

ESTIMATED NUMBERS AND RATES OF BLOOD-BORNE INFECTIONS CAUSED BY NEEDLE-STICK INJURIES IN 124 DEVELOPING COUNTRIES. PK Drain, L Simonsen, D Zehring, J Lloyd. PATH; Seattle, WA; USA.

Needles and syringes cause a significant number of blood-borne infections, such as hepatitis B, hepatitis C, and HIV, among injection providers and recipients each year. Health care workers are primarily at risk of acquiring blood-borne pathogens from accidental needle-stick injuries. Many developed countries have projected occupational risks, which prompted them to purchase safer injection devices and adopt advanced safety precautions. Estimated risks have not been calculated for developing-country health workers, and, consequently, developing countries have paid inadequate attention to occupation needle-stick injury hazards. A linear mass action model was developed to estimate numbers and rates of nurses and doctors newly infected with blood-borne pathogens each year as a result of percutaneous needle-stick injuries among 124 developing countries. Model parameters were based on data obtained from an extensive literature search. The model presents the number of infections by major geographical region, as well as a developing-country health worker's risk of acquiring a new blood-borne infection per needle-stick injury sustained. In total, accidental needle-stick injuries cause 162,642 new hepatitis B infections, 18,931 new hepatitis C infections, and 428 new HIV infections each year among doctors and nurses in 124 developing countries. 75% of these infections occur in South-east Asia, mainly India and China, 16% occur in sub-Saharan Africa, and 9% occur in Latin America. Among developing-country health workers, a new hepatitis B, hepatitis C, or HIV infection occurs for every 58, 502, and 22,219 needle-stick injuries, respectively. Approximately 1.9% of needle-stick injuries result in a health worker newly acquiring a blood-borne infection. The likelihood a developing-country health worker would acquire a hepatitis C or HIV infection from an occupational exposure during a 30-year career is 4.8% and 0.1%, respectively.

Syringes and needles impose significant blood-borne pathogen transmission risks to injection providers in developing countries. Occupational infections may be greater after accounting for infections sustained by other health care providers, and nurses and doctors working outside clinical settings. Introducing safer disposable single-use injection devices, such as syringes with auto-resheildable needles or needle-free injectors, would greatly reduce blood-borne pathogen transmission among health care workers. Given limited resources in most developing countries, economic and cost-benefit analyses should be conducted to determine the most appropriate injection devices for various applications and settings.

292

PROMOTING HEALTHY FOOD CHOICES AMONG CHILDREN IN FIRST NATIONS COMMUNITIES. Louie P, Tandan T, Rassekh R, Clarke M, Duffy D, Macnab A; Department of Pediatrics, University of British Columbia, Vancouver, Canada

Objective: We sought to identify the determinants of nutritional status for children in Hartley Bay, a remote First Nations community in northern British Columbia. The specific factors examined were: 1) current nutrition education available to the community along with their nutritional knowledge, attitudes, and preferences; 2) constraints affecting food choices; and 3) actual eating practices. The data would be used to provide some direction for development of effective nutritional intervention strategies for this group of First Nations people. **Methods:** 53 children, age 5 - 19 years, were invited to participate in the study. Primary caregivers from each of the 28 households of these children were also invited to participate in the study. Data was obtained through extensive questionnaires completed by both children and caregivers, and a 3-day food diary completed by each child. With support of the teachers, data were collected mainly during school hours, with parents assisting with food diary recordings during the evenings. **Results:** From the 53 school aged children in Hartley Bay, we received 42(81%) completed Children's Questionnaires and 43(83%) completed Food Diaries. From the 28 households, we received 21 (75%) completed Caregiver Questionnaires. Children reported that their nutritional knowledge was obtained equally from school, healthcare workers, and family members. Taste was the main determinant of food choice, with highest food preference being fruits followed by milk and sweets. Caregivers identified the elders as the primary source of food knowledge. Taste was the primary determinant of food choice with their highest food preference being fruits and meats followed by grain and vegetables. Fresh fruits, vegetables and dairy products are the foods that they would eat more of, if given the opportunity. Availability of fresh produce and dairy products due to transportation costs and perishability caused the greatest constraint on food choice. Analysis of the children's food diaries revealed that dietary fibre intake was inadequate, and micronutrients calcium, vitamin D, and folate were deficient in their diet. **Conclusion:** The primary barrier to healthier food choices in this remote community is the availability of fresh fruits, vegetables and dairy products. This is reflected in the nutritional deficiencies in the children's diets. This knowledge coupled with the community's desire for these foods will allow us to plan and implement future nutritional interventions. Some of the interventions which will be explored with the community include: a community store, vitamin supplementation, and food preservation techniques.

