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Report on the

Eighth meeting of the Regional Technical Advisory Group on Poliomyelitis Eradication

Cairo, Egypt
21–23 October 2010

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1. INTRODUCTION

The Regional Technical Advisory Group (RTAG) on Poliomyelitis Eradication held its 8th meeting at the WHO Regional Office in Cairo from 21-23 October 2010. The meeting was attended by members of the Regional TAG, National Polio Officers from Afghanistan, Pakistan, Sudan, Representatives of polio partners, namely UNICEF, CDC, Rotary International, Bill and Melinda Gates Foundation and USAID and WHO Staff from HQs, WHO Regional Office for Africa and Eastern Mediterranean and country offices of WHO and UNICEF Afghanistan, Pakistan, Sudan and Somalia. In addition, some of the members of the TAG of Pakistan and Afghanistan attended. The programme of the meeting and list of participants are attached as annexes 1 and 2.

Dr Ali Jaffer Mohamed, Chairman of the RTAG, opened the meeting by welcoming all the participants. He thanked all members including outgoing ones and welcomed the new members. The Chairman thanked the RD and acknowledged his continued commitment to polio eradication. He acknowledged efforts made by all polio free countries in maintaining the polio free status and expressed deep concern about the situation in Pakistan.

Dr Gezairy, Regional Director EMR, welcomed all the participants and expressed sincere appreciation to the support extended by partners, especially Rotary International, CDC, USAID and Bill and Melinda Gates Foundation. The RD referred to the multiplicity of challenges facing the region whether man made or natural and their negative impacts on polio eradication efforts in the two remaining endemic countries, namely Afghanistan and particularly Pakistan. Dr Gezairy indicated that despite these challenges, the Eastern Mediterranean Region of WHO continued to proceed towards achieving the polio eradication target with 18 member states maintaining their polio free status and Sudan successfully regaining its free status after recovering from the epidemic that occurred as a result of importation. The RD acknowledged the political commitment to achieving the target and the significant efforts and initiatives made by the programme, particularly the introduction of the bivalent OPV, the development of comprehensive district specific plans, improving the monitoring system through introduction of finger marking and independent monitoring and maintaining a very comprehensive surveillance system supported by a well functioning network of laboratories.

Dr Gezairy ended his introductory remarks by asking the RTAG to give their advice on the appropriateness of ongoing strategies and on additional strategies or approaches to achieve the target.

2. IMPLEMENTATION OF THE RECOMMENDATIONS OF THE 7TH MEETING

Dr Ezzeddine Mohsni, WHO/EMRO

Dr E. Mohsni presented the status of implementation of the TAG recommendations made during their 7th meeting, 20-21 July 2009.

The main recommendations were targeting at improving the quality of SIA. In this regard, efforts were made to review and update district microplans starting with high risk districts. In the updating, special emphasis was made to ensure that the plan comprehensively

covers all basic elements and fits with the characteristics of the district and address its challenges. Efforts were made to involve all influentials in the district.

Another activity being pursued to ensure the quality of work is to base assessment of the vaccination status on finger marking and base coverage data on them assessed by independent monitors.

Addressing non accessibility has been a major concern. A range of strategies is being pursued in conflict affected areas; however, no real breakthrough has been achieved.

The recommendations concerning South Sudan are being implemented. There is evidence of improved surveillance and virus circulation appears to have stopped since over a year.

To reduce the risk of spread following importation, population immunity profile in all countries is being monitored regularly and the subject will be discussed in the present TAG meeting.

The RCC expressed its satisfaction with respect to efforts made to implement its previous recommendations.

In the discussion that followed the following points were emphasized:

- The need to monitor population immunity by age, in particular the very young children;
- The necessity to involve other sectors in support of immunization such as NOGs;
- The need to work towards creating demand in the population for vaccination of their children;
- Flexibility in timing concerning the conduct of campaign should be ensured, together with other considerations such as scheduling immunization activities to continue in the afternoon.

3. PROGRESS TOWARDS POLIO ERADICATION

3.1. Regional overview

Dr Tahir Mir, WHO/EMRO

Most of the countries in the Region are polio free. The epidemic that started in South Sudan in 2008 has been stopped since more than one year. Pakistan and Afghanistan are the only endemic countries in the Region. In Afghanistan, circulation is localized in the southern part of the country and remaining areas are without any established circulation. In Pakistan 75% of the cases are from KP/FATA where lack of access to children because of deteriorating security is major issue. Another area of concern is Southern Punjab/Northern Sindh affected severely by the floods which caused damage to the health infrastructure and major population movement. South Sudan, Somalia and Yemen are high risk countries with large number of unvaccinated children and adequate proportion of unprotected children.

AFP Surveillance indicators at national level are satisfactory (except Morocco & Palestine for NP AFP rate & Lebanon, Bahrain, Djibouti for the % adequate stools) but sub-national data analysis is clearly showing gaps. In consideration of varying immunity level and surveillance gaps identified by sub-national analysis, a model is being constructed to assess the risk for WPV Outbreak following importation with the objective of timely alerting the countries, helping decision-making in prioritizing technical assistance and providing data for advocacy and funding requests. In 2010, AFP Surveillance Reviews were planned in nine countries of the Region: Pakistan, Afghanistan, Lebanon, S Sudan, Somalia, Morocco, Tunisia, Yemen & Egypt. Review was postponed in Pakistan which was scheduled in August due to devastating floods in the country. The joint efforts of the field and lab staff have resulted significant reduction the time from notification to final lab results. Supplemental surveillance activities included contact sampling from hot cases and cases with inadequate stools and also environmental monitoring.

Monitoring GPEI Milestones relevant to EMR shows that South Sudan, which was labeled as having reestablished circulation, achieved the target. In Afghanistan, none of the thirteen high risk districts in South has achieved the target of <10% missed children in 8 consecutive rounds. In Karachi/Pakistan 13/18 towns have achieved the target of <10% missed children but assessment of the situation in the FATA indicate being off track.

In summary, the polio free status of 18 countries is maintained. P1 Outbreak in South Sudan is stopped and there is improvement in AFP surveillance. Circulation in Afghanistan is localized and several innovative measures are being taken to overcome the situation. In Pakistan, the district specific planning strategy has worked well in Karachi & Quetta block but inaccessibility due to insecurity is a major challenge in FATA. Floods created epidemiological imbalance in Southern Punjab & Northern Sindh.

EMRO will continue its efforts to alert countries through the use of a Risk Assessment model. The Lab Network continued its excellent performance and all labs are accredited. Containment and certification processes are ongoing with significant progress.

3.2. Global overview

Mr Chris Maher, WHO/HQ

A new Global Polio Eradication Initiative Strategic Plan 2010-2012 was endorsed at the World Health Assembly's 63rd session, and launched by stakeholders on 18 June 2010. In keeping with guidance from the 126th WHO Executive Board, an Independent Monitoring Board was established in October 2010 to monitor the milestones and performance indicators of the Strategic Plan and to guide corrective actions.

The first quarterly report to the Independent Monitoring Board summarized the status of the major milestones at 1 October 2010 as follows:

- Countries with new polio outbreaks: no cases had been detected since 15 May 2010 in any of the 15 countries with new outbreaks in 2009. In the ten countries which were newly infected in 2010, including Tajikistan, no outbreak had persisted for greater than six months

- Countries with "re-established poliovirus transmission": south Sudan had not detected poliovirus since 27 June 2009 and Chad since 10 May 2010. Countries which had reported cases in the second half of 2010 were: Angola (20 August 2010) and the Democratic Republic of the Congo (2 September 2010)
- Countries with endemic poliovirus transmission: overall, in the four remaining polio endemic countries polio cases had declined by 85% in 2010, compared to the same period in 2009. In Nigeria, cases had declined by 98%, in India by 90% and in Afghanistan by 19%. In Pakistan, cases had increased by 27%.

Although the first and third milestones of the Strategic Plan were broadly 'on track' at 1 October 2010, key challenges remain. In particular, the second, end-2010 milestone of stopping all "re-established poliovirus transmission" is at risk due to the persistence of transmission in Angola and the Democratic Republic of the Congo. In Angola, upwards of 25% of children continued to be missed during supplementary immunization activities in some areas of the country, contributing to an expanding outbreak in 2010 with cross-border spread into the Democratic Republic of the Congo. In addition, in the Democratic Republic of the Congo a virus which had not been detected since 2008 was isolated in the eastern province of Katanga in June 2010, suggesting gaps in the implementation of surveillance and supplementary immunization activities in the area.

The third, end-2011 milestone of stopping poliovirus transmission in endemic countries is at risk due to continued operational challenges to optimizing the quality of supplementary immunization activities in the persistent poliovirus reservoir areas of Pakistan. These challenges were further complicated by insecurity and conflict in the Federally Administered Tribal Areas (FATA) and the severe floods affecting the country in mid-2010.

