

**The Sixteenth Meeting of the India Expert Advisory Group  
for Polio Eradication  
Delhi, India 11 - 12 December 2006**

**Conclusions and Recommendations**

The sixteenth meeting of the India Expert Advisory Group (IEAG) was convened on 11 - 12 December 2006 in Delhi, with the following objectives:

1. To review progress on polio eradication since the last full meeting of the IEAG, held in May 2006, and the special interim meeting held in July 2006;
2. To make recommendations on accelerated strategies to ensure the interruption of wild poliovirus transmission in India.

Dr. T. Jacob John served as Chairperson, with Dr Brent Burkholder as Rapporteur. Dr R.N. Basu, Prof. N.K. Ganguly, Dr. Lalit Kant, Dr Jagadish Deshpande, Dr. R. N. Srivastava, Dr. Naveen Thacker, Dr. Nitin Shah, Dr. Subhash Salunke, Dr Olen Kew, Dr. Maritel Costales, Dr. Bruce Aylward, and Mr Chris Maher were the other members of the IEAG. Dr. Steve Cochi was unable to attend. Union Secretary for Health and Family Welfare Shri Naresh Dayal, and Dr David Heymann, the Special Representative of the Director-General of WHO for Polio Eradication, also participated. Other attendees included representatives from Government of India (including Dr P. Biswal and Dr P. Halder, Assistant Commissioners for Immunization), the States of Bihar, Uttar Pradesh (UP), Delhi, Haryana, Punjab, West Bengal, Uttaranchal, Jharkhand, Gujarat, Rajasthan, Assam, Madhya Pradesh, Orissa, Karnataka, Andhra Pradesh, Tamil Nadu, Kerala, Chattisgarh, CORE, donor agencies i.e. DFID, KfW, EU, and the World Bank, and from partner agencies, i.e. Rotary International, UNICEF, WHO, CDC and USAID. The IEAG particularly noted the specific contributions to the proceedings of the meeting by state delegations from Bihar and Uttar Pradesh, and their reports of progress and future plans.

**Findings and conclusions:**

As at 11 December 2006 a total of 583 confirmed polio cases with onset in 2006 have been reported in India, 481 from UP, 48 from Bihar, and 54 from 12 other states. Of the confirmed cases, 565 are due to type 1 poliovirus and 18 (all in western UP) due to type 3. The bulk of type 1 cases (nearly 80% of the type 1 viruses sequenced to date) are of a single genetic group, which has spread from Moradabad and surrounding districts to infect much of western UP, parts of central and eastern UP, and some districts in neighbouring states. A further 10% are from a single genetic group with origins in endemic districts in north-central Bihar, which has spread south to infect several southern districts of the same state, and west to infect several districts in eastern UP. **The genetic evidence shows that, consistent with previous years since 2000, viral spread from endemic reservoir areas in western UP and in Bihar is responsible for all cases of polio in India.** A decline in new cases is obvious in October and it is clear that the peak period of transmission is over.

**Uttar Pradesh:** As noted above, the bulk of the cases that have occurred in UP are the result of the single outbreak which spread outwards from Moradabad and JP

Nagar Districts in western UP. Over 90% of the cases in UP are due to closely related viruses of the single genetic group responsible for this outbreak. This outbreak moved out in waves which have peaked at different times, but which all now appear to be on the decline. The bulk of cases in the outbreak have occurred in districts in western UP, but there has been significant transmission of this viral genetic strain in some districts of central and even eastern UP. Two other much smaller outbreaks of type 1 have also occurred in UP, one centred in western UP which spread into neighbouring states to the south, and one in eastern UP due to spread of virus from Bihar. WPV3 cases have increased compared to 2005, but case numbers are still low and transmission is so far restricted to a few districts in western UP. These districts are being targeted for a round of mOPV3 concurrent with this meeting of the IEAG.

**Bihar:** In Bihar all cases are due to WPV1, most of which are also due to a single genetic group. This virus has spread in Bihar, from the northern and central districts down to southern districts, and has also spread to eastern UP, as noted above. However, spread in Bihar has been much less intense than in UP; only one district, Champaran East, has reported more than 10 cases, and Bihar is responsible for less than 10% of cases in India in 2006 to date.

The previous meeting of the IEAG looked at the causes of the 2006 outbreaks and concluded that there were two major issues involved, firstly a failure to consistently reach all eligible children in key areas with OPV, and secondly the lower vaccine efficacy achieved in northern India, particularly UP. This had resulted in the accumulation of large numbers of susceptible children which allowed outbreak spread of virus, similar to the pattern seen every four years. Since the May meeting of the IEAG there have been several positive developments.

- Major efforts have been made both in UP and Bihar to improve the quality of SIAs. In both states, most quality indicators in the most recent rounds are as good or better than the best rounds previously achieved, in late 2004 and early 2005, prior to the lowest year for polio ever in India.
- There is strong scientific evidence that the efficacy of mOPV1 is much greater than tOPV in inducing immunity against WPV1 (as much as 3 times higher per dose). This confirms that mOPV is a potent weapon against transmission.
- Case numbers are clearly declining from October; the peak of transmission has passed and cases should continue to decline in November and December. This outbreak year has resulted in substantially less cases than the previous outbreak year in 2002, due to much higher general population immunity.
- Surveillance quality has remained very high overall and it is likely that all chains of transmission are being detected. Despite concerns from various quarters on the high numbers of AFP cases being reported, this is a direct result of previous IEAG recommendations on the need to be less restrictive in reporting cases that could be AFP. The IEAG is satisfied that at this stage of polio eradication in India the surveillance system is functioning reliably and providing all necessary information to inform eradication activities. Laboratory performance continues to remain excellent in the face of an extremely high workload.
- The SM Net and communications efforts in western UP and Bihar have been expanded to cover more high risk areas. The IEAG acknowledges the efforts of UNICEF, the CORE group of NGOs, Rotary International, and the IMA and IAP to provide consistent local support in the highest risk areas.

It is likely that by early 2007 WPV transmission will largely again be restricted to the known persistently endemic areas of western UP and north and central Bihar. The ultimate battle for a polio-free India must be won in these areas.

### **The major issue for finally stopping transmission: immunity in young children**

**In endemic areas polio is now a disease of very young children.** In 2006 in western UP, more than 85% of cases are in children less than 3 years of age, and 73% are less than two years old. The very low proportion of cases in the age group older than 3 years in these areas, despite the presence of virus, is due to these older children being immune. **WPV transmission is surviving largely in children under the age of 3 years in endemic areas.**

The survival of transmission in this age group is because insufficient young children are immune to stop viral transmission, given the circumstances favouring WPV survival in endemic areas. While the proportion of vaccinated children is very high, the absolute number and density of susceptible children remains high due to:

- The very high young child population, birth rate, and population density in endemic areas (particularly western UP).
- The lower per dose efficacy of OPV in northern India, particularly UP, than in the rest of India; this means that in order to achieve immunity in a high proportion of children, more OPV doses are needed in these areas than in the rest of India.
- The poorer immunization status of younger children compared to older children. Surveillance data shows that younger children, particularly those under two years of age, have received less doses of OPV than older age groups. Young children have had less opportunity to receive many doses of vaccine. In the most endemic areas in an average six month period a child has the opportunity to receive 4 doses of OPV through SIA rounds. Additionally routine immunization coverage in these areas is low. It is clear from the per dose efficacy in these areas that this is not enough to ensure that a very high proportion of young children can become immune in this period, even if coverage is high.

**Based on experience in most of India and in other countries, the IEAG remains confident that wild poliovirus can be, must be, and will be, eradicated from India. Population immunity against WPV1 will be very high by the end of 2006 due to improvements in SIA quality, the use of mOPV, and the recent outbreaks, and every effort should be made to interrupt transmission of WPV in 2007 through implementation of the appropriate strategies.** The IEAG again calls on the Union Government, State Governments (particularly Bihar and UP), and their international and national partners to maintain focus and momentum. Polio-free states and areas must continue to maintain the utmost vigilance and high levels of population immunity through routine immunization to reduce the risk of importation.

The IEAG applauds the Government of India's commitment to polio eradication, and the continued mobilization of Government resources. The IEAG urges the Government and partners to continue efforts to mobilize required funds to ensure that both vaccine and operational/communications costs can continue to be covered, both from internal sources, and from external funds made available by partners.

## **IEAG Recommendations**

Recognizing that population immunity against WPV1 will be very high by the end of 2006 due to improvements in SIA quality, the use of mOPV, and the recent outbreaks, the IEAG concentrated on optimizing the use of polio vaccines to create adequate immunity to stop WPV1 poliovirus transmission in the low season of 2007.

