

**CD Surveillance and Outbreak  
Response  
Guidelines**



# Forward

Communicable diseases control is an established program for the Ministry. The focus is on primary prevention and control of endemic diseases such as Typhoid fever, Dengue fever, and Leptospirosis. Diseases such as diarrhea, influenza, measles and cholera also have equal importance. These had been the source of major outbreaks in the past. The risks of re-emergence are real. Dengue outbreaks in 1998 and the Measles outbreak of 2006 caused considerable burden to the health service. There are financial and opportunity costs to manage outbreaks.

Control measures instituted in response to outbreaks were often less effective when it is an attempt to put the 'fire' out. Instead we should have seen the 'smoke' or the early the danger signs and conditions. Therefore surveillance and notification of diseases in the community is critical to the management of public health events and our already limited resources.

Our country needs a simple but a robust and effective communicable disease surveillance system that meets its objectives. In addition to alerting the health system to any impending epidemics or public health emergencies, our surveillance systems should provide accurate and complete information on the nature and the amount of disease presenting to the curative services. It needs to "see" the health of the community to direct healthcare services and to assess the effectiveness of public health interventions.

Fiji has encountered several natural disasters that are varied in nature but have an ecological impact on the lives of our people. These emergencies are managed better when effects on disease patterns are determined to prevent the development of epidemics. Disease patterns as a consequence of 'stressed' environmental conditions such as climate change and emerging and re-emerging diseases pose new challenges to the health system. Therefore national disease surveillance systems need to adapt these challenges accordingly.

This edition of the Ministry of Health's Fiji National Communicable Disease Surveillance and Outbreak Response Guidelines provide the strategies and operational guide to disease surveillance and outbreak response at all levels of delivery. This document is an outcome of the Fiji Health Sector Improvement Program (FHSIP) assistance in terms of expert evaluation and guideline development.

Although endorsed in 2006 by the Ministry of Health's National Health Executive Committee (NHEC) in 2006, it has now undergone revisions to reflect the change in regulations and policies of the Ministry of Health and Government of Fiji.



Dr Salanieta T Saketa.  
Permanent Secretary for Health,  
October 2010.



# Preface

Epidemiological surveillance is a major public health strategy in prevention and control of disease. Surveillance not only gives us accurate data on epidemiology and burden of disease but also guides us to monitor and control diseases under surveillance.

Surveillance and notification goes hand in hand. The notification system in Fiji is well established, although the last few reviews have revealed that it has not worked as well as it should be. This guideline provides a basis for the control and prevention of priority communicable diseases in Fiji that has a potential to become a threat to our population's health and our economy. The list of notifiable diseases has been updated to reflect that on posted on Gazette.....

New additions to previous versions include a component on IHR and examples of investigation forms. The steps to outbreak investigations has been revised to reflect the increased capacity of clinical and field health workers to undertake analytic studies as result of trainings provided by WHO-POLHN epidemiology courses, SPC – Data for decision making (DDM) and FHSIP funded communicable disease workshops from 2005-2010.

Simple clinical case definitions that are usable and generic to both clinicians and public health field workers have been provided. These may be adapted and modified in epidemiological investigations. The case definition is not comprehensive and covers mainly the priority communicable diseases derived from the Pacific Public Health Surveillance Network (PPHSN). A comprehensive list of case definitions maybe later provided by the Health information unit for notification purposes in the national notifiable disease surveillance system.

The guideline use is not confined to medical officers and therefore all health workers should use it for guidance to disease surveillance and outbreak investigations. This now supersedes the past version of 2007. This guideline was revised and edited by a core group of Ministry of Health technical advisers listed below who also wish to acknowledge the support of FHSIP and our colleague from the Fiji School of Medicine. We thank all health workers who have contributed in comments and ideas to improve the content of the guideline.

We hope this guideline will contribute for further improvement of disease surveillance activities in Fiji facilitating us to provide a better health service to the Nation.

Vinaka vakalevu.

Dr. Josefa Koroivueta, Deputy Secretary Public Health.

Dr. Frances Bingwor, Divisional Medical Officer –Central.

Sr. Milika A. Narogo , act. Risk Manager, MoH.

Dr. Solo Qaranivalu, Epidemiologist, MoH.

Dr. Josaia Samuela, National Adviser Communicable Disease.

Dr. Eric Rafai, National Adviser Communicable Disease



# *Dedication*

This guideline is dedicated to Dr. V. Rabukawaqa formerly the Director of FHSIP who is the primary instigator for the revision of this guideline and advocate for it's the dissemination of its contents to all.



Dr. Vilikesa Rabukawaqa. (-2010)

## ***Psalm 91 1-10***

1. He who dwells in the shelter of the Most High will rest in the shadow of the Almighty.
2. I will say of the LORD, "He is my refuge and my fortress, my God, in whom I trust."
3. Surely he will save you from the fowler's snare and from the deadly pestilence.
4. He will cover you with his feathers, and under his wings you will find refuge; his faithfulness will be your shield and rampart.
5. You will not fear the terror of night, nor the arrow that flies by day,
6. nor the pestilence that stalks in the darkness, nor the plague that destroys at midday.
7. A thousand may fall at your side, ten thousand at your right hand, but it will not come near you.
8. You will only observe with your eyes and see the punishment of the wicked.
9. If you make the Most High your dwelling—even the LORD, who is my refuge—
10. then no harm will befall you; no disaster will come near your tent.





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# *Introduction*

# Introduction

Fiji's Communicable Disease Surveillance and Outbreak Response Guidelines have been written with two clear purposes: (1) to provide guidance on the surveillance of notifiable diseases and those of public health importance in Fiji; and (2) to offer a straightforward summary for public health staff on their prevention and control.

These guidelines will help its users with communicable disease surveillance and outbreak response. They cover advice for managing routine and urgent notifiable diseases and address outbreak preparedness, outbreak response, recovery, rehabilitation and evaluation.

The guidelines describe key steps that need to be taken. They explain surveillance, disease notification, outbreak investigation, response and management, and outbreak communication.

In addition to assisting you participate in local and national communicable disease surveillance, the guidelines will also allow you to develop, implement and evaluate local plans of action at Divisional and Sub-Divisional level under a common, national framework.

In addition to outlining diseases and conditions required to be notified, the guidelines focus on the following priority notifiable diseases:

- Cholera (A00).
- Dengue fever (A90).
- Influenzae (J10-11).
- Leptospirosis (A27).
- Measles (B05).
- Rubella.
- Typhoid fever (A01.0).

For each disease, a specific response protocol – giving basic information and specifying the minimum actions that should occur – is summarized in Attachment 1. These protocols are also published in a separate, laminated flip-chart for quick and easy reference – Fiji National Notifiable Disease Protocols.

We encourage you to read through these guidelines on a regular basis and to use the easy reference protocols when there is a need for clear and rapid action.

These guidelines are aligned to the Fiji National Health Emergency and Disaster Management Plan and the Fiji Influenzae Pandemic Plan. The guidelines can therefore be used to guide and support emergency and disaster preparedness and response.

Other sources were also used in developing these guidelines including the WHO Recommended Surveillance Standards and the National Disease Reporting System Manual. These guidelines are an important part of efforts to strengthen the National Communicable Disease Surveillance System as outlined in the Ministry of Health's Strategic Plan.. This guideline is the first edition and should be considered like any guideline and be reviewed every 3 to 5 years.

# Surveillance and Notification

Surveillance is the systematic collection, collation, analysis and interpretation of notifiable disease closely integrated with the timely dissemination data to those responsible for preventing and controlling disease. Notification of communicable disease supports surveillance at both a local and national level.

The establishment of baseline information for the diseases under surveillance is important for a number of reasons, specifically to;

- Identify and describe a problem
- Determine geographic distribution of disease
- Describe the natural history of a disease
- Enable research
- Evaluate control measures
- Monitor change in infectious agents
- Detect changes in health practice
- Assist planning.

Surveillance provides information for action (Figure 1).

Importantly, maintaining an effective routine surveillance system enables the early detection of outbreaks.

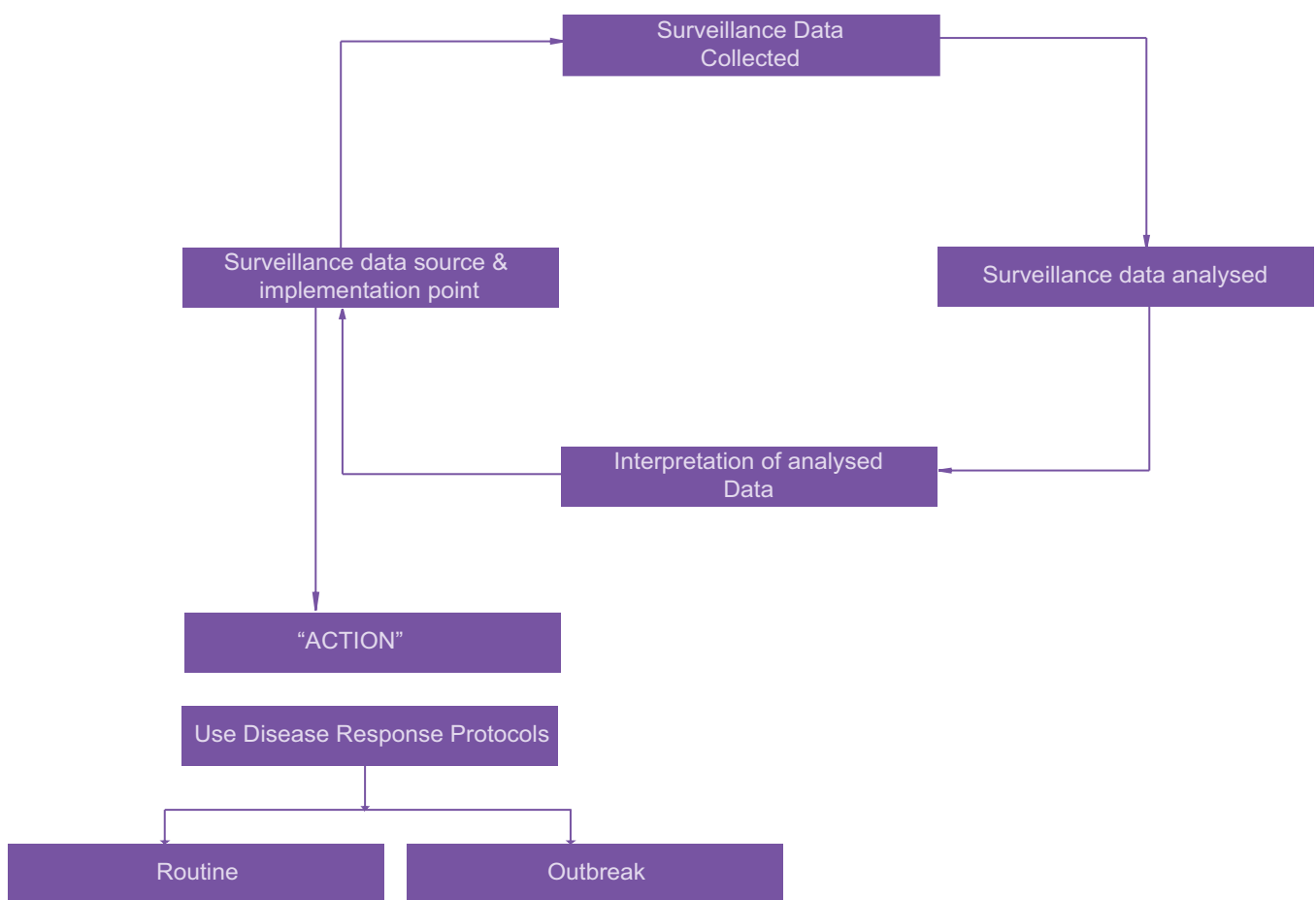


Figure 1: Links between surveillance data collection, analysis, interpretation & action

## Conditions to be notified

The Public Health Act Cap 111 of Fiji specifies infectious disease that need to be notified. The Public Health Act Cap 111 of Fiji subsection 68 allows the revision of the first schedule. The new recommended list of Notifiable diseases is divided into 2 categories – Urgent and Routine.

The recommended list showing each category is shown in below in Table 1.

**Table 1. National Notifiable Disease Surveillance Schedule.**

| Urgent ( <i>To be telephoned immediately</i> )  | Routine   |
|---|---|
| <ul style="list-style-type: none"> <li>• Acute Flacid Paralysis.</li> <li>• Anthrax (D)(L)</li> <li>• Avian Influenzae (L)</li> <li>• Cholera # (D)(L)</li> <li>• Diphtheria (D)(L)</li> <li>• Enteric Fevers:               <ul style="list-style-type: none"> <li>(a) Typhoid Fever # (D)</li> <li>(b) Paratyphoid Fever (D)</li> </ul> </li> <li>• Haemophilus influenzae b (D)</li> <li>• Measles # (D)</li> <li>• Meningococcal (D)</li> <li>• Multi-resistant organisms:               <ul style="list-style-type: none"> <li>(a) MRSA (L)</li> <li>(b) VRSA (L)</li> <li>(c) VRE (L)</li> <li>(d) MDR-TB (L)</li> <li>(e) XDR –TB (L)</li> </ul> </li> <li>• Outbreaks /clusters of suspected cases of:               <ul style="list-style-type: none"> <li>• Cryptosporidiosis (D)(L)</li> <li>• Dengue fever # (D)(L)</li> <li>• Food poisoning (D)</li> <li>• Giardiasis (D)(L)</li> <li>• Shigellosis (D) (L)</li> <li>• Hepatitis A (D)</li> <li>• Ross river virus (D) (L)</li> <li>• Leptospirosis # (D) (L)</li> <li>• Plague (D)(L)</li> <li>• SARS/ Severe acute respiratory infection (D)</li> <li>• Viral haemorrhagic fever (D)(L)</li> <li>• Yellow Fever (D)(L)</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• ARI under 5 years (D)</li> <li>• Brucellosis (including Undulant Fever) (D) (L)</li> <li>• Chickenpox (Varicella) (D)</li> <li>• Dysentery (Amoebic) (D)(L)</li> <li>• Encephalitis.</li> <li>• Fish poisoning (D)</li> <li>• Human Immunodeficiency Virus(HIV) (L)</li> <li>• Infective Hepatitis (non-A) (D) (L)</li> <li>• Influenza like illness</li> <li>• Legionellosis (D) (L)</li> <li>• Leprosy (D) (L)</li> <li>• Leptospirosis (Weil’s Disease) # (L)</li> <li>• Malaria (D) (L).</li> <li>• Meningitis..</li> <li>• Mumps.</li> <li>• Pertussis (D) (L)</li> <li>• Rheumatic fever and SBE (D)</li> <li>• Rubella (D)</li> <li>• Sexually Transmitted Infections:               <ul style="list-style-type: none"> <li>(a) Gonorrhoea (D) (L)</li> <li>(b) Syphilis (D) (L)</li> <li>(i) Chlamydia (L)</li> </ul> </li> <li>• Tetanus (D)</li> <li>• Trachoma (D)</li> <li>• Tuberculosis:               <ul style="list-style-type: none"> <li>(a) Pulmonary (D) (L)</li> <li>(b) Other than pulmonary (D) (L)</li> </ul> </li> </ul> |
| <p><b>Notes.</b><br/> <b>Conditions marked with (D) are required to be notified by Medical Officers</b><br/> <b>Conditions marked with (L) are required to be notified by Laboratories</b></p>  |   |

Case definitions for priority diseases as marked # are outlined in the National Communicable Notifiable Disease Protocols (Attachment 1).

## Notification Forms

Examples of the Doctor Notification Form and Laboratory Notification Forms are shown in Attachment 2.

The Notification Forms will be available once the new schedule is gazetted.

## Notification Principles

The principles associated with Notifiable Disease reporting are:

Notification of infectious diseases need to done on the appropriate form.

The Notification Forms contains, patient details. However for specified sexually transmitted infections and clusters/ outbreaks a line listed of investigative data will need to be collected and notified as part of the outbreak response (if indicated).

Urgent notifications (verbal) must done immediately i.e. by telephone to the respective Divisional Medical Officer (DMO).

It will be the Divisional Medical Officer or Medical officer of the Division responsibility to make a risk assessment of the notification and advise the Permanent secretary of Health accordingly.

Urgent notifications must be completed on the correct form and sent to the Divisional Medical Officer within 24 hours. A copy is also sent to the Fiji centre for communicable disease control (FCCDC) to the National Adviser Communicable disease (NACD).

Routine notifications must be completed on a Routine Notification Form and forwarded to the Permanent Secretary for Health or Health Information unit within 7 days.

## Who is to Notify?

The Public Health Act prescribes notifications required by all Medical Officers. All laboratories should also notify the respective DMO of urgent conditions under the new schedule.

It is important that all health cadres e.g. environmental health Officers (EHO), nurse and Nurse practitioners, are aware of, and understand the Notifiable Diseases Surveillance System. Their full participation in the system is part of their professional duty.

Any suspected or confirmed cases of a notifiable condition or infectious disease identified by an Environmental health officer, Nurse, Nurse practitioner must be reported to a medical officer as soon as possible.

# *Process for Notification*

## **Urgent Notifications**

All Urgent notifications should be telephoned by the notifying Medical Officer to the respective Divisional Medical Officer (DMO) within 24 hours of a diagnosis of a suspected or confirmed case.

