# Annual report of the Australian National Poliovirus Reference Laboratory, 2007

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## Abstract

In July 2007, wild poliovirus type 1 was isolated from a patient suffering poliomyelitis in Melbourne, Australia with onset in Pakistan. The imported case of polio demonstrates the ongoing risk faced by polio-free countries until the global certification of polio eradication. The poliovirus was detected by the National Poliovirus Reference Laboratory (NPRL) for Australia; accredited by the World Health Organization (WHO). The NPRL acts as the national laboratory for the Pacific Islands, Brunei Darussalam and Papua New Guinea. Additionally, the NPRL functions as a regional reference laboratory for the WHO Western Pacific Region. The NPRL, in collaboration with the Australian Paediatric Surveillance Unit, co-ordinates surveillance for acute flaccid paralysis (AFP), a major clinical presentation of poliovirus infection. After classification of AFP cases by the Polio Expert Committee, the non-polio AFP rate for Australia in 2007 was 0.65 per 100,000 children aged less than 15 years, below the performance indicator of 1.0 per 100,000 set by the WHO. Adequate faecal sample collection totalled 48% (13/27) of eligible AFP notifications, below the 80% performance indicator recommended by the WHO. During 2007, 119 specimens were referred to the NPRL, 70 from AFP cases and 49 from other sources, including contacts of the wild poliovirus importation, all negative for poliovirus infection. Coxsackievirus A4 was isolated from 1 case and adenovirus from 2 cases. During 2007, 1,313 cases of poliomyelitis due to wild poliovirus infection were reported world-wide: 1,207 occurring in the 4 remaining polio endemic countries and 106 cases reported in 5 non-endemic countries. *Commun Dis Intell* 2008;32:308–315.

Keywords: poliovirus, acute flaccid paralysis, surveillance, enterovirus, importation, poliomyelitis, eradication, vaccination

## Introduction

In 1988 the World Health Assembly, which is the governing body of the World Health Organization (WHO), passed a resolution to eradicate polio by the year 2000.[1] Although that date has now passed, great progress has been made toward the goal of global polio eradication. There are 4 remaining endemic countries, Afghanistan, India, Nigeria and Pakistan with a further 8 countries reporting importation of poliovirus from endemic regions in June 2008.[2]

Established in 1994 by the Australian Commonwealth Government, the National Poliovirus Reference Laboratory (NPRL), based within the Victorian Infectious Diseases Reference Laboratory (VIDRL), has played a major role in Australia's commitment to the WHO polio eradication program. The NPRL is accredited by WHO as the national laboratory for the isolation and characterisation of poliovirus from clinical specimens within Australia, the Pacific Islands, Papua New Guinea and Brunei Darussalam. The NPRL is also designated as a Regional Reference Laboratory for the WHO Western Pacific Region (WPR) and receives poliovirus isolates for further characterisation from National Polio Reference Laboratories of the WPR.

The Australian Commonwealth Government initiated a surveillance program for acute flaccid paralysis (AFP) in 1995 based on the guidelines recommended by WHO focussing on AFP cases in children aged less than 15 years. Co-ordination of the AFP surveillance program is undertaken at the NPRL in collaboration with the Australian Paediatric Surveillance Unit (APSU). Suspected cases of poliomyelitis and notified cases of AFP, regardless of age, are subjected to review by the Australian Polio Expert Committee (PEC), a sub-committee of the Communicable Diseases Network Australia.

The current recommendation for polio vaccination in Australia is at 2, 4 and 6 months and 4 years of age. A 10 yearly supplemental vaccination for 'at-risk' groups such as health-care workers and travellers to countries known to contain active transmission of wild poliovirus is also recommended. Primary vaccination in adults should include 3 doses at 1 to 2 month intervals.[3] As of November 2005, the Australian National Immunisation Program moved to the exclusive use of inactivated poliovirus vaccine (IPV), in place of the live attenuated Sabin oral poliovirus vaccine (OPV).[4] The use of OPV reduces the incidence of vaccine associated paralytic poliomyelitis (VAPP), estimated to occur in one in 2.4 million doses of OPV distributed. After administration of OPV, the recipient may shed live poliovirus intermittently for up to 6 weeks. In immunocompromised persons who receive OPV, virus excretion can persist in excess of 6 weeks.[5] The exclusive use of IPV in the vaccination schedule eliminates the potential for VAPP in vaccine recipients. Virology laboratories are no longer expected to routinely isolate OPV-derived polioviruses from

clinical specimens and any poliovirus isolated within Australia should now indicate an importation event and requires complete investigation.