293

FATTY ACID, AMINO ACID AND TRACE MINERAL ANALYSIS OF FIVE WEANING FOODS FROM JOS, NIGERIA. DR Fernandez¹, DJ Vanderjagt¹, M Williams², Y Huang³, L Chuang¹, M Millson⁴, R Andrews⁴, A Pastuszyn¹, and RH Glew¹, ¹University of New Mexico School of Medicine, Albuquerque, NM, ²Jos University Teaching Hospital, Jos, Nigeria, ³Abbott Laboratories, Columbus, OH and ⁴National Institute of Occupational Health and Safety, Cincinnati, OH.

Purpose: Weaning foods (WFs) are porridge-like foods used to supplement the diet of infants in the transition from breast-milk to an adult diet. In Jos, Nigeria, at the Jos University Teaching Hospital, five WFs were developed to meet the nutritional needs of infants recovering from disease. **Methods:** Five plant-based WFs (Dietrend, Jot-M, Soy, Ang and Vic-T) prepared in Jos, Nigeria were analyzed by gas-liquid chromatography, reversed-phase high performance liquid chromatography and atomic emission spectrometry to determine their fatty acid (FA), amino acid (AA) and trace mineral contents, respectively. Results of these direct analyses were compared to expected values derived from food tables prepared by the United States Department of Agriculture (USDA). Additionally, results were compared against breast milk as the standard for FA content, recommended dietary allowances (RDA) for AA content and dietary reference intakes (DRI) for mineral content. **Results:** The overall nutritional value of the five WFs varied considerably and the quantities of particular nutrients determined by direct analysis differed markedly from those estimated using USDA food tables. In regard to FA composition, the five WFs had a much higher proportion

of both linoleic and α -linolenic acids relative to human milk lipids. The Soy WF contained the most total FA (201 mg/g) compared to the four other WFs (72-131 mg/g). Soy also provided the most protein (24.3 g/day) compared to the other WFs (11.9 to 7.26 g/day) and was the only WF to exceed the protein RDA for children up to one year of age (13-14 g/day). Comparison of the mineral contents of the WFs to the DRIs for various metals indicated that all WFs contained adequate levels of the nine minerals analyzed, except calcium. **Conclusion:** These data show that the Soy WF is a good source of linoleic acid and α -linolenic acid, as well as being an excellent source of high quality protein and most minerals. These results also document the shortcomings of using published food composition tables based on foods in the United States when devising WFs based on ingredients in another part of the world.

This study was supported by a Minority International Research Training (MIRT) grant from the Fogarty International Center of the National Institutes of Health.

294

CANCER RISK FACTOR ASSESSMENT AMONG CHAMORRO WOMEN. Y Nguyen, GR Sadler, M Shi, E Gilpin, LC Cruz, LA Blas, B Acfalle, T Blas, and R Acfalle, Moores UCSD Cancer Center and UCSD School of Medicine, Pacific Islander Cancer Control Network, and NCI C.U.R.E. Scholar, La Jolla, CA.

Purpose: There is a dearth of information about mainland Chamorros. The objectives of this study were to gather preliminary data about the community's overall health and well being, to provide specific information to individual study participants about ways to improve their own health, and to give members of the Chamorro community personal experiences with the research process as a segue to raising the community's scientific literacy and receptivity to future research participation. **Methods:** The *Chamorro Directory International* and the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System Questionnaire were used to assess the behavioral risk factors and health needs of Chamorro women living in San Diego. A convenience sample was drawn from two of the County's three area codes. Individual responses were evaluated and personalized health information was mailed to participants. **Results:** Among the findings, Chamorro women reported a high intake of fruits and vegetables, a low prevalence of smoking, and high colorectal cancer screening rates compared to nationwide women. Of the 128 women in the study, 46.9% reported having a total frequency of five or more fruits and vegetables daily, 12.5% smoke, and 54.5% reported being current on their colorectal cancer screening. Chi-squared significance tests were performed for cancer-related risk factors in this study with socioeconomic status variables. Chamorro women who work were more likely to smoke ($p < 0.05$). **Conclusions:** The *Chamorro Directory International* proved to be a feasible way to reach this community. While this is a convenience sample drawn from a limited geographic area, California has the largest number of Chamorros outside of Guam and San Diego has the largest population within the state. The results provided in this study are a starting point to define this community's cancer-related behavioral risk factors and help shape the cancer education interventions for this community.

