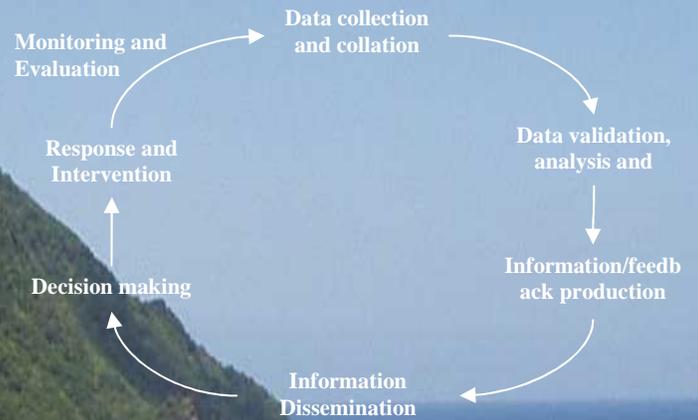


# National Communicable Disease Surveillance Manual of Saint Lucia



May 2006

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## **Foreword**

The purpose of surveillance is not just to detect communicable diseases but rather to respond to any communicable diseases with the appropriate disease control measure. The potential for rapid spread of a communicable disease has demanded that our surveillance system provides information as close to real time as possible.

It is probably more appropriate to think of our national communicable disease surveillance and control system as a health security system. The system demands accurate and rapid intelligence. This intelligence must be available in a system that can see and respond rapidly at the country borders as well as within each community and within every sector e.g. trade, health, agriculture, education or tourism. We live in a global environment within which an emerging infectious disease from anywhere in the world can arrive in Saint Lucia within 24 hours of emerging. Infectious diseases can arrive via people or through agricultural and goods imports. Therefore the scope of our disease surveillance and response systems must be competent to manage this.

Infectious diseases can also arise within our borders and as such our community systems must be equally vigilant and responsive. Our national system must also be integrated with the regional surveillance and control systems and with our regional partners we need to be continually scanning the global and regional environment to identify potential threats.

Our legislation must be reviewed to ensure that our legal instruments continue to be appropriate as our trade and business environment changes. Our economy is vulnerable and is highly dependent on tourism. Infectious diseases of all types can pose a significant threat to tourism. We need to be able to gain the confidence of all partners and tourists that our systems are capable of protecting tourists even as these systems protect our primary concern; namely our residents.

Our country also imports a wide range of agricultural and other produce and this trade must be protected and we must be able to ensure that it is conducted safely in the interest of local plant, animal and human health.

Information gained through this system will also be used for planning our preventive strategy. Our preventive strategy includes the training of persons involved in high risk areas, e.g. hotels or ports. Prevention also involves our vaccine and quarantine strategy for health and agriculture.

This manual details our national surveillance systems. The sensitivity of our system has been greatly improved through the implementation of the strategy of syndromic surveillance. The system is also enhanced by the partnerships with other agencies as part of the national surveillance team. I would like to thank all partners who have made this possible and who now have the task of ensuring successful and full implementation of this system.

Dr. Stephen King  
Chief Medical Officer.

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Epidemiology Unit

Veterinary and Livestock Services Division - MAFF

Ezra Long Laboratory staff

St Jude Hospital Laboratory staff

Environmental Health Department – MOH

Community Health Nurses – MOH

District Medical Officers

Doctors E&A St Jude Hospital and Victoria Hospital

Infection Control, Accident and Emergency Room Nurses, Doctors – Victoria Hospital

Infection Control, Accident and Emergency Room Nurses, Doctors – St Jude Hospital

ABBREVIATIONS & ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ARI	Acute Respiratory Infection
CAREC	Caribbean Epidemiology Centre
CARICOM	Caribbean Community and Common Market
CCH	Caribbean Cooperation in Health
CDC	Centres for Disease Control and Prevention
CSF	Cerebrospinal Fluid
CSME	CARICOM Single Market and Economy
CSR	CAREC Surveillance Report
CVO	Chief Veterinary Officer
DALY	Disability Adjusted Life Years
EPI	Expanded Programme on Immunization
HIV	Human Immunodeficiency Virus
ICT	Information and Communication Technology
Ilep	International Federation of Anti-Leprosy Associations
PAHO	Pan American Health Organization
PPT	Plasma Preparation Tube
PYLL	Person Years of Life Lost
SAC	Scientific Advisory Council
STI	Sexually Transmitted Infection
TB	Tuberculosis
US	United States of America
WHO	World Health Organization

## **INTRODUCTION**

### **I.I Purpose of this document:**

Each CAREC member countries in an effort to afford their population the highest level of public health care, has a functioning communicable disease surveillance system. These are guidelines that are approved and endorsed by the relevant authorities of the Ministry of Health to support this system. This National Policy guideline document is:

- a guide for the development or amendment of national communicable disease surveillance guidelines
- an outline of the rationale and process for the revision of the national communicable disease surveillance system
- a description of the Revised National Communicable disease surveillance system, policy guidelines.

### **1.1 Background to revision of CD surveillance system:**

The regional communicable disease surveillance system for CAREC member countries had not been evaluated or revised for many years. In 2000-2001, CAREC and its member countries recognized that many attributes of the system such as timeliness, accuracy and usefulness needed to be improved. In 2002, the CAREC Scientific Advisory Committee (SAC)<sup>1</sup> supported member countries and CAREC desire to provide accurate and timely reports on health threats and diseases in the region. Acknowledging the importance and relevance of these reports, SAC recommended the formation of a multidisciplinary CAREC internal surveillance working group to rationalize the content and processes of the regional communicable disease surveillance system. Realizing that this process will likely identify further areas for rationalization and improvement, SAC recommended that CAREC and national programmes exchange information as needed on a country-by-country basis. SAC also recommended that CAREC prepare to provide additional training and capacity building both at the national level and CAREC level to initiate agreed upon changes.

In 1986, Heads of Government in English speaking Caribbean countries approved a CCH initiative, a mechanism for health development through increasing collaboration and promoting technical cooperation among countries in the Caribbean. Communicable diseases were identified as one of the eight priority areas in this initiative. As such, effective communicable disease surveillance is necessary in order to achieve the goals of the CCH initiative and to monitor the CCH indicators in this area.

Most of CAREC's member countries will soon be part of the CARICOM Single Market and Economy (CSME), which will allow free movement of CARICOM goods, services, people and capital throughout the Caribbean Community and facilitate more homogenous economic performance across CARICOM member states. Effective communicable disease surveillance, which promotes disease prevention and control, will support the implementation of CSME.

The need for revision of the regional communicable disease surveillance system was further recognized as the process of revision of the International Health Regulations (currently taking place) progressed. These regulations emphasize the commitment of WHO Member States to the goal of global health security. This will require all Member States to maintain a functional and

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<sup>1</sup> SAC membership includes Ministers of Health from CAREC member countries and representatives from PAHO, CARICOM, other regional health institutions, regional universities, London School of Hygiene and Tropical Medicine, US CDC and Health Canada

effective surveillance and response system that is able to detect, investigate and respond to public health emergencies of national and international concern. The revised regulations would also allow WHO to respond to information coming from sources other than official member state notifications (e.g. media reports) further emphasizing the importance of a sensitive and timely communicable disease surveillance system. It is essential that national and regional surveillance systems in the Caribbean be revised in order to have the capacity to comply with the revised International Health Regulations.

In 2002, in accordance with the SAC recommendations, a multidisciplinary CAREC internal surveillance working group was formed and the revision of the regional communicable disease surveillance system proceeded as follows:

1. Sub-committees of the CAREC internal surveillance working group met and assessed which of the conditions (syndromes and diseases) previously under surveillance should remain and identified new ones to be added. Conditions were assessed according to the following criteria:
  - Morbidity (incidence, prevalence)
  - Severity (hospitalization, disability, DALY)
  - Mortality (rate, case fatality ratio, PYLL)
  - Estimated Cost (direct & indirect)
  - Communicability
  - Preventability
  - Prone to outbreaks
  - Public interest
2. During 2002-2004, sensitization sessions and consultations on the revised system were held with health personnel in member countries at various national and regional meetings, including the annual National Epidemiologists and Laboratory Directors meetings.
3. In 2003, the multidisciplinary CAREC internal surveillance working group was restructured and became the CAREC surveillance and response team. This team is continuing the process of revising the communicable disease surveillance system.
4. During 2003-2004, the revised system was piloted in 5 countries (Dominica, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines).
5. Two of these pilots (in Dominica and St. Lucia) were evaluated in May 2004 and the results were presented and discussed at the National Epidemiologists and Laboratory Directors meeting in June 2004. St. Lucia subsequently started national implementation later in 2004.
6. The content, process and logistics of the system were finalized at a meeting of National Epidemiologists and Laboratory Directors from selected member countries and CAREC technical staff in January 2005.
7. Training for the implementation of the revised system took place during 2005, in preparation for complete implementation by January 2006. Countries' training and implementation schedules included the following:
  - A detailed review of the revised national system as it will be implemented (and harmonized with the regional system), including a review of all reporting forms and registers and clarification of roles and responsibilities at all levels in the system
  - Sensitization of, and endorsement by, the appropriate higher level Ministry of Health personnel
  - Updating, finalization and production of the National Communicable Disease Surveillance and response manual
  - Reproduction of reporting forms and, if required, registers
  - Training of surveillance staff at all levels (can be done in a phased manner)
  - Ongoing monitoring at all levels in the system

**INTRODUCTION TO SURVEILLANCE**

1.4.: Definition

Surveillance is defined by the US Centers for Disease Prevention and Control (CDC) as the ongoing systematic collection, analysis and interpretation of outcome specific data for use in planning, implementation and evaluation of public health practice. Surveillance systems should gather data from relevant sources then validate and analyze this data to generate useful information to be disseminated and used for public health action (Figure 1-1).

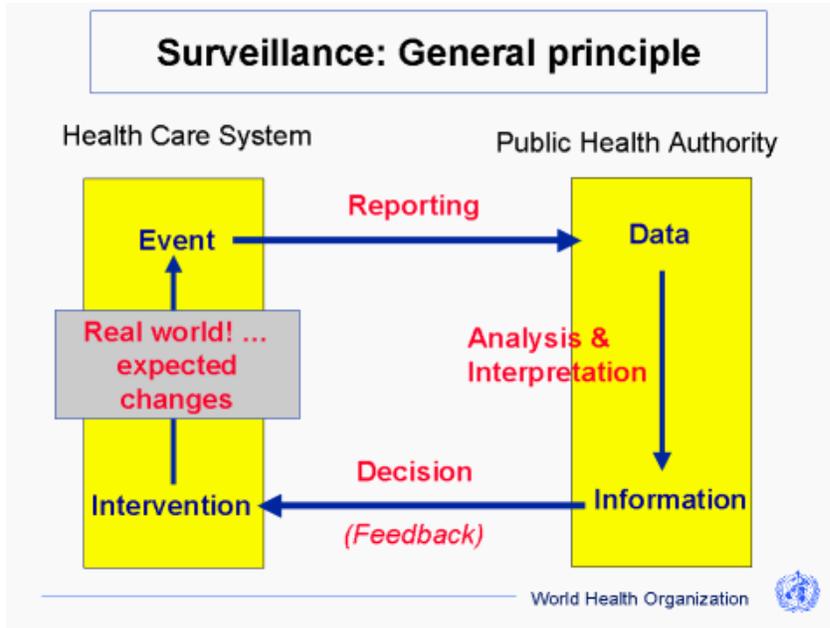
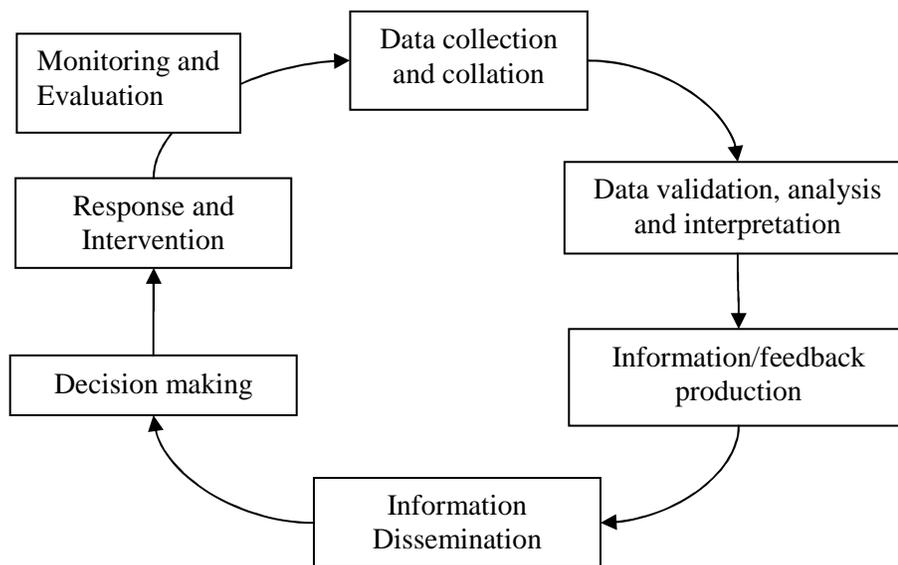


Figure 1-1: Surveillance cycle



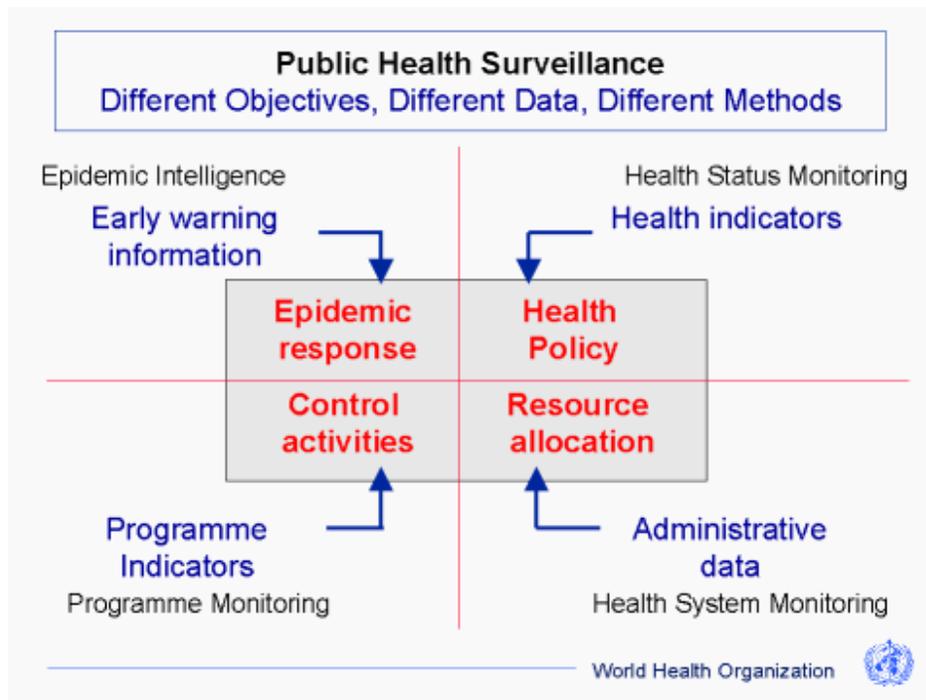
### 1.5: Objectives, sources of data and methods

The purpose of any surveillance system is to provide **information for action**. An effective surveillance system is action oriented where the public health professions respond in a **timely and appropriate** manner.

Surveillance facilitates the early detection of changes in CD trends, unusual events, clusters and outbreaks to initiate appropriate control activities to limit the spread of adverse health conditions, ultimately reducing morbidity, mortality and negative economic impact. It can be used, for example, to identify risk groups and guide the implementation of relevant intervention activities such as educational messages. Surveillance can also be used to evaluate the effectiveness of national programmes and provide a basis for shaping public health policy.

As shown in the World Health Organization (WHO) framework, surveillance systems need to collect different types of data, different types of information and use different methods to achieve different objectives (Figure 1-2).

Figure 1-2: Outline of Public Health Surveillance



1. **Epidemic response objective:** Information is needed for monitoring trends (to generate baseline rates) and the early detection of unusual events, clusters, outbreaks and epidemics so a timely and relevant response can be initiated. For example, an increase in the number of cases of rash and fever should trigger an investigation to determine etiology and relevant response for control.

2. Control activities objective: Programme indicators are needed to monitor the effectiveness of programs, for example, DOTS coverage rates are important to monitor the performance of a tuberculosis control program.
3. Health policy objective: Monitoring health status is necessary for developing health policy, for example, due to the increasing prevalence of HIV/AIDS in St. Lucia, one of the responses of the government is to upscale the National AIDS Programme to include the prevention of mother to child transmission (PMTCT) and the provision of care and treatment to people living with HIV/AIDS.
4. Resource allocation objective: Epidemiological and administrative data are needed for appropriate resource allocation. For example, in response to dengue fever outbreaks in St. Lucia, which may impact negatively on the tourism industry, there is a greater need for allocating relevant financial and human resources in prevention measures and timely outbreak investigation and control.

In order to generate a complete and accurate picture of a given health situation the surveillance process requires data from several sources such as:

- Vital statistics
- Morbidity and mortality reports
- Case reports and investigations
- Disease registries
- Outbreak reports and investigations
- Laboratory reports
- Sentinel reports
- Agricultural (animal and plant health) reports
- Environment and environmental health reports
- Surveys
- Censuses

### *1.6 Types of Surveillance*

Surveillance systems can be passive, active or a combination of both. A passive surveillance system is one in which it is the responsibility of the health care provider to send surveillance data at predetermined intervals (e.g., routine weekly reports) to the next level in the system. An active surveillance system is one in which a surveillance team solicits data from health care providers at prescribed intervals (e.g., weekly hospital visits by the National Epidemiology Unit). The latter system requires greater human and financial resources than the former.

**Key Message: Passive surveillance** is good for monitoring trends over time, place and person, especially for diseases of moderate to high prevalence.

**Active surveillance** is most often used for diseases of special interest, for example, with high case fatality rate, subject to elimination and/or eradication, and with emerging or reemerging potential such as measles, polio, malaria, yellow fever, dengue hemorrhagic fever, SARS and TB.

Implementing active surveillance requires more resources than passive surveillance.

Surveillance systems can also use syndromic or etiologic information, or a combination of both. Syndromic surveillance is particularly useful as an **early alert** system. Etiologic surveillance is more useful for **monitoring specific disease trends**.

Syndromic surveillance is based on the reporting of different categories of clinical presentations (signs and symptoms). Etiologic surveillance is based on the identification and characterization of disease-specific agent(s) by the laboratory.

Syndromic surveillance better suits frequent reporting mechanisms allowing for a timely response. Disease surveillance is important for evaluating disease prevention and control programs and planning mid to long term interventions.

Key Message: **Syndromic surveillance** is good for early detection of public health threats.

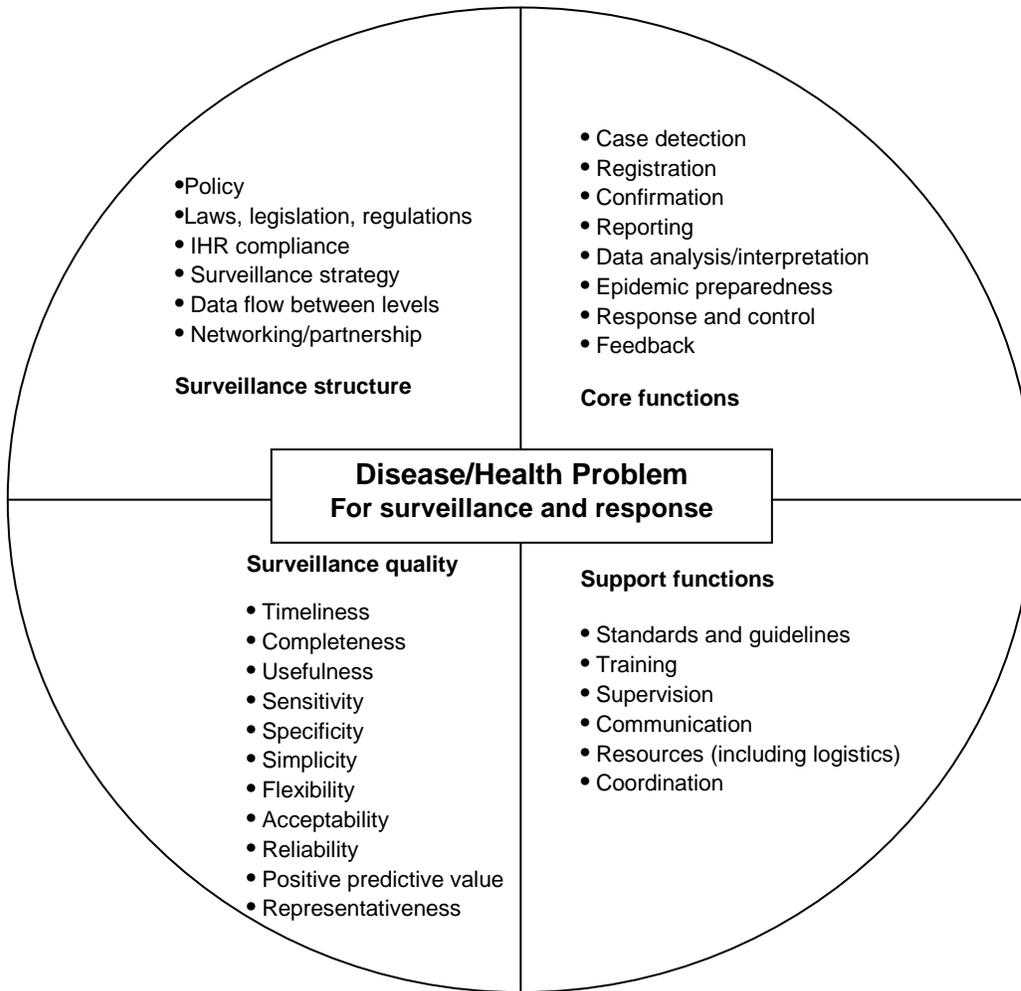
**Laboratory-based surveillance** is necessary for guiding appropriate response and for monitoring specific disease trends.

Since clinical diagnosis is the basis of syndromic surveillance and laboratory diagnosis is the basis of etiologic surveillance, they should not be considered mutually exclusive but rather **complementary**. They should be combined according to circumstances and resources available.

### *1.1. Attributes of Surveillance Systems*

When planning or evaluating a surveillance system, the following attributes can be used to gauge the overall usefulness of the system (definitions appear in glossary):

- Simplicity
- Flexibility
- Acceptability
- Representativeness
- Timeliness
- Sensitivity
- Positive Predictive Value (PPV)
- Conceptual framework of surveillance and response systems for communicable diseases (Adapted from WHO framework)



## 2 The Communicable Disease Surveillance System in Saint Lucia

### 2.1 Mission Statement

*To maintain, protect and improve the health and well-being of residents of Saint Lucia and visitors by the efficient assessment of health threats through timely and accurate reporting leading to effective evidence-based decision-making, resource allocation and appropriate action.*

### 2.2 Description of the National CD Surveillance System

#### 2.2.1 Purpose

The purpose of the Communicable Disease Surveillance System for St. Lucia is to provide information to enhance the decision-making process and allow public health and agricultural health workers to be prepared and to respond in a timely manner to public health threats.

### **2.2.2 Objectives**

The objectives of St. Lucia's communicable disease surveillance system are:

- To allow for the early detection of and appropriate response to unusual events, clusters and outbreaks of communicable diseases
- To provide epidemiological data on the magnitude, distribution and trends of communicable diseases, according to time, place and person
- To provide relevant information to contribute to programme planning, monitoring and evaluation, including the impact of interventions
- To identify research needs
- To serve as a CD surveillance training tool for public health and agricultural health personnel

### **2.2.3 Legal framework**

The Communicable Disease surveillance system in St. Lucia operates within the legal framework of:

- The Public Health Act, No. 8 of 1975
- The Public Health (Communicable and Notifiable Diseases) Regulations, Statutory Rules and Orders, 1978, No. 12

This includes the surveillance of:

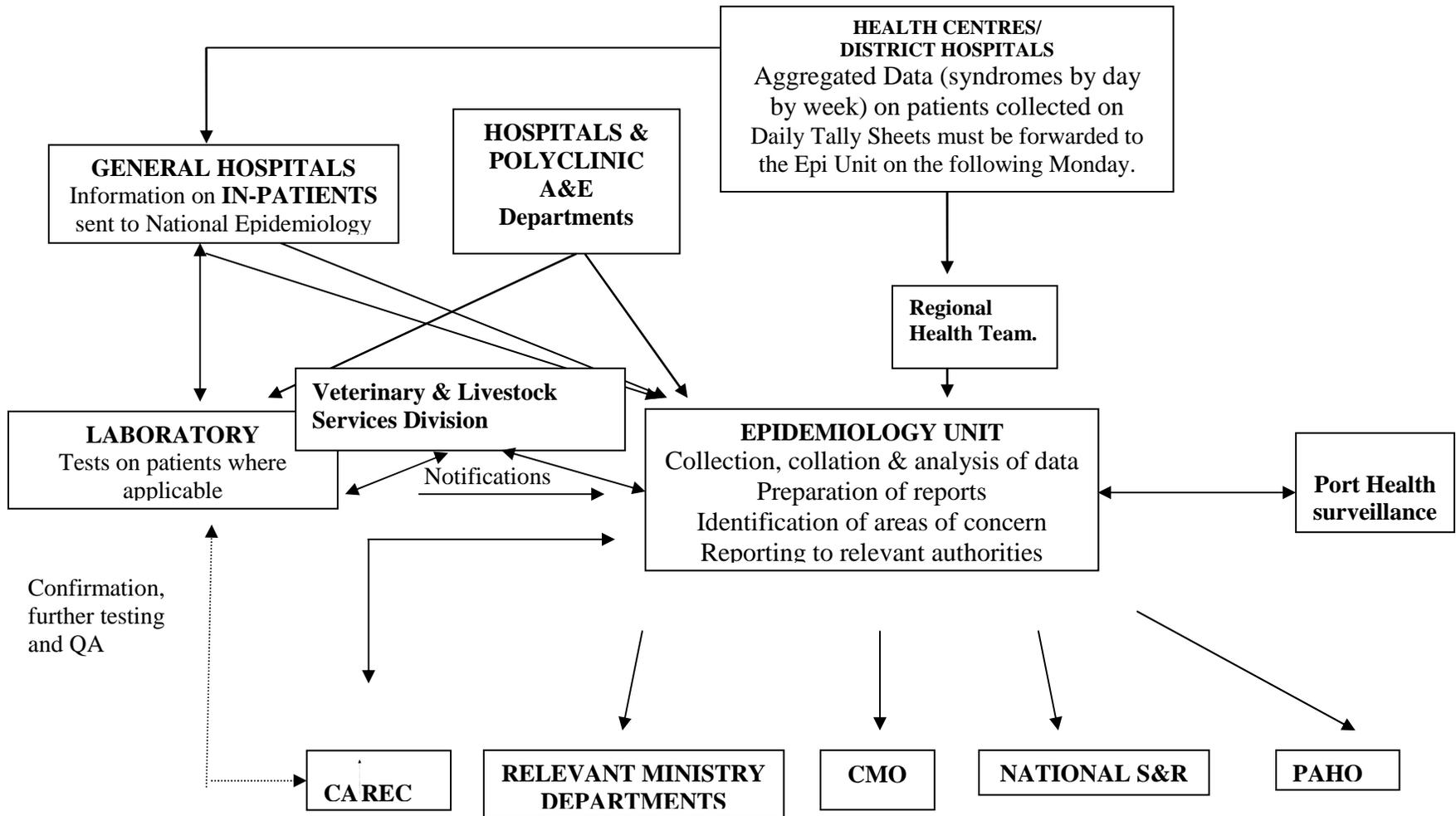
- (a) Communicable diseases under International Health Regulations, and
- (b) Communicable diseases and syndromes as stipulated by the Chief Medical Officer and Chief Veterinary Officer.

