Regional Surveillance Systems for CAREC Member Countries – Interim Policy Guidelines

ISBN 978-976-8114-31-0

The Caribbean Epidemiology Centre (CAREC) welcomes requests for permission to reproduce or translate its publications, in part or in full. Applications and enquiries should be addressed to CAREC (full address on back page), which will be pleased to provide the latest information on any changes made on the text, plans for new editions, reprints and translations already available.

Third Edition June 2011

Caribbean Epidemiology Centre (CAREC) - 2011
Pan American Health Organization/World Health Organization

Publications of the Caribbean Epidemiology Centre (CAREC) enjoy copyright protection in accordance with the provisions of protocol 2 of the Universal Copyright Convention. All rights are reserved.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of CAREC concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.
# Table of contents

Table of contents ........................................................................................................................................... ii  
List of Appendices ........................................................................................................................................ iii  
Foreword ...................................................................................................................................................... iv  
Acknowledgments ........................................................................................................................................ v  
Abbreviations ............................................................................................................................................... vi  
1. Introduction .................................................................................................................................................. 1  
1.1 Purpose of this document .......................................................................................................................... 1  
1.2 Background to the regional communicable and non-communicable disease surveillance systems ......................................................................................................................... 1  
2. Description of the regional surveillance systems for communicable and non-communicable diseases and deaths .......................................................................................................................... 3  
2.1. Purpose .................................................................................................................................................. 3  
2.1.1 Communicable Disease Surveillance System .......................................................................................... 3  
2.1.2 Non-Communicable Disease Surveillance System ................................................................................. 4  
2.1.3 Mortality Surveillance system ................................................................................................................ 4  
2.2. Objectives ............................................................................................................................................... 4  
2.3. Legal basis ............................................................................................................................................... 5  
2.3.1 Communicable Disease Surveillance ..................................................................................................... 5  
2.3.2 Non-Communicable Disease Surveillance .......................................................................................... 5  
2.3.3 Mortality surveillance ........................................................................................................................... 5  
2.4. Strategic and operational plans ............................................................................................................... 6  
2.5. Reporting chain ......................................................................................................................................... 8  
2.6 Data reporting for Communicable Diseases .............................................................................................. 9  
2.6.1 Reporting of syndromes ....................................................................................................................... 9  
2.6.2 Hospital ward notifications .................................................................................................................. 10  
2.6.3 Reporting of specific diseases ............................................................................................................. 11  
2.6.4 Reporting of Outbreaks, Clusters or Unusual or Unexpected Events .................................................. 11  
2.6.5 Reporting of HIV, AIDS and STIs ........................................................................................................ 12  
2.6.6 Reporting of tuberculosis (TB) and leprosy ......................................................................................... 13  
2.6.7 Reporting of Severe Acute Respiratory Infections (SARI) .................................................................... 13  
2.7 Role of the laboratory in surveillance ....................................................................................................... 14  
2.8 Data reporting for Non-Communicable Diseases .................................................................................... 15  
2.9 Data reporting for mortality surveillance ................................................................................................. 16  
2.10. Data transfer .......................................................................................................................................... 17  
2.11. Analysis and interpretation ................................................................................................................... 18  
2.12. Information dissemination .................................................................................................................... 18  
2.13. Use of data and information .................................................................................................................. 19  
2.14 Monitoring and evaluation ..................................................................................................................... 19  
3. Disaster surveillance .................................................................................................................................... 20  
3.1 Regional and Sub-Regional Response Teams .......................................................................................... 22  
4. References .................................................................................................................................................... 24
List of Appendices

Appendix 1 – Epidemiologic week numbers 2011-2016
Appendix 2 - Conditions under surveillance_2010
Appendix 3 – EPI data collection form
Appendix 4.1 – Weekly syndrome reporting form
Appendix 4.2 – Daily syndrome reporting form
Appendix 5.1 – Case definitions for syndromes under regional surveillance
Appendix 5.2 – Poster of case definitions for syndromes under regional surveillance
Appendix 6 – Syndromic diagnosis flowcharts
Appendix 7 – Guidelines for specimen collection
Appendix 8 – Hospital case notification form
Appendix 9 – Four-weekly disease reporting form
Appendix 10 – Case definitions for diseases under regional surveillance
Appendix 11.1 – CORT guidelines
Appendix 11.2 – CORT outbreak reporting form
Appendix 12.1 – AIDS annual reporting form
Appendix 12.2 – HIV annual reporting form
Appendix 12.3 – STI annual reporting form
Appendix 13.1 – HIV case-based surveillance protocol
Appendix 13.2 – HIV case-based reporting form
Appendix 13.3 – HIV case-based surveillance data exchange protocol
Appendix 13.4 – Laboratory HIV case report form
Appendix 14 – SARI case investigation form
Appendix 15 – SARI surveillance activities flowchart
Appendix 16 – SARI weekly data collection form
Appendix 17 – Minimum dataset for laboratory surveillance
Appendix 18 – Laboratory investigation form
Appendix 19 – NCD minimum dataset description
Appendix 20 – NCD minimum dataset reporting form
Appendix 21 – Age standardized mortality rates guidelines
Appendix 22 – Age standardized mortality rates calculation form
Appendix 23 – PYLL summary sheet
Appendix 24 – PYLL calculation workbook
Appendix 25 – NCD indicators for quarterly reporting
Appendix 26 – NCD quarterly reporting form
Appendix 27 – CAREC Sample Medical Death Certificate Form
Appendix 28 - Surveillance data and indicators
Foreword

How the Caribbean Epidemiology Centre (CAREC) supports surveillance and response in member countries

The Multilateral Agreement for the operation of CAREC mandates that it is responsible for the overall promotion and coordination of the Caribbean regional public health surveillance system for the Centre’s member countries; and for building capacity in epidemiology, laboratory and related public health disciplines. As part of this process, CAREC works with member countries to develop guidelines and policies through meetings of National Epidemiologists, Laboratory Directors, Chief Medical Officers and Programme Managers, and with inputs from disease prevention and control programmes in the Pan American Health Organization/World Health Organization (PAHO/WHO), with whom our surveillance programmes are congruent, as well as from other public health organizations.

Surveillance systems are strengthened through the provision of technical cooperation to member countries to support and enhance their capacity in the areas of surveillance and risk assessment for communicable diseases, including air borne, food and water borne, sexually transmitted, vector borne and vaccine preventable diseases; surveillance of non-communicable diseases and their risk factors, injuries and violence; mortality; preparation and response to disasters, emergencies and special situations as it pertains to surveillance; and outbreak investigations. Surveillance is promoted as the mechanism that public health agencies should use to monitor the health of their communities. The work of the Centre encompasses strengthening all aspects of surveillance, namely data collection, collation, validation, analysis and interpretation; laboratory support for surveillance; and the production and use of timely information for planning, implementation and evaluation of public health practice.

The Centre maintains and provides norms and forms for the reporting, monitoring and investigation of syndromes, diseases, deaths and outbreaks. Regular feedback and exchange of information is facilitated by on-going communication with member countries, CAREC surveillance reports, surveillance summaries and supplements and public health alerts and updates. Training in surveillance and outbreak investigation is used to develop national capacity. Laboratory support for surveillance and response is provided in a variety of ways, including early identification of changing disease trends and outbreaks, the provision of reference testing services and antimicrobial resistance monitoring. Within the limits of resources available, the Centre sometimes provides information technology (IT) support, such as training and software.

Advocacy on the importance of surveillance and resources needed for it is conducted by CAREC with national and regional policy makers. Finally, periodic evaluations of the quality of national surveillance systems are conducted and feedback and technical assistance are provided to aid revision and strengthening.

Dr. Beryl Irons
Director
Caribbean Epidemiology Centre (CAREC/PAHO/WHO)
Acknowledgments

The first version of this document was developed in 2005 by the CAREC Surveillance and Response Team in collaboration with the National Epidemiologists and Laboratory Directors from CAREC member countries* and other CAREC staff members. It was revised in 2008 and again in 2010.

The first two editions in 2005 and 2008 focussed on only communicable disease surveillance. This edition has expanded to include information on surveillance for non-communicable diseases, deaths and post-disaster situations. The minimum dataset of non-communicable disease indicators to be used for surveillance was developed through the collaborative work of PAHO Washington DC, PAHO country offices, WHO Headquarters, CAREC and its member countries.

*CAREC member countries:
Anguilla          Guyana
Antigua and Barbuda Jamaica
Aruba             Montserrat
Bahamas           Netherlands Antilles
Barbados          St. Kitts and Nevis
Belize            St. Lucia
Bermuda           St. Vincent and the Grenadines
British Virgin Islands St. Maarten
Cayman Islands    Suriname
Curacao           Trinidad and Tobago
Dominica          Turks and Caicos Islands
Grenada
Extra ordinary municipalities of the Netherlands (Bonaire, Saba and St. Eustatius)
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS</td>
<td>Acquired Immunodeficiency Syndrome</td>
</tr>
<tr>
<td>ARI</td>
<td>Acute Respiratory Infection</td>
</tr>
<tr>
<td>CAREC</td>
<td>Caribbean Epidemiology Centre</td>
</tr>
<tr>
<td>CARICOM</td>
<td>Caribbean Community and Common Market</td>
</tr>
<tr>
<td>CCH</td>
<td>Caribbean Cooperation in Health</td>
</tr>
<tr>
<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
</tr>
<tr>
<td>CSF</td>
<td>Cerebrospinal Fluid</td>
</tr>
<tr>
<td>CSME</td>
<td>CARICOM Single Market and Economy</td>
</tr>
<tr>
<td>CSR</td>
<td>CAREC Surveillance Report</td>
</tr>
<tr>
<td>DALY</td>
<td>Disability Adjusted Life Years</td>
</tr>
<tr>
<td>EPI</td>
<td>Expanded Programme on Immunization</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>ILEP</td>
<td>International Federation of Anti-Leprosy Associations</td>
</tr>
<tr>
<td>PAHO</td>
<td>Pan American Health Organization</td>
</tr>
<tr>
<td>PPT</td>
<td>Plasma Preparation Tube</td>
</tr>
<tr>
<td>PYLL</td>
<td>Person Years of Life Lost</td>
</tr>
<tr>
<td>SAC</td>
<td>Scientific Advisory Committee</td>
</tr>
<tr>
<td>STI</td>
<td>Sexually Transmitted Infection</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>US</td>
<td>United States of America</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
1. Introduction

1.1 Purpose of this document

All CAREC member countries must have functioning surveillance systems for communicable and non-communicable diseases and deaths. Each country must also have guidelines approved and endorsed by relevant authorities in the Ministry of Health to support these systems. This regional policy guidelines document is:

⇒ a guide for the development or strengthening of national surveillance guidelines for communicable and non-communicable diseases and deaths;
⇒ intended to be used as an advocacy tool for the development of national and regional surveillance systems for communicable and non-communicable diseases and deaths;
⇒ a description of the regional surveillance systems for communicable and non-communicable diseases and deaths.

1.2 Background to the regional communicable and non-communicable disease surveillance systems

In John Last’s Dictionary of Epidemiology surveillance is defined as the continuing scrutiny of all aspects of occurrence and spread of a disease that are pertinent to effective control. The US CDC definition of surveillance is the ongoing systematic collection, analysis and interpretation of outcome specific data for use in planning, implementation and evaluation of public health practice. As shown in the WHO framework in Figure 1, efficient and effective surveillance relies on timely and accurate reporting of health events and risk factors.
Figure 1: WHO General Principle for Surveillance

The Caribbean is faced with a complex mosaic of health conditions that include chronic non-communicable diseases and emerging and re-emerging infectious diseases, such as HIV/AIDS, tuberculosis, and dengue haemorrhagic fever, co-existing with social pathologies that can give rise to substance abuse, injuries and violence. Additionally, the Caribbean Tourism Organization (CTO) Statistical Report states that the Caribbean is the most tourism-dependent region in the world making national economies inordinately sensitive to disease outbreaks. Effective public health surveillance systems are necessary to facilitate timely detection of outbreaks, monitor changing disease trends and guide timely and relevant responses which are essential for maintaining healthy populations and stimulating productivity and economic development within the region.

