# A SELECTION OF TEN CURRENT READINGS ON TOPICS RELATED TO COMMUNICABLE DISEASES AVAILABLE AS FREE FULL-TEXT

**Selection of readings made by A/Prof Goh Lee Gan**

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## Reading 1 - Dengue Fever

**Kumarasamy V, Chua SK, Hassan Z, Wahab AH, Chem YK, Mohamad M, Chua KB. Evaluating the sensitivity of a commercial dengue NS1 antigen-capture ELISA for early diagnosis of acute dengue virus infection. Singapore Med J. 2007 Jul;48(7):669-73.**

URL: http://smj.sma.org.sg/4807/4807a12.pdf

The National Public Health Laboratory, Ministry of Health, Lot 1853 Kg Melayu, Sungai Buloh 47000, Malaysia.

ABSTRACT

INTRODUCTION: The aim of this report is to establish an accurate diagnosis of acute dengue virus infection early, in order to provide timely information for the management of patients and early public health control of dengue outbreak.

METHODS: 224 serum samples from patients with a clinical diagnosis of acute dengue infection, which were subsequently confirmed by laboratory tests, were used to evaluate the performance of a commercially-available dengue NS1 antigen-capture ELISA kit.

RESULTS: The dengue NS1 antigen-capture ELISA gave an overall sensitivity rate of 93.3 percent (209/224). The sensitivity rate was significantly higher in acute primary dengue (97.4 percent) than in acute secondary dengue (68.8 percent). In comparison, the virus isolation gave an overall positive isolation rate of 64.7 percent, with a positive rate of 70.8 percent and 28.1 percent, for acute primary dengue and acute secondary dengue, respectively. Molecular detection of dengue RNA by RT-PCR gave an overall positive detection rate of 63.4 percent, with a positive rate of 62.5 percent and 68.8 percent, for acute primary dengue and acute secondary dengue, respectively. Of the 224 acute serum samples from patients with laboratory-confirmed acute dengue infection, dengue IgM was detected in 88 specimens, comprising 68 acute primary dengue specimens and 20 acute secondary dengue specimens. NS1 antigen-capture ELISA kit gave an overall sensitivity rate of 88.6 percent in the presence of anti-dengue IgM and 96.3 percent in the absence of anti-dengue IgM.

CONCLUSION: Of the 224 acute serum samples, the sample ages of 166 acute serum samples are known. The positive detection rate of dengue NS1 antigen-capture ELISA, on the whole, was higher than the other three established diagnostic test methods for laboratory diagnosis of acute dengue infection.

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## Reading 2 - Hepatitis B Vaccination

**Lim FS, Han HH, Jacquet JM, Bock HL. Primary vaccination of infants against hepatitis B can be completed using a combined hexavalent diphtheria-tetanus-acellular pertussis-hepatitis B-inactivated poliomyelitis-Haemophilus influenzae type B vaccine. Ann Acad Med Singapore. 2007 Oct;36(10):801-6.**

URL: http://www.annals.edu.sg.libproxy1.nus.edu.sg/pdf/36VolNo10Oct2007/V36N10p801.pdf

National Health Care Group Polyclinics, Choa Chu Kang, Singapore.

ABSTRACT

INTRODUCTION: Children in Singapore receive vaccination against hepatitis B virus (HBV) at 0, 1 and 5 or 6 months of age, and vaccination against pertussis, diphtheria, tetanus, and polio at 3, 4 and 5 months of age. Parents often choose to vaccinate with the combined acellular-pertussis-inactivated polio-Hib vaccine (DTPa-IPV/Hib). We investigated whether a combined hexavalent vaccine, DTPa-HBV-IPV/Hib, could replace the separate administration of DTPa-IPV/Hib and HBV for the final vaccination at 5 months of age (Trial DTPa-HBV-IPV-075).

MATERIALS AND METHODS: In an open study, 150 children were randomised to complete their vaccination schedule with DTPa-IPV/Hib + HBV or DTPa-HBV-IPV/Hib.