Current International Health Regulations state that three diseases, plague, cholera and yellow fever must be reported to WHO through CAREC and PAHO/CPC.

Public Health Food Act, No 70 of 1980

Animal (Disease and Importation) Ordinance (Amendment 1994) Act to be replaced by animal health act 2006.

Figure 2.1 Reporting Chain and Data Collection:



#### **2.2.4 Privacy protection**

Class I Communicable diseases reporting, except HIV/AIDS, are reported on an individual basis, using names. All aspects related to HIV/AIDS reporting are subject to the highest level of confidentiality where only specific clinicians and nurses (HIV/AIDS counselors and contact tracers) are aware of the HIV/AIDS status of individuals. For reporting purposes by the Epidemiology Unit, information on all communicable diseases is anonymous.

#### **2.2.5 Data (and information) reporting**

##### **1. Syndromic Reporting**

Syndromes are to be reported based on the date the patient presents to the health facility. Total numbers of cases of the syndromes listed in the “Weekly data collection” section of Appendix 1. A template for a weekly reporting form that is used in-country is given in Appendix 1.2.

Case definitions for the syndromes under regional surveillance are contained in Appendix 4. Guidelines on etiologies associated with syndromes and appropriate sample collection are contained in Appendices 5 and 6.

Syndromic surveillance should be conducted in major public health facilities so that emerging public health threats can be detected early; however it need not be island wide. For example, a country may conduct syndromic surveillance in all or selected public health centres and accident and emergency departments of public hospitals, but only a few sentinel private practitioners. Once completeness of reporting is known, trends can be monitored over time, although rates may be difficult to determine.

##### **2. Hospital Ward Notifications**

There is an established mechanism for the routine monitoring of persons admitted into a hospital (participating in the surveillance system) with one of the syndromes under regional surveillance. This mechanism must include the notification of cases based on the date of onset of illness to the epidemiologist Epi Unit). The sample Case Notification form contained in Appendix 7 may be used to collect and transmit this information. The need for an epidemiological Case Investigation will be determined by the National Epidemiologist.

##### **3. Four-weekly reporting of specific diseases**

Confirmed cases are to be reported based on date of onset of illness. Age and sex specific data on confirmed cases of diseases listed in the “Four-weekly data collection” section of Appendix 1

##### **4. Laboratory surveillance**

The laboratory has a critical role in public health surveillance and disease control. In the revised communicable disease surveillance system the primary role of the public health laboratory remains confirmation of etiology. However, the laboratory has a key role in assisting with outbreak detection and confirmation, especially when the same serotype/subtype is detected from several sources or places in the absence of clinical or epidemiological information to suggest that there is an outbreak. Also, sometimes laboratory surveillance data can be used to predict an epidemic, e.g. if a change in dengue serotype is detected, after many years of another type(s), it would be predicted that an outbreak may be imminent. The laboratory also has a crucial role in antimicrobial resistance surveillance, which is almost entirely laboratory-dependent; in

enhanced surveillance and research studies; and in confirming elimination or eradication, as with measles, polio, etc.

On a weekly basis, in-country laboratories shall make available to the office of the National Epidemiologist results for **all** specimens that test positive for a communicable disease. Individual, case-based data (Laboratory case Notification form) must be reported, with at least the parameters described in the laboratory surveillance minimum dataset (Appendix 13). Also, any unusual findings with respect to test yield or antimicrobial resistance patterns are to be immediately reported to the office of the National Epidemiologist.

Data shall be transmitted from the reference or public health laboratories to the office of the National Epidemiologist via facsimiles or mail.

The office of the National Epidemiologist shall report individual, case-based data on all samples testing positive for communicable diseases **except STIs** to CAREC on a weekly basis. Data shall be transmitted by 12 noon on Wednesday of the following epidemiological week (e.g. data for week 10 is to be transmitted to CAREC by noon on Wednesday of week 11). This data shall be maintained in CAREC's laboratory information system (LABIS). Data shall be transmitted to CAREC via one of the following mechanisms:

- A hard copy of an Excel spreadsheet (template available from CAREC)
- An electronic copy an Excel spreadsheet (template available from CAREC)
- A hard or electronic report generated by a laboratory information or surveillance system

For some countries, the CAREC laboratory functions as an extension of in-country national laboratories, especially in virology. As such, the maintenance of one database at CAREC (LABIS), with CAREC as well as in-country laboratory data, will facilitate harmonization of test results and minimize duplication in analyses at the regional level.

In addition to the minimum dataset that the laboratory shall routinely transmit to the office of the National Epidemiologist, the laboratory shall also routinely monitor:

- the proportion of 'positive tests of all tests conducted' for a specific pathogen
- the results of antimicrobial susceptibility tests
- Quality assurance pre and post analytic indicators as outlined in the CAREC Quality Assurance Training Manual and Module 4 of Managing Laboratories to Assure Quality – "A How to Guide": Operational Systems.

All samples referred to CAREC shall be accompanied by the laboratory investigation form in Appendix 14. This form is also used for in-country communicable disease laboratory requisitions and reports. The minimum data for inclusion on specimen labels are:

- Patient identifier (name or alphanumeric code)
- Date of specimen collection
- Specimen type
- Patient date of birth

Guidelines on the referral of specimens to CAREC can be found in the CAREC Laboratory User Manual. Samples should be routinely taken and tested during endemic periods. *However, during epidemics, once etiology has been established, only a systematic selection of samples should be taken and tested.* Guidelines on sample testing during epidemic and endemic periods can be found in the CAREC 'Guidelines for the Collection of Clinical Specimens' in Appendix 6 and 'Clinical

and laboratory guidelines for dengue fever and dengue haemorrhagic fever/dengue shock syndrome’.

## 5. Outbreak reports

The office of the National Epidemiologist shall provide an ‘alert’ (early notification) of an outbreak. All unusual disease situations must be looked into and every identified outbreak must be investigated by the appropriate authorities.

The following table also contains details pertaining to section 2.2.8. on information dissemination.

**Table 2-2: National level syndromic and disease data and information reporting timeline**

		Individual <b>case reports</b> on <u>specific (severe and deaths) syndromes</u> of CD are actively and/or passively reported from the relevant sentinel sites to the Epidemiology Unit <i>[by fax, courier and/or phone]</i>
<b>As it occurs</b>	→	For <b>specific suspect individual cases</b> and <b>clusters of suspected cases</b> seen during <u>DMOs’ clinics</u> , immediate report happens <i>[by phone]</i> .  The National <b>Laboratory reports</b> to National Epidemiology Unit on individual cases of communicable <u>diseases</u> . <i>[by fax or phone,mail]</i>
<b>Monday a.m.</b>	→	Reports on <u>syndromes</u> for the previous epidemiological week are sent from the relevant sentinel sites and health centres to the National Epidemiology Unit. <i>[by fax, courier and/or phone]</i>
<b>Tuesday</b>	→	Epi Unit actively collects data (by phone etc) of missing reports (aggregated data)  EPI <u>syndromic</u> surveillance data (rash and fever, acute flaccid paralysis) is reported to the National Epidemiology Unit for consolidation of the National CD report <i>[form is transferred]</i> .
<b>Wednesday</b>	→	Data and information on CD cases, syndromes and deaths are reported from the National to the regional level <i>[by email]</i>  National EPI <u>syndromic</u> surveillance data is reported to the regional level (CAREC). <i>[by fax]</i>
<b>Friday (p.m.)</b>	→	National Epidemiology Unit reports to the CMO on the CD weekly trends and specific related events. <i>[Meeting and/or briefing notes]</i>
<b>Monthly</b>	→	National Epidemiology Unit reports to the National Surveillance and Response Team on the CD monthly trends and specific related events. <i>[Meeting and/or briefing notes]</i>
<b>Quarterly</b>	→	Chief Veterinary Office reports to Epi Unit

Notes: 1. AIDS/HIV and STI data/information is reported to CAREC on a quarterly basis  
2. The Environmental Health Department collects and compiles data pertinent to vector control and water quality from the health regions on a monthly basis.

**Table 2-3: Regional level syndromic and disease data and information reporting times**

<b>Thursday</b>	→ Analysis, interpretation and editing of the regional weekly report (CAREC Surveillance and Response Team)
<b>Friday</b>	→ Dissemination of the E-CSR on CariSurvNet (CAREC Epidemiology Division)
<b>Monthly</b>	→ Collection, compilation, analysis, interpretation and dissemination of the monthly regional report (CAREC Surveillance and Response Team)

**i. Analysis and Interpretation & output generating**

Weekly time, place and person analysis and interpretation of CD surveillance data by the National Epidemiology Unit is done systematically on Wednesdays. As per the above Table 2-2, output generating and weekly reporting also happens on Wednesdays for reporting to the regional level. Analysis of CD monthly trends and unusual events happens at the end of each month for reporting to the National Surveillance and Response Team (NSRT). No standard report is yet generated to that effect. Briefing notes (text, tables and graphs) are however tabled to members of the National S&R Team in varying formats (e.g., paper reports, PowerPoint presentations).

Trends analysis is to be systematically done at the health region level. Formal surveillance and response structures (regional teams) and mechanisms are established at that level.

**ii. Information dissemination**

In St. Lucia, in-country dissemination of relevant CD information to data providers (feedback) and decision makers is made by different ways and with different periodicity. The main mechanisms for systematic information dissemination on communicable diseases, at regional and central national levels, are summarized in Table 2-2 above. In addition the following channels and media also exist:

- An Epidemiology Newsletter is produced and distributed to the Heads of Departments within the Ministry of Health and relevant departments of the Ministry of Agriculture. The contents entail selected information on the situation of communicable diseases in St. Lucia. Each of the Departments is responsible for the dissemination of the Newsletter to their own staff. For example, the Principal Nursing Officer should ensure that such feedback information on CD reaches the clinics' and Health Centers' nursing staff.
- Whenever the health/epidemiological situation warrants (e.g., in the case of an outbreak), the Epidemiology Unit immediately communicates with relevant stakeholders and decision-makers on the matter and actions to be taken. Such situations and related interventions are also systematically reviewed and updated during the meetings of the National Surveillance and Response Team.
- On a monthly basis information on tuberculosis, leprosy, HIV and other STIs is also exchanged and disseminated, verbally mostly, at the occasion of the "Contact Tracing Meeting". This meeting gathers "Contact tracing" nurses, the physician in charge of the STI clinic, members the National Epidemiology Unit and members of the National AIDS/HIV Programme.

- ➔ Following the monthly meetings of the National S&R Team, the above other meetings and on ad hoc bases (whenever relevant) Public Health Nurses share, in their turn, the appropriate CD epidemiological information with the nursing personal working in each of the 8 Health Regions, during subsequent monthly meetings. Such feedback information is done verbally.
- ➔ Ultimately, the Bureau of Health Promotion, and/or the National Epidemiology Unit are responsible for information dissemination to the media and public.

## **Dissemination of National Reports to Regional Agencies**

### **1. Weekly reporting of syndromes**

“Weekly data collection” section of Appendix 1 (from all reporting sites) shall be reported to CAREC by the office of the National Epidemiologist of Saint Lucia. Data shall be transmitted weekly by 12 noon on Wednesday of the following epidemiological week (e.g. data for week 10 shall be transmitted to CAREC by noon on Wednesday of week 11).

The two syndromes monitored by the EPI (fever and rash and acute flaccid paralysis) shall be reported on the EPI-CAREC Weekly Report form in Appendix 2 and the other syndromes shall be reported on the CAREC Weekly Report form in Appendix 3.1.

### **2. Four-weekly reporting of specific diseases**

Confirmed cases in the “Four-weekly data collection” section of Appendix 1 (from all reporting sites in the system) shall be reported to CAREC by the office of the National Epidemiologist. The age groups (in years) to be used for reporting are:

<1; 1-4; 5-14; 15-24; 25-44; 45-64; ≥65; Unknown.  
(These age groups allow for comparisons with UK, US and PAHO data)

Using epidemiological weeks, data collected in four week periods shall be transmitted to CAREC by the end of the second week following a given four-week period (e.g. data for weeks 1-4 shall be transmitted by the end of week 6). A sample template for data transmitted to CAREC on a four-weekly basis is given in Appendix 8. However, national reporting forms that cover the relevant variables outlined in Appendix 8 can be used. Case definitions for diseases under regional surveillance are contained in Appendix 9. Syndromic diagnosis flowcharts, which show the relationship between the syndromes and diseases under surveillance is contained in Appendix 5.

### **3. Outbreak Report**

Reports are to be made to CAREC and CAREC member countries via carisurvnet or other communication means. Should assistance from CAREC be required, this should be requested as early as possible so that necessary arrangements can be made.

Following all outbreak investigations, the office of the National Epidemiologist is responsible for submitting a report to CAREC using the standard outbreak reporting form and guidelines in Appendix 10.

**4 Quarterly and annual reporting of HIV, AIDS and STIs**

HIV, AIDS and selected STIs (as stated in Appendix 1) shall be reported to CAREC on a quarterly basis using the forms contained in Appendix 11. Case definitions for HIV, AIDS and the STIs under surveillance are contained in Appendix 9. These reports shall be transmitted to CAREC no later than one month after the end of each quarter. Additionally, an annual HIV/AIDS report is to be completed using the CAREC standard report template and submitted to CAREC by the end of the first quarter of the following year.

**5 Quarterly reporting of TB and Annual reporting of leprosy**

TB and leprosy cohort data are requested by WHO and ILEP respectively from countries on an annual basis.

The ILEP annual leprosy cohort reporting form in Appendix 12 is sent to CAREC, who then distributes them to member countries. The office of the National Epidemiologist is required to complete this form and return it to CAREC, who then forwards the form to ILEP.

Individual case-based reporting of TB data from the office of the National Epidemiologist to CAREC shall be done on a quarterly basis, using an Epi Info database provided by CAREC. These files shall be transmitted to CAREC no later than one month after the end of each quarter. CAREC shall maintain a regional TB database; however countries will still be required to complete the annual WHO summary reporting forms.

**Table 2-4: Summary of the dissemination of National reports**

<b>REPORT</b>	<b>RECIPIENT</b>	<b>METHOD OF DISSEMINATION</b>
Weekly syndromic surveillance report	CAREC	Email
Weekly EPI reports	CAREC	Fax
Monthly specific disease surveillance report (pilot revised CAREC CD)	CAREC	Email, fax
Quarterly HIV/AIDS/STI reports	In-country stakeholders and CAREC	Fax
Quarterly TB report	CAREC	Fax
Annual HIV/AIDS/STI reports	In-country stakeholders and CAREC	Regular mail, Email
Annual TB report	In-country stakeholders and WHO	Regular mail, Email
Annual Leprosy Report	In country stakeholders and CAREC	Regular mail, Email
Outbreak reports (as required)	CAREC	Email, fax

CAREC is responsible for producing and disseminating the following regional feedback:

- Weekly updates on syndromes (including EPI) posted on the CAREC website.
- CSR: Quarterly reports on specific diseases, TB updates, outbreaks, articles and regional news and announcements.
- CSR supplements: Two annually with detailed reports on specific issues.
- CAREC annual report: Containing details of the work of the Centre for the period, including a summary of outbreaks for the year and an HIV/AIDS/STIs update.
- CAREC alerts: Public health alerts and regional and international information of interest produced as necessary.

These documents are available on the CAREC website ([www.carec.org](http://www.carec.org)) and are also disseminated to key stakeholders at the national level in countries [See Figure 3].

Additionally, CAREC is responsible for exchanging data and information with other regional and international networks such as the WHO's internet-based system for the global surveillance of dengue (Dengue Net) and the European Working Group for Legionella Infections (EWGLI).

CAREC is also responsible for maintaining Carisurvnet, a secure listserv which serves as an electronic communication tool for member countries.

### **3.1.1. USE OF DATA AND INFORMATION**

**Ideally, CD data and information should, in first instance, be used as close as possible to where problems are happening and can be solved, i.e., the Health Centres.** However, close interaction and collaboration between local and central (and even regional) levels is essential for efficient surveillance of, and response to, communicable diseases. Ultimately, all levels of the health care system should also use CD information to the objectives of the system (see section 2.2.2. above).

- ➔ Data is used at the local level (i.e., Health Centers, Polyclinic(s) and Hospitals) for prevention and control activities, e.g.:
- Identify changes in syndromes and/or diseases trends and unusual events
  - Identify high risk groups
  - Patients and public education
  - Treatment
  - Prophylaxis
  - Increased surveillance activities, especially active case finding and contact tracing.

It may also be used for:

- Identifying training needs and conduct training sessions
  - The management and planning of human resources, drugs, equipment and infrastructure (e.g.: specific nursing staff, vaccines and cold chain, ORS, water supply, sanitation facilities).
- ➔ Data is used nationally for early detection of outbreaks and unusual events, estimating the magnitude of CD in St. Lucia, monitoring trends and programmes and to direct action for prevention and control.

It may also be used in more specific details for:

- Estimations and projections
- Assessing program needs
- Allocating resources
- Health mapping (spatial and temporal analysis)
- Advocacy
- Identify and set priorities
- Developing policy and guidelines
- Identifying training needs and as a training tool
- Research purposes

Regionally, CAREC should use data and information for:

- initiating appropriate activities, e.g. outbreak investigations, control activities, development of guidelines
- evaluation and monitoring
- supporting the planning, monitoring and evaluation of CAREC's 5 regional communicable disease programmes, namely:
  - EPI programme
  - Special programme on STIs
  - TB programme
  - Leprosy programme
  - Food borne disease programme
- research

CAREC is also responsible for working with countries to appropriately package information for different audiences, such as the media, politicians and the general public, as well as for presentation in the scientific literature.

### **3.1.2. EVALUATION**

#### **5.11. Monitoring and evaluation**

WHO definitions of monitoring and evaluation are as follows:

- Monitoring is the routine (continuous) tracking of the performance of surveillance and response systems.
- Evaluation is the periodic assessment of changes in targeted results (objectives) that can be attributed to a surveillance and response system.

National and regional communicable disease surveillance systems shall be routinely monitored using appropriate indicators. The regional surveillance indicators and data are listed in Appendix 15. Laboratory indicators are listed in the CAREC Laboratory User Manual and programme specific indicators are listed in the respective programme manuals. It is essential to monitor all components of the system (as indicated in Figure 2), namely:

- Surveillance structure
- Surveillance quality (It is essential to monitor at least timeliness and completeness)
- Core functions
- Support functions

Routine system monitoring may require minor or major system adjustments or indicate the need for an evaluation.

The regional communicable disease surveillance system should be evaluated every 3 years by a group consisting of representatives from CAREC, member countries and other appropriate stakeholders and/or partners. This evaluation will include a review and rationalization of the syndromes and diseases under surveillance.

Each national communicable disease surveillance system should be evaluated every 6-7 years. CAREC is responsible for coordinating these evaluations and they should be conducted in collaboration with countries and other relevant partners. All evaluations should aim to describe the system and assess the four components as outlined in Figure 2. CAREC is responsible for the development of standard evaluation tools and indicators for the region.

The National Surveillance System is to be reviewed internally every two years and externally evaluated every 4-5 years.

In order to be realistically implemented, the internal reviews should:

- Assess selected characteristics of the national CD surveillance system, (i.e., timeliness, flexibility, completeness, acceptability)
- Look for the main areas in need of strengthening among the various functions (e.g., data collection, reporting, analysis, interpretation, dissemination, laboratory diagnosis and logistics)
- Update the National CD Surveillance Manual, if necessary.

The internal reviews will be carried out by a team composed of members of the National Surveillance & Response Team — though specific members can, possibly, also be invited. The team should be coordinated by the Epidemiology Unit.

External evaluations should cover process, content and impact. Guidelines for evaluating a surveillance system published by WHO, CDC and CAREC can be used. Such guidelines will also provide a list of related indicators to be assessed. Provision will be made for evaluation to be:

- Planned well in advance (especially regarding the selection of the external team members and the necessary financial resources)
- Be conducted on a participatory mode at national and local levels
- Aim at a capacity-building exercise at all levels

**Notifiable Diseases and Syndromes - National Surveillance Requirements**

**Table 3-1: Diseases and Syndromes under Surveillance in St. Lucia**

CONDITION	CATEGORY
Acute Flaccid Paralysis Acute Respiratory Illness < 5 years Conjunctivitis (non-neonatal) Fever and Hemorrhagic Symptoms Fever and Neurological Symptoms Fever and Rash Fever and Respiratory Symptoms ≥ 5 years Gastroenteritis ≥5 years Gastroenteritis < 5 years Undifferentiated Fever ≥5 years Undifferentiated fever <5 years	Syndromic
Cholera Plague Yellow Fever (Urban or Sylvatic)	Diseases subject to the International Health Regulations
Influenza Malaria SARS CoV Tuberculosis (Pulmonary) Tuberculosis (Extra pulmonary)	Diseases Under International Surveillance
Dengue Fever Dengue Haemorrhagic Fever/Shock Syndrome Leprosy (Hansen's Disease) Meningococcal Infection (due to Neisseria meningitidis) West Nile virus	Other Diseases of Regional Interest
Ciguatera Poisoning Foodborne Illness Leptospirosis Rabies (in humans) Scabies Typhoid and Paratyphoid Fevers Viral Encephalitis / Meningitis	Other Diseases of Caribbean Interest
E. coli (EHEC) Campylobacter Salmonellosis	Diseases Under Laboratory Surveillance

<p>Shigellosis Viral Hepatitis A Viral Hepatitis B</p>	
<p>AIDS HIV</p> <p>Urethral Discharge     Gonorrhoea     Chlamydia     Non specific urethritis</p> <p>Genital Ulcer     LGV     HSV     Chancroid</p> <p>Vaginal Discharge     Gonorrhoea     Chlamydia     Trichomonas     Bacterial Vaginosis     Unspecified</p>	<p>Sexually Transmitted Infections</p>
<p>Bacterial Pneumonias Haemophilus Influenza Pneumonia Strep. Neumoniae</p> <p>Chicken Pox Diphtheria Measles Mumps Poliomyelitis Neonatal Tetanus Tetanus Whooping Cough</p> <p>Bacterial Meningitis:</p>	<p>Vaccine preventable diseases</p>

Meningitis Haemophilus Influenzae
Neisseria Meningitidis Meningitis
Non- Specific Meningitis
Tuberculosis Meningitis

**3.2. Regional Requirements**

Table 3-2 lists the syndromes and diseases that are reportable on a regional basis. It is the responsibility of the National Epidemiology Unit within the Ministry of Health to report in accordance with the specified frequency.

**Table 3-2: Syndromes and diseases under surveillance at the regional level**

<b>WEEKLY REPORTING – REGIONAL</b>	
<i>Diseases subject to the International Health regulations*</i>	Cholera
	Plague
	Yellow Fever (Urban or Sylvatic)
<i>Syndromes</i>	Acute Flaccid Paralysis
	Acute Respiratory Illness < 5 years
	Fever and Hemorrhagic Symptoms
	Fever and Neurological Symptoms
	Fever and Rash
	Fever and Respiratory Symptoms ≥5 years
	Gastroenteritis ≥5 years
	Gastroenteritis < 5 years
	Undifferentiated Fever ≥5 years
	Undifferentiated fever <5 years

\*Diseases subject to International Health Regulations must also be reported IMMEDIATELY to CAREC via phone, fax or email.