This report summarises the activities of the Australian National Poliovirus Reference Laboratory in 2007 and includes a summary of the laboratory testing of the wild poliovirus importation. A comparison of AFP surveillance in Australia against performance indicators established by WHO is also presented.

## Methods

The current system of AFP surveillance used by the NPRL in collaboration with the APSU is as follows:

- Clinicians reviewing patients presenting with AFP are advised to notify the NPRL by telephone.
- In keeping with WHO guidelines, the AFP surveillance program requires that all AFP cases involving children less than 15 years of age be notified. However, the NPRL tests specimens from cases of suspected poliomyelitis involving patients of all ages. AFP cases in children aged less than 15 years are notified on monthly report cards/emails submitted by paediatricians to the APSU.
- Two faecal specimens should be collected 24 to 48 hours apart, due to intermittent shedding of virus, and within 14 days of onset of paralysis for optimal virus isolation.
- Faecal specimens are referred to the NPRL for testing.
- Reporting clinicians are supplied with a clinical questionnaire immediately upon notification of an AFP case.
- The PEC, convened by the Australian Government Department of Health and Ageing, reviews clinical and laboratory data for all notified cases of AFP, regardless of case eligibility.
  - The PEC case definition for AFP is: any child under 15 years of age with acute flaccid paralysis (including Guillain-Barré syndrome), or any person of any age with a paralytic illness if poliomyelitis is suspected.
  - In accordance with the WHO guidelines an ineligible case involves a patient aged greater than 15 years, an overseas resident, or a case notified as AFP in error by a clinician.
- The PEC case classifications are as follows:
  1. AFP as poliomyelitis due to poliovirus (wild type or vaccine),
  2. non-polio AFP or;
  3. non-AFP
- A follow-up questionnaire is sent to notifying clinicians 60 days after the onset of paralysis, if the PEC requires more information regarding the AFP case, before a final classification can be made.
- Australian AFP data are forwarded to WHO for inclusion in the global AFP surveillance data published in the *Weekly Epidemiological Report,* (available from http://www.who.int/wer/en/).
- At the end of each calendar year a small number of AFP notifications remain unclassified by the PEC as no clinical and laboratory data are available from the notifying clinician to enable a final classification by the committee.

Upon receipt at the NPRL, faecal specimens are treated with Minimum Essential Medium containing Earle's Salts, chloroform (9.1% v/v) and foetal bovine serum (2%). The suspension is clarified and the supernatant inoculated onto a series of mammalian cell lines. In keeping with WHO requirements, cell lines used for the isolation of poliovirus are L20B (a transgenic mouse epithelial cell line expressing the human poliovirus receptor, CD155)[6] and RD-A (human rhabdomyosarcoma). The NPRL utilises two additional cell lines for the isolation of poliovirus and non-polio enteroviruses: Hep2 (human epidermoid carcinoma) and HEL (human embryonic lung). Laboratories throughout Australia are encouraged to refer enteroviruses of unknown serotype to the NPRL for further characterisation as poliovirus can be clinically involved with non-paralytic conditions such as aseptic meningitis.

All polioviruses, whether isolated from AFP cases or other sources, undergo a process known as intratypic differentiation to distinguish between wild and vaccine strains of poliovirus. With the approval of WHO, the NPRL tests all polioviruses by diagnostic polymerase chain reaction (PCR) and sequencing of the VP1 genomic region. Current WHO PCR protocols allow the determination of poliovirus serotype (1, 2 or 3) and whether the poliovirus is Sabin-like.