RESULTS: One month after the final vaccination, there was no difference between groups in seroprotection rates or antibody concentrations against HBV. Seroprotection rates against diphtheria, tetanus, Hib and polio, as well as vaccine response rates to pertussis antigens were also similar between groups. Local and general symptoms occurred at a similar rate after the third dose of either vaccine.

CONCLUSION: The immunogenicity and reactogenicity of the hexavalent vaccine DTPa-HBV-IPV/Hib (Infanrix hexa, GSK) group is comparable to that of separately administered DTPa-IPV/Hib and HBV vaccines. Combined hexavalent vaccine, DTPa-HBV-IPV/Hib, could replace the separate administration of DTPa-IPV/Hib and HBV for vaccination at 5 months of age, thereby reducing the number of injections required.

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## Reading 3 - Hepatitis B Transmission

**Lu W, Mak B, Lim SG, Aung MO, Wong ML, Wai CT. Public misperceptions about transmission of hepatitis B virus in Singapore. Ann Acad Med Singapore. 2007 Oct;36(10):797-800.**

URL: http://www.annals.edu.sg.libproxy1.nus.edu.sg/pdf/36VolNo10Oct2007/V36N10p797.pdf

Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore, Singapore.

ABSTRACT

INTRODUCTION: Hepatitis B virus (HBV) infection is endemic in Asia. Good public knowledge on disease transmission is one way of controlling spread of HBV. We aimed to study the general knowledge on HBV among the general public in Singapore, which is moderately prevalent with HBV.

MATERIALS AND METHODS: Before conducting a public education seminar on liver diseases, a 16-point questionnaire survey was conducted among the participants. Misperceptions (if any) were identified, and factors associated with knowledge score were analysed by multivariate analysis.

RESULTS: One hundred and ninety-two subjects completed the questionnaire. The mean age was 52 years, 78 (41%) were male, 183 (95%) were Chinese, 17 (9%) were known hepatitis B carriers and 73 (38%) had completed college education. The mean knowledge score was 10.7 (out of a maximum of 16). Most misperceptions were in the category of HBV transmission. At multivariate analysis, having college education was the only independent factor associated with a high knowledge score.

CONCLUSION: Although HBV infection is moderately prevalent in Singapore, many misperceptions existed among the general public, especially on the mode of transmission. Better education was related to better knowledge of HBV. Further public education should be targeted to clear the misperceptions identified, and be specifically targeted to the less educated.

## Reading 4 - Hepatitis B & C Screening and Management

**Benson J, Donohue W. Hepatitis in refugees who settle in Australia. Aust Fam Physician. 2007 Sep;36(9):719-27.**

URL: http://www.racgp.org.au/afp/200709/18552

Health in Human Diversity Unit, Discipline of General Practice, University of Adelaide, and Migrant Health Service, Tullawon Health Service Yalata Community and Parklands Medical Practice, South Australia, Australia.

ABSTRACT

BACKGROUND: The World Health Organisation estimates that 2 billion people have been infected with hepatitis B and about 180 million people infected with hepatitis C worldwide. More than 350 million have chronic hepatitis B and 130 million have chronic hepatitis C infection. Most infections of hepatitis B and C are from unsafe injection practices, both medical and nonmedical; from household contacts; or, in the case of hepatitis B, from 'vertical' transmission from mother to child.

OBJECTIVE: This article discusses screening and management of hepatitis B and C in refugees who settle in Australia.

DISCUSSION: Most people carrying hepatitis will be asymptomatic with infection detected by screening. Refugees need counselling, education and support to come to terms with the implications of hepatitis B and C for both themselves and their families. In Australia both viruses can be treated in those with active infection and general practitioners can be involved in diagnosis, follow up and shared care management.