<b>MONTHLY REPORTING – REGIONAL</b>	
<i>Diseases under International Surveillance</i>	Influenza Malaria SARS CoV Tuberculosis (Pulmonary) Tuberculosis (Extra-pulmonary)
<i>Other Diseases of Regional Interest</i>	Dengue Fever Dengue Haemorrhagic Fever/Shock Syndrome Leprosy (Hansen's Disease) Meningococcal Infection (due to Neisseria meningitidis) West Nile Virus
<i>Other Diseases of Caribbean Interest</i>	<i>Campylobacter</i> Ciguatera Poisoning <i>E. coli</i> (ETEC) Leptospirosis Rabies <i>Salmonella</i> <i>Shigella</i> Typhoid and Paratyphoid Fevers Viral Encephalitis/Meningitis Viral Hepatitis A Viral Hepatitis B

<b>QUARTERLY REPORTING – REGIONAL</b>	
<i>Sexually Transmitted Infections</i>	AIDS Bacterial Vaginosis Chancroid Chlamydia Genital Ulcer Gonorrhoea Herpes Simplex Virus (HSV) HIV Lymphogranuloma Venereum (LGV) Non-Specific Urethritis (NSU) Syphilis Trichomonas Unspecified Urethral Discharge Vaginal Discharge

**Diseases of interest to the Expanded Programme on Immunization (cont.)**

Bacterial Meningitis, other  
 Bacterial Pneumonia  
 Chicken Pox  
 CRS  
 Diphtheria  
*Haemophilus influenzae* Meningitis  
*Haemophilus influenzae* Pneumonia  
 Hepatitis B  
 Measles  
 Mumps  
*Neisseria meningitides* Meningitis Neonatal Tetanus  
 Non specific Meningitis  
*Step.pneumoniae* Pneumonia  
 Tetanus  
 Tuberclose Meningitis  
 Viral Meningitis  
 Whooping Cough

**3.3. Case Definitions for Diseases under Surveillance**

For disease case definitions in St.Lucia, refer to the manual: “Case Definition for Disease under Surveillance, 2005”

**3.4. Relationship of Syndromes to Diseases****Table 3-3: Syndromes and diseases**

Syndromes	Potential Pathogen/Disease
Undifferentiated fever	<ol style="list-style-type: none"> <li>1. Dengue</li> <li>2. Enterovirus</li> <li>3. Influenza</li> <li>4. Leptospirosis</li> <li>5. Malaria</li> <li>6. Measles</li> <li>7. Mumps</li> </ol>
Fever and Respiratory symptoms	<ol style="list-style-type: none"> <li>1. Hantavirus</li> <li>2. Influenza.</li> <li>3. Legionellosis</li> <li>4. Leptospirosis</li> <li>5. Metapneumovirus</li> <li>6. Respiratory syncytial.</li> <li>7. SARS CoV</li> </ol>
Fever and hemorrhagic symptoms	<ol style="list-style-type: none"> <li>1. Arenavirus</li> <li>2. Bacterial (meningococcal, pneumococcal and Hib)</li> <li>3. Dengue hemorrhagic fever</li> <li>4. Hantavirus</li> <li>5. Leptospirosis</li> <li>6. Malaria <i>falciparum</i></li> <li>7. Yellow fever</li> </ol>

Fever and neurological symptoms	<ol style="list-style-type: none"> <li>1. Bacterial (meningococcal, pneumococcal and Haemophilus influenzae)</li> <li>2. Enteroviruses (Polio and other enteroviruses)</li> <li>3. Herpes simplex.</li> <li>4. Malaria</li> <li>5. St Louis encephalitis virus</li> <li>6. West Nile virus</li> </ol>
Rash and Fever	<ol style="list-style-type: none"> <li>1. Dengue</li> <li>2. Measles</li> <li>3. Rubella</li> </ol>
Acute Flaccid Paralysis	<ol style="list-style-type: none"> <li>1. Guillain Barre</li> <li>2. Polio</li> </ol>
Gastroenteritis	<ol style="list-style-type: none"> <li>1. <i>Campylobacter</i></li> <li>2. <i>E. coli</i> 0157:H7</li> <li>3. Enterotoxigenic <i>E. coli</i></li> <li>4. Norwalk</li> <li>5. Rotavirus</li> <li>6. <i>Salmonella</i></li> <li>7. <i>Shigella</i></li> </ol>

Note: Syndromes represent entry points into the CD surveillance system whereas etiologies and/or diseases are the ultimate outcomes. None of the lists are meant to be exhaustive.

### 3.5. Forms for Surveillance

#### 3.5.1. Surveillance Forms

- Syndromic daily tally sheet
- Hospital Communicable Disease Case Notification Form
- Laboratory Case Notification form
- Emerging Infectious Diseases Laboratory request form
- Outbreak daily tally sheet
- Case investigation Form

Forms currently in use\*\*

- Laboratory requisition form for microbiology
- Laboratory request form (general)
- Laboratory report form (microbiology)
- CAREC laboratory Investigation Form
- HIV/AIDS Initial Notification Form (adult)
- HIV/AIDS Initial Notification Form (child)
- HIV/AIDS Update Notification Form
- TB Personal History Form
- TB Contact Tracing Form
- TB Directly Observed Therapy Short Course Card
- STI Surveillance Form
- EPI Surveillance Form
- Schistosomiasis investigation Form
- Leptospirosis Investigation Form

**3.5.2. Outbreak and Case Investigation Forms**

Case and outbreak investigation forms can be found in the following manuals and website:

“Public Health Surveillance; A Caribbean Communicable Disease Surveillance Manual for Action”, CAREC, 1999

CAREC Website: [www.carec.org](http://www.carec.org)

**4. Laboratory**

*4.1. List of tests that are conducted at public laboratories in St-Lucia*

(See list next page)

**4-1: Tests currently conducted at Ezra Long (Victoria Hospital) National Laboratory**

TEST	TURN AROUND TIME*
<p><b>Serology/Virology</b></p> <ul style="list-style-type: none"> <li>• Widal</li> <li>• HBV</li> <li>• HCV</li> <li>• HIV</li> <li>• HTLV 1</li> <li>• USR</li> <li>• TPHA</li> </ul>	<p>24 hours</p> <p>1 week</p> <p>1week</p> <p>1week</p> <p>1week</p> <p>24 hours</p> <p>1 week</p>
<p><b>Bacteriology</b></p> <ul style="list-style-type: none"> <li>• Campylobacter</li> <li>• Clostridium spp</li> <li>• Cryptococcus neoformans</li> <li>• Haemophilis influenzae</li> <li>• Neisseria gonorrhoea</li> <li>• Neisseria meningitides</li> <li>• Salmonella Typhi</li> <li>• Salmonella other</li> <li>• Shigella</li> <li>• Streptococcus pneumoniae</li> <li>• Streptococcus pyogenes</li> <li>• Staphylococcus aureus</li> <li>• TB smear</li> </ul>	<p>48 hours</p> <p>48 – 72 hours</p> <p>48 hours</p> <p>48 hours</p> <p>72 hours</p> <p>48 – 72 hours</p> <p>48 – 72 hours</p> <p>48 – 72 hours</p> <p>48 – 72 hours</p> <p>48 hours</p> <p>48 hours</p> <p>48 hours</p> <p>24 – 48 hours</p>

<b>Parasitology and fungal testing</b>	
• Helminths	24 hours
• Protozoa	24 hours
• Candida	48 hours
• KOH preps	24 hours
• Plasmodium	24 hours

*\*Time from when specimen is received at Erza Long National Laboratory until test results are known.*

**Rapid tests for the identification of selected viral infections** also are available, i.e.: influenza, dengue, respiratory syncytial virus and rotavirus.

**Other tests are sent to reference laboratories such as CAREC.**

The same tests for bacteriology and parasitology are conducted in **St. Jude Hospital Laboratory**. For serology, tests are also similar except HCV and HTLV1.

Private laboratories also operate in St. Lucia. Tests conducted in these settings are not listed in the current version of the manual.

#### ***4.2. Specimen collection and transport***

Information on sample collection and transport can be found in the following documents:

“Ezra Long Laboratory Specimen Collection Procedure Manual”, St. Lucia, July 2000.

“Ezra Long Laboratory User Manual”, St. Lucia, 2003.

“Public Health Surveillance; A Caribbean Communicable Disease Surveillance Manual for Action”, CAREC, 1999, pages 299 – 301

#### ***4.3. Laboratory request forms***

*For current national and regional (CAREC) lab request forms please refer to Appendix X and Y.*

## **5. The National Surveillance and Response Team**

➔ The National Surveillance and Response Team meets every month to review data and exchange information communicable diseases in St. Lucia. This body can also take further decisions regarding public health interventions to be carried out as needed.

Regular meetings of the Team should be attended by all members or their designated substitutes.

➔ The primary roles and responsibilities of the S&R Team are:

- Routine analysis and interpretation of CD surveillance data
- Dissemination of CD appropriate information in various professional groups and other audiences
- Initiate, manage and evaluate preparedness and response activities to public health threats
- Collaborate with persons and/or agencies with specific expertise relevant to a given issue at stake
- Follow up the course of outbreaks/epidemics and decide when to revert to routine surveillance and public health activities.

The following are members of the National Surveillance and Response Team in St. Lucia:

- Chief Medical Officer (Chair)
- National Epidemiologist (Deputy chair)
- Deputy Epidemiologist
- Surveillance Officer
- Chief Environmental Health Officer
- Ezra Long (Victoria Hospital) Laboratory Director
- Infection Control Nurses, Victoria Hospital and St. Jude Hospital
- Principal Nursing Officer
- EPI Manager
- Director of Bureau of Health Promotion
- Director of National HIV/AIDS Programme
- Chief Veterinary Officer
- NLAC Chair

Others will be co-opted when required; these may include decision-makers such as the Permanent Secretary and individuals from other ministries and organizations.

## 6. Outbreak and Case Investigations

The surveillance and response to communicable diseases, outbreaks and emerging infectious diseases implies 2 different types of investigation.

- A) Outbreak investigations could be triggered by:
  - (i) Monitoring of trends (epidemic curves)
  - (ii) Alerts from health professionals and/or laboratory
  - (iii) Media reports
  - (iv) Notification/complaints from public
  - (v) Rumours
  
- B) Case investigations could be triggered by case notifications from:
  - (i) Health professionals, including laboratory
  - (ii) Public
  - (iii) Rumours
  - (iv) Media

### 6.1. What is an Epidemic and Outbreak?

An epidemic, defined by Last, is “the occurrence in a community or region of cases of an illness, specific health-related behavior, or other health-related events clearly in excess of normal expectancy”.

An outbreak is an epidemic where there is an increase in the incidence of disease or event in a specific area.

An outbreak is a public health emergency and must be investigated quickly and efficiently. The existence of an outbreak could have serious implications, not just for the persons affected, but also for the wider community.

### **6.2. The Goal of an Outbreak Investigation**

The goal of an outbreak investigation is to break the chain of transmission and prevent the further spread of infection. This is achieved by:

- I. Case management – this activity aims to minimize the effects of the disease causing the outbreak, in other words minimize the occurrence of severe morbidity and mortality.
- II. Active search for new cases – this is to monitor the development of the outbreak and assess the effectiveness of control measures being implemented. Some ways in which this could be achieved would be through the dissemination of case definitions to all health workers, by visiting hospitals and/or clinics to examine medical records and contact tracing.
- III. Protection of susceptible individuals – this is the identification of risk factors and populations in danger of contracting the disease and then using methods to protect these groups from becoming infected.

### **6.3. Objectives of an Outbreak Investigation**

An outbreak investigation will involve a multidisciplinary team composed of members from the national surveillance team along with members of the regional public health team.

The objectives of any outbreak investigation are as follows:

1. To control the spread of the outbreak (and identify the etiologic agent, when applicable)
2. To guide the implementation of further control and prevention measures
3. To evaluate and strengthen the surveillance system, if necessary
4. To better understand the disease involved (relationships between infectious agent, host and environment)
5. To train public health personnel in epidemiology

### **6.4. Ten Steps of an Outbreak Investigation**

There are ten key steps that must be performed in a successful outbreak investigation. These steps are the guidelines as to how to approach the investigation, but they do not necessarily need to be conducted sequentially, in fact often more than one step may be performed at the same time. These ten steps are:

1. **Confirm that an outbreak exists** – this can be done by comparing current disease data with earlier data on the disease in question. If no past data are available, you may need to rely on the knowledge and experience of local health staff.
2. **Verify the diagnosis** – this may be done by reviewing the clinical findings and/or the lab results.
3. **Make a quick assessment of the patients** – this step will require the formulation of a case definition which will outline the criteria for inclusion as a suspect, probable or confirmed case. (Use epi data and laboratory/ clinical information to formulate case definition)
4. **Relate the cases in some way** – you will need to relate the cases in terms of;
  - 4.1. Person – Are they male or female? How old are they?
  - 4.2. Place – Where did the exposure occur? Is there a common (travel) history among the cases?
  - 4.3. Time – What is the time of onset of illness for the cases?

5. **Formulate a hypothesis** – this hypothesis should be as precise as possible and be used to guide the investigation. It should incorporate all clinical, laboratory and epidemiologic facts of the investigation, as well as known factors about the disease process.
6. Plan and conduct a detailed **epidemiologic investigation** – standardized investigation forms should be used for data collection. A case control or cohort study may be conducted to assist in identifying risk factors associated with the outbreak.
7. **Analyze the data** – this should be done as soon as possible after data are collected. This may involve constructing epidemic curves, calculating rates, developing tables and charts and apply statistical tests to the data (see Appendix for detailed explanation on specific analyses)
8. **Formulate a conclusion** – conclusions should be based on all relevant evidence.
9. **Put control measures in operation** – these measures should be practical, implemented immediately and plans should be made to evaluate their effectiveness.
10. **Write a report** – this report should be clear, precise and usable. It should also include both short and long term recommendations and should be disseminated to appropriate decision-makers.

Commonly used outbreak investigation forms can be found in **Appendix**. They are also contained in the following manual:

“Public Health Surveillance; A Caribbean Communicable Disease Surveillance Manual for Action”, CAREC, 1999

Alternatively, forms for any outbreak investigation may be obtained from the Epidemiology Unit.

### ***6.5. Management of an outbreak***

When planning the activities to be conducted during the investigation, you must find a balance between what is ideal and what is achievable, between what is needed and what you can provide and afford.

Management issues in the investigation of an outbreak include:

- Declare to relevant persons (e.g. immediate supervisor, epidemiology unit, CMO, PS, regional stakeholders) that an outbreak exists.
- Inform health providers that an outbreak is occurring and advise them how to proceed.
- At each stage of the investigation, consider who else needs to be informed and provide regular updates to necessary persons or countries.
- Inform or respond to the community if necessary.
- Inform or respond to the media if necessary.
- Consider the capability and capacity of the laboratories you will utilize for support in your investigation and inform the lab in advance of the sending of samples.
- Consider the availability of medical supplies that might be needed for your investigation, e.g. Vaccines, antibiotics or oral rehydration solution.
- If necessary, seek assistance early. You may receive assistance from various levels, internal sources, external sources, the Caribbean Epidemiology Centre (CAREC/PAHO/WHO) and other international organizations.
- Declare the outbreak over when appropriate.

- Establish or maintain surveillance activities to monitor the disease or syndrome that was investigated.

### **6.6. Case definition for purpose of outbreak investigations**

A case definition is a standard set of criteria to be used for deciding whether someone should be classified as a case of the disease under investigation. The case definition must:

- include information relating to person, place and time
- include signs and symptoms
- be clear as to whether suspected, probable or confirmed cases of disease will be utilized
- be clear as to whether a case is to be confirmed clinically, by laboratory, or by epidemiologic linkage

If the team wants to capture all cases, the case definition should be fairly broad, with minimal criteria for inclusion. Many investigations often start with a fairly broad case definition and this definition becomes more precise as the investigation proceeds or during analysis.

### **6.7. Outbreak Investigation Team**

Investigating an outbreak is not a job for one person, it is a team effort with each member of the team having a specific function.

In St-Lucia this team may include:

- A team leader, who should have strong epidemiologic skills. Often this person is the Epidemiologist or designated by the CMO.
- A Public Health or Infection Control Nurse/Epidemiologist to collect and collate data and samples on cases and controls during the time of the outbreak, as well as to collect and collate past data so that disease events over time can be observed.
- Environmental Health personnel to conduct site investigations and collect data and samples when appropriate.
- A Health Educator coordinator for health promotion within the community affected
- Laboratory support to ensure proper sample collection, preservation and transport, and confirm the etiologic or causative agent responsible for the outbreak.
- A clinician for diagnosis and patient care and management.
- A spokesperson should be designated – not necessarily from within the investigation team members – to communicate with the media so that clear, consistent messages are delivered to the public. It is important that the public receives accurate information from the Ministry of Health.

### **6.8. Outbreak Report**

Documenting and disseminating information on an outbreak for your own reference as well for colleagues is a crucial component of the investigation. Consideration should be given to publishing the results in a journal as information gained from an outbreak investigation is used to prevent additional outbreaks. Whether a report will be written for publication or for national records, the following format can be used as a template.

#### **Introduction**

- Background
- Reason for investigation

### **Methods**

- Dates of investigation
- Site(s) of investigation
- Case finding – indicate what was done regarding case finding
- Laboratory specimens collected
- Describe response and intervention
- Describe statistical methods used for analysis

### **Results**

- Date and location of first known case (index case)
- Results of additional case finding
- Laboratory analysis and results
- Describe key features of results of time, place and person analysis (include an epidemic curve)
- Results of response and evidence of impact

### **Discussion**

- Based on result, describe the events leading to the outbreak
- Limitations of the investigation

### **Conclusion and Recommendations**

- Emphasize the lessons learnt from the incident

### **Appendices**

- Questionnaires
- Maps
- Investigation forms

## ***6.9. Case Investigations***

The main principle of a case investigation is to make an early diagnosis of a potentially emerging infectious disease and to detect, also as early as possible, the potential start of an outbreak.

The first objective, in any situation, will be to actively search for other similar cases. From there, two scenarios will be considered:

1. Other cases are detected – an assessment of the epidemic risk will determine if the investigation should then be equivalent to an outbreak investigation.
2. No other cases are detected – the investigation will then be looking at confirming or ruling out the diagnosis.

Regardless of which scenario occurs, it will be necessary to evaluate the threat of the introduction of a new disease, together with an evaluation for the potential for spread and the implication for the country.

The availability, or not, of an etiologic (laboratory) diagnosis at the time of the case investigation will determine what objectives to aim at and the appropriate protocol to follow.

**If the diagnosis is known:**

**Objective No. 1 – To actively search for other cases**

Activities:

- a) review existing recent epidemiological data
- b) actively collect missing information from non-reporting sites
- c) further seek for physicians' judgment about similar cases

**Objective No. 2 – To assess the epidemic risk**

Activities:

- d) investigate contacts of the initial (index) case and other existing cases
- e) collect samples appropriately, according to the situation (i.e., clinical, environmental, animal)

**Objective No. 3 – To guide further public health interventions**

**If the diagnosis is NOT known**

**Objective No. 1 – To fully investigate the case to determine the diagnosis and potential for spread and the possibility of an emerging infectious disease**

**Objective No. 2 – To actively search for other cases**

Activities:

- a) review existing recent epidemiological data
- b) actively collect missing information from non-reporting sites
- c) further seek for physicians' judgment about similar cases

**Objective No. 3 – To guide further public health interventions**

It should be noted that in both situations, the order of the investigation may not follow the order of the objectives listed above. In most cases, more than one objective is pursued at the same time. Different emphasis may be given to the objectives based on the disease under investigation.

## **7. Disaster Surveillance**

### ***7.1. Introduction***

Disasters can be natural, accidental or intentional and include events such as hurricanes, tropical storms, floods, earthquakes, volcanic eruptions, fires, and acts of terrorism, including bioterrorism.

Since communicable diseases thrive in post disaster climates, the potential for large scale outbreaks become real, as displaced populations are faced with disrupted public utilities and health services. The risk of communicable disease spread is heightened following a disaster; therefore surveillance should be intensified and enhanced.

### ***7.2. Pre-Disaster***

Routine surveillance data in pre-disaster or inter-disaster periods is important in assessing the communicable disease risk following a disaster. The risk of a particular disease resurging following

a disaster depends on many factors, one of which is the endemic level of that disease. Routine data should be used as a baseline for post disaster surveillance activities.

Essential services (e.g water and electricity) may be interrupted during a disaster and as a result contingency plans should be in place in the pre-disaster period (preparedness).

Persons involved in disaster response should make arrangements to have personal obligations met in order to avoid distractions and additional stress when a disaster strikes.

Well defined and understood relationships must be established between the health sector and the national coordinating committee for disaster preparedness and response. Clear responsibilities have to be established for disaster operations management.

### ***7.3. Assessment of Damage and Subsequent Disease Potential***

A rapid assessment should be initiated as early as possible, while awaiting a more detailed report. Information should be updated, displayed on wall maps and disseminated as soon as it becomes available.

At a local level, a rapid assessment of the extent of damage should place special emphasis on:

- Telecommunications
- Roads and bridges
- Telephone links
- Health facilities
- Areas flooded
- Water supply systems
- Sewerage systems
- Solid waste disposal systems
- Emergency accommodation facilities (shelters)

Epidemiologic factors which influence the potential risk of communicable disease transmission after a disaster include:

- Changes in pre-existing levels of disease
- Ecological changes resulting from the disaster
- Population displacement
- Changes in population density
- Disruption of public utilities (water supply, sewers etc.)
- Interruption of basic public and environmental health services

Predominant factors, influencing the modes of transmission of communicable diseases are for example:

- Over crowding in evacuation centers can increase transmission of diseases caused by person to person spread e.g. tuberculosis
- Poor sanitation practices e.g. interruption in proper garbage disposal may increase the risk of diseases such as, leptospirosis outbreak
- Flooding can damage water treatment plants, pumping stations and distribution mains resulting in disrupted or contaminated supplies, increasing the risk of gastrointestinal illnesses.
- The accumulation of water following floods provides suitable breeding grounds for vectors such as mosquitoes that may, for example, contribute to a dengue outbreak.
- Interrupted electricity supplies or transportation systems may affect food storage conditions and subsequent food quality and safety.

#### **7.4. Identification of Post Disaster Surveillance Needs and Resources**

Surveillance during post disaster periods should be based on existing systems with minimum modification. The surveillance coordinator should report directly to the coordinator with overall responsibility for health related activities.

Routine surveillance in non-disaster areas should continue as:

- (a) outbreaks in regions not affected by the disaster may occur and
- (b) persons from the disaster areas may move to another area while incubating an infection.

While special needs may be peculiar to certain types of disasters, both in terms of surveillance activities and public health action, there are common basic areas which must be addressed:

- The health sector plan for disaster preparedness 2002 (is near completion). It should be circulated, finalized and adopted. This should be reviewed and updated annually and should address any deficiencies identified during simulation exercises or an actual disaster situation.
- Established lines of communication and command of the surveillance coordinator should be clearly defined.
- Mechanisms should be in place to allow ready access to baseline and other data including the use of reference maps.
- Clear reporting guidelines should be developed (what to report, to whom and how), including reports received from non-traditional sources.
- Guidelines and resources for the appropriate analysis of the collected surveillance data.
- Mechanisms for feeding field information to the command centre with provisions to cater for breakdown in normal communication systems. Appropriate feedback provisions to the field should also be in place.
- Backup laboratory services, the use of which should be rationalized.
- Suitable field equipment for monitoring and recording essential surveillance data, as well as for the collection and transport of clinical and environmental specimens.
- Inputs from epidemiologists at both the planning and field operation stages.
- Suitable mechanism for disseminating information and advice to the public.

#### **7.5. Plan of Action for Surveillance Response**

Considerations which need to be addressed in the establishment of post-disaster surveillance:

##### **7.5.1. Establishing a Post-disaster surveillance centre**

The location of the centre will depend upon:

- Extent of the disaster, local or nationwide.
- Pre-disaster organization of the health services .
- Communication facilities with special emphasis on telephone or radio links with national co-ordinating agency and field reporting units. Computer links could be especially helpful, where these exist and are not interrupted by the disaster itself. It is important to maintain rapid two-way flow of information between peripheral and central levels, at which critical and urgent decisions will have to be made from time to time.

##### **7.5.2. Data Collection and Reporting**

Reporting is a key element of surveillance, and emphasis should be placed on the sensitivity of the system to be able to detect minor changes in disease occurrence so that analysis and appropriate action can be taken immediately. This usually necessitates limiting the number of diseases under surveillance, becoming more flexible in regard to diagnostic criteria in laboratory work, and relying

on the reporting of symptom complexes (syndrome reporting). Daily syndromic reporting is required for persons residing in an evacuation centre or seeking attention at a health facility.

- Use of case definitions and symptom complexes must be standardized throughout the surveillance period. (see examples of post-disaster surveillance forms in [Appendix](#)).
- Prompt reporting is important. Since the situation is changing, daily reporting is necessary. Collection and analysis of data should be conducted daily.
- Completeness of data may not be necessary or feasible in disaster situations. What is required is data that can be interpreted as an overall indicator on which appropriate and effective public health interventions can be based. The importance of negative reporting should be stressed.
- It is also important that information and reports from formal and informal sources should not be ignored. Action should be taken to confirm the source and reliability of the information and institute necessary measures.
- Monitoring activities should extend beyond disease occurrence to include other conditions which have public health implications e.g. information on the status of water supplies. Where disrupted treatment systems have been restored, testing for free and residual levels of chlorine should be done, and if access to laboratory facilities is available bacteriological testing should be carried out as well.

### **7.5.3. Feedback**

Data collected should be analyzed and the findings published in an official daily or weekly report. It should also contain tables and charts from the daily reports.

Further reference can also be obtained in the following manuals:

NEMO manual/Guidelines for St. Lucia

“Public Health Surveillance; A Caribbean Communicable Disease Surveillance Manual for Action”, CAREC, 1999

## 8. Contact information

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*National Communicable Disease Surveillance Manual*

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Public Relations Officer	Phone:468-5350 Fax: 758-452-5655 Email:	Bureau of Health and Family Life Promotion Sir Stanislaus James Building Water Front Castries
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## 9. Glossary of terms

**Acceptability** – the willingness of individuals and organizations to participate in the surveillance system.

**Attack rate** - An attack rate is defined as the number of new cases of disease during a specified time period, divided by the *total population at risk* during the same time period. This is usually multiplied by a factor of ten to make it a whole number. An attack rate is actually an incidence rate (that is rate of occurrence of new cases), but it is referred to as an attack rate during outbreaks.

$$\text{Attack rate} = \frac{\text{Number of new cases of a disease during a limited time period}}{\text{Total population at risk during the specified time period}} \times 10^k$$

Attack rates can be calculated for cohort studies as the total population at risk is known, but NOT for case control studies since this denominator is unknown.

