online or in pregnancy termination, antenatal or infertility clinics in the UK, consisting of the FertiSTAT indicators; 49.58% (n = 532) were currently pregnant (78.82% \geq 12 weeks pregnant) and 15.66% (n = 168) were currently infertile (trying to conceive $>$ 12 or 6 months if $>$ 34 years of age). **RESULTS:** Twenty-two risk factors were identified from the literature review and expert Delphi consultation. Prevalence of risk factors in the validation sample was similar to general population. Most risks were independently associated with fertility status in logistic regressions and in the expected direction. Discriminant analysis demonstrated that the set of FertiSTAT indicators could correctly classify whether women were currently pregnant or infertile [$\chi^2(19) = 204.209$, $P < 0.001$] with a correct classification rate for the overall sample of 85.8% (326/380), 91.0% (n = 243/267) for the currently pregnant and 73.5% (n = 83/113) for the currently infertile. **CONCLUSIONS:** The main result was the generation of a self-administered, multifactorial tool that can enable women to get personalized fertility guidance. This research and the FertiSTAT provide foundational work for public health campaigns to increase awareness about fertility health.

Keywords: Risk factors, infertility, risk correlates, raising awareness, fertility potential

Public Health

A2600: Next Public Health Revolution: Public Health Information Fusion and Social Networks

Author: Ali S Khan and Aaron fleischauer

Source: American Journal of Public Health, 100, 7 (2010): 1237-1242

Abstract: Social, political and economic disruptions caused by natural and human caused public health emergencies have catalyzed public health efforts to expand the scope of biosurveillance and increase the timeliness, quality and comprehensiveness of disease detection, alerting, response and prediction. Unfortunately, efforts to acquire, render and visualize the diversity of health intelligence information are hindered by its wide distribution across disparate fields, multiple levels of government and the complex interagency environment. Achieving this new level of situation awareness within public health will require a fundamental cultural shift in methods of acquiring, analyzing and disseminating information. The notion of information “fusion” may provide opportunities to expand data access, analysis and information exchange to better inform public health action.

Keywords: Public health, social networks, health information

A2602: Global Tobacco Control Diffusion: The Case of the Framework Convention on Tobacco Control

Author: Heather L Wipfli and Kayo Fujimoto

Source: American Journal of Public Health, 100, 7 (2010): 1260-1266

Abstract: Objectives: We analyzed demographic and social network variables associated with the timing of ratification of the Framework Convention on Tobacco Control (FCTC). Methods: We compiled a 2-mode data set that recorded country participation in FCTC negotiations, as well as the number of individuals per country per year who joined an online tobacco control network. We used logistic regression analysis of these 2 data sets along with geographic

location to determine whether exposure to prior FCTC adoptions was associated with a country's likelihood of adoption. Results: In the logistic regression analysis, higher income and more non-governmental organizations (NGOs) involved in the Framework Convention Alliance (a network dedicated to the FCTC) were associated with being among the earliest adopters (for income, adjusted odds ratio [AOR]=2.41; 95% confidence interval [CI]=1.55; for NGOs, AOR=1.66; 95% CI=1.26, 2.17) or among early adopters (for income, AOR=1.42; 95% CI=1.09, 1.84; for NGOs, AOR=1.23; 95% CI=1.03, 1.45). Network exposure and event history analysis showed that in addition to income, the likelihood of adoption increased with increasing affiliation exposure to FCTC adopters through GLOBALink (an online network facilitating communication between tobacco control advocates). Conclusions: Public health programs should include a plan for creating opportunities for network interaction; otherwise, adoption and diffusion will be delayed and the investments in public health policy greatly diminished.

Keywords: Tobacco control, public health, tobacco

A2603: Social Network Structure of a Large Online Community for Smoking Cessation

Author: Nathan K Cobb and Amanda L Graham

Source: American Journal of Public Health, 100, 7 (2010): 1282-1289

Abstract: Objective: We evaluated the social network structure of QuitNet, one of the largest online communities for behavior change and compared its characteristics to other known social networks. Methods: Using modern network analysis methods, we identified QuitNet members who were active during a 60-day period, along with their ties. We then derived multiple subgroups, such as key players and integrators, from connections and communication patterns. Results: Among 7569 participants, we identified 103592 connections to other members. Metrics of social network integration were associated with increased likelihood of being female, being older, having been in the system longer and not smoking. Conclusions: The quintet community is a large-scale social network with the characteristics required for sustainability of social support and social influence to promote smoking cessation and abstinence. These

characteristics include persistence of members over time, heterogeneity of smoking status and evidence of rich, bidirectional communications. Some of the influential subgroups we identified may provide targets for future network-level interventions.

Keywords: Social network, community, smoking

A2604: Systems Analysis of Collaboration in 5 National Tobacco Control Networks

Author: Douglas A Luke and Jenine K Harris

Source: American Journal of Public Health, 100, 7 (2010): 1290-1297

Abstract: Objectives: We studied 5 members of the National Network Consortium on Tobacco Control in Priority populations. These networks, which consist of governmental and nongovernmental organizations, targeted lesbian, gay, bisexual and transgender persons; Asian Americans, Native Hawaiians and Pacific Islanders; American Indians and Alaska Natives; African Americans; and persons with low socioeconomic status, respectively. Methods: We used statistical network analysis modeling to examine collaboration among these national networks in 2007. Results: Network size and composition varied, but all 5 networks had extensive interorganizational collaboration. Location and work area were significant predictors of collaboration among network members in all 5 networks. Organizations were more likely to collaborate with their network's lead agency; collaborations with other agencies were more likely if they were geographically close. Collaboration was perceived to be important for achieving the goals of the national network. Conclusions: The similarity of collaboration patterns across the 5 networks suggests common underlying partnership formation processes. Statistical network modeling promises to be a useful tool for understanding how public health systems such as networks and coalitions can be used to improve the nation's health.

