



School-Based Deworming

A Clear Role for the European Commission

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Cover image: Schoolchildren in India after receiving deworming treatment [Image Credit Esther Havens]

Key Points

- **Schistosomiasis and soil-transmitted helminths (STH) are two neglected tropical diseases (NTDs) that particularly affect school-age children's health, education and future productivity; over 400 million school-age children are infected by these diseases and hundreds of millions more are vulnerable to them.**
- **Periodic drug treatment for children in schools – known as school-based deworming – represents a highly strategic approach to tackling STH and schistosomiasis, achieving multiple benefits of genuine significance at potentially great scale for very small costs (as low as US\$0.13 per child).**
- **Integrated programmes that deliver deworming, water, sanitation and hygiene, health education and other key interventions lead to even greater long-term impact.**
- **The signing of the London Declaration on NTDs in 2012 generated strong momentum at the global level to tackle NTDs, including schistosomiasis and STH, with the establishment of powerful partnerships that have increased investment and drug donations.**
- **The European Commission (EC) is well placed to play an important role in the global movement against NTDs.**
- **The EC should particularly support school-based deworming, and help to address the key research and development and operational challenges identified in this paper.**
- **The EC urgently requires a clear policy and joined-up strategies to tackle NTDs, especially schistosomiasis and STH.**
- **The EC needs to work with the World Health Organization and national governments to prepare and implement integrated plans for NTD control that markedly include school-based deworming programmes.**

1.0 Introduction

The signing of the London Declaration on Neglected Tropical Diseases¹ (NTDs) in January 2012 represented a landmark moment in the fight against these 17 diseases that affect over 1.4 billion² people. The London Declaration brought together a range of bilateral and multilateral donors, pharmaceutical companies and civil society organisations, united by the understanding that global poverty cannot be significantly alleviated without addressing NTDs. This is because NTDs are properly understood as diseases of neglected people. Yet the European Commission (EC) is on the margins of the growing global movement against NTDs. With its financial resources, technical capacity and global network, the EC can and should play a pivotal role in necessitating action at both global and national levels in order to 'finally end the vast misery caused by these ancient diseases of poverty'.³

This paper focuses on two of the NTDs that particularly affect children: schistosomiasis and soil-transmitted helminths (STH). It argues that schools provide a highly strategic platform from which to tackle these two diseases. School-based deworming (i.e. periodic drug treatment for children in schools) achieves significant reductions in disease morbidity – and as a consequence improves educational participation and achievement – for very small costs. Indeed, school-based deworming may be viewed as a critical component of comprehensive school health and nutrition (SHN) programmes, which are proven to generate significant benefits for child development when properly planned and implemented.⁴

Therefore, in focusing attention on NTDs, the EC should particularly provide strong support for school-based deworming programmes. It is clear that the EC has the ability to play an important strategic role (working in partnership with the governments of endemic countries and other donors) to address key research and development (R&D) and operational challenges in school-based deworming, with the aim of further improving the impact of programmes on the lives of vulnerable children. In order to rise to this task, the EC requires a clear policy direction, and must ensure that the control and elimination of schistosomiasis and STH are integrated into its education, nutrition and water, sanitation and hygiene (WASH) strategies and programmes.

2.0 Schistosomiasis and Soil-Transmitted Helminths⁵

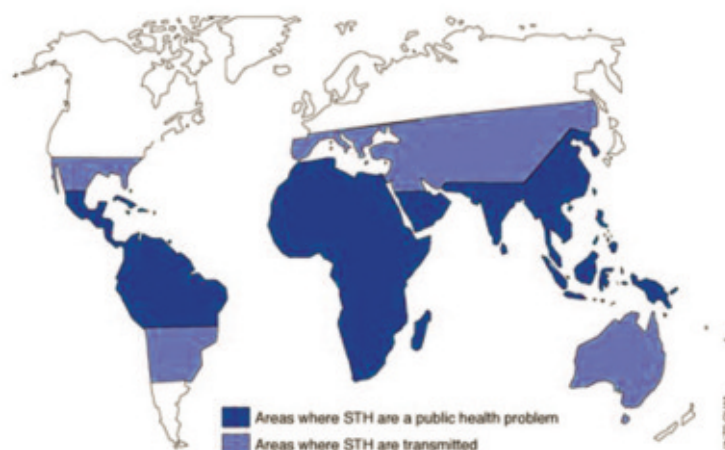
2.1 What are schistosomiasis and STH?

