

CURRICULUM VITAE

Name: Dr. Walter Otieno



Current position: Senior Lecturer and HOD
Department of Paediatrics and Child Health
Maseno University School of Medicine

Honorary Consultant Pediatrician
-Jaramogi Oginga Odinga Teaching and Referral Hospital
-The Aga Khan Hospital, Kisumu.
-The Avenue Hospital, Kisumu.

Other affiliations: US Army Medical Research Unit, Kisumu both as a
Principal Investigator in a number of protocols and associate
Investigator

BIODATA

Name: Walter Otieno

Sex: Male

Nationality: Kenyan

Marital Status: Married

Date of Birth: 21Jan 1966

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PROFESSIONAL EDUCATION:

1987 -1992: Bachelor of Medicine, Bachelor of Surgery, University of Nairobi
1998 – 2001: Master of Medicine, (Paediatrics), University of Nairobi
2003 – 2009: Doctor of Philosophy in the Department of Medicine Microbiology, University of Nairobi

Medical Registration:

Registered as a paediatrician with the Kenya medical and Dentist Practitioners Board

WORK EXPERIENCE:

2016 Up to date Senior Lecturer and Head of Department of Paediatrics and Child Health, Maseno University School of Medicine
2015-up to date Part time, Senior Research Office: Walter Reed Project- KEMRI
2001 –2015: Senior Research Office: Walter Reed Project- KEMRI
2005-2009 PhD at the Department of Medical Microbiology at the University of Nairobi.

1998- 2001: Resident, Department of Paediatrics and Child Health,
University of Nairobi
1995 – 1997: Medical Officer In-Charge, Port Victoria Hospital
1993 – 1995: Kakamega Provincial General Hospital
1990 – 1991: Research Assistant, (while on vacation), at the Department
of Community Health, University of Nairobi.

SUPERVISION OF STUDENTS:

Supervised, Graduated

1. Dr. Elvis Oyugi: MSc, Jomo Kenyatta University of Agriculture and Technology, 2015:

Determinants of male partner involvement in efforts to eliminate mother to child transmission of HIV in Kisumu East sub-County, Western Kenya

ABSTRACT

Background: Male partner involvement in prevention of mother to child transmission of HIV (PMTCT) has been documented as an important strategy that can significantly reduce transmission of HIV from mother to child and among couples. Since 2011, elimination of mother to child transmission of HIV (EMTCT) has been a priority in Sub Saharan Africa, a region that has accounted for up to 90% of new HIV infections among children globally. Male partner in EMTCT has remained low and it is therefore important to involve men in EMTCT services. Our study objective was to establish the level of male partner involvement in EMTCT and the factors that determined this level.

Methods: We conducted a cross sectional study among women attending mother and child health clinic (MCH) in four health centers in Western Kenya between February and April, 2015. We proportionately distributed sample size to each facility based on their client load for first ANC visit during the year 2013. Systematic random sampling was used to select participants from the MCH register and structured questionnaires were used for data collection. Data analysis was performed and multiple logistic regressions used to identify the independent determinants for male involvement in EMTCT.

Results: There were 22.2% (48/216) women who had been accompanied to the ANC by their male partners and 14.4% (31/216) underwent couple testing. Previous history of couple testing (AOR=3.21, CI=1.42-7.22), the man having read the mother-child booklet during ANC (AOR=2.90, CI=1.30-6.50), the man being unemployed (AOR= 0.29, CI= 0.10-0.84) and woman not going beyond primary education (AOR=0.26, CI=0.10-0.66) were the independent determinants of male involvement in EMTCT.

Conclusion: The level of male partner participation in EMTCT was low. There is need to institute strategies that involve the men, by sensitizing them on the importance of male involvement and couple testing.

