

MEDLARS BIBLIOGRAPHY

PUBLICATIONS OF RELEVANCE TO PAPUA NEW GUINEA AND MELANESIA

Bibliographic Citation List generated from MEDLARS

- 1 **Babona DV, Slama G, Puiahi E.**
Laboratory diagnosis of HIV infection in Papua New Guinea.
PNG Med J 1996 Sep;39(3):200-204.
In Papua New Guinea, the laboratory diagnosis of HIV infection is based on proof of HIV antibody in the patient's serum. Under the government scheme, the testing is done in 30 laboratories, including the Papua New Guinea HIV Reference Laboratory (NRL), the Red Cross Blood Transfusion Service in Port Moresby, and 19 provincial and 9 district laboratories. An alternative testing strategy was adopted in 1993 based on a WHO recommendation, replacing the classical testing strategy (enzyme immunoassay + Western blot). The alternative testing strategy uses several EIA, rapid or simple HIV antibody assays for the detection and confirmation of the HIV antibody. This approach is faster and cheaper, with the same sensitivity and specificity as the classical testing algorithm. Except for the NRL, the Serodia Fujirebio HIV-1 gelatin particle agglutination assay is used throughout the country as the screening test. The PNG National HIV Reference Laboratory is the only laboratory authorized to perform confirmatory testing and to release positive results. Therefore, all serum samples reactive in the screening assay are sent to the NRL for confirmation by the battery of EIA, rapid or simple assays in accordance with the alternative testing strategy adopted. The paper explains the alternative testing strategy and highlights the principle of each individual test that is employed.
- 2 **Backhouse JL, Hudson BJ, Hamilton PA, Nesteroff SI.**
Failure of penicillin treatment of yaws on Karkar Island, Papua New Guinea.
Am J Trop Med Hyg 1998 Sep;59(3):388-392.
The endemic treponematoses yaws remains a significant cause of morbidity in many tropical countries, despite mass treatment campaigns to eradicate it. An outbreak of yaws in Marup village on Karkar Island, Papua New Guinea in 1988 provided an opportunity to monitor the outcome of treatment with penicillin over an extended period. Thirty-nine children with clinical yaws (6% of 632 examined) were monitored clinically and serologically for nearly two years after mass treatment of all villagers with the World Health Organization recommended dosages of benzathine penicillin. Lesions resolved within one month of treatment in all but four (10%) children, three of whom were initially successfully retreated. Before treatment, the Venereal Disease Research Laboratory (VDRL) test result was reactive in 67% of the children and treponema-specific IgM antibody test results were reactive in 41%. Within six months of treatment, of those reactive, the VDRL titer decreased significantly in 25 (96%) of 26 and IgM antibody test results became negative in 13 (81%) of 16 children. However, by the end of follow-up, 11 (28%) of the 39 children had developed clinical and/or serologic evidence of relapse. In these children, response to further treatment was slow and, in three, evidence of active infection persisted or recurred, despite repeated courses. Exogenous reinfection was unlikely in this isolated community, in which the occurrence of yaws was closely monitored after universal treatment. Treatment failure was most likely to have been due to reduced susceptibility to penicillin of *Treponema pallidum* subsp. *pertenue*.
- 3 **Bockarie MJ, Paru R.**
Can mosquitoes transmit AIDS?
PNG Med J 1996 Sep;39(3):205-207.
Surveys to determine knowledge regarding AIDS have shown in many countries, including Papua New Guinea, that a large proportion of the literate population still mistakenly believe that mosquitoes can transmit the AIDS virus from one person to another. In this paper we review the theoretical mechanisms which would allow blood-sucking insects such as mosquitoes to transmit virus and discuss the evidence against transmission of HIV by mosquitoes. AIDS is a sexually transmitted disease with no scientific evidence for arthropod transmission.
- 4 **Bouten M.**
Sex education to grade seven students in Papua New Guinea, yes or no?
PNG Med J 1996 Sep;39(3):225-227.
- 5 **Bouten M.**
Sharing the pain: response of the churches in Papua New Guinea to the AIDS pandemic.
PNG Med J 1996 Sep;39(3):220-224.
- 6 **Cervenakova L, Goldfarb LG, Garruto R, Lee HS, Gajdusek DC, Brown P.**
Phenotype-genotype studies in kurru: implications for new variant Creutzfeldt-Jakob disease.
Proc Natl Acad Sci USA 1998 Oct 27;95(22):13239-13241.
The PRNP polymorphic (methionine/valine) codon 129 genotype influences the phenotypic features of transmissible spongiform encephalopathy. All tested cases of new variant Creutzfeldt-Jakob disease (nvCJD) have been homozygous for methionine, and it is conjectural whether different genotypes, if they appear, might

have distinctive phenotypes and implications for the future 'epidemic curve' of nvCJD. Genotype-phenotype studies of kuru, the only other orally transmitted transmissible spongiform encephalopathy, might be instructive in predicting the answers to these questions. We therefore extracted DNA from blood clots or sera from 92 kuru patients, and analyzed their codon 129 PRNP genotypes with respect to the age at onset and duration of illness and, in nine cases, to detailed clinical and neuropathology data. Homozygosity at codon 129 (particularly for methionine) was associated with an earlier age at onset and a shorter duration of illness than was heterozygosity, but other clinical characteristics were similar for all genotypes. In the nine neuropathologically examined cases, the presence of histologically recognizable plaques was limited to cases carrying at least one methionine allele (three homozygotes and one heterozygote). If nvCJD behaves like kuru, future cases (with longer incubation periods) may begin to occur in older individuals with heterozygous codon 129 genotypes and signal a maturing evolution of the nvCJD 'epidemic'. The clinical phenotype of such cases should be similar to that of homozygous cases, but may have less (or at least less readily identified) amyloid plaque formation.

