

Is the end of polio truly in sight?

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This image represents the first recorded case of a viral disease of humans, showing the withered limb and down-flexed foot of typical poliomyelitis. Credit: Carlsberg museum, Copenhagen

Declaring the eradication of polio will be far more difficult than it was for smallpox, according to a review published in the *Journal of General Virology*. Further research into the complex virus - host interactions and how the vaccine is used in the final stages of the eradication programme is crucial to its success.

Poliomyelitis, also known as infantile paralysis, was one of the most feared diseases of the 1950s. By the mid 1970s, thanks to vaccination, the [viral disease](#) had been controlled and eradicated from the developed

world, including the UK, US and most of Europe. In 1988, The [World Health Organization](#) launched a global eradication programme which is now near completion.

By the end of 2000, the only countries where [polio](#) was still endemic were those in the Indian subcontinent and [central Africa](#). This year, for the first time, India has had no cases of polio. There are now just three countries where the virus is still circulating: Nigeria, Pakistan and Afghanistan. As the programme draws ever closer to its goal, there are new challenges and issues to be faced, these are explored by Dr Philip Minor from the National Institute for Biological Standards and Control, a centre of the [Health Protection Agency](#), in the review.

As many polio infections do not cause symptoms, strong evidence is needed to show that not only the disease, but the virus that causes it, has disappeared completely. "There are three strains of virus that cause polio - some more easily detectable than others", explained Dr Minor. "There have been examples where disease has been undetectable but the virus continues to be found circulating in the environment, e.g. sewage. This obviously raises questions about the confidence with which polio can be said to be eradicated when the time comes."

Dr Minor believes that ridding the world of polio is more challenging than it was for smallpox. "The effort to eradicate polio is very close to success. If it gets there it will be a colossal technical achievement - arguably greater than putting a man on the moon - and will be among the greatest public health achievements of all time," said Dr Minor.

"However, polio is different from [smallpox](#) as most infections are asymptomatic and the live [vaccine](#) - which requires sophisticated technology to make - can, in rare cases, cause the disease."

"We must also think carefully how these vaccines are used, in the final stages of the eradication programme. We need to look more closely into

the behaviour of the virus - including the wild-type and the virus used in vaccines - and how they interact with their hosts. These lessons are important for future disease eradication efforts," he said.

Provided by Society for General Microbiology

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