



Bulletin 207 | 4 May 2009

## Publications

### **OPEN ACCESS | Methodology: Towards high-throughput molecular detection of Plasmodium: new approaches and molecular markers**

Nicolas Steenkeste et al.

Malaria Journal 2009, 8:86 (29 April 2009)

The paper describes two molecular methods developed for screening a large number of blood samples for malaria epidemiology. The results are informative and demonstrate that keeping microscopical examination as the gold standard may be outdated.

### **OPEN ACCESS | Research: A retrospective analysis of the change in anti-malarial treatment policy: Peru**

Holly Ann Williams, Arlene Vincent-Mark, Yenni Herrera, O Jaime Chang

Malaria Journal 2009, 8:85 (28 April 2009)

The change in malaria treatment policy in Peru occurred very quickly, and offers an excellent example to other countries as they contemplate or embark on policy changes. They identified a problem, collected the data necessary to justify the change, utilized political will to their favour, approved the policy, and moved to improve malaria control.

### **OPEN ACCESS | Research: Absence of knockdown resistance suggests metabolic resistance in the main malaria vectors of the Mekong region**

Katrijn Verhaeghen, Wim Van Bortel, Ho Dinh Trung, Tho Sochantha, Marc Coosemans

Malaria Journal 2009, 8:84 (28 April 2009)

At a time when artemisinin resistance appears to be emerging in the region, the application of available malaria control measures is of strategic importance. Insecticide resistance may jeopardize the success of such programmes.

### **OPEN ACCESS | Research: Anti-malarial prescriptions in three health care facilities after the emergence of chloroquine resistance in Niakhar, Senegal (1992-2004)**

Aline Munier, Aldiouma Diallo, Michel Cot, Ousmane Ndiaye, Pascal Arduin, Jean-Philippe Chippaux

Malaria Journal 2009, 8:83 (27 April 2009)

The study was conducted in the area of Niakhar, a demographic surveillance site located in a sahelio-sudanese region of Senegal, with mesoendemic and seasonal malaria transmission. Health records of two public health centres and a private catholic dispensary were collected retrospectively to cover the period 1992-2004. The results show the overall level of anti-malarial prescription in the study area for a considerable number of patients over a large period of time. Even though resistance to CQ rapidly increased from 1992 to 2001, no change in CQ prescription was observed until the early 2000s, possibly due to the absence of an obvious decrease in CQ effectiveness, a lack of therapeutic options or a blind follow-up of national guidelines.

**OPEN ACCESS | Research: A resting box for outdoor sampling of adult *Anopheles arabiensis* in rice irrigation schemes of lower Moshi, northern Tanzania**

Eliningaya J Kweka, Beda J Mwang'onde, Epiphania Kimaro, Shandala Msangi, Charles P Massenga, Aneth M Mahande

*Malaria Journal* 2009, 8:82 (25 April 2009)

The increase in the number of papers published on mosquito sampling techniques in the last five years may partly be due to the growing demand for a replacement for the human bait method which is coming under increasing ethical pressure to be abandoned. In this paper, the authors used an easy to construct resting box for sampling *Anopheles arabiensis* in Tanzania.

**OPEN ACCESS | Research: Insecticide resistance profiles for malaria vectors in the Kassena-Nankana district of Ghana**

Francis Anto et al.

*Malaria Journal* 2009, 8:81 (23 April 2009)

An extensive study of insecticide resistance in Ghana, using F1 in bioassays, which indicates that *An. gambiae* and *An. funestus*, the two main malaria vectors in the area, are still susceptible to the insecticides currently used in the treatment of bed nets.

**OPEN ACCESS | Research: The accuracy of clinical malaria case reporting at primary health care facilities in Honiara, Solomon Islands**

Ayano Kunimitsu

*Malaria Journal* 2009, 8:80 (23 April 2009)

An important paper regarding logistic issues at health centre level, which have implications for all malaria control programmes.

**OPEN ACCESS | Research: In vitro activity of pyronaridine against *Plasmodium falciparum* and comparative evaluation of anti-malarial drug susceptibility assays**

Florian Kurth, Peter Pongratz, Sabine Belard, Benjamin Mordmuller, Peter G Kremsner, Michael Ramharter

*Malaria Journal* 2009, 8:79 (23 April 2009)

A paper describing the activity of pyronaridine in clinical isolates of *P. falciparum* in Gabon. Pyronaridine is highly active in chloroquine-resistant parasites and seems a promising partner drug for artemisinin-based combination therapy.

**OPEN ACCESS | Methodology: Optimization and validation of multi-coloured capillary electrophoresis for genotyping of *Plasmodium falciparum* merozoite surface proteins (msp 1 and 2)**

Anne Liljander, Lisa Wiklund, Nicole Falk, Margaret Kweku, Andreas Martensson, Ingrid Felger, Anna Farnert

*Malaria Journal* 2009, 8:78 (23 April 2009)

The paper describes the optimization of standard msp1 and msp2 amplification using fluorescently labeled primers. A substantial optimization of the fluorescent assay was performed and the method was validated using known mixtures of laboratory lines and field samples from Ghana and Tanzania, and compared to the original PCR assay with gel electrophoresis.

**OPEN ACCESS | Research: Effect of sugar on male *Anopheles gambiae* mating performance, as modified by temperature, space, and body size**

Gary RE, Cannon JW, Foster WA

*Parasites & Vectors* 2009, 2:19 (22 April 2009)

*Anopheles gambiae* plant-sugar feeding was thought to be rare and physiologically optional. Unlike adult females, males have no alternative source of energy and soon die with only water, yet they might be competent to inseminate all females within their brief lifespan. This study was designed to detect sugar's effect, if any, on male performance.

**OPEN ACCESS | Perspective: The Role of Rapid Diagnostic Tests in Managing Malaria**

Bisoffi Z, Gobbi F, Angheben A, Van den Ende J

PLoS Med 6(4): e1000063. doi:10.1371/journal.pmed.1000063

This Perspective discusses the following new study published in PLoS Medicine: Msellem MI, Mårtensson A, Rotllant G, Bhattarai A, Strömberg J, et al. (2009) Influence of rapid malaria diagnostic tests on treatment and health outcome in fever patients, Zanzibar—A crossover validation study. PLoS Med 6(5): e1000070. doi:10.1371/journal.pmed.1000070

Anders Bjorkman and colleagues report results from a crossover trial evaluating rapid diagnostic testing for malaria diagnosis in Zanzibar.

