

India on track to be declared polio-free next month

The polio virus has disappeared from the country for 12 months, but it could still be re-imported from neighboring nations.

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10 January 2012

*An article from **Scientific American**.*

In the mid-2000s, when scientists questioned whether the campaign to rid the world of polio could succeed, skeptics pointed to a problem that some called PAIN.

That stood for Pakistan, Afghanistan, India and Nigeria—the four countries that were stubbornly standing in the way of success. The four had never managed to stop the spread of polioviruses within their borders and continued to send viruses, like embers off a fire, to re-ignite outbreaks in places that had previously halted transmission.

Now it appears someone's going to need to craft a new mnemonic.

India, which once seemed likely to be the last country on Earth to rid itself of polio, appears to have succeeded ahead of Pakistan, Afghanistan and Nigeria in besting the crippling viruses. The last child paralyzed by polio in India got sick on January 13, 2011, and surveillance for wild polioviruses in sewage has not turned up the pathogen in more than a year.

If India produces 12 straight months of polio-free surveillance data, it will be removed from the list of countries where polio is considered endemic, leaving only the other three. A statement hailing that likely eventuality will be issued by the Global Polio Eradication Initiative on the one-year anniversary of the last case later this week. But with the time it takes to process pending laboratory tests, it may be mid-February before there is official word.

Still, there is the sense that India is on the threshold of a momentous achievement, one gained against tremendous odds.

"This is huge for us. It has taken more than a decade and tens of millions of health-workers, managers and a lot of mobilization to get to this point," says Hamid Jafari, project manager for the World Health Organization's National Polio Surveillance Project, based in New Delhi.

After more than a decade battling the virus, and heartbreaking years of seeing the numbers of paralytic cases dip tantalizingly low, only to rebound, some scientists doubted polio could be stopped in India. It was commonly observed that the eradication program had two distinct problems: In Nigeria, where some Muslim parents refused to vaccinate their kids on religious grounds, and in conflict-torn countries like Afghanistan, where safe access is a challenge, the programs were failing to vaccinate all children. In India, however, the failure was on the part of the vaccine.

Where children are well nourished and healthy, three doses of oral polio vaccine will do the trick. But malnourished children who live where sanitation is poor and diarrhea is a fact of daily life cannot mount a protective immune response so easily. In India children who had been vaccinated eight, 10 or more times would sometimes still fall prey to polio.

New vaccines that targeted first one and later two strains of polio, rather than all three, were introduced and began to make real inroads. But the country still faced enormous challenges. In India locating and vaccinating all the vulnerable children is a gargantuan task. In the two poor northern states where polio made its last stand—Uttar Pradesh and Bihar—more than half a million babies are born every month. On the twice-annual national vaccination days, 2.3 million vaccinators visit 209 million households.



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A boy in Firozabad, Uttar Pradesh, India, shows his finger, painted to indicate he has just been vaccinated.

"We have to get to these children, these newborns, with vaccine faster than the wild virus can get to them. It's a race against virus," Jafari explains.

In addition to introducing more effective vaccine, India got better at finding high-risk children, homing in on families that move about the country looking for seasonal work. Transit points—train stations, bus depots, busy highway intersections—are used as distribution centers during vaccination campaigns. And special efforts are made to locate and map where migrant families set up camps, to ensure their children are not missed when vaccination teams make their rounds.

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Observers heap praise on India for its commitment to the task and the \$2 billion it is spending to eliminate polio. "India's success is really the result of visionary determination and dogged persistence," says Liam Donaldson, former head of the U.K.'s Health Protection Agency and chair of an independent expert panel that monitors the polio eradication effort. "This achievement is thanks to the country's leaders and to many talented and dedicated individuals working both for the government and for its partner agencies."

But D. A. Henderson of the Center for Biosecurity at University of Pittsburgh Medical Center, who led the campaign to eradicate smallpox, thinks some credit for the resurgence of the global polio effort should be directed toward the founder of Microsoft. "We've got a guy by the name of Bill Gates who has taken this very seriously," Henderson says. "And I think he has done a lot to get attention at high levels in the different governments, India included, which I think has made a big difference."

Challenges remain. The country that formerly exported polioviruses is now vulnerable to re-infection from its neighbors Pakistan and Afghanistan, or beyond. Jafari says each Indian state has drawn up emergency response plans that will kick into gear should that happen. "Our biggest enemy at this time would be complacency and to think the job is done, because the threat of importation is real."

And whereas the challenges faced by other countries still fighting polio are not identical to those India faced, the nation is in a position to share its expertise. Polio workers from India have already gone to other countries to offer help, and more will probably go this year, Jafari says. India's program has also been sharing planning documents and systems devised to ensure performance accountability.

Will India's PAIN partners stop polio by the end of 2012, the latest deadline set by the global initiative? Observers expect India's success to give the entire program a badly needed boost. But the latest report from Donaldson's group suggests only India appears to be on track to meet the 2012 deadline. "The focus needs to be on improving their polio eradication programs," he says of the other countries. "If these were working properly, they would not have polio."

Nature | doi:10.1038/nature.2012.9771