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Neglected Tropical Diseases in Nigeria: Situation Analysis

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Abstract

Nigeria is one of the countries in sub-Saharan Africa with the highest burden of most of the Neglected Tropical Diseases (NTDs) identified by the World Health Organization (WHO). These are found to be endemic in almost all the thirty six (36) States and the Federal Capital Territory (Abuja). Three or more of such diseases are found to be co-endemic in many states. A five (5) year strategic plan has been developed in 2013 that outlined the strategic steps required to eliminate and control ten (10) of NTD's found in Nigeria. Disease burden and situation analysis for twelve (12) of the NTD's found in Nigeria have been discussed. Data on the geographical distribution of NTDs are required in scaling up interventions, targeting treatment to areas of greatest need and estimating drug and resource requirements. This process requires that epidemiological surveys be carried out and maps generated to visualise endemic areas for planning and interventions. Data obtained from baseline surveys on the distribution of NTD's/mapping of infected areas are being generated, this is required for implementation. Nigeria has a national policy on NTD's which aims at development and implementation of programmes that will manage NTD's. The National Steering Committee on NTD's recommended integrated mapping of some of the NTD's such as filariasis, onchocerciasis, schistosomiasis and Soil Transmitted Helminths (STH's), as imperative before the commencement of Mass Drug Distribution (MDA). Nigeria is working with a number of national and international Non-Governmental Developmental Organizations (NGDO's) to obtain technical support and secure funding for the reduction in incidence which will lead to reduction/elimination. The Strategy for control of NTD's will be premised on integrated approaches. These have been explained for most of the NTD's found in Nigeria. There are still some unmet diagnostic needs as well as challenges and practicalities which have to be addressed.

Key words: Nigeria, Neglected Tropical Diseases, developing countries, endemic areas, disease burden, control of NTD's

INTRODUCTION

Neglected Tropical Diseases (NTDs) are a group of disabling, chronic and disfiguring conditions that occur mostly in settings of extreme poverty, especially among, poor rural and some disadvantaged urban populations [1]. These are communicable diseases linked with poverty and are prevalent in areas with poor sanitation, inadequate safe water supply and substandard housing conditions in low income and middle income countries in Africa, Asia and Latin America [2] with about 534,000 deaths [1]. All NTDs cause substantial health and economic burden leading to loss in economic productivity and worsening the existing poverty states of most communities in developing countries.

The disease burden of NTDs is similar to that of malaria or tuberculosis [1],[3]. The NTDs are estimated to affect over one billion people in the world majority of who are in developing countries. Globally the burden of NTDs is comparable to one half of malaria and more than twice of tuberculosis in sub-Saharan Africa [4].

One sixth of the world's population is infected with one or more NTDs and another two billion are at risk. Although these diseases affect the world's poorest and most vulnerable population and drive people deeper into poverty, global and national responses to NTDs have been inexcusably lax. Instead of being neglected, these devastating diseases should be at the top of health agendas in every affected country.

These diseases are missed out when health agendas and budgets are set. These are not even mentioned in the Millennium Development Goals (MDGS- a set of targets agreed by world leaders to make a difference to the poorest and most under-developed countries by 2015.
There are seventeen NTDs that that have been identified by the World Health Organization (WHO) to be of importance due their frequencies among poor communities and their clinical, social and economic impact [5].These include the Soil Transmitted Helminthiasis (STH)such as ascariasis, trichuriasis and hookworm infections. Other parasitic infections include onchocerciasis, schistosomiasis, Lymphatic Filariasis (LF), Human African Trypanosomiasis (HAT), chagas disease, echinococosis, leishmaniasis, dracunculiasis, Buruli Ulcer (BU), leprosy, trachoma, dengue fever, rabies, cysticercosis/taeniasis, food-borne trematodiasis and yaws [5]. About 75% of these are parasitic.

Neglected Tropical Diseases could be parasitic, bacterial, fungal or ectoparasitic as shown in table 1 below [6].