With respect to communicable disease surveillance, the WHO International Health Regulations (IHR (2005)), which came into force in June 2007, provides a legal framework for actions to prevent the international spread of disease. It states that each member state is responsible for ensuring that the required surveillance systems are established to facilitate the early detection of, and appropriate and timely response to, unusual disease events. Member states are required to attain a minimum core capacity in the areas of surveillance and response at the district and national levels. The regional communicable disease surveillance system was revised in 2005 and again in 2010, taking into account the IHR (2005).
With respect to non-communicable disease surveillance, at the 2007 regional Summit of Heads of Government of CARICOM on non-communicable diseases, the Governments agreed that immediate collective actions were necessary for the prevention, treatment and control of non-communicable diseases. Ministries of Health were mandated to establish by mid-2008 comprehensive plans for the screening and management of chronic diseases and risk factors, so that by 2012, 80% of people with non-communicable diseases would receive quality care and have access to preventive education based on regional guidelines. The Ministers at the Summit declared that they would establish as a matter of urgency, the programmes necessary for surveillance of the risk factors for non-communicable diseases with support from the Universities in the region and from CAREC. Technical specifications for the surveillance of a minimum dataset of non-communicable indicators were developed by the Pan American Health Organization Inter-Programmatic Non-Communicable Disease Surveillance Working Group in 2007-2008 and it was finalized in 2010.

Effective surveillance systems for communicable and non-communicable diseases and deaths, which provide timely information on health events to promote disease prevention and control, also support the goals and objectives of the Caribbean Cooperation in Health (CCH). This region is comprised of small countries with a long history of co-operation in health-related activities, both within and between them, which provides a good basis for further strengthening the regional surveillance systems for communicable and non-communicable diseases and deaths.

Section 2 describes the current regional surveillance systems for communicable and non-communicable diseases and deaths.

2. Description of the regional surveillance systems for communicable and non-communicable diseases and deaths

2.1. Purpose

Effective surveillance systems will support the goals and objectives of the Caribbean Cooperation in Health (CCH) and the CARICOM Single Market and Economy (CSME). Surveillance information is also needed for policy development, planning and evaluation.

2.1.1 Communicable Disease Surveillance System

The purpose of the regional communicable disease surveillance system is to collect, collate and analyse data; and interpret and disseminate information; on specified syndromes and diseases from all CAREC member countries to prevent and control those conditions.

An effective communicable disease surveillance system, which provides timely information on health events and promotes disease prevention and control, will provide countries with the capacity to implement the revised IHR (2005).
2.1.2 Non-Communicable Disease Surveillance System

The purpose of the regional non-communicable disease surveillance system is to collect, collate and analyse data; and interpret and disseminate accurate, timely and comparable information in order to develop or expand health programmes; strengthen health care systems; and reduce premature, preventable loss of life, loss of productivity and health care costs.

An effective non-communicable disease surveillance system, which effectively monitors and provides timely information on the health situation, socioeconomic determinants of health and data on programme performance will provide information to support the 2007 Port-of-Spain Declaration on Non-Communicable Diseases.

2.1.3 Mortality Surveillance system

Surveillance of mortality data is vital to the development of regional and national health policies and aids in the prevention and control of diseases in public health settings. Mortality statistics, compiled from medical certificates of death, are the only disease related data collected on a routine basis that is population based. In spite of limitations with respect to data quality, as a health indicator mortality is easier to measure than morbidity and is historically more often complete. Mortality data are very useful for monitoring trends; making comparisons between and within countries and regions; and estimating the burden of premature death.

2.2. Objectives

The major objectives of these surveillance systems are to:

⇒ detect and respond to outbreaks in a timely fashion
⇒ estimate the magnitude of health problems and their determinants and monitor trends
⇒ provide data to support programme planning, monitoring and evaluation
⇒ assist with monitoring and evaluation of national and regional communicable and non-communicable disease surveillance systems
⇒ strengthen national communicable and non-communicable disease surveillance systems
⇒ effectively communicate health information

Additional objectives of the system are to:

⇒ test hypotheses about aetiologies
⇒ detect changes in health practice
⇒ assess quality of health care
⇒ identify research needs
2.3. Legal basis

Regional surveillance is mandated under the multi-lateral agreement between CAREC and its member countries and is implemented through the annual meetings of Chief Medical Officers, Caribbean National Epidemiologists, Laboratory Directors and Programme Managers, who agree upon surveillance systems and contribute to revisions and amendments. This supports the CCH initiative for the prevention and control of communicable diseases. The multilateral agreement also mandates that surveillance activities shall be coordinated with the surveillance programmes of PAHO/WHO.

All member countries have legislation and/or regulations governing the reporting of communicable diseases, and some also have legislation governing the reporting of non-communicable diseases (e.g. diabetes), which state the conditions that are nationally reportable by law. However, health legislation is outdated in many countries and needs to be revised.

2.3.1 Communicable Disease Surveillance

All CAREC member countries are WHO member states and as such are signatory to the International Health Regulations (IHR (2005)), which requires all member states, among other things, to report all potential public health emergencies of international concern to WHO and to respond to these emergencies in a timely manner. This requires all countries to have a minimum core capacity in the areas of surveillance and response as outlined in the regulations available at: http://www.who.int/ihr/9789241596664/en/index.html

2.3.2 Non-Communicable Disease Surveillance

In September 2007, the Heads of Government of the Caribbean Community (CARICOM) signed the Declaration of Port-of-Spain: Uniting to Stop the Epidemic of Chronic Non-Communicable Diseases. In this declaration the Heads of Government gave their full support for the initiatives and mechanisms aimed at strengthening regional health institutions, to provide critical leadership required for implementing their agreed strategies for the reduction of the burden of Chronic, Non-Communicable Diseases as a central priority of the Caribbean Cooperation in Health Initiative Phase III (CCH III). The declaration also strongly encourages the establishment of National Commissions on non-communicable diseases or analogous bodies to plan and coordinate strategies for the comprehensive prevention and control of chronic non-communicable diseases.

2.3.3 Mortality surveillance

The completion of medical cause of death certificates is a legal requirement in all member countries and registration of deaths is part of the national vital statistics systems.
2.4. Strategic and operational plans

National policies on surveillance for communicable and non-communicable diseases and deaths are critical for guiding planning and implementation activities and support the sustainability of the systems. At both the national and regional level there should be strategic and operational plans for the surveillance of communicable and non-communicable diseases and deaths. These plans must address all components of the system (as indicated in Figure 2), namely:

⇒ surveillance structure - guides and regulates the system
⇒ surveillance quality - monitors quality of the system and indicates the extent to which system objectives are being met
⇒ core functions - components of the system
⇒ support functions - essential for sustainability of the system
Figure 2: Conceptual framework of surveillance and response systems for communicable diseases (Adapted from a WHO framework)
2.5. Reporting chain

In-country health care providers such as health centres, hospitals, laboratories and private physicians, as identified by each country, are responsible for the transmission of data on communicable and non-communicable diseases and determinants to the national level as indicated in section 2.6. In some countries, health care providers report data directly to the national level and in others they report to an intermediary regional/district/parish level that reports to the national level.

Mortality data are obtained directly from medical certificates of cause of death, which are completed by a Certifying Physician or Pathologist. Copies of the death certificates are sent from registrars to a National Central Statistical Office or the Ministry of Health, where they are coded.

At the national level, the office of the National Epidemiologist is responsible for the transmission of surveillance data and information to CAREC. The office of the National Epidemiologist, in collaboration with the National Surveillance and Response Team, is also responsible for the dissemination of information within country.

At the regional level, CAREC is responsible for the dissemination of data and information to PAHO/WHO and other stakeholders and partners, including member countries.

The reporting chain and feedback levels are outlined schematically in Figure 3.
Figure 3: Reporting and feedback levels

2.6 Data reporting for Communicable Diseases

Syndromes and diseases are to be reported according to epidemiological week. Epidemiological weeks start on a Sunday and end on a Saturday; The first epidemiological week of the year ends, by definition, on the first Saturday of January, as long as it falls at least four days into the month, even if it means that this first week starts in December. The 2011 epidemiological calendar began on Sunday January 2, 2011. The epidemiological weeks for 2012-2016 can be found in Appendix 1

The epidemiological week for each case is based on:
1. the date the patient presents to health facility - for syndromes
2. the date of onset of illness - for confirmed diseases/outbreak cases/suspected cases
The following reports shall be transmitted nationally and regionally as described in sections 2.6.1-2.6.8:

- Reports of syndromes (Section 2.6.1)
- Hospital ward notifications (Section 2.6.2)
- Reports of specific diseases (Section 2.6.3)
- Reports of outbreaks, clusters or unusual or unexpected events (Section 2.6.4)
- HIV, AIDS and STI reports (Section 2.6.5)
- Tuberculosis (TB) and Leprosy reports (Section 2.6.6)
- Reporting of Severe Acute Respiratory Infections (Section 2.6.7)

Reporting systems also exist under the Expanded Programme on Immunization (EPI) for the control, elimination or eradication of diseases such as poliomyelitis, neonatal tetanus, yellow fever, diphtheria, pertussis, tetanus, Haemophilus influenzae type b, hepatitis B, measles and rubella. These systems are described in the PAHO regional field guides (listed in the Reference section of this document).

Patient confidentiality is to be respected and maintained at all levels of the reporting chain.

### 2.6.1 Reporting of syndromes

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 2 (from all reporting sites) shall be reported to CAREC by the office of the National Epidemiologist in countries. 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 3 and the other syndromes shall be reported on the CAREC Weekly Report form in Appendix 4.1. A template for a weekly reporting form that can be used in-country is given in Appendix 4.2. Case definitions for the syndromes under regional surveillance are contained in Appendices 5.1 and 5.2. Guidelines on aetiologies associated with syndromes and appropriate sample collection are contained in Appendices 6 and 7.

Please note that not all patients who visit a health facility will be classified as one of the syndromes under surveillance. For example, a person with a laceration, stroke, or headache alone would not be classified into any of the syndromes.

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.
2.6.2 Hospital ward notifications

Countries must have an established mechanism for the routine monitoring of persons admitted into a hospital (participating in the national 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 relevant epidemiologist (national or in-country regional). The sample case notification form contained in Appendix 8 may be used to collect and transmit this information. The need for an epidemiological case investigation will be determined by the national or in-country regional epidemiologist. Hospital ward notifications are for in-country use and are not required to be reported to CAREC.

2.6.3 Reporting of specific diseases

Cases of diseases are to be reported based on date of onset of illness. Age and sex specific data on cases of diseases listed in the “Four-weekly data collection” section of Appendix 2 (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 template for data transmitted to CAREC on a four-weekly basis is given in Appendix 9. However, case-based reports that include the variables outlined in Appendix 9 can be used. Case definitions for diseases under regional surveillance are contained in Appendix 10. Syndromic diagnosis flowcharts, which show the relationship between the syndromes and diseases under surveillance, are contained in Appendix 6.

2.6.4 Reporting of Outbreaks, Clusters or Unusual or Unexpected Events

The office of the National Epidemiologist is advised to provide an ‘alert’ (early notification) of an outbreak, cluster or unusual or unexpected event to CAREC, especially if technical assistance may be required. All unusual disease situations must be looked into and every identified outbreak must be investigated by the appropriate authorities. 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 Appendices 11.1 and 11.2. All outbreaks for which an outbreak investigation was conducted should be recorded on the form, especially those with unusually large numbers of cases and/or with the potential for spread to other countries.

In compliance with International Health Regulations, all countries are to notify the regional IHR focal point in PAHO Washington DC of Public Health Emergencies of International Concern (PHEIC) at:

E-mail: ihr@paho.org
Telephone (24/7): +1 202 368 8929
Fax (24/7): +1 202 351 0548

These notifications are to be done within 24 hours of identification. Details on the identification and reporting of PHEIC can be found in Annex 2 of the WHO International Health Regulations at http://www.who.int/ihr/9789241596664/en/index.html

2.6.5 Reporting of HIV, AIDS and STIs

Annual summaries of HIV, AIDS and selected STIs data shall be reported to CAREC using the forms contained in Appendices 12.1-12.3. The annual summaries shall be transmitted to CAREC no later than three months after the end of each calendar year. Countries also have the option to submit HIV, AIDS and selected STIs data on a four-weekly basis using the form contained in Appendix 8. Case definitions for HIV, AIDS and the STIs under surveillance are contained in Appendix 10.

HIV case-based surveillance is being introduced into the region, with countries at different stages of implementation. In HIV case-based surveillance, the WHO clinical staging system is to be used to report all HIV cases regardless of the clinical stage; and is to include surveillance for advanced HIV disease. Additionally, the annual reporting of HIV and AIDS cases is to be done concurrently with the implementation/strengthening of HIV case-based surveillance. This will enable the continued tracking of the trend in AIDS during the period of HIV testing, care and treatment scale-up. HIV and AIDS cases should be reported based on the date the person was first diagnosed with HIV and/or AIDS. The most recent case definition for AIDS in the WHO clinical staging system should be used, i.e. clinical stage 4 or CD4 count less than 200 or less than 15%. Countries implementing HIV case-based surveillance should submit their updated HIV surveillance database to CAREC no later than three months after the end of each calendar year.

