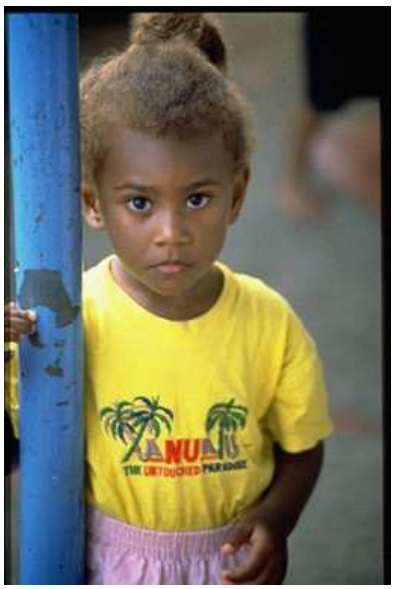

Polio-free Pacific Islands

Retrospective Record Reviews to Augment Polio Surveillance in the Pacific

I. 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 programmes and sensitive surveillance systems that quickly and reliably detect any poliovirus re-appearing in the region.

The hospital-based surveillance network includes 58 hospitals distributed in all 20 PICTs, and active involvement of 20 national coordinators, 58 hospital coordinators, and about 200 key pediatric clinicians.

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 except in 2002 when eight cases were reported, resulting in a non-polio AFP rate of 0.8 per 100,000 under age 15. In 2003 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 nine out of the 10 cases were reported from Fiji Islands and one from the Solomon Islands. This may indicate underreporting in the other PICT. Cook Islands, Nauru, Niue, Palau and Tokelau did not expect a case 1997-2003. In 2004, 14 AFP cases have been reported from six countries (Federal States of Micronesia, Fiji, Marshall Islands, New Caledonia, Solomon Islands, Vanuatu).

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 eight years (1997-2004) for individual PICTs is as noted in the following table:

Country	Total population under 15 yrs	97	98	99	00	01	02	03	04	# AFP cases		non-polio AFP rate 1997-2004
										reported	expected	
										1997-2004		
Fiji	288,000	4	3	2	5	3	2	9	7	35	23	1.39
Solomon Islands	182,400	0	1	2	4	2	1	1	1	12	15	0.86
French Polynesia	73,800	0	0	0	4	0	0	0	0	4	6	0.77
Vanuatu	85,100	0	2	0	1	0	1	0	2	6	7	0.67
Samoa	73,000	0	0	4	0	1	0	0	0	5	6	0.98
F.S. Micronesia	62,000	2	0	2	0	0	1	0	1	6	5	1.15
New Caledonia	69,900	3	4	1	3	3	2	0	2	18	6	3.27
Guam	53,100	0	1	0	0	0	0	0	0	1	4	0.27
Tonga	41,000	0	0	0	1	1	0	0	0	2	3	0.70
Kiribati	34,600	3	0	1	0	1	0	0	0	5	3	2.06
American Samoa	22,600	0	0	0	1	0	0	0	0	1	2	0.63
CNMI	19,600	0	0	0	0	0	0	0	0	0	2	0.00
Marshall Islands	22,800	0	0	0	0	0	0	0	1	1	2	0.00
Wallis&Futuna	5,100	0	0	0	1	0	0	0	0	1	0	2.80
Tuvalu	3,500	0	0	0	0	0	1	0	0	1	0	4.08
TOTAL	**1,036,500**	**12**	**11**	**12**	**20**	**11**	**8**	**10**	**14**	**98**	**83**	**1.16**

The global standard of 80% adequate stool samples has never been reached in the PICT. Of the nine cases in 2002, only two (29%) had two adequate stool specimens. For the 10 cases with onset in 2003, the rate of timely stool sample collection was 50%. Of the 14 AFP cases investigated in 2004, eight (57%) had adequate stool samples taken. 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 was not met for 2002, with only three of the eight cases (38%) having follow-up examinations. The proportion improved to 90% in 2003 and 93% in 2004.

While active AFP surveillance continues to be the gold standard for poliomyelitis screening and programmes 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, in particular, 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 to undertake 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.

II. 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.

III. 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 9 - 045-045.9
Poliomyelitis/encephalitis	ICD 9 - 323.2
Post-vaccinal encephalitis/encephalomyelitis	ICD 9 - 323.5
Encephalitis unspecified	ICD 9 - 323.9
Guillain-Barre syndrome	ICD 9 - 357.0
Flaccid muscle paralysis	ICD 9 - 359.9
Traumatic neuritis	ICD 9 - 956.0, 956.1, 956.9
Transverse myelitis	ICD 9 - various
Monoplegia - lower limbs	ICD 9 - 344.3
Monoplegia - upper limbs	ICD 9 - 344.4
Monoplegia - NOS	ICD 9 - 344.8

Acute poliomyelitis	ICD 10 - A80
Viral infections of the central nervous system	ICD 10 - A80-A89
Guillain-Barre Syndrome	ICD 10 - G61
Traumatic neuritis	ICD 10 - G57.0
Transverse myelitis	ICD 10 - G37.3
Encephalitis, myelitis, encephalomyelitis	ICD 10 - G04
Periodic paralysis	ICD 10 - G72.3
TB meningitis	ICD 10 - A17.0 (G01)
POTT's Disease	ICD 10 - M49.0 (A18.0)

- in hospitals where the information is not (yet) (completely) computerized review the admission record book (and evtl. outpatient register where applicable) and search for admission and/or discharge diagnoses like:

  - poliomyelitis
  - Guillain Barre Syndrom (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 [ICD10 codes]	
Acute poliomyelitis [A80]	
Viral infections of the central nervous system [A80-A89]	
Guillain-Barre Syndrome [G61]	
Traumatic neuritis [G57.0]	
Transverse myelitis [G37.3]	
Encephalitis,myelit is, encephalomyelitis [G04]	
Periodic paralysis [G72.3]	
TB meningitis [A17.0 (G01)]	
POTT's Disease [M49.0 (A18.0)]	
Other conditions under active surveillance	*(optional)*
Tetanus neonatorum 771.3 [A33]	
Measles 055, 055.0-055.2, 055.7-055.9 [B05]	
Other vaccine preventable diseases	*(optional)*
Diphtheria (laryngeal) [A36]	
Hepatitis B [B16]	
Hepatitis unspecified [B19]	
Hib meningitis [G00.0]	
Meningitis (NOS) [G03]	
Pertussis (unspecified organism) [A37]	
Rubella [B06]	
Data quality checks	*(optional)*
Missing ICD9 [ICD10] code for first diagnosis	
Normal deliveries (code 650 in ages <5 and >65 yrs)	
Normal deliveries (code 650) occurring in males	