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## Reading 5 - Multiple Neglected Tropical Diseases

**Reddy M, Gill SS, Kalkar SR, Wu W, Anderson PJ, Rochon PA. Oral drug therapy for multiple neglected tropical diseases: a systematic review. JAMA. 2007 Oct 24;298(16):1911-24.**

URL: http://jama.ama-assn.org/cgi/content/full/298/16/1911

Department of Medicine, Hebrew Rehabilitation Center, Boston, Massachusetts 02131, USA.

ABSTRACT

CONTEXT: The neglected tropical diseases include 13 conditions that occur in areas of extreme poverty and are poverty promoting. The neglected tropical diseases produce a disease burden almost as great as that associated with human immunodeficiency virus/AIDS, tuberculosis, or malaria, yet are virtually unknown by health care workers in North America, because they occur almost exclusively in the poorest regions of the world. Seven of the most prevalent diseases have existing oral drug treatments. Identifying treatments that are effective against more than 1 disease could facilitate efficient and inexpensive treatment.

OBJECTIVES: To systematically review the evidence for drug treatments and to increase awareness that neglected tropical diseases exist and that treatments are available.

DATA SOURCES AND STUDY SELECTION: Using a MEDLINE search (1966 through June 2007), randomized controlled trials (RCTs) were reviewed that examined simultaneous treatment of 2 or more of the 7 most prevalent neglected tropical diseases using oral drug therapy.

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DATA SYNTHESIS: Twenty-nine RCTs were identified, of which 3 targeted 4 diseases simultaneously, 20 targeted 3 diseases, and 6 targeted 2 diseases. Trials were published between 1972 and 2005 and baseline prevalence of individual diseases varied among RCTs. Albendazole plus diethylcarbamazine significantly reduced prevalence of elephantiasis (16.7% to 5.3%), hookworm (10.3% to 1.9%), roundworm (34.5% to 2.3%), and whipworm (55.5% to 40.3%). Albendazole plus ivermectin significantly reduced prevalence of elephantiasis (12.6% to 4.6%), hookworm (7.8% to 0%), roundworm (33.5% to 6.1%), and whipworm (42.7% to 8.9%). Levamisole plus mebendazole significantly reduced prevalence of hookworm (94.0% to 71.8%), roundworm (62.0% to 1.4%), and whipworm (93.1% to 74.5%). Pyrantel-oxantel significantly reduced hookworm (93.4% to 85.2%), roundworm (22.8% to 1.4%), and whipworm (86.8% to 59.5%), while albendazole alone significantly reduced prevalence of hookworm (8.1% to 1.3%), roundworm (28.4% to 0.9%), and whipworm (51.9% to 31.9%). No RCT examined treatment of river blindness or trachoma as part of an intervention to target 2 or more neglected tropical diseases. Adverse events were generally inadequately reported.

CONCLUSIONS: At least 2 of the most prevalent neglected tropical diseases can be treated simultaneously with existing oral drug treatments, facilitating effective and efficient treatment. Increasing awareness about neglected tropical diseases, their global impact, and the availability of oral drug treatments is an essential step in controlling these diseases.

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## Reading 6 - Malaria Risk in Travellers

**Massey P, Durrheim DN, Speare R. Inadequate chemoprophylaxis and the risk of malaria. Aust Fam Physician. 2007 Dec;36(12):1058-60.**

URL: http://www.racgp.org.au/afp/200712/21099

CNC, Population Health, Hunter New England Health, Tamworth, New South Wales.

ABSTRACT

BACKGROUND: Malaria is an important disease for Australian travellers, particularly to Papua New Guinea. Travellers often seek health advice from their general practitioner before travel or if they develop illness after travel.

METHOD: A retrospective cohort investigation into malaria risk in a group of adult Australians that trekked the Kokoda trail in Papua New Guinea.

RESULTS: Six of 38 group members were diagnosed with malaria on return from Papua New Guinea. None of the 12 individuals who took chemoprophylaxis for the recommended period post-travel developed malaria compared to 4/24 travellers who terminated prophylaxis prematurely or 2/2 who took no chemoprophylaxis.