The WHO HIV/AIDS Programme publication, which describes the clinical staging system and is entitled “WHO case definitions of HIV for surveillance and revised clinical staging and immunological classification of HIV-related disease in adults and children” can be found at http://www.who.int/hiv/pub/guidelines/HIVstaging150307.pdf
HIV case-based surveillance aims to set up a regional Caribbean database of anonymous longitudinal data on individual HIV positive patients. Information from the moment of HIV diagnosis is collected, as well as longitudinal information during follow-up and treatment. These data allow for advanced regional and national reporting on the HIV epidemic, monitoring and evaluation of access to treatment, treatment programme and quality outcomes, including HIV Early Warning Drug Resistance indicators and a number of other indicators requested by international partners and funding agencies.

Appendix 13.1 contains the protocol for HIV case-based surveillance. Countries using a manual data collection system must use a standardised surveillance reporting format at all levels within countries: reporting health facilities, sub-national (if applicable) and national level. The template form for HIV case-based surveillance is provided in Appendix 13.2. Appendix 13.3 contains a data exchange protocol for countries with already existing databases to facilitate the extraction of surveillance data from these databases.

The template form for laboratory investigation are provided in Appendix 13.4

**2.6.6 Reporting of tuberculosis (TB) and leprosy**

Tuberculosis (TB) data shall be reported to CAREC on a four-weekly basis using the form contained in Appendix 9. On an annual basis, countries are to submit TB reports directly to the World Health Organization (WHO) via the on-line reporting mechanism. The link for confidential reporting by countries is provided to each country from their PWR office.

Leprosy data shall be reported to CAREC on a four-weekly basis using the form contained in Appendix 9. On an annual basis, leprosy cohort data are to be reported directly from countries to PAHO via their respective PWR offices on the PAHO forms provided.

**2.6.7 Reporting of Severe Acute Respiratory Infections (SARI)**

There are several countries participating in the regional Severe Acute Respiratory Infection (SARI) sentinel surveillance system. These countries have identified a sentinel hospital(s) to participate in SARI surveillance. On a weekly basis, these hospitals shall submit a SARI case investigation form for each SARI case entering the facility using the form in Appendix 14; and in accordance with the SARI sentinel surveillance activities flowchart in Appendix 15. A specimen shall also to be taken from each SARI case and tested for respiratory illnesses.

SARI cases shall be reported from sentinel countries to CAREC by the office of the National Epidemiologist using the form contained in Appendix 16. 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).
2.7 Role of the laboratory in surveillance

The laboratory has a critical role in public health surveillance and disease control, the primary one being confirmation of aetiology. 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 anti-microbial 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 should be reported, with at least the parameters described in the laboratory surveillance minimum dataset (Appendix 17). 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 in-country laboratory to the office of the National Epidemiologist in a format and via a mechanism as determined by the country.

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

All samples referred to CAREC shall be accompanied by the laboratory investigation form in Appendix 18 or any other form that includes all the data listed in this Appendix. This form may also be used for in-country communicable disease laboratory requisitions and reports. The minimum data for inclusion on specimen labels are:

- Patient identifier
- 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. It is recommended that all cases hospitalized with one of the syndromes under surveillance should have a specimen taken and tested. While the number of specimens tested for clinical purposes is determined by individual countries; for surveillance purposes, cases with one of the syndromes under surveillance that are not hospitalized should have specimens taken and tested as follows:

- Fever and neurological symptoms – a specimen should be tested for each case identified
- Fever and haemorrhagic symptoms – a specimen should be tested for each case identified
- Fever and respiratory symptoms (ARI) – Up to six cases per week
- Gastroenteritis – Up to six cases per week
- Undifferentiated fever – Up to six cases per week

During epidemics, once aetiology 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 7; ‘Clinical and laboratory guidelines for dengue fever and dengue haemorrhagic fever/dengue shock syndrome’; and the Expanded Programme on Immunization Field Guides referenced at the end of this document.

2.8 Data reporting for Non-Communicable Diseases

A minimum dataset of non-communicable disease indicators was developed through the collaborative work of PAHO Washington DC, PAHO country offices, WHO Headquarters, CAREC and its member countries. This dataset represents a selection of standard data that are most likely to be part of data collection in national and international reporting. The dataset uses a step-wise approach, with 44 core, 19 optimum and 12 optional data elements. Appendix 19 contains a full description of each of the indicators in the minimum, optimum and optional dataset for chronic non-communicable diseases, violence and injuries.

The non-communicable disease dataset combines multiple data sources in one functional annual reporting system as a foundation for chronic non-communicable disease surveillance. Countries are to collect data on at least the core indicators included in the non-communicable disease minimum dataset. These data are to be reported annually to CAREC from the office of the National Epidemiologists using the Excel reporting form provided in Appendix 20. These reports are to be submitted by May 30 each year for the previous calendar year. Countries are also encouraged to report on the other indicators (Expanded and Optional) included in the minimum dataset. Additional tools to assist with the calculation of Age-Standardized Mortality Rates and Potential Years of Life Lost (PYLL) can be found in Appendices 21-24.
In addition to the annual reporting on the non-communicable disease minimum dataset, there are four indicators that countries have the option to report on to CAREC on a quarterly basis from at least one sentinel hospital per country. These four indicators are:

- Incident myocardial infarctions (Heart attacks)
- Incident cerebrovascular accidents (Stroke)
- Hospital discharge with diabetes
- Amputations due to diabetes

Appendix 25 contains details on these four indicators, including case definitions, calculation methods, data sources and significance and rational for the additional focus on these indicators. These reports shall be transmitted to CAREC from the office of the National Epidemiologist using the reporting form in Appendix 26, no later than one month after the end of each quarter.

2.9 Data reporting for mortality surveillance

Medical cause of death certificates (commonly called death certificates) are completed by a Certifying Physician or Pathologist, with information including demographic information on the deceased and the underlying and contributory causes of death.

Although the format of medical cause of death certificates may vary between countries, the cause of death section from which the underlying cause of death is obtained is standard. The CAREC recommended medical cause of death certificate is contained in Appendix 27. Medical cause of death certificates should be completed for all deaths, including stillbirths and perinatal deaths that meet the WHO criteria for inclusion in mortality statistics. The guidelines for the standards and reporting requirements related to fetal, perinatal, neonatal and infant mortality can be found in the WHO International Statistical Classification of Diseases and Health Related Problems version 10 (ICD-10) Instruction manual (Volume 2). The corresponding recommended Certificate of Cause of Perinatal Death can also be found in this manual.

Registration of deaths is done by Registrars in countries. This serves an important legal role which includes providing the necessary documentation for burial and insurance purposes.

The Central Statistical Office and/or the Ministry of Health collate and analyse mortality data from medical cause of death certificates. These units are responsible for assigning the appropriate ICD-10 code to each cause of death listed on the certificate and for selecting the underlying cause of death using the National Center for Health Statistics (NCHS) Decision Tables and WHO ICD-10 guidelines.

The latest version of the ICD-10 instruction manuals are available at: http://www.cdc.gov/nchs/nvss/instruction manuals.htm
In some countries, particularly those with a relatively large number of deaths annually, an automated Medical Mortality Data Software System (MMDS) is used to assist with coding causes of death and selecting the underlying cause of death. This software also utilizes the coding rules contained in the NCHS Decision Tables and WHO ICD-10 guidelines. There are instances where MMDS fails to assign codes and select the underlying cause of death and manual coding is required for these records.

Individual case data on deaths for a given year are to be submitted to CAREC within 18 months of the end of the year (e.g. data for the year 2009 shall be transmitted to CAREC by June 30, 2011). The minimum variables required to be submitted to CAREC are as follows:

⇒ Unique ID
⇒ Country
⇒ Year of death
⇒ Age (or date of birth and date of death)
⇒ Unit of age (where age is given)
⇒ Gender
⇒ ICD-10 code for Underlying Cause of Death (UC)

Where available, the following additional variables should also be submitted to CAREC:

⇒ Nationality
⇒ Residential status
⇒ Parish/District (or address) of deceased
⇒ Place of occurrence of death (e.g. hospital, home, workplace, street)
⇒ ICD-10 code for all conditions entered in Part 1
⇒ ICD-10 code for all conditions entered in Part 2
⇒ Whether the death was the result of a transport injury (yes/no)
⇒ Description of the injury

Mortality data from Ministries of Health are cleaned and validated by CAREC to ensure that the reported codes are valid for their age and gender and as an underlying cause of death. Errors are returned to countries for corrections and these are to be corrected and re-submitted to CAREC within three months of receipt of these data in countries.

2.10. Data transfer

Data are transferred from the district/parish/regional level as specified by the country. Data are transferred from the national level to CAREC either electronically or via fax and CAREC disseminates data to PAHO/WHO and other stakeholders and partners electronically. CAREC recommends that countries should utilize appropriate ICT for data storage and transfer.
2.11. Analysis and interpretation

At the national level, countries are responsible for data validation, analysis and interpretation for their specific country.

CAREC is responsible for conducting regional analyses and interpretation of data received from countries. CAREC is also responsible for following-up with countries to validate data and investigate unusual reports and changing disease trends.

2.12. Information dissemination

The national level is responsible for dissemination of feedback on communicable and non-communicable diseases and deaths within their countries and to other key stakeholders. The national level is also responsible for disseminating relevant Health Alerts within their country.

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

⇒ CAREC Surveillance Report (CSR) – Produced every eight epidemiological weeks and reports on syndromes, specific communicable and non-communicable diseases, risk factors, outbreaks, and regional and international news and announcements.
⇒ CSR supplements: Articles and detailed reports on specific issues.
⇒ CAREC annual report: Contains an annual epidemiological overview on the health situation in CAREC member countries.
⇒ CAREC alerts: Public health alerts and regional and international information of interest produced as necessary.
⇒ Weekly notifications to countries on unusual trends or changes in numbers of reported syndromes.

These documents are available on the CAREC website (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 internet-based system for the global surveillance of dengue (DengueNet), the WHO Global Surveillance Network for Influenza (FluNet) and the European Working Group for Legionella Infections (EWGLI).
2.13. Use of data and information

Nationally, countries should use data and information for:
- direct action for prevention and control e.g. therapy, prophylaxis, outbreak investigation and control
- programme, intervention and policy planning and decision making, development and implementation
- priority setting and resource allocation
- evaluation and monitoring
- research

Regionally, CAREC should use data and information for:
- initiating appropriate activities, e.g. outbreak investigations, control activities, development of guidelines
- evaluation and monitoring
- advocacy
- Policy and decision making
- supporting the planning, monitoring and evaluation of regional disease programmes, such as those for Non-Communicable Diseases; Immunization; Chronic communicable diseases, such as Tuberculosis, HIV and AIDS; and other communicable diseases, such as Leprosy and Food borne diseases
- research

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

2.14 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 surveillance systems for communicable and non-communicable diseases and deaths shall be routinely monitored using appropriate indicators. The regional communicable and non-communicable diseases and deaths surveillance system performance indicators are listed in Appendix 28. 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
- Core functions
- Support functions

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

The regional surveillance systems should be evaluated about every 5 years by a group consisting of representatives from CAREC, its member countries and other appropriate stakeholders and/or partners. This evaluation will include a review and rationalization of the syndromes, diseases and risk factors under surveillance.

Countries should ensure that there are in-built mechanisms for monitoring and evaluating their national surveillance systems. National surveillance systems should be evaluated about every 5 years. 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.

3. Disaster surveillance

In post disaster situations, there are often large populations in need of urgent humanitarian relief, displaced and relocated persons; and even poor coordination among the many agencies responding to the situation. Displacement and relocation of large numbers of persons can result in overcrowding, inadequate shelter for large numbers of persons, poor or unsafe water supply, poor sanitation, a lack of/limited access to basic health care and increased exposure to disease vectors. These conditions could lead to increased risk of transmission of communicable diseases and epidemics. Additionally, due to limited access to medication, persons may also experience crisis with chronic diseases. Young children, the elderly, pregnant women, the disabled, persons will chronic conditions and chronically ill persons are particularly vulnerable in these emergency situations.
The Caribbean is vulnerable to natural disasters such as hurricanes, floods, volcanoes and earthquakes; as well as deliberate events such as terrorism, including bioterrorism. In emergency situations the main causes of illness and death tend to be diarrhoeal diseases, acute respiratory infections, trauma, malnutrition, and malaria in endemic areas. In post disaster situations the main objectives of disease surveillance is the early detection of changing disease patterns in order to prevent and control spread of diseases. The core functions and principles of surveillance in post disaster surveillance are:

- Rapid assessment
- Disease prevention and control; and injury prevention
- Surveillance
- Outbreak control
- Disease management (including prevention of exacerbation of chronic diseases)

Rapid assessments are necessary to quickly determine health risks, including potential epidemics; health needs; health status to determine baselines; and to assist with health co-ordination between groups such as government sectors, national and international agencies and non-governmental organizations.

