

## Terminating the Neglect of Neglected Tropical Diseases in Africa

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Neglected Tropical Diseases (NTDs) are a group of poverty-associated chronic infectious diseases, which are endemic in poor and rural populations in the developing countries of Africa, America and Asia. An estimated 1 billion people, one in every six people living on this planet, suffer from one or more NTDs. In Africa the NTDs targeted for elimination through Preventive Chemotherapy (PCT) include Onchocerciasis (river blindness), Lymphatic Filariasis (LF), schistosomiasis, blinding trachoma and Soil Transmitted Helminthes (STH) mainly Ascariasis (round worm), trichuriasis (whipworm) and hookworm infection [1]. These NTDs are usually treatable and preventable and their mortality rate is less when compared to those of the “big three diseases” (Malaria, Tuberculosis and HIV) and this probably led to them being ‘neglected’ over the years.

STH is a public health problem in most of Africa. They are of particular importance because an individual especially a child could be co-infected with the three worms and which could also increase host susceptibility to other important illnesses such as malaria, tuberculosis, and HIV infection. The presence of large numbers of adult round worms in the small intestine can result into partial obstruction of the ileum [2]. Adult whipworms live preferentially in the caecum and inflammation at the site of attachment from large numbers of whipworms results in colitis. Chronic dysentery and rectal prolapse is also a consequence of whipworm infection [3]. Hookworm ranks at the top of major causes of disease burden because of the anaemia that result from the blood feedings of the adult parasite. Hookworm disease occurs when the blood loss exceeds the nutritional reserves of the host, thus resulting in iron-deficiency anaemia [4,5].

Schistosomiasis in Africa is due predominately to *Schistosoma mansoni* and *S. haematobium*. An estimated 85% of the world's cases of schistosomiasis occur in Africa, where more than 50% of a local population could be infected at a given time [6]. *S. haematobium* eggs typically lodge in the urinary tract and can cause dysuria and hematuria. *S. mansoni* eggs most commonly lodge in the blood vessels of the liver or intestine and can cause diarrhea, constipation, and blood in the stool [7]. River blindness is not associated with mortality but its global burden is about 987,000 Disability Adjusted Life Years (DALYs). The most severe consequence of onchocerciasis is blindness which affects more than 1 million individuals worldwide, mostly in sub-Saharan Africa. Other symptoms of onchocerciasis include unrelenting itching, physical scars from constant scratching, de-pigmentation and thickening of the skin [8]. LF is endemic in over 80 countries and it is estimated that up to 120 million people are infected in about 80 endemic countries. About 40 million people are affected with hydrocele and elephantiasis which is the chronic manifestations of LF [9]. Trachoma, another blinding disease is widespread in the savannah regions of Eastern and Central Africa (i.e., Ethiopia, Sudan, Tanzania, and Kenya or in the Sahelian countries). Active trachoma is a significant cause of blindness and the leading cause of infectious blindness in Africa. An estimated 1.3 million people are blind from trachoma, and about 40 million people are thought to have active disease and 8.2 million to have trichiasis [10].

The economic and social impact resulting from NTD-related impairments is enormous. NTDs have blinded, disabled disfigured and killed their victims for centuries and their impact on individuals and

communities is devastating. They impair intellectual development in children, and have resulted in reduce school enrollment and reduced overall economic productivity of the affected areas. They limit the ability of infected individuals to work and thrive, thus trapping them in a cycle of poverty and disease. In spite of their devastating effect, the NTDs have been overshadowed by the Malaria, HIV and Tuberculosis because they cause far fewer deaths. An estimate using Disability Adjusted Life Years (DALYs) as a metric, revealed that NTDs causes almost 57 million DALYs loss annually, a burden that is greater than that caused by malaria or tuberculosis and almost as great as the burden of disability resulting from HIV/AIDS [7].

There are effective and feasible controls for all the NTDs targeted for elimination in African continent. WHO, Pharmaceutical companies, ministries of health of the affected areas and NGOs has been providing support for the control of the NTDs. Since 1987 Merck & Co. has been donating free Mectizan® for mass distribution in all onchocerciasis endemic areas which has provided treatment for over 68.4 million people. The distribution of free Mectizan® is being co-ordinated and funded by African Programme on Onchocerciasis Control (APOC) and international and local NGOs in African continent [11]. Also, the control of LF and STH is also enjoying donation of free drugs from GlaxoSmithKline and Merck & Co. Inc. Albendazole and Mectizan are available for free for as long as it would be needed. The combination of Albendazole+Mectizan is now being use especially in areas that are endemic for onchocerciasis. Albendazole is currently being used for the control of STH. WHO and NGOs are co-coordinating large-scale deworming in schools and communities where STH are prevalent. For Trachoma WHO recommends the SAFE Strategy (Surgery, Antibiotics, Facial cleanliness, and Environmental changes) which is currently being implemented in endemic countries with the support of NGOs [12].

There is an urgent call by WHO and its collaborating partners to scale up interventions to control and eliminate NTDs in the WHO African region [13]. The aim is to come up with an integrated approach to completely map the distribution of major NTDs targeted for preventive chemotherapy. This effort will provide a landmark for rapid scale-up of NTD interventions in the African region. Assessing the burden of NTDs and completely identifying all the affected areas is a crucial and urgent roadmap in other to achieve complete control and elimination of the NTDs in Africa. Extensive analysis of the available data on distribution of NTDs in Africa revealed significant gaps and

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efforts will have to be made to fill up all the gaps to in other to achieve the complete elimination vision. With complete map of the endemic areas at hand, adequate strategies and types of drug co-administration will be determined which will lead to effective scaling up Mass Drug Administration (MDA). With the current momentum that has resulted in the increase large scale funding opportunities for the control of NTDs and availability of free drugs, it is expected that there will be a co-ordinated effort among all stakeholders to completely eliminate NTDs.

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