**OPEN ACCESS | Influence of Rapid Malaria Diagnostic Tests on Treatment and Health Outcome in Fever Patients, Zanzibar—A Crossover Validation Study**

Msellem MI, Mårtensson A, Rotllant G, Bhattarai A, Strömberg J, et al.

PLoS Med 6(4): e1000070. doi:10.1371/journal.pmed.1000070

The use of rapid diagnostic tests (RDTs) for Plasmodium falciparum malaria is being suggested to improve diagnostic efficiency in peripheral health care settings in Africa. Such improved diagnostics are critical to minimize overuse and thereby delay development of resistance to artemisinin-based combination therapies (ACTs). Our objective was to study the influence of RDT-aided malaria diagnosis on drug prescriptions, health outcomes, and costs in primary health care settings.

**OPEN ACCESS | Phase 1/2a Study of the Malaria Vaccine Candidate Apical Membrane Antigen-1 (AMA-1) Administered in Adjuvant System AS01B or AS02A**

Spring MD, Cummings JF, Ockenhouse CF, Dutta S, Reidler R, et al. (2009)

PLoS ONE 4(4): e5254. doi:10.1371/journal.pone.0005254

This Phase 1/2a study evaluated the safety, immunogenicity, and efficacy of an experimental malaria vaccine comprised of the recombinant Plasmodium falciparum protein apical membrane antigen-1 (AMA-1) representing the 3D7 allele formulated with either the AS01B or AS02A Adjuvant Systems.

**OPEN ACCESS | Uric Acid Is a Mediator of the Plasmodium falciparum-Induced Inflammatory Response**

Orengo JM, Leliwa-Sytek A, Evans JE, Evans B, van de Hoef D, et al.

PLoS ONE 4(4): e5194. doi:10.1371/journal.pone.0005194

Uric acid is a major contributor of the inflammatory response triggered by P. falciparum in human peripheral blood mononuclear cells. Since the inflammatory reaction induced by P. falciparum is considered a major cause of malaria pathogenesis, identifying the mechanisms used by the parasite to induce the host inflammatory response is essential to develop urgently needed therapies against this disease.

**OPEN ACCESS | Parasite-Dependent Expansion of TNF Receptor II-Positive Regulatory T Cells with Enhanced Suppressive Activity in Adults with Severe Malaria**

Minigo G, Woodberry T, Piera KA, Salwati E, Tjitra E, et al.

PLoS Pathog 5(4): e1000402. doi:10.1371/journal.ppat.1000402

Severe Plasmodium falciparum malaria is a major cause of global mortality, yet the immunological factors underlying progression to severe disease remain unclear. CD4+CD25+ regulatory T cells (Treg cells) are associated with impaired T cell control of Plasmodium spp infection. We investigated the relationship between Treg cells, parasite biomass, and P. falciparum malaria disease severity in adults living in a malaria-endemic region of Indonesia.

**OPEN ACCESS | Kinetics of Mosquito-Injected Plasmodium Sporozoites in Mice: Fewer Sporozoites Are Injected into Sporozoite-Immunized Mice**

Kebaier C, Voza T, Vanderberg J

PLoS Pathog 5(4): e1000399. doi:10.1371/journal.ppat.1000399

We have used fluorescence microscopy of *Plasmodium berghei* sporozoites expressing a fluorescent protein to evaluate the kinetics of sporozoite disappearance from the skin. Sporozoites injected into immunized mice were rapidly immobilized, did not appear to invade dermal blood vessels and became morphologically degraded within several hours. Strikingly, mosquitoes introduced significantly fewer sporozoites into immunized than into non-immunized mice, presumably by formation of an immune complex between soluble sporozoite antigens in the mosquito saliva and homologous host antibodies at the proboscis tip. These results indicate that protective antibodies directed against sporozoites may function both by reducing the numbers of sporozoites injected into immunized hosts and by inhibiting the movement of injected sporozoites into dermal blood vessels.

### **Reduced Efficacy of Intermittent Preventive Treatment of Malaria in Malnourished Children**

Ina Danquah, Ekkehart Dietz, Philipp Zanger, Klaus Reither, Peter Ziniel, Ulrich Bienzle, and Frank P. Mockenhaupt

Antimicrob. Agents Chemother. 2009 53: 1753-1759, doi:10.1128/AAC.01723-08

Intermittent preventive treatment in infants with sulfadoxine-pyrimethamine (IPTi-SP) reduces malaria episodes by 20 to 59% across Africa. This protective efficacy, however, may be affected by the high frequency of malnutrition in African infants. We analyzed the impact of malnutrition as defined by anthropometry on the incidence of malaria and on the protective efficacy of IPTi in a cohort of 1,200 children in northern Ghana, where malaria is hyperendemic.

### **Dynamics of Malaria Drug Resistance Patterns in the Amazon Basin Region following Changes in Peruvian National Treatment Policy for Uncomplicated Malaria**

David J. Bacon et al.

Antimicrob. Agents Chemother. 2009 53: 2042-2051, doi:10.1128/AAC.01677-08

Monitoring changes in the frequencies of drug-resistant and -sensitive genotypes can facilitate in vivo clinical trials to assess the efficacy of drugs before complete failure occurs. Peru changed its national treatment policy for uncomplicated malaria to artesunate (ART)-plus-mefloquine (MQ) combination therapy in the Amazon basin in 2001. We genotyped isolates collected in 1999 and isolates collected in 2006 to 2007 for mutations in the *Plasmodium falciparum* dihydrofolate reductase (*Pfdhfr*) and dihydropteroate synthase (*Pfdhps*) genes, multidrug resistance gene 1 (*Pfmdr-1*), the chloroquine (CQ) resistance transporter gene (*Pfcrt*), and the Ca<sup>2+</sup> ATPase gene (*PfATP6*); these have been shown to be involved in resistance to sulfadoxine-pyrimethamine (SP), MQ, CQ, and possibly ART, respectively. Importantly, this study demonstrates that the Peruvian triple mutant *Pfdhps* genotypes are very similar to those found in other parts of South America.

