

External Review of Acute Flaccid Paralysis Surveillance for Polio Eradication in Four Regions of Afghanistan

June 19 - 23, 2016

Summary Report

1 Executive summary

An external review of the Acute Flaccid Paralysis (AFP) surveillance system for polio eradication in Afghanistan was conducted from 19 to 23 June, 2016, following the last external review which was conducted in March of 2015. External team members, supported by facilitating staff from MoPH and local polio partners, visited four regional capitals: Kabul, Jalalabad, Kandahar and Herat.

Background. This review was conducted just over a year after the last review (March 2015), as per the plan presented to and endorsed by the Afghanistan Polio Eradication Technical Advisory Group (TAG).

Previous external AFP reviews, including those conducted in 2008, 2010 and 2015, concluded that AFP surveillance was sufficiently sensitive to assure the detection of imported wild poliovirus or emerging vaccine-derived poliovirus.

Main objective of this review, therefore, was to ascertain if the quality and sensitivity of AFP surveillance in Afghanistan continues to be sufficiently sensitive to assure the timely detection of and response to any circulating wild or vaccine-derived poliovirus.

Main findings. The 2016 review team found that the recommendations made by the 2015 AFP review had been either fully implemented or are in the process of being implemented. Among the main findings of the 2016 review were the following:

- a) *Reporting network* - geographically well distributed and representative - similar sensitivity to identify AFP in accessible and security-compromised areas; but need for more complete inclusion of private sector health facilities.
- b) *AFP surveillance practice* - overall good performance of PPOs (conducting active surveillance) and AFP focal points (in AFP sentinel sites); however, orientation of community reporting volunteers (by AFP focal points and PPOs) needs to be more systematic.
- c) *AFP awareness and knowledge of health workers*: good overall, even among workers in security-compromised areas (interviewed in regional capital or over the phone), with few exceptions; some evidence that AFP cases may still occasionally be missed (private facility, Kabul).
- d) *Data analysis and reporting*: sufficient data analysis (epid. data, AFP quality indicators) at the regional level, also complete and meticulous maintenance of case records and other surveillance documents; request from PPOs for additional training (clinical examination, simple data analysis)

Main conclusions. The review team considers the following to be main conclusions:

- a) based on the assessment in the four Regions visited, the circulation of wild or vaccine-derived poliovirus is unlikely to be missed in Afghanistan;
- b) the extent of the existing surveillance network was sufficient overall (although more private health facilities will need to be included);
- c) the awareness of AFP surveillance among health workers was good overall (but need for more regular orientation of reporting volunteers), and
- e) active surveillance at health facilities overall was of sufficient quality.

Main recommendations. Based on its findings and conclusions, the review offered several recommendations to 'fine-tune' the existing surveillance systems (see Section 5 below), including:

- a) to continue expanding the surveillance network,
- b) to assure that work plans of PPOs allow for sufficient time for surveillance and to provide regular refresher training for surveillance workers (PPOs, AFP FPs),
- c) to utilize all opportunities (e.g. daily or weekly hospital staff meetings) for orienting and re-orienting health workers in facilities on AFP,
- d) to more systematically orient and sensitize community reporting volunteers on AFP,
- e) to regularly analyze surveillance performance comparing accessible and inaccessible areas,
- f) and to provide more systematic feedback on the provincial, national and global polio situation to all field staff and EOCs, REMTs and PEMTs and Provincial Health Directors.

2 Introduction and background

Afghanistan and Pakistan are the only remaining polio-endemic countries globally. To reach the goal of interrupting WPV1 transmission as soon as possible, polio teams in both countries continue to conduct intense immunization activities, including frequent large-scale immunization campaigns. Both countries also maintain sensitive surveillance systems for poliovirus detection - AFP surveillance, augmented by environmental surveillance.

Polio epidemiology since the last AFP review (March 2015). As of end-June 2016, Afghanistan reported 6 polio cases in 2016: 4 cases from a small cluster of villages of the same district in Kunar province, Eastern Region, and one case each from Kandahar and Helmand provinces in the Southern Region.