2. Owiti Jackson Onyango: MSc, Jomo Kenyatta University of Agriculture and Technology, 2015

Modelling diagnosis of fever in children under 5 years of age seen in a malaria endemic area of Western Kenya

ABSTRACT

Background: In malaria endemic areas, fever is commonly caused by malaria infection but fever may be a manifestation of several childhood diseases for example bacterial and viral illnesses. Malaria microscopy is the gold standard for diagnosis of malaria although other diagnostic platforms do exist for example rapid diagnostic tests. The World Health Organization recommends parasitological diagnosis or rapid diagnostic test for all children under the age of 5 years. However, in malaria endemic areas, parasitological diagnosis is not always available and presumptive treatment based on clinical diagnosis is practised. It is believed that clinical diagnosis based on integrated management of childhood illnesses has resulted in over-diagnosis of malaria, neglect of other co-infections in high malaria transmission areas and escalation of cost of medical management of malaria.

Methods: The present retrospective study aimed to carry out statistical assessment of the effect of parasitological diagnosis of suspected malaria on: mortality, malaria incidence rate, over-diagnosis of malaria and cost of medication in the management of febrile illnesses in children under the age of 5 years. The software R version 2.15.0 and GraphPad Prism version 5 was used in the analysis of the data.

Results: The results demonstrated that the provision of parasitological diagnosis significantly increased by 24.2% ($P < 0.0001$, $OR = 6.34$) and malaria prevalence significantly declined from 60.29% (2009) to 52.14% ($P = 0.0147$, $OR = 0.72$) in 2011. *Plasmodium falciparum* was the predominant species ($\approx 100\%$) causing malaria infection. There was an association between malaria incidence and anaemia incidence ($P = 0.0002$, $OR = 2.982$). Furthermore, a multiple logistic regression model demonstrated that malaria incidence was significantly associated with chills ($P = 0.00519$, $OR = 18.59$), vomiting ($P = 0.02463$, $OR = 1.5771$), convulsion ($P < 0.015077$, $OR = 1.7653$) and splenomegaly ($P = 0.008044$, $OR = 3.0105$). It was also indicated that malaria incidence was unlikely to present with diarrhoea ($P = 0.000685$, $OR = 0.4958$), oedema ($P = 0.013662$, $OR = 0.2032$), abdominal pain ($P = 0.002901$, $OR = 0.1482$), malnutrition ($P < 0.0001$, $OR = 0.1206$) and other infections ($P < 0.0001$, $OR = 0.1258$), but highly likely to present in malnourished children given other infections ($P = 0.002212$, $OR = 4.8984$). Malaria infection was independent of pallor as documented by the clinician. ($P = 0.115991$, $OR = 1.4023$), dyspnoea ($P = 0.075092$, $OR = 0.654$) and chest retraction ($P = 0.073514$, $OR = 0.3955$). Malaria over-diagnosis significantly decreased from 50.64% in 2009 to 22.43% in 2011 ($P < 0.0001$, $OR = 0.2818$), but parasitological diagnosis had insignificant effect on malaria over-diagnosis in children with negative diagnosis result ($P = 0.2865$, $OR = 0.8388$). The proportion of malaria in-patient deaths was 4.66% of which 59.09% died within 24 hours of hospitalization, and a multiple Cox proportional hazards regression model demonstrated that malaria incidence was associated with lower daily hazard of death ($P = 0.0333$, $HR = 0.5606$). A simple Cox model indicated that pneumonia incidence was related to a higher daily hazard of death ($P = 0.00722$, $HR = 2.064$), however the study found it was insignificant in a multiple Cox hazards regression model ($P = 0.1337$, $HR = 1.5234$). In 2011, the risk of death was significantly greater than in 2009, controlling for malaria and pneumonia ($P = 0.048$, $HR = 1.89$). It was shown in a multiple linear regression that the cost of medical management of febrile children significantly reduced when anti-malaria medicine was administered given parasitological diagnosis ($P = 0.03779$), and anti-biotic prescribed given diagnosis of other infections ($P < 0.0001$).

Conclusion: This study concluded that children who had parasitological diagnosis significantly increased resulting in a significant decline in malaria prevalence, malaria over-diagnosis and cost of medical management of fever in children under 5 years of age, and better survival experience of in-patients with malaria infection.

ONGOING PhD Supervision:

Dr. Maurice Onditi K'Odhiambo: University of Nairobi, UNITID
Determinants of access to quality treatment of paediatric malaria in the devolved health care systems of Homa Bay County, Kenya

Kosiyo Paul Mboya: Maseno University, School of Public Health.
Sickle cell genotypes and their association with haematological parameters in children infected with plasmodium falciparum resident in Kisumu county, western Kenya.

