

The polio eradication initiative: challenges and progress in Gujarat, by Mukund Pandya

Just a year ago, Gujarat reported the third highest number of polio cases (273 cases; 164 with wild virus) in the country, following UP and Bihar. Today, thanks to the concerted and coordinated efforts of the state health department, the World Health Organisation, UNICEF, Rotary and other non-government organisations, Gujarat may be approaching a “safety zone”, with just seven confirmed cases of polio in 1999.

The pulse polio campaign is meant to simultaneously administer the oral polio vaccine to all children below the age of five years in order to flood their intestines with the weakened vaccine virus, thus preventing the growth of the wild poliovirus. The principle is that such repeated ‘pulses’ will eventually eradicate the wild virus from the community altogether, since it has no non-human hosts.

Polio cases in Gujarat

Following the implementation of the National Polio Surveillance Project in 1997, the number of cases of polio – both clinical and laboratory-confirmed – shot up from 123 in 1997 to 273 in 1998. The higher numbers were believed to be indicators of better surveillance, not higher incidence of the disease. These 273 cases represented about six per cent of the total number of confirmed cases in the country.

The surveillance project revealed that the outbreaks occurred in pockets of the state. More than two-thirds of the cases occurred in the Kutch-Saurashtra region, consisting of Kutch, Rajkot, Junagadh, Amreli, Jamnagar and Bhavnagar and Surendranagar districts. And over half of them occurred in Bhavnagar district. Rajkot and Amreli Districts registered 21 and 14 cases respectively. North and central Gujarat recorded 20 cases each. South Gujarat registered 14 cases, with seven cases in Surat corporation alone.

Of the 338 AFP cases in 1999, only 49 cases could be labelled polio, and only in seven was the wild virus isolated. Most of the cases occurred in the same pockets of the state.

The challenge today

According to Dr. Naveen Thacker, a noted paediatrician from Kutch District who is on the national executive board of the Indian Academy of Paediatrics, and the national immunisation committee of Indian Association of Paediatricians, the Intensified Pulse Polio Immunisation campaign which began in 1999 was devised in response to an analysis of the previous years’ campaigns.

“We had concentrated on pulse polio immunisation at the expense of routine immunisation,” said Dr Thacker. “We know from experience elsewhere that even a short-term drop in routine immunisation levels has led to polio epidemics.”

Second, the analysis revealed that a booth-based approach could not interrupt wild poliovirus transmission where it was most persistent. A recent action research study on pulse polio immunisation non-acceptors by the ministry of health and family welfare with UNICEF showed that exclusive reliance on a booth-based approach missed 10-15 per cent of eligible children in hard-to-reach areas. Add to that the 2.5 crore children are born each year all over the country (most of them between the end of one year’s campaign and the start of the next year’s) and you have a massive population of susceptible children in whom the wild poliovirus can circulate and multiply.

Though it was estimated that not more than four per cent of children below the age of five years remain unimmunised after each year’s campaign in Gujarat, many of them were concentrated in pockets, and they made up a large enough group for the poliovirus to thrive.

Finally, the two-pulse strategy, adopted in India after it worked in western countries, was found inadequate to interrupt the wild poliovirus circulation here.

IPPI, 1999-2000

Following this analysis, the Intensified Pulse Polio Immunisation (IPPI) programme for the year 1999-2000 is being implemented rigorously throughout the villages, towns and cities in the state.

The state's population was estimated to be 4.79 crore in 1999. Based on the assumption that 11.34 per cent of this population consists of children below the age of five years, the target population for the 1999 polio immunisation campaign in Gujarat was 54.38 lakh (*Socioeconomic Review 1998-1999*. Directorate of economics and statistics, government of Gujarat, Gandhinagar, February 1999).

A workforce of 1.31 lakh including health workers, anganwadi workers and teachers manned more than 32,000 booths (including 760 mobile teams) during the NIDs before setting out on a house-to-house campaign to reach every child in the state. Over 3,200 vehicles were made available to them for the duration of the campaign.

