

# Trial of email reporting for the Hospital Based Active Surveillance System in the Pacific

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## Abstract

A trial of monthly surveillance reports submittal by email (as opposed to mail/fax) to improve reporting submittal rates and timeliness, was conducted under a Pacific regional surveillance system for acute flaccid paralysis and acute fever and rash that covers 20 Pacific Island and territories. Four Pacific nations agreed to participate in this trial over a six-month period. Results were encouraging, with an overall report submission rate of 54% (within 10 days of months end) for the six-month period. During the same period, only 5% and 23% of the expected reports were received from the other 16 Pacific nations and territories within 30 and 90 days of corresponding months end respectively. The use of email to both regularly remind about the need for country surveillance reporting and for surveillance reports submittal was shown to be effective in improving reporting compliance and timeliness over current paper/faxed based methods. Expansion of email reporting for EPI diseases surveillance to all HBAS reporting sites will provide a valuable platform for overall surveillance in the Pacific. (PHD, 2005 Vol 12 No 2 Pages 95 - 98)

## Introduction

A regional Pacific Hospital Based Active Surveillance (HBAS) system was established in 1997 by the WHO under the Pacific Public Health Surveillance Network (PPHSN)<sup>1</sup> framework as part of the Global Polio Eradication Initiative. The objectives of the system were to prove that the Pacific was free of poliovirus and serve as the basis of certification as such; and to monitor the maintenance of polio free status. Also, the potential that an acute flaccid paralysis surveillance (AFP) system platform could play for integrated EPI surveillance was recognized, and the conditions of "suspected measles" and neonatal tetanus (NT) were included from the start. The HBAS system has now grown to incorporate 58 hospitals in 20 Pacific island country's and areas. In 2001 "suspected measles" surveillance was expanded to acute fever and rash (AFR) to better identify all cases of measles, in addition to other diseases like rubella and dengue<sup>2</sup>. The use of the syndrome "Acute Fever and Rash" is considered to better allow the captured of all cases of measles, especially in the context of the Pacific, where measles transmission has been interrupted since 1998, and clinician experience to diagnose measles and their suspicion would be expected to decrease.

The HBAS system relies on over 200 hospital based pediatric clinicians reporting monthly on a standard surveillance form to their HBAS Hospital Coordinator as to whether or not they have seen any cases of AFP, AFR or NT. This information is then forwarded by the Hospital Coordinator to the countries HBAS National Coordinator, who collates reports from all HBAS reporting sites within the country. National reports are submitted to the WHO on a monthly to quarterly basis.

The HBAS system should be comprehensive for detecting all AFP cases in the Pacific, but functions primarily as a sentinel system for AFR illnesses and NT. This is because not all AFR cases would be expected to present to a hospital or health care setting. However, hospital based surveillance for AFR is considered sensitive enough to detect and alert when disease outbreaks occur. This was tested with the recent outbreaks of measles (Marshall Islands 2003) and rubella (Tonga (2002), Samoa and Tokelau (2003)) in the Pacific but it appears that the HBAS system played no role in the early notification of these outbreaks. Encouragingly, a review of monthly reports from these countries in the lead up to and during these outbreaks noted that AFR cases were being detected, however notification to National Coordinators and WHO was delayed in part due to the reliance solely on paper based monthly reporting methods (mail and fax) and a quarterly WHO reporting requirement.

## Method

To improve the HBAS system reporting timeliness and role in outbreak alerts, participants at the 2<sup>nd</sup> PPHSN Regional EpiNet Workshop in Noumea (June 2004), requested the WHO to trial email-based reporting with greater integration with PPHSN and PacNet. This trial commenced in October 2004. It involves the WHO Suva Office sending an automated e-mail to the HBAS

National Coordinator on the 1st day of every month requesting them to advise if cases of AFP, AFR and NT have or have not been detected at any of their countries HBAS reporting sites within the preceding month, and if so how many. Replies via email are required to reach the WHO by the 7<sup>th</sup> of the month.

WHO and SPC collate and review country email reports and provide a summary to all Pacific countries via PacNet-Restricted by the 10<sup>th</sup> of the month. In addition, the reporting on PacNet restricted is intended to act as an early alert for Pacific countries of emerging events (e.g. measles or rubella outbreak) and allow individual countries to enhance their surveillance activities accordingly. The PacNet-Restricted posting contains the following information:

- Countries reporting for that month
- Whether any AFP or AFR cases were detected (including zero reports)
- Additional information regarding laboratory confirmation (if available)

For simplicity, the trial initially target targeted countries with only one HBAS reporting site. The Commonwealth

of Northern Mariana Islands, Cook Islands, Tuvalu and Palau agreed to participate (Figure 1). The trial ran from October 2004 to March 2005.

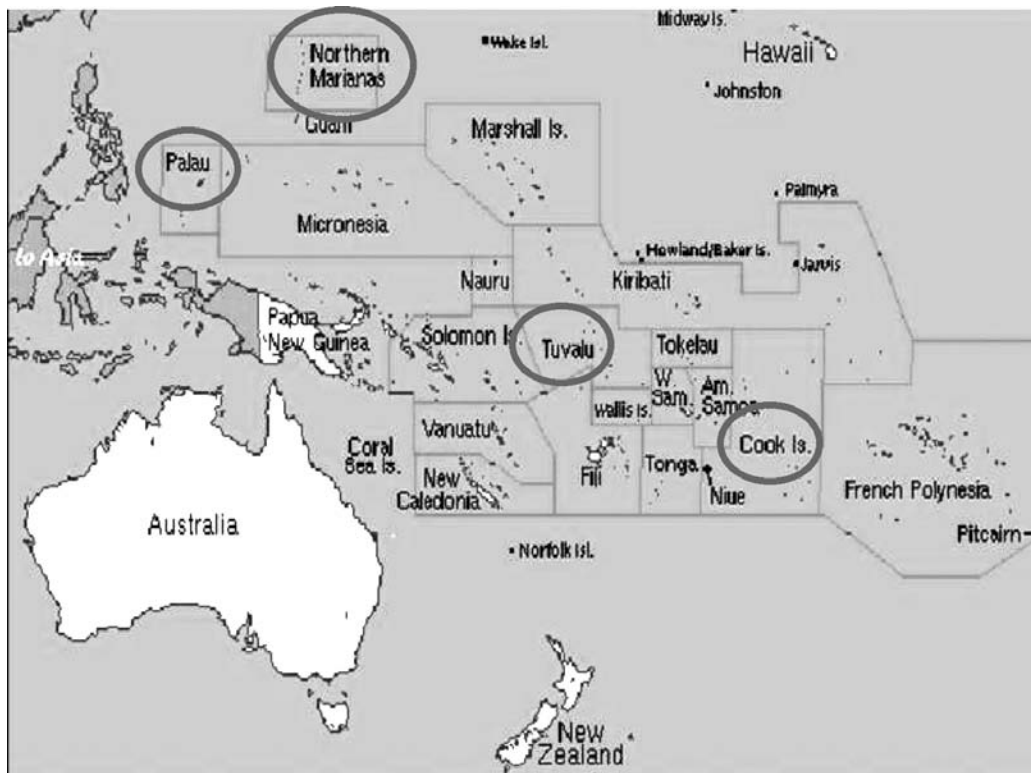
**Results**

Initial trial results were encouraging. All participating countries provided a least one report via email during the trial period. The overall report submission rate (within 7 days of the start of the month) for the six-month period was 38%. This figure increases to 54% and 75% if reports within 10 and 20 days of the start of the month respectively are included (Table 1). No cases of AFP or AFR were reported from any of the trial countries during this period. Tuvalu's performance was the highest, with submission of 5 reports within 10 days for the six-month trial.

**the reporting on PacNet restricted is intended to act as an early alert for Pacific countries of emerging events**

When email-reporting performance was compared with reports received by mail/fax under the HBAS system for the other 16 Pacific Island countries there was a marked improvement in both report submittal and timeliness. During the same six-month period, only 5% and 23% of the expected reports were received from the other 54 HBAS reporting sites within 30 and 90 days of corresponding months end respectively (See table 2).

**Figure 1: Location of 4 countries that agreed to participate in email reporting trial**



**Table 1: Monthly HBAS reports submittal by email from four trial countries**

	Month						Overall
	Oct-04	Nov-04	Dec-04	Jan-05	Feb-05	Mar-05	
Reports Received	4	3	3	3	3	3	19
Overall Reporting Rate (%)	100%	75%	75%	75%	75%	75%	79%
Reports - 7th day of mth	2	1	3	1	1	1	9
Reports - 10th day of mth	3	3	3	1	2	1	13
Reports - 20th day of mth	4	3	3	3	3	2	18
Reports – 30 <sup>th</sup> day of mth	4	3	3	3	3	3	19
<b>7 day reporting rate (%)</b>	<b>50%</b>	<b>25%</b>	<b>75%</b>	<b>25%</b>	<b>25%</b>	<b>25%</b>	<b>38%</b>
<b>10 day reporting rate (%)</b>	<b>75%</b>	<b>75%</b>	<b>75%</b>	<b>25%</b>	<b>50%</b>	<b>25%</b>	<b>54%</b>
<b>20 day reporting rate (%)</b>	<b>100%</b>	<b>75%</b>	<b>75%</b>	<b>75%</b>	<b>75%</b>	<b>50%</b>	<b>75%</b>
<b>30 day reporting rate (%)</b>	<b>100%</b>	<b>75%</b>	<b>75%</b>	<b>75%</b>	<b>75%</b>	<b>75%</b>	<b>79%</b>