Stacey Maureen Okallo Gondi: Maseno University, School of Public Health.
The effect of implementation of malaria control strategies on severe malarial anaemia and its implications in children 10 years old and below in Western Kenya

ONGOING Masters programme Supervision:

Jew Ochola Ouma MSc: Masinde Muliro University:
Immunophenotypic and Hepato-biomarker characterization of HIV infected antiretroviral therapy-naive adults from Kisumu West sub-County

Eunice Akinyi Ouma MSc: Jomo Kenyatta University of Agriculture and Technology

Factors associated with initiation of isoniazid preventive therapy among children under five years living in households with sputum positive pulmonary tuberculosis persons in Kisumu County

PREVIOUS DEPLOYMENT:

PRINCIPAL INVESTIGATOR:

1) "Pilot of a hospital based surveillance system for the detection of severe malaria, Malaria Pre Mal 055"

2) "A phase III, double blind (observer-blind), randomized, controlled multi-center study to evaluate, in infants and children, the efficacy of the RTS,S/AS01E candidate vaccine against malaria disease caused by P. falciparum infection, across diverse malaria transmission settings in Africa, Mal 055"

Co-Principal Investigator:

3) “Erythrocyte Immune Complex Binding Capacity and Complement Sensitivity in Populations with Different Malaria Risks”

4) A Phase 1/2 Randomized, Double-Blind, Dose-Finding Study to Assess the Safety, Tolerability, and Immunogenicity of Inactivated Streptococcus pneumoniae Whole Cell Vaccine Formulated with Alum (PATH-wSP) in Healthy Kenyan Young Adults and PCV-Primed Toddlers (12-15 Months of Age)

5) “A Prospective, Observational Study to Assess the Nasopharyngeal Carriage of Streptococcus pneumoniae (SPn), long term safety and Immune Persistence in Healthy Kenyan PCV-Primed Toddlers (12-15 Months of Age) Who Received Vaccination with Inactivated SPn Whole Cell Vaccine (PATH- wSP) Compared to Controls

6) An open extension to the phase III, multi-center study MALARIA-055 PRI (110021) to evaluate long-term efficacy, safety and immunogenicity of the RTS,S/AS01E candidate vaccine against malaria disease caused by Plasmodium falciparum in infants and children in Africa

CO-INVESTIGATOR:

- 1) A phase II, open label, study of the safety, tolerability, efficacy and pharmacokinetics of intravenous artesunate in adults with uncomplicated malaria
- 2) Pathogenesis of severe malarial anaemia and cerebral malaria

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RESEARCH INTEREST:

Pathogenesis of severe malaria anaemia

Complement Receptor 1 levels in children with sickle cell trait.

Malaria vaccines

Malaria Epidemiology

Neonatal Medicine

SELECTED COMPLETED WORKS

- 1) Pathogenesis of severe malarial anaemia and cerebral malaria
- 2) A phase II, open label, study of the safety, tolerability, efficacy and pharmacokinetics of intravenous artesunate in adults with uncomplicated malaria. In this protocol which has been concluded and was regulated clinical trial, my role was the lead Associate Investigator.

SELECTED CURRENT RESEARCH WORK AND COLLABORATIONS

PRINCIPAL INVESTIGATOR:

1. An epidemiology study to assess Plasmodium falciparum parasite prevalence and malaria control measures in catchment areas of two interventional studies pre- and post RTS,S/AS01E introduction (EPI-MAL-002 and EPI-MAL-003) to assess, in field conditions, vaccine benefit: risk in children in sub-Saharan Africa.
2. An epidemiology, cohort event monitoring surveillance study to define incidence rates of selected events in infants and children in Africa prior to implementation of the RTS,S/AS01E candidate vaccine

CO-PRINCIPAL INVESTIGATOR:

1. "A Multi-Centre, Phase I, Open-label, Single-dose Study to Investigate Pharmacokinetics (PK) of Ticagrelor in Infants and Toddlers, Aged 0 to less than 24 Months, with Sickle Cell Disease (HESTIA4)."

