

Journal Abstracts

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In all issues of this journal we will always include abstracts of articles relevant to the Pacific. Our aim is not to simply re-emphasize materials found in widely circulated journals but to bring to your attention articles from many, other less commonly available sources regardless of the date of publication. Topics highlighted will include scientific advances, community health, historical reviews, and political and sociological issues relevant to health in the Pacific.

The assistance of all readers of this section in locating materials would be most appreciated. The date of publication is not an important factor in deciding to include an abstract. The relevance and quality of the article are the most important. If you like you may submit an abstract of someone else's article with your own comments. Your contribution will be acknowledged.

Hospital admission rates for asthma and pneumonia in Fijian and Indian children.

Flynn M.
J Paediatr Child Health, 1994; 30: 19-22.

A retrospective review of hospital admissions was undertaken to determine the difference in rates of morbidity from respiratory disorders between Indian and Fijian children aged 5 - 14 years. The time period that was examined was 1985 - 1989. Analyses included national admissions rates, asthma admission rates by age and ethnicity, and pneumonia mortality rates by ethnic group. As a measure of health care utilization, number of outpatient visits per capita for each subdivision was examined against the ethnic distribution of that subdivision. The study determined that there were significant differences in national respiratory admissions rates for pneumonia and Indians had higher rates of asthma admissions. Indians were more likely to be admitted

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to the Colonial War Memorial Hospital than Fijians for asthma. Mortality rates for all ages for pneumonia were 5.9 per 100,000 in Fijians and 5.4 per 100,000 in Indians. There was no significant correlation between outpatients visits per person per year for all ages and percentage of Fijians per subdivision. Neither was there a significant correlation between hospital beds per 1000 all age population and percentage of Fijians in the subdivisions. The difference between morbidity patterns of respiratory illness in children was attributed to differences in prevalence of diseases in the population, severity, and access or utilization of health care resources. The relative importance of genetic predisposition, dietary factors, domestic crowding, parental smoking and indoor air pollution was also discussed.

Editorial note. This article is an excellent example of how hospital or national statistics data can be utilized for documenting differences in morbidity patterns and understanding the basis for the differences. Not only was there appropriate application of statistical methods through the use of population denominators to this

hospital-based data but there was also an amalgamation of relevant timely literature to enhance the understanding of the role of the various factors that may cause the differences in asthma and pneumonia admission between the two major races in Fiji. This article is a must for all medical students and doctors working in Fiji, who hope to gain a better understanding of respiratory diseases in children in Fiji.

Respiratory symptoms, bronchial responsiveness, and atopy in Fijian and Indian children.

Flynn M
American Journal of Respiratory & Critical Care Medicine, 1994, 150: 415-20.

This population-based study was undertaken to determine prevalence of respiratory symptoms, bronchial hyper-responsiveness, and atopy in the 5-14 year age group. A questionnaire was undertaken, with some histamine inhalation and skin-prick allergen tests undertaken. While the prevalence of wheeze in the previous six months was the same between Indian and Fijian children, bronchial hyper-responsiveness was more common in Indian children than Fijian children. Productive cough was more common in Fijian children. Although the prevalence of atopy was similar between the two races, the combination of current wheeze and bronchial hyper responsiveness was found to

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be more common in Indian children. The mean bronchial dose response slope was steeper in Indian children. It appears that Indians suffer from more severe episodes of asthma. Genetic and environmental factors were discussed in relation to the asthma and respiratory infection patterns in the two races.

Editorial Note. While more technical than the previous report, this population-based survey is another excellent summary of the study that was undertaken by the author while a faculty member of the Fiji School of Medicine. It highlights relevant methodology, makes appropriate statistical analysis and summarizes succinctly relevant findings. This article portrays the appropriate application of population-based research methodologies to understanding clinical problems in children

Health effects of Westernization and migration among Chamorros

Reed D, Labarthe D, Stallones R.
American Journal of Epidemiology, 1995;142: 673-691.

The study of the influence of westernization and migration on Chamorros' health patterns is highlighted through this historical paper. The association of disease and social discontinuity is explored through a study of genetically similar but environmentally different Chamorros living on Rota, Guam and California. A questionnaire of history of illness, symptoms, personal habits, food preferences and socio-cultural orientation was carried out. A physical examination comprised measurements of height, weight, biacromial and bicristal body diameters, blood pressure, and an examination of the respiratory and cardiovascular systems. Blood specimens for serum glucose and serum uric acid were collected, and ECGs were done. Death certificates were analysed. For males, the frequency of history of myocardial infarction and diabetes decreased from California to Guam to Rota and for females, the history of congestive heart failure and asthma decreased from California to Guam to Rota. Cigarette smoking was similar by gender between areas. The distributions of systolic and diastolic blood pressures were similar in the three areas except for the slightly lower values of systolic blood pressure for Rota males. Mean serum glucose levels were higher in females and increased with age. For serum cholesterol for males, mean levels decreased from California to Guam to Rota and for females, the patterns were similar except for the younger age groups. Diagnosed disease patterns differed little between areas. Correlation co-efficients were

used to determine the association between morbidity and socio-cultural variables. Little difference was seen between the areas. In their conclusion, the authors did not feel that their study supported the hypothesis that migration and westernization are associated with an increased prevalence of a variety of diseases.