Schistosomiasis and the three STH infections (hookworm, roundworm and whipworm) occur through the excretion of parasite eggs in human faeces or urine which contaminate the soil and water. Humans may be infected by ingesting infective eggs through contaminated food, hands or utensils (all STH), and by skin penetration from infective larvae in contaminated soil (hookworms) or fresh water (schistosomes). In infected individuals, the eggs develop into adult worms, living in the intestines or urinary tract of humans. The burden of infection builds up through repeated exposure, with the worms producing eggs which are then excreted into the environment, thus perpetuating the life-cycle of the diseases. Both schistosomiasis and STH thrive in warm and moist climates where households lack access to safe water and adequate sanitation. The maps below broadly illustrate where schistosomiasis and STH are transmitted, and where they are a public health problem (due to higher levels of prevalence in these geographical areas).

Global distribution of schistosomiasis



Global distribution of soil-transmitted helminth infections

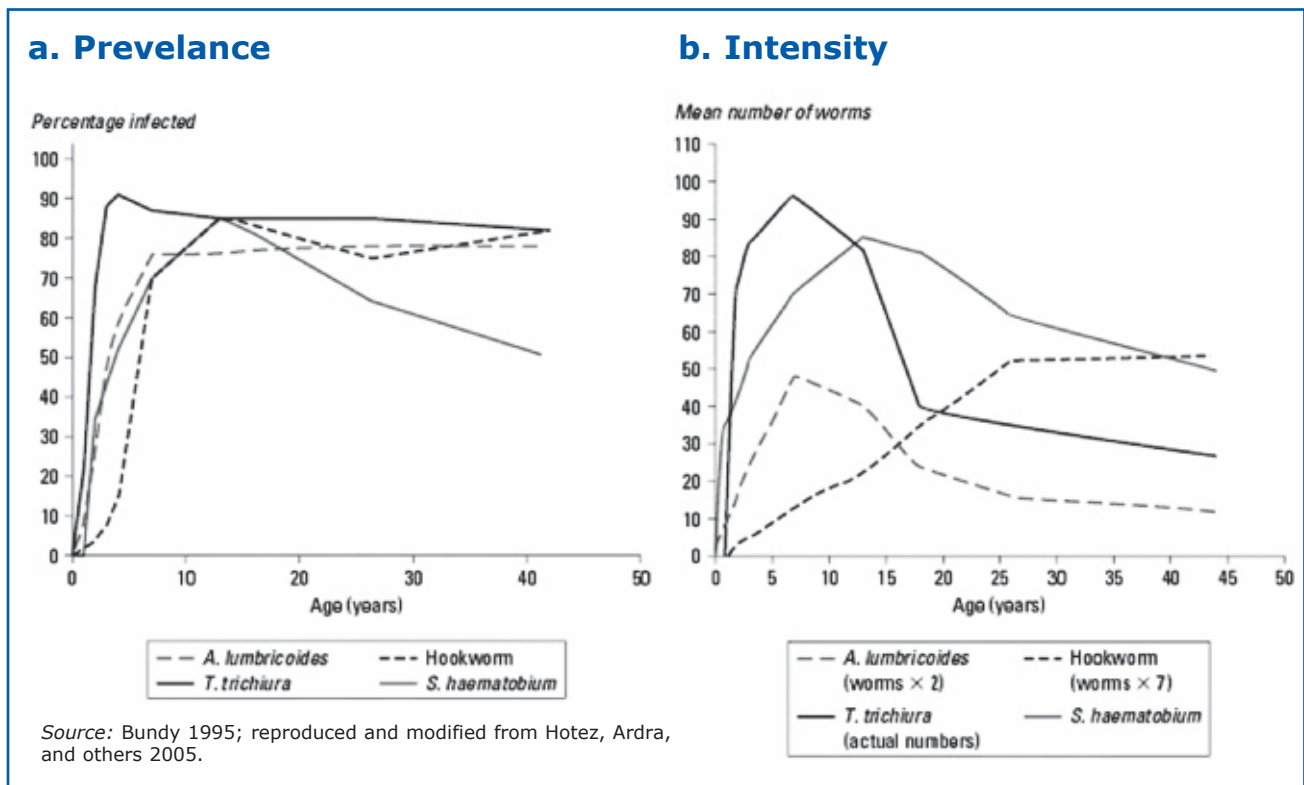


Global distribution of schistosomiasis and STH⁶

2.2 What are the effects of schistosomiasis and STH on children?

Schistosomiasis and STH negatively impact upon the lives of those infected and those in the surrounding community. Any burden of schistosomes, and high intensity STH infections, may cause serious morbidity. For example, hookworm infections are a leading cause of severe anaemia in up to one third of pregnant women in sub-Saharan Africa,⁷ resulting in an increased likelihood of premature births, babies with low birthweight and impaired lactation.