**Carrier** - A person or animal that harbors a specific infectious agent in the absence of discernible clinical disease and serves as a potential source of infection. The carrier state may occur in an individual with an infection that is clinically unapparent (known as healthy or asymptomatic carrier) or during the incubation period, convalescence, and post-convalescence of an individual with a clinically recognizable disease (known as incubatory carrier or convalescent carrier). The carrier state may be of short (temporary or transient carrier) or long duration (chronic carrier).

**Case-control study** - A case control study is an observational study in which participants are selected on the basis of whether they have the disease under study (cases), or do not have the disease (controls). This is the type of study that is usually conducted for larger outbreaks for which it is either impossible or impractical to interview all the cases. The measure of association between the disease and the risk factor is the odds ratio (OR), which is taken as proxy for the relative risk (RR).

**Case definition** - A case definition is a standard set of criteria to be used for deciding whether someone should be classified as a case of the disease/syndrome under investigation. The case definition must

- include information relating to person, place and time
- include signs and symptoms
- be clear as to whether suspected, probable or confirmed cases of disease will be utilized

- be clear as to whether a case is to be confirmed clinically, by laboratory, and/or by epidemiologic linkage

If the team wants to be sure to capture all cases, the case definition should be fairly broad, with minimal criteria for inclusion. Many investigations often start with a fairly broad (sensitive) case definition and this definition becomes more precise (specific) as the investigation proceeds, and/or during analysis.

**Case investigation form** - A case investigation form is one used to collect information on a case under investigation. It should always contain basic demographic information about the case such as name, age, gender and contact information such as address and phone number. Contact details are essential in the event additional information is required and for targeting public health interventions.

Information such as occupation and place of employment would be important if there was some suspicion that the exposure or disease was related to one of these factors.

A case identification (ID) number is useful if a computer is being used for analysis. The case ID number on the form and on the record in the computer should be the same, so that if an error was discovered on the record during analysis, the form could easily be referred to for verification.

Date of onset of illness is essential for determining incubation periods and identifying etiological agents. Time of onset of illness can also be collected if it would be useful (e.g. in food borne disease outbreaks) and if it is likely to be reliable.

Signs and symptoms are also essential for identifying etiological agents. They should be relevant to the disease under investigation.

If patient specimens had been obtained, information on these, such as date of collection and results should also be included on the form.

In a food borne disease outbreak, food history is always essential to identify the source of the outbreak. If the exposure occurred at a specific event or function, a list of the foods served should be used. If the time of exposure is not known, then a food history for a specified time should be used.

Additional information such as travel history, housing conditions, etc. can be important depending on the source of infection.

Finally, there should always be a place for additional comments or remarks and for the interviewer completing the report to sign and date it.

**Cluster** - aggregation of relatively uncommon events or diseases in space and/or time in amounts that are believed or perceived to be greater than could be expected by chance. Putative disease clusters are often perceived to exist on the basis of anecdotal evidence, and much effort may be expended by epidemiologists and biostatisticians in demonstrating whether a true cluster exists. With modern molecular laboratory techniques, clusters of infections with “identical” organisms can be more accurately identified.

**Cohort study** - A cohort study is an observational study in which participants are selected on the basis of whether they had an exposure under study or not. The cohort is the total group of persons with a possible risk of the exposure that is being investigated in the study. Cohort studies are usually conducted for small, well defined outbreaks, when it is relatively easy to reach all the persons involved. The measure of association between the disease and the risk factor is the rate ratio or relative risk (RR).

**Confidence intervals (CI)** - the computed interval with a given probability, e.g., 95%, that the true value of a variable such as a mean, proportion, or rate is contained within the interval. This is a measure of statistical significance; if a confidence interval includes the value 1.0, the study findings are said to be not statistically significant at the given level of certainty.

**Confounding -**

1. A situation in which the effects of two processes are not separated. The distortion of the apparent effect of an exposure risk brought about by the association with other factors that can influence the outcome.
2. A relationship between the effects of two or more causal factors as observed in a set of data such that it is not logically possible to separate the contribution that any single causal factor has made to an effect.
3. A situation in which a measure of the effect of an exposure on risk is distorted because of the association of exposure with other factor(s) that influence the outcome under study.

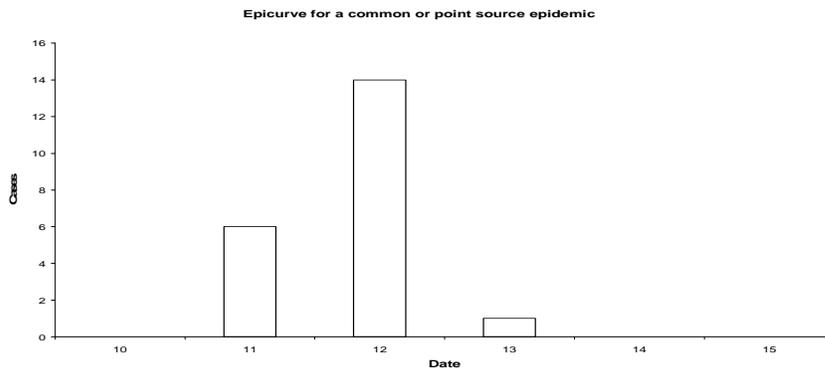
**Endemic** – The constant presence of a disease or infectious agent in a given geographical area or population group; it may also refer to the usual prevalence of a given disease within such area or group.

**Epidemic** - An epidemic is the occurrence in a community or region of cases of an illness, specific health-related behaviour, or other health-related events clearly in excess of normal expectancy

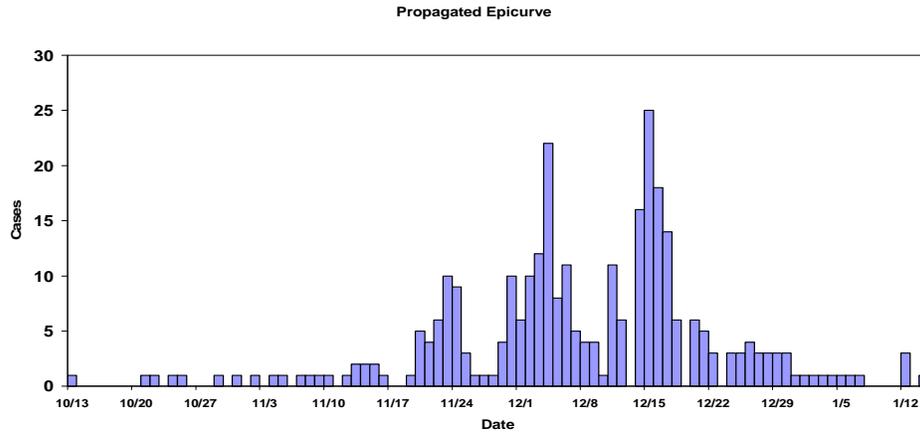
**Epidemiology** – Is the study of the distribution of health-related state or events and their determinants in specified populations according to time and place, and the application of the study to prevent and control health problems.

**Epicurve** - An epidemic curve or epicurve as it is more commonly called is a graph of the occurrence of cases over time. The number of cases is shown on the vertical (Y) axis and time is shown on the horizontal (X) axis. There are two types of epicurves:

- The epicurve for a point or common source epidemic (example given below). This curve usually has a build up of cases to the peak of the epidemic and then tails off. If there is a long exposure to the source it is called a “continuous common source” epidemic and the shape will be a plateau rather than a peak. Sometimes there are outlier cases, which may or may not be related to the epidemic. A case occurring well before the other cases in an outbreak could be a child who was fed early, or a cook who had an early taste of a contaminated meal. A case occurring well after an outbreak could be someone who unknowingly ate leftovers from a contaminated meal and often this person has more severe illness than the other patients in the outbreak.



- The propagated epicurve (example given below). In this situation, there is person to person spread. This epicurve usually consists of a series of peaks, continuing over time, one incubation period apart.



**Flexibility** – the ability of a surveillance system to adapt to changing needs such as the introduction of a new disease into a population.

**Hypothesis** - is a supposition based on known information to be used for further investigation. It should be as precise as possible and tested during the investigation. It should incorporate all known clinical, laboratory, and epidemiological facts, as well as known facts about the disease and environmental information if available. The hypothesis could include the source of infection, mode of transmission and risk factors for the disease.

**Incidence** - is the number of new cases of disease during a specified time period, divided by the total population at risk during the same time period. This is usually multiplied by a factor of ten to make it a whole number.

$$\text{Incidence rate} = \frac{\text{Number of new cases of a disease during a specified time period}}{\text{Total population at risk during the specified time period}} \times 10^k$$

Incidence rates can be calculated for cohort studies as the total population at risk is known, but NOT for case control studies since this denominator is unknown.

**Linelist** - A linelist is a list of information on persons in a study. It contains one line of information per person.

*Example of a linelist:*

<u>Name</u>	<u>Age(Yrs)</u>	<u>Gender</u>	<u>Residence</u>	<u>Diarrhoea</u>	<u>Cramps</u>	<u>Fever</u>	<u>Vomiting</u>	<u>Date of onset</u>
CM	21	M	Emtown	Y	Y	N	N	11 June
VFG	32	M	Elltown	Y	Y	N	N	11 June
SD	45	M	Aytown	Y	Y	N	Y	11 June
LJ	18	F	Efftown	Y	N	Y	N	11 June
HE	44	M	Alchtown	Y	N	N	N	11 June

**Measure of association** - a quantity that expresses the strength of association between variables. Commonly used measures of association are differences between means, proportions or rates, the rate ratio, the odds ratio, and correlation and regression coefficients.

**Odds ratio** - is the ratio of two odds (odds compares the chance of an event happening to it not happening). Odds ratio is defined as the odds of exposure among the cases divided by the odds of exposure among the controls.

$$\text{Odds ratio} = \frac{a}{b} \bigg/ \frac{c}{d} = \frac{a \times d}{b \times c} \quad (\text{Please refer to the section on two by two tables below})$$

If an exposure has an odds ratio of greater than 1, the exposure may be a risk factor for the illness under investigation.

If an exposure has an odds ratio of less than 1 the exposure may be a protective factor.

If the odds ratio is equal to 1 then the exposure has no effect on the outcome, it can be neither a risk factor nor a protective factor.

**Outbreak** -An outbreak is an epidemic limited to a localised increase in the incidence of disease.

**P-value** - P-value is a probability value. It is the probability that a certain finding or association between an exposure and a disease is not real and that it occurred due to chance alone. The p-value is usually interpreted in conjunction with the measure of the confidence interval.

A p-value of less than or equal to 0.05 or 5% means that there is less than a 5% probability that the association found was due to chance. The association is then said to be statistically significant.

A p-value of greater than 0.05 or 5% means that there is a greater than 5% probability that the association occurred by chance. The association is therefore not considered to be statistically significant.

A statistically significant finding in a study does not mean that chance could not have accounted for the association, only that it was unlikely to have done so. Likewise, a finding that is not statistically significant does not mean that the association occurred by chance, only that it cannot be excluded as a likely explanation.

**Positive Predictive Value** – the proportion of cases reported by a surveillance system who are otherwise confirmed as having the condition being monitored.

**Power** - the ability of a study to demonstrate an association between an exposure and an outcome if one exists. Power is influenced by the sample size, study design, frequency of the condition being studied and the magnitude of the effect.

**Prevalence** - the total number of cases of disease during a specified time period, divided by the total population at risk during the same time period. This is usually multiplied by a factor of ten to make it a whole number.

$$\text{Prevalence} = \frac{\text{Total number of cases of a disease during a specified time period}}{\text{Total population at risk during the specified time period}} \times 10^k$$

**Rate difference** - A rate difference is the difference between 2 rates, one subtracted from the other.

Rate difference for exposure 'x' = Attack rate for those exposed to 'x' - Attack rate for those not exposed to 'x'.

**Relative Risk (RR)**

1. The ratio of the risk of disease (or death) among the exposed to the risk among the unexposed; this usage is synonymous with risk ratio.
2. Alternatively, the ratio of the cumulative incidence rate in the exposed to the cumulative incidence rate in the unexposed, i.e., the cumulative incidence ratio.
3. The term relative risk has also been used synonymously with odds ratio and, in some biostatistical articles, has been used for the ratio of the forces of morbidity.

**Representativeness** – the ability of a surveillance system to supply reliable and unbiased data on the occurrence of health events and its distribution in populations (by person, place and time). If conditions are met, the information provided by the surveillance system is said to be representative of the “true” distribution of the health events within the whole population.

**Sensitivity** – describes the ability of a surveillance system to reliably detect the cases of a given disease (true positive) under surveillance. It includes the completeness of case reporting and the ability to detect epidemics. The sensitivity of a surveillance system is a proportion, expressed as a percentage. An outbreak investigation may be a practical opportunity to measure the sensitivity of a surveillance system.

**Serotype** (or serovar) – a subdivision of species or subspecies distinguishable from other strains of infectious agents on the basis of antigenic characteristics.

**Simplicity** – the simplicity of a surveillance system refers to its structure and ease of operation. Surveillance systems should be as simple as possible while meeting its objectives.

**Sporadic case** – occurring irregularly, haphazardly from time to time, and generally infrequently; also, a case or cases NOT associated with a known outbreak.

**Statistically significant association** – Usually the level of statistical significance is stated by the p-value (see p-value).

**Strength of association** – the magnitude of the measure of association (see above); for example, the size or value of the odds ratio (or risk ratio) is a measure of the strength of association between an exposure and an illness or other outcome—the larger the odds ratio, the stronger the association.

**Timeliness** – timeliness is the ability of the surveillance system to take appropriate public health action (including reporting), based on the urgency of the problem and the nature of the public health response.

**Two by two table** - A two by two table is a table with 2 rows and 2 columns. It is a simple way of presenting data, with the exposure (Yes or No) in rows and the outcome, usually the disease under investigation (Yes or No) in columns.

## Outcome

<b>Exposure</b>		Yes	No	Total
	Yes	a	b	a + b
	No	c	d	c + d
	Total	a + c	b + d	N

**Vector** - in infectious disease epidemiology, an insect or any living carrier that transports an infectious agent from an infected individual or its wastes to a susceptible individual or its food or immediate surrounding. The organism may or may not pass through a developmental cycle within the vector.

**Vehicle** (of infection transmission) - the mode of transmission of an infectious agent from its reservoir to a susceptible host. This can be (e.g.) person to person, food, or vector-borne.

## 10. References of interest

### 10.1. Books and Manuals of Interest

CAREC. Public Health Surveillance Manual, a Caribbean Communicable Disease Surveillance Manual for Action. Trinidad: CAREC 1999

Chin, J (Ed). Control of Communicable Diseases Manual, 15<sup>th</sup> Edition. Washington: American Public Health Association, 1995

Tuberculosis, Manual of Prevention and Control Procedures. Ministry of Health, St-Lucia, 2001

Last, J (Ed). A Dictionary of Epidemiology. Oxford University Press USA, 2000

PAHO. Measles Eradication, Field Guide. Technical Paper number 41, Washington D.C., PAHO, 1999

Teutsch, S. & Churchill, R. Principles and Practice of Public Health Surveillance (2<sup>nd</sup> edition). Oxford University Press, New York, 2000

Ezra Long Laboratory User Manual. St-Lucia, 2003

Ezra Long Laboratory Specimen Collection Procedure Manual, St-Lucia, 2000

## 10.2. Websites of Interest

Antimicrobial resistance information bank	<a href="http://oms2.b3e.jussieu.fr/arinfobank">http://oms2.b3e.jussieu.fr/arinfobank</a>
Caribbean Epidemiology Centre (CAREC)	<a href="http://www.carec.org">http://www.carec.org</a>
Cholera	<a href="http://www.who.int/csr/disease/cholera">http://www.who.int/csr/disease/cholera</a>
Centers for Disease Control and Prevention	<a href="http://www.cdc.gov">http://www.cdc.gov</a>
Deliberate use of biological and chemical agents	<a href="http://www.who.int/csr/delibepidemics/">http://www.who.int/csr/delibepidemics/</a>
Dengue (DengueNet)	<a href="http://oms2.b3e.jussieu.fr/DengueNet">http://oms2.b3e.jussieu.fr/DengueNet</a>
Eradication/elimination programmes	<a href="http://www.who.int/infectious-disease-news/">http://www.who.int/infectious-disease-news/</a>
Filariasis	<a href="http://www.filariasis.org">http://www.filariasis.org</a>
Geographical information systems (GIS)	<a href="http://www.who.int/csr/mapping/">http://www.who.int/csr/mapping/</a>
Global atlas of infectious diseases	<a href="http://globalatlas.who.int">http://globalatlas.who.int</a>
Health topics	<a href="http://www.who.int">http://www.who.int</a>
Infectious diseases	<a href="http://www.who.int/health-topics/idindex.htm">http://www.who.int/health-topics/idindex.htm</a>
Influenza network (FluNet)	<a href="http://oms.b3e.jussieu.fr/flunet/">http://oms.b3e.jussieu.fr/flunet/</a>
Integrated management of childhood illnesses	<a href="http://www.who.int/chd/">http://www.who.int/chd/</a>
International travel and health	<a href="http://www.who.int/ith/">http://www.who.int/ith/</a>
Intestinal parasites	<a href="http://www.who.int/wormcontrol/">http://www.who.int/wormcontrol/</a>
Leprosy	<a href="http://www.who.int/lep/">http://www.who.int/lep/</a>
Malaria	<a href="http://www.rbm.who.int">http://www.rbm.who.int</a>
Newsletter ( <i>Action against infection</i> )	<a href="http://www.who.int/infectious-disease-news/">http://www.who.int/infectious-disease-news/</a>
Outbreaks	<a href="http://www.who.int/csr/don">http://www.who.int/csr/don</a>
PAHO	<a href="http://www.paho.org">http://www.paho.org</a>
Poliomyelitis	<a href="http://www.who.int/gpv/">http://www.who.int/gpv/</a>
Rabies network (RABNET)	<a href="http://oms.b3e.jussieu.fr/rabnet">http://oms.b3e.jussieu.fr/rabnet</a>
<i>Report on infectious diseases</i>	<a href="http://www.who.int/infectious-disease-report/">http://www.who.int/infectious-disease-report/</a>
Salmonella surveillance network	<a href="http://www.who.int/salmsurv">http://www.who.int/salmsurv</a>
Smallpox	<a href="http://www.who.int/csr/disease/smallpox/">http://www.who.int/csr/disease/smallpox/</a>
Surveillance and response	<a href="http://www.who.int/csr/">http://www.who.int/csr/</a>
Tropical disease research	<a href="http://www.who.int/tdr/">http://www.who.int/tdr/</a>
Tuberculosis	<a href="http://www.stoptb.org">http://www.stoptb.org</a> or <a href="http://www.who.int/gtb">http://www.who.int/gtb</a>
Vaccines	<a href="http://www.who.int/gpv/">http://www.who.int/gpv/</a>
<i>Weekly epidemiological record</i>	<a href="http://www.who.int/wer/">http://www.who.int/wer/</a>
WHO	<a href="http://www.who.int">http://www.who.int</a>

WHO infectious disease websites  
(updated links available from this  
site)

<http://www.who.int/infectious-disease-news/IRCatalogue/index.html>

WHO pesticide evaluation scheme  
(WHOPES)

<http://www.who.int/ctd/whopes/>

## Appendix 1.

**CASE DEFINITIONS FOR SYNDROMES UNDER REGIONAL SURVEILLANCE****Acute Flaccid Paralysis (AFP)\*:**

Acute (sudden) onset of flaccid paralysis in the absence of trauma.

*\* Any patient in whom a healthcare worker suspects acute flaccid paralysis is considered to be a suspected case of poliomyelitis.*

**Fever and Haemorrhagic symptoms:**

Acute (sudden) onset of fever ( $> 38.0^{\circ}\text{C}$  or  $100.4^{\circ}\text{F}$ ) in a previously healthy person, presenting with at least one haemorrhagic (bleeding) manifestation with or without jaundice (e.g. purpura, epistaxis, haemoptysis, melena).

**Fever and Neurological symptoms (except AFP):**

Acute (sudden) onset of fever ( $> 38.0^{\circ}\text{C}$  or  $100.4^{\circ}\text{F}$ ) with or without headache and vomiting in a previously healthy person presenting with at least one of the following signs: meningeal irritation, convulsions, altered consciousness, altered sensory manifestations, paralysis except AFP.

**Fever and Rash<sup>‡</sup>:**

Acute (sudden) febrile illness ( $>38.0^{\circ}\text{C}$  or  $100.4^{\circ}\text{F}$ ) in a previously healthy person, presenting generalized rash.

*‡ Any patient in whom a healthcare worker suspects measles or rubella infection is considered to be a suspected measles/rubella case. These patients generally have fever and generalized rash illnesses.*

**Fever and Respiratory Symptoms (Acute Respiratory Infection):**

Acute (sudden) febrile illness ( $> 38.0^{\circ}\text{C}$  or  $100.4^{\circ}\text{F}$ ) in a previously healthy person, presenting with cough or sore throat with or without respiratory distress.

**Gastroenteritis:**

Acute (sudden) onset of diarrhoea, with or without fever ( $> 38^{\circ}\text{C}$  or  $100.4^{\circ}\text{F}$ ) and presenting with 3 or more loose or watery stools in the past 24 hours, with or without dehydration, vomiting and/or visible blood.

**Undifferentiated Fever:**

An acute (sudden) febrile illness ( $> 38.0^{\circ}\text{C}$  or  $100.4^{\circ}\text{F}$ ) in a previously healthy person of less than 7 days duration with **two or more** of the following manifestations: headache, retro-orbital pain, myalgia, arthralgia, nausea, vomiting, jaundice – AND without any particular symptoms fitting another syndrome definition. **Children  $< 5$  years of age:** case management and specimen collection will vary according to the evolution of the clinical presentation.

***Alert factors, such as those listed below, should prompt further case investigation:***

*Altered consciousness*

*Jaundice*

*Renal failure*

*Collapse*

*Recent travel Visible blood in the stool*

## SYNDROMIC DIAGNOSIS FLOWCHART

### FEVER AND HAEMORRHAGIC SYMPTOMS

**CASE DEFINITION**

Fever with at least one haemorrhagic (bleeding) manifestations, with or without jaundice

- Examples of haemorrhagic manifestations
- Purpura
  - Epistaxis
  - Hemoptysis
  - Melena

**EPIDEMIOLOGICAL DATA**

- Previously healthy person
- Recent travel
- Prior medication
- Contact with insects and rodents
- Contact with similar cases
- No history of coagulation disorder

**POSSIBLE DISEASES/PATHOGENS**



**SPECIMENS**



convalescent      acute

**NATIONAL LAB**



**CAREC LAB**



NOTE: Acute Serum: ≤5 days from onset of symptoms, Convalescent serum > 5 days from onset of symptoms

## SYNDROMIC DIAGNOSIS FLOWCHART

### FEVER AND NEUROLOGICAL SYMPTOMS

#### CASE DEFINITION

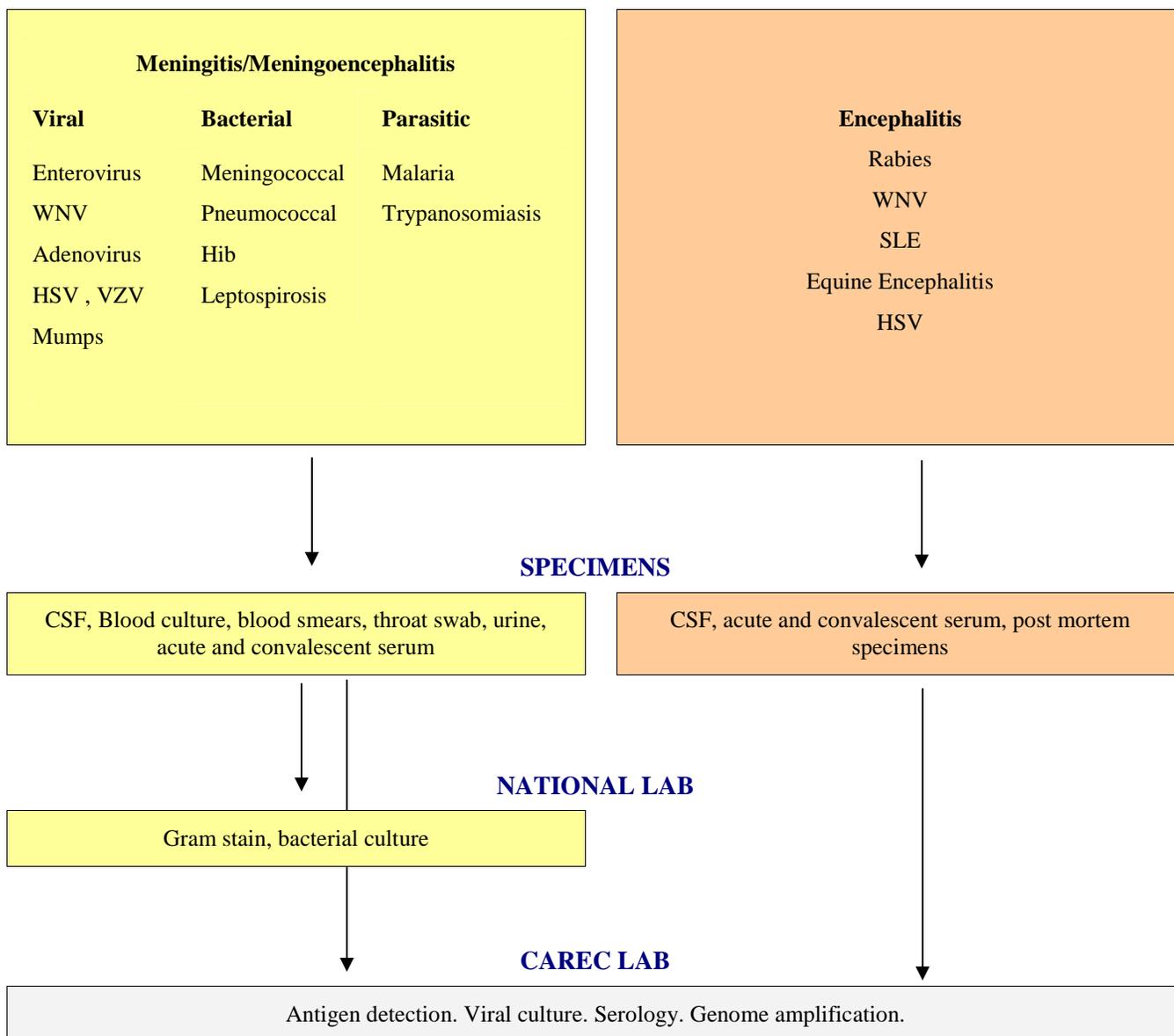
**Fever with or without headache and vomiting with at least one of the following signs**

- Meningeal irritation
- Convulsions
- Altered consciousness
- Altered sensory manifestations
- Paralysis (apart from AFP)

#### EPIDEMIOLOGICAL DATA

- Previously healthy person
- Risk factor for HIV
- Prior medication
- Recent travel
- Contact with insects & rodents
- Contact with similar cases

#### POSSIBLE DISEASES/PATHOGENS



NOTES: Acute Serum: ≤5 days from onset of symptoms, Convalescent serum > 5 days from onset of symptoms  
 If patient presents with AFP, follow the EPI programme protocol.