Disease and injury prevention and control requires a healthy and safe environment with adequate water, food, and sanitation. Strong vector control and vaccination programmes, as well as basic health care, including laboratory services are also essential.

Surveillance of syndromes and diseases; and living conditions and needs is necessary for the early detection of changing disease situations and timely response to outbreaks. Surveillance data are also used to monitor disease trends. Post disaster surveillance should be conducted using existing surveillance systems, adapted to the situation. This adaptation is likely to include increased frequency of reporting - usually daily, with additional sites such as shelters reporting data and perhaps with additional syndromes. The objectives of surveillance during post disaster periods are to:

- Identify public health priorities
- Collect and analyze morbidity and mortality data
- Detect outbreaks and monitor response
- Monitor incidence and case-fatality trends
- Monitor effectiveness of health interventions
- Provide information to the Ministry of Health, agencies, etc

In adapting existing surveillance systems to meet the needs during post disaster periods there are several questions to be considered, including:

- What is the population under surveillance?
- What data are to be collected for what purpose?
- Who will provide these data?
- What will be the data collection period?
How will data be transferred from the reporting sites to the central level?
Who analyses which data and how often?
How often will reports be disseminated?
Who is on the surveillance team and what are the roles of the members?
What are the case definitions being used?

Outbreak control requires adequate preparedness with standard treatment protocols, trained outbreak response teams, sufficient stockpiles and appropriate laboratory support. Early detection of, and rapid response (confirmation, investigation, implementation of control measures) to, changing disease situations are also necessary.

Disease management, both preventative and curative, is also essential using rapid diagnosis, effective and prompt treatment, standard protocols and trained staff.

3.1 Regional and Sub-Regional Response Teams

In recent years, several major disaster events occurred, sometimes simultaneously and sometimes exceeding PAHO’s and CAREC’s response capacities and requiring the deployment of health sector experts. At the request of the Ministers of Health\(^1\), PAHO and CAREC have established Regional and Sub-regional Response Teams for disasters, thus expanding the number of health sector experts in the countries. These experts, with their experience in management of disaster situations and proper training, can collaborate and assist in the event of a disaster.

Members of the Response Teams will be available for deployment at short notice to support the health sector in an affected country and to quickly assess critical needs and provide technical cooperation to the country. PAHO and CAREC are responsible for training and coordinating the Response Teams. The PAHO Disaster Group activates the Response Team. The technical capability required to face an event is determined by the nature, complexity, and the location of the disaster. It is the responsibility of the team members to work with their governmental counterparts in the general planning and in the execution/supervision of the response activities, and to compile information on the degree of the physical damage after a disaster.

Evaluate damages to hospitals, clinics, water/sanitation and waste disposal systems, electric power, communication and road networks.
Identify immediate needs in cooperation with the national counterparts and other agencies of the cluster.
Advise on the installation of specific epidemiological surveillance for disasters and the epidemiological early alert (DEWS).
Advise on the health requirements in shelters.
Determine the local, national and regional response capacities, the needs and the necessary actions to be implemented with the support of health counterparts.

\(^1\) PAHO 45\(^{th}\) Directing Council 2004
⇒ Provide technical assistance to local authorities and the coordinator on the priority and relevance of any humanitarian assistance.
⇒ The specific role of the Epidemiologist/Surveillance Officer on the team is as follows:
⇒ Supports the local authorities to establish/adapt a system of surveillance of diseases and epidemic alert. This includes verification and confirmation of suspicious cases.
⇒ Supports the local authorities and the foreign teams in control measures (preventive or curative measures including vector control, food control, and animal health)
⇒ Documents the epidemiological situation for reference.
⇒ Sets up a system of epidemiological information collection and analysis and structures the daily reports to include any potential for epidemiological risk.
⇒ Proposes measures to re-establish public health programs.

Further information on epidemiological surveillance after disasters and regional response teams, as well as post disaster surveillance forms are available on the PAHO website at:
http://www.disasterpublications.info/english/viewtopic.php?topic=vigilanciaepid&pageno=1
4. References


CAREC/PAHO/WHO. Managing Laboratories to Assure Quality – “A How to Guide”: Module No. 4 - Operational Systems. 2002

CAREC/PAHO/WHO. Preparing the Annual HIV/AIDS Epidemiological Profile. A Template for CAREC-Member Countries. February 2005


CAREC/PAHO/WHO website: www.carec.org


## Appendix 1
Official epidemiologic week numbers and week ending dates
2011 - 2016

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8-Jan-11</td>
<td>7-Jan-12</td>
<td>5-Jan-13</td>
<td>4-Jan-14</td>
<td>3-Jan-15</td>
<td>2-Jan-16</td>
</tr>
<tr>
<td>2</td>
<td>15-Jan-11</td>
<td>14-Jan-12</td>
<td>12-Jan-13</td>
<td>11-Jan-14</td>
<td>10-Jan-15</td>
<td>9-Jan-16</td>
</tr>
<tr>
<td>3</td>
<td>22-Jan-11</td>
<td>21-Jan-12</td>
<td>19-Jan-13</td>
<td>18-Jan-14</td>
<td>17-Jan-15</td>
<td>16-Jan-16</td>
</tr>
<tr>
<td>4</td>
<td>29-Jan-11</td>
<td>28-Jan-12</td>
<td>26-Jan-13</td>
<td>25-Jan-14</td>
<td>24-Jan-15</td>
<td>23-Jan-16</td>
</tr>
<tr>
<td>5</td>
<td>5-Feb-11</td>
<td>4-Feb-12</td>
<td>2-Feb-13</td>
<td>1-Feb-14</td>
<td>31-Jan-15</td>
<td>30-Jan-16</td>
</tr>
<tr>
<td>6</td>
<td>12-Feb-11</td>
<td>11-Feb-12</td>
<td>9-Feb-13</td>
<td>8-Feb-14</td>
<td>7-Feb-15</td>
<td>6-Feb-16</td>
</tr>
<tr>
<td>7</td>
<td>19-Feb-11</td>
<td>18-Feb-12</td>
<td>16-Feb-13</td>
<td>15-Feb-14</td>
<td>14-Feb-15</td>
<td>13-Feb-16</td>
</tr>
<tr>
<td>8</td>
<td>26-Feb-11</td>
<td>25-Feb-12</td>
<td>23-Feb-13</td>
<td>22-Feb-14</td>
<td>21-Feb-15</td>
<td>20-Feb-16</td>
</tr>
<tr>
<td>9</td>
<td>5-Mar-11</td>
<td>3-Mar-12</td>
<td>2-Mar-13</td>
<td>1-Mar-14</td>
<td>28-Feb-15</td>
<td>27-Feb-16</td>
</tr>
<tr>
<td>14</td>
<td>9-Apr-11</td>
<td>7-Apr-12</td>
<td>6-Apr-13</td>
<td>5-Apr-14</td>
<td>4-Apr-15</td>
<td>2-Apr-16</td>
</tr>
<tr>
<td>15</td>
<td>16-Apr-11</td>
<td>14-Apr-12</td>
<td>13-Apr-13</td>
<td>12-Apr-14</td>
<td>11-Apr-15</td>
<td>9-Apr-16</td>
</tr>
<tr>
<td>16</td>
<td>23-Apr-11</td>
<td>21-Apr-12</td>
<td>20-Apr-13</td>
<td>19-Apr-14</td>
<td>18-Apr-15</td>
<td>16-Apr-16</td>
</tr>
<tr>
<td>17</td>
<td>30-Apr-11</td>
<td>28-Apr-12</td>
<td>27-Apr-13</td>
<td>26-Apr-14</td>
<td>25-Apr-15</td>
<td>23-Apr-16</td>
</tr>
<tr>
<td>18</td>
<td>7-May-11</td>
<td>5-May-12</td>
<td>4-May-13</td>
<td>3-May-14</td>
<td>2-May-15</td>
<td>30-Apr-16</td>
</tr>
<tr>
<td>19</td>
<td>14-May-11</td>
<td>12-May-12</td>
<td>11-May-13</td>
<td>10-May-14</td>
<td>9-May-15</td>
<td>7-May-16</td>
</tr>
<tr>
<td>20</td>
<td>21-May-11</td>
<td>19-May-12</td>
<td>18-May-13</td>
<td>17-May-14</td>
<td>16-May-15</td>
<td>14-May-16</td>
</tr>
<tr>
<td>22</td>
<td>4-Jun-11</td>
<td>2-Jun-12</td>
<td>1-Jun-13</td>
<td>31-May-14</td>
<td>30-May-15</td>
<td>28-May-16</td>
</tr>
<tr>
<td>27</td>
<td>9-Jul-11</td>
<td>7-Jul-12</td>
<td>6-Jul-13</td>
<td>5-Jul-14</td>
<td>4-Jul-15</td>
<td>2-Jul-16</td>
</tr>
<tr>
<td>31</td>
<td>6-Aug-11</td>
<td>4-Aug-12</td>
<td>3-Aug-13</td>
<td>2-Aug-14</td>
<td>1-Aug-15</td>
<td>30-Jul-16</td>
</tr>
<tr>
<td>32</td>
<td>13-Aug-11</td>
<td>11-Aug-12</td>
<td>10-Aug-13</td>
<td>9-Aug-14</td>
<td>8-Aug-15</td>
<td>6-Aug-16</td>
</tr>
<tr>
<td>35</td>
<td>3-Sep-11</td>
<td>1-Sep-12</td>
<td>31-Aug-13</td>
<td>30-Aug-14</td>
<td>29-Aug-15</td>
<td>27-Aug-16</td>
</tr>
<tr>
<td>36</td>
<td>10-Sep-11</td>
<td>8-Sep-12</td>
<td>7-Sep-13</td>
<td>6-Sep-14</td>
<td>5-Sep-15</td>
<td>3-Sep-16</td>
</tr>
<tr>
<td>37</td>
<td>17-Sep-11</td>
<td>15-Sep-12</td>
<td>14-Sep-13</td>
<td>13-Sep-14</td>
<td>12-Sep-15</td>
<td>10-Sep-16</td>
</tr>
<tr>
<td>38</td>
<td>24-Sep-11</td>
<td>22-Sep-12</td>
<td>21-Sep-13</td>
<td>20-Sep-14</td>
<td>19-Sep-15</td>
<td>17-Sep-16</td>
</tr>
<tr>
<td>39</td>
<td>1-Oct-11</td>
<td>29-Sep-12</td>
<td>28-Sep-13</td>
<td>27-Sep-14</td>
<td>26-Sep-15</td>
<td>24-Sep-16</td>
</tr>
<tr>
<td>45</td>
<td>12-Nov-11</td>
<td>10-Nov-12</td>
<td>9-Nov-13</td>
<td>8-Nov-14</td>
<td>7-Nov-15</td>
<td>5-Nov-16</td>
</tr>
<tr>
<td>48</td>
<td>3-Dec-11</td>
<td>1-Dec-12</td>
<td>30-Nov-13</td>
<td>29-Nov-14</td>
<td>28-Nov-15</td>
<td>26-Nov-16</td>
</tr>
<tr>
<td>49</td>
<td>10-Dec-11</td>
<td>8-Dec-12</td>
<td>7-Dec-13</td>
<td>6-Dec-14</td>
<td>5-Dec-15</td>
<td>3-Dec-16</td>
</tr>
<tr>
<td>50</td>
<td>17-Dec-11</td>
<td>15-Dec-12</td>
<td>14-Dec-13</td>
<td>13-Dec-14</td>
<td>12-Dec-15</td>
<td>10-Dec-16</td>
</tr>
<tr>
<td>51</td>
<td>24-Dec-11</td>
<td>22-Dec-12</td>
<td>21-Dec-13</td>
<td>20-Dec-14</td>
<td>19-Dec-15</td>
<td>17-Dec-16</td>
</tr>
<tr>
<td>52</td>
<td>31-Dec-11</td>
<td>29-Dec-12</td>
<td>28-Dec-13</td>
<td>27-Dec-14</td>
<td>26-Dec-15</td>
<td>24-Dec-16</td>
</tr>
<tr>
<td>53</td>
<td>31-Dec-11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>31-Dec-16</td>
</tr>
</tbody>
</table>
# Syndromes and Communicable Diseases under Regional Surveillance

## Outbreaks/Clusters

Unusual or unexpected events

**IMMEDIATE NOTIFICATION**

<table>
<thead>
<tr>
<th>Syndromes (aggregate data): WEEKLY DATA COLLECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Flaccid Paralysis *</td>
</tr>
<tr>
<td>Fever and haemorrhagic symptoms</td>
</tr>
<tr>
<td>Fever and neurological symptoms</td>
</tr>
<tr>
<td>Fever and respiratory symptoms (ARI) &lt; 5 yrs</td>
</tr>
<tr>
<td>Fever and respiratory symptoms (ARI) ≥ 5 yrs</td>
</tr>
<tr>
<td>Fever and Rash *</td>
</tr>
<tr>
<td>Gastroenteritis &lt; 5 year olds</td>
</tr>
<tr>
<td>Gastroenteritis ≥ 5 year olds</td>
</tr>
<tr>
<td>Severe Acute Respiratory infection (SARI) *</td>
</tr>
<tr>
<td>Undifferentiated fever &lt;5</td>
</tr>
<tr>
<td>Undifferentiated fever ≥ 5 yrs</td>
</tr>
</tbody>
</table>