The most damaging aspect of these diseases is their effect on children. Over 400 million school-age children are believed to be infected with parasitic worms throughout the world.⁸ Indeed, as the diagram below shows, 'children harbour more intestinal helminths and schistosomes... than any other single population'.⁹ As morbidity is frequently directly linked to the intensity of the worm burden, these children suffer from profound health problems such as listlessness, diarrhoea, abdominal pain, malnutrition and anaemia, which in turn leads to stunted growth, reduced physical fitness and lower cognitive skills.¹⁰ There is evidence¹¹ that children with these diseases are less likely to attend school, which in turn has a significant impact on their longer-term economic prospects (this is discussed further in section 3.2).



Age-associated prevalence and intensity profiles of schistosome and STH infections¹²

2.3 Treatment

Although NTDs have a devastating impact on communities, strategies for their control are surprisingly simple, safe and cost-effective. Several of the NTDs, including schistosomiasis and STH, can be controlled easily through the periodic administration of preventive chemotherapy. The drugs recommended by the World Health Organization (WHO) to treat schistosomiasis (praziquantel) and STH infections (albendazole and mebendazole) are extremely effective in reducing the morbidity of the diseases. Deworming in the form of periodic drug treatment administered regularly over a few years can lead to extremely impressive results for controlling both schistosomiasis and STH infections.¹³ An annual single dose of albendazole or mebendazole for treating roundworm, for example, results in cure rates of up to 95%.¹⁴



*A child holds a deworming pill
[Image Credit Esther Havens]*

2.4 Drug donations

Over the last 25 years, NTD treatment and control programmes have relied upon the mass administration of drugs to endemic communities. Access to low-cost drugs or donated drugs is critical, and NTD control programmes have benefited from the large, consistent supply of drug donations by the pharmaceutical industry, housed within public-private partnerships and working closely with ministries of health in endemic countries.¹⁵ Thanks to commitments made by pharmaceutical companies in the London Declaration, just under 1.35 billion drugs were donated to combat NTDs in 2013, an increase of 36% compared to 2011.¹⁶ The pre-existence of large-scale international control efforts and the existence of well-established evaluation and accountability mechanisms have contributed to the willingness of the pharmaceutical industry to engage.¹⁷

2.5 Control and elimination

Drug administration can be considered a 'first line rapid control measure'¹⁸ with clear, immediate health improvements for infected individuals. Yet the control and elimination of schistosomiasis and STH infections is only feasible with significant environmental improvements – most notably access to WASH services – and changes in the health behaviour of the wider community.¹⁹ In the words of the WHO, 'without these improvements, the prevalence of infection will tend to return to original pre-treatment levels'.²⁰ Thus the solution lies in integrating WASH interventions with deworming strategies (integration is discussed further in section 4).

3.0 School-Based Deworming

3.1 How school-based deworming works

The WHO recommends periodic mass treatment of all school-age children where there is prevalence of schistosomiasis, and where prevalence is above 20% for STH. Mass drug administration (MDA) is safe even when tablets are taken by uninfected individuals.²¹ It is also cheaper to perform MDA rather than screen and treat children individually.²² The frequency of school-based deworming depends on the prevalence of worm infections in the area, with once every six months being the maximum recommended frequency.²³ The deworming tablets are administered orally. The simple and safe nature of this procedure also means that teachers, in a few hours, can be trained to deworm children. Delivering the drugs in schools, as well as training teachers and incorporating health education into the school curriculum, takes advantage of existing school infrastructure, making deworming practical, cost-effective and sustainable.

3.2 Highly effective...

Rigorous research associated with the Primary School Deworming Programme in Kenya demonstrated that school-based deworming decreased school absenteeism by 25% and led to higher wage earnings of over 20% in adulthood.²⁴ The programme even benefitted children residing close to targeted communities by reducing transmission in the area.²⁵ Recent research conducted by the World Bank has also shown that the spillover effects of school-based deworming have positive long-term benefits on cognition amongst younger members of the community.²⁶ Interestingly, as the poorest and most vulnerable children are most likely to be affected – and the least likely to cope – school-based deworming programmes (like SHN programmes more broadly) actively promote equity in education.²⁷ Furthermore, as the state-wide Bihar School-Based Deworming Programme demonstrates, school-based deworming can be delivered rapidly at great scale.



