5th Annual Conference
OTAGO INTERNATIONAL HEALTH RESEARCH NETWORK

7th and 8th November 2012
Hunter Centre
University of Otago

PROGRAMME FOR **WEDNESDAY 7 NOVEMBER 2012**

TIME	SESSION
8:30am – 9:00am	Registration and Welcome
8:45am – 9:00am	Pacific Island Dancers
9:00am – 9:10am	Opening Address - Professor Peter Crampton Pro-Vice-Chancellor, Health Science Division
9:10am – 9:30am	Philip Hill - International Health Highlights 2012
SESSION 1	**Water, Sanitation, and Health**
9:30am – 9:45am	Debasish Saha - Water, sanitation, and hygiene and diarrhoeal disease among infants and young children in The Gambia.
9:45am – 10:00am	Rebecca Psutka - Assessing the demographic, behavioural, and environmental characteristics and the potential effectiveness of a household water filter in the pacific island nation Kiribati.
10:00am – 10:30am	***Morning Tea***
SESSION 2	**Nutrition and Non-Communicable Diseases**
10:30am – 10:45am	Trenton Smith - Does economic liberalisation cause obesity?
10:45am – 11:00am	Rebecca Lander - Predictors of haemoglobin and iron status in disadvantaged preschoolers attending daycares in Salvador, NE Brazil.
11:00am – 11:15am	Ibrahim Al Busaidi - The quality of foot care amongst Omani diabetic patients attending primary health care facilities in Muscat, Oman: a pilot study.
11:15am – 11:30am	Kirsten Coppell - The prevalence of diabetes and pre-diabetes in New Zealand: results from the 2008/09 Adult Nutrition Survey.
11:30am – 11:45am	Etienne Nel & Tony Binns - Urban agriculture on the Copperbelt in Zambia: an update of on-going research.
11:45am – 12:00pm	Saifagaloa Sala - Working towards an improved histopathology service in Samoa through internship in the Southern Community Laboratories in Dunedin Public Hospital.
12:00pm – 1:00pm	***Lunch***
SESSION 3	**Tuberculosis and Leprosy**
1:00pm – 1:15pm	Merrin Rutherford - An evaluation of gaps and barriers to childhood tuberculosis control: Failures of child contact management explained.
1:15pm – 1:30pm	Bachti Alisjabana - Tuberculosis studies in the Medical Faculty, Universitas Padjadjaran.
1:30pm – 1:45pm	Merrin Rutherford - Risk factors for treatment default in adult tuberculosis patients in urban Indonesia.

1:45pm – 2:00pm	Stephen Chambers - Assessment of potential causes of falsely positive *Mycobacterium tuberculosis* breath test.
2:00pm – 2:15pm	Rovina Ruslami - Intensified antibiotic treatment for TB meningitis: a randomized controlled trial.
2:15pm – 2:30pm	Philip Hill - TANDEM: Concurrent Tuberculosis and Diabetes Mellitus: unravelling the causal link, and improving care – a multi-site study funded by the European Union FP7 programme.
2:30pm – 2:45pm	Stephen Chambers - Leprosy in the Pacific: elimination, eradication or laissez faire?
2:45pm – 3.15pm	***Afternoon Tea***
SESSION 3	**Anthropology and Human Behaviour**
3:15pm – 3:30pm	Steven Stillman - The impact of migration on child and adult health: an overview of experimental evidence from a migration lottery program.
3:30pm – 3:45pm	Christina Stantis - Diet and migration in prehistoric Polynesia: a bioarchaeological approach.
3:45pm – 4:00pm	Jarrod Moors - To probe the role of Adipoq genetic variants on gout risk in Pacific Island, Maori and Caucasian populations.
4:00pm – 4:15pm	Rebecca Kinaston - Palaeodiet and prehistoric health during Lapita and post-Lapita periods in Vanuatu (3000-2300 BP).
4:15pm – 4:30pm	Aimee Foster - Diffuse hyperostosis in a 3000-year-old Pacific Island skeletal assemblage.
4:30pm – 4:45pm	Berk Özler - The impact of voluntary counselling and testing on sexual behavior and education.
4:45pm – 5:00pm	Susan Heydon - Talking to Nepalese Sherpas about taking medicines.
5:30pm – 6:30pm	**KEYNOTE ADDRESS: McKinlay Oration** **Professor Stephen Luby** **Professor of Medicine, Division of Infectious Diseases** **Deputy Director for Research, Center for Global Health Innovation** **Stanford University** **'Global water shortages and health: agenda for the coming decades'** **Venue: Colquhoun Lecture Theatre, 1st Floor Dunedin Hospital** **ALL ARE WELCOME**

PROGRAMME FOR **THURSDAY 8 NOVEMBER 2012**

Time	Session
SESSION 5	**International Funding panel**
9:00am – 9:45am	International Funding Panel - Stephen Luby, Philip Hill, David Murdoch, John Crump.
9:45am – 10:00am	Discussion
10:00am – 10:30am	***Morning Tea***
SESSION 6	**Maternal and Child Health**
10:30am – 10:45am	Lien Trinh - Abortions amongst Asian women in New Zealand: what do we know?
10:45am – 11:00am	Brian Darlow - Impact on outcomes of prematurity of an educational package for neonatal nurses in six neonatal units in Rio de Janeiro, Brazil.
11:00am – 11:15am	David Murdoch - Update on Pneumonia Etiology Research for Child Health (PERCH) study.
11:15am – 11:30am	Sarah Baird - Worms at work: long-run impacts of child health gains.
11:30am – 11:45am	Apsara K Nepal - Does parents' education translate into better health outcomes of children? An empirical analysis using national data from Nepal.
SESSION 7	**Health, Conflict, and Disasters**
11:45am – 12:00pm	Lucie Collinson - A hospital record audit of intentional injuries to assess the quantity and quality of data provided to the Liberian Armed Violence Observatory.
12:00pm – 12:15pm	Sultan Al-Shaqsi - Global disasters: patterns, impacts and Angelina Jolie.
12:15pm – 12:30pm	Lucie Collinson - Where media worker homicide is worst: the epidemiology of media worker homicide in Iraq (2003-2011).
12:30pm – 1:15pm	***Lunch***
SESSION 8	**OneHealth**
1:15pm – 1:30pm	Ann Horsburgh - The evolution of Africa's domestic cattle: evidence from complete mitochondrial genomes of modern and archaeological specimens.
1:30pm – 1:45pm	Jackie Benschop - Leptospirosis: epidemiology at the human-animal interface.
1:45pm – 2:00pm	Nigel French - Source attribution for enteric zoonoses: a tool for prioritisation in both developed and developing countries?
2:00pm – 2:15pm	John Crump - Etiology of non-malaria fever among hospitalised patients in northern Tanzania.
2:15pm – 2:30pm	Dan Tompkins - Exploring the potential for Ross River virus emergence in New Zealand.
2:30pm – 2:45pm	Stephen Luby - Epidemiology of human Nipah virus infection.
2:45pm – 3:15pm	***Afternoon Tea***

SESSION 9	Information Technology and Health Systems
3:15pm – 3:30pm	Alec Holt – Perspectives on on-line and mobile health information.
3:30pm – 3:45pm	David Matusiewicz - Risk adjustment and risk selection on the sickness fund in European countries – best practice Germany?
3:45pm – 4:00pm	Geneva Pritchard - The power of partnership in delivery of health care services: a case study on the Thailand-Myanmar border.
4:00pm – 4:30pm	**Prize-giving and Closing**

WATER, SANITATION, AND HYGIENE AND DIARRHOEAL DISEASE AMONG INFANTS AND YOUNG CHILDREN IN THE GAMBIA

Debasish Saha[1, 2], Mitchel Adeyemi[2], Katrina Sharples [1], John Crump [1], Martin Antonio[2], Grant Mackenzie [2], Philip Hill[1]

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BACKGROUND:

Globally, diarrhoeal disease is the second leading cause of morbidity and mortality in children aged <5 years. Improvements in water sanitation and hygiene (WASH) led to a marked reduction in diarrhoeal disease in the industrialized world. However, many developing countries continue to experience unacceptable levels of diarrhoea associated illness and death.

