Scientific Organizers:
Maureen Coetzee, University of Witwatersrand, South Africa
Josiane Etang, Institut de Recherche de Yaoundé, Cameroon
Stephen Torr, Liverpool School of Tropical Medicine, UK
Scott L. O’Neill, Monash University, Australia

Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation

The elimination or eradication of several vector-borne diseases – including malaria, lymphatic filariasis, onchocerciasis and trypanosomiasis – is high on the agenda of the World Health Organization. Sustainable vector control is currently the only mass prevention strategy. However, success is hampered by many challenges posed by both the vectors and the pathogens. These challenges include insecticide resistance in mosquitoes and drug resistance in parasites, with little on the immediate horizon to alleviate these problems. Insecticide and drug resistance are two parallel phenomena in vectors and parasites. While combination drugs have been developed to overcome parasite resistance to monotherapies, only four classes of insecticides are available for vector control. The unexpected emergence of arboviruses, such as Zika in Brazil and southeast Asia, yellow fever in southern Africa, and Dengue and Chikungunya, pose their own unique challenges. This conference will address the difficulties in “going the final mile” to achieve elimination, in terms of surveillance, capacity and funding. Key goals of the conference are to: 1) Review the latest scientific knowledge on vectors and pathogens that are responsible for emerging or re-emerging diseases; 2) Address innovative methods for the control or elimination of vector-borne diseases; and 3) Enhance awareness of the landscape of vector-borne diseases and related new scientific knowledge aimed at improving the health of vulnerable human populations. It also seeks to break down the “insect silos” in which the vector-borne disease research community too commonly operates, providing a forum for researchers to interact, create networks and partnerships, exchange ideas, and think creatively across disciplines.

Session Topics:
- Workshop 1: Is Climate Change Really Affecting Vectors?
- Vector-Pathogen Interactions
- Aedes-Borne Viruses
- Workshop 2: Vector Biology – Do We Really Know Enough?
- Trypanosomiasis and Filariasis
- Insecticide and Drug Resistance
- Other Vector-Borne Diseases
- New Developments in Vector-Borne Disease Control I & II
- Workshop 3: Arbovirus Disease Around the World – What Is the True Burden?

Scholarship Application & Discounted Abstract Deadline: May 11, 2017
Abstract Deadline: June 13, 2017
Discounted Registration Deadline: July 11, 2017

Note: A limited number of subsidized registrations covering just the registration fee but not travel or lodging will be available for local participants based in South Africa who can commute to the conference. Scholarships are available for graduate students and postdoctoral fellows. Global Health Travel Awards are for LMIC investigators. Abstracts submitted by the abstract deadline will be considered for short talks on the program.

Meeting Hashtag: #KSvector
www.keystonesymposia.org/17T1
**SUNDAY, SEPTEMBER 10**

Arrival and Registration

**MONDAY, SEPTEMBER 11**

Welcome and Keynote Address

*Maureen Coetzee*, University of Witwatersrand, South Africa  
*Neil Ferguson*, Imperial College London, UK  
Modelling Vector-borne Disease Control and Elimination: Comparing and Contrasting Malaria and Dengue

Changes in Burden of Disease

*Maureen Coetzee*, University of Witwatersrand, South Africa  
*Josiane Etang*, Institut de Recherche de Yaoundé, Cameroon  
*Stephen Torr*, Liverpool School of Tropical Medicine, UK  
Contributions of Vector Control to the Elimination of Human African Trypanosomiasis

Thais Crippa de Oliveira, University of São Paulo, Brazil  
Population Genomics of Plasmodium vivax: Levels and Mechanisms of Genetic Diversity in America

Dominique Ngripopongi Miegoum, University of Yaoundé, Cameroon  
Short Talk: High Malaria Prevalence in an Area with High Coverage Level of Insecticide-Treated Nets in Cameroon

Corrado Minetti, Liverpool School of Tropical Medicine, UK  
Short Talk: Understanding the Epidemiological and Social Factors of Lymphatic Filariasis Persistence Ten Years into the MDA Program: Towards a Successful and Sustained Disease Elimination in Ghana

Poster Session 1

**Workshop 1: Climate Change and Vector Biology**

*Gerry F. Killeen*, Liverpool School of Tropical Medicine, UK  
*Adebiyi Abdulhakeem Adeniran*, Center for Genomics Biotechnology, National Polytechnic Institute, Mexico  
*Envalmario Zayas*, Center for Genomics, Mexico  
Entomological Surveillance using DNA Barcoding Reveal Presence of Lutzomyia verrucarum Sandfly (Diptera: Psychodidae) in Leishmaniasis Endemic Community in Mexico