Editorial Note. Given the wealth of findings from other studies, i.e Tokelauan migration study, the Japanese, Hawaiian study, these results and conclusions are unexpected. However, the small sample size, the ecological study design, the high participation failure rates especially in California and self selection and healthy migrant effects may contribute to the disappointing results. Although negative findings were reported in this study, this historical paper of 1975 was republished in 1995 in the *American Journal of Epidemiology*, to show that such ecological studies are subject to incredible biases. While extremely well written, this paper is an excellent paper for epidemiological study design, data presentation, and data analysis for students of public health and community health.

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Increasing prevalence of NIDDM in the Pacific population of Western Samoa over a 13 year period

Collins V, Dowse G, Toelupe P, et al.
Diabetes Care, 1994, 17: 288-295

A repeat survey of non-insulin-dependent-diabetes and obesity in Western Samoa was undertaken in 1991 in the same areas of a previous survey of a similar design in 1978. Comparisons of results were drawn between the two studies. One urban and two rural village sites were chosen and participants were studied through the administration of oral glucose tolerance tests, anthropometric measures, blood pressure checks and physical activity scores. Age standardized rates of NIDDM showed women had higher rates than males in urban area of Apia, and that rural rates were generally lower than urban rates of NIDDM. A dramatic increase in rates of NIDDM was seen in males in Poutasi (rural) from 1978 while in Tuasivi, increases in rates were seen in both males and females over time. Increase was also seen in age-standardized prevalence rates of obesity and mean levels of cholesterol, triglycerides, and uric acid between the surveys. Mean systolic blood pressures and smoking rates decreased between 1978 and 1991. Rural-urban differences for NIDDM were substantially less in 1991 than in 1978 suggesting the importance of lifestyle change. Abdominal obesity and physical activity

were seen to be independently associated with prevalence of Impaired Glucose Tolerance and NIDDM for the 1991 study. The need to expand non-communicable disease prevention programmes in Western Samoa was highlighted.

Editorial Note. This study represents a practical method for observing disease prevalence and morbidity patterns over time in resource-constrained communities. While a cohort study design would be ideal for observing changing incidence patterns and determining the associations of studied risk factors, in many instances these are not feasible. Hence, this study represents an attempt to determine similar relevant information in a less costly and more timely fashion. However, one should keep in mind the potential biases and limitations that may be present in such studies that limit generalizability and risk factor assessment. The inability to verify the type of glucose load given in the 1975 study represents one of the problems that may hinder comparability of results in such surveys as well as the differential response rates between the two time frames. If the persons that did not respond in 1978 were more or less likely to have NIDDM than

the non-responders of 1991, then a problem occurs in the determination of change over time, particularly as there was only a 52% response rate in men in Apia. Similarly if the number of non-respondents is different between areas then a comparison of results from different areas become a problem. Other problems include the lack of comparability or reliability in the questionnaires and measures of blood pressure. Thus caution should be exercised with comparisons between 1978 and 1991 and between the rural and urban areas. This paper would be useful for medical or public health students of epidemiology studying design issues. However, more importantly, it is an indication to the policy makers that NIDDM is a major problem in Western Samoa that requires enhanced prevention programmes as well as a review of past programmes to determine the specific components that need to be read-dressed.

Cancer mortality risk among military participants of a 1958 atmospheric nuclear weapons test

Watanabe K, Kang H, Dalager J.
American Journal of Public Health, 1995; 85: 523-527.

Analysis of mortality data was undertaken among American Navy veterans who participated in an atmospheric nuclear test in the Pacific compared to Navy veterans who did not participate in any test. The objective of the study was to determine if there was an increased risk of death from certain cancers among the test participants. Unadjusted

rate ratios were calculated for all deaths and specific causes of deaths between the two groups, as well as adjusted analysis using the Cox Proportional Hazards Model and cause specific number of deaths compared to the expected based on calendar-year and age for each cause in US males.

There was a significant excess of deaths from all causes among the nuclear test participants as well as an excess of cancer of the digestive organs. Statistically significant differences were observed for all causes, all cancers and liver cancer in the high-dose exposure group. Cancer of the prostate was found to be significantly higher among the test participants compared with US males. Limitations of the study included the reliance on death certificates rather than medical records, lack of information on potential confounders like alcohol and smoking, the fact that more than 87% of the veterans were alive at the time of follow-up, and the lower death ascertainment in veteran participants.

