The London Declaration on Neglected Tropical Diseases -5 years on

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In January 2012 a meeting in London brought together key actors in global health to commit to increasing support for the control and elimination of Neglected Tropical Diseases (NTDs) issuing the “London Declaration” which made specific commitments, increased the number of drug donations available to countries, increased bilateral and Non- Governmental Development Organizations (NGDO) and philanthropic financial commitment to NTD intervention and research. 1 This meeting coincided with the publication of the WHO Roadmap 2 defining the targets for countries if World Health Assembly (WHA) Resolutions were to be achieved towards the dates of 2020 and 2025. It is appropriate to summarise what progress has been made and what challenges have emerged.

The inclusion of NTDs within the Health Targets of the UN Sustainable Development Goals (SDGs) has been a major breakthrough in the recognition of the importance of these diseases as impediments to the improvement of the life prospects of the poorest. Examination of the 17 SDG targets clearly shows that NTDs are associated with several of those targets and progress in many areas of development identified in the SDGs requires attention to or is central to alleviating poverty. 3 Calculations confirm the economic benefits which accrue from interventions for NTDs, and projections of those benefits in terms of improved health in DALYs averted, demonstrate NTD investments are amongst the most cost effective and value for money spends in health often at unit per capita annual spend of US$ 0.10 4 demonstrating massive leverage in health and social benefits given the value of the donations of drugs estimated at circa US$2-3 billion/annum-all of which are on the WHO Essential Medicine list. 5

In the context of the broader health goals NTD country programmes are integral to ensuring they are embedded in the objective of Universal Health Coverage (UHC). This is a further example showing that success in achieving WHO targets are closely linked to the statement that success of NTD programmes are a “litmus test” of progress to SDG targets as well as an expression of equity and human rights, the need for access to treatment and prevention and the strengthening of health system capacity at sub national level to deliver the necessary interventions. Since 2012 there has been expanded interest from Non- Governmental Developmental Organisations (NGDOs) and the adoption in 2013 of a World Health Assembly Resolution (66.12) on NTDs endorsed by all WHO Member States which defines the five key strategies to be implemented. 6 There is an increasing constituency committed to progressing NTD control and elimination as reflected in the expansion of country programmes, increased scientific interest, reflecting the need for applicable and affordable tools for treatment, diagnosis, monitoring and evaluation. Progress in interventions in countries is now recorded each year through the publication by Uniting to Combat NTDs of a Scorecard which measures progress in terms of the WHO Roadmap targets 7 and in the WHO Weekly Epidemiological Record.8 Recent progress on mapping to define the focal endemicity of diseases and numbers of people at risk has progressed (with most of the data on line) , particularly for trachoma, human African trypanosomiasis (HAT) and lymphatic filariasis and schistosomiasis whilst the challenges to elimination of soil transmitted helminths and schistosomiasis have highlighted the importance of emphasising the need for improved water, sanitation and hygiene (WASH) as well as heath education as recognized by the publication of the WHO /NTD/ WASH strategy document 9 as well as the need to update the strategies if the targets move from control to elimination. 10 Four countries have been verified as free of transmission of onchocerciasis in the Americas and several countries have also been recognized as able to stop mass drug administration for filariasis in Africa and south Asia ( See Text Box). Progress towards elimination of visceral leishmaniasis through vector control of sandflies and the increased availability of ambisome has resulted in a reduction of incidence in the endemic areas of India, Nepal and Bangladesh. The non- infectious cause of lymphoedema, associated with volcanic soils, podoconiosis, has been the subject of detailed studies in identifying its distribution, social, psychological and economic impact focussed in Ethiopia, whilst developing an advocacy platform to highlight an effective strategy for its alleviation and elimination [3]. The NTD community has also moved to recognize its responsibility to recognize the plight of those who require treatment for existing conditions with an increased policy emphasis on the need for morbidity management and disability inclusion with the various disease specific constituencies sharing expertise and good practice notably leprosy, trachoma and filariasis.

However, central to advocacy for NTDs is the need to emphasise their Global Burden. The Global Burden of Disease 11 study suggested that this burden had declined over a period from 2005 -2010. However, this view has been challenged 3 as several NTDs, including those that cause significant mortality, are attributed elsewhere in the GBD calculations such as rabies, trematode induced carcinomas and neurological morbidity (neurocycsticercosis and HAT). The burden of mental health for patients (and caregivers) suffering from chronic and disabling NTDs has also been highlighted as a significant addition to the overall burden. 12