Duncan KobyaAthynia, Vestergaard Frandsen Limited, Kenya  
Expanding IR Mapper: Mapping Insecticide Resistance in Anopheles Species, Aedes aegypti and Aedes albopictus

TanweeDasDe, National Institute of Malaria Research, India  
Decoding the Genetic Power of Smaill Detection in Indian Malarial Vector Anopheles culicifacies

RomainGirod, Institut Pasteur de Madagascar, Madagascar  
New Data on the Biology of Anopheles Costani and its Role in Malaria Transmission in Madagascar: Implications for Vector Control

PennyHancock, University of Oxford, UK  
The Spatio-Temporal Dynamics of Insecticide Resistance in African Malaria Vectors

VoahangyAndrianaivoarimanana, Institut Pasteur de Madagascar, Madagascar  
Plague Outbreak in the South-East of Madagascar

**Vector-Pathogen Interactions**

*Martin James Donnelly*, Liverpool School of Tropical Medicine, UK  
*Anna Cohuet*, Institut de Recherche pour le Développement, France  
*Despite Insecticide Resistance, Malaria Vector Control Still Matters*

*Marcelo Jacobs-Lorena*, Johns Hopkins Bloomberg School of Public Health, USA  
Fighting Malaria with Engineered Symbiotic Bacteria from Vector Mosquitoes

*Sonam Vijay*, National Institute of Malaria Research, India  
Dissecting the Midgut Proteins of Susceptible and Refractory Anopheles culicifacies Mosquitoes: An Integrated Proteomics Approach

*Jewelna E.B. Akorli*, Noguchi Memorial Institute for Medical Research, Ghana  
Short Talk: The Effect of Commonly Administered Antimicrobials on Midgut Microbiota of Anopheles gambiae in Ghana

**TUESDAY, SEPTEMBER 12**

Aedes-Borne Viruses

*Stephanie L. James*, Foundation for the National Institutes of Health, USA  
Birkiness Amenueshewa, World Health Organization, Congo, Republic of the  
*The Arboviral Transmission Risk and Recent Outbreaks in the African Region*

Milehna Mara Guarido, University of Pretoria, South Africa  
Investigation of Aedes Mosquitoes in Selected Rural and Urban Sites in Gauteng, Limpopo and Mpumalanga Provinces, South Africa and Associated Zoonotic Arboviruses in 2016

Scott L. O’Neill, Monash University, Australia  
The Use of Wolbachia to Control the Transmission of Aedes aegypti-Associated Viruses: The Eliminate Dengue Program

Anna Heitmann, Bernhard-Nocht-Institute for Tropical Medicine, Germany  
Experimental Transmission of Zika Virus by Mosquitoes from Central Europe

Rayegaana Jacobs, University of Cape Town, South Africa  
Short Talk: Expression of Zika Virus Premembrane and Envelope Proteins in Nicotiana benthamiana

Trypanosomiasis and Filariasis

*Stephen Torr*, Liverpool School of Tropical Medicine, UK  
*Lisa Reimer*, Liverpool School of Tropical Medicine, UK  
*Lymphatic Filariasis Transmission Ecology and Vector Behavior*

Annette MacLeod, University of Glasgow, UK  
The Skin Is a Significant but Overlooked Anatomical Reservoir for Vector-Borne African Trypanosomes

Enock Matovu, Makerere University, Uganda  
Investigating Human Trypanotolerance in African Populations

Elisha Muchunga Mugo, Heidelberg University, Germany  
Short Talk: The RNA-Binding Protein RBP10 is at the Apex of a Regulatory Cascade which Determines the Ability of African Trypanosomes to Survive in Mammals
**Poster Session 2**

**WEDNESDAY, SEPTEMBER 13**

**Insecticide and Drug Resistance**

*“Lizette Leonie Koekemoer*, University of the Witwatersrand, South Africa

**Karen I. Barnes**, University of Cape Town, South Africa

*Sustaining Malaria Treatment Efficacy in the Shadow of Increasing Antimalarial Drug Resistance*

**Immo Kleinschmidt**, London School of Hygiene & Tropical Medicine, UK

*Assessing the Impact of Insecticide Resistance on Malaria Vector Control*

**Martin James Donnelly**, Liverpool School of Tropical Medicine, UK

*New Mechanisms of Insecticide Resistance in Malaria Vectors*

**Maureen Coetzee**, University of Witwatersrand, South Africa

**Insecticide Resistance and Surveillance**

**Jagbir Singh**, National Institute of Malaria Research, India

*Short Talk: Characterization of Plasmodium falciparum Phosphoethanolamine Methyltransferase Indian Isolate and Combinatorial Library Development*