Two regions of the poliovirus genome are routinely sequenced from all poliovirus isolations. The more important of these regions is the VP1 genomic region, which is the virus capsid encoding region containing a major antigenic determinant. One per cent or more change in this region compared to the prototype OPV strain is, by definition, a vaccine-derived poliovirus. The second region of interest is the 3D genomic region, which is sequenced in order to determine whether the virus has undergone a recombination event with another poliovirus serotype or non-polio enterovirus.

The NPRL is also accredited as a Regional Reference Laboratory for the Western Pacific Region, through proficiency testing and periodic on-site inspections by WHO staff.

## Results

### Notification of acute flaccid paralysis cases and Polio Expert Committee case classifications

A total of 53 cases of AFP with onset of symptoms in 2007, were notified to the APSU or the NPRL. Of these, 27 cases involved patients aged less than 15 years and were therefore considered eligible for reporting to the WHO. Thirteen cases were either ineligible according to WHO criteria as the patient was aged 15 years or over, or due to an error of notification, 5 duplicate notifications of AFP cases were received. Eight cases remain pending classification due to insufficient information.

*Eligible acute flaccid paralysis cases*

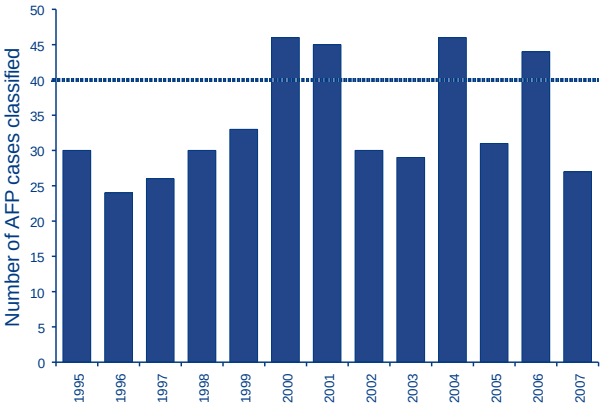
Sufficient data were available to classify 26 of the eligible cases as non-polio AFP. One case, with onset in June 2007, could not be discarded as non-polio AFP on the available information and was reported to WHO as polio compatible.

The annual rate for notification of AFP cases was 0.88 per 100,000 (35/40) children aged less than 15 years. The annual rate for cases classified as non-polio AFP by the PEC was 0.65 per 100,000 (26/40) children aged less than 15 years, in 2007 (Table 1). The classification of eligible AFP cases from 1995 to 2007 is presented in the Figure.

*Ineligible cases*

A total of 13 ineligible cases were notified with 8 cases considered ineligible due to the patients being older than 15 years of age. A further case involved the importation of wild poliovirus by a 22-year-old student from Pakistan.[7] Four notifications were later reported as non-AFP; 3 cases involved children less than 15 years of age and 1 case involved a 69-year-old returned traveller.

**Figure. Classification of eligible acute flaccid paralysis cases from 1995 to 2007**




World Health Organization acute flaccid paralysis surveillance performance indicator for Australia = 40 cases per year.

### Notifications of acute flaccid paralysis by state and territory

In 2007, AFP cases were notified from all states and territories in Australia, with the exception of the Northern Territory (Table 2). The AFP notification rates for all states and territories exceeded the AFP surveillance performance indicator of 1 case per 100,000 children except for New South Wales and the Northern Territory (Table 2). The 3 most populous states, New South Wales, Queensland and Victoria, which account for more than 75% of

**Table 1. AFP surveillance in Australia 2007, compared with WHO indicator targets for children less than 15 years**

| WHO indicator target for AFP cases of children less than 15 years* | Australia's surveillance for AFP cases with onset in 2007 | Australia's AFP surveillance rates for 2007 |
|---|---|---|
| Non-polio AFP case rate of 1.0 per 100,000 children (40 cases for Australia in 2007). | 35 unique cases of AFP notified<br>26 cases classified by the PEC as non-polio AFP and one classified as polio compatible | AFP notification rate: 0.88/ 100,000 children.<br>Non-polio AFP case rate: 0.65/ 100,000 children. |
| More than 80% of notified AFP cases with 2 adequate faecal specimens collected at least 24 hours apart, within 14 days of onset of paralysis. | 14 AFP cases with 2 or more adequate specimens | Referral of adequate specimens from AFP cases: 52% (14/27) of the eligible cases. |

* Based on data supplied by the Australian Bureau of Statistics, estimated resident population, preliminary – 30 June 2006. ABS publication 3201.0, December 2006.