The DMO will then inform the Permanent Secretary of Health and the Fiji centre for communicable disease control (FCCDC). The FCCDC is obligated under IHR (2005) to assess and notify WHO of any Public Health Emergency of International Concern (PHEIC) (IHR article 6.1).

The Notifying Medical Officer or Laboratory will complete a Notification Form and send a copy to the Divisional Medical Officer and National adviser communicable disease based at FCCDC, following a verbal notification. The Notifying Medical Officer or Laboratory will retain the original Notification Form as a record.

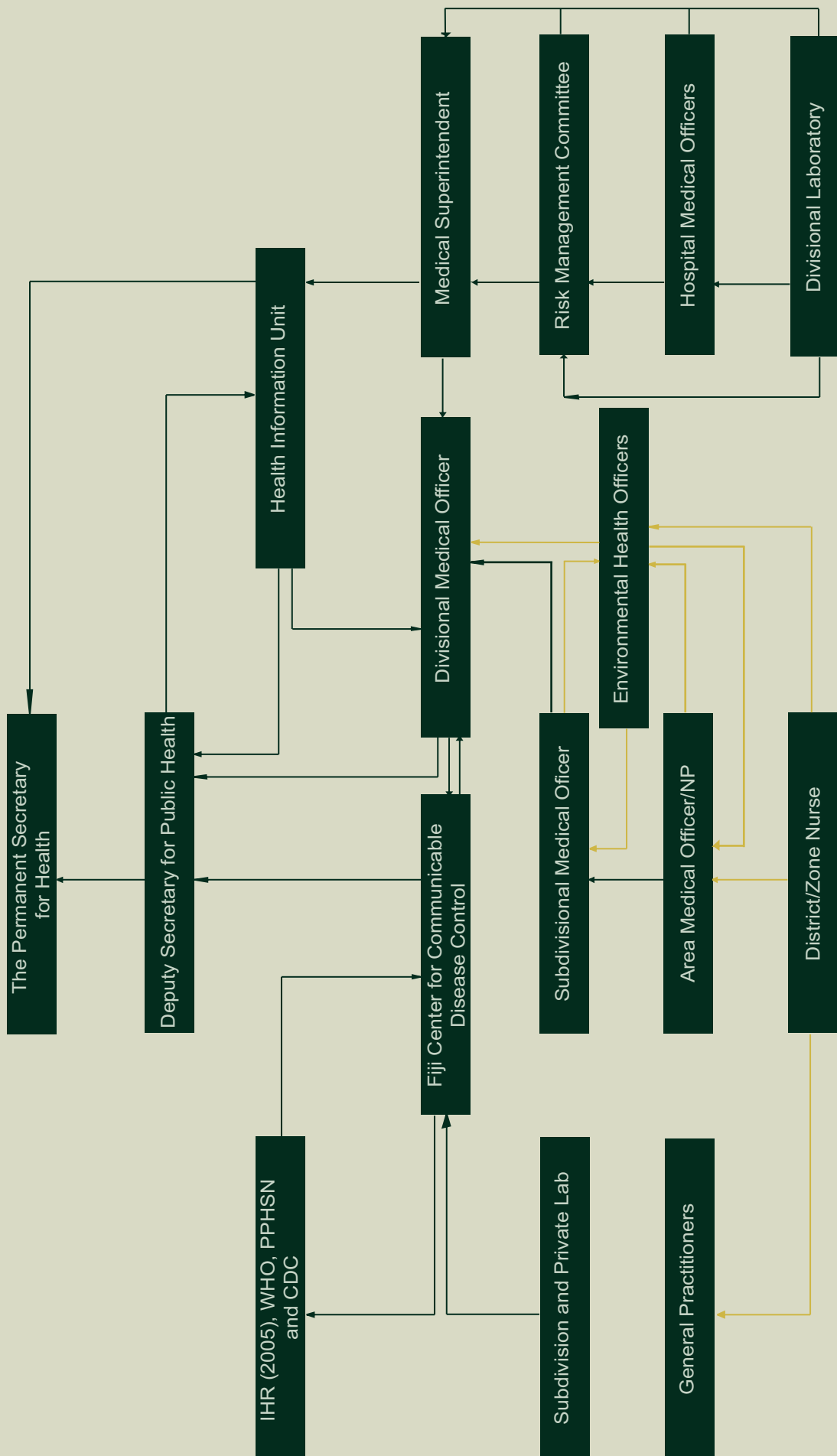
The National Adviser Communicable disease (or designated Surveillance Officer) will review all urgent notifications and submit a monthly report to the Divisional Medical Officers and the office of the Permanent secretary of Health.

## **Routine Notifications**

Routine notifications involves sending copies of the completed Notification forms by a Medical Officer or Laboratory to the Permanent Secretary for Health within 7 days with copies to the respective Subdivisional medical officer, Divisional Medical Officer in the area that the notifiable disease case was identified clinically (suspected) or confirmed by a laboratory.

The officer in charge (Epidemiologist) of the Health information unit at the Ministry of Health (or designated Surveillance Officer) will review all routine notifications and submit reports to the Divisional Medical Officer of the area and the office of the Permanent secretary of Health. The notifying Medical Officer or Laboratory will retain the original Notification Form as a record.

**Figure 2: The routine notification process for the National notifiable disease surveillance system (NNDSS) in Fiji**





## Feedback and Reporting

The Divisional Medical Officer shall monitor all urgent notifications in the division and report/update regularly the Permanent secretary for Health, health information unit FCCDC and the notifying officers in the division.

A designated Medical Officer at the FCCDC will produce regular reports of all urgent notifications, including analysis (expected incidence, epi curves etc).

The Epidemiologist based at the Health Information unit will collated, analyse and disseminate reports based on routine notifications at regular periods to all medical officers of Health.

### Surveillance and reporting roles and responsibilities

The specific responsibilities for health staff in surveillance and reporting depend on their roles and technical expertise. Although the Public Health Act at present specifies that Medical Officers of Health are obliged to report notifiable diseases,

Ministry of Health policy and procedures assigns this responsibility to a number of health staff as outlined in Table 2.

**Table 2: Roles and Responsibilities in surveillance and Notification**

| RESPONSIBLE OFFICER   | ROLES and RESPONSIBILITIES   |
|---|--|
| <b>Zone/District Nurse (N/Station)</b>  | <ul style="list-style-type: none"> <li>• Syndromic surveillance, for example identify cases with acute fever &amp; rash symptoms. Report on the Public Health Information Information System (PHIS) of an increased number of infectious disease cases or incidents in the area.</li> <li>• Immediately notify the Medical Officer in charge of any suspected infectious diseases or events in the Zone/District.</li> </ul> |
| <b>Health Inspectors</b>  | <ul style="list-style-type: none"> <li>• Monitor infectious diseases based on syndromes e.g. acute fever &amp; rash, etc.</li> <li>• Notify the respective Medical Officer (Medical Area) or SDMO of an public health threats or emergencies in the area of work.</li> </ul>   |
| <b>Medical Officer (Medical Area)/ General Practitioners /Nurse Practitioners</b> | <ul style="list-style-type: none"> <li>• Notify DMO &amp; FCCDC of Urgent notifiable conditions with 24 hrs.</li> <li>• Notify DMO, HIU of Routine notifiable conditions with 7 days</li> <li>• Collate weekly/monthly data for tabulation and analysis.</li> <li>• Identify and report outbreaks of disease to DMO based on risk assessment.</li> </ul>   |
| <b>Laboratories</b>   | <ul style="list-style-type: none"> <li>• Notify DMO &amp; FCCDC of Urgent notifiable conditions with 24 hrs</li> <li>• Notify respective DMO &amp; HIU of Routine notifiable conditions with 7 days</li> <li>• Notify Risk Management Committee &amp; requesting doctor of any notifiable conditions.</li> <li>• Collate quarterly data for tabulation and analysis</li> </ul>   |
| <b>Risk Management Committee.</b>   | <ul style="list-style-type: none"> <li>• Receive and summarize notification reports from laboratories</li> <li>• Provide feedback to clinicians &amp; manager clinical services</li> <li>• Activate alerts &amp; investigations if warranted</li> </ul>  |

| RESPONSIBLE OFFICER                                 | ROLE & RESPONSIBILITY  |
|---|--|
| <b>Medical Superintendent</b>                       | <ul style="list-style-type: none"> <li>• Notify Directors, Public Health Managers, Clinicians, Pharmacist, laboratories of public health events or threats within the institution.</li> <li>• Notifies the respective DMO of any urgent notifiable disease conditions for investigation.</li> </ul>  |
| <b>SDMO</b>   | <ul style="list-style-type: none"> <li>• Notify DMO &amp; FCCDC urgent notifiable diseases within 24 hrs.</li> <li>• Notify DMO, HIU on routine notifiable diseases within 7 days.</li> <li>• Notify DMO of any notifiable disease events e.g. outbreaks in the area.</li> <li>• Collate &amp; analyse subdivisional notifiable disease report and provide feedback to staff.</li> </ul>   |
| <b>Medical Officer of the division or DMO</b>       | <ul style="list-style-type: none"> <li>• Receive telephone report of all Urgent notifications and notification forms within 24 hours.</li> <li>• Receive Notification forms of all Routine notifications within 7 days</li> <li>• Collects, collates and analyse surveillance data from the division: SDMO's, MO's, Manager Clinical Services, Laboratories, Risk Management Committee, etc.</li> <li>• Consolidates divisional surveillance data and provide feedback.</li> <li>• Liaise with the permanent secretary for health, divisional clinical health Services, other stakeholders and FCCDC regarding any alerts or outbreak response activities</li> </ul> |
| <b>Fiji Centre for Communicable Disease Control</b> | <ul style="list-style-type: none"> <li>• Receives urgent notifications forms via fax or email within 24 hours of suspected or confirmed disease.</li> <li>• Provides monthly feedback on urgent notifications to the Ministry of Health.</li> <li>• Provides technical advice and assistance as requested by medical officers of health.</li> </ul>  |
| <b>Health Information Unit</b>                      | <ul style="list-style-type: none"> <li>• Receives all routine notifications from Medical Officers and Laboratories via Notification Form within 7 days of suspected or confirmed disease.</li> <li>• Collates, analyses and interprets national notifiable disease data for Ministry of Health.</li> <li>• Provides technical advice and assistance as requested by medical officers of health.</li> </ul>   |

## *Use of Surveillance data*

Data collection on diseases under surveillance should be considered as an essential step for to the prevent, protect against, control and facilitate public health responses to the spread of disease. Wherever possible, surveillance information should be simple, complete, timely and useful so as to enable some analysis leading to an active public health response.

The health information unit shall collate, analyse and interpret notifiable disease surveillance data to monitor disease trends at National level.

The Fiji Centre for Communicable Disease Control (Mataika House) utilise surveillance data to conduct risk assessment of diseases of public health importance, determine seriousness of the public health event and the likelihood of international spread.

Reports of surveillance information at national (FCDC & HIU) and divisional levels should be disseminated to all medical officers of health and key stakeholders.

*Response to Notification*  
*of*  
*Disease*

# Response to Notification of Disease

Suspected or confirmed cases of notifiable disease should be considered in terms of:

- Incidental or endemic – requiring limited public health response; or
- Outbreak or epidemic – requiring immediate significant public health response.

The assessment of the type of response required should be on a case by case basis. The primary consideration is that all notifications require **an assessment of risk or threat to public health, and responses are made accordingly.**

In addition, Fiji has prioritized several notifiable diseases due to their level of endemicity, level of risk and potential impact.

## The priority diseases are:

- **Cholera (A00)**
- **Dengue fever (A90)**
- **Influenzae (J10-11)**
- **Leptospirosis (A27)**
- **Measles (B05)**
- **Rubella**
- **Typhoid fever (A01.0)**

Each of these diseases has a specific response protocol – specifying the minimum actions that should follow notification or reporting – is provided at Attachment 1.

These protocols are also published in a separate, laminated flip-chart for quick and easy reference. We encourage you to read through these guidelines on a regular basis and use the easy reference protocols when clear and rapid action is required. Specific protocols for responding to other notifiable disease conditions are available from the Fiji centre for communicable disease control.

*(\*Note that HIV/AIDS is also considered a priority disease/condition, however is not included in the general guidelines due to its own specific surveillance and control policies and procedure).*

For each priority condition, the following general points are discussed, where appropriate:

- **Rationale for surveillance**
- **Epidemiology of the condition in Fiji**
- **Case definition**
  - Clinical case definition
  - Laboratory criteria for diagnosis
  - Case classification (suspected, probable, confirmed)
- **Spread of disease**
  - Mode of transmission
  - Incubation period
  - Period of communicability
- **Notification procedure**
- **Management of case**
  - Investigations
  - Restriction
  - Treatment
- **Management of contacts**
  - Definition of a contact
  - Investigations
  - Restriction
- **Other control measures**
  - Identification of sources
  - Behavioural intervention
- **Reporting**
- **Epidemics measures**

These protocols should not be the only reference used for responding to notifications or outbreaks, but should be a ready guide for initial response to ensure that minimum standards are met and that measures are quickly put in place to minimize the impact on population at risk.



Surveillance mobile phones and Laptops equipments donated by World Health Organization (WHO) and Secretariat of the Pacific Community (SPC).  
Hon. Minister for Health, Dr Niel Sharma  
WHO Regional Director, Dr Ken Chen  
SPC and Ministry of Health Officials



# *Outbreak Response*



# Outbreak Response

Investigation and response to an outbreak.

## Investigating and responding to an outbreak should aim to:

- Control and prevention of disease
- Prevent further outbreaks from:
  - the immediate source.
  - other similar sources.
- Research and gain additional knowledge on known illness
- Identify new and emerging disease agents
- Evaluate disease control programs
- Enable training and skills development
- Consider public, political, economic or legal concerns
- Meet and satisfy international obligations where relevant.

If an officer suspects the occurrence of an outbreak in area, subdivision or division – they should immediately contact the respective Divisional Medical Officer.

## The priority is to:

- Confirm that the diagnosis is correct.
- Confirm that the increase in cases is real and serious.
- Confirm that the increase represents an outbreak.

An Outbreak Response Team (ORT) is activated upon confirmation of an outbreak. The ORT can be organized at Sub-divisional or Divisional level depending on the extent of the outbreak and the capability of the team.

## Organisation of an Outbreak Response

A Divisional ORT will be responsible for the planning, coordinating and carrying out the response in collaboration with the MoH epidemiologist, FCCDC and local stakeholders. Team members are likely to include:

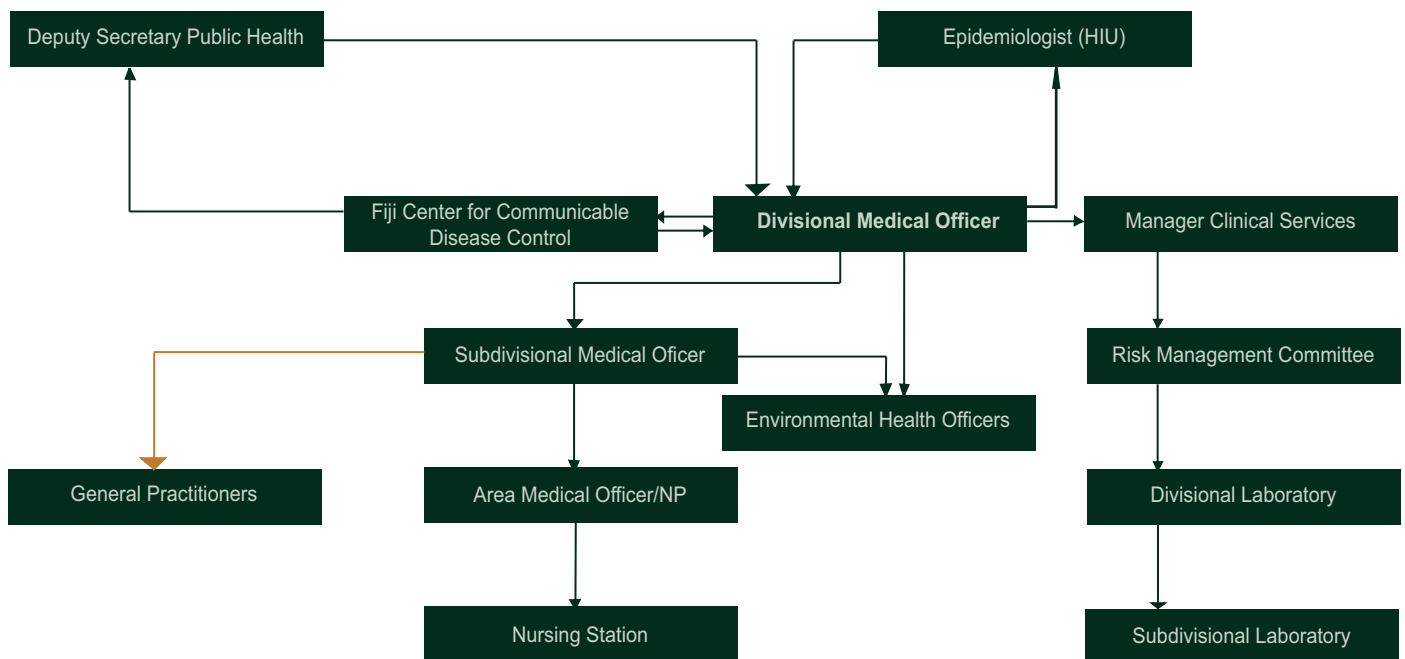
- Divisional Medical Officer (chairperson).
- Subdivisional Medical Officer (coordinator & epidemiologist).
- Public Health Nursing.
- Clinicians.
- Laboratory technicians.
- Epidemiologist (co-opt)
- Medical officers from FCCDC (co-opt)
- Media and Communication Expertise (co-opt)
- Environmental Health Officers (EHO).
- Rural Health Authorities EHO.
- Urban Health Authorities (Town & City Councils).
- Other relevant stakeholder.