**Poster Session 3**

**Workshop 2: Arbovirus Disease Around the World – What Is the True Burden?**

*“Scott L. O’Neill*, Monash University, Australia

**Thiery Nirina Jean Jose Nampichene**, Institut Pasteur de Madagascar, Madagascar

*Vector Competence of Culex antennatus and Anopheles coustani for Rift Valley Fever Virus in Madagascar*

**Ann E. Meyers**, University of Cape Town, South Africa

*Rift Valley Fever N-Protein as a Potential Diagnostic Antigen*

**Sezim Monoldorova**, Yonsei University, South Korea

*Diagnosis of Chikungunya Fever using Chikungunya Virus Asian Genotype E2 Protein*

**Collins Misita Morang’a**, Kenya Medical Research Institute/Walter Reed Project, Kenya

*Identification of a Novel Flavivirus, Nakwogo Virus, in Kenyan Mosquitoes*

**Luciano Michaël Tantely**, Institut Pasteur de Madagascar, Madagascar

*New Insights in the Bio-Ecology of Mosquitoes Involved in Maintenance and Possible Emergence of West Nile virus in Madagascar*

**Matthew James Robert Verbeek**, University of Cape Town, South Africa

*Expression of Shuni Virus Proteins in Plants for Use as Diagnostic Reagents*

**Sujatha Sunil**, International Centre for Genetic Engineering and Biotechnology, India

*What’s in that Buzz? Cross-Talk between the Mosquito and Arboviruses*

**Matthew Baylis**, University of Liverpool, UK

*Impact of Climate on the Transmission Risk of Culicoides-Borne Viruses*

**Chris Drakeley**, London School of Hygiene & Tropical Medicine, UK

*Plasmodium Knowlesi – Epidemiology of a Zoonotic Malaria from a Multidisciplinary Study*

**Jared Sylvester Bakuza**, Dar es Salaam University College of Education, Tanzania

*Short Talk: Geospatial Analysis of Neglected Tropical Diseases in Southern Tanzania*

**THURSDAY, SEPTEMBER 14**

**New Developments in Vector-Borne Disease Control I**

*“Marc F. Schetelig*, Justus-Liebig University Giessen, Germany

**Illya Shehu Ndam**, Ahmadu Bello University, Zaria, Nigeria

*Bioactivity of Agelenopsis naevia (Grass Spider) Venom on Aedes aegypti and Anopheles gambiae s1*

**Nicholas M. Hamon**, IVCC, UK

*Saving Lives through Innovation in Vector Control: What’s New On The Horizon?*

**Austin Burt**, Imperial College London, UK

*Modified Mosquitoes for Malaria Control – Current Status, Requirements for Success, and a Step-Wise Approach for Getting There*

**Adélaïde Miarinjara**, Institut Pasteur de Madagascar, Madagascar

*Short Talk: Effectiveness of Bait-Boxes and Insecticide Dusting on Reducing Flea Density in Malagasy Plague Context*

**Mabel Laline Taracena**, Universidad del Valle de Guatemala, Guatemala

*Short Talk: Control of Anopheles albimanus Mosquitoes: Improving Vector Control with an RNAi-Based Strategy*

**New Developments in Vector-Borne Disease Control II**

*“Josiane Etang*, Institut de Recherche de Yaoundé, Cameroon

**Lizette Leonie Koekemoer**, University of the Witwatersrand, South Africa

*Will SIT Really Be Useful as a Vector Control Tool?*

**Sarah Anais Emilie Goretti**, Sumitomo Chemical, Japan

*SumiShield® 50 WG, A New Indoor Residual Spray to Control Resistant Malaria Transmitting Mosquitoes*

**Marc F. Schetelig**, Justus-Liebig University Giessen, Germany

*Molecular Strategies to Compare and Improve Genetic Vector Control Systems*

**Stephanie L. James**, Foundation for the National Institutes of Health, USA

*Creating a Supportive Environment for Novel Vector Control Technologies*

**Meeting Wrap-Up: Outcomes and Future Directions (Organizers)**

**FRIDAY, SEPTEMBER 15**

**Departure**
Other Vector-Borne Diseases

*Scott L. O'Neill*, Monash University, Australia

Paul A. Bates, Lancaster University, UK

*Recent Advances in Sand Fly Research*