With the declining incidence of wild poliovirus globally, Member States are taking additional measures to reduce the risk of new outbreaks caused by the international spread of wild polioviruses or the emergence of circulating vaccine-derived polioviruses. These measures include supplementary and routine immunization activities to close population immunity gaps and vaccination of travellers to and from polio-infected areas. Similarly, ensuring timely immunization responses to circulating vaccine-derived polioviruses has become increasingly important with the progress towards wild poliovirus eradication. In 2010, outbreaks due to circulating vaccine-derived polioviruses occurred in Afghanistan, the Democratic Republic of the Congo, Ethiopia, India and Nigeria.

4. EPIDEMIOLOGICAL SITUATION IN POLIO ENDEMIC COUNTRIES

4.1. Afghanistan

4.1.1. Epidemiological situation
Dr Arshad Quddus, WHO/Afghanistan

Wild poliovirus circulation continued uninterrupted in the Southern region of Afghanistan, particularly in the Kandahar, Helmand and Uruzgan provinces. As of 23 October 2010, a total of 18 confirmed polio cases were reported, of which 15 cases are from the Southern region, including Farah province.

Reviewing the distribution of confirmed polio cases over the last 3 years shows that more than 80% of the cases are reported form the 13 conflict affected districts in the south, labeled as “High Priority” districts. The median age of confirmed cases was 18 months and the median number of OPV doses received by the confirmed cases is 3 doses. Afghanistan also reported 3 cases of VDPV2 in June to July 2010. These cases were reported from Marja part of Nadali district where almost 50% of children remained inaccessible in the last 9 SIAs held during 2009-10 and also routine EPI is very low (12%) as assessed by the vaccination status of AFP cases.

The main reason for inaccessibility in this area is Military Operation followed by sporadic active fighting and land mining. Program responded to VDPV2 with a small scale campaign in 4 districts of Helmand targeting almost 300000 children using tOPV.

The major challenges in the 13 conflict affected high priority districts is the access to children and safety of vaccinators and secondly to improve the campaign quality in those areas. A number of interventions are being done to cope with this challenge.

His Excellency the Minister of Public Health constituted a policy group of which WHO and UNICEF Representatives are members. This group meets on monthly basis to monitor progress in addressing strategic issues and take appropriate actions.

An informal consultative group is also constituted to focus on 13 high priority districts in the South.

To increase access and staff safety, close coordination with ICRC has now lead to more expanded role with introduction of influential from within the community who are perceived as neutral and are acceptable to all parties of conflict.

Although the overall accessibility in the Southern region is showing gradual improvement but the quality of campaign remains below the required standard with constant reporting of Zero Dose AFP cases indicating areas and sub-groups of population who are not being accessed by the vaccination teams.

The recent ongoing intensified circulation in the bordering FATA/KPK area of Pakistan increased the risk by many folds than ever before in the bordering Eastern and South-Eastern regions of the country. As well, the outbreak in Tajikistan in areas close to the border with Northeastern and Northern regions of Afghanistan, thereby increasing the risk of importation in these areas which did not have evidence of poliovirus circulation since more than 5 years. A number of actions were taken including mop ups, vaccination of cross border population movement through permanent vaccination posts, and enhancing the surveillance system sensitivity in the high risk zone. As well, the program has a preparedness plan to respond to occurrence of case in areas of country which did not have evidence to poliovirus circulation.

Based on the epidemiological situation, the country can be divided into three zones: a transmission zone of Southern Region, a High Risk Zone of East, South East and North Eastern region and the rest of the country is labeled as non transmission zone. This is to prioritize the areas and plan actions accordingly. The program has been successful in preventing spread from the transmission zone to the 84% of population living in polio free areas.

4.1.2. Issues and initiatives in the South
Dr Arshad Quddus, WHO/Afghanistan

Insecurity leading to inaccessibility remains the most challenging issue in the Southern Region, in general and the 13 high risk districts in particular. Areas of inaccessibility and their magnitude were mapped out. Analysis of data by districts shows that although inaccessibility has gone down in most of the districts this did not happen in the 13 high priority districts where the number of non-vaccinated children has increased in the last 3 rounds. Delayed payments of vaccinators and supervisors has been behind this increase.

Several efforts are being made to improve the campaign management and quality in the Southern region, particularly in the 13 high risk districts. District Specific Plans have been updated, district managers are hired, special trainings for SIAs staff completed and communication plans are integrated. The pending issue of delayed payment is being resolved.

For population internally displaced due to military operation, active fighting and air strikes, the program established permanent vaccination posts at the entry and exit points. A total of 6 such posts are functioning since May 2009. On average 18000-20000 children are vaccinated every month at these posts.

Additional steps were taken in south including a mop-up in 5 districts of Kandahar in response to NSL1 case from Shawalikot district. To boost routine immunization, three rounds of out-reach campaigns were done in the Urban slum areas of Kandahar city. As well, a small scale target campaign was done in response to VDPV2, using tOPV and targeting almost 300,000 children.

4.1.3. Surveillance quality
Dr Arshad Quddus, WHO/Afghanistan

As of 2 October 2010, 1182 AFP cases were reported through the national AFP surveillance system. Of these, 18 cases are confirmed polio, 4 polio compatible cases. 10 of the confirmed cases are of type 1 while eight are of type 3. 28% of the AFP cases were reported by community based reporting volunteers.

Analyzing the major AFP surveillance indicators, it is clear that all the regions and provinces are achieving a non polio AFP rate above 2 per 100,000 and stool adequacy above 80%. More than 80% of the AFP cases are reported within 7 days of onset of paralysis in all regions except 69% for the Southern region.

An international AFP surveillance review was held, 22-28 August 2010. The review covered 13 provinces of 5 regions. The main findings include:

- High awareness among health care providers and reporting volunteers. The AFP focal points were found to be well trained on various components of AFP surveillance and were linked to their community based reporting volunteers.
- AFP cases are generally detected in a timely manner, properly investigated and well documented.

- Stool specimen collection, storage and transportation are carried out appropriately and records of active surveillance and zero reporting were well maintained.
- The review reported that some of the reported AFP cases are excluded as non AFP even some of them were reported by medical doctors.
- The review concluded that based on their findings ongoing circulation of wild polio virus in the areas reviewed is very unlikely to be missed.

AFP surveillance quality in Southern region in general and 13 conflict affected districts in particular shows that AFP surveillance indicators in most of the provinces in the Southern region meet the set standards but early case detection rate in Helmand was 53% while there is very high proportion of male AFP cases reported from Uruzgan indicating the probability od under reporting of female AFP cases.

A number of steps are being taken to maintain AFP surveillance in the conflict affected areas including training of district support teams from the districts and the provision of cost of transport to AFP case and their parents to bring them to health facility.

However, analysis of surveillance indicators and AFP case reporting shows some shortage in surveillance. In one district in Kandahar, one in Helmand and two districts in Uruzgan, the number of reported AFP cases is less than the expected number. Moreover, the reporting of polio compatibles and genetic sequencing data points to gaps in the surveillance system in these areas.

It could be concluded that apart from some of the very difficult to access conflict affected areas, the AFP surveillance system is of good quality and sensitive enough not to miss the transmission and is able to provide consistently the evidence of poliovirus circulation.

4.1.4. Campaign quality
Dr Agha Gul Dost, Afghanistan

The programme continued to implement NIDs, SNIDs according to recommended plan. In addition, two rounds of mop ups with mOPV1 in area of North Eastern region, one round of mop ups in 5 districts of Kandahar using bOPV, one case response to VDPV2 in 4 districts of Helmand using tOPV and one mop up in Nangarhar province of Eastern region using bOPV. In October 2010 round, de-worming using Albendazole to all children of 2-5 years of age was introduced.

Post campaign assessment is done through independent monitors usually teachers and Medical and University students. The results of household coverage survey found that most of the districts had coverage above 90% based on the finger marking except in Southern region where almost 60-70% of districts did not achieve the 90% coverage. Survey conducted at various public places like hospitals, bus stations, markets and shrines also shows that except Southern region the coverage in the rest of the country was at least 90%. North East, South-East and Eastern region have shown significant improvement in underperforming districts.

The target set in the milestones of the Global Strategic Plan is that each of the 13 high risk districts achieve coverage over 90% in at least 4 SIAs, coverage rates assessed by Independent Monitors and adjusted for accessibility shows that this has not been achieved.

Analyzing the reasons for missing children in the last 4 campaigns shows that "no team visit" or reporting that the child was newborn/sleeping are the two main reasons which indicate weakness on part of service provision and inadequate community demand to vaccinate the newborn/young infants.

