Retrospective Record Reviews to Augment Polio Surveillance in the Pacific

Polio-free Pacific Islands

1. Background

The Pacific Island countries and territories (PICT; excluding Papua New Guinea) are a sub-region of the Western Pacific Region and are considered as one epidemiological entity for the purposes of poliomyelitis eradication. Maintaining the Pacific polio-free requires high population immunity achieved by quality vaccination programs and sensitive surveillance systems that quickly and reliably detect any poliovirus re-appearing in the region.

The hospital-based surveillance network includes more than 80 hospitals distributed in all 20 PICTs, and active involvement of 300 key pediatric clinicians and medical officers.

The standard strategy for surveillance for paralytic poliomyelitis is acute flaccid paralysis (AFP) surveillance, which comprises notification and investigation of all AFP cases including timely and adequate collection of two stool specimens, and adequate clinical follow-up 60 days after paralysis onset. The reporting mechanism in most countries continues to require a copy of the completed monthly form to be sent from the hospital coordinator to the national coordinator and copied to WHO at least every three months.

PICT have achieved the targeted detection of at least one non-polio AFP case per 100,000 children under the age 15 years since 1997 however in 2022 reported only 7 cases mainly from Fiji resulting in a non- polio AFP rate of 0.7 per 100,000 under age 15. As of May 11, 2023, ten cases were reported, resulting in an annualized non-polio AFP rate of 1 per 100,000 under age 15. However, it should be noted that 8 out of the 10 cases were reported from Fiji Islands and 2 from the Solomon Islands. This may indicate underreporting in the other PICT.

Only a few (6) countries have been reporting AFP cases: Fiji (every year), Solomon Islands (every year), Vanuatu (three years), New Caledonia (two years), Tonga (2018) and Samoa (2016)

While several countries and territories regularly investigated AFP cases and achieved the expected rates per year or over a period of years (when populations are too small to expect cases every year), several countries and territories only reported cases in one or two years or even never, indicating insufficient sensitivity of the respective surveillance system.

The total of reported AFP cases over a period of ten years (2013-2022) for individual PICTs is as noted in the following table:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Country | Total population under 15  yrs. | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | # AFP cases | | non-polio AFP rate 2013-  2022 |
|  |  |  |  |  |  |  |  |  |  |  |  | reported expected | |  |
|  |  |  |  |  |  |  |  |  |  |  |  | 2013-2022 | |  |
| Fiji | 265,998 | 7 | 8 | 3 | 5 | 9 | 4 | 13 | 8 | 10 | 7 | 74 | 27 | 2.28 |
| Solomon Islands | 283,259 | 1 | 6 | 10 | 13 | 7 | 7 | 6 | 3 | 4 | 0 | 57 | 28 | 2.01 |
| Vanuatu | 128,713 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 13 | 0.23 |
| Tonga | 43,546 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 4 | 4 | 0.92 |
| New Caledonia | 64,408 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 6 | 0.47 |
| Samoa | 83,549 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 0.12 |
| French Polynesia | 65,132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 |
| Kiribati | 47,346 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| Guam | 44,753 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| FSM | 34,603 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| Marshall Islands | 13,494 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| American Samoa | 12,019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| CNMI | 10,511 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Cook Islands | 4,008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nauru | 4,912 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Palau | 3,795 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tuvalu | 3,585 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wallis & Futuna | 2,625 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tokelau | 533 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Niue | 504 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 1,117,292 | 8 | 15 | 14 | 20 | 16 | 13 | 21 | 12 | 16 | 7 | 142 | 112 | 1.27 |

The global standard of 80% adequate stool samples has never been reached in the PICT, including the last decade from 2013-2022 While the Pacific sub-region has achieved the targeted detection rate for AFP, there is a need to improve efforts at attaining a higher proportion of adequate stool samples for identified cases.

The standard (80%) for 60-day follow-up for inadequate cases was met for 2022. The proportion improved to 100% in 2022 from 75% in 2020 and 62% in 2021.

While active AFP surveillance continues to be the gold standard for poliomyelitis screening and programs should always aim at achieving the recommended quality standards there are several supplementary surveillance activities including approaches to evaluate the sensitivity of systems.

The PICT Sub-regional Certification Committee (SCC) which continues to oversee maintenance of polio-free status in the region has repeatedly re-affirmed the need to strengthen hospital-based active surveillance (HBAS) for AFP and to re-establish effective AFP surveillance in those PICT and hospitals where recent performance has been poor.

To accomplish improved AFP surveillance the SCC particularly recommends undertaking retrospective record reviews of inpatient (and where applicable out-patient) registers for the past 2-3 years to validate the quality of data already submitted and search for possibly missed AFP cases.

This document outlines the implementation of such targeted retrospective record reviews.

1. Objectives

The specific objectives of targeted retrospective record review in the Pacific are:

* 1. To identify and characterize the sources of relevant data for AFP surveillance in the given clinical setting.
  2. To identify and characterize current organization, policies and procedures in place for AFP surveillance in the given clinical setting.
  3. To validate the quality of data being submitted as part of AFP surveillance.
  4. To identify missed cases.
  5. To determine the sensitivity of AFP or polio surveillance systems.
  6. To identify factors contributing to inadequate AFP surveillance.
  7. To raise awareness as to the importance of AFP surveillance through the involvement of key local personnel.
  8. To make recommendations on improved AFP surveillance policies and procedures.