**SYNDROMIC DIAGNOSIS FLOWCHART**

**FEVER AND RESPIRATORY SYMPTOMS**

**CASE DEFINITION**

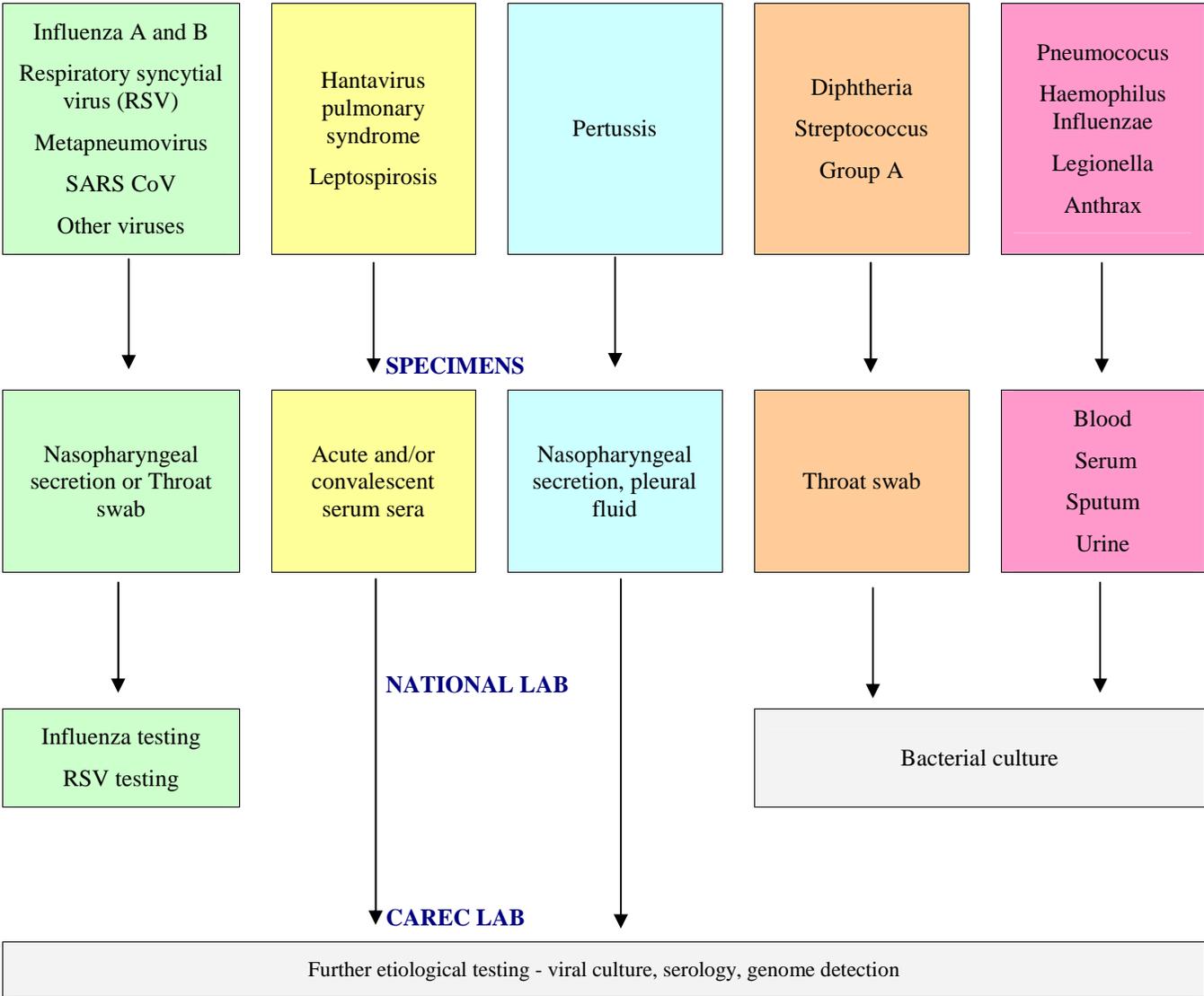
Fever with one of the following symptoms, with or without respiratory distress

- Cough
- Sore throat

**EPIDEMIOLOGICAL DATA**

- Previously healthy
- Risk factor for HIV
- Prior medication
- Recent travel
- Contact with animals
- Contact with similar cases

**POSSIBLE DISEASES/PATHOGENS**



NOTE: Acute Serum: ≤5 days from onset of symptoms, Convalescent serum > 5 days from onset of symptoms

**SYNDROMIC DIAGNOSIS FLOWCHART**

**GASTROENTERITIS / ACUTE DIARRHEAL SYNDROME**

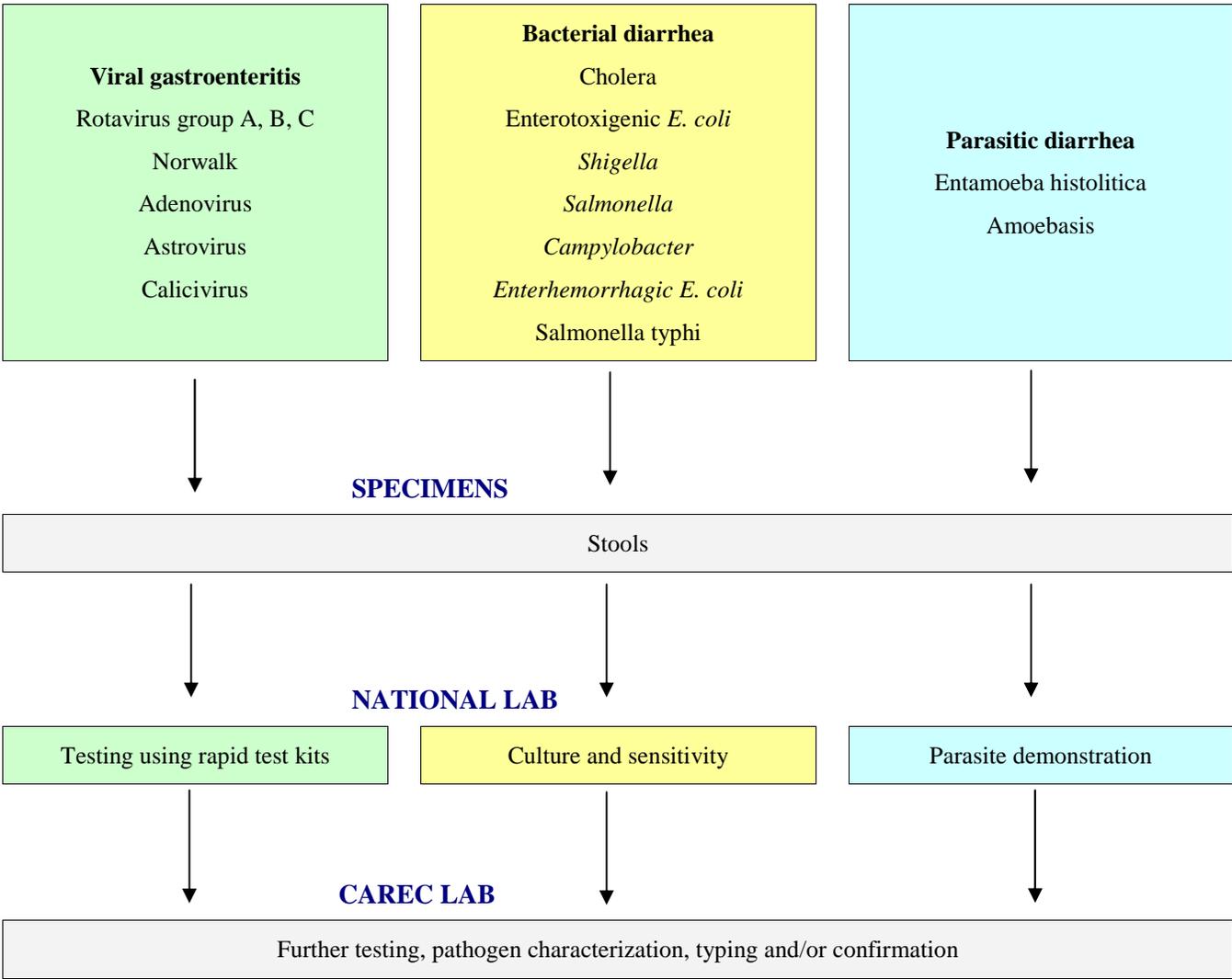
**CASE DEFINITION**

Acute onset of diarrhoea, with or without fever, and presenting with 3 or more loose stools or watery stools in the past 24 hours, with or without dehydration, vomiting and/or visible blood

**EPIDEMIOLOGICAL DATA**

- Previously healthy person
- Risk factor for HIV
- Recent travel
- Food history
- Contact with similar cases

**POSSIBLE DISEASES/PATHOGENS**



NOTE: Acute Serum: ≤5 days from onset of symptoms, Convalescent serum > 5 days from onset of symptoms

# SYNDROMIC DIAGNOSIS FLOWCHART

## UNDIFFERENTIATED FEVER

### CASE DEFINITION

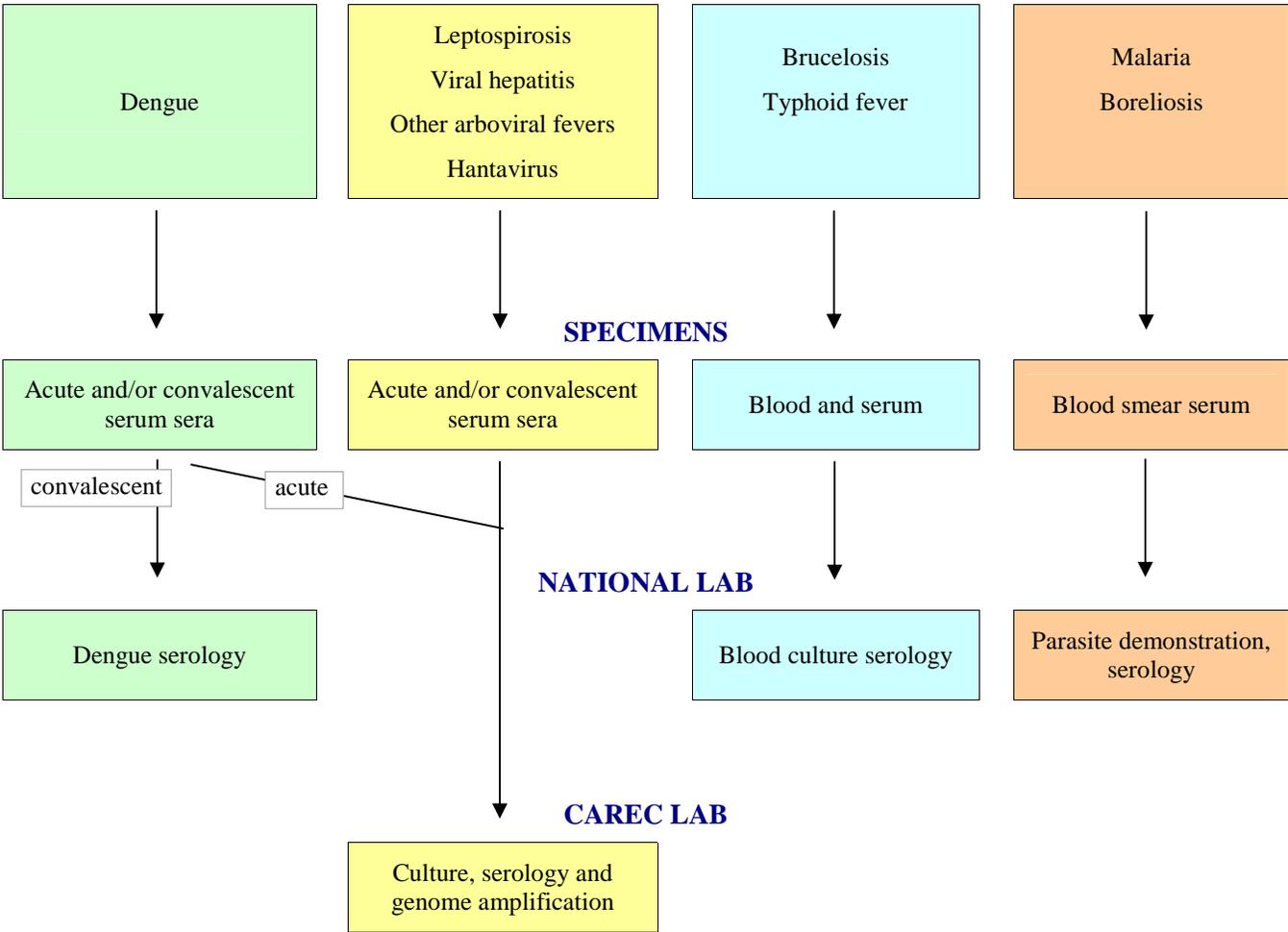
Fever with two or more of the following symptoms

- Headache
- Retro-orbital pain
- Arthralgia,
- Myalgia,
- Nausea,
- Vomiting

### EPIDEMIOLOGICAL DATA

- Previously healthy person
- Recent travel
- Prior medication
- Contact with insects and rodents
- Contact with similar cases.

### POSSIBLE DISEASES/PATHOGENS



**Measles and Rubella must be tested for if rash is present in children, as per the EPI Programme protocol**

NOTE: Acute Serum: ≤5 days from onset of symptoms, Convalescent serum > 5 days from onset of symptoms



Date:

Health Centre:

Dr:

Appendix 8.

**Ministry of Health of Saint Lucia**

**SYNDROMIC SURVEILLANCE OF COMMUNICABLE DISEASES, OUTBREAKS AND EMERGING INFECTIOUS DISEASES (EIDs)**

SENTINEL SITE \_\_\_\_\_

**Daily Tally Sheet**

Week # \_\_\_\_\_ (*epidemiological*)      Week ending \_\_\_\_/\_\_\_\_/\_\_\_\_      Reported \_\_\_\_/\_\_\_\_/\_\_\_\_

Syndromes	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	TOTAL	Referrals
Gastroenteritis < 5y									
Gastroenteritis ≥ 5y									
Undifferentiated Fever < 5									
Undifferentiated Fever ≥ 5									
Fever & Neurological symptoms									
Fever & Hemorrhagic symptoms									
ARI < 5y									
Fever & respiratory symptoms ≥ 5y									

**Reminder:**

Fever and rash & Acute Flaccid Paralysis will continue to be reported through the Expanded Programme on Immunization weekly notification and reporting system

**< means less than      ≥ means greater than and equal to**

Received \_\_\_\_/\_\_\_\_/\_\_\_\_ (*Epidemiologist*)

Appendix 9.

**Ministry of Health of Saint Lucia**

**SYNDROMIC SURVEILLANCE OF COMMUNICABLE DISEASES, OUTBREAKS AND EMERGING INFECTIOUS DISEASES (EIDs)**  
**HEALTH CENTER \_\_\_\_\_**

**Daily Tally Sheet**

Week # \_\_\_\_\_ (epidemiological)

Week ending \_\_\_\_/\_\_\_\_/\_\_\_\_

Reported \_\_\_\_/\_\_\_\_/\_\_\_\_

Syndromes	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	TOTAL	Referrals
Gastroenteritis < 5y									
Gastroenteritis ≥ 5y									
Undifferentiated Fever < 5									
Undifferentiated Fever ≥ 5									
ARI < 5y									
Fever & respiratory symptoms ≥ 5y									

**Reminders:**

Fever and rash & Acute Flaccid Paralysis will continue to be reported through the Expanded Programme on Immunization weekly notification and reporting system. Record numbers of increase health events/illnesses not captured by syndromic surveillance at the bottom of form

< means less than      ≥ means greater than and equal to

Received \_\_\_\_/\_\_\_\_/\_\_\_\_ (Epidemiologist)

Appendix 10.

Surveillance of Communicable diseases, outbreaks and Emerging Infectious Diseases

Ministry of Health Of Saint Lucia

Outbreak Daily Tally Sheet

Disease/syndrome: \_\_\_\_\_

Clinic: \_\_\_\_\_

Week:

Age	< 1		1-4		5-14		15-24		25-44		45-64		65+		TOTAL Daily
	Fem	Mal	Fem	Mal	Fem	Mal	Fem	Mal	Fem	Mal	Fem	Mal	Fem	Mal	
Monday															
Tuesday															
Wednesday															
Thursday															
Friday															
Saturday															
Sunday															
<b>TOTAL Weekly</b>															

Reported by: \_\_\_\_\_

Date / /

Appendix 11 Ministry of Health of Saint Lucia

**Surveillance of Communicable Diseases**  
**Laboratory Case Notification Form**

**For every OUT-PATIENT with POSITIVE laboratory TEST for CD**

**Notes: Only ONE notification form must be completed per patient and/ or positive result.**

**If necessary use the “Observation” box to provide additional comments (e.g.: of community health importance, or important symptoms not included in the syndromes listed below)**

Reporting Center		Date of report / /
<b>Patient Information</b>		
Name		Age      Sex:    F    M
Address:		Phone N°
Physician name and contacts		Date of onset / /

Syndrome*	Yes	No	Reason for Notification:
Undifferentiated fever			Date of Positive diagnostic test:      Date:    /    / Type of Test: _____ Confirmed aetiology: _____  → Sudden death fitting a syndromic definition Date:    /    /
Acute respiratory infection OR Fever and respiratory symptoms			
Fever with Hemorrhagic symptoms			
Fever and neurological symptoms			
Gastroenteritis			
<b>Observations</b>			

Doctor/Nurse: \_\_\_\_\_

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

Appendix 12.

## Ministry of Health of Saint Lucia

<b>Surveillance of Communicable Diseases</b> <b>Hospital Case Notification Form</b>
--

**For every IN-PATIENT with SUSPECTED Communicable Disease**

**Note: Only ONE notification form must be completed per patient, upon admission.**

If necessary use the “Observation” box to provide additional comments (e.g.: of community health importance, or important symptoms not included in the syndromes listed below)

Reporting Hospital and Ward:	Date of report / /
<b>Patient Information</b>	
Name	Age      Sex:    F    M
Address:	Phone N°
Patient’s physician name and contact	Date of onset / /

Syndrome*	Yes	No	Reason for Notification:
Undifferentiated fever			(a) Referred to hospital      Date: / /
Acute respiratory infection OR Fever and respiratory symptoms			(b) Admission to hospital      Date: / / Referred from: _____
Fever with Hemorrhagic symptoms			(c) Suspected diagnosis: _____ Laboratory confirmed aetiology (if available when notifying)
Fever and neurological symptoms			→ Date of lab diagnosis: / /
Gastroenteritis			
<b>Observations</b>			

Doctor/Nurse: \_\_\_\_\_

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

Appendix 13. **ST.LUCIA: Laboratory Investigation Form** COMMUNICABLE DISEASE SURVEILLANCE

**1. Patient Information**

Last Name \_\_\_\_\_  
 First Name \_\_\_\_\_  
 Patient ID \_\_\_\_\_  
 Gender  M  F Age \_\_\_\_\_  years  months  
 Date of Birth       /       /              
 Street # # - \_\_\_\_\_  
 City/Parish \_\_\_\_\_  
 \_\_\_\_\_ County \_\_\_\_\_  
 Postal Code \_\_\_\_\_ Tel: \_\_\_\_\_

**2. Referring Doctor**

Name: \_\_\_\_\_  
 Reporting Address: \_\_\_\_\_  
 Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

**3. Provisional Diagnosis, Additional Notes<sup>1</sup>**

<sup>1</sup> information on risk factors, travel history, lab findings, etc.

**4. Food/Animal/Environment Sample Details (if relevant)**

Specimen ID \_\_\_\_\_  
 Name of food/env sample \_\_\_\_\_  
 Where specimen(s) collected \_\_\_\_\_  
 Outbreak  Traceback  Survey  Other.

**5. Case/Specimen Status**

Single case  Outbreak  Survey  Unknown

**6. Date of Onset of Illness**      **7. Outcome**

      /       /                  Hospitalized?  Y  N  DK  
 Died?  Y  N  DK

**8. Signs and Symptoms**

Fever → Temp: \_\_\_\_\_ → Onset:              
 Rash → Location: \_\_\_\_\_ → Onset:              
 Pain → Location \_\_\_\_\_

Hemorrhagic symptoms → describe \_\_\_\_\_

<input type="checkbox"/> Altered mental state	<input type="checkbox"/> Convulsions	<input type="checkbox"/> Jaundice
<input type="checkbox"/> Chills	<input type="checkbox"/> Coryza	<input type="checkbox"/> Neck stiffness
<input type="checkbox"/> Circulatory collapse	<input type="checkbox"/> Cough	<input type="checkbox"/> Lymphadenopathy
<input type="checkbox"/> Conjunctivitis	<input type="checkbox"/> Diarrhoea, Acute	<input type="checkbox"/> Kernig's sign
<b>Chronic Conditions</b>	<input type="checkbox"/> Diarrhoea, Chronic	<input type="checkbox"/> Paralysis
<input type="checkbox"/> Autoimmune disease	<input type="checkbox"/> Failure to thrive	<input type="checkbox"/> Respiratory, Upper
<input type="checkbox"/> Connective tissue disorder	<input type="checkbox"/> Genital discharge	<input type="checkbox"/> Respiratory, Lower
<input type="checkbox"/> Lymphoproliferative disorder	<input type="checkbox"/> Genital lesions	<input type="checkbox"/> Vomiting
<input type="checkbox"/> Transplant recipient/donor	<input type="checkbox"/> Hepatomegaly	<input type="checkbox"/> Weakness of limbs
<input type="checkbox"/> Immunocompromised	<input type="checkbox"/> HIV +ve	<input type="checkbox"/> Weight loss
<input type="checkbox"/> Other → specify _____		

**9. Syndromic Classification**

AFP  Fever & Rash  
 Gastroenteritis  Fever & Respiratory or Acute Respiratory Infection  
 Fever & Hemorrhagic  Fever & Neurologic  
 Fever (undifferentiated)

**10. Immunization History**      **EPI No:** \_\_\_\_\_

BCG:  Y  N       /       /          MR:  Y  N       /       /           
 DPT:  Y  N       /       /          Polio:  Y  N       /       /           
 HBV:  Y  N       /       /          YF:  Y  N       /       /           
 MMR:  Y  N       /       /          Other<sup>‡</sup>:  Y  N       /       /           
<sup>‡</sup>specify \_\_\_\_\_

*Serum; EDTA blood; Blood smear; Sputum; CSF; Swab; Urine; Stool; Tissue; Plasma (PPT); Food; Water; Animal; Environment; if other specify				
Physician / EHO Use		Specimen 1	Specimen 2	Specimen 3
		*Type of Specimen		
	Date Specimen Collected			
	Lab Test(s) Requested	22	45	22
Laboratory Use	Date Received at Nat Lab	10		
	Nat Lab Specimen ID	2		
	Test(s) Performed	3	23	45
	Date(s) Tested			

	Laboratory diagnosis			
	Date Referred to CAREC			
	Name of Testing Lab			

Approved by (Testing Lab): \_\_\_\_\_ Date: \_\_\_\_\_

CAREC USE: Specimen ID (1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_

<b>Case Investigation Form</b>	<b>EID #</b>
--------------------------------	--------------

Reporting center	Date report / /
<b>Patient information</b>	
Name	Age    Sex    F    M
<b>Clinical Diagnosis</b>	
Date of onset of illness / /	

Symptoms	Yes	No	Symptoms	Yes	No	Symptoms	Yes	No	Others
Fever			Sore throat			Drowsiness			
Headache			Cough			Neck stiffness			
Myalgia			Pneumonia			Drowsiness			
Arthralgia			Vomiting			Confusion			
Rash			Pleural effusion			Tremors			
Prostration			Diarrhea			Convulsions			
Patchiae			Abdominal pain			Paralysis			
Platelet count < 5x10 <sup>5</sup> /mm <sup>3</sup>			Dehydration				It/was this patient hospitalized: Yes No		
Elevated hematocrit			Hepatomegaly				Dates:		
Hematuria			Jaundice				Survived : Yes      No		
Hematemesis			Renal failure				Died:    Date    /    /		

**Laboratory data**

Specimen type	Collection Date	Received	Test	Result/	Date / /	Comment

Specimen referred to CAREC Date: / /

Exposure history prior to onset	Yes	No	Date	Details
Is there similar cases in the community				
Presence of mosquitoes in the neighborhood				
Was there exposure to rodents prior to onset				
Contact with other animals				
Recent travel				
Ingestion of raw food				
Contaminated environment (water, air)				

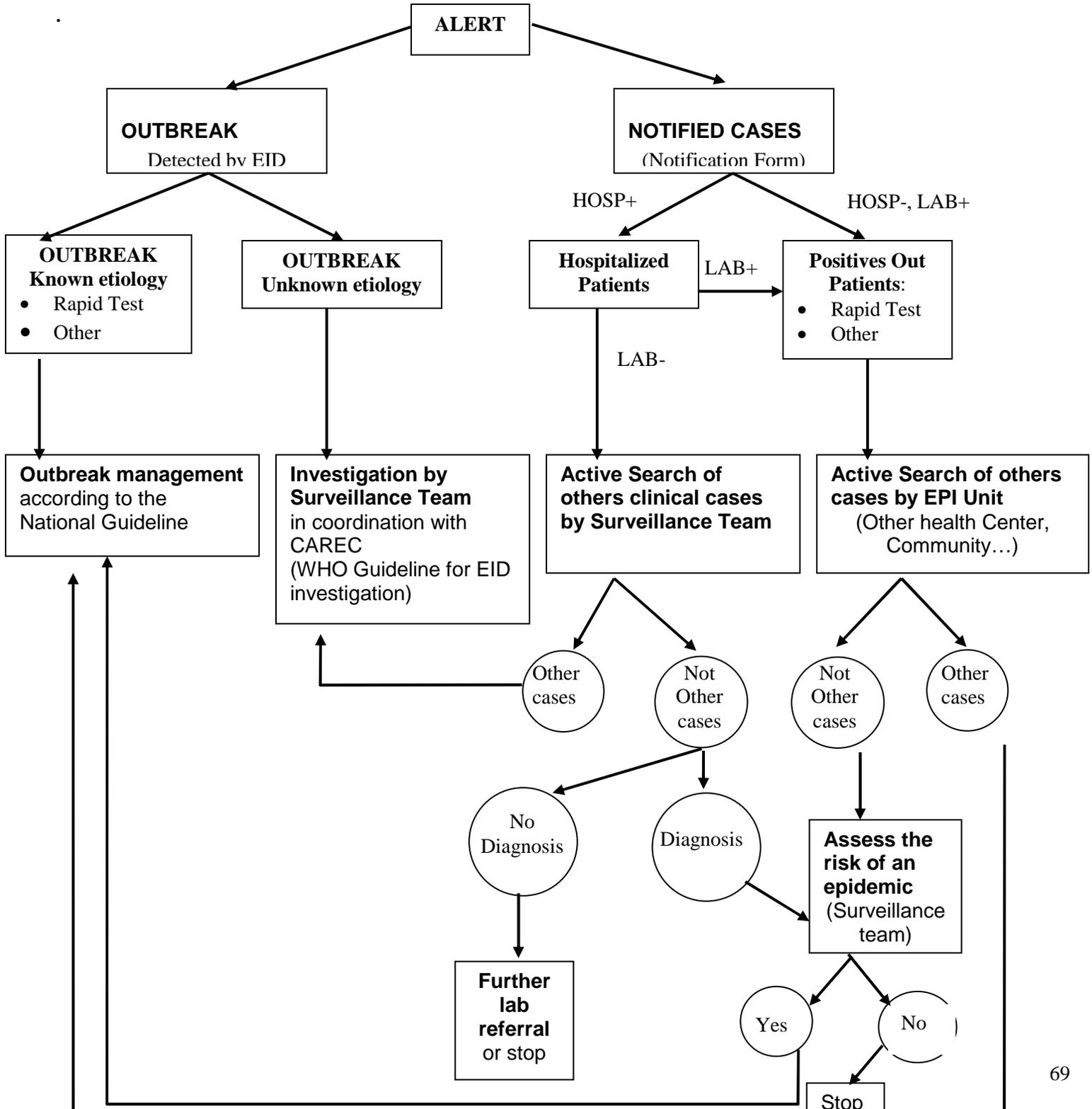
Doctor: \_\_\_\_\_ Date reported: / /

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

- Fill this form in any confirmed case

Appendix 15.