Helminthic	Lymphatic Filariasis, Onchocerciasis, Schistosomiasis, Dracunculiasis, Soil Transmitted Helminthiasis (Ascariasis, Hook Worm Disease, Trichuriasis,
Protozoan	Strogyllioidiasis) Leishmaniasis, Human African Trypanosomiasis (HAT), Amoebiasis,
Bacterial	Chagas Disease,Giadiasis Trachoma, Buruli Ulcer,Cholera, Leptospirosis, Enteric Pathogens (Shigella, Salmonella, *Escherichia coli*, Leprosy, Relapsing Fever, Treponematoses (Benjel,
Fungal	Pinta, Syphilis, Yaws)
Ectoparasitic	Mycetoma, Paracoccidiomycosis Scabies, Myiasis

THE NIGERIAN SITUATION

The population of Nigeria account for about 20% of the population of sub-Saharan Africa and globally rank among the top three (3) countries for Guinea Worm Disease (GWD), Schistosomiasis, onchocerciasis (river blindness) and elephantiasis [7]. Nigeria carries the highest burden of NTDs in sub-Saharan Africa. Elephantiasis and river blindness are more common in Nigeria than any other African country, and no country anywhere has more cases of schistosomiasis . Soil Transmitted Helminthes's are also endemic in Nigeria and the country has the highest burden of these diseases in Africa. According to Nigeria's Federal Ministry of Health (FMOH), the country, the Democratic Republic of Congo, Ethiopia and Tanzania contribute to more than 50% of NTD's burden in Africa.

Nigeria has the greatest number of people infected or at risk with schistosomisis (29million), lymphatic filariasis (80-121 million), ascariasis (55 million), hookworm (38 million) and

Trichuriasis (34 million) among all the African nations [3],[8],[9]. In Nigeria 27million people need protection against river blindness, more than any other country in the world.

The NTD programme of the FMOH address the following diseases: lymphatic filariasis, onchocerciasis, schistosomiasis, soil transmitted helminths, trachoma, leprosy, buruli ulcer, human African trypanosomiasis and Guinea worm Disease.

Working partners

Nigeria is working with partners such as the World Health Organization (WHO), The United Kingdom's Department for International Development (DIFD) and the United States Agency for International Development (USAID), to obtain technical support and to secure necessary funding. The philanthropist General T.Y. Danjuma has led the engagement of the private sector in the fight against NTDs. Other organizations supporting NTDs in Nigeria include the Children Investment Fund(CIF), Mission To Save The Helpless (MITOSATH), United Nations Children Education Fund (UNICEF), WHO, Sightsavers, Mereck and Glascosmithklin, Pfzier etc.

National Policy on NTDS

There is a national policy on NTDs in place which aims at the development and implementation of programmes that will control/eradicate/eliminate/manage NTDS.

Its policy statement states that the FMOH will coordinate the control of NTDs in collaboration with Non-Governmental Developmental Organizations (NGDOs), United Nations Agencies, and relevant stakeholders and the private sector. The National Strategic Health Developmental Plan (2010-2015) is to provide policy guideline for effective health leadership and governance. The strategic goal of the NTD programme is to progressively reduce morbidity, disability and mortality due to NTDs using integrated and cost-effective approaches with the view to elimination by the year 2020.

Mapping of NTDs

Health officials in Nigeria were trained by a team of international experts from the UK-based London School of Hygiene and Tropical Medicine led by Simon Brooker, a professor of epidemiology, on mapping in Abuja, Nigeria. Having maps showing the distribution of different NTDs is very important for advocacy programmes and implementation. This will serve as a tool for control.

Data on the geographical distribution of NTDs are required in scaling up interventions, targeting treatment to areas of greatest need and estimating drug and resource requirements. The process requires that epidemiological surveys be carried out and maps generated to visualise endemic areas for planning and interventions.

Apart from onchocerciasis and GWD, which have been fully mapped in Nigeria, all other NTDs are still being mapped in some part of the country with varying levels of completion. There is the great cogent need to fill in this critical gap.

The proposed integrated mapping/baseline surveys of these NTDs will provide a unique opportunity to collect a more comprehensive epidemiological data on the distribution of these NTDs in Nigeria. The focus will be on those infections that can be controlled or eliminated through community chemotherapy and health education.

DISEASE BURDEN/SITUATION ANALYSIS

Onchocerciasis

Onchocerciasis is prevalent in all the states in Nigeria except Lagos, Katsina, Bayelsa and Rivers. It is estimated that about 31million persons in about 36 thousand communities in 32 States are at risk. Until recently, it was a major cause of blindness in many rural communities across the Nation. The National Onchocerciasis Control Programme (NOCP) was established in 1987 with the mandate to reduce prevalence levels that will no longer constitute a public health problem.