7 **Defay R, Papoz L, Barny S, Bonnot Lours S, Caces E, Simon D.**

Hormonal status and NIDDM in the European and Melanesian populations of New Caledonia: a case-control study. The CALedonia DIAbetes Mellitus (CALDIA) Study Group.

Int J Obes Relat Metab Disord 1998 Sep;22(9):927-934.

OBJECTIVE: To assess ethnic differences in androgenic status related to non-insulin-dependent diabetes mellitus (NIDDM) in male and female Melanesians and Europeans of New Caledonia. **DESIGN:** This is a case-control study nested in a prevalence study for diabetes mellitus in the multiracial population of New Caledonia. **SUBJECTS:** 186 male subjects were included in the survey (77 Melanesians and 16 Europeans in each case and control group). Each case and control group included 104 female Melanesian subjects (69 premenopausal and 35 postmenopausal). **METHODS:** Diabetic subjects were matched for age, gender, ethnic group and location, with healthy normoglycaemic subjects. Testosterone levels in men and sex-hormone-binding globulin (SHBG) levels in women (measured by radioimmunoassay, RIA) were compared between NIDDM and control subjects in relation to obesity, central adiposity and insulin levels. **RESULTS:** In both ethnic groups, NIDDM was associated with lower testosterone levels but there was a marked difference among Europeans. Testosterone was negatively associated with the body mass index (BMI) ($r = -0.35$, $p < 0.01$) and fasting insulin ($r = -0.37$, $p < 0.001$) in control Melanesians only. In Melanesian women, NIDDM was associated with lower SHBG levels in pre- and postmenopausal women ($p < 0.001$). SHBG mean

level was not associated with menopausal status. **CONCLUSION:** Our results confirm in a Pacific population that NIDDM is associated with low levels of testosterone in men and low levels of SHBG in women. In contrast to white populations, Melanesian women have a more androgenic profile, whatever their menopausal status.

8 **Dubey S, SenGupta SK, Kaleh LK, Morewaya JT.**

Paediatric head and neck lymphomas in Papua New Guinea: a review and analysis of 67 cases.

Int J Pediatr Otorhinolaryngol 1998 May 15;43(3):235-240.

A retrospective study of head and neck lymphomas in Papua New Guinean children between the age of 0 and 12 years for a 10-year period has been attempted. A total of 67 cases are recorded. This constitutes approximately 23% of all lymphomas seen during this period. There was a male predominance in all groups. Non-Hodgkin's lymphomas (NHL) constituted 92% of which Burkitt's lymphomas (BL) predominate (64%). Almost 50% of these cases seen were in the age group of 5-8 years. In BL, cheek swelling and upper jaw involvement are the common modes of presentation; however, in 23% of cases advanced disease with multiple sites of involvement are noted. In other NHL cases, approximately 55% presented with cervical lymphadenopathy only, maxillary sinus was affected in four cases and orbit in two cases. Histological evaluation of NHL cases excluding BL revealed two high-grade, nine intermediate-grade and seven low-grade tumours. Hodgkin's lymphoma (HL) constituted 8%. All cases of HL presented with cervical lymphadenopathy. Standard therapeutic modalities for lymphomas with multidrug chemotherapy, surgery and radiotherapy were followed. Proper prognostic evaluation following the treatment had not been possible in view of poor patient compliance and lack of follow-up.

9 **Duke T.**

Fluid management of bacterial meningitis in developing countries.

Arch Dis Child 1998 Aug;79(2):181-185.

10 **Eckart WU.**

Malaria and colonialism in the German colonies New Guinea and the Cameroons. Research, control, thoughts of eradication.

Parassitologia 1998 Jun;40(1-2):83-90.

German malaria research during the colonial period took place between medical and political interests. In the field of zoological and clinical research of malaria Germany was not a pioneer. Nevertheless, Robert Koch forced by impressive Italian results tried to participate in malaria research on the field of acquired malaria immunity and by optimizing the therapeutic doses of quinine in German New Guinea. In the German Cameroons, on the other hand, the fight against malaria was completely dominated by racial and political arguments. The paper tries to shed light on this dichotomy, which turned out to be not very productive.