The Divisional ORT's terms of reference is determined by the Divisional office. The terms of reference (TOR) may include:

- To develop strategy to control the outbreak and allocate responsibility for taking action.
- To review evidence and confirm or deny the existence of an outbreak.
- To prevent further cases by taking all necessary steps to ensure that the sources of the outbreak is controlled or the cause is removed.
- To communicate findings to other divisions and stakeholders to prevent cases elsewhere.
- To prevent secondary spread of infections by controlling or isolating cases, and by identifying and managing contacts appropriately.
- To provide an accurate and responsible source of information for other professionals, the media and most importantly the public.
- To document the investigations and control measures.
- To efficiently provide a report to the Permanent secretary for Health and the National Health Executive committee.

The Outbreak Response will primarily be coordinated by the Divisional Medical Officer., under the supervision of the Deputy secretary for Public Health.(Figure 3).

Figure 3: Ministry of Health outbreak response flow chart.



## Roles and Responsibilities in Outbreak Management

As with surveillance, participation in outbreak investigation and response will vary depending on the type and scale of outbreak. General roles and responsibilities are outlined in Table 3.

**Table 3: Roles and responsibilities in disease outbreak management.**

| RESPONSIBLE OFFICER                           | ROLES and RESPONSIBILITIES  |
|---|---|
| <b>DMO or Medical Officer of the Division</b> | <ul style="list-style-type: none"> <li>• Will be the focal person to coordinate divisional outbreak investigations and control activities (particularly where more than 1 subdivision is affected).</li> <li>• Liaise with DSPH, MoH and FCCDC if the division requires technical assistance on the field.</li> <li>• Leads the divisional outbreak response team (DORT), while the Deputy secretary – Public Health oversees the overall response at National level.</li> <li>• Play a key role during outbreak investigations and is a point of liaison between the Divisional health services Ministry of Health (Public Health Division), Media and other stakeholders – for rapid dissemination of information about an impending threat or outbreak.</li> <li>• Their primary responsibility includes activating the outbreak protocols and mobilising the outbreak response team to control activities.</li> </ul> |
| <b>SDMO</b>                                   | <ul style="list-style-type: none"> <li>• Coordinates outbreak investigation when it is localised to the subdivision and is manageable by the Subdivisional team. In the absence of capacity to undertake this role, the DMO automatically takes charge.</li> <li>• Investigates and responds to outbreaks if detected in more than one community/area within the medical subdivision.</li> <li>• Leads the Subdivisional Outbreak Response Team (SORT) and develops the SORT capacity to detect and respond to outbreaks.</li> </ul>  |
| <b>Medical Superintendent</b>                 | <ul style="list-style-type: none"> <li>• Responsible for the clinical issues associated with Divisional outbreaks.</li> <li>• Liaise with the DMOs and Laboratories.</li> <li>• Determines and plans for surge capacity as a consequence of an epidemic or pandemic at national or divisional level.</li> </ul>   |
| <b>Medical Officer</b>                        | <ul style="list-style-type: none"> <li>• Assists the SDMO in investigating and responding to an outbreak in their medical area.</li> <li>• If outbreak is in another medical area, medical officers may be co-opted when the need arises.</li> <li>• Medical officers build team capacity to assess and report immediately of an outbreak to SDMO/DMO.</li> </ul>   |

| Responsible Officer  | Role & Responsibility  |
|--|--|
| <b>Public Health Nurses</b>  | <ul style="list-style-type: none"> <li>• Assist outbreak teams in field investigation and clinical management of cases.</li> <li>• Communicate prevention awareness to community.</li> <li>• Assist, implement interventions/control measures.</li> <li>• Monitor and evaluate interventions.</li> </ul>   |
| <b>Communication coordinator (Divisional Health Promotion Officer)</b> | <ul style="list-style-type: none"> <li>• Assists DMO with communication strategies that include drafting press releases, logistic arrangements, public meetings, contact with local leaders, mobilizing communities and other stakeholders (schools, Divisional Management Team, Sub-Divisional Management Teams, Provincial and Tikina Councils, Advisory Councils, Church organizations, other NGOs), distribution of any required communication materials, training of health workers.</li> </ul> |
| <b>Health Inspector</b>  | <ul style="list-style-type: none"> <li>• Conducts environmental assessment of outbreak area.</li> <li>• Implements and oversees control measures e.g. mosquitoes spraying, water sanitation</li> <li>• Other responsibilities as identified in the PH Act.</li> </ul>  |
| <b>Laboratory</b>  | <ul style="list-style-type: none"> <li>• Supportive role in the SORT or DORT.</li> <li>• Provide technical advice to field teams on collection of clinical and environmental samples.</li> <li>• Provide appropriate field testing kits if available.</li> <li>• Conduct urgent tests in a timely manner.</li> </ul>   |
| <b>Fiji CDC</b>  | <ul style="list-style-type: none"> <li>• Assists in the coordination of National Response when one or more Division is involved in the Pandemic.</li> <li>• Provide support, technical advice and training to DORT and SORT to increase capacity to detect, respond and control outbreaks.</li> </ul>  |

# Steps in investigating an Outbreak

Whilst responses to reported outbreaks often appear straightforward, it is important that an initial investigation is done to ensure the correct response is made.

There is no single “right” list for this, but public health officers should have a systematic approach to an outbreak investigation. The benefit of referring to defined steps is that, in the heat of the investigation, critical steps will not be overlooked.

The steps are not fixed in order and often initiated simultaneously. In some situations, control measures can and should be implemented immediately. The outbreak investigation team should never wait for all results before any response is instituted. Verification of the diagnosis may come at the same time as verification of an epidemic, or laboratory confirmation may come weeks after the investigation is over.

Many components are dynamic: case definitions, line listings, descriptive epidemiology, and hypotheses all can (and sometimes should) change with additional information.

Implementation of relevant components of communication strategies should also occur at each step of investigation and response.

## Step 1. Prepare for field work (*‘Be Prepared’*).

In our context, this is an important step to ensure that outbreak teams are well prepared with the relevant skills, knowledge and personnel to conduct an investigation well before an outbreak is identified. Also the team should have the capacity to effectively institute control measures while awaiting further assistance. This preparation can be at an institutional or administrative level e.g. medical subdivision level, and the range of activities can vary from setting up an outbreak response team, describing SOPs for team cohesion, regular staff training, outbreak exercises, attachments, formal certifications, to preparing an inventory of emergency equipment for such events.

Basically preparations can be grouped into 3 categories:

### (a) Investigation

- appropriately skilled and trained personnel
- equipment to carry out the investigation
- literature review/references
- sample questionnaires.
- consult laboratory staff concerning proper laboratory material and collection, storage, and transportation techniques.

### (b) Administration

- administrative procedures.
- travel and other arrangements

### (c) Consultation

- know your expected role in the field
- know who your local contacts will be
- know when and where you are to meet with local officials and contacts

## **Step 2. Establish existence of an outbreak**

This may be obvious – many cases occurring within a short time period, or less obvious, where analysis of surveillance data is showing a higher observed rate of disease with that which is expected.

However sometimes reports of outbreaks can be based on incorrect information or rumours. Also, an increase in cases of disease may be within normal variation and may not be an outbreak. Make sure that the reported cases really exist, that they have the same disease, and that the rise in cases is not a result of, for example, a reporting error or a laboratory mistake.

Once the outbreak has been confirmed that there is a likely increase in cases of a certain disease, the outbreak response team should be activated. Cases may be detected through disease surveillance, clinical diagnosis of disease or local laboratory testing. Talking with laboratory staff is important to ensure that the correct samples are collected and samples are stored and transported appropriately. Specialized testing may be required in a reference laboratory.

## **Step 3. Verify diagnosis**

Although this may be assumed, it is important to ensure that proper diagnosis has occurred and that laboratory or other diagnostic error is not the reason for the increase in diagnosed cases.

## **Step 4. Define and identify cases**

A first step should be to develop a case definition. This may be an existing surveillance case definition or a modified case definition for the purpose of deciding whether an individual should be classified as having the disease under investigation or not. This outbreak specific case definition defines a case in terms of time, place and person. Time information may include the period of time in which cases occurred. Place information usually includes a geographical location such as a town, or province but may be as small as an institution, a school class, or community function. Person information may include age, sex, ethnicity, and clinical characteristics such as symptoms (e.g. cough and fever). It is important that the team uses the same case definition, otherwise there will be much confusion about the number of cases.

Using the case definition the next step is to identify cases and collect information. Demographic information such as age, sex, address and telephone numbers are useful. Interviewing cases about what may have caused their illness is important. Information to collect depends on the outbreak and may include a travel history, vaccination history or detail about the food and drink consumed by the case. A questionnaire may be developed to help the investigating team to ask the right questions.

A line list (Table. 4) is then completed to summarise all the collected information about the cases or those might be cases in the outbreak. A line list allows rapid analysis of the data using an excel worksheet and usually include demographic, clinical information and other details of persons interviewed. A line list will usually include case name, address and contact details, date of onset of illness, date of exposure, symptoms, specimens taken and results of laboratory tests

**Table 4: Example of line list generated during an outbreak investigation.**

|            |           |             | Demo-graphic |     |            | Signs and Symptoms |          |          | Lab      |
|------------|-----------|-------------|--------------|-----|------------|--------------------|----------|----------|----------|
| First Name | Last Name | Report Date | Sex          | Age | Onset Date | Nausea             | Vomiting | Jaundice | Positive |
| 1. Kelepi  | Fatani    | 6/12/10     | M            | 36  | 4/12/10    | Yes                | Yes      | Yes      | Yes      |
| 2. Isileli | Koula     | 6/12/10     | M            | 68  | 4/12/10    | Yes                | No       | Yes      | Yes      |
| 3. Sone    | Tatafu    | 5/12/10     | M            | 37  | 2/12/10    | Yes                | No       | Yes      | Yes      |
| 4. Lia     | Nalatu    | 7/12/10     | F            | 22  | 5/12/10    | No                 | No       | No       | NA       |
| 5. Teo     | Lopeti    | 8/12/10     | M            | 34  | 7/12/10    | Yes                | Yes      | No       | Yes      |
| 6. Mele    | Tuimo     | 6/12/10     | F            | 43  | 3/12/10    | No                 | No       | Yes      | Yes      |

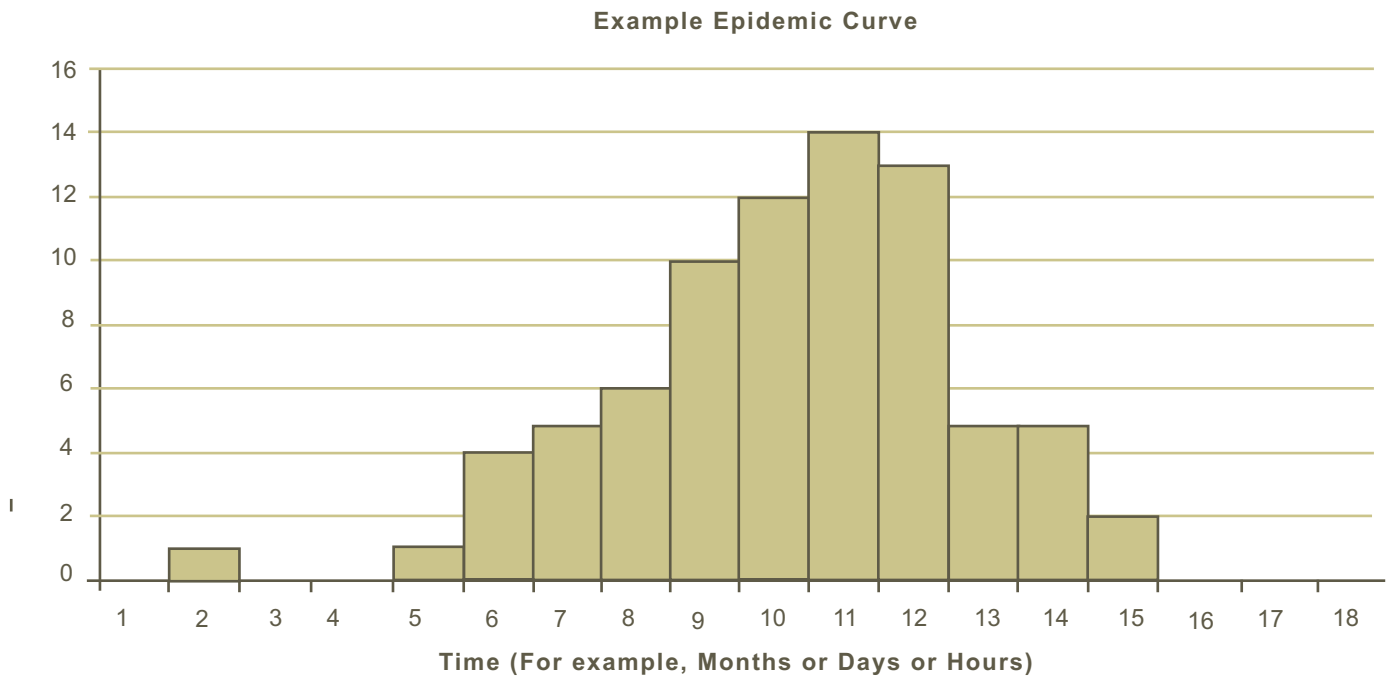
### Step 5. Perform descriptive epidemiology

After completing a line list, an Epidemic curve or epicurve should be created to describe the outbreak. The Epicurve should be assessed for;

- the overall shape of the curve to assist in determining how the outbreak spread throughout the population
- number of confirmed, clinical, and suspected cases
- number of deaths associated with the disease or illness
- demographic information e.g., age, gender, and job classification

For every outbreak it is always necessary to describe the cases by Time, Place, and Person. The time refers to the date and time of onset of illness, but if that is not available, date of diagnosis or presentation is used. It is best to draw an epidemic curve, that shows the number of cases by time of onset. The x-axis (bottom) shows a measure of time, for example hours, days, or months. The y-axis (vertical) shows the count of cases for that measure of time. See the picture for an example. Time is also used to describe when exposure to risk factors may have occurred.

Figure 4. Example of an epidemic curve.



Place means where the patients live or where they have become infected. Sometimes it's a good idea to put the cases on a map. This is called a spot map. Figure 4. Example of an epidemic curve.

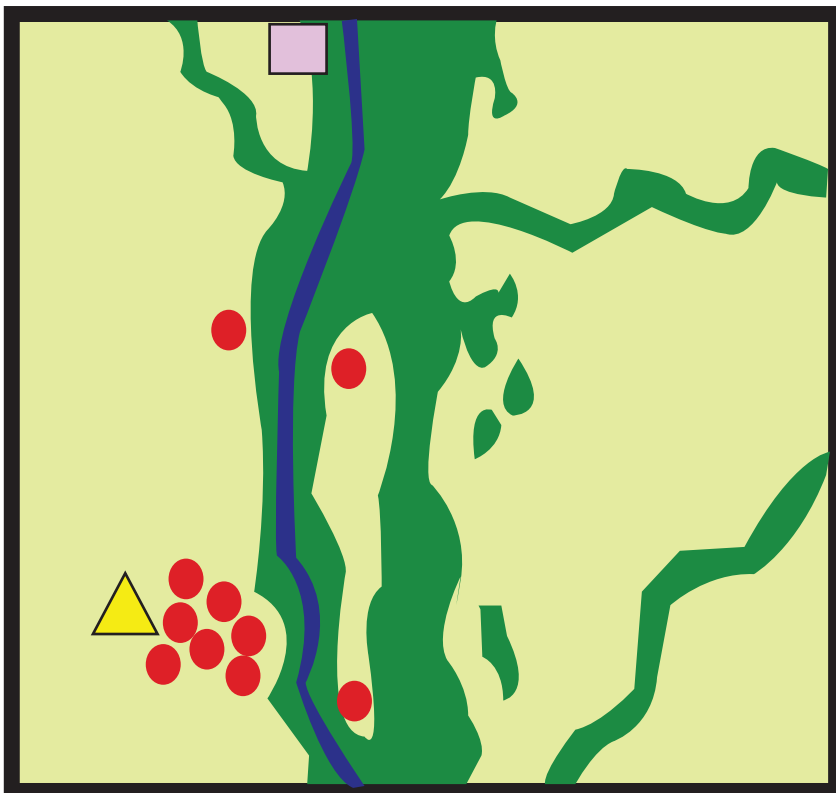
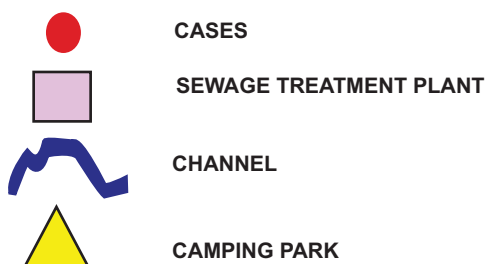


Figure 5. Example of a spot map

Person refers to information about the patients, such as sex, age group, profession and so on. All this information will help find clues that explain the outbreak.