METHOD:

In a case control study we evaluated the existing WASH system in Basse, in rural Gambia by assessing its relationship with diarrhoeal disease in <5 year old children. Cases were enrolled from the health centres and the age, sex and area matched controls were selected from the community. Analysis of risk factors was done by conditional logistic regression.

RESULT:

We enrolled 1,029 diarrhoea cases and 1,569 controls. The study revealed children who used unsafe water were more likely to develop diarrhoea [170 (16.5%) cases vs. 219(14.0%) controls (OR 1.6; 95% CI: 1.2-2.3, p 0.004)]. Water was stored within the homes of 814(79.0%) cases compared with 766(49.0%) of the controls (OR 6.1; 95 CI: 4.8-7.7, p<0.001). The majority of the case, 989 (96.1%), and control, 1,551(99.0%) households used a traditional pit latrine. Washing hands with disinfectant was protective [761(74.0%) cases and 1,248(80.0%) controls (OR 0.7; 95% CI: 0.6-0.9, p 0.001)].

CONCLUSION:

There is a need to improve WASH conditions alongside drug discovery and vaccine development for the containment of the diarrhoeal disease in children in rural Africa.

ASSESSING THE DEMOGRAPHIC, BEHAVIOURAL, AND ENVIRONMENTAL CHARACTERISTICS AND THE POTENTIAL EFFECTIVENESS OF A HOUSEHOLD WATER FILTER IN THE PACIFIC ISLAND NATION KIRIBATI

Rebecca Psutka[1], Patricia Priest[1], Tieren Davies[2], and Steven Iddings[3]

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[2]Ministry of Health and Social Development, Republic of Kiribati
[3]World Health Organisation, Cambodia

BACKGROUND:

An assessment of diarrhoea burden and household hygiene and an estimate if a domestic water filter introduced in this setting is likely to improve community health.

Methods: Reported child and adult diarrhoea in the past 7-days and month, household demographics, water sources, handling, treatment, and storage practices as well as other hygiene and sanitation behaviours were assessed using a cross-sectional survey of randomly selected households in South and North Tarawa, Kiribati.

RESULTS:

Of 802 individuals from 97 randomly selected households, one in four children younger than 5 years had experienced diarrhoea in the past month and 7% in the past week. Drinking water was less contaminated than source water ($p=0.05$), and drinking water that had been boiled was significantly less contaminated than source water (1 tailed t test; $p=0.014$). In this setting, 34% mothers and 57% of their children practice open defecation. Handwashing was not common, reported by 40, 23, and 28% of mothers after defecation, handling child faeces, and before eating, respectively. Almost all (91%) households stored water, but only 24% used safe-storage containers. Eighty-six percent of households reported they usually boil water. Poor hygiene and sanitation practices were associated with an increased risk of childhood diarrhoea in the last 7 days and last month.

CONCLUSION:

Any water quality improvement is unlikely to ameliorate dominant waterwashed pathways of diarrhoea transmission. Nearly all households boil water so substitution of a filter is unlikely to improve water quality since both methods leave water vulnerable to recontamination and neither provides residual disinfectant.

PREDICTORS OF HAEMOGLOBIN AND IRON STATUS IN DISADVANTAGED PRESCHOOLERS ATTENDING DAYCARES IN SALVADOR, NE BRAZIL.

[1]RL Lander, [1]KB Bailey, [1]AG Lander, [2]AA Alsaleh,[3]HC Costa-Ribeiro, [3]AP Mattos, [3]DL Barreto, [4]SM Williams, [2]IM Morison, [1]L Houghton, [1]RS Gibson

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The Brazilian government introduced mandatory iron and folate fortification of cereal flours and universal iron supplementation in response to the high prevalence of anaemia in young children, assumed to be caused by iron deficiency. However the aetiology of anaemia is multifactorial: several micronutrients, genetic, and parasitic diseases may all play a role. We investigated the prevalence of anaemia and predictors of haemoglobin (Hb) in disadvantaged preschoolers (n=376) aged 3-6 y attending 7 day-cares in Salvador. Factors assessed included micronutrient status (Fe, folate, vitamin B12, vitamin A, and Se biomarkers), Hb disorders, parasitic infections, socio-demographic status, and health variables. The prevalence of anaemia and storage iron depletion was low (≤7.5%), despite ~33% with parasites and genetic Hb disorders. Homozygous (n=6) or heterozygous $\alpha^{3,7}$ thalassemia (n=70) were most common and negative predictors of Hb ($p<0.01$), whereas serum selenium and retinol (but not ferritin) were positive predictors ($p<0.05$). No associations were found between either Hb or iron status with helminths, deworming treatment, SES, recent coffee intake, iron or vitamin A supplementation, smoking in the house, ethnicity, birthweight, or sex. The unexpectedly low prevalence of anaemia and iron deficiency was attributed to the regular supply of haem iron from 80 g/d animal source foods and non-haem iron from legumes and fortified cereal flours from the weekday daycare meals.

THE QUALITY OF FOOT CARE AMONGST OMANI DIABETIC PATIENTS ATTENDING PRIMARY HEALTH CARE FACILITIES IN MUSCAT, OMAN: A PILOT STUDY.

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[2] Department of Researches and Studies, Ministry of Health, Muscat, Sultanate of Oman

BACKGROUND:

Diabetes prevalence is increasing worldwide. Amputation is one of the major complications of diabetes mellitus, but it can be prevented. The quality of diabetic foot-care in Oman is not known. This pilot study assessed the quality of diabetic foot care provided by primary health-care professionals reported by patients.

METHODS:

310 consecutive Omani diabetic patients attending eight primary health care centres in Muscat, Oman were invited to complete an interviewer-administered questionnaire. The questionnaire enquired about demographic details, patient-reported diabetes-related foot disease, foot self-care, foot-care education, and professional foot-care. Proportions and means were calculated as appropriate.

RESULTS:

Mean age was 55 ± 12 years. Despite the presence of diabetes-related foot complications in this population (foot ulceration: 9.4%, lower limb amputation: 1.3%), basic foot self-care practices were suboptimal; for example, 41% reported looking at the bottoms of their feet daily, 56% reported using moisturising creams or lotions between their toes daily. Less than one-half of respondents reported receiving education on recommended foot-care activities. During the previous year, only 20% were seen by a podiatrist.

CONCLUSIONS:

Foot disease was common in this group of Omani diabetic patients. From the patient perspective there is a need for high quality diabetic foot-care education to reduce diabetic foot complications.

THE PREVALENCE OF DIABETES AND PRE-DIABETES IN NEW ZEALAND: RESULTS FROM THE 2008/09 ADULT NUTRITION SURVEY

Kirsten J Coppell[a], Jim Manna,[b], Sheila Williams[c], Paul Drury[d], Emmanuel Joe, Winsome Parnell[b].

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BACKGROUND:

In New Zealand previous national diabetes prevalence estimates have not included undiagnosed diabetes cases, thus the actual burden of disease has been underestimated. Data from the 2008/09 New Zealand Adult Nutrition Survey provided an opportunity to report the prevalence of diabetes and pre-diabetes in adult New Zealanders.

METHODS:

Diabetes was defined as self-reported diabetes, undiagnosed diabetes as HbA1c ≥ 6.5% but not self-reported, and pre-diabetes as HbA1c between 5.7% and 6.4%, but not self-reported. Data were weighted, and proportions were calculated for men and women, 10-year age groups and ethnic groups.