- 11 **Farmer E.**
AIDS and the community.
PNG Med J 1996 Sep;39(3):214-217.
- 12 **Fenner F.**
Malaria control in Papua New Guinea in the Second World War: from disaster to successful prophylaxis and the dawn of DDT.
Parassitologia 1998 Jun;40(1-2):55-63.
Australian forces were involved in warfare in hyperendemic areas of New Guinea from early 1942 until late 1945. Initially they were ill-prepared and suffered very heavy malaria casualties, even when not engaged in fighting. As a result measures were taken to make the supervision of personal protection (clothes, suppressive atebtrin, repellent, mosquito nets) a matter for unit commanders rather than a medical problem. Malariologists were appointed and supervised Malaria Control Units, which were moved in with attacking troops, and Entomological Sections were established, which provided advice on vectors of malaria and other arthropod-borne diseases. In successive campaigns the casualties from malaria decreased substantially, especially after active operations in particular campaigns had ended, except in the Aitape-Wewak area, where field observations suggested that some strains of *P. falciparum* were resistant to the standard dose of suppressive atebtrin. This was confirmed in experiments on human volunteers at a malaria research unit in Australia.
- 13 **Fenner F, Sweeney AW.**
Malaria in New Guinea during the Second World War: the Land Headquarters Medical Research Unit.
Parassitologia 1998 Jun;40(1-2):65-68.
In June 1943 arrangements were made to carry out experiments on malaria suppressive drugs on human volunteers in Cairns, in north Queensland, under the direction of Brigadier Neil Hamilton Fairley; early in 1944 the Land Headquarters Medical Research Unit was established to continue this work. Using 868 healthy volunteers and 317 infected soldiers and *A. punctulatus* mosquitoes flown in from New Guinea or bred locally, several suppressive drugs were tested. Doses of 10 grains of quinine daily failed to suppress New Guinea strains of *P. falciparum* and were only partially effective against *P. vivax* infections, whereas 100 mg of atebtrin daily controlled symptoms of *P. vivax* infection and cured infections with most New Guinea strains of *P. falciparum*; some strains of *P. falciparum* from Wewak were resistant to this dose, but were cured with double the daily dose.
- 14 **Forster P, Kayser M, Meyer E, Roewer L, Pfeiffer H, Benkmann H, Brinkmann B.**
Phylogenetic resolution of complex mutational features at Y-STR DYS390 in Aboriginal Australians and Papuans.
Mol Biol Evol 1998 Sep;15(9):1108-1114.
Y-chromosomal short tandem repeats (STRs) are used for the study of male aspects of human evolution as well as for forensic applications and paternity testing. Both applications require an understanding of the underlying mutational mechanisms that create variability. We describe complex mutations at the substructured DYS390 STR locus in 97 natives of the New Guinea/Australian region. Sequencing of short alleles in these populations indicates multirepeat deletions. All samples are further characterized using the five additional Y-STR loci DYS19, DXYS156-Y, DYS391, DYS392 and DYS393. Phylogenetic analysis of the resulting haplotypes yields ethnically specific clusters predating the settlement of Australia and Papua New Guinea (although archaic *Homo sapiens* or *Homo erectus* lineages are absent). The phylogeny confirms that DYS390 violates the stepwise mutation model and demonstrates that the DYS390 locus mutates relatively rapidly and retains its variability after structural change.
- 15 **Friesen H.**
Paediatric HIV infection.
PNG Med J 1996 Sep;39(3):183-189.
HIV infection in children is a family disease, with social, economic and medical aspects that make it one of the most challenging diseases of our time. Knowledge about the factors involved in mother-to-child transmission and the natural history of the disease is gradually increasing although there is still much to understand. As the majority of children become infected through mother-to-child transmission, perinatally acquired infection will parallel increases in heterosexual transmission and the numbers of infected women of childbearing age. Current estimates of the rate of vertical transmission range from 14% to 39% in different studies. The relative proportion of transmission occurring in utero, peripartum or postpartum may vary in different localities and remains unclear. A study recently carried out in the USA showed that zidovudine given late in pregnancy, peripartum and in the neonatal period decreases HIV transmission from 25% to 8%. The clinical presentation of HIV infection in children depends in part on exposure to different infections. In developing countries the children usually present with nonspecific signs and symptoms, such as failure to thrive, chronic diarrhoea, cough and recurrent bacterial infections. Other common presentations include generalized lymphadenopathy, oropharyngeal candidiasis, dermatitis, enlargement of parotid glands and neurological problems, including delayed development.
- 16 **Friesen H, Danaya R, Doonar P, Kemiki A, Lagani W, Mataio G, Rongap T, Vince J.**
Assessment of HIV/AIDS knowledge, attitudes and behaviour of high school students in Papua New Guinea.
PNG Med J 1996 Sep;39(3):208-213.
OBJECTIVE: To assess the knowledge, attitudes and behaviour of high school students (grade 10) with regard to HIV infection and AIDS. METHODS: A self-administered questionnaire survey was carried out in 21 high schools in 6

different provinces. The questionnaire was anonymous and contained questions about HIV transmission, preventive measures, attitudes towards HIV infection and a few questions about personal sexual behaviour. **PRELIMINARY RESULTS:** A total of 1811 students completed the questionnaire. 46% were female. The average age was 17 years. Over 98% knew what AIDS and HIV were. 97% knew that HIV was sexually transmitted, but many misconceptions existed: one-third thought that HIV was transmitted by mosquitoes, 7% that HIV-infected persons were a danger in the classroom. 72% knew that using a condom at every sexual encounter was a way of protection from HIV infection. Approximately 25% reported to have had sexual contacts, and of 15-year-old students 14% were sexually active. Although STD/AIDS education is part of the curriculum for grade 8 the principals of the majority of the schools reported that no formal teaching was done. **DISCUSSION:** Although the majority of students knew that HIV is sexually transmitted, basic knowledge about STDs is lacking and is not taught as part of the curriculum in most of the schools. Teaching about STDs and HIV needs to be enforced and safe sexual practices need to be discussed with the students.

17 **Genton B, Al-Yaman F, Ginny M, Taraika J, Alpers MP.**

Relation of anthropometry to malaria morbidity and immunity in Papua New Guinean children.

Am J Clin Nutr 1998 Sep;68(3):734-741.

The interaction between malnutrition and malaria is complex and there is evidence that malnutrition decreases the susceptibility to malaria. To investigate the relation between anthropometric measurements and subsequent malaria morbidity and to examine whether the effect observed was due to interaction with host immunity, we followed for 1 year a cohort of 136 children aged 10 to < 120 months in Wosera, East Sepik Province, Papua New Guinea. At baseline, 21% were stunted, 10% were wasted, and 5% were both stunted and wasted. After adjustment for age and use of bed nets, height-for-age z score (HAZ) at baseline predicted the number of clinical episodes of falciparum malaria during the following year: incidence rate increased with increasing HAZ. Humoral responses to specific malarial antigens were lowest in the wasted children. The prevalence of lymphoproliferative responders was not significantly different between well-nourished and undernourished children. In contrast, the prevalence of cytokine producers was higher in the undernourished than in the well-nourished children. Our findings support the view that stunting but not wasting protects against falciparum malaria. The mechanism may be related to an improved ability of malnourished children to produce certain cytokines in response to stimulation by specific malarial antigens.