Schoolchildren in Bihar receive deworming pills [Image Credit Esther Havens]

India: School-based deworming in Bihar at an extraordinary scale²⁸

From February – April 2011, over 17 million children in the Indian state of Bihar were provided with deworming treatment. The announcement was made jointly by the Department of Health & Family Welfare, Department of Human Resource Development and non-governmental organisation Deworm the World, as they reported the results of Bihar's first-ever state-wide school-based deworming programme.

Bihar has a very high rate of parasitic worm infection, with all school-age children at risk and more than 50% of these children infected in most districts. Therefore all school-age children in Bihar were targeted for deworming by this programme. Nearly 140,000 teachers throughout the state were trained to deliver the medication, supported by 20,000 healthcare staff trained specifically for this programme. 'Deworming Day' and 'Mop-up Day' (to cover children who may have been absent on 'Deworming Day') were then held in schools throughout the state in three phases.

In a joint statement, Mr. Amarjeet Sinha, Principal Secretary of the Department of Health Family Welfare, and Mr. Anjani Kumar Singh, Principal Secretary of the Department of Human Resource Development, said: 'when there is horizontal collaboration between different government departments, an otherwise unimaginable scale of accomplishment, such as that achieved by the school-based deworming programme in Bihar, becomes possible in a very short period of time'.

The programme treated both enrolled and non-enrolled children between the ages of 6 and 14 through a network of over 67,000 schools across the state. The large scale of the Bihar programme exemplifies the success and positive impact of school-based deworming. The cost per child was less than 25 rupees (€0.31) per year. Ms. Prerna Makkar, Regional Director – South Asia of Deworm the World, said: "Bihar provides a model that can be rapidly scaled-up in additional states and sustained over time to improve the education, health and productivity of school-age children."

Targeting school-age children is always essential in the battle against intestinal worms. However, if prevalence is high among a wide range of age groups, control and elimination will not be achieved by targeting school-age children alone.²⁹ In such cases, expanding treatment to the wider community needs to be a part of deworming strategies. One option is to extend the strategic role that schools play, so that they are also utilised as a platform for providing deworming drugs to adults and pre-school children in the community. Whatever the approach, genuine participation by all groups in the community is crucial, and community health workers and volunteers must play an important role.

3.3 ... And very low cost

Harnessing the existing and extensive education infrastructure provides the most cost efficient way to reach the highest number of school-age children.³⁰ Moreover, costs for NTD interventions are very low, making NTD control programmes cost-effective (although, naturally, relative costs increase as prevalence declines). As noted above, a generous number of drugs are donated by pharmaceutical companies. If purchased on the market, drugs for treating STH infections cost only US\$0.02-0.03 per tablet.³¹ Praziquantel for schistosomiasis, while still the most expensive agent used in MDA, is still relatively low cost at US\$0.08 per tablet.³² In addition, the cost of drug distribution (including training, monitoring and transport) in a school-based programme is extremely low. For example, the average cost of drug distribution for both schistosomiasis and STH in an established programme where drugs are donated is estimated to be as low as US\$0.13 per child.³³

4.0 The Power of Integration

4.1 Why integration?

Integration refers to the delivery of two or more interventions through collaborative effort, in order to address multiple needs.³⁴ Programme benefits include enhanced coverage, improved efficiency and reduction of costs. It is useful to consider integration through two lenses: as a way of tackling multiple diseases and as a way of tackling human development (including health) challenges. In terms of the latter, the school-based platform offers many advantages in improving not only the health, but also the nutrition and psychosocial wellbeing of children, through the provision of a comprehensive package of interventions.³⁵

4.2 Integrated approaches to NTDs

There are strong opportunities for integration within NTD control. This is due to the similarity of many NTD interventions, the epidemiologic overlap of disease among endemic populations and the availability of donated drugs. For example as part of the Global Programme to Eliminate Lymphatic Filariasis, albendazole – used for treating lymphatic filariasis (LF) as well as STH – led to outstanding results when administered to adults infected with both diseases. In the first eight years, over 1.9 billion LF treatments were delivered to at least 570 million people, within which 172 million STH treatments were provided to 56.6 million children, and 140 million STH treatments were given to 44.5 million women of childbearing age.³⁶ The integrated disease control platform supported both LF and STH treatments, delivering improvements on a number of health issues, including maternal anaemia, low birth weight newborns, infant mortality, inhibited growth and development, and diminished intellectual performance.³⁷



Schoolchildren in Ethiopia wash hands with clean water

4.3 Integration for child development

Integration can potentially address the wider systemic challenges within health through the combination of disease control with associated sectors such as WASH, education, food and nutrition. For example, for school-based deworming, in addition to the administering of tablets, a 'comprehensive control programme'³⁸ must include two other vital interventions: measures to improve WASH and health education. The provision of clean water and improved sanitation decreases the transmission of infection by reducing contact with contaminated soil and/or water, while health and hygiene education reduces transmission and reinfection by encouraging healthy behaviours.³⁹ WASH improvements are not only essential for the control and elimination of many diseases, but they can provide enormous long-term benefits for the health of all individuals in communities. Moreover, as intestinal worms take the nutrients from food that is consumed, combining school-based deworming with school feeding and nutrition education offers exciting opportunities for furthering child development goals.

