

This article is an early release of information from Inform'ACTION No. 32, which will be published very soon.

Towards a standardised syndromic and event-based surveillance system for the Pacific Islands

National focal points for the International Health Regulations (IHR) and Pacific Public Health Surveillance Network (PPHSN) EpiNet representatives from all Pacific Island countries and territories (PICTs) gathered in Auckland, New Zealand from 23–26 March 2010 to discuss a standard and sustainable syndromic and event-based surveillance system for the Pacific Islands region.

The World Health Organization (WHO) and the Secretariat of the Pacific Community (SPC) have collaborated for many years on strengthening surveillance and outbreak response in the Pacific within the PPHSN framework. The previous meeting for Pacific IHR national focal points recommended that WHO and SPC jointly develop a proposal for internationally standardised syndromic surveillance in the Pacific. This recommendation was re-emphasised by the 2009 Pacific Ministers of Health meeting in Madang, Papua New Guinea. Both organisations worked together in this direction and developed the proposed system.



After four days of deliberations, participants agreed that all PICTs should adopt a syndromic surveillance system comprising at least four core syndromes with standardised case definitions:

- acute fever and rash
- diarrhoea
- influenza-like illness
- prolonged fever.

Current situation

The IHR require that all countries can detect and respond to public health events, such as outbreaks, in a timely manner.

Currently, infectious disease surveillance is conducted in different ways by PICTs. Some already have well-established and functional surveillance systems, but others do not. Many existing national disease surveillance systems are complex, with the result being that they do not have sufficient early-warning functionality. In addition, they often are based on reporting specific diseases, which require diagnostic confirmation by overseas laboratories before a disease is reported. This can lead to long delays.

Syndromic surveillance can be much faster and simpler, because it is based on reporting clinical symptoms and does not require laboratory confirmation.

The system: Fast and sustainable

The system adopted by participants will shorten the time before outbreaks are detected at the country level, making timely response and control possible. It should also be easily sustainable because it does not require complex procedures and many resources. It comprises four core syndromes with standardised case definitions: acute fever and rash, diarrhoea, influenza-like illness, and prolonged fever (see details in Table 1).

For each syndrome, the number of patients that fit each case definition will be reported at least weekly by the main hospitals and clinics to the national health authorities of each country or territory. It was also agreed that national health authorities will report weekly case numbers to WHO on a voluntary basis. WHO will then produce Pacific summary reports and will give feedback and share the information with SPC.

Table 1: Core syndromes and case definitions to be implemented by all Pacific Island countries and territories

Syndrome	Case definition	Important diseases to consider
1. Acute fever and rash	Sudden onset of fever* with acute non-blistering rash	Measles, dengue, rubella, meningitis, leptospirosis
2. Diarrhoea	3 or more loose or watery stools in 24 hrs	Viral and bacterial gastroenteritis including cholera, food poisoning, ciguatera fish poisoning
3. Influenza-like illness (ILI)	Sudden onset of fever* with cough or sore throat	Influenza, other viral or bacterial respiratory infections
4. Prolonged fever	Any fever* lasting 3 or more days	Typhoid fever, dengue, leptospirosis, malaria, others

* Fever is defined as 38 °C (100.4 °F) or higher. If no thermometer is available, fever or chills reported by the patient are also acceptable.

Additional optional syndromes and case definitions may be included by countries or territories depending on the local situation (see Table 2 for additional optional syndromes).

Table 2: Optional syndromes and case definitions

Syndrome	Case definition	Important diseases to consider
Severe acute respiratory infection (SARI)	Influenza-like illness with fast breathing* or infiltrate on chest x-ray	Pneumonia
Dengue-like illness	Fever for at least 2 days with at least two of the following: <ul style="list-style-type: none"> - Nausea or vomiting - Muscle or joint pain - Severe headache or pain behind the eyes - Rash - Bleeding 	Dengue
Acute fever and neurological signs	Sudden onset of fever with at least one of the following: <ul style="list-style-type: none"> - Decreased consciousness - Neck stiffness on examination 	Meningitis, encephalitis, severe dehydration

* Definition of fast breathing by age group:

Age	Respiratory rate
• 1–2 months old:	60 or more breaths/minute,
• 2–12 months:	50 or more breaths/minute
• 1–5 years:	40 or more breaths/minute
• 6 years and older (including adults):	30 or more breaths/minute

Meeting participants emphasised the importance of regular feedback, from the national level to clinicians and public health workers in the form of a surveillance bulletin.

In addition to this routine syndromic reporting, all participants agreed that national health authorities will notify WHO immediately if there is an unexpected rise in reported cases or any other potential public health event of international concern.