AFP Acute flaccid paralysis.

WHO World Health Organization.

expected AFP cases, did not meet surveillance performance indicators based on final classification of cases by the PEC.

### Faecal specimen collection from acute flaccid paralysis cases

A performance indicator set by WHO stipulates that adequate faecal specimens be collected from 80% of eligible AFP cases. The WHO defines adequate specimens for poliovirus culture, as 2 faecal specimens collected 24 to 48 hours apart and within 14 days of onset of symptoms.

*Eligible acute flaccid paralysis cases*

In 2007, faecal specimens from 18 of 27 eligible cases were tested at the NPRL:

- fourteen (52%) cases had adequate specimens;
- three (11%) cases had one specimen collected within 14 days of onset of symptoms;
- one (4%) case had 2 specimens collected after 14 days of onset of symptoms;
- no faecal specimens were received from the 9 (33%) remaining eligible cases.

The proportion of eligible cases with adequate faecal specimen collection was 52% (14/27) which represents the best result for this WHO criterion since AFP surveillance commenced in Australia. However, this result does not satisfy the faecal collection performance indicator set by WHO of 80% of eligible AFP cases.

*Ineligible cases*

Faecal specimens were referred to the NPRL from 8 of the 13 ineligible cases. Wild poliovirus was isolated from 2 faecal specimens, collected in Melbourne on days 15 and 17 post-onset of symptoms, from an imported case of poliomyelitis from Pakistan.[7] No enteroviruses were isolated from the faecal specimens of the remaining cases.

### Laboratory testing of specimens

*Acute flaccid paralysis cases*

Between 1 January and 31 December 2007, a total of 68 specimens were referred from patients of all ages and nationalities with AFP.

Forty-seven specimens were received from 21 cases of AFP that involved Australian children less than 15 years of age, as per the WHO criterion for AFP surveillance. A non-polio enterovirus, identified as coxsackievirus A4 by sequencing of a portion of the VP1 genomic region, was isolated from 2 specimens of 1 case. Adenovirus was isolated from 1 specimen of 1 case and from 2 specimens of a further case of AFP. No enterovirus was isolated from the remaining 42 faecal specimens (Table 3).

A total of 9 faecal specimens were referred from 6 AFP cases involving Australian patients greater than 15 years of age. Two nasogastric aspirates and a rectal tube specimen were also received from one of the cases. Enterovirus was not isolated from any of the specimens.

## Table 2. Unique notifications of eligible AFP cases with onset of symptoms between 1 January and 31 December 2007, by state or territory of residence

| State or territory | Estimated population aged <15 years* | Expected number of cases/year | Total number of notifications | Eligible cases classified by PEC 1 January to 31 December 2007 | Non-polio AFP rate per 100,000 population aged <15 years |
|---|---|---|---|---|---|
| ACT | 62,430 | 0.5 | 2 | 1 | 2.00 |
| NSW | 1,309,104 | 13 | 13 | 5 | 0.39 |
| NT | 50,674 | 0.5 | 0 | 0 | 0.00 |
| Qld | 816,566 | 8 | 10 | 4 | 0.5 |
| SA | 283,763 | 3 | 4 | 2 | 0.67 |
| Tas | 96,318 | 1 | 3 | 2 | 2.07 |
| Vic | 961,410 | 10 | 17 | 9 | 0.9 |
| WA | 404,349 | 4 | 4 | 3 | 0.75 |
| Australia | 3,984,614 | 40 | 53 | 26 | 0.65 |

* Australian Bureau of Statistics, estimated resident population, preliminary – 30 June 2006. ABS publication 3201.0, December 2006.

AFP Acute flaccid paralysis.