As the example of Ethiopia (below) illustrates, strategies for deworming are a prime example of the potential for cross-sector collaboration and integration, bringing together national and international partners to end the cycle of infection and promote child development.⁴⁰ Engaging in further operational research on issues relating to integrated NTD control strategies and strengthening cross-sector collaboration for child development must be prioritised to ensure the long-term success of NTD control and elimination programmes.

Ethiopia: Complementary school-based interventions for child development

Ethiopia's Enhanced School Health Initiative (ESHI) aims to provide operational evidence on the efficacy of school-based deworming in combination with WASH and school feeding interventions. ESHI commenced in September 2012 in 30 primary schools in the Southern Nations, Nationalities, and Peoples' Region (SNNPR). This project is at the forefront of multi-stakeholder and multi-sectoral programme delivery, garnering significant attention from other national governments who are interested in adopting similar approaches in their countries.

The Ethiopian Public Health Institute has partnered with a wide-range of organisations to realise the ESHI project: the Schistosomiasis Control Initiative (who are deworming schoolchildren); SNV Netherlands Development Organization (who are providing improved WASH services in primary schools); the World Food Programme (who are implementing Home Grown School Feeding);⁴¹ the Partnership for Child Development (who are coordinating the project's operational research component); and Dubai Cares (who are funding the project).

Baseline surveys were conducted in June 2013, with follow-up data collected from the same cohort of children and schools a year later. Annual deworming activities were conducted alongside the surveys in 2013 and 2014. A total of 36,300 children received preventative deworming treatment for STH. All children testing positive for schistosomiasis were treated during the surveys. WASH activities follow the national guidelines on basic school WASH requirements in Ethiopia, and include three major components: clean water availability; latrine infrastructure upgrades; and the development and promotion of educational materials.

This prevalence data has been used to inform national government-led MDA programmes against schistosomiasis and STH. An STH treatment campaign was conducted in Amhara and Oromia regions in May 2014. Integrated schistosomiasis and STH treatment campaigns will commence in Amhara, Oromia, SNNPR and Tigray regions in October 2014. Eventually, these programmes will be carried out in all regions of Ethiopia where children are at risk. Moreover, the data from the surveys in the SNNPR will be used by the Government of Ethiopia and its development partners to strengthen and scale-up the Ethiopian Comprehensive School Health and Nutrition programme.

5.0 The Global Response to NTDs

Recognition of the vast numbers of people affected by NTDs has reached new and welcomed heights over the previous two and half years. Recent commitments by the international community have renewed the importance of tackling NTDs. The London Declaration, noted earlier, committed partners to bolster investment and coordinate efforts in order to achieve the control or elimination of at least 10 of the NTDs. Alongside the Declaration, a comprehensive scorecard⁴² was introduced to track the delivery of Declaration commitments, identify priority actions, and highlight key milestones and targets.

Shortly after, in May 2012, the WHO released a 'Roadmap for Implementation', which set out a series of targets and priorities for achieving the control and/or elimination of each of the 17 NTDs by 2020. For example, the Roadmap calls for a vast increase in the availability of praziquantel, in order to eliminate schistosomiasis as a public health problem in Africa by 2020 (and globally by 2025).⁴³ Likewise, ambitious yet achievable targets are set out for STH control, which if met will result in 75% treatment coverage in preschool and school-aged children in all affected countries by 2020.⁴⁴ Most recently, in May 2013, the World Health Assembly passed a resolution⁴⁵ on NTDs. The resolution is considered 'a major milestone' in efforts to increase the profile of all 17 NTDs,⁴⁶ and reinforces the necessity of country ownership to ensure endemic countries recognise and adopt disease control policies.

