

Follow-up on the PPHSN project to enhance laboratory detection of human influenza

(This article is a follow-up on *'Implementing lab-based influenza surveillance'* published in *Inform'ACTION 24*).

Year 1 of this project has now been fully implemented in six Pacific Island countries and territories (PICTs): Cook Islands, Guam, Fiji, Palau, Tonga, and Wallis and Futuna.

These PICTs are now able to perform immunofluorescence (IF) testing on nasopharyngeal specimens from suspected cases of influenza and to detect Influenza A and B as well as respiratory syncytial virus (RSV).

In January 2007, a team which included Melissa Pontre, a laboratory specialist from SPC/Pasteur Institute of New Caledonia (IPNC), and Dr Alain Berlioz-Arthaud of IPNC visited Wallis and Futuna, and implemented the project at Sia hospital laboratory in Wallis. The other sentinel sites include all three of the dispensaries in Wallis and the only dispensary in Futuna. One IF microscope was delivered and installed. Three local technicians were trained in all project procedures, including sample collection, processing and microscopy. One lab technician will be sent to IPNC for intensive training during the flu season in New Caledonia.

To date, a number of nasopharyngeal swab specimens have been screened in-country by each of the six PICTs using the direct immunofluorescence (DIF) technique.

Ethanol-fixed samples were sent by the Cook Islands, Fiji and Wallis and Futuna to IPNC. They were tested by real time Polymerase Chain Reaction (PCR) on the Roche LightCycler® instrument which allows for the detection of Influenza A subtypes H3N2 and H1N1, and Influenza B. The following cases were confirmed:

- from the Cook Islands, nine Influenza A subtype H3N2 cases and three Influenza B cases.
- from Fiji, three Influenza A subtype H1N1 and two Influenza A subtype H3N2 cases.

In Fiji, among the six samples positive by screening three were detected by IF and three by both IF and rapid kit testing.

Some of the positive samples were forwarded to the WHO Collaborating Centre for Reference and Research on Influenza (WHO-CC) in Melbourne for influenza and haemagglutinin sequence results, and these have since been received. The six Cook Islands Influenza A H3N2 viruses were very similar; four had identical sequences and two were very closely related. The Cook Islands H3N2 viruses most closely match the recent H3N2 isolates obtained from New Caledonia. The one Fiji H3N2 virus was slightly different and most closely matched A/Brisbane/9/2006. All of the H3N2 viruses would be considered A/Wisconsin/67/2005-like (i.e. the current reference/vaccine H3N2 strain). The two Cook Islands Influenza B strains were both B/Malaysia/2506/2004-like viruses (of the B/Victoria/2/87-lineage) and were similar to many other 2006 viruses isolated in the region.

A small external quality assurance (EQA) panel is currently being prepared by WHO-CC Melbourne and will shortly be sent to PICTs. This panel includes a number of influenza and RSV containing samples, to test the ability of the participating country laboratories to detect the viruses using the DIF procedure.

Expansion and strengthening activities have already been planned, and a continuation of the project has been accepted by the Centers for Disease Control (CDC), with funding for 2006–2007 provided. Year 2 of the project includes at least three additional sites in PICTs, and follow-up activities for laboratories equipped during Year 1.

Melissa Pontre

Laboratory Specialist SPC/IPNC