Six faecal specimens, 1 cerebrospinal fluid (CSF) and a throat swab were received from the index case of the wild poliovirus importation. Wild poliovirus was isolated from the first 2 faecal specimens, while the remaining specimens were negative for virus isolation. Adenovirus was isolated from a faecal specimen received from a Papua New Guinea national referred by an Australian hospital; the WHO regarded this case as originating from Papua New Guinea due to the patient's nationality.

### Table 3. Results from specimens referred to the Australian National Poliovirus Reference Laboratory from within Australia, 1 January to 31 December 2007

| Result | Isolations from AFP cases* | Isolations from non-AFP referred samples† | Total |
|---|---|---|---|
| Poliovirus wild type 1 | 2 | 0 | 2 |
| Poliovirus sabin-like | 0 | 0 | 0 |
| NPEV‡ | 2 | 30 | 32 |
| Adenovirus | 4 | 0 | 4 |
| No virus isolated | 60 | 51 | 111 |
| Total | 68 | 81 | 149 |

AFP Acute flaccid paralysis.

* Includes specimens from patients of all ages and nationalities referred from within Australia.

† Includes specimens from close contacts of the index case of the importation of wild poliovirus type 1 from Pakistan.

‡ NPEV: non-polio enterovirus. Molecular sequence results of NPEV from AFP and non-AFP sources identified coxsackieviruses A4, A16, coxsackievirus B1, echoviruses 3, 6, 7, 9 18, 20, 30 and enterovirus 71.

*Sources other than acute flaccid paralysis*

Fifty-one specimens were received from sources other than AFP in the reporting period (Table 3), and no enterovirus was isolated from any of the specimens.

Forty-four faecal specimens were from contacts of the polio importation case. Seven faecal specimens were received from 3 cases that were initially reported as AFP but later identified as notification errors.

Thirty untyped enterovirus isolates were received for serotype identification from a virology laboratory in Australia.

A summary of enterovirus testing at the NPRL for the period 1995 to 2007 can be found in Table 4.

## Importation of wild poliovirus in Australia from Pakistan, July 2007

A 22-year-student from Pakistan who had been vaccinated with at least three doses of OPV as a child,

### Table 4. Summary of enterovirus testing at the Australian National Poliovirus Reference Laboratory, 1995 to 2007

| Year | Poliovirus | | Non-polio enterovirus | No enterovirus detected | Total samples tested |
|---|---|---|---|---|---|
| | Sabin-like | Non-sabin-like | | | |
| 1995 | 190 | | 200 | 13 | 403 |
| 1996 | 224 | | 198 | 9 | 431 |
| 1997 | 124 | | 76 | 0 | 200 |
| 1998 | 52 | | 15 | 4 | 71 |
| 1999* | 60 | 1 | 9 | 9 | 79 |
| 2000 | 45 | | 44 | 47 | 136 |
| 2001* | 46 | 5 | 33 | 75 | 159 |
| 2002 | 36 | | 21 | 49 | 106 |
| 2003 | 9 | | 15 | 47 | 71 |
| 2004 | 6 | | 26 | 61 | 93 |
| 2005 | 18 | | 10 | 39 | 67 |
| 2006 | 2 | | 6 | 71 | 79 |
| 2007† | 0 | 2 | 32 | 115 | 149 |

* Untyped enterovirus or uncharacterised poliovirus isolates were referred for further testing after completion of a laboratory inventory. The six isolates tested as non-Sabin-like and were subsequently identified as wild type poliovirus prototype strains and were destroyed.

† Includes specimens from patients of all ages, relating to the importation of wild poliovirus type 1 from Pakistan.

returned to Pakistan in March 2007. Upon return to Australia in July, the patient attended the emergency department of a metropolitan Victorian Hospital.

A faecal specimen, throat swab and CSF were received by the Polio Reference Laboratory on Monday 9 July and prepared as described in the methods. The NPRL reported a poliovirus type 1 positive result on Friday 13 July, with confirmation of wild-type 1 serotype on 16 July. The Communicable Diseases Network Australia, the Australian Health Protection Committee and the Australian Government Department of Heath and Ageing were consulted throughout the confirmation process. The case was reviewed by the PEC and classified as poliomyelitis, wild-poliovirus infection, based upon clinical and laboratory evidence.