## Diseases

### FOUR-WEEKLY DATA COLLECTION

- *Campylobacter*
- Chicken Pox (Varicella)
- Chlamydia
- Cholera
- Ciguatera Poisoning
- Dengue Fever
- Dengue Haemorrhagic Fever/Shock Syndrome
- Diphtheria
- *E. Coli* (pathogenic O157)
- Gonorrhoea
- HIV/AIDS
- Influenza
- Leprosy (Hansen's Disease)
- Leptospirosis
- Malaria
- Measles
- Meningitis/ Pneumonia due to *Haemophilus influenzae*
- Meningitis/Pneumonia due to *Streptococcus pneumoniae*
- Meningococcal Infection due to *Neisseria meningitidis*
- Mumps
- Norovirus
- Pertussis
- Plague
- Poliomyelitis
- Rabies
- Respiratory Syncytial Virus
- Rotavirus
- Rubella and Congenital Rubella Syndrome
- Salmonellosis
- Shigellosis
- Severe Acute Respiratory Syndrome (SARS)
- Smallpox
- Syphilis and Congenital Syphilis
- Tetanus (neonatal and non-neonatal)
- Tuberculosis (Pulmonary and Extra-pulmonary)
- Typhoid and Paratyphoid Fevers
- Viral Encephalitis / Meningitis
- Viral Hepatitis A
- Viral Hepatitis B
- Yellow Fever (Urban or Sylvatic)

### Notes:

1. Under the International Health Regulations (IHR (2005)), all Public Health Emergencies of International Concern are to be reported within 24 hours by the IHR Focal Point
2. * See Expanded Programme for Immunization Field Guides for polio and meases/rubella/CRS for further details
3. Other emerging or re-emerging diseases can be added as necessary

Last updated April 2011
APPENDIX 3

REPORTS TO BE FAXED/SENT TO EPI-CAREC BY MID-DAY EVERY WEDNESDAY

2011

COUNTRY: ___________________________ WEEK NO.____________________

RASH AND FEVER SURVEILLANCE

A. # OF SITES REPORTING: ___________________________

B. # OF SITES WHICH SHOULD REPORT: ___________________________

C. # OF NEW SUSPECTED MEASLES / RUBELLA CASES: ___________________________

<table>
<thead>
<tr>
<th>I.D. NO.</th>
<th>NAME OF CASE (S)</th>
<th>DATE REPORTED</th>
<th>DATE OF ONSET OF RASH</th>
<th>DATE OF ONSET OF FEVER</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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: ______

<table>
<thead>
<tr>
<th>I.D. NO.</th>
<th>NAME OF CASE (S)</th>
<th>DATE REPORTED</th>
<th>DATE OF ONSET OF PARALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

YELLOW FEVER

A. # OF SITES REPORTING: ___________________________ B. # OF SITES WHICH SHOULD REPORT: ______

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

EVENTS SUPPOSEDLY ATTRIBUTED TO VACCINES AND IMMUNIZATION (ESAVI)

A. NO. OF EVENTS REPORTED THIS WEEK: ________________ B. CLASSIFICATION: __________________

C. DESCRIBE TYPE OF EVENTS: ___________________________________________________________

______________________________________________________________
COUNTRY _______________________   WEEK NO. ______________            YEAR:     2011

MORBIDITY OF SELECTED VACCINE PREVENTABLE DISEASES

Number of cases by age group according to disease

<table>
<thead>
<tr>
<th>Disease</th>
<th>PREG.</th>
<th>&lt;1</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>0 – 4</th>
<th>5 – 9</th>
<th>10 – 14</th>
<th>15 - 59</th>
<th>60+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculose Meningitis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neonatal Tetanus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus (Non neonatal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphtheria</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pertussis (Whooping cough)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parotiditis (Mumps )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacterial Meningitis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningitis Haemophilus influenzae</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neisseria meningitidis Meningitis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningitis Pneumococcal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non specific Meningitis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viral Meningitis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacterial Pneumonias</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumonia (Streptococcus pneumoniae)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumonia (Haemophilus influenzae)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken Pox</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diarrhea and gastroenteritis of presumed infectious origin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotaviral enteritis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Only confirmed cases (Laboratory, Epidemiological link or clinical if it applies).

COMMENTS: 

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

REPORTED BY: ___________________________    SIGNATURE: ___________________________

DATE: ___________________________
CAREC WEEKLY REPORT

SYNDROMIC SURVEILLANCE OF COMMUNICABLE DISEASES

COUNTRY ________________________________

Week # ______ (epidemiological) Total number of reporting sites_________________

Week ending ____/____/____ Number of sites reporting this week_____________

<table>
<thead>
<tr>
<th>Syndromes</th>
<th>No. of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever and haemorrhagic symptoms</td>
<td></td>
</tr>
<tr>
<td>Fever and neurological symptoms</td>
<td></td>
</tr>
<tr>
<td>Fever and respiratory symptoms (ARI) &lt; 5 yrs</td>
<td></td>
</tr>
<tr>
<td>Fever and respiratory symptoms (ARI) ≥ 5 yrs</td>
<td></td>
</tr>
<tr>
<td>Gastroenteritis &lt; 5 yrs</td>
<td></td>
</tr>
<tr>
<td>Gastroenteritis ≥ 5 yrs</td>
<td></td>
</tr>
<tr>
<td>Undifferentiated Fever &lt; 5 yrs</td>
<td></td>
</tr>
<tr>
<td>Undifferentiated Fever ≥ 5 yrs</td>
<td></td>
</tr>
</tbody>
</table>

Were any outbreaks/cluster/unusual events observed this week? □ YES □ NO

Reminder: In addition to reporting outbreaks/clusters/unusual events on this form, they must also be reported immediately to CAREC

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

Send form to: CARIBBEAN EPIDEMIOLOGY CENTRE (CAREC),
P.O. Box 164, Port of Spain, Trinidad
Email: carec-epidemiology@carec.paho.org

Received ____/____/____ (At CAREC)
# SYNDROMIC SURVEILLANCE OF COMMUNICABLE DISEASES

**REPORTING SITE _____________________________________________**

---

## Daily Tally Sheet

<table>
<thead>
<tr>
<th>Week # ______ (epidemiological)</th>
<th>Week ending <strong><strong>/</strong></strong>/____</th>
<th>Reported <strong><strong>/</strong></strong>/____</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Syndromes</th>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever and haemorrhagic symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever and neurological symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever and respiratory symptoms (ARI) &lt; 5 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever and respiratory symptoms (ARI) ≥ 5 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gastroenteritis &lt; 5 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gastroenteritis ≥ 5 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undifferentiated Fever &lt; 5 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undifferentiated Fever ≥ 5 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Were any outbreaks/cluster/unusual events observed this week?** □ YES □ NO

**Reminder:** In addition to reporting outbreaks/clusters/unusual events on this form, they must also be reported immediately to the relevant in-country epidemiologist

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

Received ____/____/____ *(Epidemiologist)*

---

Last updated February 2005
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. See Expanded Programme for Immunization Field Guide for polio for further details.*

**Fever and Haemorrhagic symptoms**:  
Acute (sudden) onset of fever in a previously healthy person, presenting with at least one haemorrhagic (bleeding) manifestation with or without jaundice (e.g. purpura, epitaxis, hemoptysis, melena).

**Fever and Neurological symptoms (except AFP)**:  
Acute (sudden) onset of fever 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**:  
Acute (sudden) febrile illness 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. See Expanded Programme for Immunization Field Guide measles/rubella/CRS for further details.*

**Fever and Respiratory Symptoms (Acute Respiratory Infection)**:  
Acute (sudden) febrile illness 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 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 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.

---

**Notes:**

The definition of fever includes a history of fever and when temperature is not taken, a rise in body temperature above normal.

**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

---

Last updated April 2011
Severe Acute Respiratory Infection (SARI)

**SARI case definition for persons ≥5 years old:**
- Sudden onset of fever, **AND**
- Cough or sore throat, **AND**
- Shortness of breath or difficulty breathing, **AND**
- Requiring hospital admission.

**SARI case definition for children <5 years old**
- Meets the case definition as above **OR**
- Any child < 5 years old clinically suspected of having pneumonia or severe/very severe pneumonia, and requiring hospital admission.

**IMCI – PNEUMONIA:**
A child with cough or difficulty breathing who has fast breathing and no general danger signs, no chest indrawing and no stridor when calm is classified as having PNEUMONIA.

**IMCI – SEVERE PNEUMONIA OR VERY SEVERE DISEASE:**
A child with cough or difficulty breathing and with any of the following signs – any general danger sign, chest indrawing or stridor in a calm child – is classified as having severe pneumonia or very severe disease.

**General Signs of Danger:**
- Child unable to drink or be breastfed
- Child is lethargic or unconscious
- Child vomits everything
- Convulsions

**Difficult Breathing**
- If the child is 2 months - 12 months fast breathing is 50 breaths per minute or more
- If the child is 12 months - 5 years fast breathing is 40 breaths per minute or more
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 & Respiratory Symptoms (Acute Respiratory Infection)
- Acute (sudden) febrile illness (> 38.0°C or 100.4°F)
- Previously healthy person
- Presenting with cough or sore throat
- With or without respiratory distress.

Fever & Haemorrhagic Symptoms
- Acute (sudden) onset of fever (> 38.0°C or 100.4°F)
- Previously healthy person
- With or without jaundice
- Presenting with at least one haemorrhagic (bleeding) manifestation (e.g. purpura, epistaxis, hemoptysis, melena).

Gastroenteritis
- Acute (sudden) onset of diarrhoea
- With or without fever (> 38°C or 100.4°F)
- Presenting with 3 or more loose or watery stools in the past 24 hours
- With or without dehydration, vomiting and/or visible blood.

Fever & Neurological Symptoms (except AFP)
- Acute (sudden) onset of fever (> 38.0°C or 100.4°F)
- With or without headache and vomiting
- Previously healthy person
- Presenting with at least one of the followings signs: meningal irritation, convulsions, altered consciousness, altered sensory manifestations, paralysis except AFP.

Undifferentiated Fever
- An acute (sudden) febrile illness (> 38.0°C or 100.4°F)
- Previously healthy person
- 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.

Fever & Rash
- Acute (sudden) febrile illness (>38.0°C or 100.4°F)
- Previously healthy person
- Presenting generalised 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 generalised rash illnesses.

Alert factors, such as those listed below, should prompt further case investigation:
- Renal failure
- Jaundice
- Recent travel
- Collapse
- Altered
- Visible blood
- Consciousness in the stool

Caribbean Epidemiology Centre (CAREC) PAHO/WHO
16-18 Jamaica Boulevard, Federation Park, Port of Spain, Trinidad, W.I.
Tel: 868-622-4261-2 • Fax: 868-622-2792 • Email: carec-epidemiology@carec.paho.org • Website: www.carec.org
# Syndromic Diagnosis Flowchart

## Fever and Haemorrhagic Symptoms

### Case Definition

- Fever (> 38.0°C or 100.4°F), with or without jaundice, with at least one of the following haemorrhagic (bleeding) manifestations:
  - Purpura
  - Epistaxis
  - Haemoptysis
  - 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

- Dengue
- Leptospirosis
- Yellow fever
- Hantaviruses
- South American haemorrhagic fevers (arenaviruses)
- Malaria (*Plasmodium falciparum*)

### Specimens

- Acute and/or convalescent serum
- Blood (smear)

### Primary Testing

- Serology
- Parasite demonstration

### Secondary Testing

- Viral isolation
- Antigen detection
- Genome detection

### Notes:

1. Acute Serum: ≤5 days from onset of symptoms, Convalescent serum > 5 days from onset of symptoms
2. If primary or secondary testing cannot be performed at the national laboratory, specimens may be referred to CAREC
SYNDROMIC DIAGNOSIS FLOWCHART
FEVER AND NEUROLOGICAL SYMPTOMS

CASE DEFINITION
Fever (> 38.0°C or 100.4°F) with or without headache and vomiting with at least one of the following signs:
- Meningeal irritation
- Convulsions
- Altered sensory manifestations
- Paralysis (apart from AFP)
- Altered consciousness
- Prior medication
- Recent travel
- Contact with insects and rodents
- Contact with similar cases
- Risk factor for HIV

