Phone conversation between Elie Hassenfeld and Stephanie Wykstra of GiveWell and Professor Moses Bockarie, Director of the Centre for Neglected Tropical Diseases (CNTD), March 26, 2012

Givewell: What are the Centre's specific activities?

Professor Bockarie: Based in the Liverpool School of Tropical Medicine the Centre for Neglected Tropical Diseases (CNTD) has, since its inception in 2000, been the recipient of UK Department for International Development (DFID) funding. As I joined the Centre in 2008, we were awarded a further 10 million pounds from DFID to continue and expand activities. The main goal of the award was to support countries in their efforts to eliminate lymphatic filariasis (LF). We provide funding to target the elimination of LF even though we are working in an integrative framework.

We have 4 main objectives:

1. Funding to endemic countries Ministries of Health for activities related to mass drug administration (MDA): This includes training, social mobilization and monitoring and evaluation. We invest substantial funds into developing capacity which we consider to be a high priority. NTDs affect very poor countries where the capacity is not present. For instance, just the administrative capacity to handle $1 million in a year is not present in some places. We are now also looking at ways of measuring impact. Many of our supported countries do not have the capacity to undertake evaluation. We have been involved for many years in providing postgraduate training with many in-country programme staff obtaining PhDs through our support.
2. Providing fellowships: Currently we have 6 DFID supported endemic programme staff as PhD fellows . They are registered as off-site students which enables them to remain in their countries, employed in their national LF elimination programme and therefore causing no disruption to activities. . They do visit Liverpool for supervision for 4-6 weeks each year.
3. Operational research: We review the challenges the programme is facing. For example, MDA policy/strategy was designed for distributing drugs in villages where the disease is prevalent. However when we were scaling up to urban settings we recognized coverage was very low and this is an area we are addressing: the strategy to be used in an urban setting.
4. Advocacy / partnership: Whatever we do and how we approach it are paramount in our behaviour by follow best practices in working with country and international partners .

Givewell: What caused you to expand to cities, if the disease isn't as big of a concern in cities?

Professor Bockarie: The profile of the disease depends on the species of mosquito that is involved. In most countries in Africa, the *Anopheles* mosquito that transmits malaria is also the carrier for LF. In West Africa, the *Anopheles* mosquito is the main carrier of LF but it is not a very efficient vector. The places where there is a problem are the cities in East Africa where the very efficient Culex mosquito is also a carrier of LF.

Givewell: If the Centre were to receive additional funding, how would it use this funding? (For instance, a few million dollars?)

Professor Bockarie: In the past, most of the funding allocated for the elimination of LF was coming through USAID and other contractors. Most of this money funded treatment and assessing the number of people treated. What we need to know now is whether the treatments are achieving interruption, and not just numbers treated. So what we are doing is looking at countries that have completed MDA and doing transmission assessment, looking at children who were born since MDA was stopped. This requires testing of 1,500 kids in a district and costs about $25,000. In Ghana with over 50 districts, that's $25,000 times 50, so it is quite expensive.

Givewell: Are there other countries where you know that funding is still needed to treat disease, or is the primary challenge to test where treatment is not needed?

Professor Bockarie: We have the big four countries in Africa, where either they have not launched MDA or have not reached national coverage: Ethiopia, Nigeria, Tanzania, and DRC. These countries account for over 70% of the people at risk in Africa. The amount of money required to treat in these four countries is more than we are spending in all of Africa now.

Initially people who were involved in the elimination were keen on showing proof of possibility, so they went for the low-hanging fruit. Now that that has been done, we want to expand to treat/reach national coverage in these four countries. It takes a longer time to achieve national coverage in, say, Nigeria than in other places where MDA has been run.

Givewell: Are you sure that there is a great need to treat in the big four countries?

Professor Bockarie: We know that LF is higher in the big 4 countries [than in other countries]. But you have to make sure that the individual villages do not have *Loa loa* because there could be serious adverse reaction to the treatment used in LF campaigns.

Givewell: What is amount of money needed to move into a new country?

Professor Bockarie: For a programme in a country with 6 million people, about $1 million is needed per year. Another way to calculate it is about $50 cents per treatment.

We know now that in some cases, MDA has not been able to interrupt infection even after 10 years e.g. in Ghana. We know that vector control through bednets and spraying has had a huge impact on malaria. If the mosquito is infected with malaria and also LF, you will be more successful in reducing LF than even malaria, because the mosquito is less efficient in transmitting LF than malaria.

Givewell: Why would an MDA fail to work?

Professor Bockarie: For example, in Zanzibar, the campaign went well for 5-6 years. Then they stopped the programme and it came back. In areas where *Culex* mosquitoes are the main LF carriers, the transmission is harder to stop, because even if the the mf rate was zero using the methods we measure by, people might still have parasites. *Culex* mosquitoes are able to transmit where the parasite level is low, whereas *Anopheles* mosquitoes are not.

Givewell: How do you know whether programmes are succeeding or failing?

Professor Bockarie: Before MDA, we carry out a baseline test of mf prevalence. We then examine the population after 3 MDA. Then at 5 MDA, we examine the infection rate again. If we find out by night blood tests that infection rate (after the MDA) is less than 1%, then we will assume that transmission interruption has been achieved. Now we have to confirm this hypothesis by showing that children who were born after interruption were not exposed. We have only just started doing this, as now a number of countries have carried out 5 MDA.

Givewell: Does the Centre carry out its own LF programmes or just fund existing programmes?

Professor Bockarie: We work directly with the Ministry of Health and the national Programme Manager. We request a proposal and supporting budget and which when agreed we support. We make every effort to ensure very good transparency. We do not have staff directly running programmes. Our aim is to invest substantial funds into building capacity.

Givewell: We want to get a handle of the prevalence of particular symptoms of LF. What proportion of people in a given area that have LF have particular symptoms?

Professor Bockarie: It is a highly patchy disease. In one village the infection rate could be 20% and in another 5%. If we just consider an average for Nigeria where there are 60 million people at risk, maybe 10 million people have microfilaria. Then the proportion of people who have LF is about 10% of those infected with the parasite. Of those people, it is a smaller proportion who show symptoms and develop serious illness.

Givewell: Roughly speaking, what proportion develop serious disease?

Professor Bockarie: This is a very hard question to answer. In one area, I visited in Papua New Guinea, approximately 90% were infected. This was the highest level of infection I have seen. There, about 10% of people progressed to serious disease.

Givewell: Can a person have LF and not have reduced quality of life?

Professor Bockarie: Like malaria, there are some people that are happily moving around with the LF parasite. They could still have some fevers and so forth. But some people that have been infected for a long time appear to be normal.

GiveWell: Over the past few years, there has been a large increase in the number of insecticide treated nets (ITNs) distributed worldwide. You said earlier that ITNs can be effective at reducing LF because they prevent the LF-transmitting mosquito from biting people. Do you know whether all the net distributions have affected the need for LF-focused MDA?

Professor Bockarie: This is an issue that we need to explore further. We have considered just distributing bednets as our full intervention to prevent LF in places where people have *Loa loa*. [Note:

people who have *Loa loa* would have serious adverse reactions to LF treatment, so we could not do normal MDA.]