There is certainly increased momentum to tackle NTDs at the global level, but the commitment and drive to engage at the regional and national levels remains varied. The US and UK continue to lead the way in terms of investment, support and action to tackle NTDs. Increased financial support from the UK (£195 million over five years) and the US (US\$174 million over two years) has expanded support to 49 countries to control and eliminate schistosomiasis, STH, guinea worm, LF, onchocerciasis, trachoma and visceral leishmaniasis.⁴⁷

Over the last few years, the G8 has expressed concern over NTDs, which has led to the inclusion of NTDs in a number of G8 statements⁴⁸ and most recently within the 2013 G8 Accountability Report.⁴⁹ More significantly, the G8 has committed to stepping up public funding for R&D.⁵⁰ However, it is disappointing that given the momentum which exists globally, the G7 (as it is now)⁵¹ continues to under-invest in NTDs and, aside from the US and UK governments, the individual members of G7, along with the European Union (EU), have not as yet prioritised NTDs within their development agenda.

Yet clear opportunities remain open for partners to join the struggle against NTDs. Broad coalitions such as Uniting to Combat NTDs⁵² (a coalition associated with the London Declaration) actively welcome new partners. Similarly, disease specific coalitions, including the emerging STH Coalition⁵³ are focused on continuing to broaden their membership. The STH Coalition first came together in Paris in April 2014, when nine partners (including multilateral institutions such as the World Bank) committed more than US\$120 million towards the control of STH.⁵⁴

6.0 Challenges to Control and Elimination

6.1 Types of challenges

Despite the substantial success of NTD programmes – including school-based deworming – in targeting and controlling diseases, a number of challenges remain. These challenges can be divided into two broad categories: R&D challenges and operational challenges arising from the implementation of NTD interventions. While these types of challenges will be discussed in more detail separately below, they are strongly interrelated. Established in January 2013, the London Centre for Neglected Tropical Disease Research⁵⁵ (a joint initiative of Imperial College London, the London School of Hygiene & Tropical Medicine, the Natural History Museum and the Royal Veterinary College) is an example of an institution dedicated to connecting research and practice. It accomplishes this through the development and communication of evidence on the design, implementation and evaluation of NTD control and elimination programmes.

Both R&D and operational challenges can be overcome with strong political leadership and smart, coordinated financial investments on the part of both national governments and official donors. Addressing these challenges is critical in order to ensure that NTD control and elimination strategies are effective and supportive of efforts to strengthen health systems.

6.2 R&D challenges

Research methods, including improved mapping and data collection, better epidemiological modelling, and greater field-testing of interventions (using contextually appropriate methods), are required to determine optimal treatment strategies for NTD interventions. Key questions include the extent of treatment coverage, levels of treatment needed and assessments of alternative treatment strategies for enhanced effectiveness.

A greater knowledge of the environmental factors and WASH indicators that should influence NTD control strategies, including in relation to STH and schistosomiasis, is essential. Issues where further research is required include: understanding which WASH improvements are required to stop disease transmission; assessing the impact of WASH services on disease morbidity; analysing how health education (including WASH components) can benefit disease control; and understanding the environmental factors which affect the control of parasites (e.g. snail control in the case of schistosomiasis).



Technician labels child samples in Kenya

New products are urgently needed to ensure NTD control strategies remain as effective as possible. As a result of the substantial costs and time required for developing new products, as well as the poor returns on NTD investments, many of the NTDs, including schistosomiasis and STH, are 'significantly underfunded'.⁵⁶ Monitoring drug resistance is crucial. For example, high rates of mebendazole drug failure have been reported for hookworms.⁵⁷ Analysis shows that the vast majority of funding is not invested in new product development but in basic research alone, even though new drugs, diagnostics, vector control products and vaccines are urgently needed for schistosomiasis and STH control.⁵⁸ More product development partnerships,⁵⁹ such as the Human Hookworm Vaccine Initiative (based within the Sabin Institute), are urgently needed. Such partnerships can make dramatic and significant impacts to the health of developing countries; for example the new Meningitis A vaccine brought 'unprecedented success' to sub-Saharan Africa when it was introduced in 2011.⁶⁰

Further challenges lie in ensuring NTD control contributes to health system strengthening.⁶¹ Research investigating the most effective methods for delivering integrated NTD control, and the contributions this can make to health systems, is needed. Underpinning these research priorities is the challenge of ensuring excellent monitoring and evaluation mechanisms are in place to identify barriers and new opportunities for advancing NTD control programmes.