18 **Genton B, Paget S, Beck HP, Gibson N, Alpers MP, Hii J.**

Diagnosis of *Plasmodium falciparum* infection

using ParaSight(R)-F test in blood and urine of Papua New Guinean children.

Southeast Asian J Trop Med Public Health 1998 Mar;29(1):35-40.

Rapid, simple, accurate and cheap methods are required for the diagnosis of malaria in endemic areas. The ParaSight(R)-F test, which is based on qualitative detection by monoclonal antibody of the *Plasmodium falciparum* (Pf) histidine-rich protein-II in the blood, showed promising results. As some antigens of Pf have been detected in the urine, we assessed the efficiency of the ParaSight(R)-F test in the whole blood and in the urine using microscopy and PCR as gold standards. 112 children living in the East Sepik Province of Papua New Guinea (PNG) were recruited during a cross-sectional community survey. When using microscopy as reference, the ParaSight(R)-F test applied to whole blood had 84% sensitivity and 77% specificity. The semi-quantitative assessment showed that the intensity of the color on the wick correlated with parasite density. The ParaSight(R)-F test performed on urine had 81% sensitivity but only 26% specificity. Very similar results for blood and urine were obtained when using PCR as reference. The present evaluation of the ParaSight(R)-F test applied to blood compares well with findings in endemic areas of Africa or Asia, and confirms its usefulness to diagnose Pf infection in endemic areas of the South Pacific. Because of the lack of specificity, the ParaSight(R)-F test performed on urine cannot be recommended.

19 **Hanna JN, Brookes DL, Ritchie SA, Van Den Hurk AF, Loewenthal MR.**

Malaria and its implications for public health in Far North Queensland: a prospective study.

Aust NZ J Public Health 1998 Apr;22(2):196-199.

This prospective study's objectives were to describe the features of all episodes of malaria diagnosed in Far North Queensland (excluding the Torres Strait) and to assess how much of a threat they posed to the area's public health. Over a three-year period, 216 episodes of malaria were diagnosed (158 *Plasmodium vivax* and 68 *P. falciparum* infections). Most (82%) of the infections were acquired in Papua New Guinea (PNG). Approximately 70% of the episodes occurred in Australian citizens, about half of whom were in malaria-endemic countries for work; the remainder travelled abroad for recreation. Three-quarters of the Australian citizens with malaria had taken either no or inadequate prophylaxis. Australian citizens who had taken adequate prophylaxis were much less likely to develop *P. falciparum* than other types of malaria compared to those who took either no or inadequate prophylaxis ($p = 0.01$). Gametocytes were present in 121 (56%) of the episodes of malaria. Mosquito surveillance was carried out in response to 38 (31%) of these gametocytaemic episodes. Significant numbers of *Anopheles farauti* sensu lato mosquitoes were found close to the residence of a patient in 4 (11%) of these episodes. Only two occasions when local transmission could have possibly occurred were recognised. We do not believe malaria poses an