Implementation: A collaborative effort

Pacific Ministers of Health have recommended that PPHSN mechanisms should be used to help strengthen the ability of national authorities to comply with IHR. The meeting conclusions include calls for strengthening EpiNet teams, LabNet and ensuring development of field epidemiology training by PPHSN partners with in-country mentoring to ensure countries' ability to meet IHR capacity requirements.



Participants gave themselves a timeline of 12 months to implement the proposed syndromic surveillance system. WHO, SPC and the Centers for Disease Control and Prevention (CDC) will collaborate closely to support countries with the implementation.

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Conclusions

All participants agreed that:

1. Syndromic surveillance should be used to strengthen the early warning function of existing disease surveillance systems;
 - To detect suspected outbreaks early;
 - To respond rapidly to limit the impact of outbreaks; and
 - To comply with IHR requirements to build national capacity for early detection and investigation of outbreaks, and immediate WHO notification of public health events and outbreaks of potential international importance.
2. It is essential to engage clinicians (doctors as well as nurses).
3. It is crucial that reports are reviewed in a timely fashion, at least weekly, and response should occur in a timely fashion.
4. PICTs will, as much as possible and practical, use the same case definitions.
5. The system should start with a limited number of reporting sites in each country.
6. The core case definitions in Table 1 should be implemented in each PICT.
7. Optional syndromes that countries may elect to include in addition are found in Table 2.
8. Syndromic surveillance should include:
 - reporting of weekly numbers of syndromic cases from healthcare sites to the national level;
 - regular feedback from the national level to the field (surveillance bulletin);
 - data from national level to WHO immediately if there is a rise in cases or if another important public health event is suspected; and
 - regular updates of regional outbreaks and other important public health events by WHO/SPC to countries.

In addition, countries are encouraged to share their surveillance bulletin within PPHSN.

9. There is value in providing a weekly report of the number of cases of each syndrome by countries and territories to WHO. However, it was recognised that some countries will have difficulty in complying.
All participants should confirm within two weeks to WHO whether they will voluntarily participate in this routine weekly reporting.

Where participation is confirmed:

- countries and territories will report weekly from national level to WHO (numbers of cases);
- feedback from WHO will be provided to countries and territories via a weekly summary report;
- WHO is to immediately share the data with SPC and other agencies; and
- regular analysis and reports by WHO and SPC will be provided to countries and territories.

Regardless on their participation in the above system, all PICTs should participate in weekly reporting in the case of an outbreak with regional spread, such as an influenza pandemic or dengue epidemic.

10. When a rise in cases above a threshold is detected:
 - an assessment should immediately take place to confirm and investigate the event;
 - WHO/SPC draft outbreak guideline can be used;
 - feedback and review of the guideline will be provided to WHO/SPC; and
 - resources — including WHO, SPC, and CDC — should be used for assistance.
11. All participants should brief their ministers and other senior health management officials on these syndromic surveillance recommendations on their return from the Pacific IHR focal points meeting.

12. WHO should brief health ministers on the Pacific syndromic surveillance recommendations during the World Health Assembly and Regional Committee Meeting this year.
13. WHO/SPC/CDC should continue to collaborate closely ('one team' approach) to support countries with implementing these syndromic surveillance recommendations.
14. Countries should aim to implement these syndromic surveillance recommendations within 12 months.
15. Countries should request support from WHO/SPC/CDC and other training institutions and agencies to assist with implementation. This may include assessing the local situation and in-country workshops.
16. Countries should report on implementation progress, and review their experience with the system at the next PPHSN/IHR meeting with an interim progress review at the PPHSN-CB meeting.
17. WHO/SPC should work with local training institutions to ensure that public health surveillance and syndromic surveillance are included in medical and nursing school curricula for assessment purposes.
18. WHO, SPC and other PPHSN member agencies should collaborate to ensure development of field epidemiology training with in-country mentoring to ensure countries' ability to meet IHR capacity requirements.
19. WHO, SPC and other PPHSN member agencies should collaborate to strengthen LabNet through the technical working group and regional strategy meeting.
20. WHO, SPC and other PPHSN member agencies should collaborate to strengthen EpiNet teams.

Sharing experiences

At the meeting, participants shared information on their existing surveillance systems and experiences in interactive and innovative ways, such as a poster competitions.

Each country or territory was asked to produce a poster on its national communicable disease surveillance system(s): describing the system(s) and highlighting its strengths and weaknesses; describing current mechanism(s) to detect outbreaks; and giving a brief description of a recent outbreak investigation conducted in their country or territory.

The methodology was appreciated by participants, and the competition prompted them to go through all of the posters carefully and learn from each other.