## Step 6. Develop a hypothesis.

The hypothesis is an educated guess about the source of the disease, mode of transmission, and/or exposures that caused the disease, based on available information. It guides the public health response to the outbreak.

Some questions to consider in developing the hypothesis are:

- What does the epidemic curve suggest?
- What events occurred around that time?
- Do people living in a particular area have a higher attack rate?
- Are groups with particular age, sex, or other person characteristics, at greater risk than other groups with different person characteristics?

... implement control and prevention measures AS EARLY AS POSSIBLE. Control measures are often more general to begin with and become more specific as the cause of the outbreak is identified. This is not limited to the following:

- Vaccinations / Chemoprophylaxis
- Cancellation of gatherings
- Product recall
- Restaurant closures
- Vector control measures
- Sanitation measures / water purification
- Respiratory precautions

## Step 7. Evaluate hypothesis

There are methods to evaluate the credibility of the hypothesis that is not described in detail this in guideline. There are two basic approaches 1) comparison of the hypotheses with the established facts and 2) analytic epidemiology, which allows you to test your hypotheses. The former refers to when the evidence is so strong that the hypothesis does not need to be tested. Strong clinical, laboratory, environmental, and/or epidemiologic evidence can support the hypotheses and the course of action to take. The second method, analytic epidemiology, is used when the cause is less clear. With this method, the hypothesis is tested by using a comparison group to quantify relationships between various exposures and the disease. There are two types of analytic studies: cohort studies and case-control studies.

## Step 8. As necessary, reconsider/refine hypothesis

Where initial testing of your hypothesis does not provide sufficient clues to a possible or probable cause or source of risk, it may be necessary to undertake additional epidemiologic, laboratory or environmental studies. This may be done to look for less obvious links amongst cases or to consider new vehicles or modes of transmission.

## Step 9. Implementing control and prevention measures.

Control and prevention methods are usually aimed toward the source of the disease, but may also include interrupting transmission or limiting exposure. Control measures, which can be implemented early if the source of an outbreak is known the source of an outbreak, should be aimed at specific links in the chain of infection, the agent, the source, or the reservoir. For example, destroying contaminated foods, sterilizing contaminated water, destroying mosquito breeding sites, or requiring an infectious food handler to stay away from work until well. Interrupting transmission or exposure by wearing insect repellent and protective clothing. In some outbreaks, direct control measures can reduce susceptibility such as immunization.

**Once the cause of the outbreak has been identified, investigators should work to implement longer term control measures to end the current outbreak and prevent future outbreaks. These control measures are more extensive than earlier control measures and should be evaluated to determine if they are effective.**

### Step 10. Communicate findings.

Findings of the investigation should be communicated to local health authorities who are responsible for implementing control measures. In addition, a written report provides a legal record of the findings and contributes to public health awareness. It generally takes two forms: 1) an oral briefing and 2) a written report.

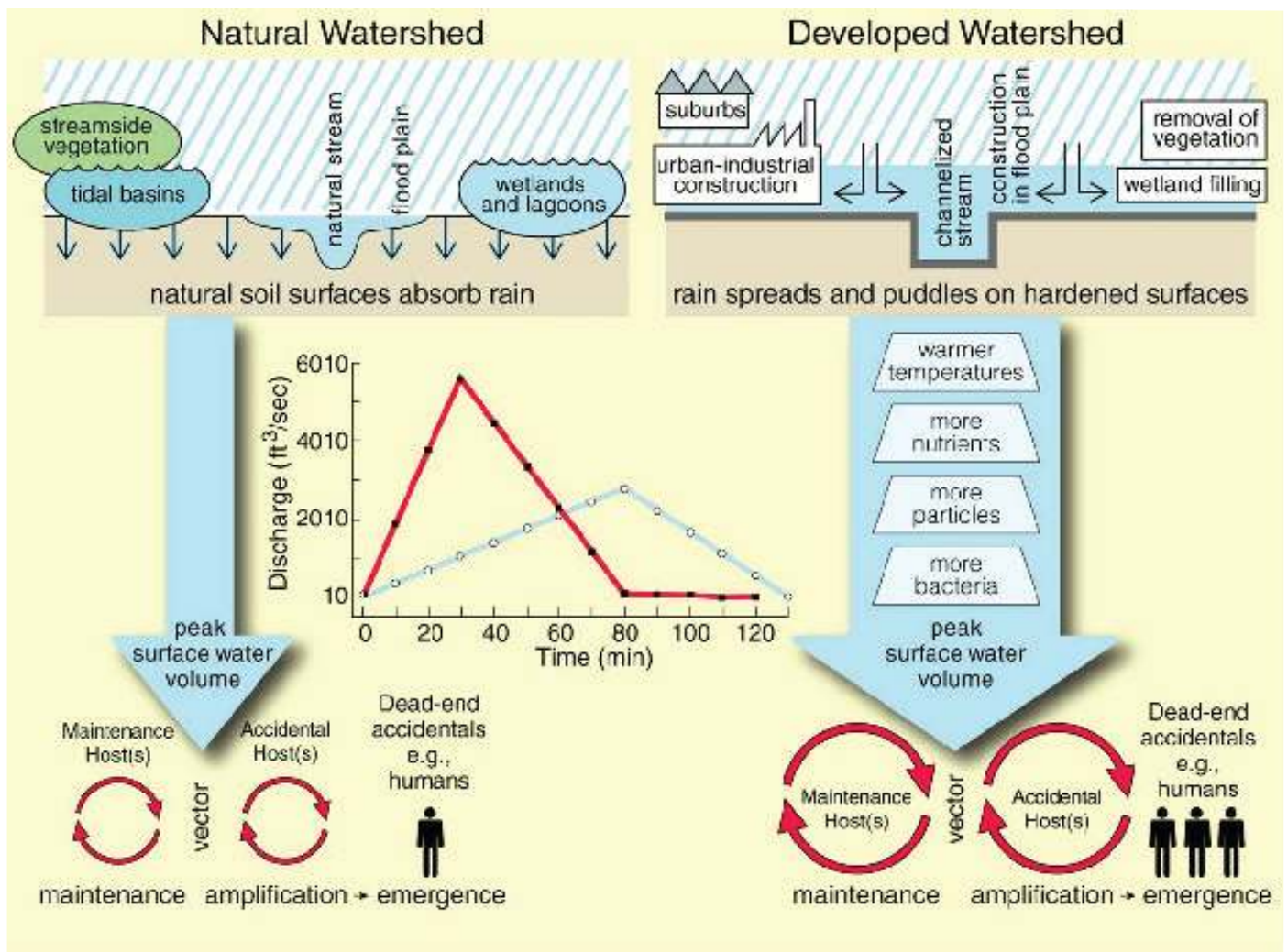
An oral briefing should be presented in a scientifically objective fashion, and the investigator should be able to defend their conclusions and recommendations. A written report is critically important and follows the following basic format:

- introduction,
- background,
- methods,
- results, (e.g. epi-curve).
- discussion, and
- recommendations.

The report provides a blueprint for action by presenting the recommendations. It also serves as a record of performance, a document for potential legal issues, and a reference if the health department encounters a similar situation in the future. Finally, a report that finds its way into the public health literature serves the broader purpose of contributing to the scientific knowledge base of epidemiology and public health.

**All identified outbreaks should be described in a written report and forwarded to the Divisional medical officer (DMO) with a copy to the National adviser communicable disease (NACD) within a month after the outbreak is under control.**

### Leptospirosis - Watershed



**National Public Health Laboratory Accreditation by World Health Organization for Measles and Rubella Testing**  
**Minister for Health - Dr Neil Sharma and Deputy Secretary for Public Health - Dr Joe Koroivueta**



*Communication*

# Communication

These guidelines are an important communication tool and represent a major resource for regular Divisional and Sub-Divisional training programs. The guidelines also place a major emphasis on outbreak communication – ensuring all stakeholders are involved and informed, including the general public and national media.

Well-planned communication can enhance communicable disease outbreak preparation and can hasten containment of an outbreak as well as help to mitigate an outbreak's social and economic impact. Communicable disease outbreak response objectives are usually stated as follows:

- Take care of patients.
- Prevent further cases.
- End the outbreak quickly.
- Prevent its recurrence.

Effective communication contributes, either directly or indirectly, to each of these objectives and should be considered an intervention in its own right. Provided it is genuinely a two-way process, outbreak communication with the public and media brings many benefits:

- Harnessing public anxiety and the corresponding desire to take protective action in ways that promote desired behaviours and accelerate outbreak control.
- Encouraging people who are alert to the symptoms of illness to seek early treatment.
- Enhancing awareness of protective behaviours that can help prevent further cases.
- Helping to prevent crisis from developing.
- Leading to better decisions about how to handle risks.
- Helping to ensure smoother implementation of responses to tackle outbreaks.
- Freeing up those engaged in the technical response to concentrate on rapid containment.
- Helping to empower and reassure the public.
- Over time, helping to build trust in Government and in the information it provides.
- Hastening a return to normal conditions after an outbreak peaks.

Outbreak communication should be based on some well-grounded principles:

- Build trust.
- Announce early.
- Be transparent.
- Respect public concerns.
- Be inclusive.
- Plan carefully in advance and evaluate your efforts.

Overall communicable disease outbreak responses can be planned according to recognizable phases – pre-outbreak, outbreak, post-outbreak and review and development. Outbreak communication should also be organized according to certain phases: from preparedness, to eruption, to clean-up and recovery into evaluation.

Attachment 3 walks you through how to plan and implement communication during each phase.

## *Post Outbreak*

Scaling down outbreak response will be the responsibility of the Outbreak Response Team and will generally happen once transmission of disease has been interrupted with no new cases occurring and/or the known risk is considered to be no longer a threat.

It is important that ongoing surveillance occurs. This may be for cases, environmental threats, or other exposure risks. Post-outbreak communication is important.

A summary outbreak report following the investigation and control of the outbreak should be provided to the Deputy secretary of Public Health, Fiji CDC and key stakeholders.

### **Evaluation**

It is important that the Outbreak Response Team conducts an evaluation exercise to examine the response in the context of answering key questions such as that below:

- How effective was the response?
- How efficiently was the response conducted?
- Were policies, protocols and guidelines followed?
- Were policies, protocols and guidelines sufficient to support the response?
- What would we do differently to improve this response?

Importantly, any learning gained should be fed back into protocol and guideline development. Opportunities to train and teach others based on the experience of investigating and responding to the outbreak should be taken where possible.

## *Links to other related National Plans*

As stated earlier, the scale of response required to manage and control an outbreak will vary and should be assessed on a case by case basis.

It is important however to consider large scale outbreaks with national and international implications. As such, an outbreak response may require the mobilization of resources and activities beyond the scope of Divisional and National Health Services. At this point, it is possible that other emergency plans are activated or considered.

Figure 6 below demonstrates linkages between the National Health Emergency and Disaster Management plan (HEADM Plan), Fiji National Influenzae Pandemic Plan and Communicable Disease Surveillance and Outbreak Response Guidelines. The figure below depicts how the latter two documents are a subset of the HEADM Plan.

It is expected that all health workers are aware of the existence of complementary plans and that it is the responsibility of the Divisional Medical Officer and Medical Superintendent will liaise and discuss with the Deputy secretary Public Health on any implications for activation of such plans.

Figure 6, Linkage between national plans related to communicable disease

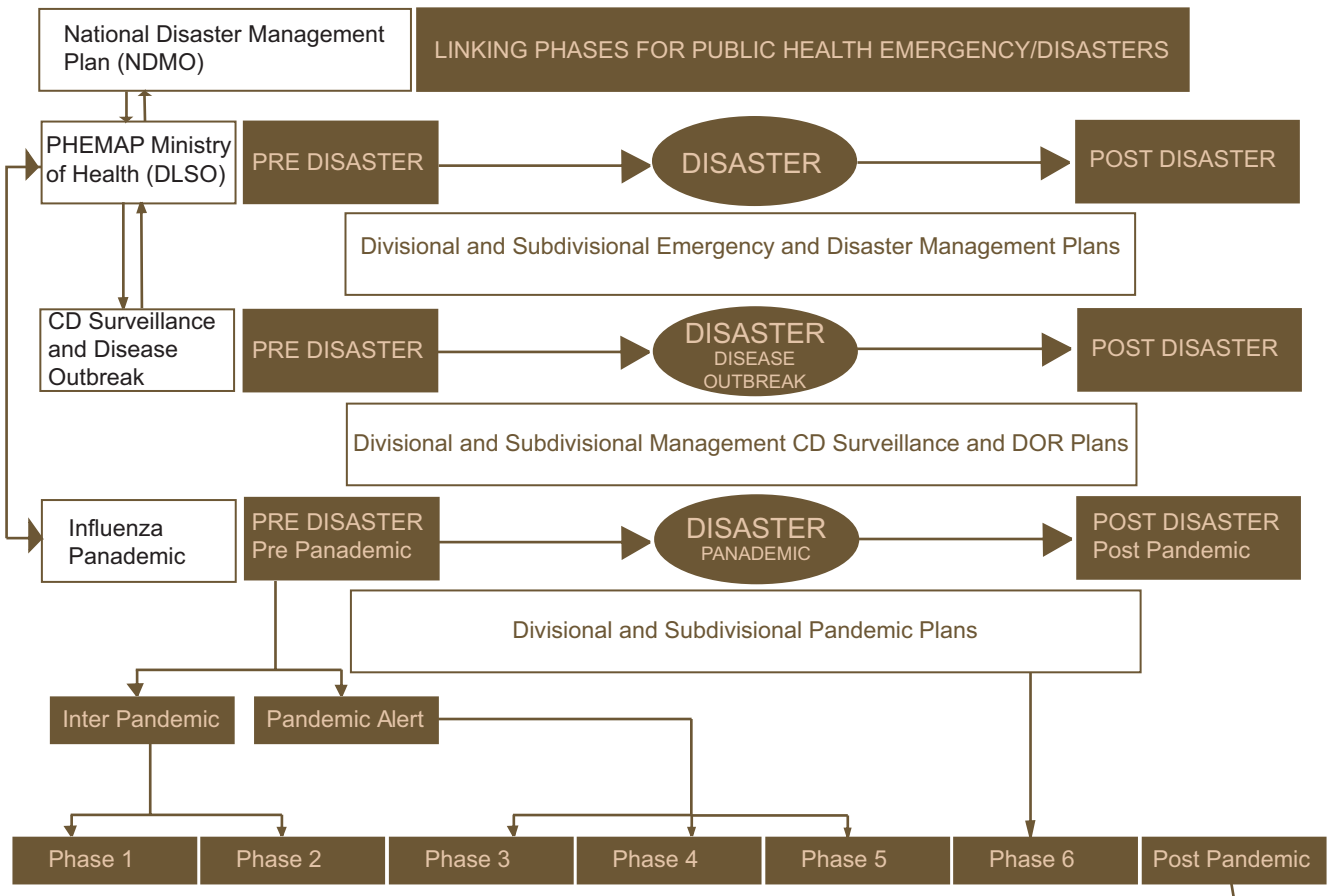


Figure 7, below outlines the organisational structure of health emergency and disaster responses, including coordination at various levels of service within the Ministry of Health including psychosocial services, environmental health services, public health, epidemiological services, nutrition etc. These guidelines outline the separate roles and responsibilities for different units within this structure as they relate to communicable disease outbreaks.

