A history of malaria control in Nigeria

KEMRI | Wellcome Trust

L·I·N·K Data for malaria decision-making

London School of Hygiene & Tropical Medicine

WHO African Region

UKaid from the British people

1900 1940 1950 1960 1970 1980 1990 2000 2001 2002 2003 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

GOV

1889. Governor of Lagos starts first sanitation campaign in schools

1917. Public Health Ordinance passed that enforced penalties to prevent mosquito breeding

1939. Drainage and Swamp Reclamation Board formed

1945. Anti-mosquito ordinance establishes Mosquito Control Board to carry out drainage works

1946. Ten-year National Health Development Plan established, including plans to build health centres, schools, hospitals, nurses and nursing schools

1948. National Malaria Control Programme (NMCP) established as the national Nigeria Malaria Service

1960. Division of Malaria and Vector Control established within the Medical Department inow Federal MoH)

1967. National Malaria Therapy Surveillance Network formed to determine efficacy of antimalarial drugs, particularly CQ against *P. falciparum*

1975. National Malaria Control Committee (NMCC) established and includes members from Federal and State MoHs, universities and other sectors

NMCC produces Third National Development Plan (1975–1980) with the key objective by mandate to reduce malaria burden by 25%

1986. National Malaria and Vector Control Division established as part of the Dept. of Primary Health Care and Disease Control

1988. Nigerian government adopts Bamako Initiative

1989. Federal MoH prepares national guidelines on malaria control for first time

Nigeria hosts Roll Back Malaria (RBM) summit. RBM Partnership established and 44 African countries pledge to halve malaria mortality in Africa by 2010

National Malaria Control Strategy 2001–5 launched

SP included in national essential list of medicines as an over-the-counter medicine

Rapid Scale-Up for Impact (SUFI) launched as part of the strategic plan 'A road map for malaria control' 2009–2013

National Malaria Control Strategy (2009–2013) launched

Four-year Advocacy, Community and Social Mobilisation plan is introduced to encourage reporting and dissemination on malaria

National Antimalarial Treatment Policy developed

NMCP, with Global Fund, launch Phase 1 of the Affordable Medicines Facility-malaria (AMFm) programme, allowing for affordable purchase of first-line drugs (ACTs). 57,391,301 doses administered from July 2010 to December 2011

Malaria Programme Review conducted examining 10 years of malaria control

NMCP changed to National Malaria Elimination Programme (NMEP)

National Malaria Control Strategy 2014–2020 launched

All intervention strategy polices harmonised into one national malaria policy

VC

1940. Dichloro-diphenyl-trichloroethane (DDT) adopted for regular use in houses and waterways

1954. Western Sokoto Pilot Project (WSPP) begins, using dieldrin and gammahexachloride (BHC) for residual spraying

1958. Nigeria Ministry of Health (MoH), West African Council for Medical Research and Malaria Service carry out dieldrin trial in Ilobi

1959. Eastern Regional Medical Headquarters carries out Malaria Control Pilot Project comparing larviciding and chemotherapeutic agents in area of 45,000 people in Enugu Ezike

IRS trials in Victoria and Lagos using BHC-dieldrin with DDT (March to December) show nearly 40% decrease in parasite rates in children aged 0–7 years

1966. Village-scale trial sprays 33 homes with bendiocarb-propoxymethyl-methylbenzamate in Northern Nigeria

1967. MoH and the Anopheles Control Research Unit conduct IRS trial of 1800 homes near Kaduna

Village-scale IRS trial with trimethacarb of 120 homes in Northern Nigeria found to be highly effective against *An. gambiae* and *An. funestus*

1972. MoH, East-central state establishes a malaria/mosquito control unit at Calabar

12 million ITNs distributed. with half distributed through the private sector

IRS implemented in three local government areas (LGAs) in seven states, with plans to reach 6,700,164 households with pyrethroids

NMCP with RBM partners, launches nationwide distribution of 64 million long-lasting insecticide-treated nets (LLINs) (Phase 1) and improves malaria case-finding in health facilities. LLIN distribution towards achieving universal coverage continues until 2012

NMCP scales up IRS in seven states to supplement LLIN and environmental management

NMCP scales up distribution of LLINs and improves malaria case-finding in health facilities

IRS provided to 63,000 households in 13 states through Government of Nigeria (World Bank Booster Project and President's Malaria Initiative)

CM

Artemisinin combination therapy (ACTs) adopted as first-line treatment following DTET findings of resistance to CQ and SP. CQ and SP banned as first-line drugs in the treatment of malaria in all age groups

Availability of ACTs increased, with nearly 270 million ACT doses administered nationwide

NMCP changes severe malaria treatment policy from quinine to artesunate

DTET study finds 98% parasitological cure rate with artemether-lumefantrine (AL) and ART-amodiaquine, verifying suitability for first-line therapy for uncomplicated malaria