Several actions are being taken to improve campaign quality including involvement of BPHS NGOs as implementer, development of district specific plans, hiring of access negotiators and partnership with ICRC which is planned to be expanded further with involvement of ARCS network of community based First Aid health workers. In addition, SIAs are synchronized with Pakistan and vaccination posts are established to cover the moving population between Afghanistan and Pakistan.

4.1.5. Communication activities
Dr Nafi Kakar, UNICEF/Afghanistan

The significant commitment of government and partners has been further strengthened through the establishment of the Polio Core Group at MoPH level. This group meets on a monthly basis to review progress particularly in the 13 high risk districts. Advocacy with communities at local level to generate support for the program implementation and gaining access has been enhanced.

Based on KAP findings and inputs from the field, a nationwide polio communication strategy and plan was developed and implemented with special focus on the 13 high risk district specific planning and implementation.

Media mapping exercises were conducted and local media identified and involved to reach inaccessible families with information on polio. This was verified by the PCA data.

Community mobilization activities have been strengthened through social mapping and planning exercises as well as expanding social mobilization initiatives in high risk clusters.

Other major initiatives included:

- Revision and production of IEC/training materials;
- Cross border communication;
- Visibility of the SIAs through miking, billboards, posters, rallies, and sports events.

Focused communication/community mobilisation in HR districts of Southern Region:

Based on the recommendations of May 2010 TAG meeting, the key strategies for the high risk areas (HRA) of the South were to develop specific communication strategy and district specific plans. A workshop was held in June to develop the district specific

communication plans for the 13 high risk districts which were implemented for the July and subsequent rounds. Progress has been made in social and partner mapping and enhanced use of messaging via radio, mobile phones (SMS) and television -media mapping

Despite these advances, some challenges are still being faced, particularly access, population movement, coordination, inadequate public awareness and sporadic/ hidden refusals.

As part of the 2010-2012 Strategic Plan, UNICEF Afghanistan will continue to support the goal of polio eradication by sustaining political commitment, enhancing local engagement, strengthening partnerships, improving access in security compromised areas, reducing missed children, and increasing visibility.

To achieve these targets, the following initiatives will be under taken:

- Strengthen and institutionalise CM
- Capacity building of community mobilisers
- Strengthen monitoring mechanisms
- Expand partnerships with local-level NGOs – partner mapping
- Review of IEC material, especially key messages
- Improve coordination at different levels
- Document and disseminate communication effort
- Using research findings from epidemiological and social data for further strengthening and guiding communication activities.

Discussions and conclusions

1. The RTAG noted that although 84% of the Afghan population live in polio-free areas, this proportion has not materially increased during the past two years. Programme policies to achieve access to children in areas with difficult access is showing some success but not in areas with persistent WPV transmission, where none accessibility remained largely unchanged.
2. Persistent transmission of both WPV1 and WPV3 resulting in polio cases is predominantly restricted to the Southern Region mostly in areas with difficult access to populations and with poor security to vaccination staff. In addition, two cases caused by type 2 VDPV have been identified in difficult access areas of the Southern Region.
3. It appears that WPV1 circulating in the Southern Region has its origin from Pakistan through importations predominantly from the Quetta block of Baluchistan province. Importation elsewhere has not resulted in persistent spread, probably reflecting relatively high immunization coverage in recipient areas.

There appears little evidence that importation of WPVs from Afghanistan is a significant element in the continuation of persistent transmission in Pakistan.

4. Analysis of confirmed polio cases has shown a mean age of 18 months. They are mostly under-vaccinated and very few cases received any OPV doses through routine immunization.

5. In spite of the great difficulties facing the programme in the South, the programme continued to institute improved AFP surveillance, outbreak response and SIAs under considerable difficulties in areas with difficult access. The RTAG noted with appreciation the following strategic areas contributing to this success:

   - Preparation and implementation of district specific plans.
   - Recruitment of negotiators to meet and secure cooperation from anti-government elements (AGE)
   - Coordination with local agencies able to work in difficult areas.

6. The RTAG was pleased to note the following specific initiatives aimed at strengthening the polio eradication programme:

   - Establishment of policy group, chaired by H.E. the Minister of Health, which is meeting regularly.
   - Creation of a consultative group chaired by DG Public Health, meeting regularly.
   - Expansion of the role and geographic responsibility of the ICRC
   - Regular review and strengthening of district level planning and management.
   - Efforts made with donors to designate the 13 high risk districts in the south among priority districts for receiving support.

7. The communication element of the programme has recently developed significantly. Its potential to secure community cooperation for immunization and surveillance is increasing.

8. In spite of the progress being made towards polio eradication in Afghanistan, the RTAG identified a number of constraints that may delay not only the interruption of WPV transmission but also the development of routine immunization services.

   a. In the Southern Region, a significant number of children are not receiving a significant number of OPV doses (ideally 6 doses in first year of life). This reflects insufficient targeting of children, 0-6 months of age.

   b. There are many examples that children living in areas with no limited access are not receiving OPV during SIAs. This is often due to poor SIA quality due to insufficient planning, inadequate vaccinator training, inadequate supervision and insufficient targeting of the under one year age group.

   c. There is insufficient flexibility in ensuring that children are immunized at every appropriate contact. Rigid duty statements means that non-vaccination staff fail to vaccinate eligible children during attendance at health unit for other reasons.

   d. The surveillance review in 2010 identified that some of the reported AFP cases were excluded posing the potential risk of missing WPV transmission.

e. There is evidence that female children, especially in areas of conflict are insufficiently represented in AFP reporting and investigation.

Recommendations

The RTAG endorsed the recommendations of the Pakistan/Afghanistan TAG of May 2010 concerning supplementary immunization activities and the vaccine to be sued and made the following additional recommendations:

1. In areas where WPV transmission is persisting or remains a significant threat, District-level plans should be reviewed and strengthened. Within these plans, a more flexible approach to immunization should be adopted, aiming to immunize eligible children during any attendance at health units, ensuring that all staff can provide vaccines and aiming to increase the frequency of immunization sessions and change their timing to be appropriate for the community.
2. Agencies, especially those contracted to provide immunization services should also aim to provide vaccines, especially OPV during any health contacts and when supplying humanitarian assistance.
3. In all areas, but especially where WPV transmission persists, there is a need to guarantee the quality of immunization services, both routine and supplemental, through effective planning, conduct and assessment.
4. In all efforts aimed at improving the quality of immunization, special focus should be made on targeting OPV administration at the youngest age groups, aiming to achieve multiple doses in all children before the age of 1 year.
5. Continue to develop comprehensive AFP surveillance throughout Afghanistan, but especially in border areas, where importation of WPV remains a real possibility.
6. Ensure that ALL AFP cases reported by physicians are fully and expertly investigated, removing all barriers to the unwarranted exclusion of cases from whatever source.
7. Include gender analysis in reporting AFP and explore the factors prevalent in any area where there is a significant imbalance between male and female children reported with AFP.
8. In areas of difficult access, especially those where WPV transmission is persisting, explore the potential for using Animal Health Units and their staff in assisting in mapping, planning and securing community compliance during SIAs and the development of routine immunization services.
9. In areas where responsibility for developing immunization services has been delegated to contracted NGOs, assess their accountability, performance and effectiveness. Include assessment of specific polio eradication indicators in the balance scorecard.
10. Further develop communication services as an integral part of district-level planning especially in areas of difficult access and wherever WPV transmission is continuing. Monitor and feedback experiences as well as developing and using performance indicators.

11. To the extent possible, confirm and/or identify the accuracy of denominators being used in assessing baseline results in both surveillance and immunization coverage.

4.2. Pakistan

4.2.1. Epidemiological situation
Dr Ni'ma Abid, WHO/Pakistan

As of 20 October 2010, Pakistan reported 40% more polio cases compared with the same time of 2009 (93 & 62 respectively). The Majority of cases (72%) were reported from the Federally Administered Tribal areas and neighbouring districts of khyber Pakhtunkhwa province. Both serotypes of wild polio virus (type 1 and type 3) are circulating in the tribal areas. Other significant epidemiological development in 2010 is the outbreak of WPV 1 in north Sindh. All the four provinces reported both serotypes of WPV with predominance of WPV1 except in Balochistan where WPV3 is the predominantly isolated virus.

