



## MALARIA 2001

No. 19/20, 2002

In 2001, there were 152 laboratory-notified cases of malaria in Denmark, [Table 1](#), which represents a major decrease from 2000 (205) and 1999 (207). The number of cases of malaria caused by *Plasmodium falciparum* (*P. falciparum*) has simultaneously fallen from 139 to 104, of which 94 cases were from tropical Africa. In 2001, *P. falciparum* malaria was diagnosed in 51 Danish travellers and 42 immigrants, compared with 94 Danes and 33 immigrants in 2000. The notified cases were distributed evenly throughout the year. Map of global malaria transmission can be found overleaf.

**Primary prophylaxis**

Prevention of mosquito bites is important, and several different mosquito repellents are now commercially available. Mosquito repellent preparations to apply to the skin may have a certain effect for some hours, but do not provide sufficient protection throughout a whole night. The preparations may have a local irritant effect and should not be used for children under the age of three. A mosquito net around the bed impregnated with a synthetic pyrethroid provides up to about 50% protection. The net should be so loose that the user does not touch it during the night, and it should be rolled up during the day.

**Pharmacological prophylaxis**

The objective of pharmacological prophylaxis is to prevent the serious type of malaria, which is caused by *P. falciparum*. Among travellers, the mortality of *P. falciparum* malaria diagnosed after the traveller's return to Europe - including Denmark - is approx. 0.5% or 1:200, but it must be presumed to be higher in countries with endemic occurrence. All preparations have side effects, and on choice of prophylaxis, the risk of infection with *P. falciparum* must therefore be weighed up against the risk of side effects. It is important that this is discussed with the person travelling. Recommendations for pharmacological prophylaxis remains at three levels, EPI-NEWS 21-22/01: I: chloroquine; II: chloroquine and Paludrine; III: Lariam (mefloquine), Malarone (atovaquone/proguanil) or doxycycline. [Chloroquine](#) alone is used only for the Middle East and Central America. [Chloroquine and Paludrine](#) are used in areas where the occurrence of re-

**Table 1. No. of laboratory-notified cases of malaria, 2001**

	Africa	Asia	South/Central America	Oceania	Not stated*)	Total 2001	Total 2000
<i>P. falciparum</i>	94	2	1	2	5	104	139
<i>P. vivax</i>	7	17	1	9	4	38	44
<i>P. ovale</i>	4		1			5	15
<i>P. malariae</i>	3					3	3
Mixed	1	1				2	1
Not stated							3
<b>Total</b>	<b>109</b>	<b>20</b>	<b>3</b>	<b>11</b>	<b>9</b>	<b>152</b>	<b>205</b>

\*) Including travellers to more than one continent

sistance to chloroquine is reported as only sporadic.

[Lariam \(mefloquine\)](#), [Malarone and doxycycline](#) are used in areas with high risk of infection with *P. falciparum* that is resistant to chloroquine, which means primarily in tropical Africa. There is no difference between the three preparations as far as efficacy is concerned, but the documentation material for doxycycline for tourist travel is limited. The choice between mefloquine, Malarone and doxycycline is therefore made in consultation with the traveller on the basis of the length of the journey and an assessment of the side effects of the preparations.

**Malarone**

Atovaquone is fat-soluble, and prophylaxis failure with Malarone may therefore be due to failure of absorption. It is important that travellers who are offered Malarone be instructed to take the preparation at the same time every day along with a fatty meal. Malarone is registered for use for stays of up to 28 days in a malaria zone.

**Self-treatment**

Travellers who do not have access to suitable facilities for the diagnosis of malaria can be issued with preparations for self-treatment. Only preparations that have not currently been used as prophylaxis for the traveller should be used. Malarone can be used for the treatment of uncomplicated *P. falciparum* malaria, but is less efficacious as regards the other types. Quinine is still efficacious, except on travelling to northern Thailand. There may be interaction between mefloquine (Lariam) and quinine, affecting the heart rhythm, and for this reason quinine should be used with great caution for the treatment of travellers who have used mefloquine as prophylaxis. There have been several reports of Fansidar resistance in Mozambique,

Kenya, Tanzania and Malawi, and Fansidar is therefore no longer a first choice for self-treatment in tropical Africa.

