



[Contribute](#) [Shop](#) [Club Locator](#) [Discuss](#) [Contact Us](#)

[About Rotary](#) [Membership](#) [The Rotary Foundation](#) [RI Programs](#) [Newsroom](#) [Events](#) [Club-District Support](#) [Training](#) [Downl](#)

[Home](#) [Newsroom](#) [Article](#)

[Top News](#)

[The Rotarian](#)

[RVM: The Rotarian Video Magazine](#)

[Photo Essays](#)

[Press Center](#)

[Download Rotary World and Other Publications](#)

[Advertising Information](#)

[Classifieds](#)

On the brink

Adverti

Polio — A Fragile Immunity

Rumor, fear, and fatigue hinder final push to end polio

By Celia W. Dugger and Donald G. McNeil Jr; Celia W. Dugger reported from India for this article, and Donald G. McNeil Jr. from Nigeria *New York Times*

20 March 2006

[E-mail this story](#) [Printable version](#)

More inside this section

- > Read about and see photo galleries from the 2006 RI Convention
- > Rotarians reach out to assist after earthquake
- > New Benin president launches polio effort

Note: This 20 March 2006 article, reprinted with permission from the [New York Times](#), highlights Rotary's work in the battle to eradicate polio. Go to the [PolioPlus section](#) to learn more about Rotary's role in

Global Polio Eradication Initiative.

BAREILLY, India — The cry went up the moment the polio vaccination team was spotted — "Hide your children!"

Some families slammed doors on the two volunteers going house to house with polio drops in this teeming city's decrepit maze of lanes, saying that they feared the vaccine would sicken or sterilize their children, or simply that they were fed up with the long drive to eradicate polio.

"We have a lot of other problems, and you don't care about those," shouted one woman from behind a locked door. "All you have is drops. My children get other diseases, and we don't get help."

Nearly 18 years ago, in what they described as a "gift from the 20th century to the 21st," public health officials and volunteers around the world committed themselves to eliminating polio from the planet by the year 2000.

Since then, some two billion children have been vaccinated, cutting incidence of the disease more than 99 percent and saving some five million from paralysis or death, the World Health Organization estimates.

But six years past the deadline, even optimists warn that total eradication is far from assured. The drive against polio threatens to become a costly display of all that can conspire against even the most ambitious efforts to eliminate a disease: cultural suspicions, logistical nightmares, competition for resources from many other afflictions, and

simple exhaustion. So monumental is the challenge, in fact, that only one disease has ever been eradicated – smallpox. As the polio campaign has shown, even the miracle of discovering a vaccine is not enough.

Not least among the obstacles is that many poor countries that eliminated polio have let their vaccination efforts slide, making the immunity covering much of the world extremely fragile, polio experts warn. They compare it to a vast, tinder-dry forest: if even one tree is still burning, a single cinder can drift downwind and start a fire virtually anywhere.

Here in northern India the embers are still glowing. And northern Nigeria, another densely populated, desperately poor region, is aflame.

In a calamitous setback in mid-2003, Nigeria's northern states halted the vaccination campaign for a year after rumors swept the region that the vaccine contained the AIDS virus or was part of a Western plot to sterilize Muslim girls. Within a couple of years, 18 once polio-free countries have had outbreaks traceable to Nigeria. Though most have since been tamed, Indonesia and Nigeria itself remain major worries. In 2001, there were fewer than 500 confirmed cases of polio paralysis in the world. Last year, the number jumped to more than 1,900 – and each paralyzed child means another 200 "silent carriers" spreading the disease.

This year in addition to India and Nigeria, cases have been reported in Somalia, Niger, Afghanistan, Bangladesh and Indonesia.

Yet no eradication effort against any disease has been as well financed or as comprehensive as the polio drive, which has cost \$4 billion so far. In the balance is not just whether polio will be extinguished, many public health officials say, but whether a world that could not quite conquer polio will have the stomach to try to wipe out other diseases, like measles. The closer a disease is to eradication, they say, the harder won the gains. Interest lags as the number of cases falls. Fatigue sets in among volunteers, donors and average people. Yet even one unvaccinated child can allow a new pocket of the disease to bloom.