### **Novel Inhibitor of Plasmodium Histone Deacetylase That Cures P. berghei-Infected Mice**

S. Agbor-Enoh, C. Seudieu, E. Davidson, A. Dritschilo, and M. Jung

Antimicrob. Agents Chemother. 2009 53: 1727-1734, doi:10.1128/AAC.00729-08

Histone deacetylases (HDAC) are potential targets for the development of new antimalarial drugs. Here, we report on HDAC inhibitors that are potent against *P. falciparum* at subnanomolar concentrations and that have high selectivities; the lead compounds have mean 50% inhibitory concentrations for the killing of the malaria parasite up to 950 times lower than those for the killing of mammalian cells. These potential drugs improved survival and completely and irreversibly suppressed parasitemia in *P. berghei*-infected mice.

### **Plasmodium falciparum Na<sup>+</sup>/H<sup>+</sup> Exchanger 1 Transporter Is Involved in Reduced Susceptibility to Quinine**

Maud Henry, Sébastien Briolant, Agnès Zettor, Stéphane Pelleau, Meili Baragatti, Eric Baret, Joel Mosnier, Rémy Amalvict, Thierry Fusai, Christophe Rogier, and Bruno Pradines  
*Antimicrob. Agents Chemother.* 2009 53: 1926-1930, doi:10.1128/AAC.01243-08

Polymorphisms in the *Plasmodium falciparum* crt (Pfcrt), Pfmdr1, and Pfmpr genes were not significantly associated with quinine (QN) 50% inhibitory concentrations (IC50s) in 23 strains of *Plasmodium falciparum*. An increased number of DNNND repeats in Pfnhe-1 microsatellite ms4760 was associated with an increased IC50 of QN (P = 0.0007). The determination of DNNND and NHNDNHNNDDD repeats in Pfnhe-1 ms4760 could be a good marker of QN resistance and provide an attractive surveillance method to monitor temporal trends in *P. falciparum* susceptibility to QN. The validity of the markers should be further supported by analyzing more isolates.

### **Violacein Extracted from Chromobacterium violaceum Inhibits Plasmodium Growth In Vitro and In Vivo**

Stefanie C. P. Lopes et al.

*Antimicrob. Agents Chemother.* 2009 53: 2149-2152, doi:10.1128/AAC.00693-08

Violacein is a violet pigment extracted from the gram-negative bacterium *Chromobacterium violaceum*. It presents bactericidal, tumoricidal, trypanocidal, and antileishmanial activities. We show that micromolar concentrations efficiently killed chloroquine-sensitive and -resistant *Plasmodium falciparum* strains in vitro; inhibited parasitemia in vivo, even after parasite establishment; and protected *Plasmodium chabaudi chabaudi*-infected mice from a lethal challenge.

### **Statins as Potential Antimalarial Drugs: Low Relative Potency and Lack of Synergy with Conventional Antimalarial Drugs**

Rina P. M. Wong and Timothy M. E. Davis

*Antimicrob. Agents Chemother.* 2009 53: 2212-2214, doi:10.1128/AAC.01469-08

The in vitro sensitivity of *Plasmodium falciparum* to atorvastatin and rosuvastatin was assessed using chloroquine-sensitive and chloroquine-resistant strains. Although atorvastatin was more potent, it had weak activity (mean 50% inhibitory concentration of 17  $\mu$ M) and an indifferent interaction with chloroquine and dihydroartemisinin. Bioassay of plasma from an atorvastatin-treated subject showed similar results.

### **Identification and Characterization of Mefloquine Efficacy against JC Virus In Vitro**

Margot Brickelmaier, Alexey Lugovskoy, Ramya Kartikeyan, Marta M. Reviriego-Mendoza, Norm Allaire, Kenneth Simon, Richard J. Frisque, and Leonid Gorelik

*Antimicrob. Agents Chemother.* 2009 53: 1840-1849, doi:10.1128/AAC.01614-08

Progressive multifocal leukoencephalopathy (PML) is a rare but frequently fatal disease caused by the uncontrolled replication of JC virus (JCV), a polyomavirus, in the brains of some immunocompromised individuals. Currently, no effective antiviral treatment for this disease has been identified. As a first step in the identification of such therapy, we screened the Spectrum collection of 2,000 approved drugs and biologically active molecules for their anti-JCV activities in an in vitro infection assay.

### **Antimalarials from nature**

Kirandeep Kaur, Meenakshi Jain, Tarandeep Kaur, Rahul Jain

*Bioorganic & Medicinal Chemistry*, Volume 17, Issue 9, 1 May 2009, Pages 3229-3256, doi:10.1016/j.bmc.2009.02.050

Malaria is a major public health problem mainly due to the development of resistance by the most lethal causative parasitic species, *Plasmodium falciparum* to the mainstay drugs like chloroquine. New drugs with unique structures and mechanism of action are urgently required to treat sensitive and drug-resistant strains of malaria. Historically, compounds containing novel structure from natural origin represent a major source for the discovery

and development of new drugs for several diseases. This review presents recent advances in antimalarial drug discovery from natural sources, including plant extracts, and compounds isolated from plants, bacteria, fungi and marine organisms.

#### **Clonal Conditional Mutagenesis in Malaria Parasites**

Audrey Combe et al.

Cell Host & Microbe, Volume 5, Issue 4, 23 April 2009, Pages 386-396, doi:10.1016/j.chom.2009.03.008

We describe here an efficient method for conditional gene inactivation in malaria parasites that uses the Flp/*FRT* site-specific recombination system of yeast. The method, developed in *Plasmodium berghei*, consists of inserting *FRT* sites in the chromosomal locus of interest in a parasite clone expressing the Flp recombinase via a developmental stage-specific promoter.

#### **Anopheles of Bolivia: new records with an updated and annotated checklist**

Frédéric Lardeux, Tamara Chávez, Roberto Rodríguez, Libia Torrez

Comptes Rendus Biologies, Volume 332, Issue 5, May 2009, Pages 489-499, doi: 10.1016/j.crv.2008.11.001

*Anopheles squamifemur* has been identified from CDC light trap collections carried out at Arca de Israel, a small community located in the extreme north-east of Bolivia (Pando Department) on the banks of the river Madera, on the border with Brazil. *Anopheles costai* and *An. forattinii* have been identified in place of *An. mediopunctatus* which has been removed from the Bolivian list of *Anopheles* species.