UP-COMING COLLABORATIONS:

1. Suny Upstate University, New York and Maseno University Department of Paediatrics and Child Health. This will involve student, staff exchange and training between the two Universities
2. Maseno University (Department of Paediatrics and Child Health and School of Public Health and Community Development), KEMRI, Kilifi, University of Ibadan and Nigeria Society of Neonatal Medicine and Liverpool School of Tropical Medicine: Collaboration on Improving the survival, growth and development of low birth weight new-borns through better nutrition: the Neonatal Nutrition Network project under MRC Confidence in Global Nutrition and Health Research. This will involve research and data sharing between the units

Abstracts:

- Expression of Erythrocyte Complement Regulatory Proteins in Individuals with sickle cell trait and Normal Haemoglobin in a Malaria Endemic Area of Western Kenya. **Walter Otieno**, Joash R. Aluoch, Benson Estambale & Jose A. Stoute. **54th Annual meeting of the American Society of Tropical Medicine and Hygiene. Washington D.C., .Dec., 2005.**
- Age- related Changes in Prevalence of the Swain- Langley and McCoy Blood Group Polymorphisms of Complement Receptor 1 in Western Kenya. Bernard Guyah, Vandana Thathy, Alloys Arago, **Walter Otieno** and Jose A. Stoute 54th Annual Meeting of the American Society of Tropical Medicine and Hygiene, Washington D.C., Dec., 2005.

- Values of Cartographic Mapping in setting up a HDSS: A KWHDS Experience, Sifuna M. Peter, **Walter Otieno**, Dave Jones, Maria Bovill, Lucas Otieno, Mary Oyugi, Anthony Littrell. **10th INDEPTH AGM, Accra GHANA**
- Using the DSS to link bacteremia in hospitalized children to the community Oyieko J, Andagalu B, Sifuna P, Otieno A, Otsyula N, Ogutu B, Otieno L, **Otieno W.**
- Bacteraemia in children admitted at kombewa Distict Hospital Janet Oyieko, Ben Andagalu, Allan Otieno, Nekoye Otsyula, Bernhards Ogutu, Lucas Otieno, **Walter Otieno.** 1st Global Forum on Bacterial Infections: Balancing Treatment Access and Antibiotic Resistance' Delhi, **India. Oct 2011**
- The Benefits of Research Partnerships to the Community at KEMRI/Walter Reed Project: George F. O. Okoth MSc, Lucas Otieno MD MPH, Victorine Owira BA, Bernhards Ogutu MD, Med (Paeds) PhD and **Walter Otieno MD, Med (Paeds) PhD. 9th Annual Ethics Conference, 25-26 October 2012. Strathmore University.**

Safety and immunogenicity of RTS,S/AS01 malaria vaccine candidate in HIV infected infants and children: a phase III randomized, double-blind, controlled trial, Lucas Otieno, Oneko Martina, **Otieno Walter**, Abuodha Odunga, Owino Emmanuel, Odero Chris, Guerra Mendoza Yolanda, Andagalu Ben, Awino Norbert, Ivinson Karen, Heerwegh Dirk, Otsyula Nekoye, Oziemkowska Maria, Usuf Effua-Abigail, Otieno Allan, Otieno Kephass, Leboulleux Didier, Leach Amanda, Oyieko Janet, Slutsker Laurence, Lievens Marc, Cowden Jessica, Lapierre Didier, Kariuki Simon, Ogutu Bernhards, Vekemans Johan and Hamel J. Mary; ASTMH 63rd Annual Meeting, New Orleans, LA, USA, November 2-6, 2014

- **Progress on Malaria Vaccine Development: RTS,S/AS01. Dr. Walter Otieno:** MVC Round Table Academic Meeting (Makerere University and Uganda Ministry of Health National Malaria Control Programme) , Kampala, Uganda 10th July 2015
- INDEPTH-Network, Bernhards Ogutu, **Walter Otieno.** International Scientific Conference, Ghion Hotel, Ethiopia, 10th Nov, 2015
- *RTS,S Safety Post Approval Programme Partnership Committee (SPSAP PC) meeting, Walter Otieno,* International Scientific Conference, Ghion Hotel, Ethiopia, 10th Nov, 2015