Editorial Note. This study among US veterans of the Enewetak and Bikini Atolls, and Johnson Island nuclear detonations illustrates the increased risk of cancers from such radiation exposure. However, a more realistic and valid understanding of the effects of the detonation would be a study of

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the effects of the nuclear experiment on the islands' inhabitants; those who actually bathed in fallout innocently, lived on radiated land, and then watched their families suffer through the evacuation from their island homes and from the medical diseases they subsequently contracted. A true injustice on an innocent population. As expected, information related to their mortality patterns is not available, but anecdotal accounts from families of the inhabitants point to the marked excess of thyroid cancers, spontaneous abortions, congenital malformations and gastrointestinal cancers. Clearly studies of this nature will not be readily published due to its political implications. However, as all Pacific dwellers are aware, the resumption of nuclear testing by the French in Tahiti is an absolute violation of the human rights of Pacific people. Clearly the exploitation of Pacific waters by the French government, in the face of current medical knowledge of the effects of radiation on humans and the environment is another travesty of justice to Pacific dwellers.

Diabetic nephropathy and microalbuminuria in the community

Simmons D, Shaw L, Scott D, *et al.*
Diabetes Care, 1994; 17: 1404-1409.

A cross-sectional study was undertaken in Auckland to determine the differences in microalbuminuria and

proteinuria in Maori, Polynesian and European patients with non-insulin dependent diabetes mellitus attending diabetes clinics and randomly selected primary care clinics. From the data, it appeared that the age of diagnosis was higher for Europeans than Maori and other Polynesians. Pacific islanders had significantly higher waist to hip ratios. Maoris had higher systolic blood pressures and higher percentages of current or past smoking. Past history of renal disease was similar for all ethnic groups. However, there were major differences between the groups for patterns of nephropathies, with Maoris then Pacific islanders having higher albumen excretion rates, more end-stage renal failure, proteinuria, and microalbuminuria than Europeans. Multivariate regression techniques were used to analyse the relative importance of each of the risk factors. The difference in fat distribution associated with microalbuminuria and nephropathy was explored and found to be consistent with other studies. Past blood pressure and poor glycemic control may explain some of the differences. High protein intake was not assessed. Traditional risk factors could not explain all of the differences between the ethnic groups for end-stage renal failure in NIDDM, particularly the early age of onset in Maori and Polynesians of microalbuminuria and nephropathy.

Editorial Note. This study highlights the need for more studies into the reasons for the high incidence of early age-of-onset, end-stage renal disease, in Pacific islanders with NIDDM. Factors that may be important are obesity, high protein intake, urate nephropathy and lack of glycemic control. However, one wonders if, like the Pima Indians, there is a genetic predisposition for the high incident of renal disease with NIDDM, in Pacific islanders. Furthermore, greater understanding is needed into central fat deposition phenomenon that may be intertwined with the complex relationship of fetal starvation and the subsequent development of diabetes and heart disease.

Potential role of an additive genetic component in the cause of amyotrophic lateral sclerosis and Parkinsonism-dementia in the Western Pacific.

*Bailey-Wilson J, Plato C, Elston R, et al.
American Journal of Medical Genetics, 1993; 45: 68-76.*

“ ... a more realistic and valid understanding of the effects of the detonation would be a study of the effects of the nuclear experiment on the islands’ inhabitants; those who actually bathed in fallout innocently, lived on radiated land, and then watched their families suffer ... ”

An unusually high incidence of amyotrophic lateral sclerosis and parkinsonism-dementia occurs in the Western Pacific amongst the Chamorros of Guam and the Northern Marianas, amongst the Japanese on Honshu Islands, and amongst the Auyu and Jakar people of southern West New Guinea. This paper discusses a study that was undertaken on Guam on 2026 people, a group of affected persons, with one or both parents affected with ALS or PD, and a group of controls. Segregation analysis was undertaken using logistic and normal models. It appears that the majority of cases of ALS or PD that had occurred by age 70 i.e. of the cohorts born in 1895, 1910 and 1913 were predicted as due to environmental risk factors while recently born cohorts are predicted carriers of a susceptibility allele. A familial aggregation pattern suggest a polygenic inheritance. It is possible that persons with the disease allele become affected at lower levels of environmental exposure than those who do not, and that persons with the allele have a higher risk of being affected at the same level of exposure and age. The models explored suggest that genetic susceptibility places certain persons at risk of the diseases but that environmental factors may also be important.

Editorial Note. It is well documented that ALS and PD are more common in Guam than the rest of the world. The neuronal degeneration that occurs with both ALS and PD shows characteristic pathological patterns. While environmental factors have been implicated, the familial aggregation of cases and the preponderance of this disease in certain racial groups suggests a genetic etiology. It was through studies of a familial aggregation of cancer cases, that the advent of the Li-Fraumeni syndrome occurred and a subsequent understanding of the genetic basis of cancer evolved. The isolation of the tumour suppressor gene, p53, occurred as a result and hence a greatly increased understanding of the etiology of diseases was possible. It would therefore be extremely worthwhile if this outlying cluster of cases in the Pacific were studied in more depth through molecular epidemiological studies as well as through genetic analysis so that a deeper understanding of the neuronal degenerative disorders may evolve. Through combining various techniques of analysis the relative roles of both genetic and environmental factors may be disentangled. This study, while highly technical in the analysis section, is worth reading. □