**Table 2: Monthly HBAS reports submittal by mail/fax from remaining 16 countries**

	Month						Overall
	Oct-04	Nov-04	Dec-04	Jan-05	Feb-05	Mar-05	
Reports received (7 days)	0	0	0	0	0	0	0
Reports received (30 days)	3	2	0	4	4	4	17
Reports received (90 days)	6	13	13	11	13	19	75
<b>Reporting rate - 7 days (%)</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>
<b>Reporting rate - 30 days (%)</b>	<b>6%</b>	<b>4%</b>	<b>0%</b>	<b>7%</b>	<b>7%</b>	<b>7%</b>	<b>5%</b>
<b>Reporting rate - 90 days (%)</b>	<b>11%</b>	<b>24%</b>	<b>24%</b>	<b>20%</b>	<b>24%</b>	<b>35%</b>	<b>23%</b>

## Discussion

Due to the success of the email reporting trial at the four sites, the use of this reporting method for monthly surveillance report notification has been continued indefinitely. One minor change made is that report submittal is now only required by the 10<sup>th</sup> day of the month (not the 7<sup>th</sup> as previously) as the initial 6 month trial showed that report submission rates were enhanced significantly by waiting an extra three days.

Following the presentation and discussion of the trial results at the WHO/UNICEF Pacific Immunization Programme Strengthening (PIPS) meeting in Noumea,

in May 2005, there was endorsement by Immunization Managers that the use of email for HBAS report submittal be expanded immediately to all Pacific countries that have only one reporting site under the HBAS system (and email access). This commenced in July 2005, and monthly email alerts and reporting are now being used for communication between WHO/PPHSN and American Samoa, Nauru, Niue, New Caledonia and Wallis and Futuna, in addition to the four initial trial countries. This brings a total of 9 (or 45%) of the 20 Pacific Island countries and territories using email reporting for the HBAS system.

Expansion of email reporting to countries with more than one reporting site requires further thought and discussion with countries concerned. While it would be ideal if all HBAS reporting sites within the Pacific could report directly to the WHO every month, this would mean that reports would bypass the HBAS National Coordinator within these countries. For some countries this might be acceptable, especially if the National Coordinator is copied on all correspondence, However, other countries may not be as comfortable with internal surveillance information being reported to an International Organization without national review and clearance first. Furthermore, not all sub national HBAS reporting sites have email access in the Pacific.

Expansion of the concept of systematic email reporting as part of surveillance systems in general also requires further strengthening and development of surveillance and management systems within countries. A key issue is that all email addresses presently used under the HBAS email system are those of individual Ministry of Health staff. When these staff are on leave or traveling, emails are not accessed or read late, thus diminishing reporting effectiveness. It may be more effective for each Pacific Ministry of Health to have a generic email address for all surveillance-reporting functions (e.g. EpiNet, International Health Regulation requirements) that can always be accessed by Ministry staff within country.

Furthermore, there could be benefits from consolidation of the PPHSN email lists at the regional level, specifically integration of PacNet restricted and the EpiNet announcement to ensure a wider, but still limited audience among health decision makers in the Pacific.

**Expansion of email reporting to countries with more than one reporting site requires further thought and discussion**

Currently, membership of PacNet restricted is limited to high-level Ministry of Health personnel at the country level, and information on early warnings of disease outbreaks may not necessarily be passed on to the appropriate staff within country to allow an appropriate and timely action. Integration of these lists would overcome this division, but would require the support of the PPHSN member countries and territories.

**Conclusion**

The use of email to both regularly remind about the need for country surveillance reporting and for surveillance reports submittal at selected sites within the Pacific under the WHO/PPHSN HBAS system has been shown to be effective in improving reporting compliance and timeliness over current paper/faxed based methods. Expansion of email reporting for EPI diseases surveillance to all HBAS reporting sites will provide a valuable platform for overall surveillance in the Pacific. Challenges remain, especially with the expansion to countries with more than one reporting site, and ensuring that reporting submittal is not dependant upon one person in each country.

**References**

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**Enthusiasm for a medium that keeps you away from human beings strikes me as worrying  
(Ian Hislop – 1996)**