The NPRL sequenced the VP1 genomic region of the poliovirus isolate and performed phylogenetic analysis using cognate sequences. The Australian isolation showed a high sequence identity with type 1 wild poliovirus isolates from Pakistan in the year 2000. Poliovirus ELISA was also performed on 16 July with a result of non-Sabin-like poliovirus type 1. The wild poliovirus 1 isolate was referred to the WPR WHO Global Specialised Laboratory, National Institute of Infectious Diseases Japan, for sequence confirmation, according to WHO protocol.

A second faecal specimen was collected on 9 July and a poliovirus isolated from this second faecal specimen was positive by pan-enterovirus and pan-poliovirus reverse transcription (RT) PCR. The VP1 genomic region of the second wild poliovirus isolate was 100% identical to the isolate from the first faecal specimen.

The patient was isolated at the hospital until 2 consecutive faecal specimens, collected 7 days apart, were negative in cell culture.

### Laboratory testing of faecal specimens from close contacts of the index case

The Department of Human Services investigated persons considered at risk of poliovirus infection through close contact with the index case. Two faecal specimens, collected 24 to 48 hours apart, were requested from each person for testing by the NPRL. All specimens were negative for enterovirus isolation by cell culture. Specimens were also referred to the VIDRL Viral Identification Laboratory for rapid screening and result confirmation by RT-PCR.

Overseas born health care workers who had possible contact with the index case upon admission to hospital and who could not provide evidence of recent polio immunisation were requested to provide 2 faecal specimens for testing. Specimens were received from 10 health care workers and all were negative for virus isolation by cell culture.

The index case remained the only positive isolation with no evidence of transmission of the wild poliovirus in Australia. WHO regarded the case as being from Pakistan, irrespective of the residency status of the patient, as the onset of illness occurred in that country. Therefore, Australia maintained its polio-free status. The Chief Medical Officer of Australia released a statement in September 2007, requesting all public health officials to maintain awareness for cases of AFP after the importation and issued a reminder for containment of wild poliovirus and potentially infectious material.

### Polio serology

Acute and convalescent sera from the index case of the polio importation were tested for polio antibodies. No significant rise in titre was observed. The time between onset of symptoms in Pakistan and collection of acute-phase serum in Melbourne would significantly influence this result.

Poliovirus serology is only performed for cases with a clinical suspicion of acute poliovirus infection. Eighteen requests for polio serology were cancelled after discussion with the referring doctor, as the requests related to patient immune status for work or travel purposes.

### Regional reference laboratory activities

In addition to the Australian samples, 156 specimens and isolates were received from countries of the Western Pacific Region in 2007. The specimens referred for testing included 24 faecal specimens from 12 cases of AFP from Pacific Island countries and Brunei Darussalam, 85 specimens and isolates from Malaysia, 22 specimens and isolates from the Philippines and 23 specimens and isolates from Papua New Guinea from both AFP cases and non-AFP sources.

Two poliovirus isolates were received from a non-AFP case from Singapore in October 2007. The isolates were sequenced in parallel with the National Polio Reference Laboratory of Singapore, based at the Singapore General Hospital, to assist the laboratory with establishing poliovirus genome sequencing as a routine procedure.

### Quality assurance program

The laboratory retained full accreditation status as a WHO Regional Reference Laboratory after an on-site review by WHO. In July 2006, the NPRL implemented a reduced period for cell culture

incubation from 14 days to 10 days according to a new WHO test algorithm. Other elements of the new test algorithm, already performed in the polio endemic countries, were implemented by the NPRL from September 2007.

The NPRL passed an annual PCR proficiency panel containing 10 samples from the Centers for Disease Control and Prevention in the United States of America.

An annual proficiency panel for poliovirus isolation and characterisation was passed as part of the accreditation procedure for a WHO National Polio Reference Laboratory. The proficiency panel was subsequently distributed to laboratories throughout the Western Pacific Region by the NPRL, as part of the terms of reference as a regional reference laboratory.