Workers managed to reach almost 62 lakh children for the October round, and almost 63 lakh in the second round, through booth-based and house-to-house immunisation. Immunised children were marked with gentian violet and each house visited was also marked to ensure complete coverage.

The number of immunised children has been rising steadily with each campaign over the years, indicating both a growth in the target population and better coverage of previously unimmunised children. According to health officials, not more than one per cent of eligible children will have missed immunisation during the current six IPPI rounds.

A massive mobilisation drive

There is a tremendous political will behind the polio eradication campaign, reflected in the many mobilisation activities, at every level of the community.

Health minister Ashok Bhatt sent some 50,000 letters to school principals and representatives of panchayats, municipal corporations and the state legislative assembly, asking for their cooperation in the campaign. A few days before the first NID, rallies were organised all over the state. Some 220 panchayat sammelans were organised all over the state to involve village sarpanches and elected members of taluka and district panchayats in the polio eradication campaign.

In September 1999, the Rotary called 250 village sarpanches to a meeting at Himmatnagar, Sabarkantha, and provided them with detailed information on the pulse polio immunisation programme. After the meeting, all the sarpanches took an oath to eradicate polio from their villages, and none of the 250 villages recorded any cases of children missing immunisation during the 1999-2000 campaign.

Private practitioners have also lent their enthusiastic support to the IPPI.

Some secondary school students in the state joined 'Polio Senas' under the guidance of their teachers to mobilise public support for the pulse polio campaign, particularly in Vadodara, Kheda and Mahesana districts.

From December 2, 1998 to December 6, 1998 the state health department organised a mass painting programme on the polio eradication campaign, in co-operation with a leading business house. Artists, art teachers and art students from all over the state gathered at Kankaria lake in Ahmedabad to paint on 2200

metres of canvas over a period of five days. The gigantic painting which was placed along the huge Kankaria lake was viewed by lakhs of people before it was presented to UNICEF.

Before the October 1999 round, 20 cities organised rangolis on the polio eradication programme. At the Ahmedabad railway station, Ramdas Chode, a famous rangoli artist from Pune spent 17 hours and used 200 kilos of coloured powder to design a huge rangoli on the polio campaign.

Vaccine quality

Contrary to the fears expressed by some of the well-educated elite, the vaccine supplied free by the government during the IPPI is at least as good as the vaccine available with private practitioners at a price. Every batch of the vaccine passes through a rigorous testing process, and samples continue to be tested throughout the immunisation campaign. If a substandard sample is found, the whole batch is withdrawn.

The government is also better equipped than private doctors are, to maintain the 'cold chain' to preserve the vaccine which cannot survive in high temperatures. The government has the facilities to provide a power supply even during power cuts. During the campaign itself, vaccine in the booths was stored in special cold containers with vaccine vial monitors which recorded changes of temperature with a change in colour. Health workers were taught to read the colour code and discard any vials which had been exposed to high temperatures.

Improving coverage

If one of the programme's achievements is successful community mobilisation, another has been to involve people in the task of ensuring better coverage. For example, during the 1999-2000 IPPI in Ahmedabad, members of the Rotary club used their own cars to search for children who had missed the booth-based immunisation.

Several villages in Gujarat located near the borders of Rajasthan and Madhya Pradesh had a poor record of immunisation. Workers on both sides of the border believed that their counterparts on the other side would do the job of immunising the border population. Following a joint meeting of collectors and health officers in the border districts of Gujarat, Rajasthan and Madhya Pradesh, responsibility for coverage in the border areas was clarified, and all children along border areas were immunised on the following NID.

When the November NID coincided with a festival at the famous pilgrimage center of Dakor, the campaign decided to immunise the visiting children at two immunisation booths set up near the bus depot and the Rancjhhodji Temple. When the two booths were swamped by a rush of parents with their children, a team of health workers was called to set up a third booth so that all children who came to the pilgrimage centre received the OPV.