There is no doubt that whilst progress has been made several issues have emerged which have the potential to delay that progress (See Box) . The past 3 years have seen the emergence of epidemics of Ebola and Zika viruses, the latter in countries initiating NTD programmes, where as a result, progress was delayed as resources were focussed on stemming the epidemic. Conflict in several countries in Africa and the Middle East have impeded programmes - access to areas in the final push to eradicate Dracunculiasis and epidemics of cutaneous leishmaniasis in refugees following hostilities in Syria. Hence, such political volatility remains an impediment to NTD programmes dependent, as they are, on access to communities, a stable environment to ensure drug supply chains are efficient and drugs available for distribution when required. Some populations, however, such as those in the Brazil/Venezuela focus of onchocerciasis or filariasis affected communities in Papua New Guinea, exemplify the challenges of accessing remote communities in difficult geographic environments. Scientific challenges have emerged as dogs have been identified as major hosts of guinea worm infection in Chad as well as in other remaining endemic countries (Mali, Ethiopia and South Sudan). Despite this setback progress in certification of several countries as free of transmission of the disease since 2012 has been encouraging including in Nigeria and Ghana. Loiasis remains an impediment to expansion of filariasis and onchocerciasis programmes in Central and West Africa, where the risk of serious adverse events associated with ivermectin, remains a problem, limiting coverage and adherence if onchocerciasis programmes expand to low transmission zones as part of the elimination programme . Snake bite, the most neglected of NTDs, with an estimated annual global mortality of around 100,000 deaths suffers from the absence of a quality, affordable anti-venom in Africa with the withdrawal from production of the most effective product exposing many thousands to serious risk of death or permanent disability. The emergence of Zika virus transmitted by *Aedes aegypti*  has been the focus of attention in recent months but the continued expansion of dengue and Chikungunya virus remain whilst epidemics of yellow fever have emerged in Africa requiring an emergency response through mass vaccination derailing routine health activities. A salutary lesson is that we ignore the changing ecology which drives changes in vector behaviour, that capacities to implement vector control are limited and that insecticide resistance develops rapidly and few alternatives are available to combat widespread resistance to pyrethroids. 13 NTDs, as defined by WHO, have in place strategies which if implemented would secure greatly improved health for millions of the poorest. Progress over recent years has been impressive but much remains to be done. The reality is that some programmes have made a massive impact. 900 million annual treatments using preventive chemotherapy strategies; 6.2 billion cumulative treatments given for lymphatic filariasis programmes since 2000; 16 countries certified free of Guinea worm transmission; the smallest number of recorded cases of HAT ever around 3000 in 2015. These are impressive and significant public health gains; four countries in the Americas verified free of onchocerciasis and several verified free of lymphatic filariasis-Cook Islands, Nuie, Vanuatu, Cambodia, Maldives and Sri Lanka.

There has been a sustained momentum over the past 5 years to expand NTD programmes with increased numbers of organizations and partners involved. The major financial contributions from the US and UK governments, The Bill & Melinda Gates Foundation, NGDOs, pharmaceutical companies and academia have been central to this momentum. There is a need, however, to sustain progress yet be cognisant of the need to be realistic about what countries can do, recognize the ecological drivers of epidemiological change and adjust strategies and targets when new evidence is available. The NTD community must continue to advocate for greater recognition of the problem by endemic countries and bilateral donors of the impact of NTDs on the lives of the poor -as much as specific disease entities which can be alleviated or even eliminated but as problems of development which have major economic impacts in poor communities. NTD interventions are highly cost effective interventions with programmes reaching circa **one billion** people per year. This is an unheralded public health success, a major contribution to poverty alleviation and the best public health buy available. 3

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**TEXT BOX**

Recent Progress and Emerging Challenges in Neglected Tropical Diseases

Examples of Progress

* World Assembly Resolution 2013 WHA 66.12
* Inclusion in Sustainable Development Goal Health targets
* Commitment to praziquantel donation by Merck KGgA and continued commitment from pharmaceutical industry to drug donations
* Verification of absence of transmission of onchocerciasis in 4 countries in the Americas
* Commitment to the eradication of Yaws
* 6 countries certified Guinea worm transmission free since 2010; four countries remain endemic with only 22 cases recorded in 2015
* Human African Trypanosomiasis cases down to lowest ever recorded levels (3000 cases per year)
* Global Mapping of Trachoma completed and intensive mapping efforts for other diseases completed
* WHO reports people treated with preventive chemotherapy in 2015 was 980 million; 6.2 billion treatments for filariasis since 2000; recognition of need to expand treatment beyond school age children to pre- school children and vulnerable groups
* Expansion of the control of zoonotic NTD strategies via One Health concept for rabies, cysticercosis, echinococcosis and acute *rhodesiense* human trypanosomiasis
* Development by WHO of NTD/ WASH Strategy
* Publication of investment case by WHO and DALY averted calculations
* Modelling analysis of strategies towards Roadmap targets
* Prospects of new drugs for LF and onchocerciasis (triple therapy, macrofilaricides) and HAT
* Increased commitment from NGDO community
* Recognition of need for resources for morbidity management and disability alleviation
* Continued commitment to support NTD operational research
* Increased donor commitment

Emerging Challenges

* Conflict prevents access to populations through disruption of health services and migration
* Access to remote populations in challenging geographic settings and vulnerable groups in elimination programmes (Amazon for onchocerciasis; Papua New Guinea for filariasis)
* Epidemiological surprises-dogs as hosts of Guinea worm in Chad
* Advocacy for sustained country commitment to NTD programmes
* Recognition of global burden of NTDs, including higher mortality estimated at 350,000 deaths annually than attributed in GBD studies
* Limited human resource capacity to support country programmes
* Recognition for snake bite as a leading cause of global mortality and absence of effective available anti venoms
* Need to increase bilateral donor base to increase proportion of Development assistance for health on NTDs as impediments to alleviating poverty
* Ebola, Zika and Yellow Fever outbreaks impede routine NTD implementation
* Dengue, Chikungunya and Zika virus highlight risk from expanding *Aedes* populations; potential impact of climate change