RESULTS:

The prevalence of self-reported diabetes was 6.0% (95% CI: 4.5, 7.5) among men and 4.0% (95% CI: 3.1, 4.8) among women. Undiagnosed diabetes prevalence was 2.1% (95% CI: 1.2, 3.0) among men and 1.5% (95% CI: 1.0, 2.0) among women. Diabetes (self-reported and undiagnosed) was more common among Maori men (8.8%) and women (9.8%), and Pacific men (15.7%) and women (14.2%), compared with New Zealand European/Others men (7.6%) and women (4.5%).

CONCLUSION:

Both diabetes and pre-diabetes are very common in the New Zealand population, particularly among Maori and Pacific peoples. Effective evidence based prevention programmes are necessary to reduce the increasing costs of the diabetes epidemic.

URBAN AGRICULTURE ON THE COPPERBELT IN ZAMBIA : AN UPDATE OF ON-GOING RESEARCH

Tony Binns, Etienne Nel, and Jessie Smart

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Urban agriculture is now widely recognized as both an inevitable and a legitimate response to the lack of economic opportunities available to the residents of the burgeoning cities of the Global South. Unfortunately many governments still adopt a negative response to the growing of crops in urban areas, leading to the destruction of crops and enhanced suffering on the part of the poor. One area of the Global South which has been particularly hard-hit by economic change is the once thriving Copperbelt of Zambia where the collapse of once prosperous mines and industries from the 1990s has forced the majority of the population into a reliance on informal livelihood strategies and urban agriculture. Partially in response to the scale of economic loss, the City Council of Ndola, in a move which is virtually unique in Africa, has decided to overtly support urban agriculture through policy support, collaboration with key stakeholders, including the Ministry of Agriculture and efforts to leverage infrastructural and financial support. This paper presents an update of our recent findings and is based on fieldwork in the area undertaken from 2010-12. An overview of the scale of the economic loss the area has experienced is provided, the key role which urban agriculture now plays in people's livelihoods is outlined and emphasis is placed on an assessment of the impact of policy support. The latter leads into a discussion on what impact the Ndola City Council has had, what else the city still needs to do and the broader implications of such support for cities elsewhere in Africa.

WORKING TOWARDS AN IMPROVED HISTOPATHOLOGY SERVICE IN SAMOA THROUGH INTERNSHIP IN THE SOUTHERN COMMUNITY LABORATORIES IN DUNEDIN PUBLIC HOSPITAL.

Saifagaloa Sal[1,2] and Ian Morison[3]

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[2] Department of Anatomy, University of Otago, NZ
[3] Department of Pathology, University of Otago, NZ

Samoa's pathology service is negatively affected by the worldwide shortage of pathologists. A new initiative to train technical staff to perform the initial stage of histology specimen processing, "Cut up" has immensely improved turn-around-time (TAT) and availability of pathology reports. This has led to more timely treatment, for example, of cancer patients among others. However there still is an enormous need for local staff to enhance the required skills, including that of cut up, which is usually performed by medical personnel. A New Zealand Agency for International Development (NZAID) Pacific Scholarship has provided the opportunity to acquire these vital skills through the University of Otago School of Medical Sciences. Part of my set degree program includes undertaking an internship in the Pathology Laboratory at the Dunedin Public Hospital. This presentation highlights how this work and training in Otago adds value to my work in Samoa and the aim to eventually achieve Telepathology as a means to sustainable histopathology service.

AN EVALUATION OF GAPS AND BARRIERS TO CHILDHOOD TUBERCULOSIS CONTROL: FAILURES OF CHILD CONTACT MANAGEMENT EXPLAINED.

ME Rutherford[1,2], N Yulianti[3], M Alselmo[1], W Maharani[2], R van Crevel[4], R Ruslami[2], PC Hill[1]

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[3] Bandung Community Health Centre, Bandung, Indonesia
[4] Radboud Medical Centre, Radboud University, Nijmegen, The Netherlands

BACKGROUND:

Screening and isoniazid preventive therapy (IPT) in children ≤5yrs living with smear positive adult TB cases is WHO recommended. However poor child contact management (CCM) has not been successful in high burden, low-resource settings for many reasons. Successful CCM programs need to be developed.

METHODS:

To evaluate CCM performance indicators for all CCM aspects were developed. Child contacts aged ≤15yrs, health careworkers (HCW) and child contact's primary caregivers (PCG) were recruited to evaluate CCM indicators. Outcomes for individual indicators were compared to standardised targets and gaps were calculated.

RESULTS:

755 child contacts, 22 HCW and 22 PCG were included in the study. Considerable gaps were seen for screening compliance (82% gap), diagnostic accuracy (13- 69% gap depending on indicator), IPT initiation (29% gap), adherence (54% gap) and cost (16% gap). Knowledge and acceptability of HCW regarding CCM was poor while PCG had good knowledge of screening but were unaware of IPT. PCG CCM uptake was significantly hindered by poor accessibility and high CCM costs.

CONCLUSION:

Considerable gaps were highlighted by the CCM evaluation and provide clear guidance for assessing options for targeted interventions. Employing structured indicators for CCM assessment was useful and can be employed successfully at other settings where CCM is failing.

TUBERCULOSIS STUDIES IN THE MEDICAL FACULTY, UNIVERSITAS PADJADJARAN

Bachti Alisjahbana

Health Research Unit, Hasan Sadikin General Hospital, Medical Faculty, Padjadjaran University, Bandung, Indonesia

Indonesia has the 5th highest TB case load globaly with an estimated incidence of 189/100,000. TB is regarded as high priority and Indonesia has achieved WHO's case detection rate targets, however, TB remains a significant public health problem.

In early 2000 we established a large cohort of TB patients and neighborhood controls to address TB immunological and genetic questions. The cohort exposed low diagnostic success, a high precentage of TB patients with diabetes, high failure rates among these patients and possible mechanisms related their failure. Mtb strain types circulating in Indonesia were also identified.

Currently our research group remains active in these areas as well as in pharmacokinetics and its application in TB meningitis, implementation of latent TB treatment and management of TB-HIV. Wider scope of immunogenetic and bacteriological studies are being developed in several regions in Indonesia that may give information on geographical diversity MTb strains and its host suceptibility pattern.

With these efforts we aim to contribute significantly to the Indonesian TB control program and hope to make Indonesia a model of succesful TB control.

RISK FACTORS FOR TREATMENT DEFAULT IN ADULT TUBERCULOSIS PATIENTS IN URBAN INDONESIA

ME Rutherford[1,2], M Maharani[2], H Sampurno[3], PC Hill[1], R Ruslami[2]

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[2] Health Research Unit, Padjadjaran University, Bandung, Indonesia
[3] Bandung Community Lung Clinic, Bandung, Indonesia

BACKGROUND:

Patient default from treatment is a major barrier to successful tuberculosis control programs. In Indonesia default rates remain unacceptably high, nationally at 5% in 2005 and exceeding 14% at the study lung clinic.

METHODS:

We recruited adult pulmonary TB patients who were diagnosed and received medication in a lung clinic in Bandung Indonesia. Information regarding possible pre and during treatment risk factors for defaulting was gathered using structured interviews at baseline and at two months. Treatment default was defined as a pre-commencement default (not starting treatment after diagnosis), and permanent default (stopping treatment for more than 2 months after one month of treatment). Risk factors were analysed by logistic regression.

RESULTS:

262 patients were recruited. Overall 12% defaulted treatment of which, 20% were pre-commencement, and 80% were permanent default. The majority of permanent default occurred in month 2 (32%). The most common reasons for default were a lack of time to collect medication and problems with the medication itself.

CONCLUSIONS:

In this setting default rates remain high, occur early in treatment and are driven by poor accessibility. By increasing clinic accessibility may be reduced in this and similar settings.

