

Guidelines for Investigating a Polio outbreak or AFP case clustering

a) Introduction

The Polio Eradication Initiative is at a stage requiring a timely response to any Lab confirmed outbreaks or those situations that raise questions on the possibility of an outbreak. In order to mount a proper response, it is important to determine the risk factors for the Wild Polio Virus (WPV) transmission, the duration and extent or magnitude of the outbreak. This outline attempts to provide guidance for a standard approach to an investigation and documentation. Investigations should be conducted promptly and systematically by a joint team of District and National level programme and surveillance staff and should include any key health partners that may have a stake in the findings. The final outcome of the investigation is to provide information that will guide planning for intervention, strengthen ability to detect any future outbreaks as well as provide any insight as to how to prevent such outbreaks. Therefore, recommendations should be specific and action oriented.

b) Indications

Any one of the following situations do (may) warrant prompt investigation:

- A single isolate of wild poliovirus from a district without known ongoing transmission.
- Cluster of wild poliovirus isolates in an area with previously absent or sporadic cases.
- A clustering of compatibles (2 cases in either a single district OR 2 neighbouring districts in 4 weeks)
- Cluster of AFP cases in a district i.e. number of AFP cases reported more than twice the expected in a month.
- In some cases, a hot AFP case in advance of Lab confirmation.

c) Objectives of investigation

- Determine the extent and duration of wild poliovirus circulation.
- Define population characteristics of the cases including demographics, socio-cultural aspects or any other risk factors.
- Identify the origin / causes for the outbreak or source of importation of poliovirus. If no outbreak is suspected after initiation of investigation, the secondary objective is to determine reasons for AFP clustering.
- Formulate control measures (immunization and surveillance) to interrupt the transmission, prevent the spread or improve the ability to detect circulation.

d) The Major components of the investigation

1. Case details
 - a. Key dates: DONSET; DATE STOOL COLLECTION; DATE LAB CONFIRMATION
 - b. Vaccination status (validated)
 - c. Clinical features.
 - d. Travel history
2. Review of immunization – routine and campaign performance.
 - a. Administrative and independent monitoring data
 - b. Area survey of coverage
 - c. Vaccination coverage rates of AFP cases from the area in previous 1-2 years.

3. Investigation of the socio-cultural characteristics of local population
 - a. Ethnic or other social connections (travel history) to areas of known polio virus transmission.
 - b. Presence of high-risk groups in the area.
 - c. Presence of highly mobile groups in the area, or recent influx of people, especially from areas of known virus circulation.
 - d. Sanitation, hygiene and water sources
 - e. Health seeking behavior including knowledge, attitudes and practices

4. Assess surveillance performance - past and present.
 - a. Review of reported data
 - b. Search for unreported cases
 - c. Review of surveillance practices - including surveillance personnel, active site visits, funds, logistics and transport and specimen collection methods.
 - d. Review of the surveillance documentation at district level including feedback from national level

e) Before moving to the field

- Prepare a checklist of the field activities and key informants to meet/interview e.g. District leadership, DHMT; EPI staff, Clinicians and any tradi-practitioners; parents and care-takers.
- Make a time-table to allow for all key activities including travel time. Divide up teams if necessary to complete all the necessary field work.
- Contact the local authorities before leaving for the field and inform them of the objectives of the mission; request for local counterparts to join the team. Obtain the contact numbers of concerned staff.
- Collect basic population statistics of the district broken down by sub-district, detailed maps of the district with clearly marked sub-district boundaries, health facilities; information and relevant data on key health indicators.
- Obtain a spot Map of the AFP, WPV and compatible cases of previous 12 months.
- Obtain a list of active surveillance sites, a table of AFP surveillance indicators and district line-list of AFP cases. Secure a copy of the case notes and the AFP case investigation form.
- Obtain promotional material on AFP Surveillance, AFP surveillance tools and forms, copies of this outline.
- Perform a preliminary analyses of the district surveillance data including
 - All surveillance indicators including process indicators
 - Map the previous confirmed, compatible, and discarded cases
 - Final diagnoses of discarded cases to determine proportion that were “true” AFP cases.