Here and elsewhere, eradicating polio means finding ways to get polio drops into the mouths of every child under 5 – over and over. Because it can take many doses to effectively immunize a child in parts of the world where the disease circulates intensely, eradication requires repeated sweeps. Campaigns are planned to the smallest detail. Each lane is mapped. Supervisors shadow vaccination teams. Follow-up specialists pursue resistant families. "Here, polio eradication has been going on for 10 years, and that's too long," said David C. Bassett, 63, an old smallpox hand sent to India by the World Health Organization to help with polio. "The public's sick of it. The workers are sick of it. The government's sick of it. We're close now. We need to mobilize resources. The donors aren't going to keep putting up money for this forever."

Nigeria 's Agony

Aminu Ahmed's legs are so withered he must lean on something just to sit up in the cement courtyard of his home in Kano, in northern Nigeria. He "walks" by swinging his hips in an arc on his six-inch hand crutches.

But Mr. Ahmed, 45, is a natural leader. He is the president of the Kano State Polio Victims Association, which owns the welding shop where he builds hand-cranked tricycles for other polio victims. He coached Kano's handicapped soccer team to three national championships. And he owns a home. It may be at the end of a slum alley, where drinking water is sold in cans and the sewers are shallow ditches, but he earned enough to pay healthy men to build it.

His wife, Hadiza, whom he met at the polio association, has given him six children. The youngest, Omar, 2, was born shortly before Kano's conservative Muslim government stopped its polio vaccinations. Today, like his father before him, he drags himself across the cement courtyard. The joints of his spindly legs are covered with calluses.

He has polio, too.

"This is why we enlighten people to give their children the vaccine," Mr. Ahmed said, explaining why he went on local radio programs to ask for an end to the vaccination moratorium. "Because we don't want people to be cripples like us."

The collapse of Nigeria's drive has become a lesson in the ways eradication campaigns can go terribly awry. "Nigeria is clearly far and away the greatest risk to the eradication effort," said Dr. Stephen L. Cochi, a senior adviser in the federal Centers for Disease Control and Prevention's immunization program. The quality of its campaigns is the worst in Africa, he said. "They're just missing lots and lots of kids."

Nigeria's president, Olusegun Obasanjo, who is from the Christian, Yoruba-speaking south, has apologized for his country's role in reigniting the disease, but officials in the Muslim north are defensive. Asked last year whether he had been right to stop the vaccinations, Kano's governor, Ibrahim Shekarau, cut off an interview. "We're not saying it didn't spread, and we're not saying people didn't suffer," he said. "But I had a moral responsibility to our population to stop it until it was clear there was no harm."

His health minister, Dr. Sanda Mohammed, also refused to discuss the subject, even sending word into his waiting room that he was out of the city, while aides admitted he was behind a locked door. But in a brief conversation on his cellphone, he insisted that the decision was right because Kano residents had become so suspicious of government health workers that they were refusing all vaccinations. "It would have been a bigger disaster if we had vaccinated people at gunpoint," Dr. Mohammed said.

As is often the case with rumors, they appeared based on distortions of fact amplified by an alarmist media and by politicians and clerics absorbed in a religiously divisive presidential election campaign.

A controversial 1999 book, "The River," helped raise doubts. Its thesis was that the source of human AIDS was an experimental polio vaccine used in the Belgian Congo in the 1950's that had been grown on a medium of chimpanzee cells containing a monkey virus that is considered the precursor of AIDS. Most AIDS experts reject the theory. The author of the book, Edward Hooper, has never suggested that modern polio vaccines contain any AIDS virus, but confused Nigerian journalists raised the possibility that they did. Then scientists from a Nigerian university claimed they had found estrogen in the polio vaccine. Estrogen is the main ingredient in birth control pills, and in Africa any talk of birth control is highly controversial. Inflammatory speakers equate it with genocide by whites or by ruling tribes trying to eliminate lesser ones.

Some vaccines are grown in calf serum, and experts say it is possible that tiny, harmless amounts of estrogen were found, but at levels that are far lower than in, say, breast milk.

With such rumors circulating during the hotly contested 2003 elections, in which a Muslim candidate lost to Mr. Obasanjo, "The situation got hijacked," said Dr. Barbara G. Reynolds, deputy chief of the Nigerian office of Unicef. "People who had multiple agendas ran with it."