Before and after the October 1999 round, the state government organised tele-conferences with health workers in all district headquarters. Dr. K. N. Patel, additional director (family welfare) in the state health department, noted that workers felt that the house-to-house campaign would reduce booth attendance in the next round. To everyone's pleasant surprise, booth attendance actually increased during the second round of immunisation.

Awareness campaign works

According to Dr. N. K. Patel, registrar, births and deaths, in the Ahmedabad Municipal Corporation, the children of many daily workers missed both pulse immunisation and routine immunisation, as their parents went to work early returned late, usually carrying their children with them. A mass awareness campaign seems to be giving results, and most of these children are now immunised.

Migrant populations

Gujarat has large groups of people on the move – nomadic communities, migrant labourers and drought-affected populations – and they are often hard to track down for health campaigns. During the October 1999 round, campaign officials heard that some Maldhari (shepherd) families from Bhavnagar district had camped near Ardi village in Anand district. They had moved in only on the previous day. “We went there and found out that there were 39 children under five years of age, and they were not vaccinated with OPV,” says Dr V Sharma, SMO in Gandhinagar. “The nearest primary health centre was informed right away, and a team of health workers was sent to give polio doses to the children. The parents were also told about the five other rounds, and asked take their children to the nearest polio booths on those days, or to inform health workers so that they could come and give their children the OPV drops.”

Thousands of families from the Panchmahal district of Gujarat migrate to the other parts of the state and even out of the state in search of employment, and many of them live in temporary shelters near construction sites. When a camp of construction workers was seen on Gotri road in Vadodara, health workers rushed there, and administered the OPV to 19 unimmunised children.

Most parts of Kutch, Saurashtra and North Gujarat have been affected by severe water scarcity this year, forcing periodic migrations to other places in Gujarat. To reach such children, booths were opened on railway stations and bus stations. Workers at booths set up along highways would stop buses and cars to give the OPV to any unimmunised children.

The Sabarkantha story

However, not all the organisations involved in the campaign worked effectively. Poshina is a remote tribal village of Khedbrahma taluka in Sabarkantha district. After the October 1999 round, campaign officials received a complaint that thousands of children in the area had not received the OPV. A sample survey of the village estimated that 80 children had not been immunised. Of these, 54 had not been in the area during the NID. An investigation also revealed that the NGO in charge of the campaign in Poshina had not trained volunteers but hired workers for the campaign. These workers apparently did not make proper efforts to visit every family in the village. The organisation has been asked to withdraw from the campaign.

The media and the message

Information and education on the IPPI is disseminated primarily by health workers, anganwadi workers and teachers. Television is another source of information.

There are some 100 daily newspapers in Gujarati, English, Hindi and Sindhi are published from Gujarat, besides 550 weekly and 70 monthly magazines. Though some of them have carried the government’s press statements announcing the programme and describing immunisation coverage, there are very few other reports or features on the polio eradication campaign in the print media. Among the exceptions is Kutchh Mitra, a Gujarati daily, which carried an article by Dr. Naveen Thacker on the campaign.

According to Dr. K N Patel, additional director, family welfare, polio can not only cripple a child, it can also be a social and economic burden on the parents. This dual impact was publicised in the campaign and has proved effective.

Routine immunisation

The routine immunisation programme reaches more than 80 percent of children in Gujarat. According to Dr Y N Mather, UNICEF’s representative in Gujarat, more than 75 per cent of children receive all six vaccines in the universal programme of immunisation. Between 96 and 97 per cent receive the oral polio vaccine.

The IPPI campaign has not seriously adversely affected other health services, according to Dr K N Patel. Health workers and anganwadi workers had to perform routine immunisation round the year. During the polio immunisation campaign, they received help from national and international organisations. Though workers' regular workload may be temporarily affected by the pulse polio campaign, they are kept going by the vitality in the campaign. They are full of zeal for their work because the campaign is now in its last stage and the goal of eradication is on the horizon.

Resistant groups

While most communities did not refuse the vaccine, some groups of parents have refused to let their children get immunised, citing various reasons. Campaign workers responded by going to their community leaders for support.