- **Status of Malaria Vaccine Development. Walter Otieno on behalf of** The RTS,S Clinical Trials Partnership, Annual Kenya Paediatric Association Conference, Eldoret, Kenya July 2016.
- **RTS,S Malaria Vaccine Development, Hopes For Roll out and Way Forward! Otieno W,** Otieno L, Sing'oei V, Kariuki S, Njuguna P, Odero C Annual Kenya Paediatrics Association Conference, Nov 2017, Acacia Hotel, Kisumu
- **Long-term efficacy and safety of RTS,S/AS01 against malaria in infants and children living in Africa: an open 3-year extension of a phase III randomized study, Walter Otieno,** Halidou Tinto, Marc Lievens, Marc Gillet, Yolanda Guerra Mendoza, Lode Schuerman and John Lusingu: **MIM 7th Pan African Malaria Conference, 15–20 April 2018, Dakar, Senegal**
- **What next in the control of malaria: The RTS,S Malaria Vaccine. Walter Otieno** and Bernhards Ogutu, Kenya Paediatrics Association, Golf Hotel Kakamega, May 2018.

Critical issues in LBW infants: MRC Confidence in Global Nutrition and Health Research Improving the survival, growth and development of low birth weight newborns through better nutrition: the Neonatal Nutrition Network project. **Walter Otieno**, Wigot Gardens Hotel, Kisumu, June 5th-6th 2018

SELECTED PUBLICATIONS:

- Walter Otieno, Benson B. A. Estambale, Michael M. Odera, Stacey M. O. Gondi, Joash R. Aluoch and José A. Stoute Sickle Cell Trait (HbAS) is Associated with Increased Expression of Erythrocyte Complement Regulatory Proteins CR1 and CD55 Levels in Children: International Journal of TROPICAL DISEASE & Health 3(2): 133-147, 2013
- Walter Otieno, Benson B. A. Estambale, Joash R. Aluoch, Stacey M. O. Gondi and José A. Stoute: Association between Sickle Cell Trait and Low Density Parasitaemia in a P. falciparum Malaria Holoendemic Region of Western Kenya. International Journal of TROPICAL DISEASE & Health 2(4): 231-240, 2012
- Walter Otieno, Benson BA Estambale, Michael M Odera, Joash R Aluoch and José A Stoute: Red Blood Cell Immune Complex Binding Capacity in Children with Sickle Cell Trait (HbAS) Living in P. falciparum Malaria Holoendemic Region of Western Kenya: International Journal of TROPICAL DISEASE & Health 2(4): 272-282, 2012