In 1991, main chemotherapy of communities with Ivermectin (Mectizan) was commenced. In 1997, the Community Directed Treatment with Ivermectin (CDTI) strategy was adopted as the main strategy of programme implementation.

Lymphatic Filariasis (LF)

Globally, Nigeria is ranked as the 3rd highest with LF disease burden, though it is one of the endemic countries that are yet to complete the mapping of the disease. About 106 million Nigerians are at risk of the disease (2011 NLEP Annual Report).

In 2003, the National Lymphtic Filariasis Eradication Programme (NLFEP) started LF mapping in the country, and so far 30 states and the Federal Capital Territory (FCT) have completed mapping in all their LGAs using Immuno Chromatographic Test (ICT) Cards. Prevalence of LF has been determined in 704 out of the 774 LGAs of the 36 states and the FCT. Out of the mapped LGAs, 541 LGAs are endemic.

The NLFEP was established in 1997 in response to World Health Assembly Resolution (May, 1997) urging member states to eliminate LF as a public health problem. The NLFEP was merged with the NOCP in 2007 in order to harmonize implementation of Mass Drug Administration (MDA) in co-endemic areas. Presently, 21.6% of endemic LGAs are under MDA with free donated Ivermectin and Albendazole tablets (FMOH, 2013). The partners for the NLFEP include: WHO, MDP, GSK, APOC and NGDOs (SSI, CBM, TCC, MITOSTH, HKI, etc.)

Schistosomiasis

Nigeria has the highest burden of this disease in Africa, about 116 million out of the estimated 555million Africans are at risk as at 2006 [10]. The National Schistosomiasis Control Programme (NSCP) was initiated in 1988 and the goal of the programme is to deliver regular anti-helminthic treatment to at least 75% of school-aged children in endemic areas in the country in line with the WHO recommendation.

Control strategies include

i. Morbidity control using chemotherapy i.e. Paraziquantel, targeted at school-aged children and other at risk populations.
ii. Health education and promotion
iii. Collaboration with appropriate stake holders for the provision of adequate sanitation and potable water and snail control.

Current Situation

Although there is a national programme in place, schistosomiasis has not witnessed large scale control efforts in Nigeria. The Carter Centre (TCC) is the only NGDO implementing integrated control of schistosomiasis and other NTDs in Plateau, Nassarawa and Delta States. The TCC

support is for 3 states out of the 36 states and the FCT. The National Programme got the first donation of 3,366,000 tablets of Paraziquantel from Mereck, Germany for Ekiti, Edo and Ondo States through the WHO in July 2009

The Soil Transmitted Helminths (STHs)

The STHs Control Programme was initiated in 2007 in line with the WHO recommendation. The programme has set a target of regular administration of anti-helminthic drugs to at least 75%of school –aged children in endemic areas and those that are at risk.

The distribution of the STHs has been mapped in a total of 190 LGAs in 16 states. The programme is collaborating for the donation of Paraziquantel and Mebendazole with the Federal Ministry of Education, TCC, Christofell Blinden mission, Partnership for Child Development/De Worm the World, Children without Worms, Children Investment Funds Foundation UK, Grace Outreach Coalition, WHO, UNICEF, Mereck Pharmaceutical Company Germany, Partnership for Chid Development (PCD) and De-worm the World Organizations, UK.

Human African Trypanosomiasis (HAT)

In 1960 HAT cases were reported from several endemic foci across the country. As a result of interventions by the Nigerian Institute for Trypanosomiasis Research (NITR), the number of cases from these foci declined considerably. Between 1989 to 1996, 3,583 persons were screened in Abraka (a HAT endemic foci in Delta State) out of which 359 were sero- positive and 104 were parasitologically positive. Confirmed cases were treated with 7 fatalities recorded. In another study, a total of 4,966 persons were screened, 497 (10%) were sero-positive and 30 (6%) of the sero-positive individuals had the disease.

Current Situation

Confirmatory diagnosis is ongoing. These results are indicating that HAT is still endemic in Nigeria and there is the need to determine the current level of endemicity. A control programme for HAT is ongoing in Abraka, Delta State

Guinea Worm Disease (GWD) or Dracunculiasis

Nigeria was among the top 3 endemic countries in the world at the time the Nigerian Guinea Worm Eradication Programme (NIGEP) was launched in the country in 1988. The global campaign to eradicate GWD was enunciated within the framework of the United Nations International Drinking Water Supply Sanitation Decade (1981-1990).