ASSESSMENT OF POTENTIAL CAUSES OF FALSELY POSITIVE *MYCOBACTERIUM TUBERCULOSIS* BREATH TEST

Amy Scott-Thomas, Mona Syhre, Michael Epton, David R Murdoch, and Stephen T Chambers

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BACKGROUND

A suite of volatiles has previously been identified as specific markers of Mycobacterium tuberculosis metabolism in vitro. These markers - methyl phenylacetate, methyl p-anisate, methyl nicotinate, o-phenylanisole and methyl salicylate may have potential as breath markers of pulmonary tuberculosis. An initial study I Papua New Guinea suggested that methyl nicotinate was elevated in fasting, non smoking subjects with smear positive pulmonary tuberculosis. However these compounds may also be derived from other sources and confound development of a breath test for tuberculosis.

METHODS

To identify potential sources of these potential biomarkers food products, cosmetics, TB medication, environmental air and cigarette smoke were analysed for these markers using solid phase microextraction coupled with Gas Chromatography/Mass Spectrometry. Breath from healthy subjects, including smokers were also tested.

RESULTS

Methyl salicylate was commonly detected in multiple foods and the environment, making this unsuitable as a specific marker for M. Tuberculosis. Methyl nicotinate was present in some food but was also found commonly in cigarette smoke. Methyl phenylacetate was detected in 1.7% of healthy subjects and o-phenylanisole in just 1% of healthy breath indicating these may be more suitable for inclusion in the tuberculosis breath test due to their low "background" level.

CONCLUSION

Further clinical studies are warranted to determine whether Methyl phenylacetate or o-phenylanisole are present in the breath of patients with pulmonary tuberculosis and may serve as a useful marker of infection.

INTENSIFIED ANTIBIOTIC TREATMENT FOR TB MENINGITIS; A RANDOMIZED CONTROLLED TRIAL

Rovina Ruslami[1] ,A Rizal Ganiem[2] , Sofiati Dian[2], Lika Apriani[3], Tri H. Achmad[4], Andre J van der Ven[5], George Borm[6], Rob E Aarnoutse[7], Reinout van Crevel5

[1] Dept. of Pharmacology and Therapy, [2]Dept. of Neurology, [3] Health Research Unit, [4] Dept. of Biochemistry, Faculty of Medicine, Universitas Padjadjaran/Hasan Sadikin Hospital, Bandung, Indonesia; [5] Dept. of Internal Medicine, [6] Dept. of Epidemiology, Biostatistics and Health Technology Assessment, [7] Dept. of Pharmacy, Radboud University Medical Centre, Nijmegen, the Netherlands

BACKGROUND

Intensified antibiotic treatment may improve outcome of TB meningitis (TBM). We examined pharmacokinetics, safety and survival benefit of several treatment regimens containing high-dose rifampicin and moxifloxacin for TBM in Indonesia.

METHODS

Sixty TBM patients were randomized to rifampicin standard-dose (450mg) orally, or high-dose (600mg) i.v., and (in a second randomization) to moxifloxacin 400mg, moxifloxacin 800mg, or ethambutol 750mg once daily. All patients received standard dose isoniazid, pyrazinamide and adjunctive corticosteroids. After 14 days of treatment all patients continued with standard TB treatment. Endpoints included pharmacokinetic assessments in blood and cerebrospinal fluid, adverse events attributable to TB treatment and survival.

RESULTS

Sixty patients were randomized; they were mainly at the grade II TBM (81%). Intensified antibiotic treatment was associated with significantly higher drug exposure but no increase in toxicity. Six-month mortality was substantially lower in patients receiving high-dose rifampicin intravenously (HR 0•42, 95% CI 0•20-0•87), and this was not explained by HIV-status or severity of disease at time of presentation.

CONCLUSION

TB treatment containing a higher-dose of rifampicin i.v. and standard or high-dose moxifloxacin during the first two weeks is safe, and that high-dose rifampicin i.v. improves survival of patients with severe TBM.

Key words: antibiotic, tuberculosis, meningitis, RCT

TANDEM: CONCURRENT TUBERCULOSIS AND DIABETES MELLITUS; UNRAVELLING THE CAUSAL LINK, AND IMPROVING CARE – A MULTI-SITE STUDY FUNDED BY THE EUROPEAN UNION FP7 PROGRAMME.

Philip C Hill on behalf of the 'TANDEM' investigators

In 2012, 9 million people will have been diagnosed with tuberculosis, and an estimated 366 million people live with diabetes mellitus (DM). Those with DM have three times the risk of developing active TB compared to the non-DM population and there are more TB patients with concomitant DM than are co-infected with HIV. It is estimated that DM now accounts for over 10% of TB cases worldwide, and this will increase significantly in the coming decades. In 2011 the International Union Against TB and Lung Disease and the World Health Organization published a 'Collaborative Framework for Care and Control of Tuberculosis and Diabetes' to establish a co-ordinated response to the co-epidemic. Important data are lacking to improve care for patients with concomitant DM and TB. Firstly, screening of TB patients for DM could improve case detection, early treatment and secondary prevention of DM. However, such screening is not routinely performed in most settings, and the optimal and most cost-effective approach has yet to be defined. Similarly, diabetes is associated with increased TB treatment failure, death and relapse but it is uncertain if optimal glucose control can reduce these effects. It is also uncertain how optimal glucose control is best achieved in the presence of anti-TB treatment. Finally, no study has examined the treatment needs of TB patients with newly diagnosed DM once TB treatment is completed. While screening of TB patients for DM will increase early diagnosis and treatment of DM, DM that is identified through screening of TB patients is likely to be different from DM in the general population. Therefore, the requirements for lifestyle interventions and antidiabetic, antihypertensive, lipid-lowering and other medication for TB-associated DM need to be defined. From a pathophysiological point of view, data on the interaction of TB and DM are scarce. Identification of diagnostic biomarker signatures may lead to the early identification of high risk groups, and the monitoring of (un)successful responses to treatment. The TANDEM consortium will use a comprehensive and integrated approach combining clinical, epidemiological and cutting edge expertise in laboratory sciences. We have brought together a multi-disciplinary consortium linking field sites in 4 TB-endemic countries that are experiencing a rapid growth of DM (Romania, Peru, South Africa, Indonesia), with leading laboratories in 4 European countries (Germany, United Kingdom, Netherlands, Romania). We aim to: identify feasible, accurate and cost-effective ways of screening TB patients for diabetes, and determine the prevalence of DM among TB patients and of TB in DM patients in different geographic areas; determine the level of DM management required during and after TB treatment, and the effect of glucose control on TB treatment outcome; identify key pathways which may account for enhanced susceptibility to, and poorer treatment outcomes of TB-DM by comparing gene expression and biomarker profiles in TB patients with, compared to those without, DM; and establish the cellular and molecular basis responsible for the causal link between diabetes and TB.

LEPROSY IN THE PACIFIC: ELIMINATION, ERADICATION OR LAISSEZ FAIRE?

ST Chambers

Department of Pathology, University of Otago Christchurch, Department of Infectious Diseases, Christchurch Hospital, Board Member, Pacific Leprosy Foundation.

Leprosy is an ancient scourge that persists in defined geographical areas of the world and is closely associated with poverty and crowding. In 1998 WHO passed a resolution making elimination of leprosy as a public health problem a priority. By this they mean achieving a prevalence of less than 1 case per 10,000 people. This is a threshold under which leprosy is thought likely to die out.

Unfortunately the prevalence has failed reach the set targets in many areas. In the Pacific region the Federated states of Micronesia (196 new cases 2011, pop 111,000) , Kiribati (111 new cases 2011, pop 100,000 people), and Marshall Island (106 cases, population 54,000) have high rates. There are new cases and transmission on going in the Solomon Islands, Samoa and other Pacific nations. This year WHO has launched a new initiative for the elimination of 17 neglected diseases including leprosy, yaws, lymphatic filariasis and trachoma that are relevant to the Pacific region.

Understandably leprosy is seen as just one of many pressing health issues that require health resources. These include both old foes tuberculosis, as well as increasing numbers of cases of diabetes, heart disease and hypertension, but this new initiative offers a chance to re-focus on control of leprosy in the Pacific. Leprosy programmes must of necessity be part of a larger health projects but risk falling below the radar as numbers of cases are reduced unless specific attention is given to it.