Keywords: Tobacco control, public health, tobacco

A2634: Assessing trade in health services in countries of the Eastern Mediterranean from a public health perspective

Author: Sameen Siddiqi, Azza Shennawy

Source: The International Journal of Health Planning and Management, 25, 3 (2010): 231-250

Abstract: Assessing trade in health services (TiHS) in developing countries is challenging since the sources of information are diverse, information is not accessible and professionals lack grasp of issues. A multi-country study was conducted in the Eastern Mediterranean Region (EMR) – Egypt, Jordan, Lebanon, Morocco, Oman, Pakistan, Sudan, Syrian Arab Republic, Tunisia, and Yemen. The objective was to estimate the direction, volume, and value of TiHS; analyze country commitments; and assess the challenges and opportunities for health services. Trade liberalization favored an open trade regime and encouraged foreign direct investment. Consumption abroad and movement of natural persons were the two prevalent modes. Yemen and Sudan are net importers, while Jordan promotes health tourism. In 2002, Yemenis spent US\$ 80 million out of pocket for treatment abroad, while Jordan generated US\$ 620 million. Egypt, Pakistan, Sudan and Tunisia export health workers, while Oman relies on import and 40% of its workforce is non-Omani. There is a general lack of coherence between Ministries of Trade and Health in formulating policies on TiHS. This is the first organized attempt to look at TiHS in the EMR. The systematic approach has helped create greater awareness, and a move towards better policy coherence in the area of trade in health services.

Keywords: Health services, public health, health tourism

A2732: Epidemiologic Approaches to Global Health

Author: Thomas C. Quinn and Jonathan M. Samet

Source: Epidemiologic Reviews, 32 (2010): 1-4

Abstract: In this introduction to volume 32 of *Epidemiologic Reviews*, the authors highlight the diversity and complexity of global health concerns, and they frame the 12 articles included in this issue within the diverse topics of research in this emerging and ever-expanding field. The authors emphasize the need for ongoing research related to the methods used in global health and for comprehensive surveillance, and they offer suggestions for future directions in global health research.

Keywords: AIDS, epidemiologic methods, HIV, world health, global health

A2737: Trends and Directions of Global Public Health Surveillance

Author: Carlos Castillo-Salgado

Source: *Epidemiologic Reviews*, 32 (2010): 93-109

Abstract: Recently, global health and global health surveillance have received unprecedented recognition of their importance because of the newly emerging and reemerging infectious diseases, new cycles of pandemics, and the threats of bioterrorism. The aim of this review is to provide an update of the current state of knowledge on health surveillance in a globalized world. Three key areas will be highlighted in this review: 1) the role of the new International Health Regulations, 2) the emergence of new global health networks for surveillance and bioterrorism, and 3) the reshaping of guidelines for the collection, dissemination, and interventions in global surveillance. A discussion is also presented of the more important challenges of global health surveillance. Global surveillance has been reshaped by important changes in the new International Health Regulations and the rapid development of new global networks for disease surveillance and bioterrorism. These networks provide for the first time at the global scale real-time information about potential outbreaks and epidemics of newly emerging and reemerging infectious diseases. The recent outbreaks of severe acute respiratory syndrome (SARS) and the influenza A (H1N1) pandemic provide evidence of the benefits of the new global monitoring and of the importance of the World Health Organization in its coordinating role in the multilateral response of the global public health community.

Keywords: Population surveillance, world health, global health, surveillance

A2738: Global Burden of Unintentional Injuries and an Agenda for Progress

Author: Aruna Chandran and Adnan A. Hyder

Source: Epidemiologic Reviews, 32 (2010): 110-120

Abstract: According to the World Health Organization, unintentional injuries were responsible for over 3.9 million deaths and over 138 million disability-adjusted life-years in 2004, with over 90% of those occurring in low- and middle-income countries (LMIC). This paper utilizes the year 2004 World Health Organization Global Burden of Disease Study estimates to illustrate the global and regional burden of unintentional injuries and injury rates, stratified by cause, region, age, and gender. The worldwide rate of unintentional injuries is 61 per 100,000 population per year. Overall, road traffic injuries make up the largest proportion of unintentional injury deaths (33%). When standardized per 100,000 population, the death rate is nearly double in LMIC versus high-income countries (65 vs. 35 per 100,000), and the rate of disability-adjusted life-years is more than triple in LMIC (2,398 vs. 774 per 100,000). This paper calls for more action around 5 core areas that need research investments and capacity development, particularly in LMIC: 1) improving injury data collection, 2) defining the epidemiology of unintentional injuries, 3) estimating the costs of injuries, 4) understanding public perceptions about injury causation, and 5) engaging with policy makers to improve injury prevention and control.

Keywords: Developing countries, wounds and injuries, agenda for progress

Reproductive Endocrinology

A2667: GnRH agonist administration at the time of implantation does not improve pregnancy outcome in intrauterine insemination cycles: a randomized controlled trial.

Author: Jose Bellver and Elena Labarta,

Source: *Fertility and Sterility*, 94, 3 (2010): 1065-1071

Abstract: Objective: To assess whether GnRH agonist administration in the luteal phase improves pregnancy outcome in intrauterine insemination (IUI) cycles. Design: Single-center, randomized, single-blind, placebo-controlled trial. Setting: University-affiliated infertility clinic, between February 2005 and December 2007. Patient(s): Three hundred forty-four women undergoing IUI owing to mild to moderate male factor or donor sperm indication. Intervention(s): Random administration to either a single subcutaneous injection of 0.1 mg triptorelin (group A; n = 172) 8 days after hCG administration, or solvent only (group B; n = 172) at the same time. Main Outcome Measure(s): Pregnancy rate was the primary outcome measure considered for assessing the role of triptorelin administration at the time of implantation. Clinical pregnancy, miscarriage, and ongoing pregnancy rates were the secondary outcome measures. Result(s): No differences were detected between the groups regarding clinical, seminal, or ovarian stimulation parameters. Pregnancy rate per randomized patient was similar in both groups (22.7% vs. 22.1%), as were clinical pregnancy, miscarriage, and ongoing pregnancy rates. There was a significant increase in the proportion of multiple pregnancies in the placebo group (10.3% vs. 36.8%). Conclusion(s): Administration of GnRH agonist at the time of implantation does not improve the reproductive outcome of IUI cycles.