#### **Immunity to Infection: Homeostatic regulation of T effector to Treg ratios in an area of seasonal malaria transmission**

Olivia C. Finney, Davis Nwakanma, David J. Conway, Michael Walther, Eleanor M. Riley

European Journal of Immunology, Volume 39, Issue 5, Date: May 2009, Pages: 1288-1300, DOI: 10.1002/eji.200839112

An important aspect of clinical immunity to malaria is the ability to down-regulate inflammatory responses, once parasitaemia is under control, in order to avoid immune-mediated pathology. The role of classical (CD4<sup>+</sup>CD25<sup>+</sup>CD127<sup>lo</sup>-FOXP3<sup>+</sup>) Treg in this process, however, remains controversial. Thus, we have characterized the frequency, phenotype and function of Treg populations, over time, in healthy individuals in The Gambia.

#### **Resistance to the Affordable Medicines Facility for malaria?**

The Lancet

The Lancet, Volume 373, Issue 9673, 25 April 2009-1 May 2009, Page 1400, doi: 10.1016/S0140-6736(09)60798-4

No Abstract

#### **Malaria: 2 years in the fast lane**

Richard GA Feachem, Allison A Phillips

The Lancet, Volume 373, Issue 9673, 25 April 2009-1 May 2009, Pages 1409-1411, doi: 10.1016/S0140-6736(09)60801-1

No Abstract

#### **Effects of urbanisation on disease prevalence and age structure in blackbird *Turdus merula* populations**

Karl L. Evans, Kevin J. Gaston, Stuart P. Sharp, Andrew McGowan, Michelle Simeoni, Ben J. Hatchwell

Oikos, Volume 118, Issue 5, Date: May 2009, Pages: 774-782, DOI: 10.1111/j.1600-0706.2008.17226.x

Despite increasing interest in urban ecology most attention has focussed on describing changes in assemblage composition and structure along urbanisation gradients, whilst

relatively little research has focussed on the mechanisms behind these changes. Ecological theory predicts that alterations in biotic interactions are particularly likely to arise, especially with regard to disease risk. Here, we report on differences in prevalence of avian malaria and tick infection and intensity in 11 paired urban and rural blackbird *Turdus merula* populations from across the western Palearctic. We find large and consistent reductions in tick prevalence and intensity in urban areas. There are also large reductions in the prevalence of avian malaria in many, but not all, urban areas. The proportion of first year birds in urban populations is significantly lower than that in rural ones, and across the more natural rural sites southerly populations contain fewer first years than northern ones. These patterns are expected to arise if survival rates are higher in urban areas, and are negatively correlated with latitude.

**Research Articles:  $\gamma$ -glutamylcysteine synthetase from *Plasmodium berghei***

S.K. Sharma, H.S. Banyal

Parasitology International, Volume 58, Issue 2, June 2009, Pages 145-153, doi:10.1016/j.parint.2009.01.004

$\gamma$ -glutamylcysteine synthetase (l-glutamate-l-cysteine ligase,  $\gamma$ -GCS, EC 6.3.2.2.), the rate limiting enzyme in glutathione biosynthetic pathway has been analysed in the asexual erythrocytic stages of rodent malaria parasite, *Plasmodium berghei* and its host erythrocytes. Cell-free parasite isolated by saponin lysis contained about 2 and 8 times higher activity of  $\gamma$ -GCS compared to *P. berghei*-infected and normal mice erythrocytes respectively.

**Research Articles: Association of molecular markers in *Plasmodium falciparum* crt and mdr1 with in vitro chloroquine resistance: A Philippine study**

Toshimitsu Hatabu, Moritoshi Iwagami, Shin-ichiro Kawazu, Nao Taguchi, Aleyla D. Escueta, Elena A. Villacorte, Pilarita T. Rivera, Shigeyuki Kano

Parasitology International, Volume 58, Issue 2, June 2009, Pages 166-170, doi:10.1016/j.parint.2009.01.010

Specific mutations in the *pfcr* and *pfmdr1* genes have been reported to be associated with chloroquine-resistant *falciparum* malaria parasites worldwide. These genetic markers are considered to be useful tools for the elucidation of several aspects of the epidemiology of drug resistant malaria. In this study, *Plasmodium falciparum* isolates from three distinct areas of the Philippines were analyzed for drug-resistance-associated genetic mutations, and their association with the *in vitro* chloroquine (CQ) response. The results of this study indicate that mutations in *pfcr* and *pfmdr1* are not predictive of *in vitro* CQ resistance in Philippine isolates and may therefore not be suitable as molecular markers for surveillance.

**Short Communication: A small-scale systematic analysis of alternative splicing in *Plasmodium falciparum***

Hideyuki Iriko, Ling Jin, Osamu Kaneko, Satoru Takeo, Eun-Taek Han, Mayumi Tachibana, Hitoshi Otsuki, Motomi Torii, Takafumi Tsuboi

Parasitology International, Volume 58, Issue 2, June 2009, Pages 196-199, doi:10.1016/j.parint.2009.02.002

During the last decade transcriptome analyses demonstrated that alternative splicing plays an important role to generate a large number of mRNA and protein isoforms from a limited number of genes. However, the frequency of the alternative splicing dramatically varies among living organisms. In this study, we determined partial cDNA sequences for 88 open reading frames surrounding 246 introns in *P. falciparum* which were transcribed at schizont and gametocyte stages, and observed 15 instances of alternative splicing within a total of 14 gene transcripts, 16% of the analyzed genes.

**Targets and Mechanisms: New fronts against malaria**

Brian Moy

Science-Business eXchange 2, 1-2 (23 April 2009), doi:10.1038/scibx.2009.647

U.S. and Australian researchers are proposing two new antimalarial strategies. One takes the unusual approach of using a host target to prevent proliferation whereas the other attacks the ability of the parasite to engage in antigenic variation that allows it to escape detection by the immune system.

**Distillery: Therapeutics: Plasmodium falciparum sirtuin 2 (PF13\_0152; Sir2); erythrocyte membrane protein 1 (VAR; PfEMP1)**

Science-Business eXchange 2, 6-7 (23 April 2009), doi:10.1038/scibx.2009.666  
Studies in cell culture suggest that inhibiting Sir2 could be useful for treating malaria. Further details on the research, next steps and licensing status are discussed in the article.