Nigeria reported over 653,000 cases of GWD during the case search in 1988/1989. Since then, there has been sustained case reduction with less than 500 cases reported yearly since 2004. In anticipation that it will soon enter the pre-certification phase and in order to fulfil one of the WHO criteria for certification, Nigeria inaugurated the National Certification Committee on Guinea Worm Disease Eradication (NCC-GWDE) in May 2015. In 2008, a 99.9 % case reduction was recorded and transmission has since been interrupted. Nigeria has maintained a zero case status for GWD.

The strategies adopted over time included : capacity building, health education using key messages for prevention of GWD, surveillance, case management and containment, filter distribution, chemical treatment of eligible ponds, provision of safe water supply, monitoring and supervision, data management and advocacy pre-certification activities are being carried out. These include

i. Ensuring establishment and maintenance of a sensitive, comprehensive and verifiable GWD surveillance system nation-wide.
ii. Ensuring adequate GWD surveillance data management including record keeping and reporting at all levels
iii. Strengthening NIGEP advocacy, partnership and collaboration with other disease control programmes for GWD
iv. Ensuring adequate safe water supply to all targeted villages and villages at risk

Current Situation
Since 2009, nationwide integrated GWD surveillance activities especially at the borders are maintained. Nationwide awareness creation for GWD eradication and cash reward are carried out.

Leishmaniasis
Current Situation: in Nigeria the endemicity of leishmaniasis is not known, except in a few articles by researchers, there is presently no focused control programme for the disease. There is the need to conduct mapping for the disease across the entire country in order to obtain baseline data on its burden and spread.

Loasis
Cases of loasis with high levels of microfilaria have been reported from areas in which Ivermectin is being distributed for the control of onchocerciasis. This informed the decision by the Mectizan Expert Committee (MEC) of the Mectizan Donation Programme (MDP) in collaboration with the Technical Consultative Committee on the African Programme for Onchocerciasis Control (APOC) to issue guideline for the treatment of onchocerciasis-endemic areas that are co-endemic for loasis. Prior to this, under the auspices of WHO/TDR multi-site study, a tool for the rapid assessment of loasis was developed based on the clinical symptoms of the disease. This tool is based on a restricted definition of eye worm confirmed by photograph and duration of last episode (1-7 days). Rapid assessment using this tool has been done in over 400 communities in 35 LGAs in Akwa Ibom, Benue, Cross Rivers, Edo, Ekiti, Kwara, Niger, Ondo, Osun and Oyo. The result indicated about 40 communities, most of which are covered for Ivermectin treatment, having a prevalence of more than 40% [10].

Trachoma
The northern half of Nigeria lies in the WHO identified trachoma belt and trachoma is the second major cause of avoidable blindness in northern Nigeria. Population of current intervention area is 12.5 million, and the population believed to be at risk of trachoma is 8.7 million (based on available prevalence survey estimates). A national blindness survey estimate was completed in 2007. There is a plan to eliminate trachoma in Nigeria by the year 2020. The trachoma control plan is designed to take a few states for a start and gradually expand. The National Trachoma Control Programme (NTCP) is a partnership comprising principally NGOs such as TCC, SSI, HKI, CBM, UNICEF, WHO and MITOSATH.

The implementation of trachoma control in Nigeria is based on the comprehensive SAFE strategy:

S - To address the backlog of trichiasis, facility and camp based surgeries
A – Antibiotics distribution: This is to be done from house to house and to be community directed under the supervision of health workers.

F – Facial cleanliness : Public health education for prevention of diseases is carried out in schools and community centers.
E – Environmental improvement : The NTCP is working in conjunction with the NGOs to support local communities to build latrine.

Leprosy

Nigeria is still one of the leprosy endemic countries in the world. Presently, Nigeria has combined the Tuberculosis (TB) and Leprosy Programme (NTBLCP) whose implementation was launched in 1989 but became fully operational in 1991. Nigeria has achieved the WHO elimination target of 1 case per 10,000 population. The NTBLCP is saddled with formulating policies on the control of the two diseases. It incorporated buruli ulcer in 2005. The implementation of these policies is done at the state and LGA levels. Each of the 36 states and the FCT has a state TBL control manager who is the head of the state team that is mainly responsible for programme management and technical guidance to the LGAs. The LGA, TBL supervisor is responsible for programme management and implementation at LGA level. Leprosy and TB programmes have been integrated into the general health care services.