Keywords: GnRH agonists, intrauterine insemination, pregnancy

Reproductive Epidemiology

A2672: Maternal death related to IVF in the Netherlands 1984–2008

Author: D.D.M. Braat and J.M. Schutte

Source: Human Reproduction, 25, 7 (2010): 1782-1786

Abstract: Background: We assessed all deaths in the Netherlands that might have been related to IVF or to an IVF pregnancy in order to investigate this most serious complication. **METHODS:** All deaths related to IVF, within 1 year after IVF, from 1984 to 2008 were collected by sending a letter to all gynaecologists, and by retrieving data from a large cohort study examining the late effects of ovarian stimulation (OMEGA) and from the Dutch Maternal Mortality Committee. **RESULTS:** Six deaths were directly related to IVF (6/100 000), 17 deaths were directly related to the IVF pregnancy (42.5/100 000) and eight deaths were neither related to the IVF nor to the IVF-related pregnancy. The overall mortality in patients undergoing IVF procedures was lower than in the general population, whereas the overall mortality related to IVF pregnancies was higher than the maternal mortality in the general population. **CONCLUSION:** The decreased mortality is probably the result of a 'healthy female effect' in women undergoing IVF. The high maternal mortality in IVF pregnancies is probably related to the high number of multiple pregnancies and to the fact that (donor egg) IVF is successfully used in women who are older. The fact that only a few deaths directly related to IVF are reported in the literature whereas we observed six in the Netherlands indicates worldwide under-reporting of IVF-related mortality. We underline the importance of reporting all lethal cases to the European Society of Human Reproduction and Embryology Committee 'Safety and Quality after IVF'.

Keywords: IVF, complications; maternal mortality, maternal death, Netherlands

A2673: Ovarian follicle loss in humans and mice: lessons from statistical model comparison

Author: J. E. Coxworth and K. Hawkes

Source: Human Reproduction, 25, 7 (2010): 1796-1805

Abstract: Background: Mammalian oocyte stocks reach maximum size in early development and begin depletion immediately thereafter. This depletion ends women's fertility by midlife. Here we compare five models proposed to characterize human follicular depletion, highlight underlying variation in atresia, and use oocyte counts from laboratory mice to illustrate possible effects of known covariates. **METHODS:** We compared statistical models, of human data, from five well-known sources and also compared the models' fit to data from four genetically distinct strains of mice. **RESULTS:** A model first published by Hansen et al. (2008) fit the human data better than any of the alternatives. Best-fit models of oocyte loss in the four strains of mice differed substantially from the best-fit model of the aggregated mouse data. **CONCLUSIONS:** Although the power model published by Hansen et al. (2008) fit the human data best, Faddy and Gosden's (1996) differential equation model may be a more useful characterization of human follicular atresia. However, these models leave a great deal of variation unexplained. Mouse strain comparisons show that follicle loss in genetically distinct subpopulations can differ substantially from the pattern in the aggregate population. This indicates that differences in follicular stock size between and within populations depend upon more than a single predictor (i.e. age or follicle stocks at previous time points). Our reliance upon data from Western populations represents this study's most important limitation. Expanding data collection to include likely covariates and a wider range of human populations would improve the basis for predicting individual trajectories of follicle loss as more women worldwide opt to delay childbearing and risk aging beyond their own windows of fertility.

Keywords: Akaike information criteria, atresia, biphasic, menopause, oocyte

Reproductive Health

A2657: Impact of a Quality-improvement Package on Reproductive Health Services Delivered by Private Providers in Uganda

Author: Sohail Agha

Source: *Studies in Family Planning*, 41, 3 (2010): 205-215

Abstract: This study assesses the effectiveness of a quality-improvement (QI) package designed to enable small-scale commercial reproductive health (RH) service providers to improve the services they offer. The study was conducted among midwives who are members of the Uganda Private Midwives Association. A pretest-post-test quasi-experimental panel study design was used wherein midwife clinics were allocated to two experimental groups and one control group. Baseline and follow-up measurements of structural and process attributes of quality were taken at the clinics by means of a facility inventory, interviews with midwives, and observations of client-provider interactions. Nearly 70 percent of the midwives who were trained to use the package reported that it was easy to use. Among clinics in which midwives received training in the use of the self-assessment tool and in developing action plans, structural and process attributes of quality improved only among those clinics in which the midwives' supervisors received training in finding solutions to the problems identified through self-assessments. The QI package may be implemented with small-scale private providers of RH services who are part of a professional association, network, or franchise that supervises their performance.

Keywords: Reproductive health services, quality improvement, midwives, Uganda

A2658: Adipose tissue and reproduction in women

Author: Henry Bohler and Sriprakash Mokshagundam

Source: *Fertility and Sterility*, 94, 3 (2010): 795-825

Abstract: Adipose tissue has been viewed as the primary source of stored energy, but with the discovery of novel adipose tissue gene products, i.e., adipokines, another equally important role has emerged. Adipose tissue is a key endocrine organ involved in multiple processes, including glucose homeostasis, steroid production, immunoregulation, hematopoiesis, and reproduction. The distribution of adipose tissue may also have a significant impact on reproductive function.

Keywords: Adipose tissue, women, adipokines

A2677: Promoting Gender Sensitive Strategies for Improving Women's Reproductive Health Care Services

Author: Salil Basu and Koumari Mitra

Source: South Asian Anthropologist, 10, 1 (2010): 57-66

Abstract: In India, gender inequality, limited access to health care facilities and economic resources are greatly facilitating the spread of reproductive tract infections and sexually transmitted diseases for populations living under impoverished conditions. While the focus on women's reproductive health is usually directed towards pregnancy, childbirth and contraception, these issues though important can also divert the attention away from other aspects of women's health, including the way in which gender influences the risk of sexually transmitted diseases (STDs) and reproductive tract infections (RTIs). Recent studies have begun to document the association between gender, impoverished environment and the prevalence of sexually transmitted diseases. Addressing women's reproductive health in totality is important for understanding gender issues as they reveal how gender norms affect reproductive health services, differential exposure to risk, access to services and their benefits, to information and to resources. In this paper, we discuss approaches for developing suitable gender-sensitive strategies in reproductive healthcare delivery and the impact of RTIs and STDs on women's health, for populations living under impoverished conditions. With the help of primary data and a review of existing literature, we posit that reproductive health services need

to address gender biases and obstacles in their healthcare delivery, recognize that men and women's needs often differ and find ways to meet those needs differentially. The basic source for empowerment of women in a society is to provide them with access to information, education and skills.