**Comment: A vaccine against malaria: a substantial step forward**

Vasee Moorthy, Peter G Smith, Marie-Paule Kieny  
The Lancet, Volume 373, Issue 9673, 25 April 2009-1 May 2009, Pages 1411-1412, doi: 10.1016/S0140-6736(09)60802-3  
No Abstract

**Bob Snow: championing malaria in Africa**

Pamela Das  
The Lancet, Volume 373, Issue 9673, 25 April 2009-1 May 2009, Page 1419, doi: 10.1016/S0140-6736(09)60809-6  
No Abstract

**Poor control vaccines in two randomised trials of malaria vaccine?**

Peter Aaby, Henrik Ravn, Christine S. Benn  
Vaccine, Volume 27, Issue 22, 14 May 2009, Pages 2914-2915, doi:10.1016/j.vaccine.2009.03.004  
No Abstract

## Reports

**REPORT | Shrinking the Malaria Map: A Guide on Malaria Elimination for Policy Makers**

By Richard G.A. Feachem and the Malaria Elimination Group  
The purpose of the Guide is to provide guidance and high-level technical insight to leaders in governments that are considering or have embarked upon a national or regional strategy of malaria elimination and to the donors, agencies, and others who support them. This document is a policy digest of the Prospectus on Malaria Elimination.

**REPORT | Shrinking the Malaria Map: A Prospectus on Malaria Elimination**

Edited by Richard G.A. Feachem, Allison A. Phillips, and Geoffrey A. Targett  
On Behalf of the Malaria Elimination Group  
The Prospectus provides detailed and informed practical means of achieving and sustaining zero transmission. It is designed as a road map, providing direction and options from which to choose an appropriate path. The Prospectus reviews the operational, technical, and financial feasibility for those working on the front lines and outlines the tools that can be considered for an elimination program. The 10 chapters of the Prospectus were written by 33 contributing authors.

**REPORT | Malaria & Children: Progress in Intervention Coverage**

UNICEF  
On World Malaria Day in 2009, just over 600 days remain until 31 December 2010, UN Secretary-General Ban Ki-moon's deadline for all endemic countries to achieve universal

coverage with essential malaria control interventions. Data presented here highlight major signs of progress across Africa toward this goal.

**REPORT | The winning formula to beat malaria: World Malaria Day Report**

IFRC

The malaria programmes being implemented by Red Cross and Red Crescent societies will contribute to achieving the Roll Back Malaria 2010 targets: 80 per cent of people at risk from malaria are protected; 80 per cent of malaria patients are diagnosed and treated within one day; the malaria burden is reduced by 50 per cent compared with 2000.

**REPORT | Working with Communities to Save Lives in Africa: Third Annual Report, March 2009**

PMI

The President's Malaria Initiative (PMI) is a historic \$1.2 billion, five-year expansion of U.S. Government (USG) resources to reduce the intolerable burden of malaria and help relieve poverty on the African continent. The goal of PMI is to reduce malaria-related deaths by 50 percent in 15 countries with a high burden of malaria by expanding coverage of four highly effective malaria prevention and treatment measures to 85 percent of the most vulnerable populations – pregnant women and children under five years of age.

## **Jobs**

### **Malaria Control and Prevention Project Director**

A leading non-profit organization, headquartered in Washington DC, is seeking a Project Director for a major malaria control and prevention project. The project is global with an emphasis on countries in sub-Saharan Africa where malaria is most prevalent. The Project Director must be a globally respected leader in the malaria community, with significant experience in malaria control management. He/she must have both the technical and management skills required to lead this project, providing vision, leadership, and direction.

Candidates with only the following qualifications should apply:

- Recognized global leader in the malaria field in the prevention and control of malaria in developing countries and in capacity building.
- Extensive developing country field experience (minimum of five years) in designing and implementing ITN related activities in malaria control programs.
- At least 10 to 15 years of senior level experience managing large, complex projects in the developing world.
- Experience interacting with developing country governments, multilateral and bilateral funding and technical organizations, civil society representatives, and senior level government officials. Experience working on USAID contracts a plus.
- Substantial experience (at least five years) in supervising technical, management and support staff, and ability to work with diverse international teams.
- A Master's degree or higher, with a strong preference in public health and/or management.
- Effective English oral and written communications skills and fluency in at least one of the following languages: French, Spanish, Portuguese.
- Ability to travel up to 30% of the time for project oversight purposes.

Please send cover letter and resume to [publichealthrecruiting@yahoo.com](mailto:publichealthrecruiting@yahoo.com) . Due to the volume of respondents we regret that only those selected for an interview will be contacted.

## News

### Global

25 April 2009, AFP

#### **Niger gives out mosquito nets to combat malaria**

Niger launched a nationwide campaign on Saturday, World Malaria Day, to distribute 2.8 million mosquito nets impregnated with insecticide to combat malaria.

24 April 2009, AFP

#### **US vows to lead fight to end malaria deaths by 2015**

The United States will lead its world partners in the battle to end deaths from malaria by 2015, US Ambassador to the United Nations Susan Rice said in Washington Friday.

24 April 2009, UN News Centre

#### **Some malaria testing products fail UN-sponsored assessment**

A United Nations-backed study on dozens of malaria diagnostic tests available on the market has found that performance between products in detecting the deadly disease varied widely, the World Health Organization (WHO) announced today.

23 April 2009, The Associated Press

#### **US to lead in ending malaria deaths by 2015**

President Barack Obama is committed to making the United States a global leader in ending the nearly 1 million deaths annually from malaria by 2015, the U.S. ambassador to the United Nations says.

### Africa

27 April 2009, New Era

#### **Namibia: Kamwi Warns of Increase in Malaria Cases - by Kalilo Kambo**

A large number of people from the northern regions gathered to commemorate Malaria Day at Ruacana in Omusati on Saturday.

27 April 2009, AllAfrica.com

#### **Nigeria: World Bank Intensifies Malaria Battle**

The World Bank is to provide an additional \$300 million in International Development Association (IDA) funding to expand Nigeria's efforts to control malaria. Its Managing Director, Dr. Ngozi Okonjo-Iweala, said this yesterday at the One World Against Malaria Summit in Washington, DC.

