



ADMISSIONS

Home › Media ›

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11 SEP Many sickle-cell deaths in Africa may be avoidable

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Health

Children in Africa with sickle cell anaemia are dying unnecessarily from bacterial infections, suggests the largest study of its kind, led by Oxford University researchers.

The study, funded by the Wellcome Trust and published in *The Lancet*, has prompted calls for all children in Africa to receive vaccinations against the most common bacterial infections.

Sickle cell anaemia affects millions of people worldwide, but more than 80 per cent of cases are in Africa where 200,000 children are born with the disease every year. It is a genetic disease which leads to the formation of sickle-shaped red blood cells. These cells do not pass easily through blood vessels and can form clusters which block the flow of blood to limbs and organs, leading to pain, serious infections and organ damage.

Despite the huge number of children who are born with sickle cell anaemia in Africa each year, the diagnosis is often delayed and 90 per cent of these children die before the disease is ever diagnosed. It has long been assumed that severe infections are responsible for many of these deaths, but this has never been properly investigated.



Children in Africa with sickle cell anaemia may be dying unnecessarily from bacterial infections.

Further information

- › The Lancet
- › Centre for Tropical Medicine
- › Kenya Medical Research Institute
- › The Wellcome Trust

SHARE

Researchers at the Kenya Medical Research Institute (KEMRI)-Wellcome Trust Programme in Kilifi, on the coast of Kenya, set out to find out the scale of the problem in Africa.

The team, led by Dr Tom Williams, a Wellcome Trust Senior Fellow and Reader in Tropical Medicine at the University of Oxford, studied blood samples from all children aged under 14 who were admitted to the local hospital during a 10 year period between 1998 and 2008. They screened for cases of bacteraemia (bacterial infections of the blood) and then tested the positive samples for sickle cell anaemia.

By screening almost 40,000 admissions to the hospital, the researchers identified more than 2,000 cases of bacteraemia. While in the general population less than three in 1,000 children were found to have sickle cell anaemia, this figure increased more than 20-fold – to over 60 per 1,000 – for children admitted to hospital with bacteraemia. This confirms that, as in the developed world, African children with sickle cell anaemia are at huge risk of bacteraemia.

Amongst the most common causes of bacteraemia amongst children with sickle cell anaemia were *Streptococcus pneumoniae* (accounting for 41% of cases) and *Haemophilus influenzae* type b (12% of cases), both of which are preventable by vaccination.

Our study provides strong impetus for the introduction of vaccination programmes for all children in Africa.

Dr Tom Williams

Dr Williams commented: 'Our study provides strong impetus for the introduction of vaccination programmes for all children in Africa, a move that will dramatically improve the survival chances of children born with sickle cell anaemia. Health policies need to be based on solid evidence such as this research, rather than on rumour and personal preference.'

The researchers estimate that in Kilifi, it is likely that up to one quarter of all child-deaths are attributable to sickle cell anaemia, with bacteraemia accounting for a sizeable proportion.

Developing countries are working to reduce childhood mortality to meet one of the Millennium Development Goals. However, the focus is on the major causes of mortality – more than 70 per cent of child deaths every year are attributable to six causes: diarrhoea, malaria, neonatal infection, pneumonia, preterm delivery, or lack of oxygen at birth. As childhood mortality falls, Dr Williams believes that the relative contribution of sickle cell anaemia will increase without the development and implementation of specific interventions.

'To date, sickle cell anaemia has not enjoyed a high priority on African health agendas, despite the relative impact it has on childhood mortality, which far exceeds estimates for HIV,' he

says. 'HIV commands vast attention from the international community, yet sickle cell anaemia is virtually invisible on the international health agenda.'