What should the target be? The WHO has a target of elimination (less that 1 case per 10,000 population) which then assumes that the disease will naturally die out. This may not occur if crowding is a major issue and there are undiagnosed pockets of disease. An alternative is eradication which may be possible in very limited geographic areas, such as Pacific Islands, where the population is accessible and there is limited or controllable movement into and from the country.

THE IMPACT OF MIGRATION ON CHILD AND ADULT HEALTH: AN OVERVIEW OF EXPERIMENTAL EVIDENCE FROM A MIGRATION LOTTERY PROGRAM

Steven Stillman, University of Otago, Dunedin, New Zealand
John Gibson, University of Waikato, Hamilton, New Zealand
David McKenzie, Development Research Group, The World Bank, Washington DC, USA
Halahingano Rohorua, University of Waikato, Hamilton, New Zealand

BACKGROUND

How does migration impact the health of migrants and their children? Determining this requires a comparison of an individual's current health to what their health would have been had they stayed in their home country. The latter is unobserved, and is usually proxied by the health of stayers. However, this approach cannot account for unobserved differences between migrants and non-migrants that are related to health status.

METHODS

We use a natural experiment comparing successful and unsuccessful applicants to a migration lottery to experimentally estimate the impact of migration from Tonga to New Zealand on child anthropometrics, adult mental health, blood pressure and hypertension, and household diets.

RESULTS

We find that migration leads to improvements in adult mental health, especially for women and those with low initial mental health, migrant children having higher weight-for-age and height-for-age and a richer diet, and adult migrants having higher blood pressure and hypertension rates.

CONCLUSION

Our findings demonstrate the migration can have complex impacts on child and adult health and that simple comparisions of outcomes for migrants to non-migrants are unlikely to reveal these impacts. This occurs because migrants are not randomly selected from the population and what is different about them cannot be easily captured in survey data.

DIET AND MIGRATION IN PREHISTORIC POLYNESIA: A BIOARCHAEOLOGICAL APPROACH

Christina Stantis[1]

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This presentation outlines a Ph.D. project that examines diet and migration in Pre-Contact Tonga using a skeletal collection housed at the University of Otago. Dental markers of diet (i.e., caries, calculus, periodontal disease, etc.) have been examined, and preliminary results will be presented. With the permission of the Tongan people, isotopic analyses (δ13C, δ15N, δ34S, 87/86Sr, 88/86Sr, 207/206Pb and 208/206Pb) will be used in the second step of this project as a method for better understanding diet and mobility in individuals. In addition, nonmetric dental markers, indicators of shared genetic origins, can aid in the understanding of how the population is composed of different groups sharing genetic origins, and might highlight outliers (i.e., potential non-locals) in the population. This project aims not only to better understand Pre-Contact Tongan diet and movement (and the consequences of both), but to place the population studied within the biocultural framework of modern health sciences that emphasises a holistic understanding of cultural constructions, individual agency, and ecological impact.

TO PROBE THE ROLE OF ADIPOQ GENETIC VARIANTS ON GOUT RISK IN PACIFIC ISLAND, MAORI AND CAUCASIAN POPULATIONS.

Jarrod M. Moors[1, 2], Tony R. Merriman[2]

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BACKGROUND:

Gout is a painful and common form of arthritis. Pacific Island and Maori people have an increased predisposition to gout. Gout is also associated with other metabolic conditions such as obesity and type 2 diabetes (T2D). Common genetic variants within the ADIPOQ gene are associated with T2D, obesity and insulin resistance making them ideal candidate variants for a role with gout. The aim was to probe the role of AdipoQ in gout risk using the case-control approach.

METHODS:

ADIPOQ genetic variants (rs266729, rs1501299) were genotyped using the Taqman assay over patients 420 Caucasians, 315 Cook Islands and NZ Maori (Eastern Polynesia) and 249 from Samoa, Tonga, Niue and Tokelau (Western Polynesia). Controls were 638 Caucasians, 255 from Eastern Polynesia and 144 from Western Polynesia. All sample sets were analyzed individually and collectively meta-analyzed.

RESULTS:

The rs266729 minor variant (G) and rs1501299 minor variant (T) were found to have a trend towards protection against gout.

CONCLUSION:

This study provides evidence that ADIPOQ has no association with gout. But given the association of gout with the metabolic syndrome and the role of ADIPOQ in other metabolic functions further study of this gene could possibly illuminate the relationship between gout and the metabolic disorder.

PALAEODIET AND PREHISTORIC HEALTH DURING LAPITA AND POST-LAPITA PERIODS IN VANUATU (3000-2300 BP)

Rebecca Kinaston[1], Hallie Buckley[1], Stuart Bedford[2] and Stuart Hawkins[2]

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Lapita populations were the first settlers of Remote Oceania, including Vanuatu, reaching the archipelago c. 3100 BP. The specific nature of Lapita subsistence has long been debated and little is known about the effects of colonisation on human health during this period. This paper reports the stable isotope analysis ($\delta^{13}C$, $\delta^{15}N$ and $\delta^{34}S$) of Lapita and post-Lapita burials (n=24) from Uripiv Island, Northeast Malekula (~3000-2300 BP) in an attempt to enhance our understanding of diet and subsistence during this formative period of Vanuatu's past. Additionally, the analysis of linear enamel hypoplasia (LEH) is used as a non-specific indicator of stress to understand the influence of environmental stress (e.g. poor nutrition and disease) on childhood health. The stable isotope evidence indicates that Lapita-associated individuals were consuming protein resources from the reef, inshore and terrestrial environments. During the post-Lapita period there was a transition to lower trophic level terrestrial protein resources, likely starchy root vegetables. The available dental material was limited and temporal trends could not be analysed in detail, but the prevalence of LEH suggests there was a high degree of environmental stress during both initial colonisation and the subsequent settlement of Uripiv, which may have been associated with diet.

DIFFUSE HYPEROSTOSIS IN A 3000-YEAR-OLD PACIFIC ISLAND SKELETAL ASSEMBLAGE

Aimee Foster[1], Hallie Buckley[1], Nancy Tayles[1], Stuart Bedford[2] and Matthew Spriggs[3]

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Analysis of skeletal remains from the Teouma, Vanuatu cemetery site (3000 BP) has revealed a particularly high prevalence of bone proliferation at entheses and joints of the axial and appendicular skeleton. In this paper we explore the potential influence of two conditions – fluorosis and diffuse idiopathic skeletal hyperostosis (DISH) – that produce similar patterns of bone proliferation in the skeleton. Differentiation between these conditions in the Teouma collection is difficult due to the preservation of the skeletal material, and there is evidence to support the implication of both. Fluorosis has been identified as having a significant impact on dental health in regions of present-day Vanuatu affected by volcanic activity, and it is possible that such factors may have influenced the health of the archipelago's inhabitants in the past. DISH has been linked to diets high in protein, which is consistent with isotopic analyses of the Teouma individuals, and is also associated with the metabolic syndrome and with gout, conditions which occur in high frequencies in Pacific Island populations today. Gout has also been identified in the Teouma remains, suggesting a role for metabolic factors in the observed patterns of bone proliferation at Teouma.

THE IMPACT OF VOLUNTARY COUNSELLING AND TESTING ON SEXUAL BEHAVIOR AND EDUCATION.

Sarah Baird, George Washington University
Erick Gong, Middlebury College
Craig McIntosh, University of California, San Diego
Berk Özler, The World Bank

Although HIV testing has been widely promoted as a means for individuals to learn their HIV-status and change their behavior, there have been surprisingly few studies that credibly identify the causal effects of testing on behavior. This paper contributes to this developing literature by analyzing the impact of randomly assigned home based voluntary counseling and testing (VCT) on risky sexual behavior and human capital investments of young women in Malawi. While our results indicate that on average VCT has no impact on sexual behavior or educational outcomes, this result masks differential impacts based on HIV status. We find little impact of a HIV-negative test, but we find that HIV-positive tests lead to significant increases in Herpes SimplexVirus-2 rates and perceived HIV-risk. Underlying this result is the fact that a substantial proportion of those learning they are HIV-positive report there being no likelihood that they are infected with HIV after being tested. Deniers are much more likely to HSV-2 seroconvert during the study, indicating that they are engaging in increased unprotected sex after learning they are HIV-positive. These findings may have implications for the implementation of VCT campaigns and for improving "positive prevention" strategies.