27 April 2009, AllAfrica.com

#### **Nigeria: 97 Percent of Nigerians At Risk of Malaria - NGO**

A non-governmental organisation, the New Nigeria Foundation has raised alarm over the spread of malaria, saying about 97 percent of the nation's population are at risk of contracting the disease.

27 April 2009, AllAfrica.com

#### **Nigeria: Malaria - World Bank Gives Additional U.S. \$300 Million**

The World Bank has unveiled plans to provide an additional US\$300 million in International Development Association (IDA) funding to expand Nigeria's efforts to control malaria.

27 April 2009, AllAfrica.com

**Nigeria: Lagos Plans Malaria Survey in Five LGs**

Lagos State government has revealed its plan to carry out a baseline malaria indicator survey involving knowledge and attitudinal development of the people in Ojo, Ikorodu, Badagry, Epe and Surulere local government areas.

27 April 2009, AllAfrica.com

**Nigeria: Free Malaria Drugs**

There may be no need for Nigerians to pay for malaria drugs again, if plans by the Federal Ministry of Health to ensure free universal and comprehensive treatment for malaria patients come to fruition.

26 April 2009, Joy Online

**Ghana: 'Let's control malaria'**

As the world celebrates World Malaria Day today, the government and the private sector have been called upon to collaborate more to make malaria control a priority.

26 April 2009, AllAfrica.com

**Angola: Minister Considers World Malaria Day As Date for Reflection**The minister of Health, José Van-dúnem, said on Saturday in Catete district, northern Bengo province, that the World Malaria Day should serve for reflection in defining strategies to combat the disease that is the main cause of death in the country.

25 April 2009, AllAfrica.com

**Eritrea: Spread of Malaria Epidemic Shows Dramatic Decline Over the Past Eight Years**

In a press release it issued today in connection with World Malaria Day, the Ministry of Health disclosed that malaria and death rate resulting from the epidemic has been dramatically reduced decreased and that no spread of the infection has been witnessed over the past 8 years.

25 April 2009, AllAfrica.com

**Uganda: Malaria Costs Country Sh1200b**Uganda spends almost sh1,200b on diagnosing and treating malaria annually, or about sh40,000 per person. This includes the money spent by the Government, donors, NGOs and private patients.

25 April 2009, AllAfrica.com

**Zambia: UNHCR Combats Malaria in Refugee Camps**

The United Nations High Commissioner for Refugees (UNHCR) has intensified measures to combat malaria in refugee camps across the country, UNHCR Zambia public information assistant, Kelvin Shimoh, said yesterday.

24 April 2009, AllAfrica.com

**Angola: Journalists Receive Information on Combat to Malaria**

Journalists from the social communication (media) sector attended on Tuesday, in Caxito city (northern Bengo province), an upgrading seminar on the methods of preventing malaria, aimed at supplying the tools necessary to inform communities on how to prevent this illness at home.

24 April 2009, AllAfrica.com

**Africa: Malaria Fighters Join in Race Against Time**

In the midst of the second concerted effort to eliminate malaria from the world, scientists and health workers are increasingly hopeful that significant progress can be made in the battle against one of the globe's biggest killers.

24 April 2009, AllAfrica.com

**Sierra Leone: United Methodists to Help Blanket the Country With Nets**

On the eve of World Malaria Day, the people of The United Methodist Church announced they will participate in a nationwide nets distribution program in Sierra Leone in partnership with the United Nations Foundation and the International Federation of Red Cross and Red Crescent Societies.

23 April 2009, The Guardian

**Nigeria: Herbal cures for malaria show promise in treating resistant strains**

As Nigeria celebrates the World Malaria Day on Saturday April 25, 2009, researchers may have developed herbal cocktails that can take care of resistant strains. Chukwuma Muanya reports.

Asia

27 April 2009, The Chosun Ilbo

**South Korea: Malaria Continues to Be a Major Killer in Africa**

Malaria kills about one million people annually, and 9 out of 10 of them are Africans. Pregnant women and children are the most vulnerable to the disease, and it is estimated that every 30 seconds a child dies of malaria. Though the disease is preventable and treatable, health workers have found that simply passing out mosquito nets and treating homes with insecticide is not sufficient. Community education is key.

25 April 2009, The News International

**Pakistan: Over 500000 cases reported annually in Pakistan**

In order to commemorate the 'World Malaria Day,' which is being observed all around the globe today (Saturday), the Islamabad Medical & Dental College organised a national awareness seminar in collaboration with the Ministry of Health Malaria Control Directorate and World Health Organisation here on Friday.

25 April 2009, Sakaal Times

**India: City scientists find way to curb malaria**

Instead of further development of chemicals to kill the Anopheles Stephensi mosquitoes (carriers of malarial parasite), a team of scientists from city-based National Centre for Cell Science (NCCS) in a study have found potential for a biological alternative to counter the menace.

25 April 2009, Sakaal Times

**India: How you can prevent mosquito bites**

Prevention is better than cure, they say. Joint Managing Director (JMD) of Indus Health Plus, Amol Naikawadi has some tips for preventing malaria.

25 April 2009, The Daily Star

**Bangladesh: Malaria prophylaxis for travellers**

Travellers planning to visit malaria endemic zones must always, consult with their doctors to make sure that they take a prophylaxis (measure taken for the prevention of a disease or condition) drug which they can tolerate and one which is appropriate for their destination to be protected from malaria.

25 April 2009, Manila Bulletin

**Philippines: More potent anti-malaria treatment bared**

Health authorities said the Philippines is on its way towards eliminating malaria following the discovery of a new method of treating the disease.

25 April 2009, Saudi Gazette

**Saudi Arabia: Stem cell association shut down in Jeddah**

Health authorities on Saturday shut down an association here collecting stem cells.

24 April 2009, Newstrack India

**India: WHO evaluation of malaria diagnostic tests finds variation in test performance**

The largest-ever independent, laboratory-based evaluation of rapid diagnostic tests (RDTs) for malaria has shown that some tests on the market perform exceptionally well in tropical temperatures and can detect even low parasite densities in blood samples, while other tests were only able to detect the parasite at high parasite densities.