6.3 Operational challenges

There are serious challenges with regards to the availability and distribution of the drugs used to treat NTDs. NTD programmes must be expanded. Yet limited financial resources are hindering the prospects for NTD control. In fact, it is estimated that despite significant investment by some donors in particular, an additional US\$200 million annually will be needed through to 2020 in order to achieve the global targets set by the WHO's 'Roadmap for Implementation'.⁶²

Despite the impressive (and increasing) donations of drugs by pharmaceutical companies, some actors purchase drugs for use in deworming programmes, rather than rely on national government requests to the WHO to access donated drugs (discussed further below). At US\$0.08 per tablet, praziquantel is the most expensive agent used in MDA. While relatively inexpensive compared to many other drugs, as so many tablets are required, 'efforts to implement programmes with praziquantel have been hampered by its high cost and low availability, especially in Africa',⁶³ effectively meaning that fewer than 10% of children in areas affected by schistosomiasis receive the drug.⁶⁴ While the reach of programmes to tackle STH is (overall) better, the fact remains that only 280 million out of 870 million children were treated for STH in 2012.⁶⁵

Problems with the distribution of drugs are becoming increasingly apparent, and represent a major challenge for NTD control programmes. As a recent report notes, 'drug contributions are essential to the control and elimination of NTDs, but medicines are only effective when they reach the people who need them'.⁶⁶ Government officials in Africa⁶⁷ have complained that they struggle to make requests to the WHO for donated drugs (due to changes in the protocols for applying and time-consuming paperwork). This leads to drugs remaining in manufacturers' warehouses, which risks them exceeding their expiration date without being used.

There are also bottlenecks in drug distribution within countries, i.e. when drugs have entered national health systems but are not being administered to populations. This is often due to a lack of effective collaboration between different ministries, as well as inadequate monitoring and evaluation mechanisms for programmes. All SHN programmes, including school-based deworming, require strong partnerships between ministries of education and health (and other ministries where relevant). There is a need for 'continuous active commitment and demonstrable support by governments and relevant jurisdictions to the ongoing implementation, renewal, monitoring and evaluation'⁶⁸ of school-based deworming (and related) initiatives. Potential problems can be minimised by agreeing on sectoral responsibilities from the beginning, usually through the signing of a memorandum of understanding between ministries.⁶⁹

A final operational challenge is that treatment over a prolonged period of time results in a decline in treatment uptake due to non-compliance. Educating communities about the nature of schistosomiasis, STH and other NTDs, including approaches to their control and elimination, is essential to minimise these risks during the course of an MDA programme. Developing predictive models to identify those population groups most likely to be non-compliant, and then following up with those specific groups, may also be useful.

7.0 The Role of the European Commission

7.1 Far more to do

The EC has a unique role to play in the fight against NTDs. As home to 28 member states, the EU is in an unparalleled position both to influence member states' development policies and to play a leading role, through the EC's EuropeAid department, in addressing large scale poverty through an increase in support and commitment to NTD control. Furthermore, with the introduction of Horizon 2020,⁷⁰ the new EC Research and Innovation funding programme (2014 – 2020) with an available budget of €79billion,⁷¹ there is also an unprecedented opportunity for the EC to leverage its influence in R&D and tackle some of the key challenges relating to NTDs.

Up until now, there have been few policy commitments made by either the collective member states of the EU or the EC in the area of NTDs. In addition to the G8 statements mentioned above, the 2010 UN outcome document, which called for a renewal of effort to prevent and treat NTDs, was signed by all EU member states.⁷² More recently, informal statements on NTDs have been made by the EC. For example, in 2013, EuropeAid informally indicated that it had recognised the implications of NTDs on other development areas, particularly on nutrition and food security.⁷³ Moreover, in March 2014, a senior EuropeAid official stated that while a large part of the EU's health and research budget was used to combat poverty-related diseases, especially HIV/AIDS, malaria and tuberculosis, this mandate would be broadened to incorporate NTDs.⁷⁴

The lack of policy commitments on NTD control is contrasted with the strong commitment the EU has made within the wider area of global health. The EU has officially acknowledged that it has 'a central role to play in accelerating progress on global health challenges'.⁷⁵ In doing so, it explicitly acknowledges the need to respond to the multidimensional nature of health, with close links to – among others – education, WASH, nutrition and poverty.⁷⁶ Given the severe impact NTDs have on the health of populations and the need for cross-sectoral collaboration to maximise the potential of control strategies, these statements certainly suggest that NTD control should be firmly prioritised within the EC's commitments on global health.

