

NOVARTIS COMMITMENT TO MALARIA PATIENTS IN THE DEVELOPING WORLD



Reducing Malaria Cases and Deaths through Effective Treatment

*Effect of Artemether-Lumefantrine (Coartem®) Policy and Improved Vector Control on Malaria Burden in Kwa Zulu-Natal, South Africa.*¹

Malaria is a very old disease. There are claims that it existed nearly 4000 years ago in central Thailand. In China the first case of Malaria was described in 2700 BC by the legendary emperor Huang Ti. Even in the bible, Deuteronomy 28:22 has been cited as indicating the existence of Malaria in ancient Egypt.²

The ravages of malaria were well known throughout the middle ages and early into the 20th Century. Many areas in Europe and the Americas were uninhabitable. Rome and Washington were heavily infested in the 1830s. Tocqueville, the author of Democracy in America had this to say of Washington DC "The new capital had a particularly unhealthy climate: From August to October the so called sickly season, Congress adjourned and those who could, moved inland to avoid malaria".²

Despite its long history, malaria has continued to defy interventions that have been put up over the years. Malaria causes more than 1 million deaths annually with 90% occurring in Africa.⁵

Kwa Zulu-Natal Success Story

In South Africa, in the Kwa Zulu-Natal province, combined efforts of indoor residual spraying, and use of effective treatment using Artemether-Lumefantrine (Coartem), an ACT (Artemisinin-

based Combination Therapy) has led to drastic reductions of malaria illness and deaths. Kwa Zulu-Natal province, which has approximately 600,000 people living in malaria-risk areas, experienced the highest intensity malaria transmission in South Africa before 2001.¹

Between 1995 and 2000, Kwa Zulu-Natal province, South Africa, experienced a marked increase in *Plasmodium falciparum* malaria, fuelled by pyrethroids and sulfadoxine-pyrimethamine (SPs) resistance. In response, vector control was strengthened through widespread spraying of insecticides and Artemether-lumefantrine (Coartem) (AL) was deployed in the first Ministry of Health artemisinin-based combination treatment policy in Africa. In South Africa, effective vector

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and parasite control had historically ensured low-intensity malaria transmission.¹ Malaria is diagnosed definitively and treatment is provided free of charge in reasonably accessible public-sector health-care facilities. Note: In Kenya, this will be made possible by the implementation of the new policy of using ACTs. Coartem, a popular ACT is the first line in the treatment of Malaria in Kenya.

Effects

The effects of the malaria control efforts in Kwa Zulu-Natal were very dramatic. After a period of one year, following improved vector control and implementation of Coartem treatment, malaria-related admissions and deaths both declined by 89%, and outpatient

visits decreased by 85% in the health facilities.¹ By 2005, malaria-related outpatient cases and admissions had fallen from 41786 cases in 2000 to 1220 cases in the same period in 2005. On the other hand malaria-related deaths decreased from 340 deaths in 2000 to 17 deaths for the same period in 2005.

There was a concomitant marked and sustained decline in notified malaria throughout the province. No serious side effects were associated causally with Coartem treatment. Consistent with the findings of focus group discussions, a household survey found self reported adherence to the six-dose Coartem regimen was 96%.¹

Together with concurrent strengthening of vector control measures, the antimalarials treatment policy change to Coartem in Kwa Zulu-Natal contributed to a marked and sustained decrease in malaria cases, admissions, and deaths, by greatly improving clinical and parasitological cure rates and reducing gametocyte carriage. The rapid response from the Government, after registering high failure rates with chloroquine and SPs drastically reduced malaria cases and many lives were saved.

By responding rapidly and adhering to the ACT policy, many lives will be saved and malaria transmission reduced. Economists believe that malaria is responsible for a 'growth penalty' of up to 1.3% per year in some African countries.³ These funds can be used for other development purposes if malaria incidences are effectively reduced.

Malaria infects 300 to 500 million people each year⁴.

- Malaria causes more than 1 million deaths annually⁵.
- *Plasmodium falciparum* is the most deadly form of the disease and accounts in large part for the extremely high mortality in Africa south of the Sahara⁵.
- With treatment, death is largely preventable⁴.

Creating New Income Opportunities for Local Farmers.

In mid 2005, Novartis formed a close technical and financial partnership with one of its Artemisinin suppliers East African Botanicals Ltd. (EAB). In doing so, Novartis not only ensures its Artemisinin supply but also indirectly supports the East African economy and its people.

EAB is operating in the three East African countries - Kenya, Uganda and Tanzania. The company is managing the cultivation of *Artemisia annua* on 2000 hectares with several hundred independent farmers. EAB provides the farmers with operational support, knowledge on the cultivation and harvesting techniques for Artemisia and purchases the dried leaf. As the cultivation and harvesting is very competitive to other crops, the local farmer - especially the ones with small scale lots - are able to benefit from this rather new produce and thereby provides them with a source of reliable income.

Additionally to the agricultural operations, EAB is extracting and purifying the Active Pharmaceutical Ingredient of Artemisia Annua, which is Artemisinin. The financial support from Novartis helps EAB to operate a small scale extraction facility in Uganda and to construct a large scale facility in Nairobi, Kenya. The development, design and construction are partly being carried out by East African suppliers. The facility, planned to go onstream in the course of 2006, will at planned capacities create employment for up to 250 people.

For further information log on to www.malariaandhealth.com

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About Novartis

The core mission of Novartis, a world leader in pharmaceuticals, is to discover, develop, produce and market innovative products that prevent and cure disease, relieve suffering and improve quality of life.

Novartis was recently honored with the 2005 Excellence in Corporate Philanthropy Award from the Committee to Encourage Corporate Philanthropy.

Novartis supports research programs and drug donation to combat neglected diseases like malaria, tuberculosis and leprosy in developing nations to patient assistance programs that help cancer patients receive the most innovative and effective treatments available. For further information please consult <http://www.novartis.com>.