FLOWCHART FOR CASE(S) INVESTIGATION AND PUBLIC HEALTH INTERVENTIONS



Appendix 16.

**LEPTOSPIROSIS Investigation Form**

Date of Report \_\_\_\_\_

**Patient Information**

Name \_\_\_\_\_ Age: \_\_\_\_\_ Sex: M F  
Address: \_\_\_\_\_ Phone \_\_\_\_\_  
Occupation: \_\_\_\_\_

**Clinical Data**

Date of Onset \_\_\_\_\_ Sudden \_\_\_\_\_ Gradual \_\_\_\_\_  
Symptoms: Headache Fever Anorexia Vomit Rash Jaundice  
Conjunctival suffusion Myalgia Weakness Bleeding Stiffness Liver  
Tenderness Hepatomagaly

Immunization History: Cover for age or not

Is/was this patient hospitalized? \_\_\_\_\_ Date admitted \_\_\_\_\_  
Outcome of Illness: Survived yes / No \_\_\_\_\_ Died Date of Death \_\_\_\_\_

**Exposure History**

During 3 weeks prior to onset Did you:

1. have contact animals ( including pets) or their excreta at home or in travel?
2. have contact with know( or possibly) contaminated water?
3. Ingest possible rodent contaminated food or water?
4. Have contact with a case of leptospirosis?

**Laboratory Data**

Date Blood collected \_\_\_\_\_ Results \_\_\_\_\_

**Final case classification;** Laboratory Confirm Clinically confirmed Discarded

\

**SCHISTOSOMA MANSONI INVESTIGATION FORM**

NAME \_\_\_\_\_ AGE \_\_\_\_\_ TEL \_\_\_\_\_

ADDRESS \_\_\_\_\_

Childhood address \_\_\_\_\_

Present Occupation: \_\_\_\_\_

Past Occupations : \_\_\_\_\_

**Symptoms/Medical Problems at Diagnosis /FoodHandler testing/ Routine Physical**

Have you in the past been diagnosed with the same disease? Yes \_\_\_\_\_ No \_\_\_\_\_

Have any family members been diagnosed with Bilharzia? Yes \_\_\_\_\_ No \_\_\_\_\_

**River Utilization : Childhood and Adult Life (Answer Yes/No and time frame)**

Laundry:                      When(time- Years)                      Which River(name)

Bathing:

Agriculture:

Recreation eg. Crayfish, Washing vehicles etc.

Collect water for construction:

Walk across river to get home/garden etc:

What is the main source of water at home:

Public, piped into dwelling \_\_\_\_\_ Public Standpipe \_\_\_\_\_

Private catchment not piped \_\_\_\_\_ Private catchment piped into dwelling \_\_\_\_\_

Public, piped into yard \_\_\_\_\_ Public well/tank \_\_\_\_\_

What type of toilet facilities does the household have?

WC linked to sewer \_\_\_\_\_ WC Cesspit or septic tank \_\_\_\_\_

Pit-latrine \_\_\_\_\_ Other \_\_\_\_\_ None \_\_\_\_\_

**FAMILY MEMBERS TO BE TESTED**

Number of Persons in the household \_\_\_\_\_

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_
- 4 \_\_\_\_\_
- 5 \_\_\_\_\_
- 6 \_\_\_\_\_
- 7 \_\_\_\_\_
- 8 \_\_\_\_\_
- 9 \_\_\_\_\_

- 10 \_\_\_\_\_
- 11 \_\_\_\_\_
- 12 \_\_\_\_\_
- 13 \_\_\_\_\_
- 14 \_\_\_\_\_

Are other members of your community going to the same river-points? Yes / No

**Comments:**

**Please follow-up that client gets medication** (not just prescription)

**REPORTING OF COMMUNICABLE DISEASES  
LABORATORY SURVEILLANCE  
MINIMUM DATASET**

**Introduction:**

In the revised communicable disease surveillance system, the major role of the public health laboratory remains confirmation of aetiology. The laboratory should notify the office of the national epidemiologist of all specimens that test positive for a communicable disease. The office of the national epidemiologist shall report laboratory notifications to CAREC on a weekly basis.

**Minimum Datasets:**

The following is the suggested **minimum dataset** for **National** use (i.e. reporting of data from laboratory to the office of the national epidemiologist):

The following is the **minimum dataset** for **Regional** use (i.e. reporting of data from the office of the national epidemiologist to CAREC):

District/Parish/Region	Country
Reporting Site	--
Epidemiological Week of Case	Epidemiological Week of Case
Patient ID number	Patient ID number (or Patient Name if no ID is available)
Patient Name	--
Address	--
Sex	Sex
Age	Age
Date of birth	Date of birth
Physician name	--
Date of onset of illness	Date of onset of illness
Is patient hospitalized	Is patient hospitalized
Syndrome	Syndrome
Clinical Diagnosis	Clinical Diagnosis
Date specimen collected	Date specimen collected
Specimen ID number	Specimen ID number
Type of Specimen	Type of Specimen
Laboratory test(s) performed	Laboratory test(s) performed
Laboratory confirmed etiologic agent	Laboratory confirmed etiologic agent

**Data Recording Format:**

To ensure datasets from various sources can be analysed to provide national and regional perspectives, it is essential that within each field, information is recorded in a standardized manner. The data dictionary below indicates how the information should be recorded on reporting forms and in any electronic databases.

1. Country
  - a. Name of country or country code
2. Reporting Site
  - a. Name of site or unique site code/identifier
3. Epidemiological Week of Case
  - a. Based on epidemiological week (according to PAHO classification) of date of onset of illness
4. Patient ID number
  - a. As assigned by countries or institutions
5. Patient Name
  - a. Last name followed by First name
6. Address
  - a. Street Number
  - b. Street Name
  - c. City/Town/Parish/Region
  - d. Postal Code (if used)
7. Sex
  - a. Use the following abbreviations: M (for males) or F (for females)
8. Age
  - a. Age either in months or years
9. Date of birth
  - a. Record in the following format: dd/mm/yyyy
10. Physician name
  - a. Last name followed by First name
11. Date of onset of illness
  - a. Record in the following format: dd/mm/yyyy
12. Is patient hospitalized
  - a. Use the following abbreviations: Y (Yes), N (No), UNK (UNK = unknown)
13. Syndrome
  - a. Acute Flaccid Paralysis
  - b. Fever and Hemorrhagic symptoms
  - c. Fever with Neurological symptoms
  - d. Fever and Rash
  - e. Fever and Respiratory Symptoms/Acute Respiratory Infection
  - f. Gastroenteritis

- g. Undifferentiated Fever
14. Clinical Diagnosis
    - a. Name of condition/disease
  15. Date specimen collected
    - a. Record in the following format: dd/mm/yyyy
  16. Specimen ID number
    - a. Assigned by national laboratory
  17. Type of Specimen
    - a. Blood smear
    - b. CSF
    - c. EDTA blood (Specify EDTA or other anticoagulant)
    - d. Plasma (PPT)
    - e. Serum
    - f. Sputum
    - g. Stool
    - h. Swab (specify body site from which taken)
    - i. Tissue
    - j. Urine
    - k. Food
    - l. Water
    - m. Animal
    - n. Environment
    - o. If other, write in full
  18. Laboratory test type performed
    - a. Please Refer to the following CAREC publication “Laboratory Users Manual”
  19. Laboratory confirmed etiologic agent
    - a. Record according to accepted nomenclature

Appendix 19.

**EPI-CAREC WEEKLY REPORTING FORM**  
**REPORTS TO BE FAXED/SENT TO EPI-CAREC BY MID-DAY EVERY WEDNESDAY**

**COUNTRY:** \_\_\_\_\_

**WEEK NO.** \_\_\_\_\_

**RASH AND FEVER SURVEILLANCE**

A. # OF SITES REPORTING: \_\_\_\_\_

B. # OF SITES WHICH SHOULD REPORT: \_\_\_\_\_

C. # OF NEW SUSPECTED **MEASLES / RUBELLA** CASES: \_\_\_\_\_

I.D. NO.	NAME OF CASE (S)	DATE REPORTED	DATE OF ONSET OF RASH	DATE OF ONSET OF FEVER
2002-				
2002-				
2002-				
2002-				
2002-				
2002-				
2002-				
2002-				
2002-				

D. TOTAL # AND I.D. OF NEW CONFIRMED CASE(S) OF **MEASLES / RUBELLA** FOR THIS WEEK: \_\_\_\_\_

E. TOTAL # AND I.D. OF DISCARDED CASE(S) OF **MEASLES / RUBELLA** FOR THIS WEEK: \_\_\_\_\_

F. TOTAL # AND I.D. OF NEW SUSPECTED CASE(S) OF **CRS** FOR THIS WEEK: \_\_\_\_\_

G. TOTAL # AND I.D. OF CONFIRMED CASE (S) OF **CRS** FOR THIS WEEK: \_\_\_\_\_

**ACUTE FLACCID PARALYSIS**

A. # OF SITES **REPORTING:** \_\_\_\_\_

B. # OF SITES WHICH **SHOULD** REPORT: \_\_\_\_\_

C. # OF NEW SUSPECTED CASE(S) OF **AFP** FOR THIS WEEK: \_\_\_\_\_

D. CUMULATIVE TOTAL **AFP:** \_\_\_\_\_

I.D. NO.	NAME OF CASE (S)	DATE REPORTED	DATE OF ONSET OF PARALYSIS
2002-			
2002-			
2002-			

2002-			
-------	--	--	--

**YELLOW FEVER**

A. # OF SITES REPORTING: \_\_\_\_\_

B. # OF SITES WHICH SHOULD REPORT: \_\_\_\_\_

C. # OF NEW SUSPECTED CASE(S) Y/ F FOR THIS WEEK: \_\_\_\_\_

/2...

- 2 -

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

***.Syndromes and Communicable Diseases under Regional Surveillance***

**IMMEDIATE NOTIFICATION**

\*\*Cholera    \*\*Plague    \*\*Yellow Fever (Urban or Sylvatic)    \*\*Severe Acute Respiratory Syndrome  
 \*\*Outbreaks/Clusters/Unusual events

**WEEKLY DATA COLLECTION**

**Syndromes (aggregate data):**

Acute Flaccid Paralysis  
 Fever and haemorrhagic symptoms  
 Fever and neurological symptoms  
 Fever and respiratory symptoms (ARI) < 5 yrs  
 Fever and respiratory symptoms (ARI) ≥ 5 yrs  
 Fever and Rash  
 Gastroenteritis < 5 year olds  
 Gastroenteritis ≥ 5 year olds  
 Undifferentiated fever <5  
 Undifferentiated fever ≥ 5 yrs

**QUARTERLY DATA COLLECTION**

**(Age and sex specific):**

HIV  
 AIDS

Urethral Discharge  
     Gonorrhoea  
     Chlamydia  
     Non-Specific Urethritis (NSU)

Genital Ulcer  
     Syphilis  
     LGV  
     HSV  
     Chancroid

Vaginal Discharge  
     Gonorrhoea  
     Chlamydia  
     Trichomonas  
     Bacterial Vaginosis  
     Others

Ophthalmia Neonatorum  
     Gonorrhoea  
     Chlamydia  
     Others

Congenital Syphilis

No Syndrome, but Laboratory test positive (serology positive)  
     Syphilis  
     HSV  
     Chlamydia

**FOUR-WEEKLY DATA COLLECTION**

**Confirmed cases (Age and sex specific):**

*Campylobacter*  
 Chicken Pox (Varicella)  
 Cholera\*\*  
 Ciguatera Poisoning  
 Congenital Rubella Syndrome  
 Dengue Fever  
 Dengue Haemorrhagic Fever/Shock Syndrome  
 Diphtheria  
*E. Coli* (pathogenic)  
 Influenza  
 Leprosy (Hansen's Disease)  
 Leptospirosis  
 Malaria  
 Measles  
 Meningitis due to *Haemophilus influenzae*  
 Meningococcal Infection due to *Neisseria meningitidis*  
 Mumps  
 Pertussis  
 Plague\*\*  
 Pneumonia due to *Haemophilus influenzae*  
 Pneumonia due to *Streptococcus pneumoniae*  
 Poliomyelitis  
 Rabies  
 Rotavirus  
 Rubella  
 Salmonellosis  
 Shigellosis  
 Severe Acute Respiratory Syndrome\*\*  
 Tetanus  
 Tetanus (neonatal)  
 Tuberculosis (Pulmonary)  
 Tuberculosis (Extra-pulmonary)  
 Typhoid and Paratyphoid Fevers  
 Viral Encephalitis / Meningitis  
 Viral Hepatitis A  
 Viral Hepatitis B  
 Yellow Fever (Urban or Sylvatic)\*\*

Appendix 21.

**A. Reporting Details**

1. Agency submitting report: .....
2. Country: .....
3. County/district/parish/region: .....
4. Name of person submitting report: .....
5. Contact telephone number: .....
6. Date this form was completed (dd/mm/yy): .....

Note: Due to the potential for international spread, conditions marked with \*\* are to be reported both immediately and either weekly or monthly as indicated

<b>B. Type of Outbreak</b>		<b>C. Descriptive Epidemiology (person, place)</b>																																																								
<p>8. <input type="checkbox"/> Food-borne</p> <p><input type="checkbox"/> Water-borne</p> <p><input type="checkbox"/> Vector-borne</p> <p><input type="checkbox"/> EPI disease</p>	<p>11. Number of cases:</p> <p><input type="checkbox"/> Suspected or Probable</p> <p><input type="checkbox"/> Confirmed</p> <p><input type="checkbox"/> Total</p>	<p>12. List number of cases (suspect, probable and confirmed) by age group and gender:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2" style="text-align: left; padding: 5px;">Age Group</th> <th colspan="3" style="text-align: center; padding: 5px;">Cases</th> <th rowspan="2" style="text-align: center; padding: 5px;">Total</th> </tr> <tr> <th style="text-align: center; padding: 5px;">Male</th> <th style="text-align: center; padding: 5px;">Female</th> <th style="text-align: center; padding: 5px;">Unknown</th> </tr> </thead> <tbody> <tr><td style="text-align: left; padding: 5px;">&lt; 1 year</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: left; padding: 5px;">1 - 4 years</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: left; padding: 5px;">5 - 14 years</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: left; padding: 5px;">15 - 24 years</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: left; padding: 5px;">25 - 44 years</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: left; padding: 5px;">45 - 64 years</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: left; padding: 5px;">65+ years</td><td></td><td></td><td></td><td></td></tr> <tr><td style="text-align: left; padding: 5px;">Unknown</td><td></td><td></td><td></td><td></td></tr> <tr style="background-color: #f2f2f2;"><td style="text-align: left; padding: 5px;"><b>Total</b></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>				Age Group	Cases			Total	Male	Female	Unknown	< 1 year					1 - 4 years					5 - 14 years					15 - 24 years					25 - 44 years					45 - 64 years					65+ years					Unknown					<b>Total</b>				
Age Group	Cases			Total																																																						
	Male	Female	Unknown																																																							
< 1 year																																																										
1 - 4 years																																																										
5 - 14 years																																																										
15 - 24 years																																																										
25 - 44 years																																																										
45 - 64 years																																																										
65+ years																																																										
Unknown																																																										
<b>Total</b>																																																										
<p>9. Was a vehicle/vector/source involved?</p> <p>10. If yes, please specify:</p>	<p>13. was the whole country affected? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>14. If no, describe the areas affected: .....</p>																																																									
<p>15. Exposure setting (check all that apply):</p> <p><input type="checkbox"/> General community</p> <p><input type="checkbox"/> Health institution (e.g. hospital, nursing home)</p> <p><input type="checkbox"/> Other institution (e.g. prison, boarding home)</p> <p><input type="checkbox"/> Hotel or resort complex</p> <p><input type="checkbox"/> Restaurant</p> <p><input type="checkbox"/> School or child care facility</p> <p><input type="checkbox"/> Other, please specify, .....</p> <p><input type="checkbox"/> Don't know</p>																																																										

**D. Clinical Details**

16. Common Symptoms/Syndromes (check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Nausea                | <input type="checkbox"/> Vomiting             |
| <input type="checkbox"/> Diarrhea              | <input type="checkbox"/> Abdominal cramps     |
| <input type="checkbox"/> Fever                 | <input type="checkbox"/> Rash                 |
| <input type="checkbox"/> Respiratory symptoms  | <input type="checkbox"/> Hemorrhagic symptoms |
| <input type="checkbox"/> Genital ulcer         | <input type="checkbox"/> Genital discharge    |
| <input type="checkbox"/> Neurological symptoms | <input type="checkbox"/> Headache             |
| <input type="checkbox"/> Other, specify: ..... |   |

17. Number of cases hospitalized:   
(including cases that died)

18. Number of cases that died:   
(including cases hospitalized)

19. Incubation period (circle appropriate units)

Average  hours / days

Range:  hours / days -  hours / days

20. Duration of illness (circle appropriate units)

Average:  hours / days

Range:  hours / days -  hours / days

**OUTBREAK REPORTING FORM – PAGE 2 of 3**

**F. Etiology**

22. Was a primary causative pathogen identified in the outbreak?  Yes  No

23. If yes, please specify the name and subtype (if known) of the pathogen .....

**G. Clinical Specimens** (\*e.g. stool, blood, urine, nasal aspirate, etc)

24. Type of Specimen	Number Tested	Number Positive	Etiologic Agent	Subtype 1	Subtype 2	Antimicrobial Resistance Profile
----------------------	---------------	-----------------	-----------------	-----------	-----------	----------------------------------

**H. Food or Environmental Specimens** (\*e.g. ground beef, raw chicken, water, surface swab, etc )



**I. Results of an epidemiological study**

26. What type of epidemiological study was conducted?

- Cohort study       Other, please specify .....
- Case Control Study       No epidemiological study was conducted

27. If a cohort study was conducted, what was the overall attack rate? %.....

(note, attack rate = [number ill/total persons at risk] x 100)

28. If a cohort or case control study was conducted, please complete the following table

<b>Risk Factor</b>	<b>Odds Ratio or Relative Risk</b>	<b>95% Confidence Intervals</b>	<b>p-value</b>
--------------------	------------------------------------	---------------------------------	----------------

## OUTBREAK REPORTING FORM – PAGE 3 of 3

### **J. Additional Outbreak Details/Notes**

Please provide a brief summary of the outbreak, including information on the following if applicable and available:

- *Chain of events leading to outbreak*
- *Response measures taken*
- *Environmental Health Findings:*
  - *Trace-back investigation findings*
  - *Inspection/audit results of facility*
  - *Food handling practices/Sanitations findings*
  - *Water quality testing results*
  - *Aedes index*
- *Economic impact(e.g. financial, job losses, hotel or restaurant closures etc)*

## Appendix 22 **Communicable Disease Notification Card**

### HIV/AIDS Notification Form **AIDS/ HIV Notification Guideline**

1. The notification form must be fully completed upon receipt of a positive confirmatory test result and forwarded in a sealed envelope to the National Epidemiologist at the Ministry of Health. The notification forms are slightly different for the less than 13 years of age patients and adult patients.

2. For ensuring full confidentiality and preventing duplication of reported cases the following National ID code must be used.

Patient first name and last name initials

+ Mother first name and last name initials

+ Gender (M/F)

+ Patient birth date (year/month/day)

#### 3. Basic Patient information

*7. District of residence:* Refers to the administrative districts not to the health regions

#### 4. Social and Risk factors

*10. Had man to man sexual relation:* (for men only) Whether once or occasional or regular then check 'YES'.

*11. Had heterosexual relations with known IV drug user:* excludes marijuana and other non injecting drugs

*11. Had heterosexual relations with known IV drug user:* for women only

*If yes, with foreigner(s):* means with a someone who has not the St Lucian nationality.

*16. Delivered a live born infant:* for women only

#### 5. Aids indicator diseases

Diagnosis confirmation being difficult or not possible, suspected Aids indicator diseases must be reported based on the doctor medical conclusions.

*9. HIV encephalopathy:* is defined as clinical findings of disabling cognitive or motor dysfunction interfering with occupation or activities of daily living, progressing over weeks or months, in the absence of a concurrent illness or condition other than HIV infection that could explain the findings.