- important threat to the health of the public in Far North Queensland. Nevertheless, it remains an important problem for those who travel abroad to malarious areas.
- 20 **Harrison B, Crews P.**
Cyclic polyketide peroxides and acyclic diol analogues from the sponge *Plakortis lita*.
J Nat Prod 1998 Aug; 61(8):1033-1037.
The sponge *Plakortis lita* from Papua New Guinea is a source of three cyclic peroxides - ethyl plakortide Z (3), ethyl didehydroplakortide Z (4) and methyl didehydroplakortide Z (5) - and three acyclic diol analogues - ethyl seco-plakortide Z (6), epi-ethyl seco-plakortide Z (7) and ethyl didehydro-seco-plakortide Z (8). The absolute stereochemistry at the three chiral sites of 3 was assigned by preparing 6, which was investigated using the refined Mosher's method. Compounds 4, 5 and 6 were also concluded to have the same absolute stereochemistry as 3. The cyclic peroxides were generally cytotoxic, while the acyclic analogues were devoid of activity. Compound 3 was equally active in vitro against solid tumor and L-1210 leukemia cell lines. Alternatively, 4 was observed in vitro to be moderately solid-tumor selective but did not exhibit in vivo activity against solid tumors in mice.
- 21 **Jenkins C.**
AIDS in Papua New Guinea.
PNG Med J 1996 Sep;39(3):164-165.
- 22 **Jenkins C, Alpers M.**
Urbanization, youth and sexuality: insights for an AIDS campaign for youth in Papua New Guinea.
PNG Med J 1996 Sep;39(3):248-251.
- 23 **Johnson FYA.**
A study of substance abuse on two campuses of University of Papua New Guinea.
Med Law 1998;17(2):229-241.
BACKGROUND: Recent research reports indicate that there is a substantial amount of substance abuse on the campuses of the University of Papua New Guinea. OBJECTIVE: To compare the frequency and quantity of alcohol and drug abuse on the two campuses of the University of Papua New Guinea in the National Capital District. METHODS: A purposely designed questionnaire was used to collect data randomly on a total of 90 subjects (45 from each campus). The data were subjected to computer analysis. RESULTS: The results show that abuse of alcohol, tobacco and other drugs is prevalent on the two campuses of the University of Papua New Guinea. CONCLUSION: The results will form the basis of recommendations for substance abuse prevention, through information and education of the University students and staff members.
- 24 **Kaneko A.**
[Malaria on the global agenda: control and chemotherapy of malaria in Vanuatu.]
Rinsho Byori 1998 Jul;46(7):637-644. [Jap]
Even now 50% of the world population are still
- living in malaria-endemic areas and every year 200 million new cases with 2 million deaths are reported. Most of the malaria deaths are children under 5 years old. Although malaria endemicity currently exists mainly in the tropics, before humans started their efforts to eradicate malaria in large scale in the 1950s, malaria was more widely distributed in the world. At this time Japan had malaria together with North America and European countries. However, some areas were precluded from malaria endemicity, ie, high mountains and deserts. Also Polynesian islands in the Pacific have never been malarious, even though Melanesian Papua New Guinea, Solomon and Vanuatu are highly malarious even now. The human disease malaria is caused by *Plasmodium* parasites and transmitted by *Anopheles* mosquitoes. The human host is classified as both the malaria donor and recipient. The environment is supporting this system: for example, temperature and rainfall are important factors together with vegetation, housing, health infrastructure, war situation and poverty status. In the 1950s, the WHO malaria eradication program focused its efforts on vector control, using DDT residual spraying. But the program completely failed for mainly operational reasons and we have learned that it is almost impossible to control malaria by only killing mosquitoes. In 1992 the new Global Malaria Control Strategy adopted by the Malaria Summit at Amsterdam says that the primary objective is early diagnosis and treatment to prevent malaria deaths. In this context malaria chemotherapy is a key issue. Also we understand more and more that environmental management is very important. Malaria vaccine may be a conceptually important tool, but may not be available soon.
- 25 **Kila R.**
Dilemmas in AIDS care.
PNG Med J 1996 Sep;39(3):218-219.
- 26 **Lemeki M, Passey M, Setel P.**
Ethnographic results of a community STD study in the Eastern Highlands Province.
PNG Med J 1996 Sep; 39(3):239-242.
This paper reports on women's understanding of diseases believed to be sexually transmitted in the Asaro Valley of the Eastern Highlands Province. Sexually transmitted diseases (STDs) seemed to be a new category of disease as there were no local language terms for them. Women did not associate STDs with infertility. Although some symptoms were recognized and known to be sexually transmitted, STDs sometimes went untreated for years. STDs were thought of as milder than AIDS because they could be treated. Those informants who had good knowledge of AIDS claimed to have known an AIDS patient. It was interesting that those who knew an AIDS patient reported a change in sexual behaviour among people who saw the deteriorating state of their relative who was dying of AIDS.
- 27 **Lupiwa S, Suve N, Horton K, Passey M.**
Knowledge about sexually transmitted diseases in

rural and periurban communities of the Asaro Valley of Eastern Highlands Province: the health education component of an STD study.

PNG Med J 1996 Sep;39(3):243-247.

Community health education played a major role in a study of sexually transmitted diseases (STDs) and other reproductive tract infections which we conducted in rural and periurban communities of the Asaro Valley near Goroka in the Eastern Highlands Province of Papua New Guinea. We found that most women had little knowledge about STDs, which they often did not realize were sexually transmitted. Even major signs and symptoms were thought to be normal and many women had not sought treatment until irreversible damage was done. Knowledge of the complications of STDs, such as infertility and stillbirth, was also slight in these women. It is apparent that there is a desperate need for more reproductive health education at the community level. In developing our health education methods, we found that simple line drawings of male and female reproductive organs and of people with different signs of STDs proved useful. These were quick and easy to produce from readily available materials. It was important to separate men and women into different groups with educators of the same sex, and to create a very informal atmosphere, encouraging free-ranging discussion. Following health education and sensitive interviewing, almost all the women selected for the community-based study of the prevalence of reproductive tract infections consented to vaginal examination, even if they were asymptomatic. Additionally, many nonselected women requested examination.

28 **Mola G.**

HIV infections in obstetrics and gynaecology.

PNG Med J 1996 Sep;39(3):190-195.

Thirteen women were discovered to be positive for human immunodeficiency virus (HIV) infection during pregnancy at the Port Moresby General Hospital from 1988 to 1995; of these, eight were diagnosed in the first half of 1995. Risk testing for HIV status is unlikely to discover more than 20% of HIV-positive antenatal patients because risk factors target intravenous drug users and the sexual behaviour of men. Pregnancy does not seem to have a major impact on the progress of HIV disease, but could be detrimental particularly in the later stages of the disease. Especially in developing countries, where HIV-positive patients are more likely to be of poor nutritional status and burdened with a number of other infections, there is a higher risk of preterm labour, small-for-dates babies and chorioamnionitis in pregnancy. The risk of vertical transmission is increased when viral loads are high, the general maternal condition is poor and delivery is preterm. Rates in Papua New Guinea appear to be following the higher rates which have been reported from Africa. Gynaecological conditions found in association with HIV infection, including pelvic inflammatory disease, vulvovaginal candidiasis and cervical neoplasia, may be resistant to treatment and tend to

recur. Contraception for HIV-positive women may be more important to them than prevention of viral transmission; Depo-Provera and tubal ligation have special benefits in this regard. HIV infection in association with psychiatric disturbance might be an indication for termination of pregnancy.

29 **Mulholland K, Usen S, Adegbola R, Weber M.**

Use of pneumococcal polysaccharide vaccine in children.

Lancet 1998 Aug 15;352(9127):575-576.