DISCUSSION: Chemoprophylaxis is effective if taken for the full recommended period following travel to a malaria endemic area; 4 weeks for doxycycline and mefloquine, and 7 days for atovaquone+proguanil. Malaria is a likely cause of illness in recently returned travellers from Papua New Guinea who develop a febrile illness.

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## Reading 7 - Malaria Screening, Assessment, and Management

**Benson J, Davis J. Malaria in the Australian refugee population. Aust Fam Physician. 2007 Aug;36(8):639-41, 656.**

URL: http://www.racgp.org.au/afp/200708/17990

Discipline of General Practice, University of Adelaide, Australia.

ABSTRACT

BACKGROUND: Malaria is a serious health problem in many of the countries from which refugees come to Australia. Anopheles mosquitoes capable of transmitting malaria are present in the far north of Australia and in these areas, the detection and appropriate treatment of malaria is vital, not only for the health of the individuals and their families, but as a significant public health issue.

OBJECTIVE: This article outlines screening, assessment and management of malaria in the refugee population.

DISCUSSION: Most malaria does not follow the classic pattern of periodic fever with paroxysms of cold, hot and sweating stages. There should be a high index of suspicion for anyone from an endemic area presenting with fever, vomiting, diarrhoea, headache and/or muscle pain, even if they have been tested or treated for malaria. What is most likely to be a nonspecific viral illness in someone who has never left Australia might be an urgent life threatening illness in a recently arrived refugee. Therefore all refugees from endemic areas, whether symptomatic or not, should be screened as soon as possible after arrival. Appropriate treatment is expensive and should be monitored by a hospital, but can be done as an outpatient in some individuals. Follow up with thick and thin films as a 'test of cure' should be done at 28 days.

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## Reading 8 - Severe Falciparum Malaria

**May J, Evans JA, Timmann C, Ehmen C, Busch W, Thye T, Agbenyega T, Horstmann RD. Hemoglobin variants and disease manifestations in severe falciparum malaria. JAMA. 2007 May 23;297(20):2220-6.**

URL: http://jama.ama-assn.org/cgi/reprint/297/20/2220

Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany.

ABSTRACT

CONTEXT: The geographical distributions of hemoglobin S (HbS), hemoglobin C (HbC), and alpha+-thalassemia (-alpha) strongly suggest balancing selection with malaria. However, whereas several studies indicate that the HbS carrier state protects against all major forms of clinical malaria, malaria protection on clinical grounds has been more difficult to confirm for HbC and -alpha, and questions remain as to whether it applies to all forms of the disease.

OBJECTIVE: To assess the association between major clinical forms of severe falciparum malaria and HbS, HbC, and -alpha.

DESIGN, SETTING, AND PARTICIPANTS: Case-control study of 2591 children with severe falciparum malaria enrolled at a tertiary referral center in Ghana, West Africa, and 2048 age-, sex-, and ethnicity-matched control participants recruited by community surveys.

MAIN OUTCOME MEASURES: Frequencies of HbS, HbC, and -alpha in patients and controls, including stratifications of patients for signs of disease.

RESULTS: Patients presented with partly overlapping signs of disease, including severe anemia (64%), cerebral malaria (22%), respiratory distress (30%), hyperparasitemia (32%), prostration (52%), acidosis (59%), and hyperlactatemia (56%). Carrier states of HbS, HbC, and -alpha were found in 1.4%, 9.4%, and 25.2% of the patients, respectively, and 14.8%, 8.7%, and 27.3% of controls. The HbS carrier state was negatively associated with all forms of the disease studied (overall odds ratio [OR], 0.08; 95% confidence interval [CI], 0.06-0.12). The HbC carrier state showed a negative association selectively with cerebral malaria (OR, 0.64; 95% CI, 0.45-0.91), and the -alpha carrier state showed a negative association selectively with severe anemia (OR, 0.82; 95% CI, 0.69-0.96).