The WPV1 strain detected in Kunar province was found only in a small 1.5 square km area of the province; this strain is genetically linked to the Khyber-Peshawar area in neighboring Khyber-Pukhtoon-Khwa (K.P.) province of Pakistan.

Of note, none of the eleven environmental surveillance sites (Southern, Central and Eastern Region) yielded any WPV-positive samples in 2016 to date - while one or more sample had been WPV-positive in all sites during 2015.

Current programme performance. There is evidence of improvement in the quality of vaccination campaigns and of overall population immunity and that high quality surveillance is maintained; however, the overall security situation, including access to children, has been deteriorating in Afghanistan over the last year, and particularly during the 2nd quarter of 2016.

Progress overall was achieved by assuring the full functionality of polio eradication Emergency Operations Centers (EOCs) nationally and in key Regions, and by continued focus on the 47 very high risk districts (VHRD).

Following the National Emergency Action Plan for polio eradication (as updated for 2016/17), district-specific plans for the 47 very high risk districts focus on improving programme basics, such as the regular revision of microplans, the implementation of the modified 'revisit' strategy to vaccinate initially absent children, the training of frontline vaccinators and health workers, and targeting areas of known poor performance.

In view of the deteriorating security situation, the programme also continues with efforts to gain access to security-compromised areas, through negotiations with concerned authorities at different levels and implementation of the 'permanent vaccination team' strategy, while observing strict neutrality of the polio program.

Current main challenges. As of end-June 2016, the main challenges to achieve polio-free status in Afghanistan are to a) ensure the quality of vaccination campaigns, as confirmed through reliable monitoring, in both secure and access-compromised areas, and b) to gain access to inaccessible areas, where an estimated 320,000 children were missed recently (May 2016 campaign).

Importance of high-quality surveillance. In view of the documented progress, as well as of the remaining challenges, the maintenance and further improvement of highly sensitive AFP surveillance is of critical importance, to assure the timely detection of and response to WPV importations from infected areas (either inside or outside of the country) into polio-free parts of Afghanistan, as well as to detect the emergence of circulating vaccine-derived poliovirus (cVPDV).

3 The 2016 AFP review

The most recent external AFP review was conducted during the first quarter of last year (March 2015). A decision was made to conduct another external review again this year, as per the 6-month plan presented to and endorsed by the Afghanistan polio TAG (January 2016), to assure

that high quality surveillance is maintained even while polio teams are heavily engaged in the implementation and evaluation of frequent large-scale supplementary immunization campaigns.

Overall objectives of the review. The overall review objectives were to:

- assess if AFP surveillance continues to function well enough at all administrative levels in order to allow the timely detection of circulating or imported wild poliovirus and of emerging circulating vaccine-derived poliovirus; and to
- make specific recommendations on how to maintain and improve AFP surveillance quality, at all administrative levels.

Preparations for the review and its implementation followed standard WHO EMRO guidelines. The external review team consisted of 7 reviewers from UNICEF New York (A. Bose), the Bill and Melinda Gates Foundation (A. Mallya), WHO HQ (R. Tangermann, Z. Khan), WHO EMRO (P. Smith, J. Nikulin), and WHO Pakistan (M. Agha). Four teams were formed, composed of external reviewers and national facilitators from MoPH and national polio partners, which visited Kabul (Central Region), Kandahar (Southern Region), Herat (Western Region) and Jalalabad (Eastern Region).

The review began with a one-day briefing for all review team members by national level MoPH and WHO surveillance staff at the WHO Kabul office. The briefing included a detailed review of the performance of AFP surveillance at the regional level in both the visited as well as the non-reviewed regions. An update on the status of implementation of recommendations made following the 2015 AFP review was presented, and the team was briefed on the methodology and data collection tools to be used to collect information in a standardized way.