30 **Passey M.**

Issues in the management of sexually transmitted diseases in Papua New Guinea.

PNG Med J 1996 Sep;39(3):252-260.

This paper outlines three important issues in the clinical management of sexually transmitted diseases (STDs) in Papua New Guinea which have, until now, gone unrecognized or been neglected. Suggestions for possible solutions are made. The high prevalence of both chlamydial and trichomonal infections in women cannot be ignored. Both of these infections have been shown to increase the transmission of HIV. The current algorithm for the treatment of vaginal discharges does not include treatment for trichomonal infection in the first instance, yet trichomoniasis has been shown to be the most common STD in community studies both here and elsewhere. Trichomoniasis is usually asymptomatic in men, but still increases the risk of HIV transmission; furthermore, it causes illness in their female partners and thus needs to be treated. The current recommended regimens for the treatment of gonococcal and chlamydial infection are complex due to the number of drugs recommended for gonorrhoea to combat the problem of drug resistance, and the length of therapy for chlamydia. Compliance with such a regimen is likely to be poor, particularly in asymptomatic partners. We need to consider the relative advantages provided by a drug which could be given as a single oral dose for chlamydia, and perhaps for both infections. Azithromycin is one possibility, as it has been shown to be effective for chlamydial infection in numerous studies, and has been found satisfactory for gonorrhoea where local isolates were susceptible. Testing of a small number of isolates from Papua New Guinea has shown that azithromycin may be suitable for use here, but further susceptibility testing needs to be performed. Utilization of services for STDs, particularly by women, is extremely low. This is due to a combination of factors involving limited knowledge of symptomatology and its significance, the asymptomatic nature of many infections, the structure of the services, health worker behaviour, and social attitudes. To address these issues we must make modifications to STD service provision, as well as provide widespread information about the potentially serious consequences of contracting STDs, including both infertility and AIDS. Possible modification to the services are discussed, and includes making routine screening available for women through currently

- existing services such as family planning and antenatal clinics and considering the possibility of establishing Women's Health Clinics which would provide all primary reproductive health services in an integrated manner.
- 31 **Qari SH, Shi YP, Goldman IF, Nahlen BL, Tibayrenc M, Lal AA.**
Predicted and observed alleles of *Plasmodium falciparum* merozoite surface protein 1 (MSP 1), a potential malaria vaccine antigen.
Mol Biochem Parasitol 1998 May 1;92(2):241-252.
The 19 kDa antigenic domain of *Plasmodium falciparum* merozoite surface protein (MSP)-1 is a potential malaria vaccine candidate. Based on the amino acid substitution, four known alleles, E-TSR (PNG-MAD20 type), E-KNG (Uganda-PA type), Q-KNG (Wellcome type) and Q-TSR (Indo type), of this domain have been identified. Using single or double crossover recombinational events, we predicted the existence of additional alleles of this antigen. The presence of the predicted alleles was determined in parasite isolates from western Kenya, by undertaking a cross-sectional and a longitudinal study. Of the ten predicted alleles, we have revealed the presence of three new alleles: E-KSG-L (Kenya-1 type); E-KSR-L (Kenya-2 type); and E-KNG-F (Kenya-3 type). The results of this study suggest that it may be possible to predict the complexity of the genetic makeup of natural parasite populations.
- 32 **Queyrel V, Moranne O.**
[Medicine in Vanuatu: a voyage to the end of the earth to Espiritu Santo Island.]
Rev Med Interne 1998 Sep;19(9):619-628. [Fr]
INTRODUCTION: The republic of Vanuatu, which was previously termed the New Hebrides, has been independent since 1981. Colonization by both France and England has left its numerous marks on this country over the years. The authors spent the year 1997 on Espiritu Santo Island and report their experience as practitioners at the northern district hospital. CURRENT KNOWLEDGE AND KEY POINTS: As Vanuatu is a developing country, medical practice is subject to changes in government, development aid provided by foreign countries and socio-economic conditions. Numerous chronic diseases with historical complications and malpractice are encountered. As well, numerous infectious diseases such as tuberculosis and malaria are still endemic. Means of fighting and preventing infections are great problems, with, for example, deficiencies in immunization programs. Though medical structures are well organized, due to its immature government and assistance rather than cooperation policies of various helping countries, latitudinarianism is important and medical practice is not continuously organized. FUTURE PROSPECTS AND PROJECTS: Several objectives should be considered: epidemiological studies in order to reconstitute disease profiles in this archipelago and, most of all, cooperation that would aim at training and education.
- 33 **Richards T.**
AIDS: what should nurses know?
PNG Med J 1996 Sep; 39(3):228-229.
- 34 **Sapak P, Sleigh A, Williams G, Peter W, Ginny M, Waranduo M.**
Measurement of ovalocyte frequency in peripheral blood smears in defining ovalocytosis in Papua New Guinea.
Trop Med Int Health 1998 Oct;3(10):809-817.
Red cell oval morphology is still the only accepted basis for the clinical or epidemiological diagnosis of ovalocytosis. Therefore it is important to know the errors when detecting and counting morphological ovalocytes. In all previous studies of ovalocytosis there was no assessment of the variation which may have occurred in classification due to smearing and staining techniques or the criteria for the diagnosis of ovalocyte morphology; nor was inter- or intraobserver variation assessed. We report how different peripheral blood smear methods influence the diagnosis of ovalocytosis in populations in the Madang and East Sepik Provinces in Papua New Guinea. We also examined within and between observer variation in the quantitative assessment of ovalocytosis at x 40 and x 100 microscopy powers. A modified method of making a thin malaria blood smear gave the best preservation of red cell morphology and was adopted for the quantitative ovalocytosis studies. A special haematology smear is unnecessary. Ovalocyte frequency estimations were similar when x 40 and x 100 lenses were used, but x 40 was preferable for assessing morphology. Two observers were consistent in their findings and produced very similar results for the high-quality smears from the planned Madang survey, and rather different results for the smears from the unplanned routine Sepik survey. We conclude that measurement error for ovalocytosis assessment can be quite small and unimportant, minimized by careful planning and quality control. Otherwise measurement error is substantial and threatens validity of classification and grading of ovalocytosis.
- 35 **Seaton A, Ombiga J, Wembri J, Armstrong P, Naraqi S, Linge D, Kevau I, Mavo B, Saweri A, SenGupta A, Sinha AK, Puiahi E, Slama G, Igo J, Babona D.**
Clinical manifestations of HIV infection in Melanesian adults.
PNG Med J 1996 Sep;39(3):181-182.
- 36 **Shim YS, Kim CW, Lee WK.**
Sequence variation of EBNA2 of Epstein-Barr virus isolates from Korea.
Mol Cells 1998 Apr 30;8(2):226-232.
To reveal sequence variations in the Epstein-Barr virus nuclear antigen 2 (EBNA2) genes of Epstein-Barr virus (EBV) strains circulating in the Korean population, the EBNA2 divergent region was amplified and sequenced from 13 EBV-1 isolates, 2 EBNA2 type 1 intertypic EBV isolates, and two EBV-2 isolates, all derived from Korean cancer patients. Comparative sequence analysis