A new drug - the artemisinins - is effective and rapid-acting, but relapse may be seen, so the treatment should be supplemented with 10 days' simultaneous treatment with doxycycline or a treatment dose of mefloquine on the third day. The artemisinins are not marketed in Denmark.

**Pregnant women**

According to WHO, mefloquine can be used in pregnant women after the 16th week of gestation, while doxycycline is absolutely contraindicated. There is little experience with Malarone during pregnancy, and for this reason it is currently discouraged. Thus, there exists no effective malaria prophylaxis for first-trimester pregnant women who are travelling to tropical Africa.

**Children**

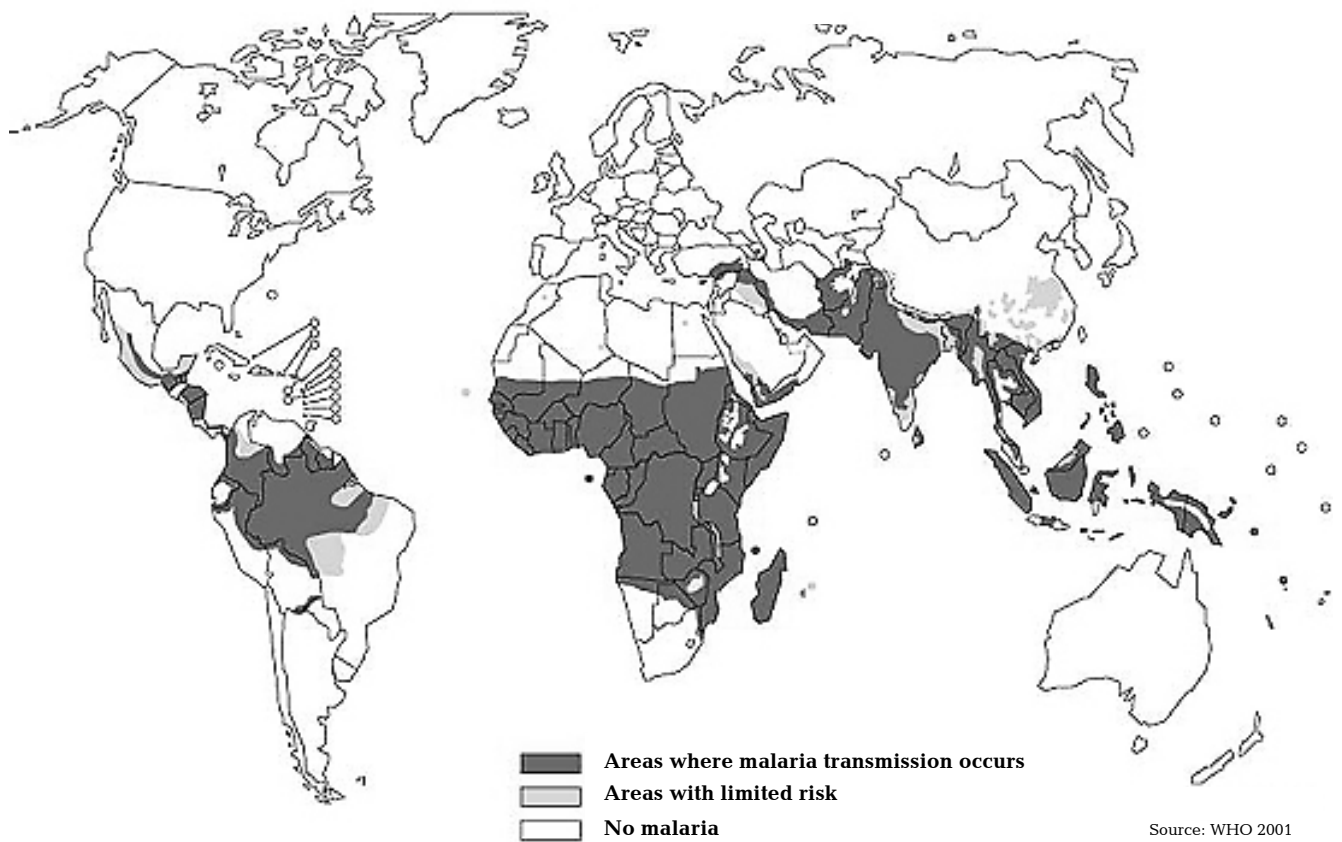
According to WHO, mefloquine can be given to children with a body weight down to 5 kg, in whom ¼ tablet is suggested, but this involves a relative overdose in comparison with adult dosage. For children who weigh less than 15 kg, therefore, mefloquine should only be used after thorough deliberation and only in full agreement with the parents. Malarone can be given to children with a body weight down to 11 kg, exists as tablets in ¼ adult strength and is issued after application to the Danish Medicines Agency. Doxycycline is contraindicated for children under the age of twelve.