Most vocal was a wealthy Kano doctor who was both head of a campaign to impose Islamic law in northern Nigeria and a candidate for a top job in the national health department. After being denied the post, he turned against the polio drive, calling the vaccine "tainted by evildoers from America." Governor Shekarau's spokesman publicly speculated that the vaccine was "America's revenge for Sept. 11."

With residents turning vaccinators away and the threat of riots growing, Mr. Shekarau — a well-educated rival to southern politicians — decided to halt vaccinations until local doctors could test the vaccine. That took 10 months. Hearings were held, and teams visited vaccine factories in Indonesia, India and South Africa. Medical and religious experts from Saudi Arabia flew in to meet local clerics. Finally, the case was made that the vaccine was safe.

In October 2004, at a kickoff of a new round of vaccinations of 80 million children, Mr. Shekarau allowed Mr. Obasanjo personally to give his 1-year-old daughter, Zainab, the drops — a picture that became famous in Nigeria. The emir of Kano, who rarely lets himself be seen in public, allowed himself to be photographed vaccinating children. But by then, the virus was on the loose.

New Drive, Old Obstacles

Now that official opposition to Nigeria's eradication drive has melted, it is facing its old obstacles, like those in India: Scotch-tape logistics and pockets of resistance.

At 7 a.m. on the first day of a vaccination drive last year, the dirt courtyard of the public clinic in Kano looked like the deck of the world's most bedraggled aircraft carrier. Smashed-up minibus taxis, many with their front ends crumpled and doors held closed by rope, were waiting to take off. Like F-18's, each had a name painted on: Titanic, Dollars,

Thank You Daddy.

By 8 a.m., after some near misses with the wobbly benches in the courtyard, most of the minibuses had left, bearing vaccinators on their rounds. But problems were quick to arise. The chief of a nearby district was unhappy that each of his teams got \$23 to hire transportation for the day. Last time, he said, the money had gone directly to him, and he had made the arrangements. That was changed, a World Health Organization official said privately, because half the money was pocketed.

The vaccine must be kept chilled from the time it leaves the factory until it reaches a child's mouth, and the clinic's freezers looked as battered as the taxis. The day was already hot, and World Health Organization officials worried that the ice packs keeping the vaccines cold were not fully frozen. A big problem, one confided, was clinic officials "who take the money we give them to buy big freezers, and then buy refrigerators to keep their cold drinks in."

Finding enough women for the teams proved particularly tough. Only women can enter a Nigerian Muslim household if the husband is away, and women with children are better at persuading other mothers to vaccinate. But many men refused to let their wives leave home, and either wanted the jobs, which pay about \$3 a day, for themselves, or sent their young daughters.

As a result, teenage girls could be seen leaving with empty boxes, not understanding that they were supposed to carry ice packs and 40 doses of vaccine. Others carried tally sheets that they could not fill out because they could not read.

"We wanted to remove males completely from the teams, but we realized it would create too much antagonism," said Dr. Ahmed Bello Sulaiman, a World Health Organization coordinator in rural Kano. "For the program to work, we need each local government involved. But many local politicians want to give the jobs to people who helped them get elected – and those are mostly men."

Some families tricked the teams, erasing the chalk marks on their doorways showing that they had not cooperated, or blackening their children's thumbs with the same ink that the vaccinators had used and falsely claiming that they had been immunized.

Still, the government seemed determined to succeed. At the campaign's command center in the capital, Abuja, the officer in charge of the vaccine "cold chain" – keeping it chilled from the time it arrives in Nigeria – knew exactly which district leader in a remote part of Kano was considered a "joker" by his peers and arranged for his removal and the shipping of two new freezers.

Sometimes the new determination was a bit excessive. The chief prosecutor of Katsina, another northern Nigerian state, announced he would jail for a year any parents who refused drops for their children.

India 's Uphill Campaign

While Nigeria struggles to restart its campaign, India, whose need is such that it uses more than half the world's two billion polio vaccine doses each year, has long made an extraordinary commitment to wipe out polio. Teams like the one that faced scorn in squalid warrens of Bareilly have made repeated sweeps in the state of Uttar Pradesh, home to 180 million people, which Dr. Cochi of the Centers for Disease Control describes as "historically the center of the universe for the polio virus."