revealed that type 1 and type 2 EBNA2 divergent regions of Korean EBV isolates were almost identical to the respective regions of the B95-8 EBV-1 and AG876 EBV-2 strains. Two of the nucleotide changes found in the type 1 divergent regions of all Korean isolates, G-to-T and C-to-A at B95-8 EBV positions 48,991 and 48,998, respectively, are also present in all EBV-1 strains of non-Asian origin, indicating that these two sites might be mutational hot sites. Besides these two mutations, EBV-1 strains from Papua New Guineans or European Caucasians and Africans show unique patterns of identical sequence variations from B95-8, which were not found in type 1 isolates from Korea, suggesting that Korean type 1 is evolving as a lineage distinct from isolates from Papua New Guineans or European Caucasians and Africans.

37 **Theile DE, Bennett RC.**

The Pacific Islands Project: the first 3 years.

Aust NZ J Surg 1998 Nov;68(11):792-798.

BACKGROUND: The Pacific Island countries consist of widely scattered, small, underdeveloped islands which require considerable international assistance, particularly in health care. In 1995, the Pacific Islands Project was established and funded by AusAID to provide tertiary medical assistance to 10 island countries over a 3-year period. The programme was later expanded to include Papua New Guinea. **METHODS:** The Royal Australasian College of Surgeons was appointed manager of the project, which involved voluntary input from members of several specialist medical colleges and societies. Assistance was provided through short-term visits of multidisciplinary teams according to predetermined priorities. The delivery of medical services was combined with a transfer of skills and educational activities. Feedback was obtained from the recipient countries and each visit evaluated by an independent committee. **RESULTS:** One hundred and thirty-one visits in ten disciplines were conducted in 11 countries by 255 participants on a voluntary basis between March 1995 and March 1998: 15,784 patients were seen and 3424 operations performed. **CONCLUSIONS:** The programme was very successful on all counts. It has now been extended for a further 3 years and will be conducted in parallel with postgraduate educational programmes in the Pacific region and Papua New Guinea.

38 **Tiwara S, Passey M, Clegg A, Mgone C, Lupiwa S, Suve N, Lupiwa T.**

High prevalence of trichomonal vaginitis and chlamydial cervicitis among a rural population in the highlands of Papua New Guinea.

PNG Med J 1996 Sep;39(3):234-238.

We conducted a community-based study of the prevalence of sexually transmitted diseases in rural and periurban communities in Eastern Highlands Province. We interviewed a stratified random sample of women and men, examined the women for evidence of sexually transmitted diseases (STDs) and collected specimens for diagnosis of syphilis, by serology and dark-field microscopy,

gonorrhoea, by Gram stain and culture, chlamydial infection, by polymerase chain reaction (PCR) and direct immunofluorescence (DIF), trichomoniasis, by wet mount, and bacterial vaginosis, by wet mount and Gram stain. The men were tested for chlamydial infection only (first void urine tested by PCR and DIF). 201 women and 169 men were tested. Additionally, adults in the same communities who had not been randomly selected were offered the same services. An extra 243 women and 85 men were tested in this way. The laboratory results confirmed the clinical impression of an extremely high prevalence of STDs in this population. Among those randomly selected, 46% of the women had trichomonal vaginal infections and 26% had *Chlamydia trachomatis* infections detected by PCR, while 25% of the men had chlamydial infections. Other infections were much less common. 58% had one or more STDs. The prevalence of infection in self-selected adults was similar to that found in those randomly selected.

39 **Trott DJ, Mikosza AS, Combs BG, Oxberry SL, Hampson DJ.**

Population genetic analysis of *Serpulina pilosicoli* and its molecular epidemiology in villages in the Eastern Highlands of Papua New Guinea.

Int J Syst Bacteriol 1998 Jul;48(3):659-668.