- Review of laboratory surveillance indicators including time sequence between onset, investigation and Lab results, entero-virus detection rates, etc.
- Review the achievements from previous immunization campaigns with emphasis on validated independent monitoring data.

f) In the field:

- Pay courtesy calls to the relevant authorities and obtain the necessary local clearances.
- Organise a detailed briefing session for all the investigation team members to ensure a common understanding of the task, time allocated, the tools and the expected output.
- Interview identified key informants

- Examine the case(s) and make a clinical impression. Take stool samples from contacts if indicated.
- Conduct a convenience survey of the immunization status: a rough guide is to look for the immunization status of approx. 5% of the kids <5yrs within 500 meters radius of the household of the index case.
- Interview parents of other children in the area and ask for any other cases of paralysis. Enquire about travel histories of any other persons in the vicinity.
- Hold discussions with local leaders and interview teachers of local schools. Get detailed descriptions of the ethnic connections of the people of the area, any nomadic groups in the area, migration patterns, and the presence of other high-risk groups such as displaced persons.
- Search for unreported AFP cases: retrospective review of registers in key reporting sites in the district to look for unreported AFP cases. Examine Patient registers for evidence of previous active searches by the surveillance focal person. Ask about the knowledge, attitudes and practices of clinicians in the potential AFP reporting sites.
- Hold daily meetings to ascertain that all members of the investigation team are on track, that all the necessary information is being collected and make adjustments for the unforeseen.

g) Organisation of the findings

A description of the outbreak and data analysis:

As with any epidemiological investigation, the basic description of the outbreak should identify the key characteristics of person, place, and time: i.e. WHO was affected (risk factors), WHERE the cases occurred (extent), and the TIME course of their occurrence (duration). The analysis as well as the final report should follow this format.

Person: Who was affected by the disease?

Overview of the case characteristics related to risk of the disease.

Epid. No.	Name	Age	Sex	DONSET	Key Socio-cultural Characteristics	Vaccination status (No.)	
						Routine	SIAs

Other:

- Describe behavior or activities that might have placed the affected person(s) at risk.
- Describe the living conditions of the case-families and the area where they live: is it primarily rural or urban, farming community, refugee camps, local hygiene, water sources, sanitation.
- Describe the immunity profile of the community.
- Give a detailed description of the index case, of the outbreak focusing on any potential exposures from outside the area or from areas of known virus transmission. Include a description of travel of cases or case-families. *Remember* that the true first case of the outbreak may not be the one first discovered, it may be a compatible. If different, the case suspected to be the first one of the outbreak should also be fully described.
- Describe nomadic groups or displaced camps in the area.
- Describe any social connections between cases.

Place: Where did the cases arise?

Prepare a spot map of all AFP, any compatibles and confirmed cases clearly identified by County level.

Time: What was the time course and duration of the outbreak?

It is important to note the trend of the disease incidence over time (epi-curve). Here, one should include, but distinguish confirmed and compatible cases including any new cases discovered as a result of the investigation. Make a histogram (vertical bar chart) of AFP cases by month of onset of paralysis over two-year period. Discarded, compatible, and confirmed cases should be identified.

Remember to arrange a debriefing with the appropriate authorities as may be necessary: on the preliminary findings, conclusions and implications/planned interventions.

h) The report

prepare a preliminary written report with copies to the provincial and district health authorities. Suggested format is:

An executive summary

Introduction

- How was outbreak detected?
- What is the evidence for an outbreak?
- Why is this district important to investigate & what is the significance of this particular outbreak?

Background

- Baseline population and surveillance data including quality indicators, expected numbers of cases, etc.
- Estimates of routine and campaign immunization coverage.
- Any specific investigation methods
- What was done in the field

Results/findings

- New discoveries from field investigation such as unreported cases, areas or groups missed in previous immunization campaigns, etc.
- Description of person, place, and time of outbreak.
- Risk factors: markets, social gatherings (feasts, etc.), links with infected areas (religious, ethnic, travel history)
- Supporting data, if no lab data available; contact sampled.
- A detailed district map or sketch that summarises the investigation findings.

Discussion

- If no lab data are available for confirmation, how strongly is a polio outbreak suspected?
- Is the WPV a reintroduction or unrecognized persistent transmission?
- What is the probable extent of virus circulation?
- What are the risks of spread posed to neighbouring areas.

Conclusions and recommendations

- Is an immunization response needed? How large?
- Recommendations for increasing the sensitivity of surveillance to document cessation of transmission after a response.