1. Procedure

* Conduct initially for a minimum two-year period
* Conduct annually to evaluate the sensitivity of surveillance systems in the future
* Conduct in selected major referral hospitals and rehabilitation centers
* Use a limited number of international classification of diseases (ICD) codes:

Acute poliomyelitis ICD 11 - IC81

Encephalitis unspecified ICD 11 - ID00.Z

Guillain-Barre syndrome ICD 11 - 8CD1.0 8D88.2

Sciatic neuritis ICD 11 - ME84.3

Transverse myelitis ICD 11 - 8A41.0

Monoplegia - lower limbs ICD 11 - MB55

Monoplegia - upper limbs ICD 11 - MB54

Periodic paralysis ICD 11 - 8C74.1

TB meningitis ICD 11 - IB11.0

POTT's Disease ICD 11 - 8B4Y

* In hospitals where the information is not (yet) (completely) computerized review the admission record book (and outpatient register where applicable) and search for admission and/or discharge diagnoses like:
  + Poliomyelitis
  + Guillain Barre Syndrome (GBS)
  + Transverse myelitis
  + Traumatic neuritis (usually due to an incorrect intramuscular injection)
  + Encephalitis
  + Meningo-encephalitis
  + Pott's Disease (tuberculosis affecting the vertebrae of the spine)
  + TB meningitis- muscle hypotonia (loss of muscle tone due to some other cause)

-Hypokalemic paralysis (weakness due to low potassium in the blood; often happens during diarrhoea and is quickly reversible)

* + Paralysis
  + Paresis (weakness)
  + Flaccid (floppy) paralysis (in combination with any other words)
  + Weakness (of limb, of unclear origin, etc.)
  + "Gait disturbance"
* Identify all patients under 15 years of age under these codes
* Screen the individual records for any sign of AFP
* For every AFP case found, do the following:

1. Complete a standard case investigation form;
2. Summarize all (relevant) clinical findings;
3. Collect information about follow up examination results;
4. Present all findings including admission and discharge diagnosis to the SCC for final classification through the WHO secretariat.

*Table 1.1 Key Aspects of the Active Surveillance System*

|  |  |
| --- | --- |
| Site | Details |
| Country |  |
| Hospital |  |
| Issue | Details |
| Organizational aspects |  |
| National coordinator (name and contact details) |  |
| Hospital coordinator (name and contact details) |  |
| Key clinicians (names and contact details) |  |
| *Process aspects* |  |
| Any problems with monthly forms? |  |
| Can White Folder (on monthly surveillance) be located? |  |
| Are stool sample collection containers available? |  |
| Are shipment packaging/ documentation instructions  Available |  |
| Has the laboratory the shipment boxes? |  |
| *Record review (<15y)* |  |
| Pediatric admission / discharge register. |  |
| Age range of register |  |
| Summary of findings |  |
| Computerized record review – hospital discharge data |  |
| *Other* |  |
| Investigation of previously suspected cases of AFP |  |
| Meetings with managers and administrative staff |  |

*Table 1.2 Review of Pediatric Admission Register*

|  |  |
| --- | --- |
| *Issues / Conditions* | Details / results |
| Hospital |  |
| Pediatric population |  |
| Period covered (month/year) |  |
| No. of pediatric admissions for the period (excluding surgical admissions) |  |
| Data quality |  |
| *Conditions under active surveillance* |  |
| AFP or suggestions of “weakness” or “paralysis” or other symptoms/signs requiring further chart review |  |
| Tetanus neonatorum (optional) |  |
| Measles ('rash&fever') (optional) |  |
| *Other vaccine preventable conditions (optional)* |  |
| Hib meningitis |  |
| Meningitis (NOS) |  |
| Hepatitis B |  |
| Pertussis |  |
| Rubella |  |

*Table 1.3 Review of the Medical Ward(s) Admission Register*

|  |  |
| --- | --- |
| *Issues / Conditions* | Details / results |
| Hospital |  |
| Population (sub-group) |  |
| Period covered (month/year) |  |
| No. of paediatric admissions for the period (excluding surgical admissions) |  |
| Data quality |  |
| *Conditions under active surveillance* |  |
| AFP or suggestions of “weakness” or “paralysis” or other symptoms/signs requiring further chart review |  |
| Tetanus neonatorum (optinal) |  |
| Measles (rash & fever) (optional) |  |
| *Other vaccine preventable conditions (optional)* |  |
| Hib meningitis |  |
| Meningitis (NOS) |  |
| Hepatitis B |  |
| Pertussis |  |
| Rubella |  |

*Table 1.4 Review of Computerised Discharge Data*

|  |  |
| --- | --- |
| *Issues / Conditions* | Details / results |
| Hospital |  |
| Data source (name of register) |  |
| Population |  |
| Period covered (month/year) |  |
| No. of discharges for the period |  |
| *Possible AFP [ICD11 codes]* |  |
| Acute poliomyelitis [IC81] |  |
| Viral infections of the central nervous system [IC81-  IC89] |  |
| Guillain-Barre Syndrome [8C01.0] |  |
| Sciatic neuritis [ME84.3] |  |
| Transverse myelitis [8A41.0] |  |
| Encephalitis, myelitis, encephalomyelitis [ID00.Z] |  |
| Periodic paralysis [8C74.1] |  |
| TB meningitis [IB11.0] |  |
| POTT's Disease [8B4Y] |  |
| *Other conditions under active surveillance* | *(optional)* |
| Tetanus neonatorum [IC15] |  |
| Measles [1F03] |  |
| *Other vaccine preventable diseases* | *(optional)* |
| Diphtheria (laryngeal) [IC17.2] |  |
| Hepatitis B, Acute [1E50.1] |  |
| Hib meningitis [ID01.00] |  |
| Pertussis (unspecified organism) [IC12.Z] |  |
| Rubella [1F02] |  |