Analysis of the genetic and epidemiological data of isolated wild polio viruses from polio cases and environmental samples indicates that endemic circulation continued in the transmission zones, multiple outbreaks of WPV1, and reestablishment of circulation in central part of Pakistan (South Punjab & North Sindh)

The deteriorating security situation, weak performance in key districts and the massive flood with associated extensive population movement are the main predisposing factors for the upsurge of polio cases in 2010. The main epidemiological Characteristics of polio cases are:

- Nearly two thirds of cases are younger than 2 years (Median age: 17 months; range: 3-156 months)
- As per recall of parents, analysis of vaccination data of polio cases indicate:
  - Median number of OPV doses is 2 for cases from conflict areas and 6 doses for cases from areas with no major security issues
  - 44% cases received 4 OPV doses
  - 18% did not receive any OPV dose (73% for cases from insecure areas)
  - 62% of cases did not receive any routine OPV doses.

Considering the extensive population movement in Pakistan and the intensity of wild polio virus circulation, all the districts in Pakistan are at high risk. Hence, intensive high quality immunization activities during the next six months are required to contain the multiple outbreaks and interrupt the re-established circulation in central Pakistan.

4.2.2. Issues and initiatives in endemic high risk areas
Dr Altaf Bosan, Pakistan

Two major issues are behind endemicity in high risk areas. First, insecurity, especially in FATA and some parts of Khyber Paktounkhwa province, Balochistan province and Karachi city. Law and Order problem hampers accessibility and effectiveness of the monitoring and supervision of the supplementary immunization and routine immunization activities in the

affected areas of South Punjab and North Sindh. Secondly, weak management of campaign operations in Pakistan and especially in Quetta, Killa Abdullah of Balochistan and Karachi. Pockets of refusals, in FATA and Killa Abdullah; and low routine immunization are also important issues in endemic and high risk areas.

To address these issues, specific actions and initiatives are being taken since the second half of 2009 and specifically after the last TAG meeting.

- Developing a special strategy to improve accessibility in FATA, this included:
  - Establishment of a crisis Task Force for polio eradication by the Governor. Civil Military Coordination Committees were notified in every tribal agency.
  - The Governor KP/FATA and CM jointly chaired a meeting on 4 October 2010 on polio eradication.
  - Mapping of inaccessible areas and identifying 'power centers'. In this regard it was noted that almost two thirds of the more than 350,000 inaccessible children live in areas controlled by the army.

  So far the impact of this strategy has been negligible due to failure to involve anti-government agencies.
- Strict implementation of the decision of the Inter-Ministerial Inter-provincial Committee on Polio concerning 'Payment for performance'
- Federal Minister visited Quetta to give first hand message to district level executives (DCOs) for personal support to PEI
- Regular feedback from the Federal Secretary to the Chief Secretaries, Secretaries of Health and DCOs
- Meeting of Chief Secretaries with DCOs to review PEI implementation efforts. This was implemented in the three provinces (having persistent transmission zones).
- Refining and rigorous monitoring of implementation of the Specific Plans for highest risk district/towns/agencies
- Specific strategies for highest risk areas/populations such as for example migrant populations.
- Improving routine immunization coverage through polio eradication efforts, particularly advocacy and use of monitoring opportunities in recording of zero routine dose infants

These initiatives have resulted in some improvement in the process, although very recent, except in FATA/KPK because the main reason is insecurity. In other areas the insufficient political buy-in despite several strategically significant steps taken (eg Linking payment with performance) remained as a main factor behind weak impact of these initiatives. As well, the massive floods in recent past have exacerbated underlying risk factors in many areas and the appearance of WPV in otherwise 'silent' areas.

4.2.3. Surveillance quality
Dr Obaid Ul Islam, WHO/Pakistan

Surveillance continued its quality performance with a very sensitive system. Each AFP case is investigated by the WHO Surveillance Officer and eligible cases as per virological case classification are presented to the Expert Review Committees. In addition to ongoing in-depth analysis of surveillance data during the monthly provincial meetings, field reviews are conducted to assess the quality of the surveillance system and time bound action plans are developed to address identified issues.

All the surveillance recommendations of the last Pakistan TAG (May 2010) were implemented, however, the planned field assessment of surveillance quality had to be postponed due to massive floods. Environmental surveillance is being implemented involving sites from all provincial capitals and two large urban populations in Punjab.

The AFP surveillance infra-structure supported the emergency phase in the recent floods across the country (please see details in presentation on Impact of Floods on PEI).

Almost all of the reported AFP cases are being investigated within 48 hours of notification. All the key surveillance indicators for AFP cases indicate that the quality is above the global standards. As well, there is consistency in the quality of surveillance down to the district level (92% districts have non polio AFP rate of 2 or above and 89% of districts have $\geq$80% AFP cases with adequate specimens). Collection of specimens from eligible contacts is also up to the standards.

Despite the heavy workload (>9000 specimens in 2010 so far), the polio laboratory performance remained high and concordant with the quality checks conducted regularly by CDC for both virological and genetic data. Genetic data analysis is monitored very closely and is used to identify potential gaps in surveillance. Wherever any gap is identified, detailed data analysis and field assessment are carried out. There is close coordination between surveillance and laboratory staff which has resulted in remarkably rapid case response vaccination.

Current AFP data show that the surveillance system continues to function effectively in the most troubled parts of the country having persistent security concerns like FATA.

One of the priorities of the polio eradication programme is to ensure maintaining high standard quality and consistency of AFP surveillance. To this effect, regular internal program review and quality monitoring is being implemented. A special international surveillance review with tailored methodology to assess surveillance quality in migratory populations and populations at risk of being missed is planned in the first quarter of 2011.

4.2.4. Campaign quality
Dr Altaf Bosan, Pakistan

Many initiatives have been taken in 2010 to improve the quality of the supplementary immunization activities (SIAs) including: outsourcing training of teams and field supervisors to a consultancy firm; introducing new tally sheet for better micro-census, improved

monitoring and tracking of un-reached children; developing guidelines for independent monitoring, finger marking, high risk populations and insecure/conflict affected areas (FATA). The district specific plans are monitored regularly and performance based payment is being implemented since March 2010.

The persistent transmission zones and high risk areas (15 highest risk districts) were included in all SIAs. These districts have been given special focus for improving all immunization activities and to ensure quality planning, implementation, supervision and monitoring by deploying additional staff during all SIAs. District/area specific plans implementation status is being monitored/reviewed on monthly basis followed by the submission reports to the provincial level.

All the highest risk districts achieved the minimum target of ≥90% vaccination coverage verified by finger marking in July NIDs except Bajour, Mohmand & Khyber agencies. There is a progressive improvement in 2010 SIAs particularly in the highest risk districts but inconsistency at sub-district level remains a challenge as shown by high number of poorly covered, missed areas and/or high number of union councils having <90% coverage by finger marking.

The programme continues to give special attention to the process of post campaign monitoring by completely independent monitors. More than 5% of the clusters taken by the independent monitors are verified by the WHO team for further ensuring the consistency/validity of data. In addition, market (Spot) surveys are carried out by the UN staff on day 5 of the campaign.

A field assessment was undertaken by trainees of field Epidemiology and Laboratory Training Programme (FELTP) in January 2010. The assessment was carried out in Multan and Muzaffargarh districts of Punjab province following the January 2010 campaign. The results showed same trend and further augmented the validity of the independent monitoring data. The consistency of the SIA coverage across different diverse data sets reinforces the validity of Pakistan's independent monitoring data.

4.2.5. Impact of floods on polio eradication and actions taken
Dr Ni'ma Abid, WHO/Pakistan

Heavy monsoons and massive flooding at end of July and early August 2010 caused widespread destruction across the country. A total of 78 districts and 20 million persons were affected. Damage to infra-structure has been colossal in many places. Consequently, this national emergency resulted in immediate shift of priorities necessitating urgent interventions in the emergency phase. Scheduled polio eradication activities had to be delayed (surveillance review) or adjusted in time (August targeted SIA for the highest risk populations within the highest risk districts). Other immediate effects included disrupted communications and health service delivery infrastructure. These factors combined with population movement from endemic to polio free areas together with environment related aspects resulted in enhanced transmissibility of WPVs.

The polio eradication resources were immediately mobilized to the flood affected areas. A total of 44 local district level as well as 10 international Polio staff were mobilized to support planning and implementation of the relief activities. Special emphasis was given to

supporting Disease Early Warning System (DEWS), outbreak investigations and visits to camps for orientation of healthcare providers, for information sharing/collection as well as supporting and supervising immunization activities. Teams and leaders were mobilized to flood affected districts for developing regional hubs for relief activities at Sukkur, Multan and Hyderabad. Rapid assessment of damages to health infrastructure was collected using a standard format. Risks to polio and measles were highlighted with policy level leadership and development partners.