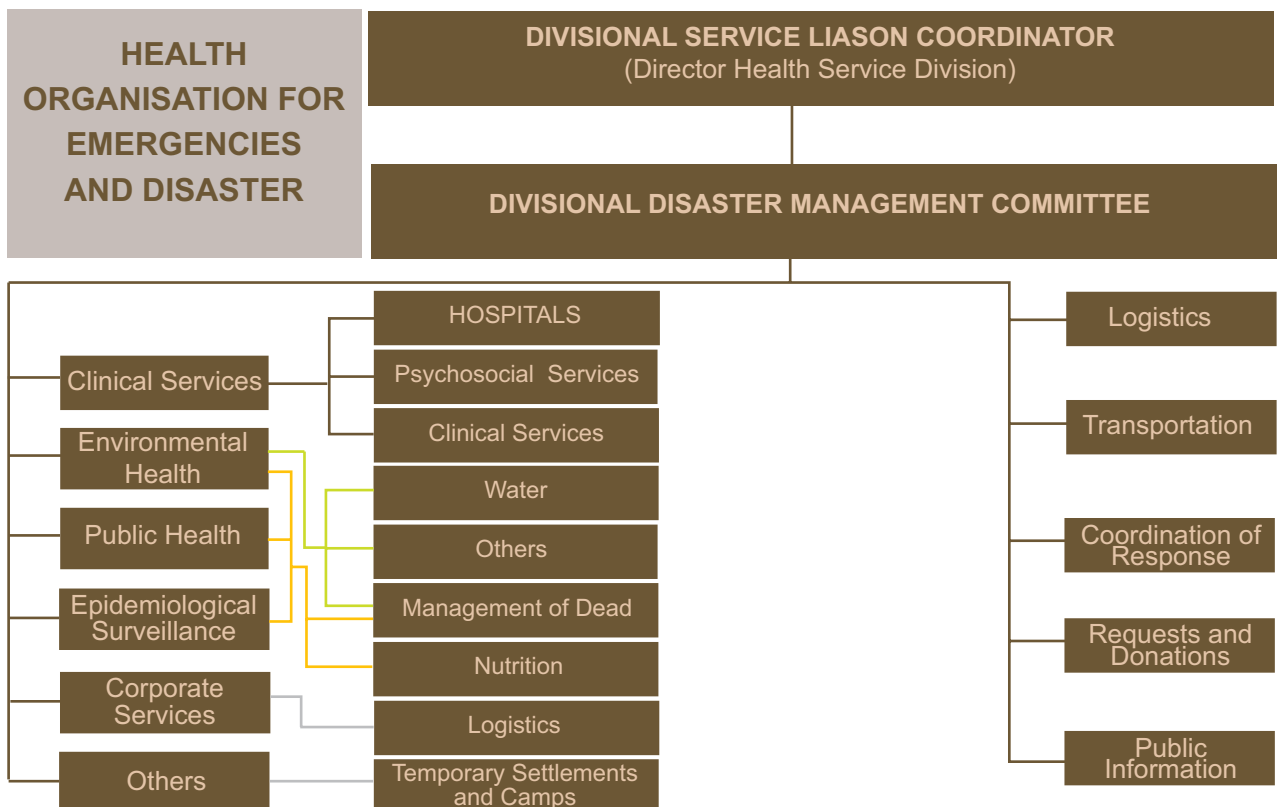


Figure 7, Health Organization during health emergencies



# Attachment 1: Priority Disease Protocols

## CHOLERA (AOO)

National Communicable Disease Centre Hotline - 3320 066

### Rationale for Surveillance

Cholera is a priority disease in Fiji as it causes an estimated 120,000 deaths worldwide per year, is prevalent in 80 countries, and is often associated with travel and migration. Case reporting universally is required by the International Health Regulations (2005).

### Case Definition

**Clinical Case Definition:** An illness of variable severity characterised by watery diarrhoea and vomiting.

### Laboratory Criteria for diagnosis and notification:

Isolation of toxigenic (cholera toxin-producing) *Vibrio cholerae* O1 or O139 from a clinical specimen

### Case Classification

**Probable:** A clinically compatible illness linked epidemiologically to a confirmed case.

**Confirmed:** A clinically compatible illness that is laboratory confirmed

### Spread of Disease

**Mode of Transmission:** By ingestion of contaminated food and water

**Incubation Period:** A few hours to 5 days, commonly 2 to 3 days

**Period of Communicability:** For the duration of stool positive stage which is usually until a few days after recovery.

Occasionally the carrier state may persist for several months. Tetracycline shortens the period of communicability.

### Notification Procedure

To be notified to Mataika House URGENTLY by medical officers of health on a suspicion of a clinical diagnosis and Laboratories upon laboratory confirmation.

### Management of Case

**Investigation:** If an indigenous case occurs initiate a thorough investigation to find the source. For an imported case, identify the country of exposure.

**Restriction:** Exclude from work those in high-risk occupation such as food handlers and caregivers (of patients, children and the elderly), while they are excreting the organism. Infection control procedures (enteric) for acutely ill hospitalized patients.

**Treatment:** Prompt fluid replacement. Tetracycline (usually doxycyclines) reduces the volume and duration of diarrhoea and shortens the duration of excretion of the organism.

### Management of Contacts

**Contacts:** Defined as household members or those exposed to a possible common source

**Investigation:** A stool culture from contacts is recommended. Contacts should be under surveillance for diarrhoea for 5 days after exposure.

**Restriction:** As for case if symptomatic, whilst awaiting stool culture results

### Other Control Measures

**Identification of source:** Investigate possible sources such as contaminated drinking water and contaminated food.

**Behavioural intervention:** Identify the population at risk and inform them of the need for early referral and treatment if symptoms develop. Inform on safe drinking water supply, toileting, hand washing and food preparation hygiene.

### Reporting

Cholera is an internationally quarantinable disease and must be notified to WHO. The Ministry of Health will notify WHO via Fiji's IHR focal point. WHO under the IHR regulations will then advise adjacent countries of the first case occurring in an area previously free of the disease.

### Epidemic Measures

Refer to Outbreak Response section in main guideline.



**Rationale for Surveillance**

Dengue fever, including Dengue Haemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS) is the most significant arthropod-borne disease worldwide. It occurs in over 100 countries and territories and threatens the health of over 2 500 million people in tropical and subtropical regions. Dengue fever is severe disease with high epidemic potential.

**Case Definition**

**Clinical Case Definition:** An acute febrile illness of 2 – 7 days duration with 2 or more of the following: headache, retro-orbital pain, myalgia, arthralgia, rash, haemorrhagic manifestation.

**Laboratory Criteria for diagnosis: Positive specific serological test.**

**Case Classification**

**Suspected:** compatible with the clinical description

**Probable:** compatible clinical illness in a person who has come from an endemic area or has come from the same location and time as other confirmed cases of dengue fever.

**Confirmed:** clinically compatible illness, which is confirmed by specific serological testing

**Spread of Disease**

**Mode of Transmission:** By the bite of infective mosquitoes, principally *Aedes aegypti*.

**Incubation Period:** From 3 to 14 days, commonly 4 –7 days

**Period of Communicability:** There is no transmission from person to person.

**Notification Procedure**

To be notified to Mataika House URGENTLY by medical officers of health on a suspicion of a clinical diagnosis and Laboratories upon laboratory confirmation

**Management of Case**

**Investigation:** Check case's travel history and likely place where infection occurred. If the case has no recent history of travel overseas consider whether the disease was acquired locally. Contact Mataika House (Tel: 3320 066) for further advice on investigation and management.

**Restriction:** Nil. However, until the fever subsides, prevent access of day biting mosquitoes to patients by screening the sickroom or using mosquito bed net, or by spraying quarters.

**Treatment:** Symptomatic treatment, aspirin is contraindicated

**Management of Contacts**

**Contacts:** not applicable

**Investigation:** determine patient's place of residence during the 2 weeks before onset of illness and search for unreported or undiagnosed cases.

**Restriction:** nil

**Other Control Measures**

**Identification of source:** search for *Aedes* species mosquitoes in places of human habitation

**Behavioural interventions:** inform public and government workers on how to eliminate or correctly manage larval habitats (importantly water drums and old tyres) or if feasible, apply larvicides to all potential habitats of *Ae. aegypti*. Encourage protection against day biting mosquitoes by using screening, protective clothing and repellents. Prompt rapid seeking of help from health worker within 24 hours of fever onset.

**Reporting**

**Reported nationally via national Notifiable Diseases Surveillance System**

**Epidemic Measures**

Refer to Outbreak Measures above



### Rationale for Surveillance

Influenzae is a common outbreak-prone disease that can seriously affect, and even kill people with chronic disease (e.g. non-communicable disease which are of increasing importance in the Pacific Islands). The 1918 influenzae pandemic caused an estimated 20 to 40 million deaths worldwide. Pacific Island countries and territories (PICTs) experienced fatality rates up to 24% of the entire population.

### Case Definition

Clinical Case Definition: Sudden onset of fever of  $>38^{\circ}\text{C}$  with cough or sore throat. Symptoms are referred to as “influenzae-like illness” (ILI)

### Laboratory Criteria for diagnosis: virus isolation

Nasopharyngeal swab or aspirate from the suspected individual, or direct detection of influenzae viral antigen. Four fold rise in antibody titre between early and late serum

### Case Classification

**Suspected:** a case that meets the clinical case definition

**Confirmed:** a case that meets the clinical case definition and is laboratory confirmed (used mainly in epidemiological investigation rather than surveillance)

### Spread of Disease

**Mode of Transmission:** Airborne spread predominates among crowded populations in enclosed spaces, such as school buses; transmission may also occur by direct contact, since the influenzae virus may persist for hours, particularly in cold and in low humidity.

**Incubation Period:** Short, usually 1 – 3 days

**Period of Communicability:** Probably 3 – 5 days from clinical onset in adults; up to 7 days in young children.

### Notification Procedure

Clusters or outbreaks of influenza are to be notified to Mataika House URGENTLY by medical officers of health on a suspicion of a clinical diagnosis. Laboratories are required to notify avian influenza strains upon laboratory confirmation.

### Management of Case

**Investigation:** Limited unless highly pathogenic strain

**Restriction:** Limited – see Behavioural intervention below

**Treatment:** Symptomatic. Antivirals are not routinely recommended but may reduce symptoms and reduce viral titres in respiratory secretions.

### Management of Contacts

**Contacts:** of no practical value unless highly pathogenic strain

**Investigation:** of no practical value unless highly pathogenic strain

**Restriction:** Limited – see Health Education below.

### Other Control Measures

**Identification of source:** of no practical value

**Behavioural intervention:** inform public and health care personnel on respiratory etiquette: minimizing contact with others if sick through voluntary home-based quarantining; keeping physical distance ( $>1\text{m}$ ) from all contacts; avoiding touching patients or if sick, touching others; washing hands often; wearing masks; covering coughs and sneezes; disposing of tissues safely; and cleaning of possibly contaminated surfaces. Encourage social distancing: avoid crowded places; minimize social mixing of children; and limit social contact to a small set of people who do not intermix with others.

### Reporting

Influenzae is a disease under surveillance by WHO. The Ministry of Health will report epidemics within a country to WHO. Furthermore, Mataika House, will send specimens (throat secretions, nasopharyngeal aspirates and paired serum to WHO Influenzae Centre in Melbourne).

### Epidemic Measures

Relevant to pandemic influenza strains. Refer to Outbreak Response section in main guidelines and Fiji Influenza Pandemic Preparedness Plan

**Rationale for Surveillance**

This is a zoonotic disease that is distributed worldwide and occurs seasonally in countries with a humid subtropical or tropical climate (including Fiji). Leptospirosis is often linked to occupation where there is a risk direct contact with (the urine or) infected animals. Surveillance provides basis for intervention strategies in human or veterinary public health.

**Case Definition**

**Clinical Case Definition:** An illness characterised by fever, headache, chills, myalgia, with associated symptoms: conjunctival suffusion, meningitis, jaundice, haemorrhages or renal insufficiency.

**Laboratory Criteria for diagnosis:**

Isolation of leptospiras from a clinical specimen OR a fourfold or greater rise in leptospiral microscopic agglutination titre (MAT) between acute and convalescent sera OR a single high titre of  $\geq 400$  in the MAT

**Case classification**

**Suspected:** a case that is compatible with the clinical description

**Probable:** Not applicable

**Confirmed:** A suspect case that is confirmed in a competent laboratory.

**Spread of Disease**

**Mode of Transmission:** Contact of skin, especially if abraded, or of mucous membranes with water, moist soil or vegetation contaminated with urine of infected animals, or by direct contact with urine or tissues of infected animals.

**Incubation Period:** Usually 10 days, with a range of 4 – 19 days post exposure to source.

**Period of Communicability:** Direct transmission from person to person is rare. Animals excrete leptospiras in urine for up to one month and occasionally longer.

**Notification Procedure**

Single (incident) cases are to be notified to Mataika House and CMO ROUTINELY by medical officers of health on a suspicion of a clinical diagnosis and Laboratories upon laboratory confirmation.

Clusters of cases or an outbreak must be notified to Mataika House URGENTLY by medical officers of health on a suspicion of a clinical diagnosis and Laboratories upon laboratory confirmation

**Management of Case**

**Investigation:** in consultation with the attending medical practitioner, attempt to identify the source of infection. And search for exposure to infected animals and potentially contaminated water.

**Restriction:** Infection Control procedures for blood and body fluids.

**Treatment:** Penicillin or tetracycline is used. Effective as late as 7 days into an illness. Prompt specific treatment, as early in the illness as possible, is essential.

**Management of Contacts**

**Contacts:** any person who has experienced the same exposure as the case.

**Investigation:** as in cases

**Restriction:** Nil

**Other Control Measures**

**Identification of source:** As per Management of Case - Investigation

**Behavioural intervention:** The case or relevant caregivers or contacts should be informed about the nature of the infection and the mode of transmission. In particular, emphasis should be placed on avoiding urine of infected animals and avoiding swimming in contaminated waters.

**Reporting**

Leptospirosis is reported through the national Notifiable Diseases Surveillance System. If a case is detected in an area known to be endemic for Leptospirosis, active surveillance should be undertaken.

**Epidemic Measures**

**Search for source of infection:** contaminated swimming pool or other water source, eliminate the contamination or prohibit use. Investigate industrial and occupational sources, including direct animal contact. NOTE THAT Leptospirosis is a potential problem following flooding.

**Rationale for Surveillance**

Measles is a highly communicable infection. Fiji is aiming to reduce the incidence of measles by 90% and mortality by 95%. Surveillance also assists in determining the effectiveness of immunization programs.

**Case Definition**

**Clinical Case Definition:** Any person in whom a clinician suspects measles infection OR any person with fever (>38.0 C), generalised maculopapular (i.e. non-vesicular) rash lasting 3 or more days, cough or coryza (i.e. runny nose) or conjunctivitis (i.e. red eyes) or Koplik spots.

**Laboratory criteria for diagnosis:**

At least one of the following:

Isolation of measles virus; OR Detection of measles virus by nucleic acid testing; OR Detection of measles virus antigen; OR IgG seroconversion or a significant increase in antibody level or a fourfold or greater rise in titre to measles virus EXCEPT if the case has received a measles-containing vaccine eight days to eight weeks before testing. (NOTE: paired sera must be tested in parallel); OR Detection of measles virus-specific IgM antibody confirmed in an approved reference laboratory EXCEPT if the case has received a measles-containing vaccine eight days to eight weeks before testing.

**Case classification**

**Clinically confirmed:** a case that meets the clinical case definition.

A **suspected** measles case that, for any reason, is not completely investigated is considered to be clinically confirmed for the purposes of notification.

**Laboratory-confirmed:** (only for outbreak confirmation and during the elimination phase): A case that meets that clinical case definition and that is laboratory-confirmed or linked epidemiologically to a laboratory-confirmed case.

**Epidemiological linkage** is defined here as direct contact with another laboratory-confirmed measles case in which rash onset occurred 7-18 days before the present case.

**Spread of Disease**

**Mode of Transmission:** airborne by droplet spread, direct contact with nasal or throat secretions of infected persons, and less commonly, by articles soiled with nose or throat secretions. Measles is one of the most highly communicable infectious diseases.

**Incubation Period:** About 10 days, but may be 7 –18 days from exposure to onset of fever, usually 14 days until rash appears.

**Period of Communicability:** From 1 day before the beginning of the prodromal period (usually about 4 days before the rash onset) to 4 days after appearance of the rash, minimal after the second day of rash.

**Notification Procedure**

To be notified to Mataika House **URGENTLY** by medical officers of health on a suspicion of a clinical diagnosis and Laboratories upon laboratory confirmation.

**Management of Case**

**Investigation:** in consultation with the attending medical practitioner, obtain laboratory confirmation where possible for the first cases seen in an area and for any case not clearly linked epidemiologically to the confirmed case.

**Restriction:** exclude cases from school / Institution / work for at least 4 days after the appearance of the rash. And if the case is hospitalised: isolation until 4 days after the appearance of the rash.

**Treatment:** supportive only

## Management of Contacts

### Contacts:

A contact: anyone who has shared the same air as the case for any length of time while infectious. These include: all household members, adult and children in daycares, work colleagues, persons sleeping over in the same room e.g. hospital, boarding school, barracks, people sharing the same waiting area in health care facility, bus etc.

A susceptible individual: one who does not have documented immunity to measles or who has not received 2 doses of measles vaccine.

### Investigation:

Ensure that the first case/s is confirmed by serology. Contact medical practitioners, hospitals and schools in the locality of the case to alert them that other cases are likely. If there are no other confirmed cases in the area it is sufficient to warn institutions and caregivers to immunise susceptible children. If cases are confirmed consideration should be given to immunising school and other contacts.

**Restriction:** Undiminished contacts, who do not have a history of doctor-diagnosed measles, may be excluded from early childhood service, schools or patient care for 14 days after exposure. They may return after receiving immunisation.

### Other Control Measures

**Behavioural intervention:** The case or relevant caregiver should be informed about the nature of the infection and the mode of transmission. By the time the case of measles is identified and notified, the case may have already have transmitted the virus to other susceptible. However the case should still be advised to stay home while the infectious, and to avoid contact with susceptible children, pregnant women and immunosuppressed people.

## Reporting

**Reported nationally via national Notifiable Diseases Surveillance System.**

### Epidemic Measures

**When an outbreak is suspected:** Preliminary case investigation must be carried out to confirm the diagnosis, assess the extent of the outbreak and identify the population at risk (clinical syndrome and immunisation status). It is important that blood samples be collected from the initial 10 reported cases of an outbreak, to confirm whether or not measles virus is the cause of the outbreak. Laboratory investigation of all suspected measles cases is mandatory. Blood samples should be taken and sent to Mataika House who will test using ELISA and later refer to WHO reference lab for isolation of genomic sequencing and mapping purpose to track virus circulation and establish importation. Consider need for mass measles vaccination campaign - refer to WHO Guidelines for Epidemic Preparedness and Response to Measles Outbreak.