POSSIBLE DISEASES/PATHOGENS
MENINGITIS/MENINGOENCEPHALITIS

Viral
- Enterovirus
- West Nile
- Adenovirus
- Herpes
- Mumps
- Varicella-zoster

Bacterial
- Meningococcal meningitis
- Pneumococcal meningitis
- Haemophilus influenzae
- Leptospirosis

Parasitic
- Malaria (*Plasmodium falciparum*)
- Trypanosomiasis

Encephalitis
- Rabies
- West Nile
- St. Louis Encephalitis
- Equine Encephalitis
- Herpes

SPECIMENS
- CSF
- Blood (culture)
- Blood smears
- Throat swab
- Acute and convalescent serum

PRIMARY TESTING
- Gram stain
- Bacterial culture

SECONDARY TESTING
- Antigen detection
- Viral culture
- Serology
- Genomic amplification

NOTES:
1. Acute Serum: ≤5 days from onset of symptoms, Convalescent serum > 5 days from onset of symptoms
2. If patient presents with AFP, follow the EPI programme protocol
3. If primary or secondary testing cannot be performed at the national laboratory, specimens may be referred to CAREC
# Syndromic Diagnosis Flowchart
## Fever and Respiratory Symptoms

### Case Definition
- Fever (> 38.0°C or 100.4°F), with one of the following symptoms, with or without respiratory distress
  - Cough
  - Sore Throat

### Possible Diseases/Pathogens
- Influenza A and B
- SARS CoV
- Respiratory Syncytial Virus (RSV)
- Other viruses
- Metapneumovirus
- Hantavirus pulmonary syndrome
- Leptospirosis
- Pertussis
- Diphtheria
- Streptococcal disease (Group A)
- Pneumococcal pneumonia
- Legionellosis
- Haemophilus influenzae
- Anthrax

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

### Specimens
- Nasopharyngeal secretion
- Throat swab
- Acute and/or convalescent serum
- Nasopharyngeal secretion
- Pleural fluid
- Blood
- Serum
- Sputum

### Primary Testing
- Influenza testing
- RSV (Respiratory Syncytial Virus) testing
- Throat swab
- Bacterial culture

### Secondary Testing
- Further etiological testing
- Viral culture
- Serology
- Genome detection

### Notes:
1. Acute Serum: ≤5 days from onset of symptoms, Convalescent serum > 5 days from onset of symptoms
2. If primary or secondary testing cannot be performed at the national laboratory, specimens may be referred to CAREC

---

Caribbean Epidemiology Centre (CAREC) PAHO/WHO • 16-18 Jamaica Boulevard, Federation Park, Port of Spain, Trinidad, W.I. • Tel: 868-622-4261-2 • Fax: 868-622-2792 • Email: carec.epidemiology@carec.paho.org • Website: www.carec.org
SYNDROMIC DIAGNOSIS FLOWCHART
GASTROENTERITIS/ACUTE DIARRHOEA 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

POSSIBLE DISEASES/PATHOGENS

Viral gastroenteritis
- Rotavirus group A, B, C
- Adenovirus
- Calcivirus

Bacterial gastroenteritis
- Campylobacteriosis
- Pathogenic E. Coli (EHEC, ETEC)
- Shigellosis

Parasitic gastroenteritis
- Amoebiasis
- Cryptosporidium

EPIDEMIOLOGICAL DATA
- Previously healthy person
- Risk factor for HIV
- Recent Travel
- Food and water history
- Contact with similar cases

SPECIMENS
Stools

PRIMARY TESTING
Rapid tests
Culture and sensitivity

SECONDARY TESTING
Further testing
- Pathogen characterisation
- Typing and/or Confirmation

NOTES:
1. Acute Serum: ≤5 days from onset of symptoms, Convalescent serum > 5 days from onset of symptoms
2. If primary or secondary testing cannot be performed at the national laboratory, specimens may be referred to CAREC
# SYNDROMIC DIAGNOSIS FLOWCHART
## UNDIFFERENTIATED FEVER

### CASE DEFINITION
Fever (> 38.0°C or 100.4°F), with two or more of the following symptoms:
- Headache
- Nausea
- Retro-orbital pain
- Arthralgia
- Myalgia
- Vomiting
- Jaundice
- Other arboviral fevers
- Hantavirus

### POSSIBLE DISEASES/PATHOGENS
- Dengue
- Leptospirosis
- Viral Hepatitis
- Other arboviral fevers
- Hantavirus
- Brucellosis
- Typhoid/Paratyphoid
- Meningococcal infection
- Malaria (*Plasmodium vivax*)
- Boreliosis

### EPIDEMIOLOGICAL DATA
- Previously healthy person
- Recent travel
- Prior medication
- Contact with insects and rodents
- Contact with similar cases

### PRIMARY TESTING
- Serology

### SPECIMENS
- Acute and/or convalescent serum

### SECONDARY TESTING
- Viral isolation
- Antigen detection
- Genome detection

### SPECIMENS
- Blood
- Serum

### PRIMARY TESTING
- Blood (culture)
- Serology

### SECONDARY TESTING
- Parasite demonstration
- Serology

### NOTES:
1. Acute Serum: ≤5 days from onset of symptoms, Convalescent serum > 5 days from onset of symptoms
2. Measles and Rubella must be tested for if rash is present in children, as per the EPI Programme protocol
3. If primary or secondary testing cannot be performed at the national laboratory, specimens may be referred to CAREC
# GUIDELINES FOR THE SUBMISSION OF SPECIMENS TO CAREC

## Table 1 Matrix of Specimen Type/s to be submitted per Aetiologic Agent/Disease

<table>
<thead>
<tr>
<th>Disease/Aetiologic Agent</th>
<th>Comment</th>
<th>Specimen</th>
<th>Method</th>
<th>Turnaround Time (Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Campylobacter</em></td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Isolate in maintenance media; stool</td>
<td>Culture and biochemical tests</td>
<td>7</td>
</tr>
<tr>
<td><em>Chlamydia infection</em></td>
<td>CAREC to be contacted for discussion re: testing (No final decision re: testing)</td>
<td>Discharge in transport media</td>
<td>PCR <em>Referral lab</em></td>
<td>14 – 21</td>
</tr>
<tr>
<td><em>Chicken pox (varicella)</em></td>
<td>CAREC to be contacted for discussion re: testing</td>
<td>Vesicle swab, Serum</td>
<td>PCR, IgG ELISA <em>Referral lab</em></td>
<td>14 – 21</td>
</tr>
<tr>
<td><em>Cholera</em></td>
<td>Initial laboratory testing in country, CAREC: referral for further testing</td>
<td>Isolate in maintenance media; stool in Cary Blair media</td>
<td>Serotyping; confirmation</td>
<td>7</td>
</tr>
<tr>
<td><em>Ciguatera poisoning</em></td>
<td>CAREC to be contacted for discussion and decision making</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Congenital rubella syndrome</em></td>
<td>CAREC for testing (EPI Laboratory)</td>
<td>Acute serum (collected 1-3 after onset); Convalescent serum (collected 3-28 days after onset of rash)</td>
<td>IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td><em>Congenital syphilis</em></td>
<td>Laboratory testing in country CAREC: decision to be made based on the elimination algorithm</td>
<td>Serum</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Diptheria</em></td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Throat swab in transport media</td>
<td>Culture, biochemical tests and gram staining</td>
<td>14</td>
</tr>
<tr>
<td><em>Dengue Fever; Dengue haemorrhagic fever/shock syndrome</em></td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Acute serum (collected 1-4 days from onset); Convalescent serum (collected 7-15 days from onset)</td>
<td>PCR IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td>Disease/Aetiologic Agent</td>
<td>Comment</td>
<td>Specimen</td>
<td>Method</td>
<td>Turnaround Time (Days)</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------</td>
<td>----------</td>
<td>--------</td>
<td>------------------------</td>
</tr>
<tr>
<td><strong>E. coli (pathogenic)</strong></td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Isolate in maintenance media; stool in Cary Blair media</td>
<td>EIA assay; Serotyping; Confirmation</td>
<td>7</td>
</tr>
<tr>
<td><strong>Gonococcal infection</strong></td>
<td>Laboratory testing: in-country CAREC: to be contacted re:testing if there are challenges (* AMR testing algorithm has not yet been decided) Isolate in BHI with glycerol or on chocolate agar</td>
<td>Culture; Antimicrobial Resistance (AMR) testing</td>
<td>7-14</td>
<td></td>
</tr>
<tr>
<td><strong>HIV/AIDS</strong> HIV (Mother to child transmission)**</td>
<td>Laboratory testing: in-country or network mode CAREC: to be contacted re:testing if there are challenges Nasopharyngeal or oropharyngeal swabs, aspirate or washes; bronchoalveolar lavage, tracheal aspirates (collected within 1 -7 days of onset)</td>
<td>PCR</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Influenza</strong></td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries Nasopharyngeal or oropharyngeal swabs, aspirate or washes; bronchoalveolar lavage, tracheal aspirates (collected within 1 -7 days of onset)</td>
<td>PCR</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Leprosy</strong></td>
<td>Laboratory testing: in-country CAREC: to be contacted re:testing if there are challenges</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Leptospirosis</strong></td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Serum (collected &gt; 5 days after onset)</td>
<td>IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td><strong>Malaria (indigenous and imported)</strong></td>
<td>Laboratory testing: in-country CAREC: to be contacted for discussion if necessary Thick and thin slides</td>
<td>Acute serum (collected 1 -3 days after onset); Convalescent serum (collected 3-28 days after onset of rash)</td>
<td>IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td><strong>Measles</strong></td>
<td>CAREC for testing (EPI Laboratory) Acute serum (collected 1 -3 days after onset); Convalescent serum (collected 3-28 days after onset of rash)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease/Aetiologic Agent</td>
<td>Comment</td>
<td>Specimen</td>
<td>Method</td>
<td>Turnaround Time (Days)</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------</td>
<td>----------</td>
<td>-------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Meningitis infection</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries; Isolates to be submitted to CAREC for further characterization.</td>
<td>Isolate in BHI with glycerol or on chocolate agar</td>
<td>Culture; Antimicrobial Resistance (AMR) testing; Serotyping</td>
<td>7-14</td>
</tr>
<tr>
<td>Meningitis/Pneumonia</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries; Isolates to be submitted to CAREC for further characterization.</td>
<td>Acute serum (collected 1-3 after onset); Convalescent serum (collected 3-28 days after onset of rash)</td>
<td>IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td>Mumps</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Stool</td>
<td>PCR; IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td>Norovirus</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Stool</td>
<td>Stool PCR; IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td>Opportunistic infections</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Toxoplasma: Serum; Cryptosporidium: Stool; Cryptococcus neoformans: CSF</td>
<td>IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Microscopy; Stool staining</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Microscopy: India ink staining</td>
<td>7</td>
</tr>
<tr>
<td>Pertussis</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Nasopharyngeal or throat swab</td>
<td>Culture; Serotyping</td>
<td>7</td>
</tr>
<tr>
<td>Plague</td>
<td>CAREC for testing</td>
<td>Biopsy material from bubo</td>
<td>Blood culture; Microscopy; Culture; Antimicrobial Resistance (AMR) testing</td>
<td>14</td>
</tr>
<tr>
<td>Poliomyelitis</td>
<td>CAREC for testing (EPI Laboratory)</td>
<td>Stool</td>
<td>Virus isolation</td>
<td>14</td>
</tr>
<tr>
<td>Rabies (in humans)</td>
<td>CAREC: to be contacted for discussion if necessary</td>
<td>*Referral lab</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Disease/Aetiologic Agent</td>
<td>Comment</td>
<td>Specimen</td>
<td>Method</td>
<td>Turnaround Time (Days)</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------</td>
<td>----------</td>
<td>--------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Rotavirus</td>
<td>Laboratory testing in countries with competence, CAREC: EPI Laboratory responsible for testing of other countries</td>
<td>Stool</td>
<td>ELISA</td>
<td>7</td>
</tr>
<tr>
<td>Rubella (German measles)</td>
<td>Laboratory testing in countries with competence, CAREC: EPI Laboratory responsible for testing of other countries</td>
<td>Acute serum (collected 1 -3 after onset); Convalescent serum (collected 3-28 days after onset of rash)</td>
<td>IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td>Salmonellosis</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries. Isolates to be submitted to CAREC for further characterization according to established protocol.</td>
<td>Isolate in maintenance media</td>
<td>Serotyping; Phage Typing of S. enteritidis</td>
<td>7 - 14</td>
</tr>
<tr>
<td>Shigellosis</td>
<td></td>
<td>Isolate in maintenance media</td>
<td>Serotyping</td>
<td>7</td>
</tr>
<tr>
<td>Severe Acute Respiratory Syndrome (SARS)</td>
<td>CAREC for testing</td>
<td>nasopharyngeal wash/aspirates, nasopharyngeal/oropharyngeal swabs (collected within 1 -7 days of onset); Serum and plasma (acute and convalescent)</td>
<td>PCR</td>
<td>7</td>
</tr>
<tr>
<td>Syphilis</td>
<td>Laboratory testing in country as for congenital syphilis. Applicable to pregnant women as in the elimination strategy algorithm for CNS. CAREC: decision to be made based on the elimination algorithm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus (excluding neonatal)</td>
<td>In country diagnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus neonatorum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease/Aetiologic Agent</td>
<td>Comment</td>
<td>Specimen</td>
<td>Method</td>
<td>Turnaround Time (Days)</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>---------------------------------</td>
<td>-------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Tuberculosis (Pulmonary)</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Sputum</td>
<td>ID; Drug Sensitivity Testing</td>
<td>60 days</td>
</tr>
<tr>
<td>Tuberculosis (Extrapulmonary)</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Isolate in maintenance media</td>
<td>ID; Serotyping</td>
<td></td>
</tr>
<tr>
<td>Typhoid and paratyphoid fever</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>1-2 mL acute CSF; nasopharyngeal swab in viral transport media, unpreserved stool</td>
<td>PCR (Enterovirus, HSV1 and HSV 2)</td>
<td>7</td>
</tr>
<tr>
<td>Viral Encephalitis/Meningitis</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Single serum</td>
<td>IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td>Viral Hepatitis A</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Single serum</td>
<td>ELISA (surface antigen HBsAg)</td>
<td>7</td>
</tr>
<tr>
<td>Viral Hepatitis B</td>
<td>Laboratory testing in countries with competence, CAREC: for discussion and assistance as necessary</td>
<td>Single serum</td>
<td>IgM ELISA</td>
<td>7</td>
</tr>
<tr>
<td>Viral Hepatitis C</td>
<td>Laboratory testing in countries with competence, CAREC: testing of other countries</td>
<td>Single serum</td>
<td>ELISA; PCR</td>
<td>21</td>
</tr>
<tr>
<td>Yellow fever</td>
<td>CAREC for testing: Specimen to be sent to external referral laboratory</td>
<td>Single serum</td>
<td>ELISA; PCR</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 2 Diseases/aetiologic agents NOT currently under surveillance in CAREC member countries and to be discussed for inclusion in the sub-regional surveillance system