Measures to avert risk to polio eradication included administration of OPV to 565,192 children below age of 5 years in floods affected areas, mostly IDPS camps, expansion of September SNIDs to a full NID and an additional measles plus mOPV1 dose in the floods affected areas, the latter in two phases. A total of 7,948,232 children were vaccinated with mOPV1 in the first phase. Whereas, in the last NIDs, finger marking coverage evaluated by independent monitors reflects that all flood affected districts included had coverage figures above 90%. Due to steps taken, AFP surveillance system remained functional and surveillance indicators were maintained.

However, the above steps could not prevent a surge in polio cases in the central Pakistan which was the worst affected by floods. Epidemiological data indicates that polio cases from floods affected areas have a median age of 36 months compared with 16 months for the country as a whole, but with higher median number of OPV doses as per recall of parents (4 for all cases and 7+ for floods affected areas). Genetic data reflects an introduction in north Sindh having most probably a common source outbreak. The program intends to have a continued focus on intensified surveillance and extensive monitoring of vaccination activities in the flood affected areas. The long term plans include rehabilitation of EPI services.

4.2.6. Communication activities
Dr Abid Raza, UNICEF/Pakistan

Following the Afghanistan/Pakistan TAG recommendations, communication interventions have been scaled up in line with the current understanding and evolving polio epidemiology. The primary focus remained on 15 highest risk districts and 58 priority districts in all the provinces.

Efforts have been made to: 1) continue advocacy for enhanced support, ownership and motivation with focus on provincial, district & sub-district levels, 2) engage media and enhance IPC to maintain high level of acceptance and create demand among the general public, 3) improve service delivery with the objective to reach the most vulnerable populations, and 4) expand partnership

All the 15 high risk districts/areas and 58 priority districts have communications capacity (human resource and logistics) supported by Communication Officers and Health officers at national and provincial levels. There is a continuous tracking of communication indictors both by time (monthly) and geographically (provincial). District report cards are produced quarterly. Data driven, locally appropriate plans and maps are available in all targeted districts. The reasons for missed children are systematically analyzed and monitored to assess the effectiveness of the locally employed social mobilization strategies.

The ongoing partnership with media, National Database & Registration Authority, National Highways &Motorways POLICE, Pakistan Postal Services, City traffic POLICE of large metropolis and telecom and print and electronic media sectors under 'Prime Minister Action Plan' has been further strengthened. More than 100,000 of the target children are reached every SIA round through these partnerships, especially children who are on move.

Furthermore, involvement of parliamentarians in promoting immunization has been initiated through the establishment of national and provincial caucus for immunization. As well, involvement of religious leaders at all levels is being ensured and strengthened through inter-religious council for Health (IRCH).

The outcomes of these interventions have been significant as shown by:

- 99% of the articles in print and electronic media has been positive about immunization and also about the vaccination. This has played pivotal role in countering rumours against campaigns and polio vaccine.
- Follow-up KAP studies illustrate that awareness level for polio has gone up to 81% (KAP-2009). The follow-up KAP this year is scheduled after the November 2010 SIA.
- Refusals have been significantly reduced to less than 1% but few persistent pockets of refusal and few hidden refusals are still an issue in some parts of FATA and in the Quetta block in Balochistan. Local community elders and religious leaders are being mobilized through Agency Health Communication Officers and social mobilizers to overcome these refusals.

The priorities of the communication activities include:

1. Continued advocacy efforts with the immunization programme in support of outreach activities
2. Exploring venues to achieve access in security compromised areas,
3. More focus on high risk areas/priority districts / areas,
4. Implementing the Communication review (previously scheduled in August but not conducted due to floods);
5. Cost effective analysis of various interventions, systematic use of data down to the grass-root level and expanding partnerships.

4.2.7. Cross border coordination between Pakistan and Afghanistan
Dr Ni'ma Abid, WHO/Pakistan

There is extensive population movement across the borders between Pakistan & Afghanistan. It is estimated that over 3 million Afghan refugees are residing in Pakistan since the start of Afghan war. Most of these refugees are living in Khyber Pakhtunkhwa/Federally Administered Tribal Areas (KP/FATA) & Baluchistan. Population movement between Pakistan and Afghanistan is not restricted to border areas but also extends to most parts of Pakistan.

Permanent transit vaccination points have been set-up at border crossings in Baluchistan and KP/FATA in areas with maximum population movement. In addition Temporary vaccination posts at transit points are set up during vaccination campaigns at points where there is significant movement.

Roughly, more than I million children under 5 years cross Pak-Afghan borders each year. Up to date in 2010, over 180,000 children crossing the border from Baluchistan and over 500,000 children crossing from border crossing in KP/FATA were vaccinated.

Cross border coordination with respect to polio eradication efforts continued to be of a very good standard. AFP cases are immediately cross notified (34 cases notified to Afghanistan; 1 to Pakistan in 2010). The vaccination campaigns in the two countries are synchronized such that they either overlap or are close together for good coverage in border areas through coordinated activities.

Several Key activities and steps are behind the successful cross border coordination, these include: The high level political commitment recognizing the need for cross border coordination and the regular inter-country meetings, the latest meeting was held in February 2010. As well, monthly meetings are held between Afghanistan – Baluchistan teams. In addition there is regular sharing of information including immediate notification of cross border cases, weekly exchange of AFP cases line list from border areas, and regular sharing of information on hot and confirmed cases and SOPs for notification of AFP cases have been established.

All stool specimens from AFP cases and contacts from Afghanistan are tested in the WHO NIH laboratories in Islamabad, Pakistan.

Discussions and conclusions

- The RTAG noted, with alarm, the increase in the number of reported cases and spread from the districts/areas of persistent transmission to other previously polio free areas. It also noted that the security challenges facing the interruption of transmission in some districts have not only escalated but were also compounded with other challenges, namely flood and extensive population movement.
- The increase in cases of poliomyelitis is the result of the chronic failure to reach children with polio vaccine in both accessible and access compromised areas. Furthermore, there is discordance between reported cases and reported SIA coverage obtained through monitoring, indicating a gap in credible coverage data.
- Poliomyelitis cases are mainly affecting very young children with more than two thirds of the cases under the age of 2 years. The median age of cases is 17 months, indicating that polio virus transmission is intense among infants. In addition, the RTAG notes that the majority of cases are not fully vaccinated.
- The development and implementation of district specific plans in the 15 persistently infected districts, to address their challenges and enhance the quality of work, succeeded, at least in some of these districts, as evidenced by the positive impact on the epidemiological situation.

- The implementation of the performance based remuneration of vaccination teams and supervisors is noted with satisfaction.

- The initiatives made by FATA authorities to develop strategies for insecure areas and starting to develop flexible individual agency plans are noted with satisfaction. The multiplicity of approaches being tried to engage key stake holders and influencers in FATA is expected, if implemented, to facilitate reaching inaccessible children.
- It is satisfying to note that despite repeated SIAs, the community is not displaying any significant resentment to repeated vaccination.
    - The Regional TAG noted, with appreciation, the continued support and advocacy efforts made by the WHO DG and RD in support of polio eradication in Pakistan. It is hoped that their forthcoming visit would, in addition to high level advocacy to ensure full engagement in polio eradication efforts, include direct reflections with district/local management authorities.

Recommendations

the Regional Technical Advisory Group on Polio Eradication (RTAG), having reviewed the epidemiological situation of polio eradication in Pakistan, emphasized that in the context of the ongoing poliomyelitis epidemic, confounded by the devastating floods and significant population movement, **there is an urgent need for establishing an aggressive plan of work, common across technical and administrative branches of government for implementation starting latest by 1st January 2011**. This plan should exploit the lessons learnt from the many years of experience in Pakistan, where inadequate ownership, insufficient transparency and lack of accountability have been among the main constraints behind delays in achieving the long-awaited target of polio eradication. The plan should also build on the success of recent initiatives such as district planning and the introduction of bivalent OPV. To this effect, the RTAG made the following recommendations:

1. Building on the experience gained from the successful management of previous earthquake and flood disaster through the establishment of special and strong coordination entities at the highest administrative level of the country, and noting that the current impediments to polio eradication programme are not technical but managerial and operational, the RTAG strongly **recommends the establishment of such a mechanism (e.g. national task force) at the highest administrative level of the government (Prime Minister Office) to have the overall responsibility of coordinating the implementation of this plan and its monitoring**. This body/task force will be crucial in ensuring the required inter-sectoral collaboration at federal and provincial level, to successfully implement PEI activities. Such a body would be essential to optimally support of subnational bodies such as the crisis task force for polio eradication established by the Governor of KP/FATA
2. There is an urgent need to strengthen and further develop the present mechanism of **engaging the local political and administrative leadership in support of the district health department** by having the District Coordination Officers (DCOs) taking charge of the overall supervision of the eradication activities in their districts, especially SIAs.

