

# Chloroquine makes comeback to combat malaria

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Malaria-drug monitoring over the past 30 years has shown that malaria parasites develop resistance to medicine, and the first signs of resistance to the newest drugs have just been observed. At the same time, resistance monitoring at the University of Copenhagen shows that the previously efficacious drug chloroquine is once again beginning to work against malaria. In time that will ensure cheaper treatment for the world's poor.

Scientists and healthcare personnel the world over fear that the malaria parasite will develop [resistance](#) to the current frontline treatment against malaria, Artemisinin-based Combination Therapies (ACTs). Therefore, it is especially good news that resistance monitoring at the University of Copenhagen shows that in several [African countries](#), malaria parasites are succumbing to the formerly used drug chloroquine. The results have just been published in the [American Journal of Tropical Medicine and Hygiene](#).

"70% of the malaria parasites we found in Senegal are reacting once again to chloroquine. This is a trend we have also seen in Tanzania and [Mozambique](#), and which other researchers have shown in Malawi. Our choice of drugs against malaria is limited and related, so when the malaria parasite once again reacts to a substance, it influences several treatment methods," explains Michael Alifrangis, associate professor at the Center for Medical Parasitology at the University of Copenhagen. He and Magatte Ndiaye, PhD student at Université Cheikh Anta Diop in Senegal, are keeping an eye on the malaria parasite's sensitivity to drugs

by analyzing the parasites' [DNA](#).

## **Cheaper treatment for the poor in Africa**

If healthcare personnel in [developing countries](#) can begin using chloroquine again, it will open up some promising perspectives. It will be possible to protect the currently used medicine and delay the reappearance of resistance, and it will also give a large group of patients access to cheaper treatment.

"Chloroquine costs only 25 US cents for a four-day cure, while the current and corresponding ACTs cost two dollars. Chloroquine was a fantastic malaria drug that lasted for 50 years. However, it was misused for malaria prevention and ordinary fever, and even mixed with cooking salt, so it can come as no surprise that the [malaria parasite](#) became resistant to the active ingredient," explains Professor Ib Bygbjerg, M.D. He also points out that reuse will require correct drug use and the training of healthcare personnel to make more accurate diagnoses.

## **Correct use of drugs paralyzes the development of resistance**

According to Professor Ib Bygbjerg, three factors determine the extent to which a [malaria drug](#) will work: 1) the size of the dose, 2) how sensitive the parasite is to the drug, and 3) the extent to which the patient has developed a natural immunity to malaria.

"In the near future, chloroquine and other malaria drugs not currently on the market will presumably be able to be used again, if we use them correctly. This means that the drug must be given in combination with other medicine and only to patients who have already developed a certain immunity to malaria and are therefore not at high risk. At the

same time, we must reserve ACTs for the most exposed non-immune groups such as children. Chloroquine is one of the few drugs that can be given to pregnant women at the beginning of their pregnancy," points out Ib Bygbjerg, adding that the patient can be treated with a high dose for a short period, another benefit.

In order to maintain the positive development with [chloroquine](#), it is therefore also important that – with the exception of pregnant women – travellers to malaria areas refrain from taking the drug. Otherwise the parasites will quickly develop resistance once again.

Provided by University of Copenhagen

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