24 April 2009, Xinhua

**China: Researchers find possible cause of severe malaria**

Scientists have identified a specific type of immune cells that they said may cause malaria patients to develop more serious disease, according to a report to be published Friday in the journal PLoS Pathogen.

24 April 2009, Inquirer.net

**Philippines: DOH revised anti-malaria program**

The Department of Health has revised its program for the elimination of malaria in the country after studies showed a drug combination was more effective than the traditional first-line drugs it had been using.

24 April 2009, Khaleej Times

**United Arab Emirates: Experts identify cells causing severe malaria**

A type of immune cells appear to cause more serious disease in malaria patients because they shut down the immune system, allowing the parasite to multiply uncontrollably, researchers have found.

22 April 2009, Jakarta Globe

**Indonesia: Ignorance Obstructs Malaria Eradication**

Malaria eradication efforts are hampered in Indonesia by a lack of expertise at regional-level health facilities, and a failure to diagnose or understand the disease properly, an official said on Wednesday.

22 April 2009, Canada NewsWire (press release)

**Canada: World Malaria Day (April 25th) Shines Spotlight on Canadian**

Firdaus Kharas is a doctor, but not a medical one, and his work is having just as significant an impact in the prevention of malaria. Kharas is a creator, producer, educator and humanitarian whose award-winning animated public service announcements - featuring two funny, animated female anopheles mosquitoes, Buzz & Bite.

Americas

27 April 2009, PR Newswire (press release)

**USA: Progress Against Malaria and Other Infectious Diseases Among Highlights at Annual Vaccine Conference**

Global progress toward a malaria vaccine is among the key topics to be presented at the 12th Annual Conference on Vaccine Research (ACVR), sponsored by the National Foundation for Infectious Diseases (NFID) April 27-29, 2009 in Baltimore.

27 April 2009, Nanotechnology and Development News

**USA: World Malaria Day Casts Spotlight on New Funding to Portland Firm for Treatment of Malaria**

DesignMedix Inc., an early stage drug developer, and Portland State University in Oregon, United States, recently received a joint research and development grant of US \$246,000 to develop nanotechnology formulations of DesignMedix's antimalarial drugs for the prevention of malaria in travelers.

Ingeborg van Schayk  
4 mei, 11:44  
Tekst toegevoegd

27 April 2009, Scientific American

**USA: More Fronts in Fight against Malaria**

World Malaria Day brought awareness of the unorthodox biomedical ideas that are joining the search for a vaccine. Cynthia Graber reports

27 April 2009, IRINnews.org

**USA: Liberia: Pregnant women - the missing link in malaria control**

Despite the fact that pregnant women in Liberia are more at risk to contract malaria because of their lowered immunity, less than half of them sleep under insecticide-treated mosquito nets, according to the National Malaria Control Program.

27 April 2009, EurekAlert (press release)

**USA: Can rapid malaria diagnostic tests improve health outcomes in practice?**

A new study, carried out in primary care units in Zanzibar and published in this week's issue of PLoS Medicine, evaluates the impact of rapid malaria tests on prescribing practice and clinical outcomes. The findings suggest that routine use of such tests may reduce the number of people who are inappropriately given antimalarial drugs.

26 April 2009, Voice of America

**USA: Malaria Still A Public Health Threat But There Is Optimism**

Today is World Malaria Day. On this day many people reflect on the disease that is one of the greatest threats to public health.

VIDEO | 25 April 2009, CNN

**USA: Stalking the malaria parasite**

Researcher Dr. Stefan Kappe leads a tour of a malaria research laboratory and explains how a vaccine would work.

25 April 2009, Voice of America

**USA: On World Malaria Day, New Pledges to Curb Disease**

Saturday is World Malaria Day, and the international community is marking it with new pledges to curb the disease.

25 April 2009, PR.com (press release)

**USA: World Malaria Day Recognizes Choi Kwang Do (CKD) Martial Art International's Blue Ribbon Fight to End Malaria**

World Malaria Day 2009 marks the two year anniversary of a partnership between the Malaria Foundation International (MFI) and Choi Kwang Do (CKD) Martial Art International. Instructors are being honored by the MFI for their persistent dedication and interest in educating children worldwide about this disease and supporting the development of a global network of Student Leaders Against Malaria (SLAM).

25 April 2009, Mooresville Tribune

**USA: Soccer tournament to raise money for malaria nets**

Carson Foushee is focused on two very different types of nets. But both, says the Statesville resident who attends the McAfee School of Theology in Atlanta, have importance that is far more profound than their mesh make-ups. One net supplies the backing to a soccer goal. The other helps to prevent the spread of malaria, perhaps the most deadly disease in the history of mankind.

25 April 2009, IRINnews.org

**USA: Liberia: Malaria disease data scarce**

Health officials in Liberia have created a national database for communicable diseases, including malaria, but told IRIN that routine data collection is still hobbled by years of war-time negligence of health, including information management.

25 April 2009, Voice of America

**USA: Malaria Continues to be a Major Killer in Africa**

Malaria kills about one million people annually, and 9 out of 10 of them are Africans.

25 April 2009, CNN

**USA: Soccer pro survives malaria, now helps others**

On Saturday, before their game against the San Jose Earthquakes, Nyassi and his teammates will mark World Malaria Day by giving a check for \$20,000 they raised for Nothing But Nets, a U.N. Foundation-sponsored campaign to supply anti-malarial bed nets to some of the poorest parts of the world.

25 April 2009, CNN

**USA: Commentary: Yes, we can eradicate malaria**

We at the National Institute of Allergy and Infectious Diseases initially leaned toward the views of the large chorus of "eradication skeptics," but as the idea began to sink in and we assessed the research landscape, a new sense of optimism emerged. We now believe that malaria eradication -- controlling and eliminating the malaria parasite in every region across the globe -- is possible, but only if we learn from history and our past mistakes.

25 April 2009, DigitalJournal.com

**Canada: Electronic chip new tool in malaria detection**

University of Glasgow researchers have begun developing a powerful diagnostic tool in the battle to diagnose and treat Malaria.

24 April 2009, Reuters

**USA: Goal of eliminating malaria in sight: experts**

Fresh efforts and funding to tackle malaria in recent years have brought the goal of eradicating the deadly disease within sight, health experts said on Friday.