In this regard, it is essential to ensure that provincial chief secretaries hold regular meetings at least once a month with DCOs to follow-up the implementation of the polio eradication plans in their districts and ensure their continued engagement and support. It is equally important to develop mechanisms and criteria to measure and track engagement of the district leadership, particularly in relation to SIA performance and accountability.

3. **Expand the intensive microplanning exercise carried out for the 15 districts/localities labeled as persistently infected to other districts classified as high risk not later than end December 2010** to ensure comprehensive micro-planning, effective implementation and community engagement.
4. The RTAG urges the Government of Pakistan **to hold a meeting of the Inter Provincial Ministerial Coordination Committee on Polio (IPCP) before the end of the year**, to review progress in implementing district specific plans in the 15 persistent transmission districts, and ensure the development of district specific plans for the high risk areas. As well, it is essential that IPCP discusses strategies to access children in conflict affected areas and children in mobile and migrant populations.
5. **Improve and further develop the present system of independent monitoring** of SIAs with a particular focus on process monitoring and validation of data in order to provide a clear picture of performance, particularly in high risk areas.
6. Recognizing the special administrative set up in FATA, the current security situation, the multiplicity of influencing forces and the outbreak of polio which is driving polio transmission in much of Pakistan, **polio eradication activities in FATA areas should be planned and conducted as a special activity.** The RTAG recommends that every possible mechanism be made to bring all the players on board including antigovernment elements. It also recommends ensuring flexibility and optimizing every window of opportunity that may arise to vaccinate children, including implementation of short interval repeated doses.
7. The RTAG endorses the recommendations of the National TAG, made in its meeting in May, with respect to the schedule of SIAs in the remaining period of 2010 and 2011 and type of vaccine to be used. It, however, feels that with the new developments and spread of the wild virus to many new areas, ideally the planned December SIA be converted to a full NID.
8. **Strengthen the international human resources available to the national programme,** particularly in management aspects, through recruitment of management experts to support the present structure.
9. **Review and further develop the present communication system** giving particular emphasis to sustaining community engagement and develop strategies **for demand creation among communities.**
10. Although primary emphasis should be on interrupting wild poliovirus transmission in the shortest possible time, efforts should be made to **maintain the present satisfactory standard of surveillance** and conduct surveillance review aiming at identifying gaps that need to be addressed. As well recognizing the devastating effect of floods on health infrastructure including those for immunization, it is strongly recommended that **relief resources would give priority attention to the reestablishment of the destroyed immunization structure** particularly cold chain which is one of the backbones to ensure effective immunization services.

5. EPIDEMIOLOGICAL SITUATION IN OTHER PRIORITY COUNTRIES

5.1. Somalia

Dr Abraham Mulugeta, WHO/Somalia

Somalia has maintained its polio free status for the last 3½ years (last case was reported in March 2007). The key AFP surveillance indicators are maintained at certification standard. The achievements of the Polio Eradication initiative in Somalia can be attributed to the high community acceptance for polio vaccination, the support of religious and clan leaders, the dedication and quality work of local staff and volunteers and the support of tens of NGOs and very good coordination and collaboration between polio partners and the significant support of donors.

Since late 2009, accessibility to all children started to face problems. The recommended two rounds of NIDs by the Horn of Africa TAG in 2009 have been implemented successfully in all regions except Lower Shabelle (due to lack of permission of the local authorities). As of mid 2010, the program faced new challenges represented in lack of permission from the local authorities to conduct any campaign mode activities (both NIDs and CHDs) in the South and Central Zones (SCZ). Hence, the under 5 children estimated around 800,000 in SCZ (i.e. about 40% of the total Somalia target) were so far not reached with the planned two rounds of NIDs in 2010. The build-up of susceptible under 5 children and the occurrence of cVDPV in the SCZ is a major concern, which need follow up with vigilance. Continued lack of permission to vaccinate children makes it difficult for the program to respond properly. Efforts are ongoing to get the permission and these areas are targeted for special attention and support.

Although there is an increase in the level of routine immunization in Somalia, yet it is still very low and does not exceed 50%. As well, there are variations between different regions.

The OPV vaccination status among under 5 population is closely monitored (from the AFP data base and quality of SIAs). The impact of cessation of immunization through SIA and CHD on the immunity profile is not yet shown clearly but it is expected to be clear in the near future.

The program is working to maintain a highly sensitive AFP surveillance at national and sub-national levels with special attention on the SCZ and is maintaining the ongoing cross border coordination and case notification.

Discussions and conclusions:

The RTAG while noting that Somalia remained polio free since early 2007 expressed serious concern about the non involvement of nearly 800,000 under 5 children living in South and Central Zones in supplemental immunization activities since early 2010. It described this situation as a time bomb which would have serious consequences should a wild virus be

introduced. The appearance of CVDPVs in the same areas is another indication of low levels of immunity.

Recommendations:

The RTAG endorsed the recommendations of the HOA TAG (see page 27) and particularly its calling to seize the opportunity of every immunization activity to give OPV to boost the population immunity profile. In addition, the RTAG made the following additional recommendations:

1. To continue every possible effort to reach children in the South and Central Zones of Somalia during NIDs and CHDs as well as at any window of opportunity and give OPV to boost their immunity.
2. Considering the low routine immunization, it is essential to implement at least two NIDs using tOPV every year giving special attention to infants in addition to using other childhood intervention such as CHD to give tOPV.
3. Continue to maintain certification standard surveillance, revitalize active surveillance and address issues that need strengthening as evidenced during the Desk Review conducted in June 2010.
4. Continue and further strengthen communication with community leaders and with all partners including NGOS.

5.2. North Sudan

Dr Salah Haithami, WHO/Sudan

North Sudan has international borders with 5 countries. Due to the civil/armed conflict, many people have been displaced internally and also to neighbouring countries, especially Chad. The population movement between N Sudan and Chad is huge and caused repeated wild poliovirus importations since last indigenous poliovirus in 2001. In spite of the insecurity in Darfur that resulted in loosing lives of polio volunteers and personnel during the immunization campaigns, polio eradication activities continued, successfully, in North Sudan.

Since the last RTAG meeting in July 2009, the North Sudan AFP surveillance performance indicators have been maintained at the certification standard level. The non-polio AFP rate is maintained above 2/100,000 population under 15 years of age and adequate specimens' collection rate above 95% for the last 5 years. All states reported an AFP rate of 2 or more, however, a few gaps at the sub-national level in some states of Sudan were identified. Focused actions were taken by the programme to rectify these gaps. North Sudan reported 5 confirmed polio cases, caused by WPV1, in 2009. The genomic sequencing indicated a link with the poliovirus circulating in Southern Sudan.

The routine immunization coverage of OPV3 dose among infants increased from 79% in 2006 to 91% in 2009. In the Darfur States OPV3 coverage rate reached 80% as a result of several accelerated routine immunization activities.

Supplemental immunization activities were increased in response to the 2009 polio cases. Five NIDs rounds and two SNIDs rounds were conducted in 2009. The coverage by finger marking post-campaign monitoring of these campaigns was above 95%.

Two NIDs were conducted in 2010; one with bOPV and the other with tOPV and two more SIAs are planned for November and December. Monitoring through finger marking showed more than 95% coverage of target children. The main reason for missing children was absent children and only 10% due to non available teams.

The North Sudan strategic plan for 2011 includes the following elements:

1. To sustain national commitment for polio eradication
2. Maintaining surveillance standards through refresher training and better documentation of stool sample transfer. Efforts will be made to ensure adequate collection of stool samples from insecure areas through better coordination of NGOs.
3. Maintain high levels of population immunity through promoting immunization, especially in high risk areas and sustaining outreach immunization activities. It is planned to conduct 4 NIDs; 2 early and 2 late in 2011.
4. Continue cross border coordination. Major efforts are needed to ensure adequate external funding to sustain routine EPI beyond 2011, particularly with the threat of cessation of GAVI funds.

Discussions and conclusions

1. The RTAG noted with satisfaction that North Sudan programme has established a comprehensive EPI system with recorded routine OPV3 coverage in 2010 of more than 90%.
2. Sudan continued to be subjected to importation of wild polio viruses: in 2005, WPV1 was imported from Chad, in 2007, WPV1 was also imported from Chad, in 2008, WPV3 also from Chad. In 2009, WPV1 was imported from the south.
3. Response to imported virus has been prompt, appropriate and extensive. It apparently stopped WPV transmission after importations. With a sound AFP system in place and with no detected WPV for 14 months, it is reasonable to assume North Sudan is free of WPV transmission.