295

BRUCE PROTOCOL TREADMILL TESTING DID NOT CREATE HEAT STRESS.

LM Raymond, TA Barringer, JC Koenig, Depts. of Family Medicine, Carolinas, HealthCare System, Charlotte, NC & University of North Carolina at Chapel Hill, NC.

The Bruce Treadmill Protocol (BTP) is widely used to identify subclinical coronary artery disease in patients, and also to test persons with occupations which may affect public safety such as aviation, police and fire-fighting work, and handling of hazardous materials (HAZMAT). The use of stress testing should be considered by physicians who evaluate HAZMAT candidates, according to guidance published in 1985 by OSHA, EPA, NIOSH and the US Coast Guard, when heat stress is expected. HAZMAT workers do typically undergo body temperature increases to 39°C (102.2°F) due to the special suits they wear (Menze R et al, Prehosp Disaster Med 1998;11:108). Heavy exertion and high ambient temperatures are unpredictable aspects of such work, which may further compound the thermal imbalance created by one's inability to dissipate body heat via the normal mechanisms. However, no studies have evaluated whether BTP testing itself actually causes heat stress. We therefore measured oral and ear canal temperatures in 28 HAZMAT candidates before and after maximal, symptom-limited BTP tests. Gym clothes were worn and lab air temperature was 68-70°F. BMI was 30.4 ± 2.7 (SD) and age 33.6 ± 5.2. Duration of exercise was 10.5 ± 2.0 minutes (mid-Stage 4, 12.9 METS). Temperatures were as follows:

	Before BTP	Immediately after BTP	6 minutes after BTP
Oral	98.0 ± 0.8	97.6 ± 1.0	98.6 ± 0.8
Ear Canal	98.8 ± 1.0	99.1 ± 1.2	99.0 ± 1.0

None of the post-BTP temperatures exceeded pre-BTP values, and sweating was not observed. Oral temperatures immediately post-BTP were falsely lowered by exercise hyperpnea. **Conclusions:** BTP testing in this small series did not cause heat stress, probably because of the short duration of exercise, and clothing which did not trap body heat like HAZMAT suits do. Ways of stress testing other than BTP should be evaluated, so as to include thermal stress in the evaluation of HAZMAT duty candidates.

296

VACCINATION RATES IN HOMER, ALASKA. B Westley, University of Washington School of Medicine, Seattle, Washington

PURPOSE: Healthcare providers in the town of Homer, Alaska serve a diverse and eclectic population of approximately 15,000 that resides in multiple small communities in the surrounding area. It was hypothesized that the presence of Old-Believer Russians, Religious Conservatives, and "Eclectics" might lead to decreased vaccination rates. Local providers were not aware of the statistics for their area. The purpose of this investigation was to obtain vaccination statistics for the Homer area and present these to private providers in the hopes of increasing their awareness of potential loci of infections outbreaks. **METHODS:** Data were collected from Homer State Health Center audits for July 2001 and June, 2002. Estimates for the four secluded Old-Believer Russian settlements were obtained from Ms. Donna Fenske and Ms. Gall Radcliff-Thomas of the Alaska Division of Health and Social Services. Statewide vaccination rates were obtained from the Alaska Division of Health and

Journal Title: Journal of investigative medicine

Volume: 51

Issue:

Month: Feb

Year: 2003

Inclusive Pages: S142

Article Author: Fernandez DR, Vanderjagt DJ, Williams M, Huang Y, Chuang L, Millson M, Andrews R, Pastuszyn A, Glew

Article Title: Fatty acid, amino acid and trace mineral analysis of five weaning foods from Jos, Nigeria.

Item Author:

Item Place:

Item Publisher:

Item Edition:

ISSN/ISBN: 1081-5589

Cited In:

Cited Title:

Cited Date:

Cited Volume:

Cited Pages:

Not Wanted After: 08/02/2008

Accept Non English: Yes

Accept Alternate Edition: No

Due Date: 9/14/2007

Renewals Allowed?: Yes

Max Cost: