The Fifteenth Meeting of the India Expert Advisory Group for Polio Eradication
Delhi, India, 4 - 5 May 2006

Conclusions and Recommendations 14 May 2006

The fifteenth meeting of the India Expert Advisory Group (IEAG) was convened on 4 -5 May 2005 in Delhi, with the following objectives:

1. To review progress on polio eradication since the last meeting of the IEAG, held in December 2005;
2. To make recommendations on accelerated strategies to ensure the interruption of wild poliovirus transmission in India.

Dr. R. N. Basu served as Chairperson, with Dr Steve Cochi as Rapporteur. Dr T Jacob John, Dr Jagadish Deshpande, Dr. R. N. Srivastava, Dr. Naveen Thacker, Dr. Nitin Shah, Dr Olen Kew, Dr. Maritel Costales, Dr. Bruce Aylward, and Mr Chris Maher were the other members of the IEAG. Dr. Subhash Salunke, Prof. N.K. Ganguly, and Dr. Lalit Kant were unable to attend. Union Secretary for Health and Family Welfare Shri Prasanna Hota, 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, 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 4 May 2006 a total of 24 confirmed polio cases with onset in 2006 have been reported in India, seven from Bihar and 17 from Uttar Pradesh (UP). Twenty-two cases were due to type 1 wild poliovirus (WPV1) and two cases (both from Moradabad District, UP) due to wild poliovirus type 3 (WPV3). The most recent case had onset on 28 March in Sheohar District, Bihar. By 4 May only 20 percent of March onset AFP cases were still pending primary isolation, so information on the epidemiological situation up to the end of March is fairly complete.

This number of cases occurring in early 2006 has raised concerns, coming as they do after the lowest year on record for polio in India. At the meeting in December 2005, the IEAG was not expecting this much transmission to be detected in UP in early 2006. The bulk of discussion at this meeting of the IEAG was taken up by an assessment of why cases are occurring in these numbers in focal areas, particularly in western UP, and what needs to be done to stop it. To inform these discussions, presentations on current epidemiology, the status of actions to improve the quality of supplementary immunization activities (SIAs), and the results of an independent review of the situation in western UP were made to the IEAG.

The IEAG considered the situations of Bihar and western Uttar Pradesh separately.

Bihar: Transmission in Bihar is now restricted to focal areas in districts in the north-east (one case), north central (four cases) and Patna (two cases). To date in 2006, only two families of WPV 1 have been detected, one represented by a single isolate. All transmission is occurring in areas that were infected in 2005. Since the December 2005 meeting of the IEAG, major efforts have been made by the Government of Bihar, under the strong leadership of the Chief Minister, to improve state government oversight, and the quality of SIA rounds. **Consequently, the January, February, and April rounds in Bihar have been a major improvement over rounds in 2005. A strong impact can be expected from these recent quality improvements by mid-2006, if momentum is sustained.** It is critical in Bihar that the momentum of these improvements is not lost, and that sustained high quality activities are achieved throughout 2006. However, activities in some high risk districts remain sub-optimal, and continued work to correct these deficiencies is critical. **If quality improvements in Bihar are sustained, and if high risk districts are targeted for special efforts, transmission can be stopped in 2006 using current strategies and approaches.** If not, the risk of international spread of wild poliovirus from Bihar (as happened with spread to Nepal in 2005) remains.

Western Uttar Pradesh: The cases detected to date in 2006 have primarily occurred in areas of transmission in 2005. The Moradabad sub-region has reported eight of the 17 cases, with seven cases coming from Moradabad District. Only two families of WPV 1 have been detected to date, circulating in geographically distinct areas. A single family of WPV3 continues to circulate. **The detection of cases in areas of western UP correlates strongly with a higher percentage of missed houses in SIAs in those areas in the second half of 2005, demonstrating a strong link between SIA quality in the previous six months and the risk of wild poliovirus persistence.** While the general level of quality of SIAs in UP over the last six months has been good, the average has masked areas where quality has deteriorated. Moradabad, with high population density and consistently greater than 10 percent of missed houses, is the only district with both WPV1 and WPV3 transmission. However, there are other districts where overall quality is an issue, including Badaun, Aligarh, JP Nagar, Hathras, Bulandshahar, and Muzzafarnagar, many of which have had recent transmission. Even within some districts with overall good indicators, there are areas of concern. While the February and April rounds have shown improvements in most districts, including Moradabad, **uneven quality of SIAs, together with the factors favouring transmission of wild poliovirus in western UP (high population density, poor sanitation and high non-polio enterovirus (NPEV) rates, etc), can allow transmission to continue.**

Encouraging developments in India: The IEAG noted several positive developments.

- Only one genetic lineage of WPV 1 remains active in 2006, divided into two transmission chains in western UP and two in Bihar. This is a reduction from eight in UP and five in Bihar in 2004. The relationships of the viruses detected in late 2005 and 2006 are generally close, indicating good surveillance and restricted survival of transmission chains.

- Although case numbers to date in 2006 are higher than in the same period in 2005, viruses are being reported from a more restricted area; 14 districts in two states instead of 16 districts in four states.
- SIA quality improved significantly in Bihar overall in all three rounds to date in 2006, and improved in Moradabad in the February and April rounds. Improvements in Moradabad included major reductions in missed houses in some very high risk urban zones, demonstrating that even in the most difficult areas quality gains can be made.
- Surveillance quality has remained very high overall and it is likely that all chains of transmission are being detected. Laboratory performance has remained excellent in the face of an extremely high workload.
- The Social Mobilization Net (SM Net) and communications efforts in western UP and Bihar have been expanded to cover more high risk areas, and resources have been shifted from eastern to western UP to allow more than 300 additional Community Mobilization Coordinators (CMCs) and Block Mobilization Coordinators (BMCs) to be deployed. The IEAG acknowledges the efforts of UNICEF, the CORE group of NGOs, Rotary International, the Indian Medical Association (IMA) and Indian Academy of Paediatrics (IAP) to provide consistent local support in the highest risk areas.
- The Government and partners have reacted very quickly to the detection of wild poliovirus in polio-free areas in 2005, responding with large scale campaigns in a very short time frame, with the result that no exportation from UP or Bihar to other parts of India during the high season resulted in more than a single case. In achieving this speed of response, the role of the laboratory network has been critical.

Polio in highly immunized children: The issue of cases in highly vaccinated individuals was discussed. The IEAG noted that at this stage of the initiative in India, with most children under five years of age being immunized, and with known lower vaccine efficacy in the remaining areas of transmission, **it is expected that cases will be vaccinated children.** It is clearly much more difficult to stop wild poliovirus transmission in certain areas of India, particularly western UP, than it is in most other areas of the world. Data presented to the IEAG on several occasions, and data available on other countries, has noted the need for higher average numbers of doses in children in the highest risk areas to confer protection and stop transmission. **However the data is also clear that interruption of transmission is associated with increasing immunization status.** Areas of the world, and other areas of India, with many similar risk factors have succeeded in stopping wild poliovirus transmission and there is no reason why this cannot be done in UP and Bihar if current strategies are implemented with consistent high quality.

Critical importance of SIA quality: The IEAG considers that the most critical issue in 2006 is achieving and maintaining consistently high quality in supplementary immunization activities using monovalent oral polio vaccine (mOPV) in the highest risk districts in western UP and Bihar. Experience from other areas of intensive transmission, including Egypt, shows that **given the factors favouring wild poliovirus transmission in these states, particularly in western UP, 95 percent of children must be reached every round to build up the necessary levels of immunity to stop transmission.** Evidence from many high risk districts demonstrates that local transmission can be stopped if this is achieved, (including Moradabad,

where available genetic evidence suggests that local WPV1 transmission was stopped in 2003, before re-introduction of virus from other areas).

As in previous meetings, the IEAG 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 to continue its efforts to mobilize required funds to ensure that both vaccine and operational costs can continue to be covered, both from internal sources, and from external funds made available by partners, through the medium of the Inter-Agency Coordinating Committee (ICC).

IEAG Recommendations

Government Oversight

There is no substitute for the engagement and direct oversight of state government, and state and district civil administrations, on polio eradication activities. All experience shows that this has a tremendous impact on the quality of polio eradication activities. Districts without that oversight frequently have difficulties in maintaining consistent high quality. The IEAG is greatly encouraged by the efforts of the Government of Bihar, and by the efforts of the new Chief Secretary in UP (evidenced by videoconferences with district administrations on polio eradication) to maintain government engagement.

- The Union Government and partners should continue to engage the Chief Ministers and Governments of Bihar and Uttar Pradesh to ensure ongoing direct oversight of polio eradication activities in these states. This could be done through regular, six-weekly briefings.
- The Government of UP should take the following actions to improve oversight of polio eradication activities in the highest risk districts of western UP:
    - Fill existing vacant medical officer positions at block level as soon as possible
    - Ensure the best possible staff are appointed to management positions in highest risk districts
    - District Magistrates to assign technical staff as needed
    - Continue to monitor the performance of government staff against established performance indicators
    - Deploy senior officers on special duty to the 12 highest risk districts as needed
- The Government of Bihar should continue its efforts to ensure engagement of district administrations, focusing particularly on the highest risk and lowest performing districts in northern and central Bihar, especially given the ongoing risk of international spread of wild poliovirus.

Supplementary Immunization Schedule and Vaccine

- In the interests of achieving maximum quality in areas with ongoing transmission, the planned sub-national immunization day (SNID) rounds in June and August should be targeted at these areas. The June round should cover 24 districts of western UP, and 28 districts of northern and central Bihar, using mOPV1. The August round should cover the same area but may be varied depending on the epidemiological situation.
- The two SNID rounds in the fourth quarter of 2006 should be planned to cover the whole of UP and Bihar, with other areas added if epidemiologically indicated. mOPV should be used in highest risk areas and trivalent oral polio vaccine (tOPV) in remaining areas.
- In the last remaining area with known WPV3 (Moradabad and surrounding districts), mOPV3 should be used either in the August SNID round, or in an additional round in September, depending on epidemiology. If wild poliovirus type 3 is found in any other area mOPV3 should be used in SIA response.
- SIAs should be carried out in response to the detection of wild poliovirus in polio-free areas as rapidly as possible, especially in those states and parts of states not conducting SNIDs, as per the recommendations of the Global Advisory Committee on Polio Eradication.
- The Government and partners should plan conservatively (i.e. for the worst case scenario) for the following SIA activities in coming years, with the understanding that activities may be modified if the epidemiology allows:
    - In 2007, two rounds of national immunization days (NIDs) and two rounds of SNIDs (similar extent to the June and August 2006 rounds) in the period January-May, followed by two SNIDs in the fourth quarter (extent UP and Bihar for planning purposes). Final decisions on the extent, timing, and type of vaccine used (mOPV in highest risk areas) should be made based on the epidemiological situation.
    - In 2008 two rounds of NIDs and two limited SNIDs.
    - In 2009 two rounds of NIDs and two limited SNIDs.

Enhancing the impact of supplementary immunisation activities

Where they are fully implemented, existing guidelines on actions to ensure excellent quality of supplementary immunization activities are having a major effect on the capacity of the programme to reach children in high risk areas. **However there remain areas at high risk where performance is relatively lower than average and these areas can sustain transmission of wild poliovirus.** Until these areas are improved and that improvement is sustained there will be a risk of transmission persisting.

- For the mid-year SNIDs in western UP and Bihar, there should be a substantial re-deployment of experienced staff from areas not conducting SNIDs (including

government staff and partner agency staff). At minimum all high risk blocks should be supported by at least one experienced staff (SMO or Government).

- In highest risk districts, the highest possible proportion of "X" houses should be converted (as many as possible by "A" team activity). Experience on strategies that have been successfully used (such as the engagement of local medical practitioners in covering missed houses that have sick children, the support of community-specific influencers, involvement of local government officials, and the monitoring of convertible "X" houses at district and block level) should be disseminated, and these strategies implemented in all high risk districts.
- The programmatic actions taken to focus on the transit strategy (in order to address mobility within states and between states), and the underserved strategy, in order to improve access to children in highest risk areas in the endemic states, and to specifically reach underserved children in western UP, must continue and be fully implemented.
- Particular concentration should be placed on selection and training of immunization teams in the highest risk areas, in particular inter personal communication (IPC) training, as recent community research has shown the importance of team interactions with families on acceptance of vaccine.
- In all districts the proportion of missed houses by block or urban zone should be monitored round by round to identify problem areas. These blocks and zones must be targeted for special attention, and support by additional staff where necessary.
- Independent monitoring during planning and implementation is critical for enhancing SIA quality and should be continued, as per current practice, with government support.

Strategies to improve immune response in highest risk areas

The IEAG affirms that the most effective means of increasing population immunity on a large scale is to reach all children during SIAs, especially with mOPV in high risk areas, as demonstrated in Egypt and other intensive transmission areas. Additional strategies (i.e the birth dose) may provide incremental value in areas where achieving high levels of immunity is difficult, particularly western UP. The IEAG has discussed the use of inactivated polio vaccine (IPV) and does not believe that it has a role for interrupting transmission of polio in India; however it may be of use in providing individual protection to children in areas where achieving high levels of protection with multiple doses of OPV is difficult. The feasibility of using IPV will need to be very carefully investigated.

- **All children under five years of age in high risk areas must be reached with mOPV during scheduled SIAs. This is the central strategy to achieving and maintaining high leavels of immunity in these areas.**
- A birth dose of mOPV1 should be given for both institutional and non-institutional births, to be delivered as close to birth as possible, in highest risk areas. This should be initiated preferably in Moradabad district, commencing in one high risk block and being expanded if successful. This process should be managed by the Government of UP, supported by officers nominated by UNICEF and WHO National Polio Surveillance Project (NPSP). An implementation plan for one block should be developed by the end of May.

- As a means of improving individual immunity in those few areas where achieving high levels of immunity is difficult, the possibility of using IPV to provide a supplementary dose to children in critical high risk blocks should be assessed. A rationale and operational plan should be developed, on a small scale (i.e. the level of one to three blocks) to assess the feasibility of delivery. If an operation which could achieve high coverage is judged to be feasible, WHO and UNICEF should coordinate with Government of India (GoI) on this assessment.

Maintaining sensitive surveillance

The surveillance system continues to operate at a very high level of sensitivity. At the December 2005 meeting, while noting concerns about the very high rates of AFP reporting from UP and Bihar in particular, **the IEAG reaffirmed that at this stage of the eradication process in India it is critical to achieve high sensitivity even at the expense of specificity**, i.e. the risk of including cases which may not be AFP. **The evidence is clear that by improving the sensitivity of the system, transmission has been detected in several districts where it otherwise would not have been found.** The IEAG reaffirms that the surveillance system is reliable and of high quality.

- District indicators should continue to be closely monitored. Districts with either low or very high AFP rates should continue to be assessed to ensure that surveillance quality is adequate.
- Arrangements for the re-routing of samples following the fire in the Global Specialized Laboratory, Mumbai, should be closely monitored to ensure as little disruption as possible to the system. The laboratory repairs should be carried out as quickly as possible and all necessary support provided to enable this laboratory to once again become fully functional as early as possible, preferably July 2006.
- Detailed investigations of confirmed wild poliovirus cases should continue to include assessments of surveillance quality in the districts concerned, to identify any possibility that earlier transmission may have been missed, including review of any compatible cases that may have been reported.

Routine immunisation

The IEAG is impressed by the progress that has been made to implement activities under the national and state plans for immunization services, under the guidance of the National Technical Advisory Group for Immunization (NTAGI). The recent immunization weeks have offered services to many communities in high risk areas that have been underserved in the past.

- 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 NTAGI and IEAG.
- All polio-free states should concentrate on improving routine immunization coverage of infants and ensuring sustained high coverage levels, to ensure that they minimize the risk of re-introduction of wild poliovirus.

- The independent monitoring of immunization services in UP and Bihar is providing useful information on progress in re-establishing services and should continue to be supported by the Government.
- IEAG would like to continue to receive reports on progress in providing immunization services under the guidance of the NTAGI, in particular to link the monitoring data on enhanced routine immunisation outreach sessions to actions taken to address service delivery problems, and ultimately to coverage achievement, in the highest risk districts for polio eradication.