For example, Bhavnagar and Amreli districts reported a relatively high number of polio cases in the last two years. One reason could be that the Koli fishermen and certain other communities refused to get their children immunised with OPV. To tackle the problem, health officer Pratima Mehta met the local leaders, and went with them to a local doctor belonging to the Koli community. Once the doctor gave his open support to the campaign, immunisation coverage went up in the area.

In another instance, immunisation officers inquiring into seven cases of polio reported in 1998 in Jagadhar village, also in Bhavnagar district, found that as many as 96 children of the village of 2,000 had missed the pulse polio campaign the previous year. Health workers were first prevented from entering the village. Even when they eventually set up a booth, none of the parents brought their children for vaccination. Parents justified their actions saying that on earlier occasions, some children had developed polio paralysis even after immunisation.

Mrs Mehta went with the regional deputy director and district health officer to meet the sarpanch, mukhi and other village leaders, and tried, unsuccessfully, to convince them that the oral polio vaccine had no side-effects. She then took her problem to a physician in Mahua municipal hospital whom the people of Jagadhar village visited frequently for treatment. The physician visited every household in the village and extracted a promise from the villagers that they would immunise their children in the next round. However, when the health workers went to their homes, the villagers refused to let them in. After another round of visits, 47 out of 96 children were given the OPV. It is hoped that as they see that the vaccine has no side-effects, more people will come forward during the next NID.

High rise or high risk?

It was surprising to find that the poor and uneducated were more receptive to the programme than the educated middle class were. In Ahmedabad, teams in mobile vans found that the more prosperous families were least likely to take their children to the booth for immunisation. But women from the slum areas came with their children to the booths even if it meant missing a day's work.

When asked, educated families would reply that their children were already immunised with three doses, and there was no need to give yet another dose. Some families believe that the vaccination programme was only for the poor, not realising that for the pulse polio campaign to succeed, all children must receive the OPV dose, regardless of their immunisation status.

For this reason, some health workers described the city's high-rise apartments as 'high risk areas'. In some buildings, health workers were even prevented from entering by security personnel on the grounds that salesman and hawkers were not allowed to visit between 12 and 4 p.m. Before the 1999 campaign, meetings were held with the presidents and secretaries of housing societies to permit the entry of health workers.

Role of religious leaders

Though most religious leaders have remained aloof from the campaign, in 1998, the religious leader of the Akshrpurushottam Swaminarayan organisation visited a vaccination programme in Kheda district to give doses to some children – after which his followers allowed their children to be administered the vaccine.

In the 1998 campaign, followers of the Satpati Panth in south Gujarat refused to get their children immunised on the grounds that their guru had not issued an order permitting the immunisation. When they refused to participate in the October 1999 round, a meeting was held with the local leaders at Nani Dewas vilage where health officers were told to get permission from the Panth's religious leader. Mr J P Gupta, collector of Dangs, met the leader, Kesrisingh, who clarified that he had not banned the programme. His message was conveyed to his followers, after which they participated in the campaign, said Dr. Siddharth Nirupam, project officer of UNICEF at Gandhinagar.

Surveillance

The National Polio Surveillance Project, set up in late 1997, instituted a system for reporting of all cases of acute flaccid paralysis (AFP) in the state. The work is coordinated by four Surveillance Medical Officers (SMOs) in Gandhinagar, Rajkot, Bhavnagar and Surat.

All health personnel – primary health centre staff, community health workers, health officers, and private doctors – have been trained to report any cases of AFP to the district health centre which in turn forwards the information to the nearest SMO. Two stool samples are taken from the victim within 14 days of the paralysis' onset and sent to a designated laboratory in Ahmedabad to test for the presence of the poliovirus. All AFP cases are monitored for 60 days to see if there is any improvement in their condition. Finally, children living in near the AFP case are administered additional doses of the oral polio vaccine.