Keywords: Gender sensitive strategies, health care practices, Uttar Pradesh, India

A2713: Reproductive Hormones and Obesity: 9 Years of Observation from the Study of Women's Health across the Nation

Authors: Kim Sutton-Tyrrell and Xinhua Zhao

Source: American Journal of Epidemiology, 171, 11 (2010): 1203-1213

Abstract: The effect of change in reproductive hormones and menopause on incident obesity (body mass index ≥ 30 kg/m²) and severe obesity (body mass index ≥ 35 kg/m²) was evaluated over 9 years in 3,260 US women recruited in the multiethnic Study of Women's Health Across the Nation in 1996-1997. After 9 years, cumulative incidences of obesity and severe obesity reached 21.8% and 12.3%, respectively. In multivariate analysis, hormone changes, chronic health conditions, lower physical activity, race/ethnicity, and age were significantly associated with incident obesity and/or severe obesity. The odds of incident severe obesity increased with surgical menopause (odds ratio (OR) = 5.07, 95% confidence interval (CI): 2.29, 11.20; $P < 0.001$) and initiation of hormone therapy prior to 12 months of amenorrhea (OR = 2.94, 95% CI: 1.14, 7.58; $P = 0.03$). Predictors of obesity included an increase in free androgen index (OR = 1.37, 95% CI: 1.12, 1.68; $P = 0.002$) and a decrease in sex hormone-binding globulin (OR = 0.60, 95% CI: 0.45, 0.80; $P = 0.0005$). Similar results were found for severe obesity. Obesity rates varied by race, but no hormone-by-race interactions were observed. These longitudinal data demonstrate that higher androgens, lower sex hormone-binding globulin, surgical menopause, and early hormone therapy use predict incident obesity and/or severe obesity in a multiracial cohort of women transitioning into menopause.

Keywords: Hormones, menopause, obesity, reproduction

Research Report

A2627: Prospective study of workplace social capital and depression: are vertical and horizontal components equally important?

Author: Tuula Oksanen and Anne Kouvonen

Source: Journal of Epidemiology & Community Health, 64, 8 (2010): 684–689

Abstract: Background: Recent studies have emphasised the multidimensional nature of the social capital concept, but it is not known whether the health effects of social capital vary by dimension. The objective of this study was to examine the vertical component (ie, respectful and trusting relationships across power differentials at work) and the horizontal component of workplace social capital (trust and reciprocity between employees at the same hierarchical level) as risk factors for subsequent depression. Methods: A cohort of 25 763 Finnish public sector employees who were initially free from depression was followed up on average 3.5 years for new self-reported physician-diagnosed depression and recorded antidepressant prescriptions derived from national registers. Results: Factor analysis confirmed the existence of vertical and horizontal components of workplace social capital. The odds for new physician-diagnosed depression and antidepressant treatment were 30–50% higher for employees with low vertical or horizontal workplace social capital than for their counterparts with high social capital at work. In mutually adjusted models, vertical and horizontal social capital remained independent predictors of physician-diagnosed depression and antidepressant treatment. Conclusion: These results highlight the importance of both vertical and horizontal components of workplace social capital as predictors of employee mental health.

Keywords: Social capital, public sector, workplace

A2628: Neighbourhood chronic stress and gender inequalities in hypertension among Canadian adults: a multilevel analysis

Author: Flora I Matheson and Heather L White

Source: Journal of Epidemiology & Community Health, 64, 8 (2010): 705–713

Abstract: Background: A growing body of literature regarding the contextual influences of 'place' effects on health increasingly demonstrates that living in neighbourhoods with high levels of deprivation is associated with worse cardiovascular outcomes; however, little research has explored whether neighbourhood deprivation has a differential impact on the cardiovascular health of men and women. The purpose of this study was to explore gender differences in the association between neighbourhood deprivation and the prevalence of hypertension among non-institutionalised Canadian adults. Methods: Individual-level data from the Canadian Community Health Survey (2000–2005) were combined with area-level data from the 2001 Canada Census to assess the relationship between gender, neighbourhood deprivation and hypertension using multilevel regression. Results: Of the 103 419 respondents, 20 705 reported having hypertension (17.6%). In multilevel models, neighbourhood deprivation was significantly associated with hypertension and this effect remained significant after adjusting for individual-level demographic, socioeconomic and lifestyle characteristics (OR 1.12, 95% CI 1.10 to 1.15). Neighbourhood deprivation appears to be a stronger predictor of hypertension among women, such that women living in areas of high deprivation were 10% more likely to report having hypertension in comparison with men living in the same neighbourhoods and with women living in the least impoverished neighbourhoods. Conclusions Although future research is needed to determine whether interventions at the area-level are effective in reducing inequalities in health outcomes across neighbourhoods, policies aimed at reducing area-level deprivation may have a differential benefit on the cardiovascular health of men and women.

Keywords: Neighbourhood, Canadian adults, hypertension, community health

A2629: Non-participant characteristics and the association between socioeconomic factors and brain tumour risk

Author: Annette Wigertz and Stefan Lönn Lonn

Source: Journal of Epidemiology & Community Health, 64, 8 (2010): 736–743

Abstract: **Background:** The aim of the study was to identify demographic and socioeconomic characteristics of participants and non-participants in a Swedish population-based case-control study on brain tumours and to analyse the association between socioeconomic factors and glioma and meningioma risk. **Methods:** Record linkage was made to an official register to gather information on socioeconomic status, income, education and demography for all participating and non-participating cases and controls. **Results:** 494 glioma cases, 321 meningioma cases and 955 controls were eligible and 74%, 85% and 70%, respectively, participated. Working status and income level were positively associated with participation among cases and controls. Among both cases and controls, being married, and having a high education were also associated with participation. Having a family income level in the highest quartile was associated with an increased glioma risk (OR 1.5, 95% CI 1.1 to 2.1). This risk increase diminished when only participating individuals were included in the analysis. Socioeconomic factors were not associated with meningioma risk. **Conclusions:** Non-participation, related to socioeconomic factors, is a potential source of bias in case-control studies that should be acknowledged; however, the effect was not large in the present study due to the fact that the level of participation was comparable between cases and controls and participation was similarly influenced by socioeconomic factors among cases and controls. The association between a high income level and an increased glioma risk and possible underlying factors needs to be explored further.

Keywords: Socioeconomic, brain tumour, demographic

Social Sciences

A2731: Domestic violence and early childhood mortality in rural India: evidence from prospective data

Author: Michael A Koenig and Rob Stephenson

Source: International Journal of Epidemiology, 39, 3 (2010): 825-833

Abstract: Objective To investigate the relationship between domestic violence and perinatal, neonatal and infant mortality in rural India using prospective data. Methods: The study is based upon a prospective follow-up study of a cohort selected from the 1998–99 National Family and Health Survey-2 (NSFS-2), which was carried out in 2002–03 in four Indian states. Data for a total of 3909 birth outcomes that took place during this 4-year period were analysed using bivariate analysis and hazards regression analysis to control for truncated observations and possible other confounding factors. Findings: After controlling for other potentially confounding factors, births to mothers who experienced two or more episodes of recent domestic violence experienced higher perinatal [hazards ratio (HR) = 1.85, 95% confidence interval (CI) = 1.12, 2.79] and neonatal (HR = 1.62, 95% CI = 1.11, 2.53) mortality, relative to births to women whose mothers reported no violence. Overall, these births to women who experienced violence had 68% higher risk of infant mortality compared with the 'no violence' group. Births to women who experienced a single episode of violence were not at higher risk of mortality. Conclusions: Our study provides additional and more conclusive evidence on the importance of domestic violence for early childhood mortality in low-resource settings such as rural India. The results argue for a greater focus upon such violence within current child survival programmes.