TALKING TO NEPALESE SHERPAS ABOUT TAKING MEDICINES

Susan Heydon

School of Pharmacy, University of Otago, Dunedin, New Zealand

BACKGROUND:

The aims of this study were to talk to Sherpas about medicine taking and explore whether past ideas and experiences influence current health decision making.

METHOD:

An oral history approach was taken using questions that covered the course of people's lives. Participants were 43 male and female adult Sherpas from different villages and who had a range of life and health experiences.

RESULTS:

Many factors influence medicines use. Sherpas are pragmatic when dealing with sickness and may use medicines and healthcare services of different medical systems. Perceptions of efficacy and appropriateness appear more important than 'scientific' knowledge. 'Modern' medicines became available increasingly from the 1960s and people's use has increased greatly. Participants associated a visit to Khunde Hospital (opened in 1966) with getting medicines and are 'matter-of-fact' about their use. People prefer the ease of taking tablets, but some consider injections more powerful if problematic because of the influence of spirits. Very few people have taken medicines for long periods. Cultural practices relating to health prevention including taking religious medicines is important.

CONCLUSIONS:

This focus on medicines use provides a wider understanding of the health seeking process for Sherpas and how past ideas and experiences with medicines may influence current decision-making. The interplay between continuity, change, cultural and social factors remains complex but important for healthcare providers to consider.

GLOBAL WATER SHORTAGES AND HEALTH: AGENDA FOR THE COMING DECADES

Stephen P. Luby

Center for Innovation and Global Health, Stanford University, Stanford, California, USA

To grow crops and meet the other needs of their current population many communities throughout the world are withdrawing groundwater substantially faster than it is being replenished. China, the world's most populous country is extracting 25% more groundwater than is being replenished and India, the second most populous country, is extracting 56% more groundwater than is being replenished. During the next 20 years human population is projected to expand by 1.2 billion people and the demand for fresh water by 30%. As groundwater supplies are exhausted the gap between demand for fresh water and supply will have major consequences for global health including worsening malnutrition, famine and an increase in waterborne disease in large urban areas. Moreover, as communities exploit an ever increasing portion of surface water for agricultural and other human services at the expense of wetland ecology the resultant loss of biodiversity represents a further long term threat to agriculture and human thriving. Strategies to address this incipient crisis include increased recognition of the dimensions of the problem, reforming institutions that manage water resources, developing cooperative strategies for managing international river basins, and research to improve the efficiency of water use and agricultural productivity.

ABORTIONS AMONGST ASIAN WOMEN IN NEW ZEALAND: WHAT DO WE KNOW?

Trinh Lien[1,2], Dickson Nigel[2], Fernando Kumari[3], Paul Charlotte[2], Williams Sheila[2]

BACKGROUND:

To identify the current situation and underlying factors related to abortion among Asian women in New Zealand

METHODS:

This study consists of an epidemiological review of abortion trends and patterns among Asian women in New Zealand in 2002-2008; and a cross-sectional study of 188 Asian women obtaining abortion at four clinics in New Zealand.

RESULTS:

Asian women had the highest abortion rates and ratios compared to women of other ethnic groups. Abortion numbers in their 20s accounted for more than 50% of the total number of abortions across all the age groups. Asian women reported very low percentages of oral contraceptive use. The main reason for an abortion was having a baby now would dramatically change the women's life. Unable to afford the cost of raising a child, single motherhood, relationship problems, completed childbearing and pressure from parents were also among reasons for abortion. Less than a quarter of the women claimed that they had used a birth control method all the time. The fear of side effects, especially weight gain, was the most common reason for "non-use" or inconsistent use.

CONCLUSIONS:

Results of this study would provide a useful platform for designing effective sexual and reproductive health programmes that specially target Asian migrant women and their partners, improving their knowledge, attitude and behaviour toward safe sex, prevention of unwanted pregnancy and/or abortion through effective use of contraceptive methods.

IMPACT ON OUTCOMES OF PREMATURITY OF AN EDUCATIONAL PACKAGE FOR NEONATAL NURSES IN SIX NEONATAL UNITS IN RIO DE JANEIRO, BRAZIL

Brian Darlow[1], Clare Gilbert[2], Andrea Zin[3], Selvaraj Sivasubramaniam[2], Shaheen Shah[2], Nicole Gianninni[4], Gina Beecroft[1], Maria Lopes Moreira[3]

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BACKGROUND:

Changing neonatal care in countries with emerging economies may increase survival of preterm infants but also increase morbidity. Nurses have a key role in the care of high-risk infants but often lack access to on-going education programmes. We developed an evidence based teaching package for nurses – POINTS of Care (PoC) – to address this lack (Darlow BMC Nursing 2012) and aimed to test its effectiveness in a controlled before and after study.

METHODS:

Setting – 6 NICUs caring for 40% of preterm infants (≤1500g or <34 wks gestation) in Rio de Janeiro. Pre-intervention – 12 months data collection by daily tick sheets. Delivery of PoC package over 6 months, plus workshops to identify potentially better practices. Post-intervention – 12 months data collection.

RESULTS:

A third of the 491 nurses completed the package and knowledge on key topics improved. Interrupted Time Series analysis suggests survival rates were declining before the PoC training and improved after but the trend was not significant (OR 0.69; 95% CI 0.12 - 4.13).

CONCLUSIONS:

The teaching package was welcomed by nurses but we did not show benefit in preterm outcomes. Altered employment policies affecting senior staff were introduced through the study period and may have been a confounder.

UPDATE ON THE PNEUMONIA ETIOLOGY RESEARCH FOR CHILD HEALTH (PERCH) PROJECT

David R Murdoch

University of Otago, Christchurch

Pneumonia is the leading cause of childhood mortality globally with over 2 million deaths per year. The Pneumonia Etiology Research for Child Health (PERCH) project is a large case-control study that aims to determine the etiology of and risk factors for severe pneumonia in children from seven countries in Africa and Asia. This study is deploying state of the art diagnostics in each study site in order to provide a contemporary picture of the causes of childhood pneumonia in regions with the greatest burden of disease. The aim of the project is to inform future research efforts for the prevention of pneumonia, including the development of new vaccines. PERCH is approximately half way through a 2-year study period. This presentation will focus on progress to date, challenges and lessons learnt.

WORMS AT WORK: LONG-RUN IMPACTS OF CHILD HEALTH GAINS

Sarah Baird, George Washington University

Joan Hamory Hicks, University of California, Berkeley CEGA

Michael Kremer, Harvard University and NBER

Edward Miguel, University of California, Berkeley and NBER

We use data from a survey of young Kenyan adults who participated in a randomized deworming program as children to estimate the long-run impacts of school based deworming on health, education and labor market outcomes. Ten years after the start of the program, the treatment group has better self-reported health, consume more meals, spend more time in entrepreneurship, and are more likely to grow cash crops. Kenyan women who participated in the program as girls have fewer miscarriages and reallocate labor time from agriculture to entrepreneurship. Men who participated as boys work 3.4 more hours each week, and are more likely to hold manufacturing jobs with higher wage earnings. The deworming program also generates positive externalities from reduced disease transmission. The social returns to child deworming treatment appear high. In fact, using parameter estimates from our data and actual Kenyan public finance statistics, and under conservative assumptions, deworming generates far more in later government revenue than it costs in upfront subsidies, making it a highly attractive public investment.