Implementation of review activities. Following the briefing in Kabul, teams travelled to their assigned regions to conduct the field review. Reviewers interviewed staff involved in AFP surveillance activities at all levels as permitted by security concerns, and visited hospitals and other health facilities. Persons met and interviewed included WHO staff, MoPH provincial health directors and staff working in regional EOCS and regional and provincial EPI managements teams (REMTs and PEMTs), doctors and paramedical staff in hospitals and health facilities, AFP focal points, reporting volunteers and parents of AFP cases at the community level.

Reviewers checked surveillance records and data available at all levels and visited relevant health facilities and surveillance sites to meet with staff and observe surveillance activities, including the conduct of Active Surveillance by PPOs; reviewers also visited and re-investigated AFP cases.

Field work for this review was greatly facilitated by regional and provincial WHO and MoPH teams, and proceeded smoothly. Fortunately, there were no serious security problems.

Following return to Kabul, each review team presented their key findings and conclusions during a detailed technical debriefing session, attended also by the national WHO polio team. The technical debriefing was followed by a debriefing at the MoPH, attended by Dr Najibullah Safi, DG Preventive Medicine, EOC Director, EOC members, WHO and UNICEF Representatives Dr Richard Peeperkorn and Adele Khudr, and representatives of other partner agencies, including CIDA, USAID, BMGF and CDC Atlanta.

4 Specific AFP review findings

The AFP surveillance system in Afghanistan is well-established, with a clear structure and assigned responsibilities. Existing networks supporting AFP surveillance function well overall; these include the:

- sentinel sites with designated 'AFP focal points' (usually physicians in hospitals, in charge of clinics or of health centers run by one of the NGOs tasked to deliver the Basic Package of Health Services (BPHS)),

- active surveillance AFP sentinel sites and zero reporting sites, and the
- groups of community reporting volunteers linked to each AFP focal point (i.e. teachers, mullahs, shrine keepers, pharmacists, community health workers etc.).

A brief review of AFP surveillance activities at the national level showed that the WHO team in Kabul, together with MoPH, continues to provide effective leadership and guidance on AFP surveillance for regional and provincial polio teams.

The national surveillance team produces the *weekly Afghanistan polio update* which is widely shared with interested parties globally. Also, the national 'expert review committee' (ERC) for case classification continues to meet monthly to finally classify difficult to classify AFP cases, largely those with inadequate specimens (i.e. without reliable laboratory results). The ERC chair, and ERC members, have also supported the programme in other ways, such as through participation in field AFP surveillance assessments, and training sessions for AFP Focal Points.

The following are specific findings of the 2016 review.

a) Reporting network

Representativeness of network. Reviewers were satisfied that, in the visited Regions, the networks of sentinel sites (active surveillance) and of sites participating in routine weekly zero-reporting were well distributed geographically and according to population density; the network continues to function effectively. Regional surveillance teams regularly review, and if necessary re-prioritize, the network of active surveillance sites (according to patient flow and likelihood of seeing AFP cases at a site).

Likewise, the large network of community reporting volunteers assigned to each sentinel site focal point (e.g. mullahs, teachers, pharmacists, shrine keepers) - a unique 'community surveillance' feature of the AFP system in Afghanistan - continues to function and is maintained well overall.

AFP reporting from security-compromised areas. Of note, the network does allow to identify AFP cases from high risk groups and security-compromised areas. One main reason for this is that, in all Regions, but particularly in the Southern Region, AFP surveillance at the large Regional Hospitals (e.g. Mirwais Hospital, Kandahar, Indra Gandhi hospital, Kabul) is very sensitive. For example, > 40% of all AFP cases of the Southern Region are reported through Mirwais hospital alone, with a large proportion of cases coming directly to Mirwais from security-compromised areas.

The review team was encouraged to learn that, as a result, the two key surveillance quality indicators - non-polio AFP rate and stool specimen 'adequacy' - are at equally high levels in accessible areas of the Southern Region, compared to the security-compromised areas (i.e. areas that were 'inaccessible' during the May SIA round).

