

# Polio could be wiped out in Nigeria thanks to improved vaccine, says study

October 15 2008

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A recently introduced polio vaccine is four times more effective at protecting children than previous vaccines and has the potential to eradicate type 1 polio in Nigeria if it reaches enough children, according to a study published today in the *New England Journal of Medicine*.

Nigeria is one of only four countries in the world where polio has yet to be eliminated and 82% of global cases so far this year have been in Nigeria. Polio is highly infectious and it primarily affects children under five years of age. A small minority of infected people develop permanent paralysis, which can be fatal.

The monovalent oral poliovirus vaccine, known as mOPV1, has been used in Nigeria since February 2006 and the number of reported cases of polio in the country fell by 75% between 2006 and 2007.

With each dose of mOPV1 received, a child in Nigeria has a 67% chance of being protected against type 1 paralytic poliomyelitis, according to the new study, which was carried out by researchers from the MRC Centre for Outbreak Analysis and Modelling at Imperial College London, working with international colleagues. The standard trivalent vaccine in the same setting had an efficacy of 16%.

Although the monovalent vaccine is proving very effective, many more children need to be immunised against polio if the virus is to be eliminated in Nigeria, say the researchers. In the North West zone of the country, where the majority of new cases are found, 21% of children

report never having received a single dose of the vaccine and a further 55% have received fewer than the recommended four doses.

The new research comes just 4 months after the World Health Assembly expressed alarm over a dramatic increase in type 1 cases in Nigeria because of poor immunisation in the north of the country. The Government of Nigeria subsequently established a Presidential Task Force to identify barriers to immunisation and potential solutions.

A previous study, published in the Lancet in 2007, looked at how well polio vaccines were working in Northern India and revealed that there, although mOPV1 was three times more effective than the trivalent vaccine, environmental factors compromised the efficacy of both the trivalent and monovalent oral vaccines. The researchers behind today's study say that the mOPV1's effectiveness is not as badly compromised by environmental conditions in Nigeria. This means that the key to eliminating polio in Nigeria is reaching sufficient numbers of children with the vaccine, demonstrating the feasibility of elimination in Africa.

Helen Jenkins, the corresponding author of the study from the MRC Centre for Outbreak Analysis and Modelling at Imperial College London, said: "Nigeria and India are responsible for the vast majority of new global polio cases. In Nigeria, we now have an effective vaccine to use and we've seen the start of improvements in vaccine uptake. These last pockets of unvaccinated children now need to be reached to achieve elimination in Nigeria and this in turn will have a dramatic impact on the prospects of worldwide eradication."

The researchers reached their conclusions after analysing the vaccination histories of 21,815 children with acute flaccid paralysis, 14% of whom had polio, collected between January 2001 and December 2007.

Source: Imperial College London

Citation: Polio could be wiped out in Nigeria thanks to improved vaccine, says study (2008, October 15) retrieved 10 May 2024 from <https://medicalxpress.com/news/2008-10-polio-nigeria-vaccine.html>

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