The population genetics of *Serpulina pilosicoli* and its molecular epidemiology in villages in the Eastern Highlands Province of Papua New Guinea were investigated. Multilocus enzyme electrophoresis (MLEE) was used to analyse 164 isolates from humans and animals. These were divided into 33 electrophoretic types (ETs), four of which contained 65% of the isolates. The mean genetic diversity ($n = \text{number of ETs}$) for 145 human isolates was 0.18, and the mean number of alleles at five polymorphic loci was 2.6. The species appeared to be recombinant, as there was a lack of linkage disequilibrium, and 25% of all the possible combinations of alleles was present in the population. PFGE analysis using the enzymes M_{ul} and Sa_I divided 157 of the isolates into 99 PFGE types, demonstrating the existence of considerable strain diversity in a geographically restricted area. The two techniques were in excellent agreement; however, PFGE was more discriminatory for strain typing than was MLEE. 9 out of 19 (47.4%) culture-positive individuals were colonized by the same PFGE type of *S. pilosicoli* when retested after 6 weeks. For 3 individuals, the PFGE profiles of the second isolate differed from the first in only one or two DNA bands, while the other 7 individuals were colonized with distinct PFGE types on each occasion. In two cases, strains with the same PFGE pattern were isolated from humans and dogs, suggesting that cross-species transmission of *S. pilosicoli* may occur naturally and that the infection can be zoonotic.

40 **Ulijaszek SJ.**

Immunology and growth faltering of Anga children, Papua New Guinea: preliminary work.

Am J Phys Anthropol 1998 Aug; 106(4):515-520.

Nutrition-infection interactions among poor

children of the less-developed world influence growth and development. However, the relative importance of each is difficult to determine, because the relationship is mediated by immunological status. In this analysis, relationships between immunological measures and anthropometry were sought among 41 Anga, Papua New Guinea children aged 0-7 years. These had elevated serum total leucocyte and leucocyte subset counts relative to western reference values. Although there was no correlation between anthropometric nutritional status and total leucocytes and leucocyte subsets for this group, the small group (n=8) with very high total leucocyte count (greater than 15,000/microlitre) had significantly lower mean Z score of stature for age (-3.78), and weight for stature (-1.35) than those with leucocyte counts lower than this cut-off (weight for stature Z score: -0.59; stature for age Z score: -2.68, respectively). Low stature for age Z score was associated with lower total lymphocyte count and increasing age, against a background of elevated lymphocyte levels relative to western reference values among the older children; low weight for stature Z score was associated with lower neutrophil count, against a background of normal neutrophil levels across all age groups. The pattern of weight and stature growth seen in the Anga may reflect extended nutritional deficits which result in stunting of a degree to which the most growth-compromised children die, leaving those above a threshold associated with high mortality alive. Thus, the anthropometric and immunological characteristics of the older children in this small sample may reflect the biology of survival under severe ecological conditions, where poor linear growth and elevated leucocyte status relative to normative values are characteristics of survivorship.

41 **Umezaki M, Ohtsuka R.**

Impact of rural-urban migration on fertility: a population ecology analysis in the Kombio, Papua New Guinea.

J Biosoc Sci 1998 Jul;30(3):411-422.

The Anjangmui dialect group of the Kombio in Papua New Guinea has experienced a rapid increase in rural-urban migration since European contact commenced in the 1930s. Population ecology analyses of birth and migration histories for 240 Anjangmui women showed a higher total marital fertility rate in the cohort born in 1940-59 than that born in 1920-39. A decline in the age at menarche for nutritional reasons, and reduction in the birth interval for behavioral reasons, may

explain the fertility difference between cohorts. Comparison of age-specific marital fertility rates between migrants in urban areas and non-migrants in rural areas revealed higher rates among migrants in the 15-19 and 20-24 year age groups, but lower rates in the 25-29 year or older age groups; the total marital fertility rate for migrants was lower than that for non-migrants. The differences may be attributable to the different influences of birth control practices on fertility reduction between the migrants in urban areas and non-migrants in rural areas. It is suggested that rural-urban migration in the Anjangmui during the post-contact period has had the effect of reducing fertility in the population as a whole.

42 **Van Beekhuizen HJ.**

Tuberculosis score chart in children in Aitape, Papua New Guinea.

Trop Doct 1998 Jul;28(3):155-160.

The diagnosis of tuberculosis (TB) in children is difficult, especially in developing countries with limited resources. In this retrospective review, we analyse the tuberculosis score chart (TSC) developed by Dr Keith Edwards. At the Raihu Health Centre, a rural hospital in Papua New Guinea, we analysed the diagnostic pathways to establish the diagnosis of TB and the use of the TSC during 1994 and 1995 and give a description of this TSC, as well as the data of 301 children in which the diagnosis of TB was likely.

43 **Verma N.**

HIV and AIDS.

PNG Med J 1996 Sep;39(3):163.

44 **Verma N, Kearney J.**

Ocular manifestations of AIDS.

PNG Med J 1996 Sep;39(3):196-199.

The acquired immune deficiency syndrome (AIDS) is a lethal multisystem disease. Its ocular manifestations have received relatively little attention in the literature. Between 73% and 100% of AIDS patients develop ocular lesions. The commonest lesions seen are retinal - either infectious or noninfectious retinopathy. Involvement of the conjunctiva with Kaposi's sarcoma, infected tears and infected cornea as well as the vitreous are less common. Infections with cytomegalovirus and varicella zoster virus are common causes of visual loss and can be treated with antiviral agents such as ganciclovir and foscarnet. This greatly increases the quality of life in these patients by preventing visual loss.

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- 3 **Garner PA, Hill G.** Brainwashing in tuberculosis management. *PNG Med J* 1985;28:291-293.

- 4 **Cochrane RG.** A critical appraisal of the present position of leprosy. In: Lincicome DP, ed. *International Review of Tropical Medicine*. New York: Academic Press, 1961:1-42.

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