There also were efforts in all Regions visited to further expand the AFP sentinel site network - notably to include newly opened larger private health facilities and private hospitals in large urban centers, and also to enroll and include any newly opened clinic as sentinel site, particularly if a new facility should be opened in a security-compromised area.

b) Practice of AFP surveillance: active surveillance (AS), AFP Focal Points and and AFP reporting volunteers

Work of PPOs - Active Surveillance for AFP. Most of the field work associated with AFP surveillance in Afghanistan is still carried out by WHO polio staff - largely the Provincial Polio Officers (PPOs), supervised by Regional and Assistant Regional Polio Officers (RPOs, ARPOs).

The review teams accompanied PPOs on their Active Surveillance (AS) visits to large hospitals - and were encouraged to note that, as during previous external reviews, the overall quality of

AS implementation was good (e.g. knowledge and thoroughness of AS visitors to 'scan' all available sources of information in the health facility, their 'working rapport' with clinicians, documentation of visits in registers and logbooks and of completeness of visits in the WHO office).

In addition to active surveillance by PPOs, designated hospital staff conduct daily internal active surveillance rounds in large facilities (Mirwais hospital, Kandahar and Indra Gandhi hospital, Kabul), visiting each of the relevant departments and wards to look for newly seen or admitted AFP cases, with full documentation of these daily visits.

Surveillance activities were specified in monthly work plans of PPOs, although it was not always clear how PPOs ended up balancing their time between working on SIAs and working on AFP surveillance. Regional teams mentioned that, given the large workload through frequent SIAs, PPOs find it difficult to spend enough time in each facility during AS visits. Also, it was also not always clear to what extent the active surveillance work of PPOs in large hospitals was supervised through RPOs and A-RPOs.

Work of AFP 'Focal Points' at sentinel sites. The AFP Focal Points met by the external teams, particularly in the large regional hospital centers, were actively involved, and interacted efficiently with their assigned 'reporting volunteers' (i.e. other doctors in hospitals) as well as with the PPOs visiting for Active Surveillance.

Even though there was evidence in some Regions (see below) that reporting volunteers at the community level were unexpectedly well informed, regional surveillance teams reported that not all AFP FPs, particularly in smaller BPHS-run clinics and health centers, had sufficient interaction with their groups of community reporting volunteers, or were regularly orienting their assigned volunteers (at least once a year) on polio and AFP.

Orientation of community reporting volunteers. Since AFP Focal Points are busy heads of clinic, and may not have enough time for such training and orientation sessions, regional WHO AFP surveillance teams in many areas have started to use PPOs who conduct orientation of reporting volunteers, wherever possible together with the AFP Focal Points. These activities, however, are not yet systematically documented.

c) Practice of AFP surveillance: excluded cases, coordination with DEWS and stool specimen transport and handling

Exclusion of initial AFP reports as 'non-AFP'. During earlier AFP reviews (2008, 2010), review teams had noted that a larger than expected proportion of initial 'AFP' reports were later excluded as 'non-AFP', often without clear documentation as to why exactly the case was considered not to fit the AFP case definition. This had resulted in not even taking stool specimens from some of these 'non-AFP' cases and was thought to decrease the overall sensitivity of the system to detect polioviruses.

Recommendations at the time had stressed that field surveillance staff should rather 'over-include' than 'over-exclude' AFP cases - and that it was no problem if specimens were taken (and analyzed) even if a case initially appearing as 'borderline' AFP improved and was 'back to normal' after a few days.

During this review, teams were satisfied to see that the proportion of 'excluded' cases was around 10% or less of all initial AFP reports, and that complete data on such cases, including details on why the case was thought to be 'non-AFP', was readily available in all regional surveillance offices.

AFP surveillance and the DEWS system. AFP is included as one of 16 epidemic-prone conditions and diseases to be reported also under the Disease Early Warning System (DEWS -

first implemented end-2006) in Afghanistan. The overlap between AFP reporting and DEWS reporting has been discussed by most previous external AFP reviews.

It was again not clear during the regional visits of the 2016 review to which extent both reporting systems coordinated their activities, and whether there was any systematic exchange of data and information between both systems.