DOES PARENTS' EDUCATION TRANSLATE INTO BETTER HEALTH OUTCOMES OF CHILDREN? AN EMPIRICAL ANALYSIS USING NATIONAL DATA FROM NEPAL

Apsara K Nepal

Department of Economics, University of Otago, New Zealand.

BACKGROUND:

Globally about 8 million children under five die annually due to malnutrition and poor health environments. This issue is severe in developing countries. One area of inquiry has been related to the efficient use of available limited resources for improving child's health outcomes. The Nepal government has started providing basic education up to eighth grade for free despite funding difficulties and providing incentives to girls for attending schools. This research investigates whether child of educated parents have better health outcomes.

METHOD:

We use a recent (2010) national household survey data from Nepal to analyze the relationship between parental education and child anthropometrics. We also examine whether other differences between households, such as better environments and more resources explain the relationship between parental education and child health.

RESULTS:

We find that mother's education has a larger impact on child health outcomes than father's education and that this impact persists even when we control for a host of other characteristics that are related to both parental education and child health outcomes.

CONCLUSIONS:

Overall, the results suggest that increasing girl's education in Nepal will lead to improved health among children.

A HOSPITAL RECORD AUDIT OF INTENTIONAL INJURIES TO ASSESS THE QUANTITY AND QUALITY OF DATA PROVIDED TO THE LIBERIAN ARMED VIOLENCE OBSERVATORY.

Lucie Collinson[1],[2], Andrew Winnington[2],3, Mary Vriniotis[4], Maria Valenti[5]

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[4] Harvard Injury Control Research Center, Harvard University School of Public Health
[5] International Physicians for the Prevention of Nuclear War, United States of America

BACKGROUND

The Liberian Armed Violence Observatory (LAVO) gathers, analyses and reports on armed violence in Liberia. However 85% of their data is provided from the police with only 11% from hospitals.

METHODS

A retrospective audit was conducted of 12 months of hospital records from the largest hospital in Monrovia to quantify the proportion of injuries presenting to ED that were intentional and the proportion that were a result of an armed assault to compare with data received by LAVO. Support was then sought to introduce a data collection tool in hospitals to better capture intentional injuries seen in the ED.

RESULTS

From June 2011 - May 2012 51% of non-transport related injuries were intentional with 53% of these being the result of an armed assault. LAVO missed approximately 24% of assaults from medical records. No information is available on perpetrator from LAVO hospital data, and assaults perpetrated in conjunction with other crime are underreported.

CONCLUSIONS

Under-reporting by hospitals to LAVO on intentional injuries prevents the formulation of fully informed evidence-based violence prevention programs and policies. The data collection tool is simple to use, does not delay patient treatment, and would improve the assessment of armed violence in Liberia.

GLOBAL DISASTERS: PATTERNS, IMPACTS AND ANGELINA JOLIE

Sultan Al-Shaqsi

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Call it a disaster, catastrophe, mass emergency, whatever; it is a clear example of 'chaos, disorder and trauma'. Add this to a long list of events that have occurred in the last couple of years which include massive earthquakes in Japan, New Zealand, Haiti, Chile, and China , a flood in Pakistan that displaced over 22 million people and an oil leak in the Gulf of Mexico that was leaking in a rate faster than New Zealand oil production rate. These just a few global events interested the media enough to report them. Hundreds of similar events did not feature in our selective media channels.

Such global events are a trigger for humanitarian response missions. The topic of global disasters is vast, with much political, health, economic, and emotional issues attached to it. To look at all the facets of global disasters would be a mind-blowing task. This presentation is a brief introduction to global disasters. It will briefly review the definition and pattern of global disasters. It will also present the staggering human and economic impact of such global events. Finally, the presentation will highlight three main humanitarian response lessons learnt from Japan, Haiti, and Pakistan.

WHERE MEDIA WORKER HOMICIDE IS WORST: THE EPIDEMIOLOGY OF MEDIA WORKER HOMICIDE IN IRAQ (2003-2011)

Lucie Collinson[1], Nick Wilson[1]

[1] Department of Public Health, University of Otago Wellington, New Zealand

BACKGROUND

This study aimed to describe the epidemiology of media worker homicide in Iraq and to describe its relationship with the homicide level for civilians.

METHODS

Data on the homicides of media workers in Iraq from 2003 to 2011 were systematically collated from five international databases and analysed.

RESULTS

During this nine-year period, there were 194 homicides of media workers in Iraq. The annual number of homicides increased substantially after the invasion in 2003 (peaking at n=47 in 2007) and then declined (n=9 in 2011). The peak years (2006-2007) for media worker homicides matched the peak years for estimated civilian fatalities. 85% of the media workers killed were Iraqi nationals and 61% worked for Iraqi media agencies. Some were killed whilst reporting (36%), but most (64%), were targeted in other settings. Common perpetrators were political groups (51%), and coalition forces (9%). None of the homicides have been legally "solved". For each targeted attack causing a media worker homicide, another two people were killed on average (range 0-85).

CONCLUSIONS

Media worker homicide in Iraq is a major problem that needs urgent preventive measures. Routine surveillance of homicides in this sentinel occupational group may provide an indicator of trends in societal violence.

THE EVOLUTION OF AFRICA'S DOMESTIC CATTLE: EVIDENCE FROM COMPLETE MITOCHONDRIAL GENOMES OF MODERN AND ARCHAEOLOGICAL SPECIMENS

K. Ann Horsburgh[1, 2, 3]

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That domesticated cattle were a significant component of African food-producing lifeways by about 7000 years ago is uncontroversial. Their origins, and their subsequent evolution as they settled across much of the continent remain poorly understood. To contribute to our understanding of the spread and development of Africa's cattle we have sequenced mitochondrial genomes of archaeological cattle from the Iron Age deposits in the Shashe-Limpopo River Basin and their likely descendants, modern southern African Nguni cattle.

Elaborating on a pattern found by Bonfiglio et al (2012) among Egyptian and Ethiopian cattle, we demonstrate a reduction in mitochondrial lineage diversity among southern African cattle, likely a consequence of serial founder effects. Despite other evidence of Indian cattle having been introduced into Africa in substantial numbers, these mitochondrial data give no indication that the impacts of the founder effects were ameliorated by gene flow from Indian breeds.

Finally, we have found evidence that the Iron Age cattle mitochondrial gene pool does not appreciably resemble that of the modern, and presumably descendant, Nguni cattle. We suggest that this is likely the consequence of a rinderpest panzootic known to have dramatically culled the cattle population in sub-Saharan Africa during the 1880s and 1890s.

LEPTOSPIROSIS: EPIDEMIOLOGY AT THE HUMAN-ANIMAL INTERFACE

Jackie Benschop[1], Cord Heuer[1], Julie Collins-Emerson[2], Peter Wilson[3], Anou Dreyfus[1]

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BACKGROUND:

Leptospirosis is a zoonotic disease of global importance. It continues to burden New Zealand's rural communities with most cases occurring in farmers and meat workers. We present an overview of our leptospiral projects in animal and humans in New Zealand focussing on a cohort study of abattoir workers. Future plans for leptospirosis projects outside New Zealand are also presented.

METHODS:

We conducted a cohort study in 8 abattoirs slaughtering sheep, cattle or deer. Sera were collected twice from 592 participants in 2008-2009 or 2009-10 and tested by the Microscopic Agglutination Test and for serovars Hardjobovis and Pomona. Information on occupational and non-occupational risk factors and clinical history were recorded and analysed by multivariable logistic regression.

RESULTS:

Across four sheep abattoirs, the average annual sero-conversion risk was 12%. Risk factors for new infection in sheep plants were worker position and time worked in the meat industry. The average annual risk of experiencing flu-like symptoms due to infection with Leptospira was 2.7%.

CONCLUSIONS:

The seroconversion demonstrated significant exposure to the two tested Leptospira serovars in sheep meat workers. Estimates of the contribution of Leptospira to 'flu-like' illness and days away from work are helpful for estimating the economic impact of leptospirosis.