- Vandana Thathy, Joann M. Moulds, Bernard Guyah, Walter Otieno and Jose A. Stoute: Complement Receptor 1 Polymorphisms Associated with resistance to severe Malaria in Kenya. *Malaria journal*, 2005, 4-54.
- Boaz O. Owuor, Collins O. Odhiambo, Walter Otieno, Christine Adhiambo, Dominic W. Makawiti, and Jose A. Stoute :Reduced immune complex binding capacity and increased complement Susceptibility of red cells from children with severe malaria- associated anemia ,*Molecular Medicine* 2008, 14:89-97
- Collins O Odhiambo, Walter Otieno, Christine Adhiambo, Michael M Odera and José A Stoute: Increased deposition of C3b on red cells with low CR1 and CD55 in a malaria-endemic region of western Kenya: Implications for the development of severe anemia. *BMC Medicine* 2008, 6:23
- Shon A Remich, Walter Otieno, Mark E Polhemus, Bernhards Ogutu, and Douglas S Walsh Bullous erythema multiforme after treatment with Malarone®, a combination antimalarial composed of atovaquone and proguanil hydrochloride *Trop Doct* 38(3): 190-191
- Increased level of FcγRIII on CD14+CD16+ monocytes of children with severe Plasmodium falciparum anemia compared to children with cerebral or uncomplicated malaria. Lilian A. Ogonda, Alloys S. S. Orago, Michael F. Otieno, Christine Adhiambo, Walter Otieno and José A. Stoute.
- Odera Michael; Otieno Walter; Adhiambo Christine; Stoute Jose. Dual role of erythrocyte complement receptor type 1 in immune complex-mediated macrophage stimulation: Implications for the pathogenesis of Plasmodium falciparum malaria *J. of experimental immunology*
- Assessment of severe malaria in a multicenter, phase III, RTS,S/AS01 malaria candidate vaccine trial: case definition, standardization of data collection and patient care. Vekemans J, Marsh K, Greenwood B, Leach A, Kabore W, Soulanoudjingar S, Asante KP, Ansong D, Evans J, Sacarlal J, Bejon P, Kamthunzi P, Salim N, Njuguna P, Hamel MJ, Otieno W, Gesase S, Schellenberg D; the Clinical Trials Partnership Committee. *Malar J.* 2011 Aug 4;10(1):221
- Short Report: Clinical and Molecular Evidence for a Case of Buruli Ulcer (*Mycobacterium ulcerans* Infection) in Kenya. Douglas S. Walsh, Fredrick Eyase , David Onyango , Alfred Odindo , Walter Otieno , John N. Waitumbi , Wallace D. Bulimo , David C. Schnabel , Wayne M. Meyers , and Françoise Portaels. *Am. J. Trop. Med. Hyg.*, 81(6), 2009, pp. 1110–1113

- First Results of Phase 3 Trial of RTS,S/AS01 Malaria Vaccine in African Children, The RTS,S Clinical Trials Partnership. N Engl J Med 2011; 365:1863-1875 November 17, 2011
- The levels of CD16/Fc gamma receptor IIIA on CD14+ CD16+ monocytes are higher in children with severe Plasmodium falciparum anemia than in children with cerebral or uncomplicated malaria., Lilian A Ogonda, Alloys S S Orago, Michael F Otieno, Christine Adhiambo, Walter Otieno, José A Stoute. Infection and immunity. 03/2010; 78(5):2173-81.
- The levels of CD16/Fc gamma receptor III A on CD14+>CD16+ monocytes are higher in children with severe Plasmodium falciparum anemia than in children with cerebral or uncomplicated malaria. Lilian Ogonda, Alloys Orago, Michael Otieno, Christine Adhiambo, Walter Otieno, José Stoute, Malaria Journal.
- Short report: Clinical and molecular evidence for a case of Buruli ulcer (Mycobacterium ulcerans infection) in Kenya. Douglas S Walsh, Fredrick Eyase, David Onyango, Alfred Odindo, Walter Otieno, John N Waitumbi, Wallace D Bulimo, David C Schnabel, Wayne M Meyers, Françoise Portaels. The American journal of tropical medicine and hygiene. 12/2009; 81(6):1110-3.
- Increased deposition of C3b on red cells with low CR1 and CD55 in a malaria-endemic region of western Kenya: implications for the development of severe anemia. Collins Odhiambo, Walter Otieno, Christine Adhiambo, Michael Odera, Jose Stoute BMC medicine. 09/2008; 6(1):23.
- Bullous erythema multiforme after treatment with Malarone, a combination antimalarial composed of atovaquone and proguanil hydrochloride. Shon A Remich, Walter Otieno, Mark E Polhemus, Bernhards Ogutu, Douglas S Walsh. Tropical doctor. 07/2008; 38(3):190-1.
- Complement receptor 1 polymorphisms associated with resistance to severe malaria in Kenya. Vandana Thathy, JoAnn M Moulds, Bernard Guyah, Walter Otieno, José A Stoute. Malaria journal. 02/2005; 4:54.
- Reduced immune complex binding capacity and increased complement susceptibility of red cells from children with severe malaria-associated anemia. Boaz O Owuor, Collins O Odhiambo, **Walter O Otieno**, Christine

Adhiambo, Dominic W Makawiti, José A Stoute. *Molecular medicine* (Cambridge, Mass.). 14(3-4):89-97. . 3.