**Rationale for Surveillance**

Outbreaks of typhoid continue to occur in Fiji, with a risk that the disease may become endemic in some areas. Surveillance assists in identifying the source of infection, prevent further outbreaks, and to monitor the epidemiology to inform the development of prevention strategies.

**Case Definition**

Clinical Case Definition: an illness of variable severity with prolonged fever and systematic symptoms.

**Laboratory criteria for diagnosis: isolation of *S.typhi* or *S paratyphi* from any clinical specimen.**

**Case classification****A. Active typhoid****Probable**

- If the case is clinically suspected of having typhoid fever;
- If there is a history of living in the same or visiting homes/areas with a confirmed typhoid case or healthy carrier, or returning home/area with an ongoing typhoid outbreak within the last 3 weeks.
- It is recommended that cases that are classified as probable active typhoid should be reported.

**Confirmed**

- If the case is clinically suspected of having typhoid fever PLUS
- If there is positive growth of *Salmonella enterica* serotype typhi in the blood, stool or rectal swabs, urine or bone marrow.
- If the case was not initially classified as probable active typhoid BUT there is positive growth of *Salmonella enterica* serotype typhi in the blood, stool, rectal swabs, urine or bone marrow.

**B. Chronic typhoid carrier**

**Temporary carrier:** If the stool, rectal swab or urine culture of an individual show positive growth of *Salmonella enterica* serotype typhi for three months.

**Long-term carrier:** If the stool, rectal swab or urine culture of an individual show positive growth of *Salmonella enterica* serotype typhi for more than one year.

**Spread of Disease**

**Mode of Transmission:** by food and water contaminated by faeces and urine of patients and carriers. Important modes of transmission in some countries include shellfish taken from contaminated sewage contaminated beds (esp. oysters), raw fruits, vegetables fertilised by night soil and eaten raw.

Incubation Period: depends on the size of the infecting dose; from 3 days to 1 month with a usual range of 8 – 14 days.

**Period of Communicability:** usually from the first week to convalescence. About 10% of untreated typhoid fever patients will discharge bacilli for 3 months after onset of symptoms, and 2 – 5 % becomes permanent carriers.

**Notification Procedure**

To be notified to Mataika House URGENTLY by medical officers of health of a suspicion of active case and Laboratories upon laboratory confirmation

**Management of Case**

**Investigation:** check for any carriers amongst relatives or close household contacts

**Restriction:** exclude all typhoid and paratyphoid patients from work or school or work until well. Exclude the following high-risk cases from work until clear: (1) children under 5 years of age in group care, (2) food handlers, (3) staff working in early childhood services or healthcare providing care to immune-compromised patients.

**Children are required to be excluded from school until bacteriologically clear.**

For all cases: check the clearance of infection by 3 consecutive negative stool cultures. Specimen should be collected at least 24 hours apart and at least 48 hours after antibiotics have been completed and not one month after the onset of symptoms. If anyone of these specimens is positive, repeat stool sampling at intervals of one month during the 12 months after onset, until 3 consecutive negative cultures have been obtained.

**Exclude chronic carriers from work if in a high-risk group.**



## TREATMENT

### Probable Active Typhoid

Investigate to confirm the diagnosis of typhoid fever. Depending on the level of the health care facility where the patient is seen, appropriate specimens for blood, bone marrow, stool, or urine cultures should be collected and sent to the laboratory. Treat as a case of confirmed active typhoid unless proven otherwise after appropriate laboratory investigations. The decision to refer the patient for admission depends on the medical officer attending to the patient.

### Confirmed Active Typhoid

A case of confirmed active typhoid should be admitted to the hospital. Depending on the specific case, other investigations can be requested (e.g. urea and electrolytes). Adequate hydration and nutrition should be administered. Adequate doses of antipyretics (e.g. paracetamol) to control the fever and other nursing procedures should also be administered judiciously. Universal precautions should be observed at all times. Infection control measures on the care of food or water-borne diseases as recommended in the Manual for Infection Control for Health Care Facilities should be observed strictly.

### Recommendations for Drug Therapy

The susceptibility tests done for isolates of *Salmonella enterica* serotype typhi for the past years show that the organism is sensitive to chloramphenicol, cotrimoxazole and amoxicillin. Because of its cost-effectiveness, the drug of choice for typhoid fever is chloramphenicol. For adults, the dose is 1 gram orally 6-hourly while the paediatric dose is 50 to 75 mg/kg/day orally given 6-hourly. If the patient cannot tolerate oral chloramphenicol, intravenous preparation can be administered at the same dose and frequency. In cases of severe and complicated typhoid fever, it is recommended that chloramphenicol be given intravenously during the first few days of treatment.

For relapse cases, cotrimoxazole is recommended. The adult dose is two regular strength tablets (one regular strength tablet is equivalent to 80 mg of trimethoprim and 400 mg of sulfamethoxazole) orally twice daily or one double strength tablet (one double strength tablet is equivalent to 160 mg of trimethoprim and 800 mg of sulfamethoxazole) orally twice daily. The dose is 8 mg/kg/day for trimethoprim and 40 mg/kg/day for sulfamethoxazole orally twice daily. The duration of treatment with cotrimoxazole is 14 days. If patient cannot tolerate cotrimoxazole, amoxicillin can be given for 14 days. For adults, the dose is 1 gram orally 6-hourly while the dose is 100 mg/kg/day orally six-hourly. If the patient cannot tolerate oral amoxicillin, ampicillin given intravenously at 1 gram intravenously 6-hourly for adults and 100 mg/kg/day for patients intravenously 6-hourly can be given.

Adults and children with severe typhoid characterized by delirium, obtundation, stupor, coma or shock can benefit from prompt administration of dexamethasone 3mg/kg by slow intravenous over a period of 30 minutes followed by 1 mg/kg of dexamethasone given at the same rate every six hours for eight additional doses. For cases of typhoid ileitis, ceftriaxone 3 grams intravenously as a single dose for three days and 80 mg/kg/day intravenously as a single dose for five days in patients are recommended. If intestinal perforation is suspected, antimicrobial therapy should be broadened to cover anaerobes (e.g. metronidazole).

### Management of Contacts

**Contacts:** Family, household and other close contacts with risk of enteric exposure.

Investigation: Search for unreported cases. Consider screening close contact for carriage.

Restriction: Household and close contacts undergoing screening should preferably not work as food handlers until shown to be clear.

### Other Control Measures

**Identification of source:** Should be investigated for all cases including unreported cases, contaminated food, water and water sources, sewage.

**Behavioural intervention:** Extreme attention to hygiene – hand washing with soap and water particularly associated with toileting and food preparation. Stress need never to use a river as a toilet. Rapid referral to health worker in response to fever. Where safe water for consumption cannot be assured, boil or sanitise water.

### Reporting

Reported nationally via national Notifiable Diseases Surveillance System

### Epidemic Measures

Outbreaks which cannot be confined to households or local communities will require Divisional and/or National management - refer to Outbreak Response in main guidelines.

## Attachment 2: Doctor Notification Forms

**NOTIFIABLE DISEASE – DOCTOR NOTIFICATION FORM** (forward one copy to CMO & one copy to Mataika House)

**1. PATIENT DETAILS.** (Name, Date of Birth and Address not required for STI's and Outbreaks as marked \*)

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

Family Name \_\_\_\_\_ Given Name/s \_\_\_\_\_ Date of Birth \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_ Sex:  Male  Female

Occupation/School \_\_\_\_\_ Race:  Fijian  Indian  Other

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_ \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

Date of Onset \_\_\_\_\_ Date of Death (if applicable) \_\_\_\_\_

**Fiji CDC. Internal Use Only**

Date Received \_\_\_\_/\_\_\_\_/\_\_\_\_ Record No. \_\_\_\_/\_\_\_\_

**2. URGENT CONDITIONS** (immediate telephone notification to DMO & FCCDC)

|  |  |   |
|--|--|---|
| <input type="checkbox"/> Acute Poliomyelitis<br><input type="checkbox"/> Paralytic<br><input type="checkbox"/> Non-paralytic | <input type="checkbox"/> Haemophilus influenzae b<br><input type="checkbox"/> Measles<br><input type="checkbox"/> Meningococcal disease<br><input type="checkbox"/> Pertussis<br><input type="checkbox"/> Plague<br><input type="checkbox"/> SARS<br><input type="checkbox"/> Viral Haemorrhagic Fever | <input type="checkbox"/> * Outbreaks (clusters of):<br><input type="checkbox"/> Cryptosporidiosis No. of cases _____<br><input type="checkbox"/> Dengue Fever No. of cases _____<br><input type="checkbox"/> Food poisoning No. of cases _____<br><input type="checkbox"/> Gastroenteritis No. of cases _____<br><input type="checkbox"/> Giardiasis No. of cases _____<br><input type="checkbox"/> Hepatitis No. of cases _____<br><input type="checkbox"/> Influenza-like Illness No. of cases _____<br><input type="checkbox"/> Leptospirosis No. of cases _____ |
| <input type="checkbox"/> Acute Viral Hepatitis   |  |   |
| <input type="checkbox"/> Anthrax   |  |   |
| <input type="checkbox"/> Cholera   |  |   |
| <input type="checkbox"/> Diphtheria  |  |   |
| <input type="checkbox"/> Enteric Fevers  |  |   |

**3. ROUTINE CONDITIONS**

|   |   |   |
|---|---|---|
| <input type="checkbox"/> ARI under 5 years (IMCI)           | <input type="checkbox"/> Leptospirosis        | <input type="checkbox"/> * STI  |
| <input type="checkbox"/> Brucellosis (incl. undulant fever) | <input type="checkbox"/> Lymphatic Filariasis | <input type="checkbox"/> Gonorrhoea   |
| <input type="checkbox"/> Chickenpox (Varicella)             | <input type="checkbox"/> Malaria              | <input type="checkbox"/> Herpes simplex                                     |
| <input type="checkbox"/> Dysentery (Amoebic)                | <input type="checkbox"/> Rheumatic Fever/SBE  | <input type="checkbox"/> Lymphogranuloma inguinale                          |
| <input type="checkbox"/> Fish poisoning                     | <input type="checkbox"/> Rubella              | <input type="checkbox"/> Syphilis   |
| <input type="checkbox"/> Legionellosis                      | <input type="checkbox"/> Tetanus              | <input type="checkbox"/> Venereal warts                                     |
| <input type="checkbox"/> Leprosy                            | <input type="checkbox"/> Trachoma             | <input type="checkbox"/> Tuberculosis<br><input type="checkbox"/> pulmonary |

Reporting Doctor/Hospital Name: \_\_\_\_\_ Telephone Contact: \_\_\_\_\_

Address: \_\_\_\_\_ Date of Notification: \_\_\_\_/\_\_\_\_/\_\_\_\_



## Attachment 2: Laboratory Notification Forms

**NOTIFIABLE DISEASE - LABORATORY NOTIFICATION FORM** (forward one copy to CMO & one copy to Mataika House)

### 1. PATIENT DETAILS. (Name, Date of Birth and Address not required for STI's and Outbreaks as marked \*)

|  |  |  |  |
|--|--|--|--|
| _____<br><b>Family Name</b>            | _____<br><b>Given Name/s</b>                           | ____/____/____<br><b>Date of Birth</b>   | _____<br><b>Age</b>  |
| _____<br><b>Address</b>                |  | Sex: <input type="checkbox"/> Male   | <input type="checkbox"/> Female                                |
| _____<br><b>Occupation/School</b>      |  | Race: <input type="checkbox"/> Fijian  | <input type="checkbox"/> Indian <input type="checkbox"/> Other |
| ____/____/____<br><b>Date of Onset</b> | ____/____/____<br><b>Date of Death (if applicable)</b> | <b>Fiji CDC. Internal Use Only</b><br>Date Received ____/____/____      Record No. ____/____ |  |

### 2. URGENT CONDITIONS (telephone notification to Mataika House immediately)

|                                      |   |  |   |
|--------------------------------------|---|--|---|
| <input type="checkbox"/> Anthrax     | <input type="checkbox"/> Haemophilus influenzae b | <input type="checkbox"/> Meningococcal infection   | <input type="checkbox"/> Plague                   |
| <input type="checkbox"/> Brucellosis | <input type="checkbox"/> Hepatitis A              | <input type="checkbox"/> Multi-resistant organisms | <input type="checkbox"/> Poliomyelitis            |
| <input type="checkbox"/> Chancroid*  | <input type="checkbox"/> Hepatitis E              | <input type="checkbox"/> MRSA                      | <input type="checkbox"/> Poliomyelitis            |
| <input type="checkbox"/> Dengue      | <input type="checkbox"/> Legionella infection     | <input type="checkbox"/> VRSA                      | <input type="checkbox"/> Salmonella               |
| <input type="checkbox"/> Diphtheria  | <input type="checkbox"/> Measles                  | <input type="checkbox"/> VRE                       | <input type="checkbox"/> Typhi                    |
|                                      |   | <input type="checkbox"/> Other _____               | <input type="checkbox"/> Paratyphi                |
|                                      |   | <input type="checkbox"/> Pertussis                 | <input type="checkbox"/> Viral Haemorrhagic Fever |

### 3. ROUTINE CONDITIONS

|  |                                      |  |   |
|--|--------------------------------------|--|---|
| <input type="checkbox"/> Amoebiasis        | <input type="checkbox"/> Giardiasis  | <input type="checkbox"/> Hepatitis D               | <input type="checkbox"/> Mycobacterium infection              |
| <input type="checkbox"/> Brucellosis       | <input type="checkbox"/> Gonorrhoea  | <input type="checkbox"/> Leptospirosis             | <input type="checkbox"/> Salmonella (non-typhi, non-partyphi) |
| <input type="checkbox"/> Chancroid*        | <input type="checkbox"/> HIV*        | <input type="checkbox"/> Lymphatic Filariasis      | <input type="checkbox"/> Shigella                             |
| <input type="checkbox"/> Chlamydia         | <input type="checkbox"/> Hepatitis B | <input type="checkbox"/> Lymphogranuloma inguinale | <input type="checkbox"/> Syphilis*                            |
| <input type="checkbox"/> Cryptosporidiosis | <input type="checkbox"/> Hepatitis C | <input type="checkbox"/> Malaria                   | <input type="checkbox"/> Trichomonas                          |

### 4. IDENTIFICATION METHOD/REFERRING DOCTOR

|  |                                     |                                      |  |
|--|-------------------------------------|--------------------------------------|--|
| <input type="checkbox"/> Antigen/Antibody detected | <input type="checkbox"/> Microscopy | <input type="checkbox"/> Culture     | <input type="checkbox"/> Serology (Title: _____) |
| Species/Subtype: _____                             |                                     | Specimen/Site: _____                 |  |
| Referring Doctor Name: _____                       |                                     | Date of Notification: ____/____/____ |  |

# Attachment 3: Outbreak Communication Planning and Response

## Phase 1. Pre-Outbreak Communication – “Watch Out!”

**The main aim of communication when preparing for communicable disease outbreaks is so:**

- People will prepare themselves emotionally and logistically
- People will help their schools, businesses, hospitals, and other organizations prepare
- People will support the preparedness efforts of their governments
- When an outbreak begins, people who have had time to get used to the idea are likelier to understand their risks, follow official advice, and take an active role in protecting themselves.

**Communication and mobilisation campaigns targeted to both the public and the health workforce and other stakeholders are needed to facilitate:**

- Monitoring and recognition of emerging risks.
- The general public’s understanding of the risks (e.g., mosquitoes, flies, fevers, water, etc).
- Public preparation for the possibility of an adverse event (e.g., *many people may fall sick, health services may be overloaded, deaths may occur*).
- Specific warning messages regarding the eminent threat (“Watch out! Dengue fever is here!” or “Watch out! Typhoid has come again!”)
- Communication to bring about behavioural changes that reduce the likelihood of harm, for example: “Seek treatment early when a fever begins!” “Stop dengue spreading! Prevent mosquitoes breeding in water containers.” “Wash hands properly with soap and water after using toilets and before preparing and eating food!”
- The building of alliances and cooperation with agencies, organizations, and groups.
- Development of consensual recommendations by experts.
- Message development and testing for subsequent stages – see messages above.
- The overall message of this phase is: “Watch out!”

## Phase 2. Outbreak Communication

Communication during an outbreak usually occurs in two stages.

|   |   |
|---|---|
| <p><b>The Initial Event</b></p> <p>Main message: "We're here to help."</p>      | <p><b>Rapid communication to the general public and to affected groups seeking to establish:</b></p> <ul style="list-style-type: none"> <li>• Empathy, reassurance, and reduction in emotional turmoil</li> <li>• Reduction in stigma associated with affected patients, families, communities</li> <li>• Designated crisis/agency spokespersons and formal channels and methods of communication</li> <li>• General and broad-based understanding of the crisis circumstances, consequences, and anticipated outcomes based on available information</li> <li>• Reduction of crisis-related uncertainty</li> <li>• Specific understanding of emergency management and medical community responses</li> <li>• Understanding of self-efficacy and personal response activities (how/where to get more information).</li> </ul> |
| <p><b>Maintenance</b></p> <p>Main message: "We'll get through it together!"</p> | <p><b>Communication to the general public and to affected groups seeking to facilitate:</b></p> <ul style="list-style-type: none"> <li>• More accurate public understandings of ongoing risks</li> <li>• Understanding of background factors and issues</li> <li>• Broad-based support and cooperation with response and recovery efforts</li> <li>• Feedback from affected publics and correction of any misunderstandings/rumours</li> <li>• Ongoing explanation and reiteration of self-efficacy and personal response activities (how/where to get more information) begun in Phase 1.</li> <li>• Informed decision making by the public based on understanding of risks/benefits.</li> </ul>   |

### Outbreak communication principle 1: Build Trust

It is critical to build, maintain, or restore public trust in those responsible for managing an outbreak and issuing information about it. People often care more about trust, credibility, competence, fairness, and empathy than about statistics and details.