24 April 2009, Sonia Shah's ZSpace Page

**USA: On Speckled Legs and Springtime Mosquitoes: Reflections on World Malaria Day 2009**

The stories of how malaria and yellow fever impeded European colonization of Africa and the building of the Panama Canal (surveyed by the Spanish in 1534, unsuccessfully attempted by the Scots in the seventeenth century and the French in the late nineteenth) are familiar. Less known is how malaria's tide sculpted our own landscape, too.

24 April 2009, Seattle Times

**USA: A reality check on malaria statistics**

It's World Malaria Day, and this year everyone from celebrities to CEOs to the President of the free world is stumping for the cause... actually I was ready to bet that Ashton Kutcher had already forgotten about it, but I see he's still Tweeting away.

How much impact are these good intentions and money spent on malaria prevention efforts actually having?

24 April 2009, Eurweb.com - Los Angeles

**USA: Usher joins fight to end malaria deaths: Singer teams with UN in effort to purchase life saving nets**

Usher is teaming up with the United Nations Foundation and its Nothing But Nets campaign to create a platform for underprivileged youth to take action through service and make a difference with global issues.

24 April 2009, Los Angeles Times

**USA: Seacrest and other celebs combat malaria**

There was a time when Hollywood thought of Africa as a kind of exotic backlot, but these days it's the venue for many of the causes about which activist members of the industry feel most deeply.

24 April 2009, Wall Street Journal

**USA: Target: Malaria**

In the midst of the most severe global economic crisis in generations, prioritizing U.S. aid to other countries has never been harder. When we're making these difficult choices, which will affect the quality of people's lives the world over, there is one investment we can't afford to ignore: malaria control. This is a disease we can completely eliminate -- right now.

24 April 2009, Voice of America

**USA: New Campaign Launched in Effort to Eradicate Malaria**

Saturday, April 25, is World Malaria Day. For about half the world's current population, malaria is one of the greatest threats to public health. A group of global leaders in the fight against malaria has mobilized in Washington to announce a new campaign as part of the effort to eradicate the disease.

24 April 2009, IRINnews.org

**USA: Senegal: Fines to fight malaria**

In the Senegalese district of Khombole, the number of people stricken by malaria has dropped by 98 percent in the past decade. While government-subsidised US\$2 long-lasting mosquito nets and new medications have helped reduce malaria infections, house visits throughout the district's 60 villages have also made a difference, according to a local malaria control association.

23 April 2009, PR Newswire (press release)

**USA: Working Towards 'Counting Malaria Out' Through Scale-Up of PermaNet(R) Bed Nets, Vestergaard Frandsen Produces 175 Millionth Net; Introduces New Net To Combat Insecticide Resistance**

To honor the theme for World Malaria Day on 4/25, 'Counting Malaria Out,' Vestergaard Frandsen is stepping up production of its best selling bed net, called PermaNet(R), and introducing a new version that is effective against insecticide resistant mosquitoes.

23 April 2009, EurekAlert (press release)

**USA: Immune cell type controls onset and course of severe malaria**

Scientists have determined that a subset of immune cells may cause malaria patients to contract the severe form of the disease, suffering worse symptoms. Led by Monash University immunologist Professor Magdalena Plebanski, the international team found that patients with the severe form of malaria have a specific type of cell in their body that people with uncomplicated disease do not. This type of cell, described in an article published April 24 in the open access journal PLoS Pathogens, turns off the immune system and can allow the parasite to grow uncontrollably.

23 April 2009, Trading Markets (press release)

**USA: Pfizer signs research agreement with Medicines for Malaria Venture**

Pfizer Inc., a US-based developer of prescription medicines for humans and animals, has signed a research agreement with Medicines for Malaria Venture (MVV), a Switzerland-based developer of new anti-malarial drugs, to facilitate advancements in the treatment of malaria.

23 April 2009, Bizjournals.com

**USA: Sanaria to begin human trials of malaria vaccine**

A Rockville company plans to begin the first human clinical trials of a malaria vaccine that uses a weakened version of the entire malaria parasite, instead of just pieces of it, to help shield victims from the disease.

23 April 2009, CNN

**USA: Bioengineered bugs could lead to malaria vaccine**

A new malaria vaccine that's about to begin human clinical trials is dependent on mosquitoes -- a whole lot of them. Bioengineers have been growing millions of mosquitoes in a sterile environment, letting them feed on malaria-infected blood, irradiating the bugs, extracting the disease-causing parasites and storing them for use in vaccines.

23 April 2009, United Press International

**USA: Anti-malaria parasite chemical developed**

British scientists say they have created chemical compounds that kill the most deadly malaria parasites, including those resistant to existing drugs.

23 April 2009, Media Newswire (press release)

**USA: Peace Corps Volunteers' Work Raises Awareness about Malaria**

Peace Corps Volunteers will join thousands of people around the world to commemorate World Malaria Day on April 25. The Peace Corps will participate with other Roll Back Malaria (RBM) partners to launch "Counting Malaria Out." This is a two-year campaign aimed toward delivering effective and affordable protection and treatment to all people at risk of malaria, as called for by U.N. Secretary-General Ban Ki-Moon.

Europe

28 April 2009, Irish Times

**Ireland: Concern over malaria trial**

A TRIAL vaccine against malaria is using weakened parasites from fly spit to build up human resistance to the disease, but experts have questioned whether the approach is practical.

24 April 2009, Reuters AlertNet

**UK: Experts identify cells causing severe malaria**

A type of immune cells appear to cause more serious disease in malaria patients because they shut down the immune system, allowing the parasite to multiply uncontrollably, researchers have found.

23 April 2009, Financial Times

**UK: Leading-edge science: Robot researchers join a war on many fronts**

Science cannot be accused of neglecting malaria as a subject for research. The disease is not only a huge public health problem but also a formidable intellectual challenge because of its biological complexity – and scientists love such a challenge.

23 April 2009, BBC News

**UK: Doctors welcome malaria microchip**

Scientists from Glasgow University claim they have created a device which can detect malaria within minutes.

23 April 2009, New Scientist

**UK: Trial debut for malaria vaccine from mosquito spit**

A unique malaria vaccine extracted from the saliva of infected mosquitoes this week received clearance from the US Food and Drug Administration to be tested in people.

**MalariaWorld - Knowledge for Solutions**

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