Despite improvement seen in case finding of leprosy cases over the years, many new cases with visible deformities (WHO grade 2 disabilities) continue to report for treatment.

Buruli Ulcer (BU)

Buruli ulcer was first reported from Nigeria in 1967 among the Tiv in Benue and Babur in Adamawa states. The Buruli Ulcer Control Programme (BUCP) was created and merged with the TLCP in 2005. The overall goal BU control is to reduce the morbidity, disabilities and socio-economic consequences.

Current situation

The WHO supplied Streptomycin and Rifampicin in December 2009. The drugs were distributed to Ogun, Anambra, Ebonyi, Cross Rivers, Akwa-Ibom and Kwara states. There is evidence that BU is gradually increasing in incidence. There is the need for basic data to help plan effective BU control programme in Nigeria and it has become necessity to conduct mapping for the disease.

RABIES

Current situation

There is paucity of data on the number of people affected or at risk for rabies in Nigeria. Little is known about the distribution of endemic foci within the LGAs in the various states of the Federation as there is no focussed control programme for the disease. Mapping for rabies needs to be conducted across the entire country as a measure of obtaining baseline data on its burden and spread in the country.

Control of Neglected Tropical Diseases

The control of NTDs in many sub-Saharan African countries has been made less important by other health priorities with the highest priority given to HIV/AIDS, malaria and tuberculosis [10] even though the resources required to effectively control the NTDs are relatively low compared to what has been already spent to fight AIDS, TB and malaria.

Control activities targeted at several NTDs have been on going in Nigeria since in the 1980s, through internationally and supported national control programmes. These activities are for dracunculiasis, onchocerciasis, lymphatic filariasis, schistosomiasis, leprosy, trachoma and soil

transmitted healminthiasis [9]. Though there is some funding for control activities by both the Federal and the State Governments, the level has been relatively low [9],[12].

In Nigeria, onchocerciasis control activities have been going on since 1991 [13]. Several national and international partners such as MITOSATH, UNICEF, WHO, Sightsavers are involved. Community Directed Treatment with Ivermectin (CDTI) has also contributed to making onchocerciasis control activities a public knowledge in Nigeria [13].

Integration of Control Measures

The process of integration has begun at the Federal level with the creation of an NTD branch in the Department of Public Health.

The control, elimination and eradication of NTDs will be a major contribution to poverty alleviation and attainment of the Millennium Development Goals (MDGs). The FMOH has established structures to control, eliminate and eradicate these NTDs in an integrated, cost-effective manner in collaboration with development partners and in line with the relevant WHO Resolutions and Declarations. As affected populations usually face the threat of more than one disease at a time [4], control and treatment of NTDs should not focus on a single disease.

In order to end the neglect of NTDs innovative approaches to community health programmes are necessary. One of approaches is the integration of primary health care services to address multiple disease conditions. Mass drug administration with safe oral anti-helminthic drugs (Paraziquantel, Ivermectin and Albendazole) is the strategy for the control of onchocerciasis, lymphatic filariasis and schistosomiasis [15].

Combating NTDs

Sightsavers (a UK-registered charity) that is combating blindness in developing countries and has awarded the first major grant from the United States, giving $275,000 from Izumi Foundation to tackle (onchocerciasis and lymphatic filariasis in three Nigerian states viz. kebbi, Kogi and Kwara). This support will protect 2.5 million people per year and will work to reduce the burden of river blindness and lymhatic filariasis. Sightsavers has been workin in Africa for more than 20 years and currently protects 22million people per year.

Sighsavers hope to integrate the distribution of Mectizan and Albendazole (the drugs used in combating the two diseases) into the existing health care system. This will result in 2.5 million people being protected per year for each of the diseases.

The United States' support for NTD's in Nigeria was initiated in 2012. This was accompanied by additional support from the Department for International Development (DFID) from the Uk. The first joint US Agency for International Development (USAID) and the DFID visited Nigeria in July 2012, via a meeting with the FMOH and key stakeholders to determine how to best support the National NTD Programme.

USAID and DFID have agreed to collectively provide approximately $36 million over four years for filariasis, trachoma, schistosomiasis, onchocerciasis and STHs. Funding will primarily support efforts to document natio–wide disease prevalence, mass treatment programmes, training, monitoring and evaluation. The USAID and DFID support to the FMOH is closely coordinated by Envison Project (USAID) and currently reaches 13 States. The impact of this

funding is increased by generous drug donations from Mereck & Co., Pfizer and Mereck Serono which also support the Nigerian NTD Programmes.