Keywords: Domestic violence, neonatal mortality, infant mortality, hazards regression analysis, rural India

A2599: Rural Poverty and Child Schooling: A Case study of Balasore District, Orissa

Author: Bijaya Kumar Malik and S K Mohanty

Source: Journal of Educational Planning and Administration, 23, 3 (2009): 257-281

Abstract: Based on cross-sectional data, this paper has two goals, namely methodological and empirical. The methodological goal is to outline a simple methodology in identifying the poor, chronic poor and non-poor in a rural set-up in the state of Orissa, India. The empirical goal is to examine the pattern of child schooling among chronic poor, poor and non-poor households. For methodological content, the multidimensional concept of poverty is quantified using a set of 12 variables, covering housing quality, household amenities, food security, occupation, possession of consumer durables, education, access to financial institution etc. The principal component analysis (PCA) is used in deriving the composite score. The chronic poor is quantified by combining the poor and subjective assessment on intergenerational economic status of the household. The internal coherence, robustness and reliability of the estimates of chronic poor, and poor are checked. The estimates of chronic poor and poor are reliable, and exhibit greater internal coherence. Results indicate that children belonging to chronically poor, irrespective of caste, are more likely to be out of school. About 32 percent children in the school-going age and belonging to chronic poor families are currently not attending school compared to 18 percent among poor and 7 percent among non-poor. About one-third children belonging to chronic poor (in the age group of 11-17 years) are overage compared to 4 percent among non-poor and 9 percent among poor. Further, more than three-fourths children belonging to Schedule Tribes are from chronically poor families as against 39 percent among schedule Castes, 21 percent among other backward caste and 7 percent among others. While the poor perceive poverty as the cause of not sending the child to school, it is the distance, as reported by chronic poor. Results of logistic regression confirmed that the poverty status and caste of household are the two critical determinants of schooling status of a child. Children from chronically poor households are more likely to be out of school (both school dropout and never gone-to-school), is an important concern for policy implementer.

Keywords: Rural area, poverty, child schooling, social problems, Orissa

A2606: Unmet Health Care Needs of Homeless Adults: A National Study

Author: Travis P Baggett and James J O Connell

Source: American Journal of Public Health, 100, 7 (2010): 1326-1333

Abstract: Objectives: We assessed the prevalence and predictors of past-year unmet needs for 5 types of health care services in a national sample of homeless adults. Methods: We analyzed data from 966 adult respondents to the 2003 Health Care for the Homeless User Survey, a sample representing more than 436000 individuals nationally. Using multivariable logistic regression, we determined the independent predictors of each type of unmet need. Results: Seventy-three percent of the respondents reported at least one unmet health need, including an inability to obtain needed medical or surgical care (32%), prescription medications (36%), mental health care (21%), eyeglasses (41%) and dental care (41%). In multivariable analyses, significant predictors of unmet needs included food insufficiency, out-of-home placement as a minor, vision impairment and lack of health insurance. Individuals who had been employed in the past year were more likely than those who had not to be uninsured and to have unmet needs for medical care and prescription medications. Conclusions: This national sample of homeless adults reported substantial unmet needs for multiple types of health care. Expansion of health insurance may improve health care access for homeless adults, but addressing the unique challenges inherent to homelessness will also be required.

Keywords: Health care, homeless adults

A2615: Household smoking behaviours and exposure to environmental tobacco smoke among infants: are current strategies effectively protecting our young?

Author: Justine B. Daly and John H. Wiggers

Source: Australian and New Zealand Journal of Public Health, 34, 3 (2010): 269–273

Abstract: Objective: To determine the prevalence of infant exposure to environmental tobacco smoke (ETS) among infants attending child health clinics in regional NSW; the association between such exposure and household smoking behaviours; and the factors associated with smoking restrictions in households with infants. Methods: Parents completed a computer-based questionnaire and infant urine samples were collected. Information was obtained regarding the smoking behaviours of household members and samples were analysed for cotinine. Results: Twenty seven per cent of infants had detectable levels of cotinine. Infant ETS exposure was significantly associated with the smoking status of household members, absence of complete smoking bans in smoking households and having more than one smoker in the home. Smoking households were significantly less likely to have a complete smoking ban in place. Conclusions: This study suggests that a significant proportion of the population group most vulnerable to ETS were exposed. Implications: Future efforts to reduce children's exposure to ETS need to target cessation by smoking parents, and smoking bans in households of infants where parents are smokers if desired reductions in childhood ETS-related illness are to be realised.

Keywords: infants, environmental tobacco smoke, smoking restrictions

A2615: The health of children in sole-parent families in New Zealand: results of a population-based cross-sectional survey

Author: Martin Tobias and Jesse Kokaua

Source: Australian and New Zealand Journal of Public Health, 34, 3 (2010): 274–280

Abstract: Objective: To investigate whether children in sole-parent families in New Zealand bear excess risks of poor mental and physical health relative to children in two parent families. Data sources and statistical methods: The data source was the 2006/07 New Zealand Health Survey, a nationally representative household survey that sampled 502 children (5-14 years) of sole mothers and 1,281 children of partnered mothers. Results: Children of sole mothers were 1.26 (0.94 – 2.69) times as likely as children of partnered mothers to return a low PhS score.

Adjusting for maternal health and family socio-economic disadvantage eliminated this weak association (which in any case was of borderline statistical significance). Children of sole mothers were more than twice as likely as children of partnered mothers to return a low PsS score, adjusting for demographic variables only. Conclusions: There is only a weak negative association (if any) between sole-parenting and child physical health, but a stronger association with child mental health – consistent with most of the New Zealand and international literature. The association with child mental health is largely (but possibly not completely) ‘explained’ by the poorer mental health of sole-parents and the poorer socio-economic circumstances of single-parent families (on average). Implications: These findings support policies aiming to improve access of sole-parents and their children to community mental health services, and (more especially) policies aiming to ameliorate the disadvantaged economic circumstances of single parent families.