   High risk areas exist, mostly with poor security in parts of Darfur and along borders with countries with WPV transmission.
4. AFP surveillance is maintained at certification standard with non-polio AFP rate reaching around 3/100,000 children in 2009 and 2010. This rate was more than 2/100,000 in each state. The stool adequacy is over 90% and with NPEV above 10% denoting an effective reverse cold chain system and capability of the system to detect WPV importations.
5. It is of major concern that potential withdrawal of GAVI funding for routine EPI beyond 2011 could seriously threaten immunization services, especially outreach which constitutes 60% of provided immunization.

6. Concern must exist about the political environment beyond the referendum planned for January 2011. It is foreseeable that this might potentially lead to large scale population movements.

Recommendations

The RTAG endorsed the recommendations of the HOA TAG concerning North Sudan (see page 27) and emphasized on the following:

1. Prepare a contingency plan to ensure effective services, should high security risk areas or political unrest, lead to community problems.
2. Special emphasis be given to immunizing children under one year of age. This should be emphasized during training of vaccinators. As well, it is essential to ensure that SIA monitoring provides age specific data on immunization coverage.
3. Continue to maintain high levels of AFP surveillance and give special attention to high risk areas, particularly Darfur. Make a special effort to collect stool samples from AFP cases in Darfur.
4. Continue to synchronize activities with neighbouring countries.
5. Prepare a financial plan to guarantee the quality and continuation of EPI beyond 2011.

5.3. South Sudan

Dr Yehia Mostafa, WHO/South Sudan

Southern Sudan did not report any polio cases for nearly sixteen months after the epidemic that started in mid 2008 and continued for nearly 12 months. Wild polio virus circulation seems to be interrupted, however, the situation is still very fragile both internally and in relation to the possibility of importation from neighbouring infected countries.

A. ***SIAs:*** Nineteen SIAs have been conducted since 2008, out of which; two *were conducted this year (February and March 2010)*. More than 20,000 volunteers and health workers implemented those campaigns using house to house strategy. Despite the improvement in the Community Immunity profile as reflected through the increase in the proportion of the protected children among AFP cases and their contacts to nearly 80% but still it reflects the severe weakness of the routine immunization. Also, in depth analysis shows that although the overall campaign coverage has reached 90% by finger marking as assessed by independent monitors, yet six states did not achieve this coverage in one or both of the last two rounds.

Analyzing the causes of missing children during campaigns shows that the reason was no team visited them in more than 35% which necessitate a lot of work to improve the supervisory process. To address this situation, the base of supervision of vaccinators is being extended by including the IDSR surveillance officers. Tailored training courses for vaccinators and supervisors are planned to be implemented.

B. ***Surveillance:*** several activities, initiated and conducted in 2010, lead to significant improvement in the performance of the AFP surveillance including establishing AFP

surveillance cell, recruiting senior surveillance officer, introducing active AFP case search, daily feedback (reminders), regular reviews every three months, repeated training workshops, establishing an incentive system for reporting, updating the guidelines and introducing the stool samples survey among "healthy children" in silent and isolated counties. The programme was provided with significant resources. Among the human resources more international and STOP teams were recruited and also nationals. Logistics support provided included cars, bicycles, motorbikes, computers, printers, and photocopiers….etc). As a result the reporting of AFP cases is more than doubled achieving more than 4/100000 NPAFP rate and 97% stool adequacy rate as well as >10% NPEV rate. With all this improvement, there are still weaknesses as regards the timeliness of stool samples transportation, data completeness and documentation.

C. ***Routine Immunization:*** On 2006, RI coverage rate was only 19%. It increased to 22% in 2008. This rate nearly doubled (43%) in 2009, as a result of a number of actions initiated, namely the elaboration of an EPI Policy, revival of ICC meetings and implementation of the RED approach. For more improvement many efforts are being pursued including completing EPI Monitoring, implementing 2010 Vaccination Week (April-May 2010) , conducting EPI Reviews (May 2010), data & cold chain management trainings (May, June 2010), supporting ACCSI activities and acceleration activities and the conduct of State level EPI Micro plans for 2011.

To maintain developments and move towards achieving the targets of the 2010-2012 strategic plan, the programme emphasizes the need to:

- Maintain the current level of Staffing, International and as national and also CDC STOP Team consultancy support.
- Address identified gaps in the AFP surveillance system.
- Maintaining the current level of SIAs using tOPV vaccine.
- Improving the routine vaccination to reach DPT3 coverage >70%
- Improving communication and cooperation with different levels and organizations in the community

Discussions and conclusions

The RTAG, having considered the data provided and discussions that followed, made the following conclusions:

1. Southern Sudan has detected no WPV since June 2009 (16 months) and data suggest that WPV transmission may have been interrupted.

   However, the risk of importation remains to be very high, particularly as wild polio viruses are circulating in some of South Sudan neighbours.

2. There is a major discrepancy between the census population figures (under 5 and under 15) and that determined through operational activities, which brings doubt to reported AFP rates as well as immunization coverage rates.

3. While generally reported immunization coverage is high and community compliance have been secured, 5 of the 10 states of South Sudan report more than 10% of children missed during these campaigns, with 30-40% of missed children being caused by the team failing to appear and vaccinate.
4. The immunity profile of non polio AFP cases show that 20% of children are incompletely protected. The profile is most concerning in Eastern Equatoria.
5. There is concern about the prevailing political environment which may lead to large scale population movement and possible disruption of activities.

   The South Sudan strategic plan includes the following:

   - Continuing the progress towards comprehensive AFP surveillance and routine immunization;
   - Guaranteeing of funding beyond 2011;
   - Continuing campaigns through 2011;
   - Better assessment of the size of the target populations for campaigns and surveillance.

Recommendations

The RTAG endorsed the recommendations of the HOA TAG concerning South Sudan (see page 27) and recommended that a sound phased programme of action be prepared for 2011 focusing on:

1. Maintaining and further developing the present AFP surveillance system, especially in high risk areas and improving stool sample transfer from remote areas;
2. In SIA, special emphasis in planning, training and monitoring should be directed to children below one year;
3. Prepare a contingency plan should any instability follow the January referendum;
4. Efforts should be made to better quantify target population in order to avoid being misled by falsely high figures based on low denominators from the census;
5. A financial plan needs to be established to guarantee operational continuity for the next 3-4 years and involving the reliable development of routine services;
6. Synchronization of services between countries bordering South Sudan.

6. RECOMMENDATIONS OF THE HORN OF AFRICA TECHNICAL ADVISORY GROUP

Dr Faten Kamel, WHO/EMRO

The Horn of Africa TAG met in March 2010 and noted the progress and achievements made by the countries in surveillance and supplementary immunization activities. However, although the last detection of wild poliovirus was in July 2009, the TAG expressed concern that WPV transmission might still be occurring undetected, since significant immunity gaps and sub-optimal AFP surveillance performance remain in high risk areas in most countries.

These areas are also at risk for spread of wild poliovirus in the event of importation from areas with active transmission such as Chad. The TAG noted that, in Southern Sudan, progress has been made recently in programme capacity through increased technical and logistical support but there still remain gaps in SIAs quality and AFP surveillance performance.

The HOA/TAG made some cross cutting recommendations for all countries including need to continue using all opportunities to provide OPV to children and implementing proper Independent monitoring for all SIAs conducted with timely reporting of the results and documentation of corrective actions. Countries were called to develop specific strategies to address the unique challenges to reaching and fully vaccinating mobile populations. The engagement of community leaders in micro-planning and implementation of SIAs in high risk areas and the use of culturally appropriate strategies were stressed.

The HOA/TAG recommended that all countries should implement desk reviews of sub-national AFP surveillance performance on a quarterly basis. And to conduct detailed epidemiologic and clinical investigation of VDPV cases with appropriate outbreak response for cVDPVs.

Countries were also requested to update their outbreak preparedness and response plans ensure full implementation of these plans.

While HOA/TAG made it clear that over the next few years, SIAs remain the priority strategy for interruption of wild poliovirus transmission in the Horn of Africa countries, it urged that at least for the next 2 years PEI staff should systematically support all efforts to strengthen routine immunization activities in high risk areas, including supporting implementation of the RED approach and capacity building

In its specific recommendations to South Sudan TAG recommended enhancing AFP surveillance activities with active case search and supplementary collection of stool samples from a sample of healthy children in silent areas in addition to continuation of collection of samples from contacts of AFP cases. Validation of at least a quarter of the cases by international staff and conducting international field review were also recommended.

The HOA/TAG recommended four full NIDs in 2010 with efforts to improve campaign quality and continuation of intense international technical support.

For North Sudan, HOA/TAG recommended intensification of active surveillance starting with the highest risk areas as identified in the risk analysis reports, validation of AFP cases and regular surveillance reviews. Recognizing the continued risk of importation from Chad HOA TAG recommended two nationwide SIAs rounds with special attention to the high-risk border areas.