Nowhere are the prospects for conquering polio more intimidating. Living conditions are so dense, public health services so awful, summer heat so sweltering, and open sewers and monsoon floods so common that a more perfect breeding ground could hardly be conjured.

The state, populous enough to make it the world's sixth-largest nation, has endured more than two dozen campaigns in recent years. In 2004, teams went door to door eight times. They came eight more times last year. Each round requires almost every health worker to join in for at least a week or two, local managers say, and each time vaccinators must try to get the polio drops into the mouths of 50 million children.

International leaders of the global drive were hopeful last year that the country would finish off the disease – but it still registered 66 cases. That was the lowest tally ever, but not zero. And so this year, India must repeat its consuming effort yet again, with special focus on Uttar Pradesh and other regions still trying to extinguish the last cases. Resistance has persisted where services are weakest and distrust of public officials deepest.

"Please open up," pleaded one polio volunteer, Firoza Rafiq, outside the locked door in Bareilly during a drive last year. "We won't force you." The woman inside first shouted through a crack that she had no children, though a little girl had just scampered in. Challenged, she changed her story and complained that she was sick and tired of the polio drive. Mrs. Rafiq, a Muslim, and her team partner, Parvati Devi Rajput, a Hindu, chalked an X on the door, marking it for someone to come back later and try again.

Polio spreads through oral-fecal contact: children can get it by drinking well water tainted by sewage, or simply by picking up a ball that rolled through a gutter choking with human waste. In warm or tropical climates, many similar viruses can attach to the same receptors in the intestine as the polio virus does, making it even harder to immunize a child. It can take up to 10 vaccine doses, spaced months apart.

With great anticipation, India and other countries began trying a new eradication strategy last year, using a "monovalent" vaccine that focuses only on the most common strain of polio, but gives immunity in fewer doses. The old vaccine attacked three strains of the virus, two of them less common. "The great hope was that monovalent vaccine would be the magic bullet and melt all polio cases away, but that hasn't happened," Dr. Cochi said.

While the new vaccine has brought India closer than ever to

eradication, resistance to the vaccine has persisted in some areas.

Here in Bareilly, the two-woman team was bolstered by a new, more senior volunteer, Mohammad Ejaz Anjum, the vice principal of an Islamic school. Mr. Anjum, his eyes obscured by sunglasses, was not from the neighborhood, but was a Muslim and spoke with authority.

"We've come from God," he announced as he stepped into the small, cluttered home of Navir Ahmed, a bottle scavenger. "You should give the children drops. The government only wants good for you."

Mr. Ahmed snapped back, "If you give drops for one disease, you create others."

"Polio is the kind of disease with no treatment," the vice principal replied.

The two continued talking past each other until Mr. Ahmed ordered Mr. Anjum out: "You people keep coming. I don't like it. Go!"

As the team walked on, a growing band of children with dusty hair and ragged clothes trailed behind them, the patter of bare feet echoing in the narrow lanes. At the back of the pack was Sajana, 9, a forlorn shadow of a girl with a bedraggled ponytail, her withered leg and jerky limp a reminder of the virus that lurked in the muck.

Big Money, but Also Skepticism

The world has donated billions of dollars for polio eradication. Japan and Great Britain have given more than \$250 million, and Canada, the Netherlands, the European Commission and the World Bank each have given more than \$100 million. Far and away the biggest donors have been the United States and Rotary International, which initiated the "gift to the 21st century" idea. Each has given more than \$500 million.

But as the polio campaign has dragged on, the voices of skeptics have grown louder. Dr. Donald A. Henderson, renowned for leading the successful war on smallpox, and currently a professor of medicine and public health at the University of Pittsburgh, said he believed the polio campaign was all but doomed. He suspects that the official caseload figures on www.polioeradication.org are incomplete and that the World Health Organization may not actually know every pocket of virus in the world.

But even if it does, and even if all the world's polio cases can be wiped out, he argued, problems that are now being nearly ignored in the all-out effort to corral the last few cases will suddenly loom large. For example, as a precaution, vaccination must be continued for many years after the last case is found, polio experts agree. (Nearly every American child is still immunized — albeit with a killed vaccine given by injection — even though polio was virtually wiped out in the United States in the 1960's.)