Keywords: single parent family, child health questionnaire, New Zealand

A2640: Early Teen Marriage and Future Poverty

Author: Gordon B Dahl

Sources: *Demography*, 47, 3 (2010): 689-718

Abstract: Both early teen marriage and dropping out of high school have historically been associated with a variety of negative outcomes, including higher poverty rates throughout life. Are these negative outcomes due to preexisting differences or do they represent the causal effect of marriage and schooling choices? To better understand the true personal and societal consequences, in this article, I use an instrumental variables (IV) approach that takes advantage of variation in state laws regulating the age at which individuals are allowed to marry, drop out of school and begin work. The baseline IV estimate indicated that a woman who marries young is 31 percentage points more likely to live in poverty when she is older. Similarly, a woman who drops out of school is 11 percentage points more likely to be poor. The results are robust to a variety of alternative specifications and estimation methods, including limited information

maximum likelihood (LIML) estimation and a control function approach. While grouped ordinary least squares (OLS) estimates for the early teen marriage variable are also large, OLS estimated based on individual-level data are small consistent with a large amount of measurement error.

Keywords: Early teen marriage, poverty

A2642: Family and Neighborhood Sources of Socioeconomic Inequality in Children's Achievement.

Author: Narayan Sastry and Anne R. Pebley

Sources: *Demography*, 47, 3 (2010): 777-800

Abstract: We examined family and neighborhood sources of socioeconomic inequality in children's reading and mathematics achievement using data from the 2000-2001 Los Angeles Family and Neighborhood survey. To describe inequality in achievement scores, we used Gini coefficients and concentration indices and multilevel regression models. We found no inequality in children's achievement by family income when other variables in the model were held constant. Mother's reading scores and average neighborhood levels of income accounted for the largest proportion of inequality in children's achievement. Neighborhood economic status appears to be strongly associated with children's skills acquisition.

Keywords: Neighborhood sources, socioeconomic, family sources, children's achievement

A2686: Effects of parental perception of neighbourhood deprivation and family environment characteristics on pro-social behaviours among 4–12 year old children

Author: Andre M. N. Renzaho and Gery Karantzas

Source: *Australian and New Zealand Journal of Public Health*, 34, 4 (2010): 405-411

Abstract: **Objective:** To assess the effect family environment stressors (e.g. poor family functioning and parental psychological distress) and neighbourhood environment on child prosocial behaviour (CPB) and child difficulty behaviour (CDB) among 4-to-12 year old children. **Methods:** Analysis of the 2006 Victorian Child Health and Wellbeing Survey (VCHWS) dataset derived from a statewide cross-sectional telephone survey, with a final total sample of 3,370 children. **Results:** Only family functioning, parental psychological distress, child gender, and age were associated with CPB, explaining a total of 8% of the variance. Children from healthily functioning families and of parents without any psychological distress exhibited greater prosocial behaviours than those from poorly functioning families and of parents with mental health problems. Neighbourhood environment was not found to contribute to CPB. A total of eight variables were found to predict CDB, explaining a total of 16% of the variance. Poor family and parental psychological functioning as well as poor access to public facilities in the neighbourhood were associated with conduct problems in children. **Conclusion:** Our results point to the importance of the family environment in providing a context that fosters the development of empathic, caring and responsible children; and in buffering children in exhibiting behaviour difficulties during the formative years of life. Programs aimed at promoting prosocial behaviours in children need to target stressors on the family environment.

Keywords: Prosocial behavior, child behaviour difficulties, parental psychological distress, family functioning

A2687: Life with a new baby: How do immigrant and Australian-born women's experiences compare?

Author: Mridula Bandyopadhyay and Rhonda Small

Source: Australian and New Zealand Journal of Public Health, 34, 4 (2010): 412-421

Abstract: **Objective:** Little is known about immigrant mothers' experiences of life with a new baby, apart from studies on maternal depression. Our objective was to compare the post-childbirth experiences of Australian-born and immigrant mothers from non-English speaking

countries. Methods: A postal survey of recent mothers at six months postpartum in Victoria (August 2000 to February 2002), enabled comparison of experiences of life with a new baby for two groups of immigrant women: those born overseas in non-English-speaking countries who reported speaking English very well (n=460); and those born overseas in non-English-speaking countries who reported speaking English less than very well (n=184) and Australian-born women (n=9,796). Results: Immigrant women were more likely than Australian-born women to be breastfeeding at six months and were equally confident in caring for their baby and talking to health providers. No differences were found in anxiety or relationship problems with partners. However, compared with Australian-born women, immigrant mothers less proficient in English did have a higher prevalence of depression (28.8% vs 15%) and were more likely to report wanting more practical (65.2% vs 55.4%) and emotional (65.2% vs 44.1%) support. They were more likely to have no 'time out' from baby care (47% vs 28%) and to report feeling lonely and isolated (39% vs 17%). Conclusion and implications: Immigrant mothers less proficient in English appear to face significant additional challenges post-childbirth. Greater awareness of these challenges may help to improve the responsiveness of health and support services for women after birth.

Keywords: Immigrant women, Australian-born women, healthcare services, postnatal depression

A2716: Positive and Negative Experiences of Social Support and Long-term Mortality among Middle-aged Dutch People

Authors: S. Croezen and A. Haveman-Nies

Source: American Journal of Epidemiology, 172, 2 (2010): 173-179

Abstract: This study investigated the relation between positive and negative experiences of social support and mortality in a population-based sample. Data were derived from Dutch men and women aged 20-59 years who participated in the Doetinchem Cohort Study in 1987-1991. Social support was measured at baseline and after 5 years of follow-up by using the Social

Experiences Checklist indicating positive (n = 11,163) and negative (n = 11,161) experiences of support. Mortality data were obtained from 1987 until 2008. Cox proportional hazards regression models, adjusted for age and sex, showed that low positive experiences of support at baseline were associated with an increased mortality risk after, on average, 19 years of follow-up (hazard ratio = 1.26, 95% confidence interval: 1.04, 1.52). Even after additional adjustment for socioeconomic factors, lifestyle factors, and indicators of health status, the increased mortality risk remained statistically significant (hazard ratio = 1.23, 95% confidence interval: 1.01, 1.49). For participants with repeated measurements of social support at 5-year intervals, a stable low level of positive experiences of social support was associated with a stronger increase in age- and sex-adjusted mortality risk (hazard ratio = 1.57, 95% confidence interval: 1.03, 2.39). Negative experiences of social support were not related to mortality.