*26. Wasting syndrome due to HIV:* is defined as ALL major signs

**HIV / AIDS DISEASE  
INITIAL NOTIFICATION**

**ADULT**

**Patient's physician:**

Phone Number :

**Date form completed**  
(dd/mm/yy)

**MOH USE ONLY**

Case no

National ID code

CAREC notification: quarter/year

Infection

Disease

Final

**I BASIC PATIENT INFORMATION**

1. Patient's initials  2. Mother's initials  3. Date of birth   
(dd/mm/yy)

---

4. Age  5. Gender Male  Female  6. Citizenship St Lucian   
Caribbean  Other

---

7. District of residence  8. Diagnosis facility Priv. physician  Hospital   
STD clinic  Lab or blood bank  9. Date of diagnosis: **AIDS only**  
(dd/mm/yy)

**II SOCIAL AND RISK FACTORS**

**During the 10 years preceding the diagnosis of HIV infection or AIDS has this patient :**

	Yes	No	Unknwn		Yes	No	Unknwn
10. Had man to man sexual relation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ If yes, with foreigner(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Had heterosexual relations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ If yes, with foreigner(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If (s)he has had heterosexual relationships, with known							
• Intravenous/injection drug user	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ If yes, with foreigner(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Bisexual male	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ If yes, with foreigner(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Person with HIV/AIDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ If yes, with foreigner(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Been an IV drug user	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Comments</b>			
13. Been a Cocaine/Crack user	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
14. Received blood transfusion or blood components	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
15. Donated blood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
16. Delivered a live born infant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

**III LABORATORY DATA**

17. 1st positive Elisa Date:   
(dd/mm/yy)

18. 2nd positive Elisa Date:   
(dd/mm/yy)

19. WB / IFA  Reactive  Non reactive  Inconclusive  Not done  Date of test (dd/mm/yy)

**IV WHO DEFINITION**

**Major signs**

- 20. Weight loss >10% baseline body
- 21. Chronic diarrhoea > 30 days
- 22. Fever > 30 days

Yes	No	Unknwn
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Minor signs**

- 23. Persistent cough > 30 days
- 24. Generalized pruritic dermatitis
- 25. Herpes zoster
- 26. Oral candidiasis
- 27. Generalized lymphadenopathy

Yes	No	Unknwn
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**V AIDS INDICATOR DISEASE**

*Check here if NO AIDS indicator diseases are present ++++*

**Please indicate below the given code(s) for ALL suspected or confirmed AIDS indicator disease(s) where present:**

Disease code(s)

--	--	--	--	--	--	--	--	--	--	--

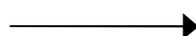
**Indicator disease codes**

1. Candidiasis, bronchi, trachea, or lungs
2. Candidiasis, esophageal
3. Carcinoma, invasive cervical
4. Coccioidomycosis, disseminated or extrapulmonary
5. Cryptococcosis, extrapulmonary
6. Cryptosporidiosis, chronic intestinal (>1 month duration)
7. Cytomegalovirus disease (other than in live, spleen or nodes)
8. Cytomegalovirus retinitis (with loss of vision)
9. HIV encephalopathy
10. Herpes simplex: chronic ulcer(s) or bronchitis, pneumonitis or esophagitis >1 month duration
11. Histoplasmosis, disseminated or extrapulmonary
12. Isosporiasis, chronic intestinal (>1 month duration)
13. Kaposi's sarcoma
14. Lymphoma, Burkitt's (or equivalent term)
15. Lymphoma, immunoblastic (or equivalent term)
16. Lymphoma, primary in brain
17. Mycobacterium avium complex or M. Kansasii, disseminated or extrapulmonary
18. Mycobacterium, of another species or unidentified species, disseminated or extrapulmonary
19. Pneumocystis carinii pneumonia
20. Pneumocystis, recurrent, in 12 months period
21. Progressive multifocal leukoencephalopathy
22. Salmonella septicemia , recurrent
23. Toxoplasmosis of brain
24. Tuberculosis, pulmonary
25. Tuberculosis, disseminated or extrapulmonary
26. Wasting syndrome due to HIV

**VI CURRENT STATUS**

Current status

Alive	<input type="checkbox"/>
Deceased	<input type="checkbox"/>
Unknown	<input type="checkbox"/>



Date of death  
(dd/mm/yy)

--

**HIV / AIDS DISEASE  
UPDATE NOTIFICATION  
ADULT**

**NATIONAL ID CODE**

**Patient's physician:**

**Phone Number :**

**Date initial notification completed**  
(dd/mm/yy)

**Last update**  
(dd/mm/yy)

**CLINICAL UPDATE**

• **CLINICAL SIGNS**

**Major signs**

Weight loss >10% baseline body

Yes No Unknwn

Chronic diarrhoea > 30 days

Fever > 30 days

**Minor signs**

Persistent cough > 30 days

Yes No Unknwn

Generalized pruritic dermatitis

Herpes zoster

Oral candidiasis

Generalized lymphadenopathy

• **AIDS INDICATOR DISEASE**

**Check here if NO AIDS indicator diseases are present ++++**

**Please indicate below the given code(s) for ALL suspected or confirmed AIDS indicator disease(s) where present:**

Disease code(s)

**Indicator disease codes**

1. Candidiasis, bronchi, trachea, or lungs
2. Candidiasis, esophageal
3. Carcinoma, invasive cervical
4. Coccioidomycosis, disseminated or extrapulmonary
5. Cryptococcosis, extrapulmonary
6. Cryptosporidiosis, chronic intestinal (>1 month duration)
7. Cytomegalovirus disease (other than in live, spleen or nodes)
8. Cytomegalovirus retinitis (with loss of vision)
9. HIV encephalopathy
10. Herpes simplex: chronic ulcer(s) or bronchitis, pneumonitis or esophagitis >1 month duration
11. Histoplasmosis, disseminated or extrapulmonary
12. Isosporiasis, chronic intestinal (>1 month duration)
13. Kaposi's sarcoma
14. Lymphoma, Burkitt's (or equivalent term)
15. Lymphoma, immunoblastic (or equivalent term)
16. Lymphoma, primary in brain
17. Mycobacterium avium complex or M. Kansasii, disseminated

18. or extrapulmonary
19. Mycobacterium, of another species or unidentified species, disseminated or extrapulmonary
20. Pneumocystis carinii pneumonia
21. Pneumocystis, recurrent, in 12 months period
22. Progressive multifocal leukoencephalopathy
23. Salmonella septicemia, recurrent
24. Toxoplasmosis of brain
25. Tuberculosis, pulmonary
26. Tuberculosis, disseminated or extrapulmonary
27. Wasting syndrome due to HIV

• **CURRENT STATUS**

Alive

Deceased

Unknown

Date of death

(dd/mm/yy)

**HIV / AIDS DISEASE  
INITIAL NOTIFICATION  
CHILD < 13 YEARS**

**Patient's physician:**

Phone Number :

**Date form completed**  
(dd/mm/yy)

**MOH USE ONLY**

- Case no
- National ID code
- CAREC notification: quarter/year

Infection

Disease

Final

**I BASIC PATIENT INFORMATION**

<b>1.</b> Patient's initials <input type="text"/>	<b>2.</b> Mother's initials <input type="text"/>	<b>3.</b> Date of birth (dd/mm/yy) <input type="text"/>
<b>4.</b> Age <i>years</i> <input type="text"/> <i>or months</i> <input type="text"/>	<b>5.</b> Gender Male <input type="checkbox"/> Female <input type="checkbox"/>	<b>6.</b> Citizenship St Lucian <input type="checkbox"/> Caribbean <input type="checkbox"/> Other <input type="checkbox"/>
<b>7.</b> District of residence <input type="text"/>	<b>8.</b> Diagnosis facility Priv. physician <input type="checkbox"/> STD clinic <input type="checkbox"/> Hospital <input type="checkbox"/> Lab/blood bank <input type="checkbox"/>	<b>9.</b> Date of diagnosis (VIH or AIDS) (dd/mm/yy) <input type="text"/>

**II SOCIAL AND RISK FACTORS**

**During the 10 years preceding the diagnosis of HIV infection or AIDS has this child :**

	<i>Yes</i>	<i>No</i>	<i>Unknwn</i>
<b>12.</b> Received blood transfusion or blood components	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Parents status:**

	<i>Yes</i>	<i>No</i>	<i>Unknwn</i>
<b>13.</b> Does the mother of this child have a confirmed HIV infection ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no or unknown, was the mother tested ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>14.</b> Does the father of this child have a confirmed HIV infection ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no or unknown, was the father tested ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Comments**

**III LABORATORY DATA**

15. 1st positive Elisa      Date:  (dd/mm/yy)      16. 2nd positive Elisa      Date:  (dd/mm/yy)

17. W. Blott / I.F       *Reactive*       *Non reactive*       *Inconclusive*       *Not done*       *Date of test (dd/mm/yy)*

**IV WHO DEFINITION**

<i>Major signs</i>	<i>Yes</i>	<i>No</i>	<i>Unknwn</i>	<i>Minor signs</i>	<i>Yes</i>	<i>No</i>	<i>Unknwn</i>
18. Weight loss >10% baseline body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	21. Persistent cough > 30 days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Chronic diarrhoea > 30 days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. Generalized dermatitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Fever > 30 days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. Repeated common infection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				24. Oro-pharyngeal candidiasis			
				25. Generalized lymphadenopathy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				26. Confirmed maternal infection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**V AIDS INDICATOR DISEASE**

*Check here if NO AIDS indicator diseases are present +++++*

*Please indicate below the given code(s) for ALL suspected or confirmed AIDS indicator disease(s) where present:*

Disease code(s)     

*Indicator disease codes*

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>1. <b>C</b>andidiasis, bronchi, trachea, or lungs</li> <li>2. <b>C</b>andidiasis, esophageal</li> <li>3. <b>C</b>occidioidomycosis, disseminated or extrapulmonary</li> <li>4. <b>C</b>ryptococcosis, extrapulmonary</li> <li>5. <b>C</b>ryptosporidiosis, chronic intestinal (&gt;1 month duration)</li> <li>6. <b>C</b>ytomegalovirus disease (other than in live, spleen or nodes)</li> <li>7. <b>C</b>ytomegalovirus retinitis (with loss of vision)</li> <li>8. <b>H</b>IV encephalopathy</li> <li>9. <b>H</b>erpes simplex: chronic ulcer(s) or bronchitis, &gt;1 month duration or bronchitis, pneumonitis or oesophagitis</li> <li>10. <b>H</b>istoplasmosis, disseminated or extrapulmonary</li> <li>11. <b>I</b>sosporiasis, chronic intestinal (&gt;1 month duration)</li> <li>12. <b>K</b>aposi's sarcoma</li> </ul> | <ul style="list-style-type: none"> <li>13. <b>L</b>ymphoma, Burkitt's (or equivalent term)</li> <li>13. <b>L</b>ymphoma, immunoblastic (or equivalent term)</li> <li>14. <b>L</b>ymphoma, primary in brain</li> <li>15. <b>M</b>ycobacterium avium complex or <i>M. kansasii</i>, disseminated or extrapulmonary</li> <li>16. <b>M</b>ycobacterium, of another species or unidentified species, disseminated or extrapulmonary</li> <li>17. <b>P</b>neumocystis carinii pneumonia</li> <li>18. <b>P</b>rogressive multifocal leukoencephalopathy</li> <li>19. <b>B</b>acterial infection, multiple or recurrent (including salmonella septicemia)</li> <li>20. <b>T</b>oxoplasmosis of brain , onset &gt;1 month of age</li> <li>21. <b>T</b>uberculosis, disseminated or extrapulmonary</li> <li>22. <b>W</b>asting syndrome due to HIV</li> </ul> |
|---|---|

**VI CURRENT STATUS**

Current status      Alive                 

                         Deceased     

                         Unknown     

Date of death       (dd/mm/yy)



**Ministry of Health  
Epidemiology Unit  
Tuberculosis Control Program**

Appendix 23

TB Surveillance Form

**CASE NOTIFICATION FORM**

**PERSONAL HISTORY**

Name ..... Birth (dd/mm/yy/) ----/----/----

Alias ..... Sex M [ ] F [ ]

Address ..... Notified by .....

Nearest to ..... Consultant .....

Telephone No. .... Date .....

Person completing form .....

**TEST RESULTS**

<b>Date</b>	<b>Test</b>	<b>Result</b>
.../.../...	Sputum	.....
.../.../...	X-ray	.....
.../.../...	Mantoux	.....

Was HIV ELISA performed? [ ] Yes [ ] No

If yes Date ...../...../..... Hospital (.....)

Admitted ...../...../..... Person In Charge .....

Discharged ...../...../..... Referred to ( HC/Hosp).....

**TREATMENT REGIMEN**

<b>Drug</b>	<b>Dosage (m.g)</b>	<b>Duration(m.g)</b>
Isoniazid	[ ]	.....
Rifampicin	[ ]	.....
Ethambutol	[ ]	.....
Pyrazinamide	[ ]	.....
<b>Other</b>	[ ]	.....

**Case Classification**

New Resistant Relapse Contact confirmation TB Case

[ ] [ ] [ ]

Remarks:  
.....



**Continuation phase**

Day	Month / Year			
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
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30				
31				

**Health Unit for DOT:** \_\_\_\_\_ **Physician:** \_\_\_\_\_

**Tuberculosis Treatment Card**

**First Name:** \_\_\_\_\_

**Last Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

(in full) \_\_\_\_\_

**Gender:** Man

Woman

**Age:** \_\_\_\_\_

**BCG:**

No scar

Scar seen

Scar dubious

**Type of patient:**

1 Pulmonary  2 Extrapulmonary

1 New  2 Relapse  3 Treatment after default

4 Other: \_\_\_\_\_

**Results of sputum Examination**

Month	Sputum results		Weight kg
	Date	Smear	
0			
1			
2			
3			
4			
5			
6			
7			
8			
9			

**Initial Intensive Phase**

**Starting date:** \_\_\_\_\_ **Ending date:** \_\_\_\_\_

**Prescribed regimen and dosages: no tabs / day**

	New case		Re-treatment
Isoniazid	<input type="text"/>		<input type="text"/>
Rifampicin	<input type="text"/>		<input type="text"/>
Pirazinamide	<input type="text"/>		<input type="text"/>
Ethambutol	<input type="text"/>		<input type="text"/>
Streptomycin			<input type="text"/>

**Continuation phase**

**Starting date:** \_\_\_\_\_ **Ending date:** \_\_\_\_\_

**Prescribed regimen and dosages**

	New case		Re-treatment
Isoniazid	<input type="text"/>	<input type="text"/>	<input type="text"/>
Rifampicin	<input type="text"/>		<input type="text"/>
Ethambutol			<input type="text"/>

**REMARKS:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Initial Intensive phase**

Day	Month	Year			
1					
2					
3					
4					
5					
6					
7					
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Appendix 24

**STI Surveillance Form**

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Appendix 25

**Pap Smear Screening Programme**

**Monthly Report**

\_\_\_\_\_

Month :

\_\_\_\_\_

Year :

\_\_\_\_\_

Laboratory :

	Normal	Inflammation	Condyloma	HPV effect	Cervical Intraepithelial Neoplasia CIN		
					I	II	III
Age group							
< 20 years							
20-39 years							
40-59 years							
>= 60 years							
Unknown							

## **GUIDELINES FOR THE COLLECTION OF CLINICAL SPECIMENS**

### *1. BLOOD SPECIMEN COLLECTION*

Blood and separated serum are the most common specimens taken to investigate the etiology of communicable diseases. Venous blood can be used for isolation and identification of pathogens using sub-culture and inoculation techniques. Blood is also separated into serum for the detection of genetic material (e.g. using the polymerase chain reaction), specific antibodies, antigens, or toxins (e.g. by ELISA). For the processing of most specimens for diagnosis of viral pathogens, serum is preferable to un-separated blood except where otherwise directed. When specific antibodies are being assayed, it is often helpful to collect paired sera, i.e. an acute sample taken at the onset of illness and a convalescent sample collected one to four weeks later. Blood can also be collected by finger prick for the preparation of slides for microscopy or for absorption onto special filter paper discs for analysis. Whenever possible, blood specimens for culture should be taken before antibiotics are administered to the patient.

**NOTE: Collect acute and convalescent blood for serology with at least 2 weeks between acute and convalescent specimens**

#### **A. VENOUS BLOOD SAMPLES**

##### **Materials for collection:**

- Skin disinfection: 70% alcohol (isopropyl alcohol, ethanol) or 10% povidone, iodine, swabs, gauze pads, band aid
- Disposable latex or vinyl gloves
- Tourniquet, Vacutainer, Monovette, or similar vacuum blood collection devices, or disposable syringes and needles
- Vacutainer, blood culture bottles (50ml for adults, 25ml for children) with appropriate media
- Labels and indelible marker pen.

##### **Method of collection:**

- Place a tourniquet above the venepuncture site.
- Palpate and locate the vein. It is critical to disinfect the venepuncture site meticulously with 10% povidone iodine or 70% isopropyl alcohol by swabbing the skin concentrically from the centre of the venepuncture site outwards. Let the disinfectant evaporate. Do not repalpate the vein again. Perform venepuncture.
- If withdrawing with conventional disposable syringes, withdraw 5-10 ml of whole blood from adults, 2-5ml from children and 0.5-2ml for infants.
- If withdrawing using vacuum systems, withdraw the desired amount of blood directly into each transport tube and culture bottle.
- Remove the tourniquet. Apply pressure to site until bleeding stops, and apply sticking plaster (if desired).

- Using aseptic technique, transfer the specimen to the relevant cap transport tubes and culture bottles. Secure caps tightly. Be sure to follow manufacturer's instructions on the correct amount and method for inoculation of blood culture bottles.
- Label the tube, including the unique patient identification number using indelible marker pen.
- Do not recap used sharps. Discard directly into the sharps disposal container
- Complete the case investigation and the laboratory request forms using the same identification number

**Handling and transport:**

- Blood culture bottles and blood sample tubes should be transported upright and secured in a screw cap container or in a rack in a transport box. Cushion or suspend bottles during transport over rough terrain to prevent lysis of red cells. There should be sufficient absorbent paper around blood containers to soak up all liquid in case of a spill.
- If the specimen reaches the laboratory within 24 hours, most bacterial pathogens can be recovered from blood cultures transported at ambient temperature.

**B. SEPARATION OF SERUM FROM BLOOD**

**Additional materials required:**

- Sterile Pasteur pipettes and bulb, or soft, disposable transfer pipettes (pastettes). The latter are easy to handle and dispose of in the field laboratory,
- Sterile screw-cap vials

**Method of separation:**

- Using the materials and methods described above, draw 10ml of venous blood and transfer to a screw cap tube without anti-coagulant. Alternatively, blood may be collected directly into a proprietary collection and transport tube (e.g., Vacutainer, Monovette, etc.).
- Allow the blood specimen to clot for 30 minutes at ambient temperature, then place in a cool box (4 to 8°C ) to retract for a minimum of 1 to 2 hours (the specimen may be stored at this temperature for 48-72 hours).
- The specimen should be centrifuged at the laboratory at low speed (1000g for 10 minutes) to remove residual blood cells. When serum separation is performed in a field laboratory, proper safety precautions should be taken. Ensure that the centrifuge is in good condition and that the tubes are properly closed and balanced to avoid breakage and spilling. If viral haemorrhagic fever is strongly suspected, samples should only be processed in properly equipped, specialized laboratories. Discuss with the laboratory personnel whether a separation gel blood tube (see Note) would be acceptable in this case.
- Separate the serum aseptically from the clot using a sterile Pasteur pipette and bulb or soft, disposable transfer pipette. Transfer to a screw cap vial. Secure the cap tightly.
- If a centrifuge is not available and there will be a delay before samples can be transported to a laboratory, serum may still be separated carefully from the retracted clot using a disposable transfer pipette. Allow 4-6 hours to elapse after taking the blood sample to ensure adequate clot retraction. Using the transfer pipette, remove the clear yellow serum whilst taking care to keep the tip as far as possible from the clot, and avoid agitating the blood tube during the removal process. (This may be easier if a separation gel collection tube has been used). Transfer to plastic screw-cap vial and secure cap tightly.
- Label the vial with the same patient details that appear on the blood sample tube.

*NOTE: In some instances it may be acceptable to use a special blood tube containing a separation gel, which encourages separation of serum from clot. In this case, the centrifugation step is eliminated. This has the advantage of ease and safety of specimen processing under field*

*conditions. However it is important to check with the laboratory in advance to ensure that these devices are appropriate for your particular investigation.*

### **Handling and transport:**

- If serum will be required for testing, separation from blood should take place as soon as possible, preferably within 24 hours at ambient temperature. If the specimen will not reach a laboratory for processing within 24 hours, serum should, if at all possible, be separated from blood prior to transportation. Sera may be stored at 4-8° for up to 10 days. If serological testing is to be delayed for a longer period, serum samples may be frozen.
- If separation on site is not possible, or is inadvisable for safety reasons, the blood sample should be stored at 4-8°C. Protect such un-separated samples from excessive vibrations while transporting. Un-separated blood samples should not be frozen.

## **C. CAPILLARY BLOOD SAMPLES**

### **Materials for collection:**

- Disposable sterile lancets
- Glass slides, cover slips, slide box
- Filter paper
- Fixatives such as methanol

### **Method of collection:**

- Disinfect finger or thumb for adults, thumbs for children or side of heel for infants, by swabbing with 70% isopropyl alcohol, and prick with a sterile lancet. Wipe away the first drop of blood.
- Discard used lancets directly into the sharps disposal container
- Collect blood directly onto labelled glass microscope slides and/or filter paper.

### **Method of preparation of blood films:**

- **Blood films should be made by trained personnel.** If this is not possible, they can be spread from heparinized or EDTA blood specimens sent to the laboratory
- **Thick films for microscopy**
  - Label the slide with patient identification number and name
  - Disinfect and prick the site with a lancet as described above
  - Touch one or more large drops of blood onto the centre of the slide making sure that the slide does not touch the skin.
  - Spread the blood in a circle about 1cm in diameter using the corner of another glass slide
  - Air dry the film in a horizontal position. Do not dry the film by heating over a flame or other heat source.
- **Thin films for microscopy**
  - Label the slide with patient identification number and name
  - Touch another drop of blood to the glass slide about 2 cm from one end making sure that the slide does not touch the skin.
  - Place the slide horizontally on a flat surface
  - Hold the slide of a second clean glass slide (the spreader) on to the center of the specimen slide and move it back until it touches the drop and the blood spreads along its base
  - At an angle of about 45°, move the spreader firmly and steadily across the specimen slide and air dry the film quickly. Do not dry over a flame or other heat source
  - Fix the dried film by dipping the glass slide in methanol or other fixative for a few seconds and air dry.

**Handling and transport:**

- Air dried and /or fixed films are transported at ambient temperature preferably within 24 hours of specimen collection. They must not be refrigerated. Thick and thin films are usually kept in separate slide boxes

## 2. RESPIRATORY TRACT SPECIMEN COLLECTION

**Preferably specimens should be taken within the first 3 days after onset of symptoms for most respiratory infections**

Specimens are collected from the upper or lower respiratory tract, depending on the site of infection. Upper respiratory tract pathogens (viral and bacterial) are found in throat nasopharyngeal specimens. Lower respiratory tract pathogens are found in sputum specimens. For organisms such as *Legionella*, culture is difficult, and diagnosis is best based on the detection of antigen excreted in the urine.

When acute epiglottitis is suspected, no attempt should be made to take throat or pharyngeal specimens since these procedures may precipitate respiratory obstruction. Epiglottitis is generally confirmed by lateral neck x-ray, but the etiological agent may be isolated on blood culture.

### **Materials for collection:**

- Transport media – bacterial and viral
- Dacron and cotton swabs
- Tongue depressor
- Flexible wire calcium alginate tipped swab (for suspected pertussis)
- Nasal speculum (for suspected pertussis) – not essential
- Suction apparatus or 20-50ml syringe
- Sterile screw-cap tubes, and wide mouthed clean sterile jars (minimum volume 25 ml)

### **A. UPPER RESPIRATORY TRACT SPECIMENS**

#### **Method of collecting a throat swab**

- Hold the tongue down with the depressor. Use a strong light source to locate areas of inflammation and exudate in the posterior pharynx and the tonsillar region of the throat behind the uvula
- Rub the area back and forth with a Dacron or calcium alginate swab. Withdraw the swab without touching cheeks, teeth or gums and insert into a screw-cap vial containing viral or bacterial transport medium.
- Break off the top part of the stick without touching the tube and tighten the screw cap firmly
- Label the specimen containers
- Complete the laboratory request form.

#### **Method of collecting per-nasal and post nasal swab:**

- Seat the patient comfortable, tilt the head back and insert the nasal speculum
- Insert a flexible swab beneath the inferior turbinate of either nostril or leave in place for a few seconds and move the swab upwards into the nasopharyngeal space.
- Rotate the swab on the nasopharyngeal membrane a few times; slowly withdraw with a rotating motion against the mucosal surface of the nostril.
- Remove the swab carefully and insert it into a screw-cap tube containing transport medium.
- Repeat the procedure in the other nostril using a new sterile swab
- Label the vial with patient's name type of specimen and date of collection

#### **Aspirates:**

- Nasopharyngeal secretions are aspirated through a catheter connected to a mucus trap and fitted to a vacuum source.
- The nasal aspirates are collected by introducing a few ml of saline into the nose with a syringe fitted with a fine tubing or catheter.

- The catheter is inserted into a nostril parallel to the palate. The vacuum is then applied and the catheter is slowly withdrawn with a rotation motion.
- Mucus from the other nostril is collected with the same catheter in a similar manner.
- After mucus has been collected from both nostrils, the catheter is flushed into a screw cap vial with 3 ml viral transport media
- Label the vial with patient's name type of specimen and date of collection

## **B. LOWER RESPIRATORY TRACT SPECIMENS**

### **Method of collecting sputum:**

- Instruct patient to take a deep breath and cough up sputum directly into a wide mouth sterile container. Avoid saliva or postnasal discharge. Minimum volume should be about 1 ml
- Label the specimen containers
- Complete the laboratory request forms

### **Handling and transport:**

- All respiratory specimens except sputum are transported in appropriate bacterial/viral media
- Transport as quickly as possible to the laboratory to reduce overgrowth by commensal oral flora.
- For transit periods up to 24 hours, transport bacterial specimens at ambient temperature and viruses at 4-8°C in appropriate media.

### **3. CEREBROSPINAL FLUID (CSF) SPECIMEN COLLECTION.**

The specimen must be taken by a physician or a person experienced in the procedure. CSF is used in the diagnosis of viral, bacterial, parasitic and fungal meningitis

#### **Materials for collection:**

- Lumbar puncture tray which includes
- Sterile materials: gloves, cotton wool, towels or drapes
- Local anesthetic, needle, syringe
- Skin disinfectant: 10% povidone iodine or 70% alcohol
- Two lumbar puncture needles, small bore with stylet
- Six small sterile screw-cap tubes and tube rack.
- Water manometer
- Microscope slides and slide boxes

#### **Method of collection:**

- As only experienced personnel should be involved in the collection of CSF samples, the method is not described in this document. CSF is collected directly into the separate screw-cap tubes. If the samples will not be promptly transported, separate tubes should be collected for bacterial and viral processing.

#### **Handling and transport:**

- In general, specimens should be delivered to the laboratory and processed as soon as possible.
- CSF specimens for bacteriology are transported at ambient temperature, generally with transport media. They must never be refrigerated as many of the relevant pathogens do not survive well at low temperatures
- CSF specimens for virology do not need transport medium. They may be transported at 4-8°C for up to 48 hours, or at -70°C for longer periods.

## 4. FECAL SPECIMEN COLLECTION

Stool specimens are most useful for microbiological diagnosis if collected soon after onset of diarrhoea (for viruses < 48 hours for bacteria < 4 days), and preferably before the initiation of antibiotic therapy. If required, two or three specimens may be collected on separate days for bacterial diarrhoea. Stool is the preferred specimen for culture of bacterial, viral and parasitic diarrhoeal pathogens. Rectal swabs showing faeces may also be used from infants. In general, rectal swabs are not recommended for the diagnosis of viruses.

### Materials for collection:

- Clean, dry, leak-proof screw cap container and tape.
- Appropriate bacterial transport media for transport of rectal swabs from infants
- Parasitology transport pack: 10% formalin in water, polyvinyl isopropyl alcohol (PVA).