- Trust derives from public perceptions of the motives, honesty, and competence of authorities.
- Trust strongly influences compliance with recommended control measures and thus hastens outbreak containment.
- Trust reduces public anxiety.
- Trust helps prevent reactions that exacerbate an outbreak's social and economic impact.
- Trust and credibility are difficult to obtain; once lost, they are almost impossible to regain.
- Work with other credible sources. Conflicts and disagreements among organizations make communication with the public much more difficult.
- How you communicate with the general public between and during outbreaks influences the effectiveness of outbreak responses. Populations are most likely to comply with recommended measures when trust and confidence in public authorities are high. Given the unpredictable and often explosive behaviour of outbreaks, such trust needs to be built up in advance.

Early in the process, conduct a situation analysis. Know who your public are, what their concerns are, how they perceive risk, and whom they trust. The likelihood of achieving a successful outbreak communication program increases with your knowledge of those with whom you are communicating.

Clarify the public's role from the outset. Find out from the communities what type of involvement they prefer. Try to identify the various interests in a situation at the beginning and meet with representatives of each informally.

Use market research techniques (focus group discussions, short surveys) to identify potential public concerns about risks.

#### **Basic questions to ask:**

- *What are your main concerns about this disease?*
- *What kind of information do you need or would you like?*
- *How frequently would you like to be informed and updated on the matter?*
- *Where do you obtain most of your information at present?*
- *How do you want the information to be given to you?*
- *How do you want us to communicate with you?*
- *Do you know whether there is any particular group that requires special information?*
- *Do you know whether a different language or dialect is spoken in the community?*

### **Outbreak communication principle 2: Announce early**

Outbreak communication contributes to early containment in a situation where every day counts. Announcing early wins public confidence that authorities are openly reporting what they know when they know it.

- *Sets expectations that information will not be concealed and sets the pace for resolution of the problem.*
- *When to release risk information is a serious dilemma. In almost all situations, you should release risk information as early as possible – even if it is (as it usually is) uncertain. But there is no easy answer. You are likely to face criticism whatever you do.*
- *Waiting for certainty before warning people about risk very often means waiting too long. The harm done by unnecessary warnings has to be balanced against the harm done by failing to warn.*
- *Go public quickly even if you have incomplete information. Don't wait for a press release to be written.*

Say what you know, what you don't know, and what you're doing. Explain that the information may change when you know more.

#### **Be careful about being confident with tenuous information.**

- *Recognize that even though the risk may be small, people will be frightened.*
- *Less work is required to release information early than to respond to inquiries, attacks, etc. that might result from delayed release. Also, your outbreak response is more likely to stay on schedule if you don't have to backtrack over steps you took without the public's knowledge.*
- *If you wait, the story may leak anyway. When it does, you are apt to lose trust and credibility.*
- *If you wait, people may feel angry and resentful.*
- *People are more likely to overestimate the risk if you withhold information.*

Your first communication is critical. The first public meeting or press conference that you arrange could well be the most important. Advice on organizing a meeting is provided at **Annex 1**.

You can better control the accuracy of information if you are the first to present it.

- *There is more likely to be time for meaningful public involvement in decision-making if the information is released promptly.*
- *Prompt release of information about one situation may prevent similar situations elsewhere.*

### **Outbreak communication principle 3: Be open**

Outbreak communication must be based on openness and transparency. This usually leads to greater trust from the community and helps in gaining support with control measures to be put in place.

Communication should be candid, easily understood, complete, and accurate. To aid in this, make available, on demand, the facts, assumptions, sources of information and criteria that have been used to inform decisions, and be prepared to explain and justify them to a sceptical audience.

Be prepared to explain the reasons for decisions that may not appear to be in the public interest, particularly in cases where information needs to be kept private (e.g., confidential patient data) or where decisions appear to depart from existing practice.

Inaccurate information, whether provided deliberately or in good faith, can severely undermine your credibility. Where uncertainty exists, there is no harm in admitting it, provided a clear indication is given of the steps being taken to resolve or reduce that uncertainty.

### **Outbreak communication principle 4: Respect public concerns**

Public concerns should be treated as legitimate, explored, and respected as a force that will influence an outbreak's impact.

If public concerns about a risk are not identified and aired early on, then these may escalate into a crisis. On the other hand, if people are indifferent to a risk because they feel that it does not affect them individually, then it may require considerable time and effort to motivate them to take action to tackle it.

You need to be capable of acting quickly to provide clear and accurate information in the event of a crisis or scare. This requires regular monitoring of public concerns as part of your normal planning and risk assessment processes.

Mortality and morbidity statistics determine the technical seriousness of outbreaks but often have little impact on how worried, frightened, or angry people are. For example, risks over which people perceive they have little individual control, risks perceived as coming from an unknown or exotic source (e.g., birds), human-to-human air-borne transmission rather than transmission via close contact, and risks perceived as affecting children more than adults may have more cultural significance even when the number of cases or deaths is low.

Effective outbreak communication is a dialogue in which those responsible for issuing information respect public concerns as legitimate, seek to understand their foundation, and then adjust messages accordingly.

#### **Addressing public concerns:**

- *Provide a forum for people to air their feelings.*
- *Listen to people when they express their values and feelings.*
- *Acknowledge people's feelings about an issue.*
- *When people are speaking emotionally, respond to their emotions. Do not merely follow with data.*
- *Show respect by developing a system to respond promptly to calls from the general public (e.g., set up a hotline).*
- *Recognize and be honest about the values incorporated in your Ministry's decisions.*
- *Be aware of your values and feelings about an issue and how they affect you.*

## Outbreak communication principle number 5: Be inclusive

Communities need and want to be actively involved in identifying, characterizing, and solving problems that affect their lives. Your goal is to produce an informed public, not to defuse public concerns or replace actions. Take a proactive and inclusive approach to consultation and stakeholder involvement on decisions about communicable disease risks. There are several benefits of stakeholder engagement (*Table 4*).

**Table 4: Benefits of stakeholders engagement in outbreak communication**

|   |  |
|---|--|
| <b>Credibility</b>                          | Involving the community in the information-gathering process and dialogue makes outbreak communication more credible and sets the stage for community participation in helping to resolve problems.  |
| <b>Better decisions</b>                     | Engaging a wide range of stakeholders and the public in risk decisions can help ensure that decisions take account of a wide range of views and experience. It can also help Departments to spot aspects of a risk that might otherwise have gone unnoticed. This can be particularly important where action taken to tackle a risk could have a knock-on effect on others. Widespread engagement of stakeholders also requires Departments to open their decision processes to public scrutiny. This creates a powerful incentive to base decisions on sound evidence and analysis, which in turn can lead to more focused decisions. |
| <b>Smoother implementation</b>              | A key feature of outbreak response is the need to deal with different and often conflicting perspectives. Engaging stakeholders and the public at an early stage in decisions about outbreak response can help ensure that decisions better reflect public values and can reduce the scope for misunderstanding, disagreement and resentment later on. This can make it easier to implement measures to address risks, particularly where these require the public to take action.   |
| <b>Empowering and reassuring the public</b> | Providing clear and accurate information about the nature of risks can help people to make realistic assessments of the risks they face, and where appropriate, to make informed judgements on how to handle risks themselves. This can in turn help to foster a climate of greater empowerment and reassurance, and reduce the risk of rumours and scares. Those who are affected by a problem bring different variables to the problem-solving equation. Involvement in the process leads to greater understanding of and more appropriate reaction to a risk.   |
| <b>Stronger public relations</b>            | Over time, communication with stakeholders can help to reduce suspicion, and build trust in the information Government provides. While scepticism of institutions is a feature of most countries, there is nonetheless much that Departments can do to build confidence in the information they provide. Open communication can help by bringing people inside the tent, and by enabling them to see for themselves that decisions have been made on the best available evidence and with the public interest in mind.   |

## Outbreak communication principle 6: Plan carefully in advance and evaluate your efforts

Recognize planning is essential for effective outbreak communication. In planning your outbreak communication, establish measurable behavioural objectives (see Attachment 1 – Behavioural interventions for each priority disease). As communication is delivered, determine what went well, what could have gone better, and why.

### Evaluate your communication activities by asking the following questions:

- *Were the objectives met?*
- *Were the changes the result of your program?*
- *What went well? Why?*
- *What could have gone better? Why?*
- *How can the program be improved?*
- *What lessons are there to be learned?*
- *With whom should they be shared?*

### Plan to use an integrated blend of different communication strategies, for example;

**Public Relations/Advocacy/Administrative Mobilisation:** for putting the particular outbreak risks and required behavioural response on the business sector and administrative/program management agenda via: the mass media – news coverage, talk shows, soap operas, celebrity spokespersons, discussion programmes; meetings/discussions with various categories of government and community leadership, service providers, administrators, business managers; official memoranda; partnership meetings.

**Community Mobilization:** including use of participatory research, village meetings, district and provincial council meetings, advisory council meetings, partnership sessions, school activities, traditional media, music, song and dance, road shows, community drama, leaflets, posters, pamphlets, videos, home visits.

**Sustained Appropriate Advertising:** in M-RIP fashion – Massive, Repetitive, Intense, Persistent – via radio, television, newspapers and other available media, engaging people in reviewing the merits of the recommended behaviour vis-à-vis “cost” of carrying it out.

**Personal Selling/Interpersonal Communication/Counselling:** involving volunteers, school children, social development workers, other field staff, at the community level, in homes and particularly at service points, with appropriate informational literature and additional incentives, and allowing for careful listening to people’s concerns and addressing them.

**Point-of-Service Promotion:** emphasising easily accessible and readily available outbreak response and treatment services.

### Using the Media

Also, plan to involve the media. The media can be a powerful ally and a powerful enemy if not involved early and honestly. To help keep the media on track and avoid sensational reporting:

- *Anticipate media needs.*
- *Accept media interviews (or media will appoint their own experts).*
- *Know which media are reliable and concentrate on getting the story to them.*
- *Adapt messages to different media.*
- *Concentrate on facts and figures, but humanize the situation with metaphors and anecdotes.*
- *Get professional media training.*

### **Phase 3. Post-Outbreak Communication– “This is what happened”**

*Main message: “This is what happened.”*

Public communication and campaigns directed toward the general public and affected groups should seek to:

- Inform and persuade about ongoing clean-up, remediation, recovery, and rebuilding efforts
- Facilitate broad-based, honest, and open discussion and resolution of issues regarding cause, blame, responsibility, and adequacy of response
- Improve/create public understanding of new risks and new understandings of risk as well as new risk avoidance behaviours and response procedures
- Promote the activities and capabilities of agencies and organizations to reinforce positive Ministry identity and image.

### **Phase 4. Review and development Communication –“How did we do?”**

*Main message: “How did we do?”*

Discuss with the Team the adequacy of response, gain consensus about lessons and new understandings of risks associated with the communication strategy used. Consider communication directed toward health and other agencies involved in the outbreak communication agencies and those participating in the outbreak response to:

- Evaluate and assess responses, including communication effectiveness
- Document, formalize, and communicate lessons learned
- Determine specific actions to improve crisis communication and crisis response capability
- Create linkages to pre-crisis activities (Phase 1).



## ANNEX 1: PRESENTING INFORMATION AT PUBLIC MEETINGS

What you do and how you do it will affect your audiences' perceptions of you, your organization, and the information you are providing. Prepare and present effectively.

### Before the Meeting

#### Know Your Audience(s)

Anticipate interests, concerns, and questions.  
Consider them in preparation.

#### Prepare Your Presentation

Develop a strong introduction.  
Develop a maximum of three key messages.  
Assemble your supporting data.  
Prepare audiovisual aids.  
Practice.

#### Prepare for Answering Questions

Anticipate what questions will arise and prepare answers to them.  
Practice questioning and responding.

### The Opening Presentation

A strong opening presentation sets a tone for the meeting and is crucial in attempting to establish trust and build credibility. Its elements include the following:

#### I. Introduction

A statement of personal concern  
A statement of organizational commitment and intent  
A statement of purpose and a plan for the meeting  
Remember that perceived empathy is a vital factor in establishing trust and building credibility, and it is assessed by your audience in the first 30 seconds. Include the following in your introduction:

##### Statement of personal concern

e.g. "I can see by the number of people here today that you are as concerned about this issue as I am."

##### Statement of organizational intent

e.g. "I am committed to protecting the public. The Ministry of Health has been involved with this community for a long time and want to work with the community on this issue."

##### Statement of purpose and plan for the meeting.

(Do not use the same statement at each meeting.) e.g., "Tonight, we would like to share with you the findings of the report [e.g., on latest typhoid statistics, flood damage, etc.] for approximately 15 minutes, then we would like to open the floor for discussion, questions, and concerns. We will be available after the meeting for anyone who wishes additional information or to continue the discussion."

#### II. Key Messages and Supporting Data

A maximum of three take-home points plus information to support the key messages  
The key messages are points you want your public to have in mind after the meeting. They should address central issues, and be short and concise. For example, "We have extensively tested wells in the area and found that the water meets all standards for safe drinking."

## To develop your key messages:

**Brainstorm.** Think freely and job down all pieces of information you wish to communicate.

**Select key messages.** Identify the most important ideas. Repeat the process until your list is down to three items.

**Identify supporting data.** Other information you listed probably provides support to your key messages; organize it to reflect this.

**Brainstorm.** Think freely and job down all pieces of information you wish to communicate.

**Select key messages.** Identify the most important ideas. Repeat the process until your list is down to three items.

**Identify supporting data.** Other information you listed probably provides support to your key messages; organize it to reflect this.

## III. Conclusion

A summarizing statement.

Restate verbatim your key messages.

Add a future action statement: What is the Ministry of Health going to do on this project in the short term? Long term?

## Presentation Aids

Audiovisual aids can make your messages easier to understand. People are more likely to remember a point if they have a visual association with the words.

### Some Aids to Understanding

- *Charts*
- *Illustrations*
- *Diagrams*
- *Glossaries*
- *Maps*
- *Video/motion pictures*
- *35 mm slides*
- *Site visits*
- *Posters*
- *Photographs*
- *Examples / Handouts*

## Planning and Preparation

- Factors:** Room size, Audience size, Seating arrangement, Visual obstacles, Lighting, Electrical outlets
- To do:** Set up, focus, tests, and arrange equipment beforehand.  
Designate someone to help with lights.  
Leave equipment intact until audience leaves.
- Tool kit:** Spare bulbs, adaptors, extension cord, duct tape, staff phone numbers, LCD data display, lap-top, blank transparencies, slide tray, markers/chalk, back-up notes , etc.

## Design Guidelines

### Effective visual aids:

- *Are able to stand alone.*
- *Illustrate a key concept.*
- *Support only one major idea.*
- *Use pictures or graphics rather than words whenever possible.*
- *Conform to six words per line maximum, ten lines per visual maximum.*
- *Feature short phrases or key words.*
- *Highlight important points with colour or contrast.*
- *Represent facts accurately.*
- *Are carefully made - neat, clear, and uncluttered.*
- *Have impact.*

## Answering Questions

As with presentations, your responses to questions and concerns will affect your success. Prepare and practice. Consider how to answer questions in general and how to respond to specific inquiries.

- Be prepared.** If you know your subject and know your audience, most questions can be anticipated. Develop and practice responses.
- Track Your Key Messages.** Use your responses as opportunity to reemphasize your key messages.
- Keep Your Answers Short and Focused.** Your answer should be less than 2 minutes long.
- Practice Self-Management.** Listen. Be confident and factual. Control your emotions.
- Speak and Act with Integrity.** Tell the truth. If you don't know, say so. Follow up as promised. If you are unsure of a question, repeat or paraphrase it to be certain of the meaning.

## Managing Hostile Situations

Outbreaks can arouse strong anger and hostility. Consider some things you can do to diffuse anger and re-direct hostile energy.

### Remember

Health issues can arouse strong emotions, including anger and hostility. Hostility is usually directed at you as a representative of an organization, not you as an individual. Dealing ineffectively with hostility can erode trust and credibility.

## Some Things You Can Do

### **Acknowledge the Existence of Hostility.**

You are sending the message that you are in control.

The worst thing you can do is pretend it's not there.

### **Practice Self-Management.**

Control your apprehension.

Anxiety undercuts confidence, concentration, and momentum.

Listen.

### **Be Prepared**

Plan, prepare, and practice your presentation and anticipated questions and answers.

### **Communicate Empathy and Caring.**

Recognize people's frustrations.

Use eye contact.

Assume a listening posture.

Answer questions carefully and thoughtfully.