7.2 Potential for strategic R&D and operational investments

Evidence shows that investment in R&D of NTDs will produce significant returns within the European economy – including job creation and growth in areas such as European laboratories and universities, promotion of integration between European countries (one of the overarching goals of Horizon 2020), protection of Europe's global health security and maintenance of Europe's leadership role in R&D of poverty-related diseases.⁷⁷ For each €1 invested by EU member states in this area a further €1.05 in investments is generated directly into Europe.⁷⁸

Despite these clear advantages for the EU, the scarcity of policy commitments or strong statements by the EU on NTDs has to some extent dented opportunities for progress in R&D for NTDs, an area which has seen limited investment by the EU. Within the EU, R&D funding is made in two ways – directly by EU member states or by the EC's overarching research programmes. The last of these research programmes, known as Framework Programme (FP) 7,⁷⁹ included 'neglected infectious diseases' as a specific activity area. Under FP7, approximately €24.6 million was dedicated to schistosomiasis, STH and two other NTDs.⁸⁰ This funding covered various aspects of the diseases, including drug and vaccine development, diagnostics, immunology of co-infections, and epidemiology. While this was welcomed, the fact remains that without strong policy and financial commitments, the NTDs will continue to receive inadequate attention within the EC's R&D efforts.

Tellingly, from 2007 – 2010, the EU was the largest single funder of R&D globally for poverty-related diseases, investing an average €341 million a year.⁸¹ However only a quarter of this was for diseases outside of HIV/AIDS, malaria and tuberculosis, and only 2% of the total was for 'parasitic worm' diseases, such as schistosomiasis and STH.⁸² EC investment in R&D for NTDs together with EU member states' investment (which varies greatly)⁸³ is estimated to be only 0.0024% of the EU's combined GDP.⁸⁴ The low prioritisation of NTDs within the EC's development and health agenda is further underlined by the fact that NTDs have not been included in the first 'Work Programme' (2014-2015) under Horizon 2020.⁸⁵

Clearly, the EC can and should play a more central role in the fight against NTDs – supporting high quality collaborative research, generating new products and developing research, technical and coordination capacity in endemic countries. The EU is already demonstrating this in some areas within global health. For example, despite the fact that actual allocation of funds to R&D for products has decreased,⁸⁶ the EU has already made significant inroads in product development as part of its efforts to combat other diseases. Through European funding 43 new products were registered in the period 2002-2012, including new malaria drugs for children and a pneumonia vaccine, which are already clearly benefitting health and productivity in developing countries.⁸⁷ Furthermore, EC mechanisms, such as the European and Developing Countries Clinical Trials Partnership and the African Drugs and Diagnostics Innovation, are providing essential support to strengthen national research capacities in developing countries. More opportunities for the advancement of NTD control within these agencies should be encouraged by the EU.

In terms of operational challenges, the EC's vast presence in-country and broader global network makes it a highly suitable actor to address problems in the current system. In particular, the EC is extremely well-placed to support national governments to make informed requests to the WHO for donated drugs, and also to address bottlenecks in drug distribution within countries by supporting effective collaboration between different ministries. Moreover, the EC can assist national governments in the design of evidence-based programmes. Well designed school-based deworming programmes with strong monitoring and evaluation mechanisms are more likely to be successful and are relatively easier for governments to take full ownership over. Both national and international civil society organisations with research and operational expertise can and should be engaged to assist in overcoming these issues.



A child receives a deworming pill in Ethiopia

8.0 Recommendations

The EC should:

- Develop a policy on NTDs – with inputs from civil society in Europe and in endemic countries – that formally recognises that NTDs, especially schistosomiasis and STH, represent a major challenge to global health, education and nutrition.
- Ensure that components for the control and elimination of NTDs, including schistosomiasis and STH, are a clear part of its education, nutrition and WASH strategies and programmes.
- Work with the WHO and national governments to prepare and implement integrated plans for NTD control that markedly include school-based deworming programmes, in order to meet the WHO's NTD Roadmap targets.
- Use the unique opportunity presented by Horizon 2020 to significantly increase funding to support the full range of R&D for NTDs, in particular schistosomiasis and STH, including by fostering appropriate product development partnerships.
- Encourage and work with other donors to engage in joint planning with, and capacity building of, national governments on NTD (including STH and schistosomiasis) control and elimination, with a focus on addressing research gaps and bottlenecks in treatment programmes.
- Provide leadership to EU and G7 member states, in order to encourage increased investment and support for NTD control and elimination, in line with the WHO's NTD Roadmap targets.
- Promote the inclusion of NTDs⁸⁸ within a health goal in the Sustainable Development Goals⁸⁹ framework.
- Encourage national governments to meet their pledges to commit 15% of government expenditure to health,⁹⁰ and support efforts to strengthen health and education systems to deliver essential evidence-based NTD interventions.
- Ensure people infected with, and affected by, NTDs are fully supported to play an active role in their communities and participate equally in society.

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