### Method for collecting a stool specimen:

- Collect freshly passed stool, 5ml liquid or 5g solid (pea-size), in a container.
- Label the container

### Method of collecting a rectal swab from infants:

- Moisten a swab in sterile saline
- Insert that swab tip just past the anal sphincter and rotate gently
- Withdraw the swab and examine to ensure that the cotton top is stained with faeces
- Place the swab in sterile tube/container containing the appropriate bacterial or viral transport medium.
- Break off the top part of the stick without touching the tube and tighten the screw cap firmly.
- Label the vial with patient's name type of specimen and date of collection

### Handling and transport:

- Stool specimens should be transported at 4-8°C. Bacterial yields may fall significantly if specimens are not processed within 1-2 days of collection. *Shigella* is particularly sensitive to elevated temperatures.
- Specimens to be examined for parasites should be mixed with 10% formalin or PVA (3 parts stool to 1 part preservative). Transport at ambient temperature in containers sealed in plastic bags.

## 5. EYE SPECIMEN COLLECTION

Conjunctival and corneal swabs and smears are the usual specimens collected to diagnose acute bacterial or viral (kerato) conjunctivitis. Label all specimens as conjunctival or corneal and indicate whether the specimen was taken from the left or right eye. Strict aseptic technique is essential when collecting and processing these specimens. All medicines and droppers that come in contact with patients should be discarded.

While corneal scrapings may occasionally prove useful in improving the utility of corneal specimens for diagnosis of some infections, these are not generally infections which are epidemic-prone. Corneal scrapings must only be collected by an ophthalmologist or other trained persons. For these reasons, instructions for taking corneal scrapings will not be given here.

### Materials for collection:

- Sterile calcium alginate and/or cotton swabs. (Do not use calcium alginate swabs for virology specimens)
- Vials containing sterile saline and viral transport media
- Sterile gloves.
- Glass slides, glass slide marker, slide holder box
- Glove and protective goggles should be worn if epidemic keratoconjunctivitis is suspected.

### Method of collection of conjunctival swabs:

- Clean the skin around the eye with a mild antiseptic
- Moisten a swab in sterile saline and roll over the conjunctiva in a circular manner
- Insert the swab into a sterile screw-cap vial containing the appropriate transport media for bacteria.
- Break off the top part of the stick without touching the tip of the tube and tighten the screw cap firmly
- Repeat the procedure with a tube containing the appropriate viral transport medium.
- Label the vial with patient's name type of specimen and date of collection.

### Method of preparation for microscopy smears:

- Prepare two smears onto clean glass slides with a fresh conjunctival swab. This should be done on-site if possible. Otherwise, specimens may be sent to the laboratory in appropriate transport media for the preparation of smears. Note that it is not possible to prepare smears from swabs transported in certain media, such as those containing charcoal. For detection of *Chlamydia*, it is essential that smears be prepared on-site prior to transport.
- Label the glass slides and put into a slide carrier or others appropriate box. Do not refrigerate or freeze the slides.

### Handling and transport:

- Specimens for detection of bacterial pathogens are transported at ambient temperature in appropriate bacterial transport medium
- Specimens for viral detection are transported at 4-8°C in viral transport medium. Swabs in viral transport medium may also be frozen in liquid nitrogen.
- Microscopic slides are air dried and transported at ambient temperature in a slide box.

## 6. COLLECTING SPECIMENS FOR SKIN LESIONS

For most dermatological conditions, diagnosis may be established on the basis of physical examination and clinical history without the collection of diagnostic specimens. Important characteristics to be noted on physical examination include the nature of the skin lesions (erythematous, macular, papular, maculopapular, vesicular, bullous, petechial, purpuric, etc.) and the anatomic distribution of spread (central, peripheral, diffuse, etc.) In cases of indeterminate diagnoses, unusual presentations, and some rare conditions, collection of specimens from rashes and/or skin lesions may be necessary. In the case of vesicular rashes, specimens for microscopy and culture are taken directly from vesicles. In other exanthemata (macular and/or papular), the diagnosis may be more readily established from alternative specimens (e.g. blood cultures, serology). In suspected cutaneous anthrax or bubonic plague, specimens from the skin lesions (eschars and buboes, respectively) and blood cultures may be taken.

### Materials for collection:

- Sterile saline
- Sterile swabs and appropriate transport media
- Sterile screw cap vials
- Sterile lancets or needles (for piercing of vesicles).
- Syringe with wide-bore needle (for aspiration of abscesses/buboes)
- Wide mouth screw-cap containers (for biopsy specimens)
- Glass slides and slide boxes

### Method of collection:

- **Vesicular or vesiculo-pustular rash and Slide preparation** (for diagnosis of viral infections).
  - HSV-infected cells are present in greatest numbers in the base of the vesicles or ulcers that are useful for direct HSV-1 and HSV-2 antigen detection.
  - Clean the fresh mature vesicle or ulcer with 70% ethanol.
  - Using a tuberculin syringe fitted with 26-27 gauge needle, insert the needle, bevel edge up, into the base of the vesicle.
  - Aspirate fluid and immediately, carefully inject the fluid into a vial containing 1- 2ml viral transport media; rinse once.
  - Lift the membrane of the vesicle and using a sterile dacron swab, firmly rub at the base of the ulcer (*Calcium alginate swabs cannot be used*).
  - Immediately place the swab in the vial containing viral transport media.
  - Carefully scrape cells from base of the ulcer with scalpel or curette.
  - Rinse the lesion with two to three drops of viral transport media to make a cell suspension.
  - Aspirate the suspension and prepare three spots on a clean glass microscope slide
  - The slide should be left to dry in air.
  - Fix in cold acetone
  - Place in a slide box for transport to the laboratory
- **Crusting stage**
  - Gently ease off crust with a lancet or scalpel and a pair of disposable forceps
  - Take 5-10 crusts, place them in a plastic screw-cap vial. Make sure the lid is tightly closed.
  - Label the specimen containers
  - Discard forceps, lancets and scalpels into sharps disposal container. Do not re-use forceps on specimens from another patient.
  - **If cutaneous anthrax is suspected, the vesicular fluid under the eschar is a better diagnostic specimen than a piece of the eschar.**

- **Aspiration of abscesses**
  - **Aspiration of abscesses should only be performed by experienced personnel**
  - Disinfect the skin overlying the abscess/bubo with 70% isopropyl alcohol.
  - Aspirate the fluid from the abscess with a sterile needle and syringe. Only enough fluid to perform the diagnostic tests is required.
  - Transfer the aspirate aseptically into a sterile tube with transport medium.
  
- **Skin biopsy**
  - Skin biopsies from live patients are generally not appropriate specimens for field outbreak investigations. For details of the collection of skin biopsies after death for suspected viral hemorrhagic fevers, see the relevant section in Annex 9, Post-mortem specimen collection.

**Handling and transport:**

- Specimens for bacteriological analysis should be transported in Stuart's or Amies medium. Swabs for suspected viral pathogens should be transported in virus transport medium. Other specimens should be handled as described in the relevant section.
- If processing takes longer than 2 hours, bacteriology specimens can be maintained at ambient temperature for 24 hours. Specimens for virus isolation may be refrigerated at 4-8°C, and transported to the laboratory as rapidly as possible. In some instances, the outbreak investigation team may bring liquid nitrogen for specimen preservation. If this is the case, follow the instructions of the experienced laboratorian as to appropriate use. If there are any questions regarding handling and transport, check with the laboratory which will be receiving the specimens. In any outbreak investigation, it should be considered essential to consult the receiving laboratory about the handling of most specimen types before setting out into the field.

## 7. URINE SPECIMEN COLLECTION

### Materials for collection:

- Sterile plastic cup with lid (50ml or more)
- Clean, screw-top specimen transport containers (“universal” containers are often used)
- Gauze pads
- Soap and clean water (or normal saline) if possible

### Method of collection:

- Give the patient clear instructions to pass urine for a few seconds, and then hold the cup in the urine stream for a few seconds to catch a mid-stream sample. This should decrease the risk of contamination from organisms living in the urethra
- To decrease the risk of contamination from skin organisms, the patient should be directed to avoid touching the inside rim of the plastic cup with the skin of the hands, legs or external genitalia. Tighten the cap firmly when finished.
- For hospitalized or debilitated patients, it may be necessary to wash the external genitalia with soapy water to reduce the risk of contamination. If soap and clean water are not available, the area may be rinsed with normal saline. Dry the area thoroughly with gauze pads before collecting the urine.
- Urine collection bags may be necessary for infants. If used, transfer urine from the urine bag to specimen containers as soon as possible to prevent contamination with skin bacteria. Use a disposable transfer pipette to transfer the urine.
- Label the specimen containers.

### Processing Urine for viral isolation:

- Centrifuge the specimen at 1,500 rpm for 5 min.
- Re-suspend the sediment in 0.5 to 2ml of viral transport media
- Label the vial with patient’s name type of specimen and date of collection.
- Refrigerate at 4-8 °C and send as soon as possible to CAREC or store at -70°C if shipping is delayed.

### Handling and transport:

- Transport to the laboratory within 2-3 hours of collection. If this is not possible, do not freeze but keep the specimen refrigerated at 4-8°C.
- Keeping the specimen refrigerated will decrease the risk of overgrowth of contaminating organisms
- Ensure that transport containers are leak-proof and tightly sealed.

## 8. POST- MORTEM SPECIMEN COLLECTION

Strict precautions, including respiratory protection from aerosolized particles, must be taken when performing post-mortem specimen collection from communicable disease cases. Collect the specimens as soon as possible, since viral titres decline while bacteria multiply rapidly after death. Thorough post-mortem examinations may only be accomplished by experienced medical personnel. Prior experience and training is also advised for the minimal collection of specimens from cadavers.

### Materials for collection:

- Barrier precautions: double gloves, sterile gown, eye goggles, mask
- For collecting blood and other fluids, refer to corresponding annex for materials.
- Aseptic surgical and biopsy instruments for collecting tissue specimens.
- Fixatives: saline, appropriate viral and bacterial transport media.
- Sterile containers, sterile screw cap tubes or vials and slide box.
- Disinfectant such as household bleach 1:10.

### Method of collection:

- Use a separate sterile instrument for each tissue specimen from affected sites (several fragments with 1-2 grams of each is sufficient). Smaller, but adequate, specimens are taken with a biopsy needle.
- Place difference tissues in separate sterile containers containing the relevant medium: fixatives for histopathology, sterile saline for preparation of tissues for immunofluorescence microscopy; and microbiological transport media for the isolation of bacterial and viral pathogens.
- Label all containers and tighten the screw caps firmly.
- Other specimens are collected as per the relevant annex. Blood may be taken from the heart cavities.
- If cerebral malaria is suspected, make several smears from the cerebral cortex on glass slides to detect *Plasmodium falciparum*. Label the slides and transport in a slide box.

### Handling and transport:

- Fixed specimens can be stored at ambient temperatures
- Tissue specimens for isolation of bacterial pathogens can be transported at ambient temperature in transport media for up to 24 hours.
- Transport tissue specimens for isolation of viral pathogens in viral transport medium or sterile saline at 4-8°C for 24-48 hours. For longer periods, freeze and store at -70°C.
- If rabies is suspected and brain samples are collected, freeze unfixed specimens immediately after collection. Formalin fixed samples are also useful and may be transported at ambient temperature.

## 9. POST- MORTEM SKIN BIOPSY

### Materials for collection:

- Instruments: Punch biopsy tool or scissors and forceps
- Screw-cap vial containing sterile saline.

### Method of collection:

- Take out a vial containing the sterile saline. Lay out the instruments
- If using a punch-biopsy tool, place the open, sharp end on the skin and swivel into the skin, pressing firmly. Remove the tool from the skin and lift the biopsy specimen out with forceps. Cut free with scalpel or scissors. If using a scissors to take the biopsy, lift the skin to be sampled with forceps. Cut a small piece of skin from the area. Use the forceps to remove the skin specimen.
- Place the specimen in a vial containing the sterile saline, and close the screw cap tightly

- Label the specimen vial
- Discard all instruments safely – do not re-use.
- In the diagnosis of rabies, samples from the nape of the neck at the hairline are preferred as concentrations of virus are likely to be high

**Post-mortem skin biopsy for diagnosis of pathogens with high infectious risks (e.g. viral haemorrhagic fever)**

**Materials for collection:**

- All these materials are assembled in one kit. For bio-safety reasons the protective clothing and gloves are for one-time use only, and should be incinerated after use.
- Disinfection solution. Bucket, soap and water
- Gown, latex gloves, heavy duty rubber gloves, plastic apron.
- Masks and, where available, respirators for aerosol protection.
- Instruments: punch biopsy tool or scissors, forceps
- Screw-cap vial containing 10% buffered formalin fixative.

**Method of collection:**

- Put on protective clothing beginning with gown followed by latex gloves, rubber gloves, facial mask, and plastic apron.
- Open the vial containing the formalin fixative. Lay out the instruments.
- Gently turn the head of the cadaver to expose the nape of the neck. This area is selected because it is less visible and is highly vascular
- If using the punch biopsy tool. Place the open, sharp end on the skin and swivel into the skin, pressing firmly. Remove the tool from the skin and lift the biopsy specimen out with forceps. Cut free with scissors. If using scissors to take the biopsy, lift the area of the skin to be sampled with forceps. Cut a small piece of skin from the area. Use the forceps to remove the skin specimen.
- Place the specimen in the vial containing the formalin fixative, and close the screw cap tightly. Dip the closed vial in the disinfectant for 1 minute and allow to dry.
- Drop the instruments in the disinfectant. When finished, remove the outer rubber gloves and drop them in the disinfectant. Keep the latex gloves on while removing materials from the disinfectant.
- Dispose of all protective clothing, rubber and latex gloves, and materials in a plastic bag and incinerate everything.
- Wash your hands well and disinfect with 70% isopropyl alcohol or povidone iodine
- Label the specimen vial.
- Pack the specimen vial and ship at ambient temperature.

Once the sample has been fixed in formalin, the decontaminated vial may be safely transported to the receiving laboratory.

## 10. VERSEAS TRANSPORTATION OF DIAGNOSTIC SPECIMEN

### IMPORTANT Transportation Notes!

- **PLEASE indicate the following on the laboratory requisition form:**
  - a. “LABORATORY INVESTIGATION”
  - b. Patient demographics
  - c. Clinical signs and symptoms
  - d. Date of onset of illness and date of collection of specimen
  - e. Type of specimen
  - f. ‘Travel history’ and/or ‘contact of known case’
  - g. Date of specimen referral
  
- **PLEASE communicate with your national public health authority BEFORE referring samples to CAREC.**

### Specimen Preservation and Shipping:

- ***Submit specimens to CAREC, through the National Reference Laboratory according to CAREC guidelines and the IATA (International Air Transport Association) regulations.***

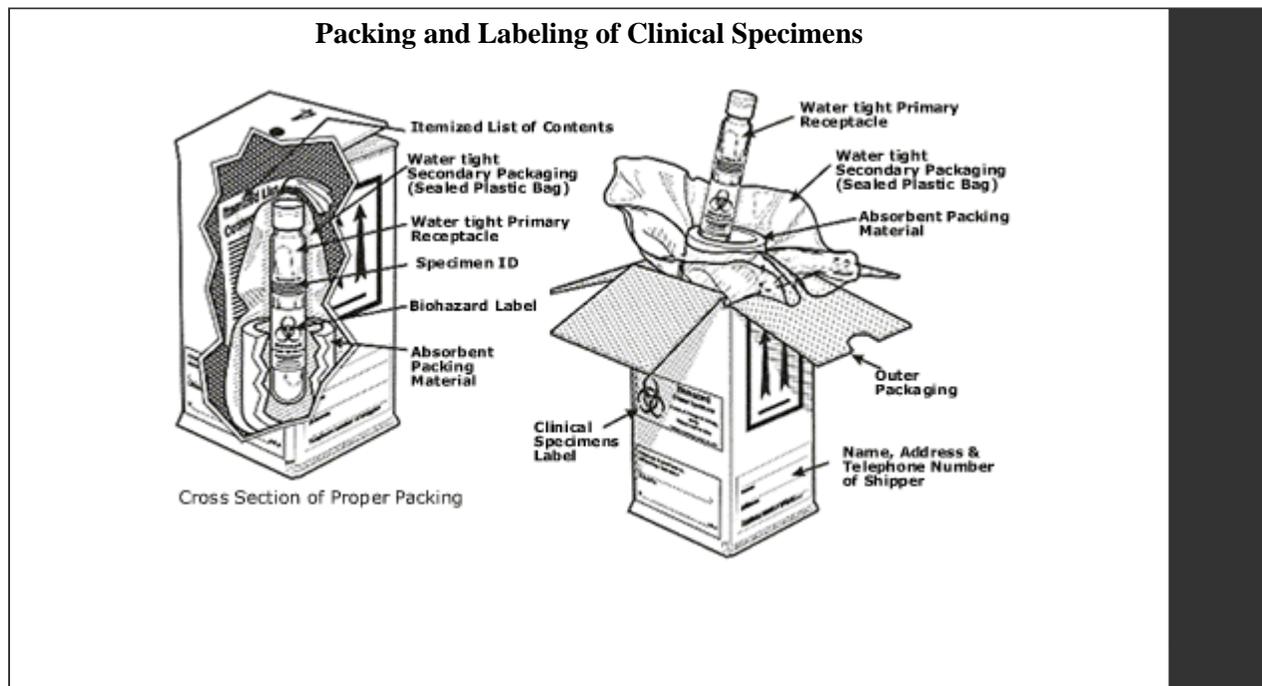
The specimen(s) must be shipped to the national laboratory immediately, if there is a delay of more than 4 hours after collection, the specimen should be refrigerated and sent in wet ice; preservation of specimens for more than 48 hours requires dry ice. If dry ice is not available in the country, please contact CAREC for further instructions.

### **Swabs, tissues, CSF and serum for testing as “Infectious substances affecting animals” UN 2900:**

The Saf-T-Pak can be used as the shipping container provided the specimen can fit in the secondary container. All the IATA regulations will apply:

- a. Wrap the primary container (the container in which the specimen is enclosed such as a vacutainer) with parafilm or sealing tape around the lid. The container must then be wrapped with enough absorbent material to absorb all of the fluid in the primary container. (Note: If using paper towels as absorbent material, use at least one paper towel for each 5 ml of fluid). Additional absorbent should be placed around the container to prevent breakage during transport.
- b. Place the primary container and absorbent wrapping into a sealable plastic bag.
- c. Place the plastic bag into a secure secondary container such as a small cardboard box or mailing tube. This container should prevent crushing of your specimen during transport.
- d. If you are requesting virus isolation procedures, place the bag in a container of dry ice. The container must NOT be air tight, a freeze safe shipping container or other insulated box may be used. Dry ice will cause a build up in pressure when placed in airtight containers. This may break the inner containers and potentially break the airtight outer container as well. ALWAYS use a little more dry ice than recommended to ensure safe arrival of your samples in case of shipping delays. If dry ice is used, a dry ice DOT label must be placed on the bottom right hand corner of the package. No other labels may be placed over this label.
- e. If you are requesting serology, the specimen should be kept cool, but not frozen. The secondary container (the specimen + absorbent + plastic bag) may be placed in an insulated container with blue ice packs. Additional blue ice packs should be used in the summer to ensure specimen integrity in hot weather.

Dry Ice should be placed between the plastic bag and the outer shipping container. Dry ice must be shipped in insulated outer packaging; otherwise the outer packing will become wet and damaged due to condensation of water on the container. NEVER ship dry ice in an airtight container.



**Transportation of specimens:**

Specimens should be sent as “diagnostic specimens” in accordance with the International Air Transport Association dangerous goods regulations <http://www.iata.org/dangerousgoods/index> and <http://www.hazmat.dot.gov/rules.htm>.

**WARNING ON ADDRESSING:** Before sending samples, please contact CAREC Customer Service:  
 Fax: (1.868) 628-9302 Ph: (1.868) 622-4261/2  
 E.mail: [custserv@carec.paho.org](mailto:custserv@carec.paho.org)

Samples have to be addressed to  
**The Director of CAREC**  
**16-18 Jamaica Boulevard**  
**Federation Park**  
**PORT of SPAIN Trinidad, West Indies**

All samples must be packaged in the Saf-T-Pak using IATA packing instruction 650.

**11.FIRST AID PROCEDURES AFTER ACCIDENTAL EXPOSURE TO INFECTIOUS MATERIALS**

**Accidents sharp injury:**

A significant exposure risk is present in any accidental sharps injury, even if no blood is visible and the skin does not appear to be broken.

- Flush the area well in clean running water and wash thoroughly with soap
- Cover with dressing if necessary
- Report the incident to a supervisor or the physician-in-charge immediately.

**Accidental contact with infectious material:**

This includes any unprotected contact between potentially infectious material and broken skin, the mouth, nose or eye.

- Flush the area with soap and clean water. Use water or sterile saline alone for splashes to the eye or mouth.
- Report the incident to a supervisor or the physician-in-charge immediately.

**Immediate actions after accidental exposure:**

Irrespective of the suspected pathogens under investigation, certain procedures must be followed after exposure to potentially infectious material. Patients may be infected with other pathogens unrelated to the outbreak investigation, for example hepatitis B virus or HIV. A baseline blood specimen should be collected immediately from the exposed health care worker and, if feasible, from the source patient. In an outbreak investigation, procedures for possible treatment and for the longer term follow-up of exposed health care workers should be established. Corrective action is required if a procedural cause of accident is identified.

During a suspected viral haemorrhage fever outbreak, the general condition and temperature of the health care worker should be monitored twice daily for three weeks after potential exposure.

## 12. CHEMICAL DISINFECTANTS

Chlorine is the recommended disinfectant for use in field outbreak investigations. An all-purpose disinfectant should have a concentration of 0.05 (= 1 g/litre = 1000 ppm) of available chlorine, with a stronger solution of 0.5% (= 10 g/litre + 10,000 ppm) available chlorine used in situations such as suspected Lassa and Ebola virus outbreaks.

Common methods of describing chlorine concentrations can be very confusing, and often assume that concentrations of chlorine are standard in products which are then diluted to make disinfectants. People and publications frequently refer to routine use of “1%” or “10%” chlorine solutions. What is usually meant by this description is a 1:100 or 1:10 dilution of a liquid product containing 5% available chlorine, which is the concentration in many household bleach preparations. However, chlorine concentrations vary in different products. This information is on the product label, and must be kept in mind when preparing appropriate dilutions. The manufacturer may provide appropriate instructions on how to prepare solutions with concentrations of 0.05% and 0.5% available chlorine. Otherwise, use the guidelines provided below.

An easy to follow Reference Table “Preparation and Use of Chlorine Disinfectant” is given on page 45. Chlorine solutions gradually lose strength on standing, therefore fresh solutions may be prepared daily. Clean water should be used because organic matter reduces the disinfecting properties of the chlorine solution.

### A. COMMONLY USED CHLORINE-BASED DISINFECTANTS

#### **Sodium hypochlorite:**

- Commercial liquid bleaches, such as household bleach (e.g. Chlorox, Eau-de-Javel) generally contain 5% (50 g/litre or 50,000 ppm) available chlorine.
- To prepare a 0.05% available chlorine solution, make a 1 in 100 dilution, i.e., 1 part bleach in 99 parts water to give final concentrations of available chlorine of 0.5% (See Reference Table on page 45).
- Similarly, to make a 0.5% chlorine solution, make a 1 in 10 dilution, i.e. 1 part bleach in 9 parts of water to give final concentration of available chlorine of 0.5% (See Reference Table page 45).

#### **Chlorine powder/Chlorine granules:**

- While the bleach solution described above may satisfy all disinfection needs, calcium hypochlorite powder or chloramine granules 70% may prove convenient for the disinfection of blood spills and other potentially infectious body fluids.
- They may also prove useful under field conditions because of ease of transport. They contain approximately 25% available chlorine. Solutions for disinfection may be made by mixing the powder or granules with clean water (See Reference Table on page 45).
- In addition to its use as a powder, hypochloric powder or granules may be used to prepare liquid chlorine solutions. The recommended formula is a 20g of powder to 1 litre of clean water to give a solution with 5% available chlorine, equivalent to the concentration in most household bleach preparations. (See Reference Table on page 45)

#### **Decontamination of surfaces:**

- Wear an apron, heavy duty gloves, and other barrier protection if needed, and wipe clean with an absorbent material. Disinfect surface by wiping clean with 1:10 dilution of household bleach, then incinerate all absorbent material in heavy duty garbage bags

#### **Decontamination of blood or body fluid spills:**

- For spills, hypochlorite granules should be very liberally sprinkled to absorb the spill and left for at least 30 minutes. If chlorine powder is not available, one may use absorbent materials to soak

up most of the fluid prior to disinfection of the surface with a 1:10 solution of liquid bleach (= 0.5% available chlorine solution, or “10% solution”). These absorbent materials must then be disinfected in bleach prior to disposal.

**Sterilization and re-use of instruments and materials:**

- In the field outbreak situation, it is not advisable to consider sterilization and re-use of any instruments or materials. Sterilization techniques are therefore not described in this document.

**Disinfection of hands:**

- The principal means for disinfection of hands is thorough washing with soap and water. If available, commercial hand disinfectants such as chlorhexidine or povidone iodine may also be used.

**Reference Table. Preparation and use of chlorine disinfectants.**

Chlorine Product	To make: 0.5% available chlorine solution for disinfecting	To make: 0.05% available chlorine solution for disinfecting:
	<ul style="list-style-type: none"> <li>• Excreta</li> <li>• Cadavers</li> <li>• Spill of blood, body fluids</li> </ul>	<ul style="list-style-type: none"> <li>• Gloved hands</li> <li>• Bare hands and skin</li> <li>• Floors</li> <li>• Clothing</li> <li>• Equipment</li> <li>• bedding</li> </ul>
Household bleach (5% active chlorine)	Add 1 litre of bleach to 9 litres of water (1:10 solution)	Add 100ml of bleach to 9.9 litres of water Or Add 1 litre of 1:10 bleach solution to 9 litres of water (yields a 1:100 solution)
Household bleach (30% active chlorine)	Add 16 grams or 1 tablespoon to 1 litre of water	Add 16 grams or 1 tablespoon to 10 litres of water
Calcium hypochlorite powder to chlorine granules 70%	7 grams or ½ tablespoon dissolved in 1 litre of water	7 grams or ½ tablespoon dissolved in 10 litres of water