

mean we are not making the most of the methods we have. Past efforts to bring malaria down have eventually been blocked by technical obstacles, especially resistance of the parasites to the drugs and resistance of the mosquitoes to insecticides. We need to make the most of the good interventions we have while they are still working by supporting delivery systems, and at the same time always keep a pipeline of new interventions under development.

Drugs such as chloroquine and Fansidar (sulphadoxine/pyrimethamine) developed decades ago were very effective for up to 30 years but are now virtually useless against the main killer parasite *Plasmodium falciparum*. Highly effective drugs, based on artemisinin extracted from a plant *Artemisia annua* were rediscovered in the 1970s by Chinese scientists. The World Health Organization advises that they should be taken in combination with another longer acting drug to prevent resistance developing.

Artemisinin Combination Therapies (ACTs) are one of the mainstays of malaria control programmes. They act rapidly to

clear parasites reducing the risk of transmission and the progression of the disease to more severe forms such as cerebral malaria. They rapidly reduce fever and have few side effects.

Research on the Thai-Cambodian border (long a nursery for emerging resistance to antimalarials) has recently demonstrated reduced efficacy of artemisinin based drugs. The drugs are still curing patients but this first sign of parasite tolerance is a warning to the malaria community that we need to act quickly to prevent resistance from spreading outside the area, especially to high burden countries in Africa. No genetic change has yet been demonstrated but the search continues; if a genetic marker can be found it will be easier to detect and manage the parasite. If resistance spreads to Africa we could see the resurgence of malaria and reversal of the decline in morbidity and mortality in countries such as Rwanda, Ethiopia and Eritrea.

A containment project funded by the Bill & Melinda Gates Foundation and led by the World Health Organization has been rapidly launched.

Partners include the National Programmes in Thailand and Cambodia, Mahidol-Oxford Tropical Medicine Research Unit (MORU) and the UK-based organisation Malaria Consortium, a specialist in malaria control. This group hopes to eliminate malaria on the Thai-Cambodian border and thus completely destroy the resistant parasite before it spreads to the rest of the world. Challenges encountered thus far include inadequate funding in the region and weak health delivery systems – especially in post conflict Cambodia where poverty, lack of infrastructure and poor surveillance restrict rapid progress.

In recent years many new drug combinations are being developed. Public-private partnerships have been created such as Medicines for Malaria Venture, and biotechnology companies have been funded to develop semi-synthetic drugs to reduce dependence on growing the plant. Agricultural research institutions such as at the University of York seek to produce better plants with more artemisinin per leaf and with shorter growing times. However, almost all these drug

developments depend on artemisinin and it will be at least ten years before a non-artemisinin alternative can be developed.

Even if we have the tools we still need to deliver them rapidly to those most in need. They have to be affordable, accessible and acceptable to affected populations. And we must use the full range of tools available, as there is no 'magic bullet'. Moreover, wherever malaria control is producing successful results, the world community must recognise that the resources required to keep the lid on malaria transmission do not lessen as the rate of transmission is reduced.

Governments and their partners are exploring innovative ways of getting commodities to the people including innovative finance mechanisms to make drugs cheaper, such as the Affordable Medicines Facility malaria, and the use of community volunteers who have been trained by organisations such as Malaria Consortium to provide diagnosis and treatment at village level.

# TACKLING PNEUMOCOCCAL DISEASE - THE WORLD'S BIGGEST KILLER OF CHILDREN

## Dr Desmond Turner MP

Chairman, All Party Parliamentary Group on Pneumococcal Disease Prevention in the Developing World

Pneumococcal disease kills up to 1 million children under age 5 each year, 98 per cent of whom are from the developing world. It is the leading cause of childhood pneumonia, the world's biggest killer of children, and a primary cause of

meningitis which kills and disables many hundreds of thousands. Pneumococcal disease has a devastating impact on social and economic structures in the developing world. However, the ultimate tragedy is that pneumococcal

disease is preventable by immunisation.

Western nations, such as the UK, have access to a childhood pneumococcal vaccine and indeed, it is part of the UK immunisation rota. However, children in the developing world



have not had access for a variety of reasons, in particular cost and the lack of awareness surrounding the disease burden. The market price has previously meant that an effective vaccine has been out of reach of the developing world while the lack of awareness has led to insufficient political will to combat this easily preventable disease.

Dr Orin Levine, Executive Director of PneumoADIP at Johns Hopkins and a key supporter of the All-Party Parliamentary Group on Pneumococcal Disease Prevention in the Developing World (APPG), once described pneumococcal disease as the biggest killer no one has ever heard of. Now, however, thanks to Dr Levine and his team at PneumoADIP, whose mission is "to improve child survival and health by accelerating the evaluation and access to new, lifesaving pneumococcal vaccines for the world's children", as well the work of the GAVI Alliance, the WHO, UNICEF and other organisations, the true burden of pneumococcal disease has become increasingly understood and significant efforts have been put in place to deal with the problem.

In 2007, the pilot pneumococcal Advance Market Commitment (AMC) was created as the first global mechanism in the fight against pneumococcal disease. The AMC is an innovative funding mechanism, designed to unite developing and developed world governments, international health agencies, the pharmaceutical industry and donors in the fight against pneumococcal disease. The AMC aims to speed up the development and delivery of a pneumococcal vaccine that is fit for purpose for the developing world at an affordable price, thanks in part to the AMC donors; the UK, Italy, Canada, Norway, Russia and the Bill and Melinda Gates Foundation, who have agreed to provide US\$1.5 billion collectively, to assist low income countries in purchasing the vaccine.