Integrated community case management (iCCM) launched by Malaria Consortium and Society for Family Health through the Rapid Access Expansion Programme (RAcE) in Kogi and Abia

Seasonal malaria chemoprevention (SMC) targeted to children aged 3 months to 5 years in Jigawa, 13 LGAs in Kano, 11 LGAs in Katsina state then expanded to nine northern states

CP

1902. Quinine distributed free to local population

1955. Government of Northern Nigeria begins to use chloroquine (CQ) and pyrimethamine to complement WSPP

1958. Mass treatment of 10,000 people at Argungu with pyrimethamine/CQ produces decrease in crude parasite rates (CPR)

1959. Pilot conducted in Ogogoro using monthly daraclor; shows reduction in CPR at 18.51 to 7.41 in adults

1961. Ministries of Health and Education of Eastern Nigeria, with Wellcome Foundation, promote antimalarial campaign based on pyrimethamine and sulfadoxine-treats 75,000 children in 137 primary schools in Enugu

1970. MoH, North-eastern state begins malaria control in Maiduguri, involving distribution of CQ tablets by volunteers

Nigeria institutes intermittent preventative treatment (IPTp) for women in the second and third trimesters of pregnancy

National Antimalarial Treatment Policy released, stating that women should receive at least two doses of SP during pregnancy

RES

1955. WSPP in Tafashinya village, Kankiya district shows pyrimethamine resistance

1956. *Anopheles gambiae* (sensu lato) and resistance to dieldrin and gamma-resistance to BHC identified after WSPP

1965. Study of wild-caught *A. aegypti*, *A. gambiae* and *C. fatigans* in Ibadan shows high resistance to dieldrin, but no resistance to DDT or malathion

1969. Village-scale trial of mobam in four villages of Northern Nigeria shows good control of *An. Gambiae* and *An. funestus*

1972. WHO assesses *Plasmodium falciparum* for CQ resistance in Akaworijo village, no evidence found

1975. Field testing finds resistance to DDT and dieldrin near Lagos

1977. First documented cases of CQ resistance in Owerri, Eastern Nigeria

1981. *In vivo* tests in Ibadan indicate no resistance to sulphadoxine+pyrimethamine (SP) or CQ

1985. *In vivo* study in Ibadan concludes *P. falciparum* in the locality is still sensitive to CQ

1986. Emerging cases of CQ resistance observed in Calabar and Oban. Parasitological failure after day 3 found in 83.61. of children in < 4A>

1987. US Centers for Disease Control and Prevention reports CQ-resistant *P. falciparum* in non-immune visitor to Enugu

1991. Study in < 8S> confirms CQ resistance in Anambra (60% failure) and Benue states (52% failure)

1992. Nkukka Project investigates efficacy of pyrimethrin on insecticide-treated bed nets (ITNs)

Drug Therapeutic Efficacy Tests (DTETs) find high CQ treatment failure (28%) and low therapeutic efficiency for SP (57%), especially in South-south and South-east

First case of pyrethroid resistance in *An. gambiae* identified in south-west Nigeria

Ex vivo tests show *An. gambiae* resistance to permethrin in Zaria

High levels of DDT resistance observed in *An. funestus* and *An. gambiae* s.s. in Oyo, Lagos and Niger

Tracking Resistance to Artemisinin (TrAC) study (2010-2) in Ilorin shows sensitivity of artemisinin compounds

Development and launch of national Insecticide Resistance Monitoring (IRM) Plan

SME

1955. World Health Organization (WHO) Global Malaria Eradication Programme (GMEP) conducts pre-eradication pilot studies in Kankiya district which shows that malaria control was more feasible than eradication

1965. WHO implements malaria pre-eradication programme in Western Nigeria which includes development of a peripheral malaria laboratory in Ishara

1995. First Multiple Indicator Cluster Survey (MICS) conducted

1999. Second Demographic and Health Survey (DHS) conducted

Second MICS conducted

Third DHS conducted

Third MICS conducted

Fourth DHS conducted

First Malaria Indicator Survey MIS) conducted

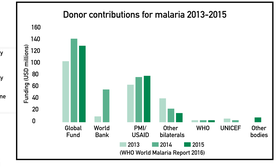
Fourth MICS conducted

DTET monitors efficacy of dihydroartemisinin-piperaquine and the two other deployed antimalarials at eight sentinel sites

Fifth DHS conducted

Second MIS conducted

Fifth MICS conducted



KEY

GOV Government: Policy and legislation, organisational changes to Ministry of Health/ National Malaria Control Programme, strategic plans and investments, major contextual factors

VC Vector control: Long-lasting insecticidal nets, Indoor Residual Spraying, environmental and larval control, insecticide trials

CM Case management: First-line drug treatment, diagnostics, antimalarials and pharmacovigilance

CP Chemoprevention: Prophylaxis, drug trials

RES Resistance: Instances of insecticide and drug resistance

SME Surveillance, monitoring and evaluation: Surveys, strategy reviews and operational research