(• To be discussed for surveillance in selected counties only)

<table>
<thead>
<tr>
<th>Disease/Aetiologic Agent</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chagas •</td>
<td>Laboratory testing in countries with competence, CAREC:responsible for testing of other countries</td>
</tr>
<tr>
<td>Giardia</td>
<td>Laboratory testing in countries with competence, CAREC:responsible for testing of other countries</td>
</tr>
<tr>
<td>HTLV</td>
<td></td>
</tr>
<tr>
<td>Lymphatic filariasis •</td>
<td></td>
</tr>
<tr>
<td>Schistosomiasis •</td>
<td></td>
</tr>
<tr>
<td>Soil-transmitted helminthes</td>
<td></td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>Laboratory testing in countries with competence, CAREC:for discussion and assistance as necessary</td>
</tr>
</tbody>
</table>
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.
OVERSEAS TRANSPORTATION OF DIAGNOSTIC SPECIMENS

INFORMATION REQUIRED FOR ALL SPECIMENS SUBMITTED TO CAREC

- Indicate the following details on the CAREC laboratory requisition form:
  a. Patient demographics e.g. National Patient ID and/or Laboratory Number, Age, D.O.B., Sex, Address, Occupation (where relevant)
  b. Name of Referral Doctor/ Hospital with contact information
  c. Clinical signs and symptoms including hospitalization status
  d. Date of onset of illness
  e. “LABORATORY INVESTIGATION/S” requested
  f. Date of collection of specimen/s
  g. Specimen type
  h. Laboratory results of all tests performed including Dates tested, Test method/s employed and name of kit used where applicable
  i. When applicable - travel history; vaccination history/status
  j. Type of case e.g. Single/Outbreak/Survey
  k. Date specimen referred to CAREC for testing

- Label each specimen container with the following information:
  a. National Patient ID/Laboratory Number
  b. Date of collection
  c. Specimen type

- ALL specimens must be routed through the relevant National Reference/ Public Health Laboratory

- Referred specimens must always be prepared, packaged and transported in accordance with current international shipping guidelines and IATA (International Air Transport Association) regulations.

- Incoming Receipt Notifications must accompany referred specimens via the CAREC Data Entry and Reporting Unit using the following means of communication – Fax: (1.868) 628-9302 Ph: (1.868) 622-4261/2 Email: davisbev@carec.paho.org ; audainte@carec.paho.org ; sankarsa@carec.paho.org

- All packages must be addressed in the following manner:

  The Director of CAREC
  The Caribbean Epidemiology Centre (CAREC)
  16-18 Jamaica Boulevard
  Federation Park
  PORT of SPAIN
  TRINIDAD, W.I.
PREPARATION; PACKAGING AND SHIPPING REFERRED SPECIMENS TO CAREC

1. Categorization of Infectious Substances

- There are four (4) Classes of Dangerous Goods which are relevant to shippers of infectious substances –
  
a) Class 2: Non-flammable, non-toxic gases (Division 2.2 Refrigerated liquid Nitrogen used for refrigeration)
  
b) Class 3: Flammable liquids (e.g. Ethanol used for preservation)
  
c) Class 6: Toxic and Infectious Substances (Division 6.1 Toxic substances, Division 6.2, Infectious substances)
  
d) Class 9: Miscellaneous Dangerous Goods (e.g. dry ice)

- Shippers need to be most familiar with the Substance Categories which fall under Division 6.2, Infectious Substances –

  - Category A
    An infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals.

    **NOTE:** An exposure occurs when an infectious substance is released outside of the protective packaging, resulting in physical contact with humans or animals.

    ➢ United Nations (UN) Numbers for Category A, Infectious Substances

    **UN 2814** is assigned to infectious substances meeting the above criteria which cause disease in humans or both in humans and animals

    **UN 2900** is assigned to infectious substances which can cause disease in animals only.

    **NOTE:** Assignment to UN 2814 or UN 2900 shall be based on the known medical history and symptoms of the source human or animal, endemic local conditions, or professional judgement concerning individual circumstances of the source: human or animal.

    ➢ Proper Shipping Names for UN 2814 and UN 2900

    **UN 2814** is *INFECTIOUS SUBSTANCE, AFFECTING HUMANS*

    **UN 2900** is *INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only*
Table 1 Examples of Infectious Substances included in Category A

<table>
<thead>
<tr>
<th>UN Number and Proper Shipping Name</th>
<th>Microorganism</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 2814 Infectious substance, affecting humans</td>
<td><em>Bacillus anthracis</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td><em>Brucella abortus</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td><em>Brucella melitensis</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td><em>Brucella suis</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td>*Burkholderia mallei – Pseudomonas mallei – glanders (cultures only)</td>
</tr>
<tr>
<td></td>
<td>*Burkholderia pseudomallei – Pseudomonas pseudomallei (cultures only)</td>
</tr>
<tr>
<td></td>
<td>*Chlamydia psittaci – avian strains (cultures only)</td>
</tr>
<tr>
<td></td>
<td><em>Clostridium botulinum</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td><em>Coccidioides immitis</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td><em>Coxiella burnetii</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Crimean-Congo haemorrhagic fever virus</td>
</tr>
<tr>
<td></td>
<td>Dengue virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Eastern equine encephalitis virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td><em>Escherichia coli, verotoxigenic</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Ebola virus</td>
</tr>
<tr>
<td></td>
<td>Flexal virus</td>
</tr>
<tr>
<td></td>
<td><em>Francisella tularensis</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Guanarito virus</td>
</tr>
<tr>
<td></td>
<td>Hantaan virus</td>
</tr>
<tr>
<td></td>
<td>Hantavirus causing haemorrhagic fever with renal syndrome</td>
</tr>
<tr>
<td></td>
<td>Hendra virus</td>
</tr>
<tr>
<td></td>
<td>Hepatitis B virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Herpes B virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Human immunodeficiency virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Highly pathogenic avian influenza virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Japanese Encephalitis virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Junin virus</td>
</tr>
<tr>
<td></td>
<td>Kyasanur Forest disease virus</td>
</tr>
<tr>
<td></td>
<td>Lassa virus</td>
</tr>
<tr>
<td></td>
<td>Machupo virus</td>
</tr>
<tr>
<td></td>
<td>Marburg virus</td>
</tr>
<tr>
<td></td>
<td>Monkeypox virus</td>
</tr>
<tr>
<td></td>
<td><em>Mycobacterium tuberculosis</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Nipah virus</td>
</tr>
<tr>
<td></td>
<td>Omsk haemorrhagic fever virus</td>
</tr>
<tr>
<td></td>
<td>Poliovirus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Rabies virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td><em>Rickettsia prowazekii</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td><em>Rickettsia rickettsii</em> (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Rift Valley fever virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Russian spring-summer encephalitis virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Sabia virus</td>
</tr>
<tr>
<td></td>
<td><em>Shigella dysenteriae</em> type 1 (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Tick-borne encephalitis virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Variola virus</td>
</tr>
<tr>
<td></td>
<td>Venezuelan equine encephalitis virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>West Nile virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td>Yellow fever virus (cultures only)</td>
</tr>
<tr>
<td></td>
<td><em>Yersinia pestis</em> (cultures only)</td>
</tr>
<tr>
<td>UN Number and Proper Shipping Name</td>
<td>Microorganism</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------</td>
</tr>
</tbody>
</table>
| UN 2900 Infectious substance, affecting animals only | African swine fever virus (cultures only)  
Avian paramyxovirus Type 1 – Velogenic Newcastle disease virus (cultures only)  
Classical swine fever virus (cultures only)  
Foot and mouth disease virus (cultures only)  
Lumpy skin disease virus (cultures only)  
Mycoplasma mycoides – contagious bovine pleuropneumonia (cultures only)  
Peste des petits ruminants virus (cultures only)  
Rinderpest virus (cultures only)  
Sheep-pox virus (cultures only)  
Goatpox virus (cultures only)  
Swine vesicular disease virus (cultures only)  
Vesicular stomatitis virus (cultures only) |

**NOTE:** The table above (ref. Annex 2) is not exhaustive. Infectious substances, including new or emerging pathogens, which do not appear in the table but which meet the same criteria shall be assigned to Category A. In addition, if there is doubt as to whether or not a substance meets the criteria it shall be included in Category A.

- **Category B**

An infectious substance which does not meet the criteria for inclusion in Category A

- **United Nations (UN) Number for Category B is UN 3373**

- **Proper Shipping Name for UN 3373 is BIOLOGICAL SUBSTANCE, CATEGORY B.**

- **Exempt Substances (Human/ Animal Specimens)**

Substances that do not contain infectious substances or that are unlikely to cause disease in humans or animals are not subject to dangerous goods regulations, unless they meet the criteria for inclusion in another class.

Substances containing microorganisms that are non-pathogenic to humans or animals are not subject to dangerous goods regulations, unless they meet the criteria for inclusion in another class.

Substances in a form in which any pathogens present have been neutralized or inactivated such that they no longer pose a health risk are not subject to dangerous goods regulations, unless they meet the criteria for inclusion in another class.

Blood or blood components which have been collected for the purposes of transfusion or for the preparation of blood products to be used for transfusion or transplantation and any tissues or organs intended for use in transplantation, dried blood spots, fecal occult blood screening tests are not subject to dangerous goods regulations.

Other examples include patient specimens for blood or urine tests to monitor cholesterol levels, blood glucose levels, hormone levels, or prostate specific antibodies (PSA); those required to monitor organ function such as heart, liver or kidney function for humans or animals with non-infectious diseases, or therapeutic
drug monitoring; those conducted for insurance or employment purposes and are intended to determine the presence of drugs or alcohol; pregnancy test; biopsies to detect cancer; and antibody detection in humans or animals in the absence of any concern for infection (e.g. evaluation of vaccine induced immunity, diagnosis of autoimmune disease, etc.).

- There is NO United Nations (UN) Number for Exempt Substances

- Proper Shipping Names are “Exempt Human Specimen” or “Exempt Animal Specimen”

2. Packaging Instructions

Shippers of infectious substances shall ensure that packages are prepared in such a manner that they arrive at their destination in good condition and present no hazard to persons or animals during transport.

The **BASIC TRIPLE PACKAGING SYSTEM** is the packaging system to be used for the transport of all infectious substances.

As the name suggests, there are three layers of containment to protect the substances being shipped –

- **Primary receptacle** containing the specimen must be leak-proof and watertight. It is wrapped/packaged with sufficient absorbent material to absorb all fluid in case of breakage.