Keywords: Mortality, Netherlands, hazards models, social support

A2717: Does Educational Status Impact Adult Mortality in Denmark? A Twin Approach

Authors: Mia Madsen and Anne-Marie Nybo Andersen

Source: American Journal of Epidemiology, 172, 2 (2010): 225-234

Abstract: To disentangle an independent effect of educational status on mortality risk from direct and indirect selection mechanisms, the authors used a discordant twin pair design, which allowed them to isolate the effect of education by means of adjustment for genetic and environmental confounding per design. The study is based on data from the Danish Twin Registry and Statistics Denmark. Using Cox regression, they estimated hazard ratios for mortality according to the highest attained education among 5,260 monozygotic and 11,088 dizygotic same-sex twin pairs born during 1921-1950 and followed during 1980-2008. Both standard cohort and intrapair analyses were conducted separately for zygosity, gender, and birth cohort. Educational differences in mortality were demonstrated in the standard cohort analyses but attenuated in the intrapair analyses in all subgroups but men born during 1921-1935, and no effect modification by zygosity was observed. Hence, the results are most

compatible with an effect of early family environment in explaining the educational inequality in mortality. However, large educational differences were still reflected in mortality risk differences within twin pairs, thus supporting some degree of independent effect of education. In addition, the effect of education may be more pronounced in older cohorts of Danish men.

Keywords: Education, mortality, social class, twin study

A2718: Effect of Teenage Parenthood on Mental Health Trajectories: Does Sex Matter?

Authors: Katie Brooks Biello and Heather L. Sipsma

Source: American Journal of Epidemiology, 172, 3 (2010): 279-287

Abstract: Rates of teenage pregnancy and parenthood in the United States remain high. Although many consequences of teenage parenthood have been well studied, little prospective research has examined its effect on mental health. This study aims to better understand the impact of teenage parenthood on mental health and to determine whether sex modifies this relation. Using data from the National Longitudinal Survey of Youth, 1997 (1997-2006), and a matched cohort design, the authors compared changes in the mental health of parenting teenagers and nonparenting teenagers over 6 years of follow-up with mixed-effects regression. The results indicate that mental health improved for all teenagers over 6 years of follow-up. Furthermore, overall, teenage parenthood was not associated with changes in mental health; however, sex modified this relation. Although the mental health of teenage fathers improved at a faster rate compared with nonparenting teenage males, teenage mothers improved at a slower rate compared with nonparenting teenage females. Psychological health has important implications for both the teenage parent and the child. Future studies should aim to better understand the mechanisms through which teenage parenthood impacts mental health among both males and females, and interventions should be developed to ensure mental health among young parents.

Keywords: Adolescent, mental health

A2725: Social and Environmental Stressors in the Home and Childhood Asthma

Authors: Shakira Franco Suglia and Cristiane S Duarte

Source: Journal of Epidemiology and Community Health, 64, 7 (2010): 636-642

Abstract: Background Both physical environmental factors and chronic stress may independently increase susceptibility to asthma; however, little is known on how these different risks may interact. The authors examined the relationship between maternal intimate partner violence (IPV), housing quality and asthma among children in the Fragile Families and Child Wellbeing Study (N=2013). Methods Maternal reports of IPV were obtained after the child's birth and at 12 and 36 months. At the 36-month assessment, interviewers rated indoor housing conditions, regarding housing deterioration (ie, peeling paint, holes in floor, broken windows) and housing disarray (ie, dark, cluttered, crowded or noisy house). At the same time, mothers reported on housing hardships (ie, moving repeatedly, and hardships in keeping house warm). Maternal-report of physician-diagnosed asthma by age 36 months which was active in the past year was the outcome. Results Asthma was diagnosed in 10% of the children. In an adjusted analysis, an increased odds of asthma was observed in children of mothers experiencing IPV chronically (OR 1.8, 95% CI 1.0 to 3.5) and in children experiencing housing disarray (OR 1.5, 95% CI 1.1 to 2.0) compared with those not exposed to these risks. In stratified analyses, a greater effect of IPV on asthma was noted among children living in disarrayed or deteriorated housing or among children whose mothers were experiencing housing hardship. Conclusions IPV and housing disarray are associated with increased early childhood asthma. Exposure to cumulative or multiple stressors (ie, IPV and poor housing quality) may increase children's risk of developing asthma more than a single stressor

Keywords: Asthma, social and environmental stressors

Sociology

A2616: Mothers' intentions to introduce their adolescent to alcohol use: does mothers' alcohol use effect intentions?

Author: Rachel Roberts and Melinda Beckwith

Source: Australian and New Zealand Journal of Public Health, 34, 3 (2010): 281–287

Abstract: Objective: To assess mothers' intentions to introduce their adolescent to alcohol and to examine whether their own alcohol use influences their intentions. Methods: Mothers (N = 161) of children aged 12.5 years (SD = 0.8) completed measures of their alcohol use and their intentions and attitudes towards their children beginning to drink alcohol. Results: Overall, 68% of mothers reported that parents should introduce their children to alcohol at home before they reach the age of 18, (in contrast with NHMRC guidelines, which recommend delaying alcohol use until age 18). While there were some statistically significant differences in mothers' intentions and beliefs according to their own alcohol use, these were small or medium effects, and tended to be differences in degree rather than in kind and not likely to be of practical importance. Conclusions and implications: Introducing their children to the use of alcohol is a role mothers see as important, and one they generally felt sufficiently equipped to carry out. Mothers' intentions to initiate their children into alcohol use were remarkably similar despite differences in mothers' own alcohol use. This suggests that approaches to education and guidance for parents are unlikely to need to take mothers' alcohol use into account when planning ways to support parents in this aspect of their role, at least for mothers of early adolescents.