## **Alternatives to Public Meetings**

**When appropriate, develop alternatives to public hearings. In particular, hold smaller, more informal meetings.**

- *If you cannot avoid a large public meeting, the logistics should enable both the agency and the community to be treated fairly.*
- *Consider breaking larger groups into smaller ones.*
- *Be clear about the goals for the meeting. If you cannot adequately fulfil a citizen's request for a meeting, propose alternatives.*
- *In certain situations, one-to-one communication may work best.*

## Outbreak Investigation sample tools

Listed below are several tools that are currently in use by national, divisional and subdivisional surveillance & outbreak teams to investigate cases or events of Public Health importance. They are described here as some examples of tools that are currently in use and users are encouraged to adopt for their investigations.

### 1. Basic Case Investigation Form (Syndromic Surveillance)

|   |   |   |                                 |                           |   |                       |   |   |
|---|---|---|---------------------------------|---------------------------|---|-----------------------|---|---|
| Today's Date:   |   |   | Name of person completing form: |                           |   |                       |   |   |
| <b>Information on person reporting disease outbreak or event</b>  |   |   |                                 |                           |   |                       |   |   |
| Last Name:  |   |   | First Name:                     |                           |   |                       |   |   |
| Address:  |   |   |                                 |                           |   |                       |   |   |
| Organisation/Affiliation:   |   |   |                                 |                           |   |                       |   |   |
| Contact Details:  |   |   | Telephone(day):                 |                           |   | Telephone(after hrs): |   |   |
| <b>Information on disease outbreak/event</b>  |   |   |                                 |                           |   |                       |   |   |
| Name of village/locality:   |   |   |                                 | Name of district/region:  |   |                       |   |   |
| <b>Description of the outbreak/event:</b> <i>(Describe the illness, how it was discovered, who is affected, outbreak increasing or declining, severity and duration of illness, birds or animals if involved)</i> |   |   |                                 |                           |   |                       |   |   |
| Main symptoms experienced by people affected: (Circle)  |   |   |                                 |                           |   |                       |   |   |
| Fever   | Y | N | Diarrhoea (no blood)            | Y                         | N | Cough                 | Y | N |
| Rash  | Y | N | Diarrhoea (blood)               | Y                         | N | Sputum (no blood)     | Y | N |
| Headache  | Y | N | Vomiting                        | Y                         | N | Sputum (blood)        | Y | N |
| Muscle/Joint Pain   | Y | N | Nausea                          | Y                         | N | Fast Breathing        | Y | N |
| Haemorrhage   | Y | N | Jaundice                        | Y                         | N | Paralysis             | Y | N |
| Fits  | Y | N | Loss of consciousness           | Y                         | N | Lethargy              | Y | N |
| Other Symptoms:   |   |   |                                 |                           |   |                       |   |   |
| Possible Syndrome:  |   |   |                                 |                           |   |                       |   |   |
| Number of Human cases suspected:  |   |   | Adults:                         |                           |   | Children:             |   |   |
| Date of first suspected case:   |   |   |                                 | Date of most recent case: |   |                       |   |   |
| What do you think is causing the outbreak and why?:   |   |   |                                 |                           |   |                       |   |   |

Source: Pacific Outbreak Manual, 2010

## 2. Acute Fever and Rash Case Investigation Form.

|   |  |                               |
|---|--|-------------------------------|
| <b>1. Case Identification</b>   |  | Sex: Male      Female         |
| Patient's Name: _____   |  | Date of birth: dd/mm/yy       |
| Mother's Name: _____  |  | Age: years _____ months _____ |
| Father's Name: _____  |  | Hospital ID # _____           |
| Permanent Address (for follow-up): _____  |  | Pregnant: Y N U Due: dd/mm/yy |
| Source of notification: Official / hospital / private / laboratory / community / other (specify): _____ |  |                               |

|  |   |
|--|---|
| <b>2. Immunization History:</b>  | Vaccine received: <b>M MR MMR</b> (circle all that apply) |
| Date of 1st dose: dd/mm/yy   | Date of 2nd Dose: dd/mm/yy Supplementary Doses: dd/mm/yy  |
| Doses validated by: ( <b>circle all that apply</b> )                   |   |
| History (Health Worker/Parent) or Immunization Records (register/card) |   |

|  |       |                         |                           |
|--|-------|-------------------------|---------------------------|
| <b>3. Clinical Examination:</b>  |       |                         |                           |
| Date of onset of Fever: dd /mm/ yy and Rash: dd /mm/ yy                |       |                         |                           |
| Rash description (location, spread, macopapular, vesicular etc): _____ |       |                         |                           |
| Cough  | Y N U | Occipital, cervical &   | Nausea/vomiting           |
| Runny nose   | Y N U | auricular lymph nodes   | Y N U                     |
| Conjunctivitis   | Y N U | Joint pain/inflammation | Y N U                     |
| Koplik's spots   | Y N U | Encephalitis            | Y N U                     |
| Pneumonia  | Y N U | Others:                 | Spontaneous bleeding      |
| Hospitalization:   | Y N U | Date Admitted: dd/mm/yy | Date Discharged: dd/mm/yy |
| Assessment: Measles Y Rubella Y Dengue Y Other Y _____                 |       |                         |                           |
| Place of examination: _____ Examiners Signature: _____                 |       |                         |                           |

|   |                            |
|---|----------------------------|
| <b>4. Possible Source of Infection:</b>               |                            |
| Travel during 7-18 days before rash onset:            | Y (where: _____) N U       |
| Contact with other confirmed case of measles/rubella: | Y (who & where: _____) N U |

|   |                     |                       |
|---|---------------------|-----------------------|
| <b>5. Laboratory Investigations</b>         |                     |                       |
| Antibodies Blood or Dried Blood Spots (DBS) | Date take: dd/mm/yy | Date sent: dd/mm/yy   |
| Viral Isolations Urine, throat swab or DBS  | Date take: dd/mm/yy | Date sent: dd/mm/yy   |
| Type of Test: Measles/Rubella/Dengue: _____ | Result _____        | Date tested: dd/mm/yy |

|  |         |
|--|---------|
| <b>6. Final Classification:</b>                                  |         |
| Measles Rubella Dengue Parvo B19 Chickenpox Other: _____         | Discard |
| Confirmation: Laboratory Epidemiological Clinical                |         |
| Outcome: Fully recovered Morbidity (specify) Died: date dd/mm/yy |         |

Version AFR 06.2005(1)

### 3. Typhoid Fever Surveillance Form.

Name of primary case : \_\_\_\_\_

Name of Village/settlement: \_\_\_\_\_

| No | Name of family members/contacts | Age | Sex | Relationship to primary case | Date onset symptoms | Date Stool submitted to Lab | Remarks |
|----|---------------------------------|-----|-----|------------------------------|---------------------|-----------------------------|---------|
| 1  |                                 |     |     |                              |                     |                             |         |
| 2  |                                 |     |     |                              |                     |                             |         |
| 3  |                                 |     |     |                              |                     |                             |         |
| 4  |                                 |     |     |                              |                     |                             |         |
| 5  |                                 |     |     |                              |                     |                             |         |
| 6  |                                 |     |     |                              |                     |                             |         |
| 7  |                                 |     |     |                              |                     |                             |         |
| 8  |                                 |     |     |                              |                     |                             |         |
| 9  |                                 |     |     |                              |                     |                             |         |
| 10 |                                 |     |     |                              |                     |                             |         |
| 11 |                                 |     |     |                              |                     |                             |         |
| 12 |                                 |     |     |                              |                     |                             |         |
| 13 |                                 |     |     |                              |                     |                             |         |
| 14 |                                 |     |     |                              |                     |                             |         |
| 15 |                                 |     |     |                              |                     |                             |         |
| 16 |                                 |     |     |                              |                     |                             |         |
| 17 |                                 |     |     |                              |                     |                             |         |
| 18 |                                 |     |     |                              |                     |                             |         |
| 19 |                                 |     |     |                              |                     |                             |         |
| 20 |                                 |     |     |                              |                     |                             |         |
| 21 |                                 |     |     |                              |                     |                             |         |
| 22 |                                 |     |     |                              |                     |                             |         |
| 23 |                                 |     |     |                              |                     |                             |         |
| 24 |                                 |     |     |                              |                     |                             |         |
| 25 |                                 |     |     |                              |                     |                             |         |
| 26 |                                 |     |     |                              |                     |                             |         |
| 27 |                                 |     |     |                              |                     |                             |         |
| 28 |                                 |     |     |                              |                     |                             |         |
| 29 |                                 |     |     |                              |                     |                             |         |
| 30 |                                 |     |     |                              |                     |                             |         |

#### Types of Symptoms:

- |                                     |                                |
|-------------------------------------|--------------------------------|
| 1. Fever                            | 6. Constipation                |
| 2. Diarrhea (> 3 loose motions/day) | 7. Nausea                      |
| 3. Vomiting                         | 8. Loss of appetite            |
| 4. Abdominal Pain                   | 9. Generalized weakness        |
| 5. Headache                         | 10. Red skin rashes over trunk |

Date: \_\_\_\_\_

Name of Investigating Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

## TYPHOID INVESTIGATION CHECKLIST

|   |             |                        |
|---|-------------|------------------------|
| <b>Case Name:</b>   |             | <b>NHN No:</b>         |
|   |             | <b>Case No:</b>        |
| <b>Principal Investigator:</b>  |             | <b>Position:</b>       |
| <b>Case reviewed by:</b>  |             |                        |
| <b>TASK</b>   | <b>DATE</b> | <b>OFFICER INITIAL</b> |
| Report received by CMO  |             |                        |
| Assigned to _____ Subdivision   |             |                        |
| Entry into surveillance system  |             |                        |
| Meets case definition   |             |                        |
| Case interview completed  |             |                        |
| Treatment completed   |             |                        |
| Stool specimen 1 <input type="checkbox"/> Yes <input type="checkbox"/> No     |             |                        |
| Stool specimen 2 <input type="checkbox"/> Yes <input type="checkbox"/> No     |             |                        |
| Stool specimen 3 <input type="checkbox"/> Yes <input type="checkbox"/> No     |             |                        |
| Contacts interviewed <input type="checkbox"/> Yes <input type="checkbox"/> No |             |                        |
| New cases identified  |             |                        |
| Site investigation report received  |             |                        |
| Active surveillance <input type="checkbox"/> Yes <input type="checkbox"/> No  |             |                        |
| Case closed and filed   |             |                        |
| Comments:   |             |                        |
|   |             |                        |



#### 4. SHIGELLOSIS CASE INVESTIGATION FORM

Case Name/ID \_\_\_\_\_

Address \_\_\_\_\_

##### Symptomatology

1. Which of the following systems did you have?

|                            |       |    |                      |       |            |
|----------------------------|-------|----|----------------------|-------|------------|
| Diarrhoea                  | Yes   | No | Fever                | Yes   | No         |
| No. days (>3 loose stools) | _____ |    | Highest Temperature  | _____ | Date _____ |
| No. episodes in 24 hours   | _____ |    | Chills               | Yes   | No         |
| Blood in stools            | Yes   | No | Headache             | Yes   | No         |
| Mucous in stools           | Yes   | No | Backache             | Yes   | No         |
| Watery in stools           | Yes   | No | Muscle aches         | Yes   | No         |
| Constipation               | Yes   | No | Fatigue              | Yes   | No         |
| Abdominal cramps           | Yes   | No | Joint Pain           | Yes   | No         |
| Nausea                     | Yes   | No | Anorexia/weight loss | Yes   | No         |
| Vomiting                   | Yes   | No | Other:               | _____ |            |

2. When did your start? Date \_\_\_\_\_ Time \_\_\_\_\_ a.m. / p.m.

3. What date did the diarrhoea start? Date \_\_\_\_\_ Time \_\_\_\_\_ a.m. / p.m.

4. Were you hospitalized? Yes No Adm Date \_\_\_\_\_ No. days \_\_\_\_\_

5. How long did your illness last? \_\_\_\_\_ No of days to full recovery \_\_\_\_\_

##### Occupation

6. Work at or attend childcare? Yes No

7. Food handler (work or volunteer)? Yes No

8. Household member is a food handler? Yes No

9. Provide patient care? Yes No

##### Medical History

10. Have existing chronic medical problem(s) or any medical conditions(s) Yes No

Describe \_\_\_\_\_

##### Within the last month

11. Antibiotics Yes No

|       |                    |
|-------|--------------------|
| Name  | Dosage, No of days |
| _____ | _____              |
| _____ | _____              |
| _____ | _____              |

12. Antacids (Tums, Mylanta, Tagamet, Prilosec, Pepcid, Zantac, Pepto bismol)? Yes No

13. Did the patients survive? Yes No Date of Death \_\_\_/\_\_\_/\_\_\_

##### Risks Factors:

In the 7 days prior to your illness, were you exposed to any of the following:

14. Any travel? Yes No

Where? \_\_\_\_\_ From? \_\_\_/\_\_\_/\_\_\_ to \_\_\_/\_\_\_/\_\_\_ Airline? \_\_\_\_\_ Flight No. \_\_\_\_\_

Foods eaten on: outbound flight \_\_\_\_\_ Return flight \_\_\_\_\_

15. Contact with someone with similar symptoms? Yes No Name & relationship? \_\_\_\_\_

When? \_\_\_\_\_ Phone number: \_\_\_\_\_

16. Attend any gatherings (wedding, reception, festival, fair, convention, etc)? Yes No

When? \_\_\_/\_\_\_/\_\_\_ Where? \_\_\_\_\_ When? \_\_\_/\_\_\_/\_\_\_ Where? \_\_\_\_\_

17. Get your face wet in the ocean, a lake, river, pool, etc. Yes No

18. Change any diapers? Yes No

19. Contact with human or private feces? Yes No



## 5. INSTRUCTIONS FOR COLLECTING STOOL SAMPLES

| ITEM                                       | INSTRUCTIONS  |
|--|---|
| <b>When to collect</b>                     | During the period of active diarrhea; preferably as soon as possible after the onset of illness and within 72 hours of onset for detection of viruses.  |
| <b>How much to collect</b>                 | If an outbreak has occurred, collect samples from about 10 people. A whole stool sample may be collected. For diarrhea caused by bacteria, two rectal swabs may be collected from each person. For those with diarrhea a minimum of 10ml of watery stool per person should be collected. For people suffering vomiting, sample may be collected and managed in the same way for stool samples.  |
| <b>Method of collection</b>                | For whole stools collected into a clean dry container, use a spatula to take a portion of the stool and place this in a screw top sterile laboratory jar. Stool samples should be unmixed with urine. For rectal swabs, moisten 2 swabs in bacterial transport media and insert one swab at a time about 3-5 cms into the rectum and gently rotate. Place the swabs into the transport media. Samples must be clearly labeled and should be placed in sealable laboratory bags for storage and transport. |
| <b>Storage of samples after collection</b> | Store sample at 4oC as soon as possible.<br>Also store a portion of stool at -15oC for antigen and PCR testing.   |
| <b>Transportation</b>                      | Place bagged specimens into an insulated box with cooler bricks. For frozen samples use ice gel packs or dry ice where available. For samples being transported by air to a reference facility ensure sample packaging complies with IATA standards. Contact the reference laboratory and provide advance warning of the samples arrival and, if possible, the likely cause based on the preliminary investigation.   |

Source: *Pacific Outbreak Manual, 2010.*

## 6. EQUIPMENT CHECK LIST FOR FIELD INVESTIGATION

The following list of equipment is not exhaustive and other items may be required depending on the circumstances. Also, not all of the items may be required for some investigations. It is suggested that the document is used as a checklist during each preparation for a field investigation.

| EQUIPMENT   | STATIONERY                  | SAMPLE COLLECTION EQUIPMENT  |
|---|-----------------------------|--|
| Personal Equipment                                  | Note book                   | Water sample containers  |
| Wet weather jacket                                  | Clipboard                   | Field test kit for water testing   |
| Gumboots/Boots                                      | Graph paper                 | Swabs: Nasopharyngeal, throat, rectal  |
| Protective eyewear                                  | Standard questionnaires     | Transport media (appropriate for investigation and likely samples)                         |
| Protective gloves                                   | Standard line lists         | Esky and frozen transport blocks   |
| Latex gloves  | Outbreak Manual             | Stool sampling jars, sterile spoons, spatulas  |
| Masks (N95)   | Maps and street directories | Tourniquet, alcohol swabs, needles, syringes and blood tubes (if collecting blood samples) |
| Hand sanitiser                                      | Calculator                  | Specimen bags  |
| Insect repellent                                    | Tape measure                | Sharps container   |
| First aid kit                                       | Pens /pencils               | Screw top sterile jars   |
| Toilet paper  | Plastic document pouches    | Waste bags   |
| Drinking water                                      | Marking pen                 |  |
| Water purification tablets                          |                             |  |
| Torch and batteries                                 |                             |  |
| Camera  |                             |  |
| Radio   |                             |  |
| Medications ( antibiotics, ORS)                     |                             |  |
| Mobile phone, recharge cards, list of numbers       |                             |  |
| Sunscreen   |                             |  |
| Disinfectant  |                             |  |
| Long lasting insecticidal net                       |                             |  |
| Camping gear and personal belongings as appropriate |                             |  |

Source: *Pacific Outbreak Manual, 2010.*



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**Fiji Centre for Communicable Disease Control, Tamavua**

*Phone: (679) 3320 066*

*Fax: 3320 344*