

WHO to develop plan to curb artemisinin resistance

The World Health Organization (WHO) will launch a plan in January to contain resistance to a drug that forms the backbone of malaria treatment programs, says the director of the organization's malaria section.

The *Global Plan for Artemisinin Resistance Containment* will give "global marching orders" and drive research into molecular marker screening tools that could detect resistance to the drug artemisinin earlier, said Dr. Robert Newman, following the release of the WHO's *World Malaria Report 2010* (www.who.int/malaria/world_malaria_report_2010/en/index.html).

The report indicates that progress is being made in the fight against the disease but that the success is dependent on artemisinin-based combination therapies (ACTs). If the parasite that causes malaria becomes resistant to ACTs, as it has to almost every other drug that has been used in the past, no alternative therapy is now available. While organizations such as the Medicines for Malaria Venture are seeking to develop options, Newman says these are most likely at least five years away.

ACTs are the first-line therapy for *P. falciparum* malaria worldwide but there are concerns about the continual use of artemisinin monotherapies, particularly in some sub-Saharan countries, Newman says. "That's a real mischief maker, these oral artemisinin monotherapies, and we're trying to very hard to stamp them out of the market because we feel that that's what's most responsible for fuelling the spread of resistance."

Similarly, there is only a single class of insecticide being used to deter the mosquitoes that spread malaria, the pyrethroids. With some mosquitoes having begun to show resistance, parasite resistance to ACTs is a looming threat, he adds. "I hate to grade them but the more pressing concern probably to me at the moment is the artemisinin issue but boy, if we were to



WHO/Benoit Carpentier

A woman sleeps under an insecticidal net in the province of Nha Trang, Viet Nam.

lose pyrethroids that would be a public health catastrophe."

The WHO's malaria report indicates that Africa continues to be the continent on which malaria wreaks the greatest damage. But 11 countries saw a greater than 50% reduction in either confirmed malaria cases or malaria admissions and deaths over the past decade. Outside of Africa, 32 countries showed a greater than 50% reduction in confirmed cases. The WHO estimates the number of deaths due to malaria has decreased from 985 000 in 2000 to 781 000 in 2009.

This success is largely due to greater access to insecticide-treated mosquito nets and ACTs, as well as more indoor spraying with insecticides. Approximately 289 million mosquito nets were delivered to sub-Saharan Africa by the end of 2010, enough to cover 76% of the 765 million people at risk of malaria. Residual spraying protected 75 million people in 2009, up from 13 million in 2005.

And 19 African countries provided sufficient ACTs to treat between 50% and 100% of malaria cases, up from only 5 countries in 2005.

Newman says many of the advances are the product of increased funding for malaria programs over the past decade. One study indicates that financial support skyrocketed from approximately US \$100 million in 2003 to around \$1.6 billion in 2009 (www.rbm.who.int/ProgressImpactSeries/report1.html). Newman attributes the success to the fundraising of the Rollback Malaria Partnership, a joint initiative created in 1998 between the WHO, UNICEF, the United Nations Development Programme and the World Bank, as well as the Global Fund to Fight AIDS, Tuberculosis and Malaria and the United States President's Malaria Initiative.

Politics is a primary obstacle to further reductions in malaria rates, one expert says. Civic unrest in affected countries is one of the biggest challenges, says Brian Ward, associate

professor at the Centre for the Study of Host Resistance at McGill in Montréal, Quebec.

“Most people figure that malaria can be controlled as long as we don’t have wars, revolutions, or natural disasters,” Ward says. “Public health programs are

the first things that disappear in a situation of political or military unrest.” Ward cites the Democratic Republic of Congo as a case in point: “It’s a rolling disaster.”

But there are exceptions, says Richard Cibulskis, coauthor of the

WHO malaria report: “Iraq in the past 10 years has had considerable success in controlling malaria and so has Afghanistan.” — William Burr, Ottawa, Ont.

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