SOURCE ATTRIBUTION FOR ENTERIC ZOONOSES: A TOOL FOR PRIORITISATION IN BOTH DEVELOPED AND DEVELOPING COUNTRIES?

Nigel P French

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Enteric zoonoses, such as campylobacteriosis, non-typhoidal salmonellosis and shigatoxogenic E. coli infections are major causes of diarrhoeal disease in both developed and developing countries. Quantifying the relative contribution of different 'sources' to the burden of human illness, known as source attribution, can help prioritise resources and aid the design of control strategies. This may include an estimation of the relative importance of different animal reservoirs and/or transmission pathways to the number of human cases: animal reservoirs include livestock, such as poultry or ruminants, domestic pets and wildlife; pathways include food, drinking and recreational water, and direct animal contact. The advent of international genotyping databases that contain information on the provenance of different strains, coupled with the development of new models, such as the Hald and asymmetric island models, have helped to improve source attribution estimates. To date, these techniques based on molecular epidemiology have been applied only in developed countries. However, information on the sample size required, and the utility of using international databases for inferring host-genotype association may make them more accessible to resource-poor countries. The development and application of source attribution tools based on microbial subtyping will be described, and the prospect of applying them in developing countries discussed.

ETIOLOGY OF NON-MALARIA FEVER AMONG HOSPITALIZED PATIENTS IN NORTHERN TANZANIA

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[10]Mawenzi Regional Hospital, Moshi, Tanzania

BACKGROUND

The syndrome of fever is a common presenting complaint among persons seeking healthcare in low-resource areas, yet the public health community has not approached fever in a comprehensive manner. In many areas malaria is over-diagnosed and patients without malaria have poor outcomes.

METHODS

We prospectively studied 870 pediatric and adult febrile admissions to two hospitals in northern Tanzania over the period of one year using conventional standard diagnostic tests to establish fever etiology.

RESULTS

Malaria was the clinical diagnosis for 528 (60.7%), but was the actual cause of fever in only 14 (1.6%). By contrast, bacterial, mycobacterial, and fungal bloodstream infections accounted for 85 (9.8%), 14 (1.6%), and 25 (2.9%) febrile admissions, respectively. Acute bacterial zoonoses were identified among 118 (26.2%) of febrile admissions; 16 (13.6%) had brucellosis, 40 (33.9%) leptospirosis, 24 (20.3%) had Q fever, 36 (30.5%) had spotted fever group rickettsioses, and 2 (1.8%) had typhus group rickettsioses. In addition, 55 (7.9%) of participants had a confirmed acute arbovirus infection, all due to chikungunya. No patient had a bacterial zoonosis or an arbovirus infection included in the admission differential diagnosis.

CONCLUSIONS

Malaria was uncommon and over-diagnosed, whereas invasive infections were underappreciated. Bacterial zoonoses and arbovirus infections were highly prevalent yet overlooked. An integrated approach to the syndrome of fever in resource-limited areas is needed to improve patient outcomes and to rationally target disease control efforts.

EXPLORING THE POTENTIAL FOR ROSS RIVER VIRUS EMERGENCE IN NEW ZEALAND

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Ross River virus (RRV) is an exotic vector-borne disease considered highly likely to emerge as a future human health issue in New Zealand, with its range expansion from Australia driven by exotic mosquito introduction and improving conditions for mosquito breeding. We use a deterministic modelling approach to make predictions of the potential for such emergence under different vector and host community scenarios. In contrast to current opinion, only limited potential for RRV emergence in NZ is predicted, with outbreaks in the human population likely only of real concern in urban areas, and then mainly should major exotic vectors of the virus establish. Should such outbreaks occur they will most likely be driven by virus amplification in dense human populations (as opposed to the spillover infection from wildlife common in Australia). However, currently lacking data on actual mosquito densities is needed for more refined predictions, not only for RRV in NZ but for emerging mosquito-borne diseases in general.

EPIDEMIOLOGY OF HUMAN NIPAH VIRUS INFECTION

Stephen P. Luby

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Nipah virus is a paramyxovirus whose reservoir host are fruit bats of the genus Pteropus. When humans are infected, the most common presentation is encephalitis, though prominent pulmonary involvement and respiratory failure has also been commonly observed in Bangladesh. In the large outbreak in Malaysia where Nipah virus was first identified, most human infections resulted from close contact with Nipah virus infected pigs. Apparently the pigs first became infected by eating foods contaminated with bat secretions or excretions. Pigs then efficiently transmitted the infection from pig to pig. From 2001 through 2012, 11 Nipah virus outbreaks have been identified in Bangladesh infecting 266 people and causing 204 deaths (76%). Outbreak investigations in Bangladesh have identified drinking fresh date palm sap as the most common pathway of Nipah virus transmission from Pteropus bats to people, but person-to-person transmission of Nipah virus has been repeatedly identified in Bangladesh and India. While Nipah virus is not easily transmitted to people, its high mortality, genetic diversity and capacity for person to person transmission warrant continued scientific and public health attention.

PERSPECTIVES ON SHARING HEALTH INFORMATION

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This talk offers perspectives on the use of on-line and mobile technologies in sharing health information. The increasing use of mobile-health and Health 2.0 services dictates that health professionals and consumers are generating and sharing massive amounts of data, "Big data" is made.

The now generation, can't wait, they want electronic access to their health record. They want to communicate and share with others similar to them.

Potential benefits are large yet there are pitfalls? Is it too easy to generate information? Where is it stored? Who owns it? The key drivers in making this massive amount of data are instant access, new methods of communicating, sharing and ranking of information. Public health and especially people in developing countries stand to gain instant access to health knowledge generated and processed by the wisdom of the crowd.

RISK ADJUSTMENT AND RISK SELECTION ON THE SICKNESS FUND IN EUROPEAN COUNTRIES – BEST PRACTICE GERMANY?

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BACKGROUND:

In the preceding risk adjustment scheme – operated merely on the basis of sex and age – sickness funds had strong incentives for cream skimming. Since 2009, the existing risk structure compensation scheme between health insurance funds in Germany has been enlarged to include morbidity-oriented factors. The result was a morbidity-based risk-adjustment model (morbi-RSA). The aim was to prevent risk selection, improve the care of chronic diseases and extend competition between health insurance funds.

METHODS:

The study analysis how the morbi-RSA works and gives an overview about the main current chances and challenges of the risk adjustment in Germany as well in other European countries.

RESULTS:

Since the mid-1990 we can find risk adjustment models in Europe in Belgium, Germany, Israel, the Netherlands as well as Switzerland. The biggest challenges are the incentives for risk selection. Current modifications in the German morbi-RSA system 2012 are changes in the relevant diseases and the minimizing of manipulation.

CONCLUSIONS:

Regarding the Federal Social Insurance Authority (BVA), the morbi-RSA is a learning system which requires consistent further development. There are still incentives for risk selection, which may threaten solidarity, efficiency, quality of care and thus the risk adjustment models need to be improved.

THE POWER OF PARTNERSHIP IN DELIVERY OF HEALTH CARE SERVICES: A CASE STUDY ON THE THAILAND-MYANMAR BORDER

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Health programs exist at many different levels, including, but not limited to community, national and international. Each level contains unique intentions and implementations of programs aimed at improving the health of the communities served. This paper uses observational research collected during a three-day visit with a specific local health care worker on the Thailand-Myanmar border. The paper describes how her community organization works in harmony with national and international health programs. Combined, the three levels of programs tackle some of the greatest infectious diseases in a specific border town. One case in particular is highlighted due to the existence of co-existing morbidities coupled with comingling health programs.

The paper aims to emphasize how important the power of partnership can be when implementing health service delivery to vulnerable populations such as irregular migrants on the Thailand-Myanmar border. Using the case of one migrant in particular, programs focusing on HIV, TB and malaria are applauded for their intertwined and holistic approach to health care delivery.