The HOA/TAG recognized the difficult security and access circumstances in Somalia and that it has been polio-free since March 2007 maintaining good AFP surveillance indicators. It recommended maintaining the population immunity and the implementation of two NIDs in 2010 using tOPV. And continuation of using all opportunities of childhood interventions to boost population immunity profile to WPV by providing tOPV to under-five children during CHDs.

Djibouti and Yemen were requested to maintain adequate immunity through routine EPI and resource permitting, two rounds of SIAs every year and to sustain high quality surveillance throughout the countries especially in bordering and hard to reach areas.

7. RISK ANALYSIS FOR POLIO FREE COUNTRIES

Dr Ann Buff, WHO/EMRO

Following the successful experience of WHO/EURO Regional Certification Commission for the Assessment of Risk of Substantial Transmission Following Importation of Wild Poliovirus, WHO/EMRO undertook a similar exercise with the goal of developing a quantitative tool to enable national polio eradication programmes to analyze the risk of a poliovirus outbreak in the event of importation and identify areas for improvement. In addition, the risk analysis was envisioned as a tool to help inform country and regional decision-making processes with respect to prioritizing activities and funding requests. Countries with endemic poliovirus were excluded from the analysis.

Three areas were addressed in the risk analysis including AFP surveillance, population immunity and other factors such as health system strength. In each of the three areas, both national and sub-national indicators either measured by the national polio programme (e.g., AFP case rate) or reported to WHO (e.g. percent of districts with ≥80% coverage for OPV3) were selected for inclusion. Countries were scored on a total of 16 indicators and both aggregate and area-specific (surveillance, immunity, other factors) results were calculated.

Although the adopted methodology has not been finalized, the results of the preliminary risk analysis were not unexpected. Countries with the largest population immunity gaps and weakest routine immunization programmes were also the countries at highest risk of a poliovirus outbreak in the event of an importation. The view of the RTAG on the methodology and model is being sought and will be finalized with modifications and shared with national programmes.

In the discussion that followed, the RTAG affirmed the usefulness of the risk analysis approach and that it should be further developed. It highlighted that the output of the model indicates that it requires a new look and probably reviewing the weighting of the various inputs. A key indicator in this regard would be to see that the outputs is near to the non-model assessment based on past experience observed over the years in individual countries in the region.

8. VDPV REGIONAL EXPERIENCE AND GUIDELINES

Dr Faten Kamel, WHO/EMRO

VDPVs are divided into:

- Immunodeficiency-associated VDPVs (iVDPVs) isolated from persons with primary immunodeficiencies who usually have prolonged VDPV infections following exposure to OPV (i.e. cannot ‘clear’ the OPV infection);
- Circulating VDPVs (cVDPVs) which are associated with sustained person to person transmission and can cause outbreak;

- Ambiguous VDPVs (aVDPVs); which are VDPV that cannot be easily defined as either iVDPVs or cVDPVs are labelled as ambiguous.

In the Eastern Mediterranean Region during the last 5 years 14 cases of iVDPV has been reported from 10 countries; Most of the cases were caused by Type 2 virus, with age ranging between 4 and 44 months. All had multiple OPV doses (>3). These single cases were with neither further circulation nor chronic excretions. Virus was as well isolated from contacts of some cases (Morocco, Yemen and Egypt).

VDPVs were detected through the environmental surveillance system in Egypt 4 times over the years and were classified as aVDPVs

Globally since 2001, cVDPVs have been found to cause 16 polio outbreaks (≥ 2 cases) reported and investigated in 15 countries including Somalia and Afghanistan from EMR. Somalia reported 2 cases in 2008, 7 in 2009 and 2 in 2010. VDPV occurrence and circulation in Somalia demonstrates the fragility of the ground for WPV circulation. While the scheduled immunization activities (2 rounds of NIDs and 2 rounds of CHDs per year) appear adequate to maintain the immunity profile at sufficient level, cVDPVs occurred in areas with low routine coverage and poor access. However, AFP surveillance remains sensitive to detect VDPV circulation.

Extremely long delays in the notification of VDPVs to the country hampered timely response, however, timeliness improved greatly in 2010 but persistent inaccessibility in some districts poses challenges to VDPV response (Lower Shabelle)

Five cVDPV cases were reported in Afghanistan (2 in 2009 and 3 in 2010) from 3 neighbouring districts in southern region, same areas of persistent wild virus circulation. These areas have sub-optimal immunity due to insecurity and poor access, poor routine and gaps in SIAs quality.

Isolation of VDPV should be followed by exhaustive clinical and epidemiologic investigation, with assessment of immune status of the case, search for more cases, contact sampling and evaluation of immunization coverage in the area in order to determine the type of VDPV. The detection of an outbreak of poliomyelitis, *of any origin*, should be considered a public health emergency in any country that is non-endemic or recently endemic, or in any area of an endemic country that is largely polio-free and should be followed by appropriate immunization response.

In the discussion that followed the presentation it was indicated that there are recent developments in the laboratory procedures that would allow rapid identification and labelling of isolated viruses as VDPV. It was also indicated that for type 2 viruses, a change in 6 nucleotides make it reportable.

The need to continue to maintain high population immunity as long as OPV is used was emphasized to avoid the appearance of VDPVs.

Annex 1

PROGRAMME

Thursday, 21 October 2010

08:00–08:30	Registration	
08:30–09:00	**Opening Session**	
	– Opening remarks of the Chairman	Chairman of Regional TAG
	– Address by Dr Hussein A. Gezairy, Regional Director, WHO/EMRO	
	– Follow-up on the implementation of the recommendations of the 7th RTAG Meeting	Dr E. Mohsni, WHO/EMRO
09:00-10:00	**Progress towards Polio Eradication**	
	Regional overview	Dr T. Mir, WHO/EMRO
	Global overview	Mr C. Maher, WHO/HQ
	Discussion	
10:00–10:30	***Break***	
	Epidemiological situation in polio endemic countries, challenges and future plans.	
	Pakistan	
10:30–11:15	Epidemiological situation	Dr N. Abid, WHO/Pakistan
11:15–12:00	Issues and initiatives in endemic and high risk areas	Dr A. Bosan, MoH Pakistan
12:00-12:45	Surveillance quality	Dr O. Islam, WHO/Pakistan
12:45–13:45	***Break***	
13:45–14:15	Campaign quality	Dr A. Bosan, MoH Pakistan
14:15–14:30	Impact of floods on polio eradication and actions taken	Dr N. Abid, WHO/Pakistan
14:30–15:00	***Break***	
15:00–15:30	Communication activities	Dr A. Raza, UNICEF/Pakistan

Thursday, 21 October 2010 (Cont'd)

15:30–15:50	Cross border coordination between Pakistan and Afghanistan	Dr N. Abid, WHO/Pakistan
15:50–16:30	*Overall discussion on Pakistan*	
16:30–17:30	Closed Meeting of the RTAG	

Friday, 22 October 2010

Country specific overviews

08:00–09:15 **Sudan (North and South)**

Epidemiological situation	Dr S. Haithami, WHO/Sudan
Status of the eradication strategies	Dr Y. Mostafa, WHO/S. Sudan
Plans to maintain polio free status	

Epidemiological situation in polio endemic countries, challenges and future plans.

Afghanistan

09:15–10:00	Epidemiological situation	Dr A. Quddus, WHO/Afghanistan
10:00–10:30	***Break***	
10:30–11:15	Issues and initiatives in the South	Dr A. Quddus, WHO/Afghanistan
11:15–12:00	Surveillance quality	Dr A. Quddus, WHO/Afghanistan
12:00–13:45	***Break***	
13:45–14:30	Campaign quality	Dr A. Dost, MoH, Afghanistan
14:30–15:15	Communication activities	Dr N. Kakar/Afghanistan
15:15–15:30	***Break***	
15:30–16:30	*Overall discussion on Afghanistan*	
16:30–17:30	Closed meeting of the RTAG	

Saturday, 23 October 2010

08:30–09:00	**Country specific overviews**	
	Somalia	
	Epidemiological situation	Dr A. Mulugeta, WHO/Somalia
	Status of the eradication strategies	
	Plans to maintain polio free status	
09:00–09:15	Recommendations of the Horn of Africa TAG	Dr F. Kamel, WHO/EMRO
09:15–09:45	Risk analysis for polio free countries	Dr A. Buff, WHO/EMRO
09:45–10:15	VDPV regional experience and guidelines	Dr F. Kamel, WHO/EMRO
10:15–10:45	***Break***	
10:45–12:45	Closed meeting of the RTAG	
12:45–13:45	Presentation of RTAG recommendations	
13:45	**Closing Session**	

Annex 2

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