A year after the launching of the London Declaration on NTDs, Nigeria was sighted as a model by setting out its national plan and by inviting support from global partners.

Community Based Approach

Instead of using health workers to distribute Ivermectin, a new approach was developed which involve empowering communities and enabling them to take responsibility for distributing the drugs. The success of this Community Directed Treatment with Ivermectin, CDTI, has been adapted to facilitate other community–based programmes such as the mass drug treatment of schistosomiasis and the distribution of vitamin A and bed nets.

The need to engage the public in NTD's control activities has become imperative in the context of morbidity reduction through preventive chemotherapy and community participation

Strategy for Control

Strategy for control of NTDs will be premised on integrated approaches. This will include creation of community awareness, Mass Drug Administration (MDA) in all endemic communities using existing Community Directed Intervention (CDI), early case detection, case management, transmission and control. Integration will produce such benefits as cost effectiveness, improved coordination and programme management.

The following disease-specific activities will be carried out through co-implementation/collaboration/integration with full involvement of communities.

1. Control of lymphatic filariasis : annual Ivermectin and Albendozole administration to all at risk, vector control, personal hygiene and exercises of affected limbs and hydrocelectomies.
2. Control of onchocerciasis : annual treatment of with Ivermectin to the population at risk and focal ground larviciding in established vector breeding sites.
3. Control of schistosomiasis : MDA in school-aged children and high risk communities, health education, improvement of water supply, sanitation and focal control of snail intermediate host in selected foci.
4. Control of soil transmitted helminths : MDA with Albendazole/Mebendazole in school - age children and high risk communities as well as health education and improvement of water supply and sanitation.
5. Control of trachoma : surgery of trichiasis cases, MDA with Azithromycin of entire at risk identified communities, improved water supply for personal hygiene, reinforcing face washing and environmental management.
6. Control of leprosy : early case detection, adequate treatment with MDT, provision of comprehensive patient care (access to free MDT, Prevention of Disabilities (POD) and rehabilitation services), integration of leprosy services in to general health services, re-organization of existing leprosy services, community involvement in leprosy control activities. Self care (including self care groups, strengthening the referral system and centres).
7. Control of human African trypanosomiasis : surveillance and case reporting, case detection/management protocols and integration of HAT surveillance and notification to IDSR.
8. Control of buruli ulcer : early and community based case detection, confirmation of cases, case management (antibiotics, surgery and prevention of disabilities) and strengthening health structures.

9. Eradication of guinea worm : active surveillance activities in all and recently freed villages, Community Participatory Surveillance Strategy (CPSS), cash reward scheme, rumour investigation, documentation/reporting, use of monofilament filters to filter water before consumption and for domestic purposes provision of safe water supply and rehabilitation of broken down sources of water in NIGEP target and at risk villages, case management/containment strategy and vector control with Abate.

Co-endemicity of NTDs in Nigeria

Nigeria is one of the countries in sub-Saharan Africa with the highest burden of most of the NTDs. These are found to be endemic in almost all the states in Nigeria with three or more being co-endemic /state. There is little epidemiological data available for buruli ulcer, HAT and STHs. The National Steering Committee on NTDs at its fifth meeting recommended integrated mapping of some of the NTDs as imperative before the commencement of MDA.

