Conversation between World Health Organization (Dr. Robert Newman, Director of the Global Malaria Programme), GiveWell (Elie Hassenfeld) and Good Ventures (Cari Tuna) on 10/18/2012

Summary:

GiveWell And Good Ventures spoke with Dr. Robert Newman to learn about funding opportunities in malaria control and research. Some of the areas that he highlighted as areas that need more attention are:

- Product development for new tools to replace tools lost due to resistance (insecticide and drug) and to enable eradication
- Development of capacity at the country level to implement strong programs based on local data
- Longitudinal field research, with particular focus on understanding the evolution of immunity following intense scale-up of effective interventions and the role of asymptomatic carriers in low transmission settings
- Commodity gaps (LLIN replacement, RDTs and treatment for non-malaria febrile illness (NMFI))
- Research on the durability of different types of bed nets
- Understanding how malaria control/elimination contributes to sustainable development and how to better integrate with programs outside the health sector

Full notes:

This is a set of notes compiled by GiveWell representing the highlights of the conversation in order to give an overview of the major points made by Robert Newman.

Product Development

There are four main areas of malaria control product development, each with a product development partnership that's working in it:

1. Antimalarial drugs (Medicines for Malaria Venture)
2. Diagnostics (Foundation for Innovative New Diagnostics)
3. Insecticides (Innovative Vector Control Consortium)
4. Vaccines (Malaria Vaccine Initiative)

Funding product development is attractive to donors because their donations leverage funding from private corporations. The development of new tools is critical to the continued success of malaria control and elimination; the PDPs have an essential role to play in these efforts.

Diagnostics, treatment, and surveillance

Rapid diagnostic tests (RDTs) are important for monitoring malaria transmission. In many settings, especially in sub-Saharan Africa, people who have fever are treated for malaria by default, even though most fever cases are not caused by malaria. It is important that health workers use RDTs to determine when patients do not have malaria so that such patients can be treated for their actual condition.
It is currently estimated that 45% of reported malaria cases in the public sector in Africa are parasitologically confirmed with RDTs. WHO recommends that every suspected malaria case should be confirmed, either by microscopy or by an RDT, that confirmed cases be treated with a quality-assured antimalarial medicine, and that all cases be tracked in a timely and accurate surveillance system. To galvanize support for these critical malaria control interventions, the World Health Organization (WHO) has developed the "T3: Test. Treat. Track, Initiative", which was launched by the WHO Director-General and the Minister of Health of Namibia on World Malaria Day 2012.

Senegal is a country that has successfully implemented widespread use of RDTs. As a result, its need for antimalarial drugs (which had previously been used for many illnesses that were not malaria) has dropped by approximately 250,000 treatment courses per year. More generally, a country's need for antimalarial drugs will drop if the use of RDTs in that country increases.

National Program Capacity

There is relatively little investment in health systems and human capital development for public health generally, including malaria control. It is very important to have experienced and dedicated people who are well organized to ensure that malaria control commodities reach those who need them as part of a well-designed programme, collect data on the burden of malaria and coverage with malaria control interventions, and to analyze those data to better inform programs and target interventions. Funding this area is not fashionable because it requires a long-term investment and the payoff is delayed.

Longitudinal studies

There is a need for more longitudinal studies on the impact of malaria control programs on the immunity of a population. This area of research has been neglected.

One case in point: The malaria community has historically believed that in areas of high transmission, many malaria cases are asymptomatic because the people have developed immunity to it, and that by way of contrast, in areas of low transmission few malaria cases are asymptomatic because the people lack immunity, become ill when infected, and therefore seek treatment. However, in western Cambodia, malaria transmission has been low for a long time, and there are data indicating many asymptomatic cases. It is important to better understand the development and duration of immunity and the role of asymptomatic infections in sustaining transmission.

Durability of bed nets

The malaria community has placed too much emphasis on minimizing the cost per net rather than minimizing the cost per *year of net protection* given to the recipients. Nets that are slightly more expensive can be significantly more durable and offer better value per year of protection. Moreover, more durable types of nets need to be distributed less often and so the distribution cost per year of net protection is also reduced by the use of more durable nets.

The WHO currently maintains a list of recommended types of bed nets, but doesn't distinguish between them based on durability. The WHO is interested in testing bed nets to determine which last the longest. Part of this would involve lab tests simulating the sorts of wear that nets endure in practice (such as tearing, slashing and burning). Another part of this would be a longitudinal study of the durability of different types of nets in the field.

The efficacy of net distribution:

According to the data collected by the World Malaria Report, a large fraction of those bed nets that are intended to be delivered to and be used by the recipients are in fact delivered and used. The factor that limits bed net coverage is money for nets rather than difficulty with delivery or with ensuring compliance.

***Plasmodium vivax* Malaria**

Plasmodium vivax malaria is less deadly than *P. falciparum* malaria, but it is a cause of a large burden of disease. It has been neglected on account of its low mortality

rate. The *P. vivax* malaria parasite spends time dormant in the human liver and later reemerges and to cause infection and potentially outbreaks. The only drug that targets the dormant liver stage (hypnoziote) of *P. vivax* malaria is primaquine, which must be administered for 14 days. Although this is frequently national treatment policy, it is often not prescribed because of problems with compliance as well as safety issues, particularly that persons with glucose 6 phosphate dehydrogenase (G6PD) deficiency exposed to sufficient doses of primaquine may suffer from hemolysis. ACTs are not effective against the dormant liver stage of *P. vivax* malaria. There is an urgent need to develop new medicines for the radical cure of *P. vivax*.