**Diagnostics**

SSI has drawn up a guide to the performance of a good malaria smear, which can be obtained free from the department. (Eskild Petersen, Dept. of Gastrointestinal and Parasitic Infections)

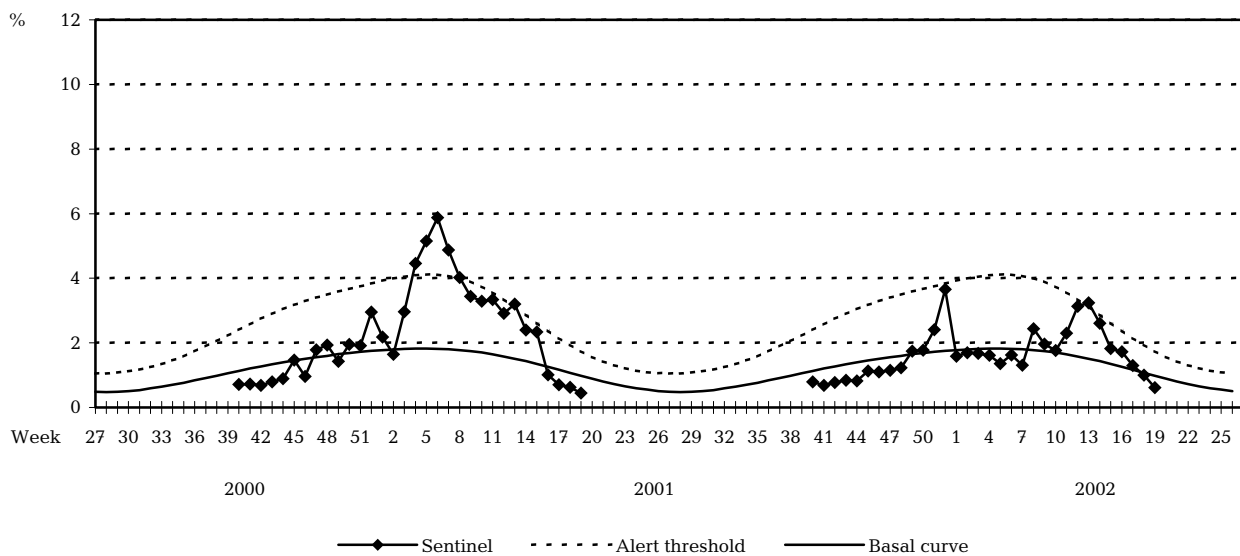
15 May 2002

## MALARIA 2001



### Sentinel surveillance of influenza activity

Weekly percentage of consultations, 2000/2001/2002



**Sentinel:** Influenza consultations as % of total consultations  
**Basal curve:** Expected frequency of influenza consultations under non-epidemic conditions  
**Alert threshold:** Possible incipient epidemic

(Dept. of Epidemiology)