- The levels of CD16/Fc gamma receptor III A on CD14+CD16+ monocytes are higher in children with severe Plasmodium falciparum anemia than in children with cerebral or uncomplicated malaria. Lilian A Ogonda, Alloys SS Orago, Michael F Otieno, Christine Adhiambo, Walter Otieno, José A Stoute

Increased deposition of C3b on red cells with low CR1 and CD55 in a malaria-endemic region of western Kenya: Implications for the development of severe anemia

Collins O Odhiambo, **Walter Otieno**, Christine Adhiambo, Michael M Odera, José A Stoute

Health & Demographic Surveillance System Profile: The Kombewa Health and Demographic Surveillance System (Kombewa HDSS)

Peter Sifuna, Mary Oyugi, Bernhards Ogutu, Ben Andagalu, Allan Otieno, Victorine Owira, Nekoye Otsyula, Janet Oyieko, Jessica Cowden, Lucas Otieno and **Walter Otieno**

International Journal of Epidemiology, 2014, 1–8

- First Results of Phase 3 Trial of RTS,S/AS01 Malaria Vaccine in African Children. *The RTS,S Clinical Trials Partnership** *N Engl J Med* 2011;365:1863-75.
- A Phase 3 Trial of RTS,S/AS01 Malaria Vaccine in African Infants *The RTS,S Clinical Trials Partnership* *N Engl J Med* 2012;367:2284-95.
- The RTS,S Clinical Trials Partnership (2014) Efficacy and Safety of the RTS,S/AS01 Malaria Vaccine during 18 Months after Vaccination: A Phase 3 Randomized, Controlled Trial in Children and Young Infants at 11 African Sites. *PLoS Med* 11(7): e1001685. doi:10.1371/journal.pmed.1001685
- Efficacy and safety of RTS,S/AS01 malaria vaccine with or without a booster dose in infants and children in Africa: final results of a phase 3, individually randomised, controlled trial *RTS,S Clinical Trials Partnership** *The Lancet* April 24, 2015 [http://dx.doi.org/10.1016/S0140-6736\(15\)60721-8](http://dx.doi.org/10.1016/S0140-6736(15)60721-8)
- Sankoh, O. and I. Network, CHES: an innovative concept for a new generation of population surveillance. *The Lancet Global Health*, 2015 Sankoh et al

SELECTED SHORT CERTIFICATE COURSES ATTENDED:

2009:	Good Clinical Practice
2008:	Strategic Planning
2006:	Good Clinical Practice
2005:	Paediatric Advanced Life Support
2004:	Participated in an East African Regional workshop: Research Methods in Protozoan Pathogens sponsored by The Malaria Research Training program (with funds from the Fogarty International Centre at the US NIH) in collaboration with the National Institute for Medical Research and Sokoine University of Agriculture in Tanzania.
2002:	Human Participant Protection Education for Research Teams.
2002:	Infectious disease outbreak investigation
2001:	Paediatric Advanced Life Support
2001:	Good Clinical Practice
2001:	Lactation Management Course
1994:	Voluntary Surgical Contraception
1994:	Management of Acute Respiratory Tract Infection

PROFESSIONAL AFFILIATIONS

- Kenya Medical Association
- Kenya Paediatric Association
- Clinical Trials Partnership Committee of investigators (CTPCi)
- INDEPTH-Network: This is a global network of health and demographic surveillance systems (HDSSs) that provide a more complete picture of the health status of communities. They collect data from whole communities over extended time periods, they more accurately reflect health and population problems in low- and middle-income countries (LMICs). The HDSSs increasingly link population and health facility data to implement the new Comprehensive Health and Epidemiological Surveillance System (CHESS).

By monitoring new health threats, tracking population changes through fertility rates, death rates, migration, morbidity and measuring the effect of policy interventions on communities, we provide information that enables policy-makers to make informed decisions and to adapt their programmes to changing conditions.

OTHER DUTIES

- Advisor to Ministry of Health on malaria vaccine introduction.
- Board member INDEPTH-Network 2015 upto date.
- Board Member AMMREN

COMMUNITY SERVICE

- Member of management board, Usenge Secondary School
- Member of the management board, Nyangera Primary School

REFEREES

Prof. Wilson Odero
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