In 1998, 513 AFP cases were identified, and 273 were confirmed as polio. Of these, 164 cases were confirmed because laboratory tests found the wild poliovirus in the stools. The others were clinically diagnosed as polio, because the paralysis continued after 60 days.

A non-polio AFP rate of 1/100,000 indicates an adequate level of surveillance for all AFP cases in the community. Gujarat reports a health non-AFP reporting rate of 1.48/100,000. Only five districts reported less than 1/100,000 – Ahmedabad (0.51), Amreli (0.95), Banaskantha (0.78) Jamnagar Corporation (0.83) and Vadodara (0.99).

Stool samples are promptly sent for testing in 72 per cent of all reported cases of AFP. However, this occurs less than 60 per cent of the time in six districts.

Two cases of polio attributed to the wild polio virus were reported in Ahmedabad in 1999. One of the children was one-year-old Rukhsarbanu who stayed in a slum near Chandola lake. She did not receive her routine immunisation, but had been given OPV during the 1998-99 NIDs. The second child was Salman Zahirhussain, who stayed in a slum located near the Bapunagar General Hospital. The parents of both children were daily wage labourers who went to work early in the morning and returned late at night, and who could not find the time to take their children for immunisation.

The surveillance programme in Ahmedabad noted that children of labourers or migrant workers from other parts of the state or the country also often received incomplete immunisation. The campaign is making every effort to reach such children.

Rehabilitation efforts

Though the polio eradication campaign is just five years old, rehabilitation efforts go back at least 10 years, and involve many doctors and charitable organisations.

Jagdish Patwa developed polio at the age of one and a half years. He underwent four operations as he grew up, travelling each time to Mumbai for the procedure. When he graduated from school, he joined Ahmedabad Medical College and in 1976, he received his Master's degree in orthopaedic surgery. "When I got my degree, I decided I would operate on polio patients free of charge," he said. So far, he has operated on more than 3,000 polio patients and helped them in the rehabilitation process. He uses the Elizarov technique developed in Russia to straighten bent legs, or even lengthen stunted limbs.

"I personally know the pain of a person crippled by polio, so I am committed to helping them," said Dr Patwa who often gets invited to the marriages of girls whose lives have been transformed for the better because of his surgical efforts. Sixty per cent of his patients are girls. "I only wish parents would bring their children to me early; the treatment works best at a young age." Not a single child below the age of five has come to him for treatment in the last two years.

According to Dr. Bharat Bhagat, chief trustee of the Polio Foundation, this is because of the overall decline in polio cases. The Polio Foundation is a charitable institution in the Raipur area of Ahmedabad. Dr. Bharat Bhagat and his colleagues have been actively involved in polio rehabilitation for the last 10 years, and have operated more than 5,000 polio patients, most of them children. All the treatment is free of cost. Patients come to the Foundation from as far away as Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh. Sometimes a patient who is operated on successfully goes home and sends three more for treatment.

Another trust involved in the rehabilitation of polio patients is the Karuna Trust in Ahmedabad, which has operated on more than 5,000 patients. The trust also provides the patient with calipers and shoes after the operation. Orthopaedic surgeon Jitendra Patel is the force behind the Karuna Trust. The doctor has been operating on polio patients free of charge for the last 10 years. "The campaign is doing well; we get very few young patients for treatment," he says.

Ordinary people

The history of the polio eradication campaign in Gujarat is filled with such stories of committed individuals who spent their time and energy to make the programme work. The heroes of the campaign are the school children who go out into the community to persuade parents to bring their small children for the vaccine. They are the religious and other community leaders who lend their public support to the campaign. They are the thousands of health workers who trudge from village to village, house to house, in search of that child who could not be brought to the booth for immunisation. They are the hundreds of doctors who have used their authority to persuade the community, and their skills to better the lives of those affected by polio. They are the lakhs of parents who give up a day's wages to visit the immunisation booth and ensure that their child is protected from the virus.

It is these ordinary people who make the pulse polio immunisation campaign in Gujarat a success, and who will eventually be responsible for the eradication of the virus from the state.