### **OPV Supplementary Immunization Schedule**

1. In 2007, to maintain high levels of population immunity across India, particularly northern India, while dealing with the remaining endemic reservoirs, India should plan to conduct:
  - 2 full NID rounds in January and February
  - Up to 6 SNID rounds (2 in the first half of the year and up to 4 in the second half of the year depending on the epidemiology), in principle covering the whole of UP and Bihar, with other areas added if required
  - mOPV should be used in highest risk areas and tOPV in remaining areas, and
  - in polio-free areas, SIAs should be carried out in response to the detection of wild poliovirus as per the recommendations of the Global Advisory Committee on Polio Eradication.
  
2. With the objective of rapidly closing immunity gaps in young children and stopping WPV1 transmission, the known endemic areas of western UP (approximately 20 districts) and central and northern Bihar (approximately 10 districts) should conduct a total of 6-7 rounds in the first six months of 2007, including the planned rounds referred to above and appropriately timed;
  - All of these rounds should use mOPV1 unless there is significant transmission of WPV3, in which case mOPV3 may be used for one of the rounds
  - in western UP, rounds following the NIDs may specifically target younger children (up to 36 months of age) if operationally feasible
  
3. The IEAG reaffirms its previous recommendation that the Government of India and partners should plan for the following SIA activities in coming years, with the understanding that activities may be modified according to epidemiology:
  - In 2008 2 rounds of NIDs and 2 SNIDs, and
  - In 2009 2 rounds of NIDs and 2 SNIDs.

### **Other Strategies to Improve Immune Response in Highest Risk Areas**

Recognizing the need to exploit all possible mechanisms to enhance population immunity among very young children in 2007, the IEAG further recommends that:

4. The delivery of a birth dose of mOPV1 should:

- be incorporated into the routine immunization schedule and activities in endemic states (i.e. UP and Bihar),
  - have the experience from the mOPV1 pilot birth dose project documented to inform further decision making on scaling up, utilizing the best mechanisms for detecting and immunizing newborns as soon as possible after birth
5. Further accelerate investigations on the possible future role of IPV in the eradication programme by:
- Undertaking an IPV pilot project consisting of 2 rounds of IPV immunization as a supplement to mOPV1 SIAs in 2 endemic blocks starting in Q2 2007, to evaluate operational and communications considerations,
  - Clarifying the availability and timing of the IPV donation (approx 1 million doses) with the manufacturer, to guide decisions on further use, if required,
  - Monitoring the evolving epidemiology of polio to guide an IEAG decision, by April-May 2007, on potential 'reservoir' districts where supplementary IPV doses may be considered as an adjunct to mOPV campaigns, and
  - Clarifying the global supply situation with respect to stand alone IPV products.

### **Enhancing the Quality of Supplementary Immunisation Activities**

6. It is critical to maintain the quality of SIA activities in all areas of India but particularly in UP and Bihar. The improved quality now being achieved will only have a longer term impact if it is sustained throughout 2007.
7. The quality of the additional rounds in endemic districts of UP and Bihar in the first half of 2007 should be assured by:
- Operational planning taking into account the need for a shorter duration of rounds;
  - Specific communication plans and strategies for these areas;
  - Analysis of options and potential introduction by the states of potential additions in high risk districts which may enhance community acceptance of frequent rounds with OPV;
  - Intensive monitoring;
  - Exploring possible incentives to motivate vaccinators.
8. The role of medical practitioners is crucial to convincing the population of the importance of polio eradication and dispelling rumours:
- The IAP and IMA are requested to work systematically in endemic states to involve medical practitioners in polio eradication;
  - Professional organizations are requested to publicly support the polio eradication campaign in India, including through the media.

## **Routine immunization**

The IEAG notes the improvements in routine immunization programmes and in immunization coverage in some key states.

- High priority districts for polio eradication in UP and Bihar should continue to be targeted for intensive efforts to improve routine immunization, in particular through ensuring that regular scheduled sessions are held, and reports on progress provided to the NTAG and IEAG.
- All polio-free states should concentrate on improving routine immunization coverage of infants and sustain high coverage levels, to ensure that they minimize the risk of re-introduction of wild poliovirus.

## **Programme research**

Ongoing research will provide useful information to the programme.

- The clinical trial studies on comparative efficacy of mOPV1 and mOPV3 should be completed as soon as possible and the results presented to the IEAG at their next meeting.