## Discussion

The importation of wild poliovirus from Pakistan in July 2007 represented the first case of wild poliovirus infection in Australia for 30 years. The previous case in 1977 was also an importation, involving a child recently returned from Turkey.[8] While the focus of the WHO surveillance system for eradication of poliomyelitis is primarily on cases of AFP in children less than 15 years of age, the NPRL tests specimens from patients of any age with a clinical suspicion of poliomyelitis. This case highlights the need for continued vigilance for polio-like illness in persons of any age within Australia as described previously.[9]

The index case was a 22-year-old student and was notified as suspected poliomyelitis. There had been speculation as to whether a case of polio would be diagnosed in Australia[10] given the gaps in the AFP surveillance system that focuses on children aged less than 15 years and that a clinically confirmed case of polio had not been diagnosed in Australia since the 1970s. Maintaining high levels of polio vaccine coverage is crucial to Australia's status as polio-free and this may have contributed to the importation not extending beyond the index case.

From the experience of the wild poliovirus importation, the NPRL recognised the strengths and weaknesses of virus culture and nucleic acid tests performed on virus isolates and directly on specimens. The main concern is the length of time required for cell culture testing of clinical specimens. For example, the length of time required to obtain a negative cell culture result for the index case extended the period of isolation to 34 days. As a result the NPRL is investigating alternative procedures that will complement the methods currently recommended by WHO.

From 2001, the NPRL established routine nucleotide sequencing of all poliovirus isolates from AFP cases in Australia. The establishment of sequencing and in-house phylogenetic analysis combined with access to the WHO global polio laboratory network, enabled the rapid identification of wild poliovirus originating in Pakistan, providing an epidemiological link with the patient's travel history.

In 2007, Australia was unable to reach the WHO AFP surveillance performance indicator of 1 non-polio AFP case per 100,000 children less than 15 years of age. On previous occasions whenever Australia achieved the AFP surveillance performance indicator, at least 2 of the 3 most populous states, New South Wales, Queensland and Victoria, reached the performance indicator for AFP notifications. In 2007, the 3 most populous states each failed to attain the AFP surveillance performance indicator; this was only the second time that New South Wales had not achieved the performance indicator since 1997. Even if sufficient clinical information were available to enable a final case classification of the 8 pending cases, the total number would be 36 and the non-polio AFP rate would increase to 0.90, still below the performance indicator of 1.0 non-polio AFP case per 100,000 children less than 15 years of age.

Queensland is the only state in Australia to make AFP a notifiable condition and was unable to meet the AFP surveillance performance indicator in 2007. This is the third time that this has occurred in Queensland since AFP was declared a notifiable condition in that state in 2001.

While the late notification of AFP cases to the APSU or the NPRL is valuable data to satisfy the criterion for the annual notification rate of cases, the collection of faecal specimens within 14 days of the onset of symptoms requires a more immediate response by clinicians. Australia has never met the WHO criterion of testing 2 faecal specimens from 80% of eligible AFP cases, with 2007 producing the best result of 52%. A 'polio compatible' case was reported to WHO in 2007. The case was notified as AFP and insufficient clinical and laboratory data were available to discard the case as non-polio AFP. The case had onset of paralysis in June 2007 and was not related to the wild poliovirus importation.

The removal of OPV from the immunisation schedule in November 2005, means that poliovirus should no longer be isolated from clinical specimens in Australia. The isolation of either a wild or vaccine strain of poliovirus is significant as it would represent an importation into Australia. Any poliovirus isolation in Australia now needs to be fully investigated to determine the source of the virus and to ensure there is no person-to-person transmission.

The NPRL anticipates that other studies, such as an appropriate nation-wide enterovirus surveillance scheme, will need to be considered for Australia to be confident that it is polio-free prior to global certification of polio eradication. Such schemes are already in use in other developed nations, such as France, Japan, Germany, New Zealand and the United States of America. The feasibility of such a scheme in Australia is currently under investigation.

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