CONCLUSION: Whereas the HbS carrier state was found to be negatively associated with all major forms of severe falciparum malaria, the negative associations of the carrier states of HbC and -alpha appeared to be limited to cerebral malaria and severe anemia, respectively.

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## Reading 9 - Diagnosis and Treatment of Malaria

**Griffith KS, Lewis LS, Mali S, Parise ME. Treatment of malaria in the United States: a systematic review. JAMA. 2007 May 23;297(20):2264-77.**

URL: http://jama.ama-assn.org.libproxy1.nus.edu.sg/cgi/content/full/297/20/2264

Malaria Branch, Division of Parasitic Diseases, National Center for Zoonotic, Vector-Borne and Enteric Diseases, Coordinating Center for Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Ga 30341, USA.

ABSTRACT

CONTEXT: Many US clinicians and laboratory personnel are unfamiliar with the diagnosis and treatment of malaria.

OBJECTIVES: To examine the evidence base for management of uncomplicated and severe malaria and to provide clinicians with practical recommendations for the diagnosis and treatment of malaria in the United States.

EVIDENCE ACQUISITION: Systematic MEDLINE search from 1966 to 2006 using the search term malaria (with the subheadings congenital, diagnosis, drug therapy, epidemiology, and therapy). Additional references were obtained from searching the bibliographies of pertinent articles and by reviewing articles suggested by experts in the treatment of malaria in North America.

EVIDENCE SYNTHESIS: Important measures to reduce morbidity and mortality from malaria in the United States include the following: obtaining a travel history, considering malaria in the differential diagnosis of fever based on the travel history, and prompt and accurate diagnosis and treatment. Chloroquine remains the treatment of choice for Plasmodium falciparum acquired in areas without chloroquine-resistant strains. In areas with chloroquine resistance, a combination of atovaquone and proguanil or quinine plus tetracycline or doxycycline or clindamycin are the best treatment options. Chloroquine remains the treatment of choice for all other malaria species, with the exception of P vivax acquired in Indonesia or Papua New Guinea, in which case atovaquone-proguanil is best, with mefloquine or quinine plus tetracycline or doxycycline as alternatives. Quinidine is currently the recommended treatment for severe malaria in the United States because the artemisinins are not yet available. Severe malaria occurs when a patient with asexual malaria parasitemia, and no other confirmed cause of symptoms, has 1 or more designated clinical or laboratory findings. The only adjunctive measure recommended in severe malaria is exchange transfusion.

CONCLUSIONS: Malaria remains a diagnostic and treatment challenge for US clinicians as increasing numbers of persons travel to and emigrate from malarious areas. A strong evidence base exists to help clinicians rapidly initiate appropriate therapy and minimize the major mortality and morbidity burdens caused by this disease.

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## Reading 10 - Catch up Immunisation

**Phillips CB, Benson J. Better primary health care for refugees - catch up immunisation. Aust Fam Physician. 2007 Jun;36(6):440-2, 444.**

URL: http://www.racgp.org.au/afp/http://www.racgp.org.au/afp/200706/16939

Social Foundations of Medicine, Medical School, College of Medicine and Health Sciences, Australian National University, Australia.

ABSTRACT

BACKGROUND: Many newly arrived refugees come from countries with fragile primary health infrastructure. As a result they may have had patchy primary immunisation against vaccine preventable diseases.

OBJECTIVE: This article outlines key considerations in developing an effective catch up immunisation program for refugees.

DISCUSSION: The potential challenges include knowing which vaccines to give to provide catch up vaccination, access to appropriate vaccines through public health units, and adequate follow up to support completion of immunisation courses. The most useful immunisations for adolescent and adult refugees are adult diphtheria/tetanus, measles/mumps/rubella, inactivated polio, and hepatitis B vaccines. Immunisation programs for refugees require cooperation between primary health care practitioners and health policy makers to ensure that good primary health care is available to the most vulnerable groups arriving in Australia.