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Short Communication

Impact assessment of the use of insecticide-treated bed nets on parasitaemia and anaemia for malaria control in children, Ogun State, Nigeria

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The World Health Organization (WHO) estimate that malaria has caused 300–500 million infections, 100 million clinical cases and 1.5–2.7 million deaths, representing a serious public health problem in Asia and Africa. It is caused by a protozoan parasite, *Plasmodium*, transmitted from person to person, mainly through the bite of a female Anopheles mosquito which requires blood to nurture her eggs. The female Anopheles mosquito is the vector for human malaria, and mainly bites humans between 5pm and 7am, with maximum intensity between 10pm and 4am. This provides the basis for the use of mosquito bed nets and insecticide-treated bed nets (ITNs) whilst sleeping, since mosquitoes are most active during that period.²

Nigeria pledged commitment to the Roll Back Malaria³ initiative by hosting the first African Summit in April 2000. Since then, the country has continued to intensify control efforts by promoting the use of ITNs. In 2004, Ogun State received 20,000 ITNs from the Federal Ministry of Health. These ITNs were distributed to local government clinics and state hospitals. The quantities allocated to each local government area (LGA) were based on the population of the target group.

Ogun State, a rainforest region consisting of 20 LGAs in south-western Nigeria, lies between longitude 145°E and 3°55'E and latitude 10°1'N and 11°8'N. Written consent was obtained from the State Ministry of Health, health officers in the LGAs and community heads of each community, and informed consent was obtained from participants before sample collection.

The studies were carried out in Kugba Clinic in Abeokuta South LGA (urban), Ibiade General Hospital in Ogun Waterside LGA (semi-urban) and Ijebu-Imusin Primary Health Centre (PHC) in Ijebu East LGA (rural) from February 2005 to February 2006. ITNs had previously been distributed in these areas to women and children under the ITN Massive Promotion and Awareness Campaign in May 2003. Antenatal clinic records, delivery registers, immunization registers, infant welfare clinic records, ITN distribution records and outpatient department registers were assessed to identify children between the ages of 6 months and 2 years who attended the clinic, and they were enrolled into the study.

Venous blood samples were collected aseptically from 1580 children aged between 6 months and 2 years (790 ITN users and 790 non-ITN users) and analysed for malaria parasitaemia, anaemia and genotype. The blood collected was transferred into a sample tube containing ethyl diaminetetra-acetic acid and mixed thoroughly to avoid clotting. Blood samples were examined and analysed at the Parasitology Unit Laboratory of the University of Agriculture, Abeokuta. Giemsa staining techniques (thin and thick smears) were used to detect *Plasmodium falciparum*.⁴ Haemoglobin concentration was determined using the cyanmethaemoglobin method, as described by Watson-Williams et al.⁵ Haemoglobin genotype was determined using electrophoresis.⁶ All data were

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