The APPG, for which I serve as the Chair, has been working since 2007 to highlight the issues of pneumococcal disease prevention to Parliamentarians and civil society both here and internationally. In October 2008, the APPG launched its first report *Improving Global Health by Preventing Pneumococcal Disease* to Parliamentarians,

Ambassadors, High Commissioners, members of Civil Society, NGOs and Department for International Development (DFID) and HM Treasury representatives.

The event was very successful and, as a direct result of the report, the APPG has presented keynote speeches to a number of events focusing on pneumococcal disease and vaccination programmes in the developing world including the 4th Annual Regional Pneumococcal Symposium in Johannesburg, March 2009, and the Asian Strategic Alliance against Pneumococcal disease (ASAP) meeting in Taiwan, March 2009. These events have enabled the APPG to impress on the pneumococcal and developing world community how political advocacy is vital to create an environment of awareness and effect meaningful change.

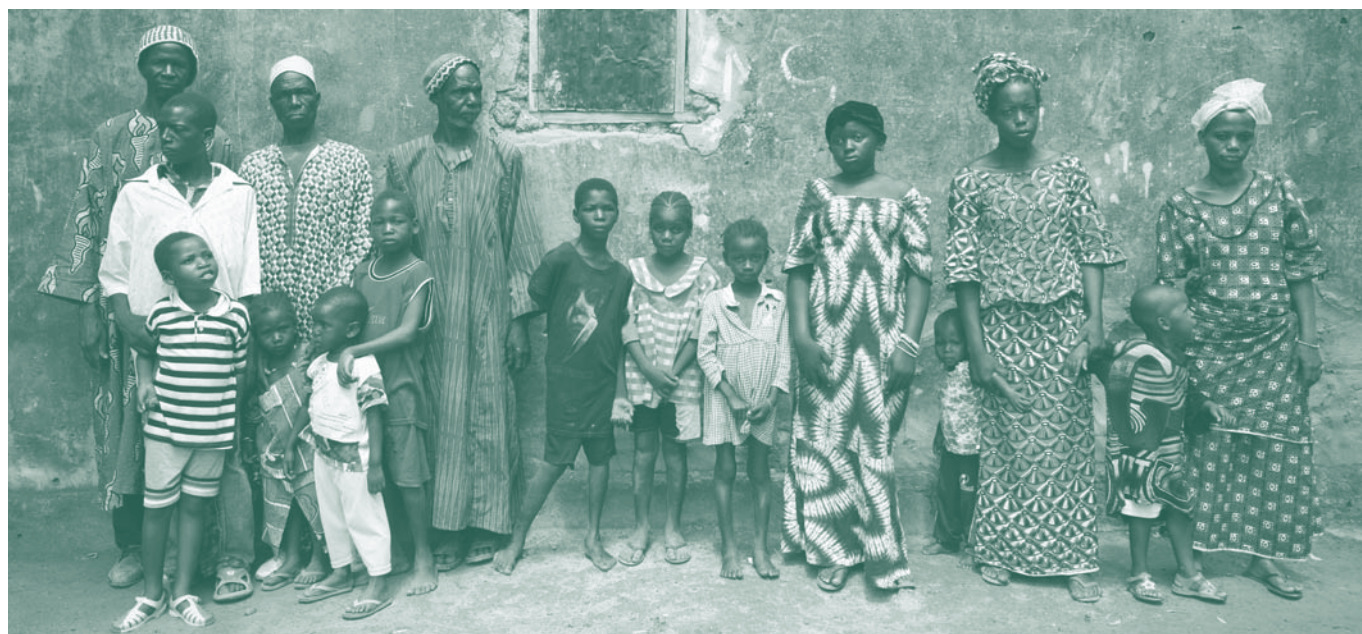
The APPG was also very proud to have received an invitation from the Italian Government on June 12th 2009, when the AMC was legally ratified by donor nations. Now we await the final piece of the puzzle – the vaccine itself – which will soon be available through the AMC for

introduction in the developing world. Congratulations must be directed to all the stakeholders in this enterprise including the vaccine manufacturers, GAVI, the World Bank, WHO, UNICEF and others. Without their collective efforts, this ambitious project could not have succeeded.

The APPG is also proud to support the first World Pneumonia Day on November 2nd 2009, a day with the express purpose of increasing awareness of the global burden of childhood pneumonia and its prevention and treatment. The APPG will join the global pneumonia and pneumococcal community to raise the awareness of this terrible, but preventable disease.

If you would like any more information about these events or for a copy of the APPG's report, *Improving Global Health by Preventing Pneumococcal Disease*, please visit <http://www.appg-preventpneumo.org>.

For information about the AMC, please visit: [www.vaccineamc.org](http://www.vaccineamc.org) and for more information about pneumococcal disease and vaccines, please visit: [www.preventpneumo.org](http://www.preventpneumo.org)



Meningitis sufferers from Mali. Everyone pictured suffers some of the long-term effects of the illness including deafness, partial paralysis or blindness