However, following the return to Kabul, the national AFP surveillance team pointed out that the coordination between both programs, at regional / province level, was in fact quite close, with both programs sharing weekly updates on a regular basis. Also, there is considerable overlap between both systems since many AFP focal points are at the same time focal points for DEWS.

Specimen collection and transport. Largely confirming findings of earlier external reviews, the 2016 review teams were satisfied that stool specimen collection and transport overall were handled well, despite the many security and access challenges. The integrity of the 'reverse cold chain' from the field to the poliovirus lab is confirmed also by a) the fact that the rates of isolation of non-polio enterovirus are in the expected range in almost all provinces and b) the great majority of specimens arrive in the lab in *good* condition.

The only observation of concern was that, due to the lack of large specimen carriers, small 'day vaccine carriers', with space only for two ice packs, were seen to be used for specimen transport in the Western Region.

d) AFP awareness and sensitivity of AFP detection and reporting

AFP awareness. The awareness and knowledge of the AFP surveillance concepts and practice among clinicians and health workers met in health facilities and other sentinel sites, including of AFP Focal Points, was generally good - even though few exceptions were encountered in each Region. For example, not all health workers, particularly not all those working in smaller clinics and facilities (for example in a health center visited in a model urban development area of Kandahar) were fully aware of all elements of the AFP case definition.

AFP detection by hospital staff vs. by active surveillance visitors. As a result, it was noted that virtually all AFP cases seen at the visited hospitals and facilities were reported by facility staff - mainly the AFP focal points, together with other facility doctors and health workers; no previously unreported AFP cases were found by the PPOs visiting for active surveillance.

Some evidence for 'missed AFP cases.' When scanning through patient registers and logbooks, the review teams did not find any previously unreported AFP-like entries - with one exception: during a visit to a medium-size private hospital in Kabul, the external review team found a register entry of a 'GBS case' which had neither been reported by the hospital staff, nor had been detected by the active surveillance visitor. A likely contributing reason for this was the difficulty, encountered in private hospitals in many countries, that access to log books and patient records is more limited - due to increased privacy concerns, or lack of registration of patients in some private clinics - compared to public hospitals.

AFP awareness and knowledge among surveillance staff and reporting volunteers in security-compromised areas. In order to assess the level of knowledge and awareness of surveillance staff in security-compromised areas of the Southern Region, and to overcome the strict limitations on movements of external reviewers in Kandahar or elsewhere in the Southern Region, the review team invited PPOs and district polio officers (DPOs) working in inaccessible areas to come to the WHO office for interviews; as a result, the review team was able to base their assessment (see above) on interacting with surveillance staff from both accessible and security-compromised areas.

For the same reason, the review team also randomly telephoned five community reporting volunteers in security-compromised areas (including in the districts of Panjvai and Shahwalikot) and asked a series of standard question to test their awareness of AFP surveillance and gauge their familiarity with their focal point (telephone numbers etc.).

All five persons called had the necessary knowledge and awareness of the programme and knew name and contact information for their AFP Focal Point; four of the five volunteers had actually reported an AFP case from the community in the past. Two of the five had been unhappy that they never received any feedback about the AFP case (lab results etc.) which they had reported.

e) Responding to reported AFP cases

Immediate and detailed case investigation. Based on the review of AFP case documentation at regional surveillance offices, review teams were satisfied that virtually all reported cases were promptly investigated by AFP Focal Points, who document investigation results on the standard case investigation forms. PPOs then follow up and conduct detailed case investigations for all AFP cases. Overall high proportions of AFP cases with 'adequate specimens' indicate that cases are detected and notified timely, with timely stool specimen collection.

Cross-notification. Cross-notification of AFP cases, either internally (between two provinces) or cross-border (between Pakistan and Afghanistan) is well-established and works adequately overall. International cross-notification of AFP cases, as well as cross-border coordination of all other aspects of polio eradication strategy implementation is done on a regular basis between AFP surveillance teams in Nangarhar (Eastern Region AFG) and Peshawar (K.P. province, PAK), as well as between Southern Region, AFG, and the Balochistan WHO team in Quetta (Balochistan, PAK).

f) Data analysis, documentation and reporting

Regional WHO surveillance teams were well aware of all relevant regional and provincial data on polio epidemiology and quality of AFP surveillance; data was used effectively to identify gaps in surveillance quality to target corrective action, as well as for overall monitoring and programmatic decision-making. AFP data is also used to monitor levels of immunity, such as through analysis of the OPV history of non-polio AFP cases, or identification of ZERO-dose AFP cases.

