

# Dramatic fall in malaria in the Gambia raises possibility of elimination in parts of Africa

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The incidence of malaria has fallen significantly in The Gambia in the last 5 years, according to a study carried out by experts there with support from scientists based in London.

The findings from the study, which was funded by the UK Medical Research Council, appear in today's *Lancet*, and raise the possibility of eliminating malaria as a public health problem in parts of Africa.

Malaria is a major cause of illness and death in Africa, including The Gambia. Investigations into ways of controlling malaria have been underway in The Gambia for more than 50 years and, since 2003, efforts to deliver malaria interventions to pregnant women and children under 5 – including intermittent preventive treatment, the use of insecticide-treated bed nets (ITNs) and indoor residual spraying - have been stepped up considerably.

The authors sought to investigate the changes that have occurred in The Gambia over the past nine years, their potential causes, and public health significance. They analysed original records in order to establish the numbers and proportions of malaria inpatients, deaths and blood-slide examinations at one hospital over nine years (January 1999-December 2007) and at four health facilities in three different administrative regions over seven years (January 2001-December 2007). They obtained additional data from single sites for haemoglobin concentrations in paediatric admissions and for the age distribution of malaria admissions.

At each of the four sites with complete slide examination records, they found that the proportions of malaria-positive slides had decreased by 82%, 85%, 73% and 50% respectively between 2003 and 2007.

Meanwhile, during the same period at the three sites with complete admission records, the proportions of malaria admissions fell by 74%, 69% and 27%. Proportions of deaths attributed to malaria in two hospitals fell by more than 90%.

The team also recorded a substantial shift in the average age of children who were admitted to one hospital with malaria after 2004, with far fewer under 5s being admitted after that year. The average age until 2004 was similar to that recorded ten years previously, so the finding of a trend towards older ages of malaria cases was new. A more substantial decrease of malaria admissions in younger children is likely to be largely due to increased use of ITNs, since this intervention is targeted at children under 5, but it may also reflect a situation in which children are taking longer to acquire immunity.

The team considered possible reasons for the decrease of malaria in The Gambia. Changes in rainfall cause some fluctuations in malaria from year to year, but could not account for the progressive reduction recorded since 2003, while socio-economic changes, improvements in communications and access to education may also have helped, although these factors tend to have a more gradual impact rather than the rapid changes reported at the different sites. A change in chemotherapy is likely to have played a substantial role – until 2004, chloroquine alone was mainly used but as parasite resistance to this drug had increased to high levels, the first-line treatment of choice became sulphadoxine plus pyrimethamine (SP) combined with chloroquine, from early 2005 onwards. SP has prophylactic as well as curative properties which may have been important.

The most substantial change in measures to prevent malaria has been the

increase of coverage of ITNs, which thanks to well-publicised initiatives from the Global Fund, UNICEF and WHO increased threefold between 2000 and 2006 (49% of under 5s in The Gambia are now reported to be sleeping under ITNs – the highest reported coverage in Africa).

David Conway, of the London School of Hygiene & Tropical Medicine, who is based at the Medical Research Council Laboratories in Banjul in The Gambia, is one of the study's authors. He comments: 'These findings support the proposal that increased investment in malaria interventions in Africa can have a major effect on reducing morbidity and mortality from the disease. We need to consider the possibility of future elimination of malaria from some areas in Africa, but we also emphasise the importance of continuous surveillance, and there is no room for complacency with this disease'.

Source: London School of Hygiene & Tropical Medicine

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