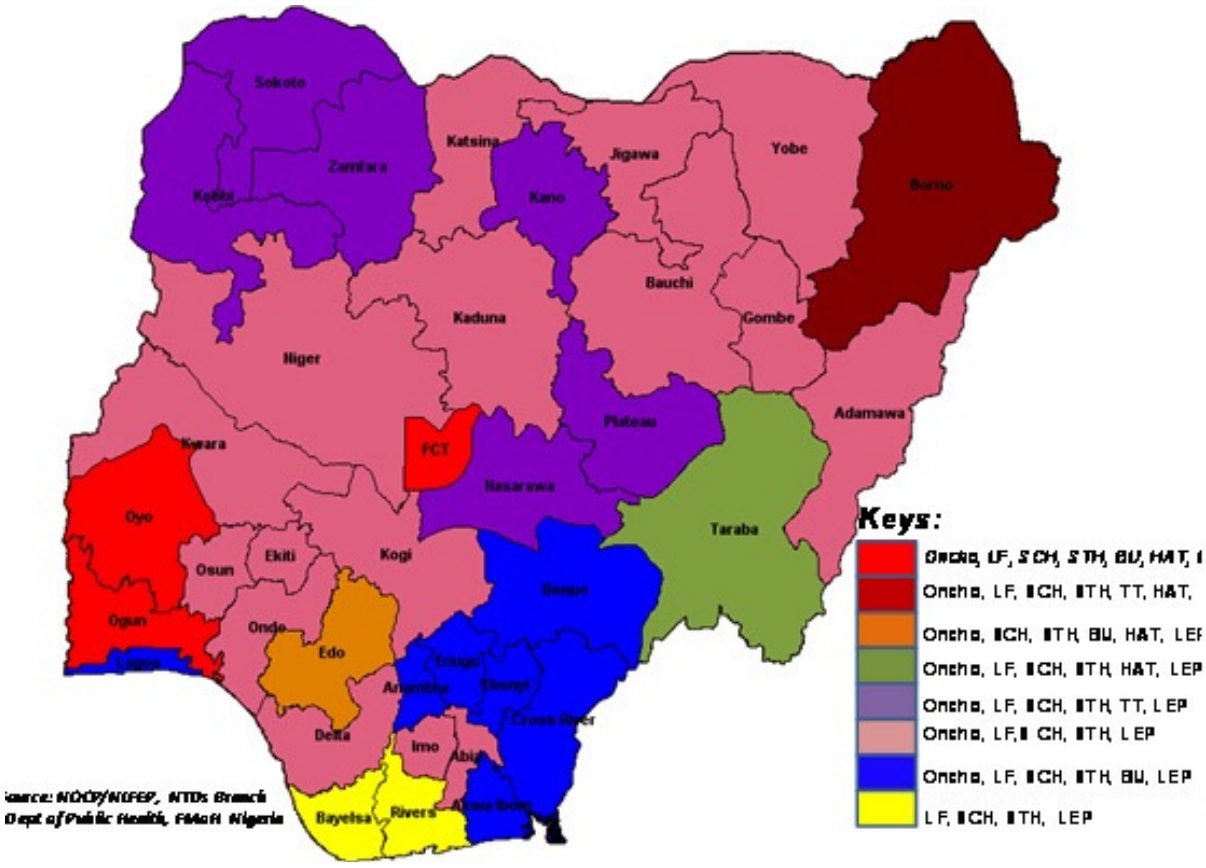

Figure 1: Neglected tropical diseases co-endemicity map –Nigeria (Source : Nigeria's Master Plan for Neglected Tropical Diseases (NTDs 2013-2017)

Key Successes in combating NTDs in Nigeria

The successes attained in the control of NTDs in Nigeria include the following

1. The FMOH, in 2013 accelerated efforts to achieve the 2020 NTD Master Plan that outlines strategic steps to eliminate and control 10 of NTDs.
2. Participants from Nigeria's 36 states came together in Abuja to finalize the overall strategy and make specific plans for each state.
3. A total of three hundred and twenty-two million, ninety- two thousand, eight hundred and thirty-three ($322,092,833) US Dollars only is budgeted for the five years.

4. The budget presented covers activities to be implemented and supported by the FMOH and partners nation-wide. (It is expected that the states and LGAs will develop their NTDs plan action within the frame work of this strategic plan).
5. The FMOH set an ambitious goal to finish documenting nation-wide disease prevalence by the end of 2014 by leveraging new support from international organizations such as USAID,DFID, the Children's Investment Fund Foundation (CIFF) etc.
6. The FMOH has prioritized 10 of the NTDs and included them among the notifiable diseases.
7. Onchocerciasis prevalence has been documented nation-wide while documentations for the prevalence of trachoma and lymphatic filariasis is near completion and that of schistosomiasis and STHs is expected to be completed by the end of 2014.
8. Nation-wide training of NTD programme managers has been completed, strengthening NTD programmes in all the states.
9. In 2013, USAID, supported the disease prevalence documentation process in the states of Plateau, Nassarawa, Abia, Anambra, Delta, Ebonyi, Edo, Enugu and Imo. It also supported mass treatment for six million people.
10. In 2013, DFID supported the disease prevalence documentation process in Bauchi, Taraba and Niger States. It also provided mass treatment in Katsina, Kano and Zamfara States