But in about one in three million doses, the live oral vaccine used in poor countries can mutate back into a wild-type virus that can infect and paralyze victims. They are used, however, because they give better immunity than the killed vaccine and are easier to administer.

A tiny number of healthy people with a rare immune-system defect can keep excreting polio virus for decades – creating a reservoir that could, theoretically, cause a new outbreak many years in the future. (That is what happened in an unusual case last year in an Amish community in Minnesota where some had refused vaccinations.)

Dr. David L. Heymann, of the World Health Organization, acknowledged the concerns, but said the problems were not insurmountable. For example, the use of oral vaccine could be discontinued after eradication to avoid its mutation into a wild form, he said.

Through the years – as experts have sparred over strategy – thousands of Rotary volunteers have never lost faith in the prize of eradication. And they have spread their fervor into the American heartland. Dave Groner, a funeral home director from Dowagiac, Mich., and his wife, Barbara, a retired schoolteacher, have led seven teams of volunteers to India and Nigeria to help out in vaccination campaigns. On a recent trip to India, a hog farmer, a psychologist, married real estate brokers and a retired obstetrician were among those who went along.

Ann Lee Hussey, an animal medical technician from Maine who had polio as a child, got down on the floor with one little girl, and compared their deformed feet.

"The girl ran her hand on Ann's foot and scars and all the other kids scooted up," Mr. Groner recalled. "No one snapped photos. Everyone swallowed their Adam's apple."

Thousands of such volunteers have offered testimonials at club meetings back home and constitute an extraordinary grass-roots network of fund-raisers. When \$93,000 was needed for balloons, whistles and other materials for an immunization campaign in the north Indian state of Bihar, Mr. Groner sent an urgent e-mail plea. In 72 hours, he had pledges for \$115,000.

'A Load on My Heart'

Success is tantalizingly close in India, but still too late for those like Amitkumar whose daily torments are a testament to polio's cruelty. A brainy, square-jawed 15-year-old, he has been paralyzed from the waist down since he was a year-old baby whose plump, sturdy legs steadily wasted away.

At 11:30 one morning at the Amar Jyoti School in New Delhi, the bell rang for recess and rambunctious children – both able-bodied and disabled – went out to play. Amit, on crutches, swung his shrunken legs at high speed, using his broad chest and shoulders to propel himself. He balanced on legs of skin and bones, held stiff and straight by heavy braces.

He has since childhood suffered the taunts of "cripple," and toughened himself to play cricket with neighborhood children. He positioned himself smack in the middle of the field this day. As a ball flew by, he lifted his powerful hand, big as a catcher's mitt, to pluck it from the air.

That afternoon, his father, Jaganath, a genial railway worker with a big belly, picked him up at the bus stop on a rusty old bicycle. The son rode sidesaddle, his legs dangling over the back wheel. Mr. Jaganath confided that he was never at peace because of his eldest son's suffering. Some years back, he and his wife stood outside the hospital door while attendants straightened their boy's twisted legs using brute force. They listened to his screams of agony.

"I feel a load on my heart," Mr. Jaganath said. Amit's mother, Arti Devi, confessed, "It's a torture for me every day to watch him."

Once home from school, Amit shed his painfully tight braces, lifting his legs, lifeless as sausages, and stuffed them into a pair of pants. His four younger brothers and sisters treat him with awe and a measure of fear. He is a stern big brother who insists that his siblings study hard, as he does. He is one of the best students in the slum.

"I want to become a doctor," he said fiercely. "I want to eradicate polio so that no other child faces the problems that I do."

The Disease

Polio, famous for withering limbs, is caused by the poliomyelitis virus.

There were 1,936 cases in 2005.

While most victims experience only minor flu symptoms, in 1 of 200 cases, the virus attacks the brain and spinal cord, causing paralysis or death.

On the Brink

Articles in this series will deal with five diseases — polio, guinea worm, measles, blinding trachoma and lymphatic filariasis — that are extinct in the developed world but stubbornly persistent in some poor nations. As the diseases hover on the brink of eradication, doctors and scientists face daunting obstacles as they struggle to finish the job. The articles will be online, along with a primer on the five diseases and video interviews with Celia W. Dugger and Donald G. McNeil Jr.: nytimes.com/health.

return to [top](#)

Privacy | Copyright 2003 - 2005 Rotary International