Documentation and maintenance of records was good at the national and regional level, as well as in visited reporting sites; requested records of specific cases were promptly and easily retrieved. Case investigation forms appeared to be filled out completely and could easily be found. 'Excluded' AFP cases were well documented (see above).

While programme updates are produced weekly at the national level, visiting review teams in all Regions noted requests for better sharing of national and global updates and epidemiological feedback, which are not yet systematically enough shared with field surveillance staff and with EOCs, REMTs and PEMTs.

The timeliness and completeness of both Active Surveillance and routine Zero-reporting were documented consistently, without significant gaps - with few exceptions, such as in the Northern Region.

5 Main conclusions

The review team arrived at the following main conclusions:

- Circulation of WPV / cVDPV is unlikely to be missed in Afghanistan.
- The extent of the existing surveillance network is sufficient.
- The reporting network has been expanded to include private health facilities - however some new private health facilities will still need to be included.
- Awareness of AFP surveillance among health workers overall is good, but there is a need for regular orientation of reporting volunteers.
- The practice of active surveillance, as observed by reviewers, is generally good.

6 Recommendations

- Ongoing surveillance strengthening:** *ongoing efforts to strengthen AFP surveillance in Afghanistan, including to implement the recommendations made by the 2015 AFP review, are effective and should continue.*
- Surveillance network:** expansion of the network of AFP surveillance sentinel sites should continue by including all relevant newly opened private hospitals and busy private clinics, and new public health facilities as sentinel sites; this is particularly important in hard-to-access and security-compromised areas.
- Practice of AFP surveillance:** in view of the workload associated with planning and implementing of SIAs, the work plans of Provincial Polio Officers (PPOs) should allow sufficient time for the PPO's surveillance activities, in particular for active surveillance at high- and medium priority sentinel sites, and for the training and orientation of AFP 'Focal Points' and AFP community reporting volunteers.
- Supervision of surveillance workers:** PPOs conducting active surveillance, particularly those visiting large provincial and regional, as well as large private hospitals, should be well supervised by Regional and Assistant Regional Polio Officers (RPOs and ARPOs), in order to maintain and further strengthen the quality of Active Surveillance.
- Training of surveillance staff:** all newly appointed PPOs should receive thorough induction training on AFP surveillance; regular refresher training on AFP should be conducted for all other surveillance workers; this should include training for PPOs on basic clinical examination and data analysis skills.
- Orientation of health workers on AFP:** all opportunities, both in- and outside of health facilities, should be used to sensitize and orient clinicians and health workers on AFP surveillance; this should include to use existing forums, such as daily or weekly medical staff meetings in large hospitals, or meetings of professional medical associations, to offer brief orientations of AFP concepts and AFP reporting, 2 to 3 times each year.
- Orientation of community-based reporting volunteers:** the orientation of reporting volunteers through AFP Focal Points with systematic involvement of PPOs should be further strengthened.
- Sensitization of surveillance staff in security-compromised areas:** surveillance staff, and community reporting volunteers working in security-compromised, hard-to-access areas should be regularly contacted and sensitized on AFP surveillance; in addition to existing mechanisms, this should be done also through telephone contacts with the respective staff.

- i) **AFP performance in accessible and security-compromised areas:** key AFP quality indicators (non-polio AFP rates and stool collection 'adequacy') should be regularly analyzed for and compared between accessible and security-compromised areas.
- j) **Feedback and update information to field staff:** surveillance staff, as well as EOCs, REMTs, PEMTs and Provincial Health Directors should receive regular feedback on the current epidemiological situation and AFP performance at the global, national, regional and province level.