Table 2.0 : Neglected Tropical Diseases : Mapping Status (Source : Nigeria's Master Plan for Neglected Tropical Diseases (NTD's 2013-2017)

S/No	Name of endemic NTD	No. of LGA's suspected to be endemic	No of LGA's mapped for known endemicity status	No. of LGA's remaining to be mapped
1	Onchorcerciasis	0	430	0
2	Lymphatic filariasis	541	705	69
3	Schistosomiasis	215	220	578
4	Soil Transmitted Helminths	181	190	596
5	Trachoma	774	156	618
6	Guinea Worm Disease	0	774	0
7	Leprosy	774	250	524
8	Buruli Ulcer	155	0	155
9	Human African Trypanosomiasis	774	2	774
10	Leishmaniasis	774	0	774
11	Rabies	774	0	774

Table 3.0 : Neglected Tropical Diseases : Programme Implementation

NTD	Date programme or intervention started	Total no. of LGA's targeted	No. of LGA's covered (Geographic coverage)	Total population in target districts	No. of (%) population covered	Types of inter-vention	Key partners
Lymphatic Filariasis	1997	541	175 (32.3%)	106,124,877	(17.5%) 18,591,932	IVM + ALB	WHO,MDP, GSK,TCC, SSI,CBM, HKI, MITOSATH
Onchocerciasis	1992	430	430 (100%)	38,332,140	(80.0%) 30,477,580	MDA (IVM)	APOC, NGDOs Coalation in Nigeria
Schistosomiasis	2009	500	49 (9.8%)	43,003,378	1,322,861	MDA	WHO, MERECK Germany, De Worm The World/ PCD, CIFF, CWW, J&J pharma-ceuticals, NGDOs
Soil Transmitted Helminths	2010	500	20 (2.0%)	34,566,184	85,153	MDA	WHO, PCD/ Deworm The World, NGDOs
Trachoma	2001	156	10 (1.6%)	14,395,593	1,100,197	MDA	Sightsavers, TCF, HKI, CBM

Table 4.0 : Case Management Summary of information on existing case management programmes (Source : Nigeria's Master Plan for Neglected Tropical Diseases (NTD's 2013-2017)

Human African Trypanosomiasis	2006	200	21 (10%)	Active case detection and facility management	WHO, FIND, AU-PATTEC, NITR, FMST, FMA, FME, Academia
Buruli Ulcer	2008	60	3 (5.0%)	Active case detection and facility management	ILEP, WHO
Leprosy	1989	250	150 (60.0%)	Active case detection and facility management	ILEP, WHO
Lymphatic Filariasis	2010/2011	541	103 (19.0%)	Cleaning of lymphedema and use of anti-bacterial WHO, and anti-fungal creams for secondary infection, hydrocele surgery	WHO, MDP, GSK, TCC, SSI, CBM, MITOSATH,HKI
Leishmaniasis	Not started	774	0(0.0%)	Active case detection and facility management	
Trachoma	2000/	156	10 (1.6)	Trichiasis surgery, Tetracycline, Azithromycin	Sightsavers, TCF, HKI, CBM, V2020, Support Programme, MITOSATH
Schistosomiasis	1998/	500	49 (9.8)	Active case detection and facility management	TCC, WHO, MITOSATH. Mereck Pharmaceutical Germany
Rabies	1998	774	0 (0.0)	Active case detection and facility management	

Geographical coverage = No. of districts covered by the programme. Total no. of endemic districts in the country

Unmet Diagnostic Needs

Some of the unmet diagnostic needs for NTDs in Nigeria include

1. The need to conduct integrated mapping/baseline surveys for all the NTDs nation-wide
2. Health officials in all states should be trained on mapping of NTDs
3. Carrying out integrated mapping of co-endemic NTDs at the same time
4. To complete documentation of nation-wide prevalence of NTDs
5. To strengthen the NTD programmes in all states nation-wide

6. In order to end the neglect of NTDs, innovative approaches to community health programmes are required
7. Empowering community based programmes which will take the responsibility of creation of community awareness, drug distribution, health education and promotion, case management, reducing transmission etc.

Challenges and Practicalities

Some of the practicalities and challenges Nigeria should be facing include

1. Working towards producing enough drugs for the diseases that require MDA rather than depending on international organizations
2. More of the private sector and NGDOs should be encouraged to participate in the control of NTDs
3. Funding should be sourced by the FMOH to support efforts to document nation-wide prevalence of all NTDs, MDA, M&E etc.

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