Keywords: mothers, alcohol, children, adolescents, initiation

A2617: Mothers' awareness of their weight status and concern about their children being overweight: findings from first-time mothers in south-west Sydney

Author: Li Ming Wen and Louise A. Baur

Source: Australian and New Zealand Journal of Public Health, 34, 3 (2010): 293–297

Abstract: **Objective:** To assess mothers' awareness of their weight status and to investigate whether this awareness influences mothers' concerns about their child being overweight or obese. **Design and setting:** An analysis of cross-sectional baseline survey data from the Healthy Beginnings Trial conducted in south-west Sydney, NSW. **Participants:** A total of 667 first-time mothers at 24-36 weeks of pregnancy or within one month after giving birth, who participated in the Healthy Beginnings Trial. **Results:** Forty per cent of first-time mothers were overweight (24%) or obese (16%). Of these women 49% considered their weight acceptable and 21% had little or no concern about their child being overweight and obese. Concern about her child's weight was not dependent on the mother's age, marital status, education, employment, ethnicity or weight status. The only factor associated with concern about children being overweight was the mother's awareness of her own weight status. Mothers who were unaware of being overweight were twice as likely to be unconcerned about their children being overweight as those who were aware of their weight status (RR 1.98, 95% CI 1.19 to 3.29, $p=0.009$). **Conclusions:** There was a low level of awareness of mothers' own weight status, in particular among mothers who were young and less educated. This could lead to a lack of concern about their child being overweight. **Implications:** Early interventions to prevent childhood overweight and obesity need to improve mothers' awareness of their own weight status and appropriate concerns about children being overweight or obese.

Keywords: Overweight and obesity, awareness, survey

A2675: Empowerment of women: A Study in Tripura and Meghalaya

Author: Bholanath Ghosh

Source: South Asian Anthropologist, 10, 1 (2010): 11-28

Abstract: In Meghalaya, the society is commonly known as the matrilineal and the society in Tripura is primarily known as patrilineal. However a survey by the authors in two villages of

each state shows some contradictory results. In Meghalaya we found that around two-third of the families are headed by the males though these families are predominantly tribal. Now even in Tripura female headed households are commonly found in rural areas, especially among the tribal communities. In Tripura we found many women to take part in political activities and they represent in the panchayats in due proportion as is given in constitution though the men normally dominate in different activities and decision making. Where as, in Meghalaya we found hardly any woman to take part in political activities and even in the Dorbars (the local institutions). With the development of socioeconomic conditions and influence of other social groups every society goes through a change over time.

Keywords: Empowerment, women, Tripura, Meghalaya, political participation

A2679: Human Trafficking Problem in Bangladesh: An Anthropological perspective.

Author: N. M. Sajjadul Hoque

Source: South Asian Anthropologist, 10, 1 (2010): 87-95

Abstract: Human trafficking, especially trafficking of women and children, is a repulsive and increasingly worrying phenomenon. The occurrence of trafficking is facilitated by globalization, modern technologies and circumstances in the contemporary capitalist society. The human beings are made to act as forced labor, prostitution and further makes them victims of psychological and physical abuse. Human trafficking deprives people of their human rights and freedom; it is also a global health risk due to infectious diseases like AIDS, etc. No nation is immune from the curse of human trafficking. Recently, women and children trafficking has become a painful reality in Bangladesh. It has been occurring internally and also across the border in India, Pakistan, U>A. E. and many other countries. Every year hundreds of women and children are being trafficked abroad and these large numbers of victims of trafficking are being forced to adapt with the culture of human trafficking. This illegal trade is appalling and morally unacceptable, yet this exists in our society. An attempt has been made to conceptualize the human trafficking problem from anthropological point of view in this paper and to justify that

standpoint the author argues functioning of trafficking is meeting the demand of the developed affluent society and that is why human trafficking, especially women and children trafficking is dominant in the present day opulent society.

Keywords: Human trafficking, sex industry, cultural construction, Bangladesh

A2714: Parents' Ages at Birth and Risk of Adult-onset Hematologic Malignancies among Female Teachers in California

Authors: Yani Lu and Huiyan Ma

Source: American Journal of Epidemiology, 171, 12 (2010): 1262-1269

Abstract: Although advanced parental age at one's birth has been associated with increased risk of breast and prostate cancers, few studies have examined its effect on adult-onset sporadic hematologic malignancies. The authors examined the association of parents' ages at women's births with risk of hematologic malignancies among 110,999 eligible women aged 22-84 years recruited into the prospective California Teachers Study. Between 1995 and 2007, 819 women without a family history of hematologic malignancies were diagnosed with incident lymphoma, leukemia (primarily acute myeloid leukemia), or multiple myeloma. Multivariable-adjusted Cox proportional hazards models provided estimates of relative risks and 95% confidence intervals. Paternal age was positively associated with non-Hodgkin lymphoma after adjustment for race and birth order (relative risk for age ≥ 40 vs. < 25 years = 1.51, 95% confidence interval: 1.08, 2.13; P-trend = 0.01). Further adjustment for maternal age did not materially alter the association. By contrast, the elevated non-Hodgkin lymphoma risk associated with advanced maternal age (≥ 40 years) became null when paternal age was included in the statistical model. No association was observed for acute myeloid leukemia or multiple myeloma. Advanced paternal age may play a role in non-Hodgkin lymphoma etiology. Potential etiologic mechanisms include de novo gene mutations, aberrant paternal gene imprinting, or telomere/telomerase biology.

Keywords: Cohort studies, hematologic neoplasms, maternal age, paternal age

A2715: Self-reported Mental Health and its Gender Differences as a Predictor of Suicide in the Middle-Aged

Author: Jørgen G. Bramness and Fredrik A. Walby

Source: American Journal of Epidemiology, 172, 2 (2010): 160-166

Abstract: Studies of clinical cohorts and retrospective reports have identified psychiatric disorders as paramount risk factors for suicide. Much less is known about how self-reported mental health is related to completed suicide. To study the relation between self-reported mental health and risk of completed suicide, the authors prospectively followed a population-based Norwegian cohort of 61,588 men and 69,774 women aged 39-44 years for an average of 10.4 years between 1994 and 2007. Self-reported mental health was measured using an instrument based on the Hopkins Symptom Checklist and the General Health Questionnaire. Completed suicides were registered in the official Norwegian Cause of Death Registry. Females reported higher levels of mental distress than males. In comparison with persons reporting the fewest mental health symptoms, the adjusted hazard ratio for suicide increased from 1.8 (95% confidence interval (CI): 1.1, 2.9) in the moderately depressed group to 8.9 (95% CI: 4.4, 18.2) in the most depressed group. The risk difference was greatest in males. At each level of the mental health index, males had double the risk of suicide of females (hazard ratio = 2.3, 95% CI: 1.5, 3.3). This study shows a dose-response effect of self-reported mental health problems on completed suicide and replicates the gender paradox observed in the general population with prospective data.

Keywords: Depression, mental health, risk factors, suicide

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