- **Secondary packaging** is a second durable, watertight, leak-proof container/receptacle used to enclose and protect the primary receptacle(s). Several cushioned primary receptacles may all be placed in one secondary packaging ensuring sufficient additional absorbent material is used to absorb all fluid in case of breakage.

- **Outer packaging** involves placing secondary packagings in outer shipping packagings with suitable cushioning material.

Outer packagings protect their contents from external influences such as physical damage while in transit. The smallest overall external dimension shall be 10x10 cm.
• **Shipping Category A Infectious Substances**

Infectious substances which fall under Category A can only be transported in packaging which meets the **UN Class 6.2 specifications** and in accordance with **Packaging Instruction (PI) 620.** (See PI 620 below)

This ensures stipulated performance criteria are met such as a 9 m drop test, puncture test, pressure test and stacking test. The outer packaging must bear the UN specification marking which indicates that the packaging has passed the performance tests to the satisfaction of the competent authority.

**TABLE 2 Requirements for Packaging and Shipping CATEGORY A SUBSTANCES**

<table>
<thead>
<tr>
<th>Packaging Requirements</th>
<th>Markings and Labels</th>
<th>Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Primary container is leakproof</td>
<td><strong>Markings</strong> – • Shipper’s name and address • Receiver’s name and address • Name and telephone of responsible person (who is available 24 hours a day until shipment arrives) • Proper Shipping Name and UN Number • UN Specification Marking</td>
<td>• Airway Bill</td>
</tr>
<tr>
<td>• Secondary container is leakproof</td>
<td><strong>Labels</strong> – • Infectious substance label • Package orientation label (only used when primary container exceeds 50ml)</td>
<td>• Dangerous Goods Declaration Form</td>
</tr>
<tr>
<td>• Outer container is rigid</td>
<td></td>
<td>Must be signed by the shipper</td>
</tr>
<tr>
<td>• UN specification marking: Pressure tested at 95kPa Drop tested from 9m Puncture tested at 7kg Stacking tested</td>
<td></td>
<td>• Import/Export permit (as applicable)</td>
</tr>
<tr>
<td>• Shipper must be trained</td>
<td></td>
<td>• CARICOM Invoice</td>
</tr>
</tbody>
</table>
Figure 1 Example of Triple Packaging System for the packaging and labeling of Category A, Infectious Substance (Reference WHO Guidance on regulations for the Transport of Infectious Substances 2011-2012)
### Shipping Category B Infectious Substances

The triple packaging system continues to apply, including for local surface transport. However, testing documents are not required and it may be possible to source packagings locally rather than finding an authorized supplier, provided that the packaging manufacturer and the shipper can comply fully with the requirements of Packaging Instruction PI 650.

**TABLE 3 Requirements for Packaging and Shipping CATEGORY B SUBSTANCES**

<table>
<thead>
<tr>
<th>Packaging Requirements</th>
<th>Markings and Labels</th>
<th>Documentation</th>
</tr>
</thead>
</table>
| Primary container is leakproof | **Markings** –  
- Shipper’s name and address  
- Receiver’s name and address  
- Proper Shipping Name and UN Number | • Airway Bill  
• CARICOM Invoice  
• Import/Export permit (as applicable) |
| Secondary container is leakproof | **Labels** –  
- None required (unless shipping with Dry Ice) | Note: Dangerous Goods Declaration Form is not required, even when shipping with Dry Ice |
| Outer container is rigid | Primary receptacle (leakproof or siftproof) | |
| Either Primary or Secondary container is Pressure tested at 95kPa | Rack-type holder (styrofoam, sponge) | |
| Drop tested from 1.2 m | Itemized list of contents (specimen record) | |

---

June, 2011
Figure 2 Example of Triple Packaging System for the packaging and labeling of Category B, Infectious Substance

- **Shipping Exempt Substances**

Human or animal specimens (patient specimens) for which there is minimal likelihood that pathogens are present are not subject to these Regulation if the specimen is transported in a packaging which will prevent any leakage and which is marked with the words “Exempt human specimen” or “Exempt animal specimen”, as appropriate.

**NOTE:** An element of professional judgment is required to determine if a substance is exempt. That judgment should be based on the known medical history, symptoms and individual circumstances of the source, human or animal, and endemic local conditions.

**TABLE 4 Requirements for Packaging and Shipping EXEMPT SUBSTANCES**

<table>
<thead>
<tr>
<th>Packaging Requirements</th>
<th>Markings and Labels</th>
<th>Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Primary container is leakproof</td>
<td><strong>Markings</strong></td>
<td>• Airway Bill</td>
</tr>
<tr>
<td>• Secondary container is leakproof</td>
<td>• Shipper’s name and address</td>
<td>• CARICOM Invoice</td>
</tr>
<tr>
<td>• Outer container is of adequate strength for its capacity, mass and intended use, and</td>
<td>• Receiver’s name and address</td>
<td></td>
</tr>
<tr>
<td>with at least one surface having minimum dimensions of 100 mm × 100 m</td>
<td>• Package marked with “Exempt human specimen” or “Exempt animal specimen” as</td>
<td><strong>Note:</strong> Dangerous Goods Declaration Form is not required, even when shipping with Dry Ice</td>
</tr>
<tr>
<td></td>
<td>applicable</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Labels</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• None required (unless shipping with Dry Ice)</td>
<td></td>
</tr>
</tbody>
</table>
3. Limitations of Shipping by Air

Weight and volume (excluding overpacks)

- **Category A Substances**
  - Maximum 50ml or 50g per package for passenger aircraft
  - Maximum 4kg or 4l per package for cargo aircraft

- **Category B Substances**
  - Maximum 4kg or 4l per package for passenger or cargo aircraft
  - Maximum 1l per primary container for passenger or cargo aircraft

**Multiple samples**
Multiple primary containers can be placed in the same package and must be individually wrapped or separated to prevent contact

**Package dimensions**

- **PI620 packages**: the smallest external dimension shall not be less than 10cm

- **PI650 packages**: at least one surface of the outer packaging must have a minimal dimension of 10cm x 10cm
4. Use of Dry Ice as a Refrigerant

Dry ice shall be placed outside the secondary receptacle and must not be placed inside the primary or secondary receptacle because of the risk of explosions.

A specially designed insulated packaging may be used to contain dry ice. The packaging must permit the release of carbon dioxide gas if dry ice is used.

Packing instruction P003 (ICAO/IATA PI954) shall be observed.

The secondary receptacle shall be secured within the outer package to maintain the original orientation of the inner packages after the refrigerant has dissipated.

If dry ice is used to ship infectious substances in Category A, the details shall appear on the shipper’s Declaration for Dangerous Goods.

In addition, the outermost packaging shall carry the hazard label for dry ice and the appropriate marking.

If dry ice is used to ship Category B Infectious Substances or Exempt Specimens, the package shall be marked “Carbon dioxide, solid” or “Dry ice”.

The airway bill must indicate the proper name (Dry Ice), class (Class 9), UN number (UN 1845) and weight (in kg).

5. Shipper’s Responsibilities for Preparation of Accompanying Documentation

- Use the proper form/s
- Fill out the form/s accurately, completely and legibly
- Comply with carriers’ requirements for filling out the form/s (handwritten vs. typed)
- Sign the form/s (signature must be handwritten)
- Modifications and alterations must be signed by the shipper (though the best practice is to complete a new form if a correction is needed)
- The form/s must be printed in color on white paper (e.g. for the Dangerous Goods Declaration Form the left and right diagonal striations must be printed in red)
- The form must be completed in English
- The shipper must complete three copies. One copy is for the shipper and the remaining two are for the operator
Ministry of Health of ______________________

**Surveillance of Communicable Diseases**

**Hospital Case Notification Form**

For every IN-PATIENT with a SUSPECTED Communicable Disease

**Notes:** 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)

<table>
<thead>
<tr>
<th>Reporting Hospital and Ward:</th>
<th>Date of report:</th>
</tr>
</thead>
</table>

**Patient Information**

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex: F M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td></td>
<td>Date of onset:</td>
</tr>
</tbody>
</table>

Patient’s physician name and contact information:

<table>
<thead>
<tr>
<th>Syndrome</th>
<th>Yes</th>
<th>No</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undifferentiated fever</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute respiratory infection OR Fever and respiratory symptoms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever with haemorrhagic symptoms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever and neurological symptoms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gastroenteritis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Observations**

Name of Doctor/Nurse completing this form: _______________________

Signature: _______________________

Last updated February 2005
### CARIBBEAN EPIDEMIOLOGY CENTRE
#### COMMUNICABLE DISEASES REPORT (FOUR WEEK PERIODS)

Revised - January 2010

**Country:** ______________________________________
**Reporting Year:** ____________

**Reporting Period (Circle one only):**
- [ ] 1-4
- [ ] 5-8
- [ ] 9-12
- [ ] 13-16
- [ ] 17-20
- [ ] 21-24
- [ ] 25-28
- [ ] 29-32
- [ ] 33-36
- [ ] 37-40
- [ ] 41-44
- [ ] 45-48
- [ ] 49-52/53

**MFMFMFMFMFMFMF Curr. Yr Last Yr.**

<table>
<thead>
<tr>
<th>DISEASES</th>
<th>Laboratory Confirmed cases</th>
<th>Total lab confirmed cases</th>
<th>Suspect ed cases</th>
<th>Epi-linked cases</th>
<th>Total cases for rep. period</th>
<th>Total Deaths</th>
<th>Cumulative Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 1</td>
<td>1 - 4</td>
<td>5 - 14</td>
<td>15 - 24</td>
<td>25 - 44</td>
<td>45 - 64</td>
<td>65+</td>
</tr>
<tr>
<td>AIDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campylobacter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken Pox (Varicella)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholera</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ciguatera Poisoning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congenital Rubella Syndrome</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dengue Fever</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dengue Haemorrhagic Fever/Shock Syndrome</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphtheria</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. coli (pathogenic 0157)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leprosy (Hansen's Disease)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leptospirosis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaria (Indigenous)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaria (Imported)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningitis/Pneumonia due to Haemophilus influenzae</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningitis/Pneumonia due to Streptococcus pneumoniae</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal Infection due to Neisseria meningitidis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mumps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norovirus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pertussis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plague</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poliomyelitis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rabies (in humans)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory syncytial virus (RSV)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotavirus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubella (German Measles)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubella (Congenital Rubella Syndrome)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salmonellosis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shigellosis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe Acute Respiratory Syndrome (SARS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smallpox</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Syphilis (NOT congenital)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syphilis (congenital)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus neonatorum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus (excluding neonatal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuberculosis (Pulmonary)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuberculosis (Extra-pulmonary)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typhoid and Paratyphoid Fevers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viral Encephalitis/Meningitis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viral Hepatitis A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viral Hepatitis B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow Fever (Urban or Sylvatic)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Blank = zero cases  I = Imported  1 - Cases do not include deaths
# APPENDIX 10

## CASE DEFINITIONS FOR DISEASES UNDER SURVEILLANCE

**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Disease</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)</td>
<td>67</td>
</tr>
<tr>
<td>CAMPYLOBACTER</td>
<td>69</td>
</tr>
<tr>
<td>CHICKENPOX (VARICELLA)</td>
<td>69</td>
</tr>
<tr>
<td>CHLAMYDIAL INFECTIONS</td>
<td>69</td>
</tr>
<tr>
<td>CHLAMYDIAL INFECTIONS (NEONATAL)</td>
<td>69</td>
</tr>
<tr>
<td>CHOLERA</td>
<td>70</td>
</tr>
<tr>
<td>CIGUATERA POISONING</td>
<td>70</td>
</tr>
<tr>
<td>CONGENITAL RUBELLA SYNDROME</td>
<td>70</td>
</tr>
<tr>
<td>DENGUE FEVER</td>
<td>72</td>
</tr>
<tr>
<td>DENGUE HAEMORRHAGIC FEVER (DHF) / SHOCK SYNDROME (DSS)</td>
<td>72</td>
</tr>
<tr>
<td>DIPHTHERIA</td>
<td>73</td>
</tr>
<tr>
<td>E. COLI (PATHOGENIC)</td>
<td>73</td>
</tr>
<tr>
<td>GONOCOCCAL INFECTION</td>
<td>74</td>
</tr>
<tr>
<td>GONOCOCCAL INFECTION (NEONATAL)</td>
<td>74</td>
</tr>
<tr>
<td>HIV INFECTION</td>
<td>74</td>
</tr>
<tr>
<td>INFLUENZA</td>
<td>75</td>
</tr>
<tr>
<td>LEPROSY (HANSEN'S DISEASE)</td>
<td>75</td>
</tr>
<tr>
<td>LEPTOSPIROSIS</td>
<td>76</td>
</tr>
<tr>
<td>MALARIA</td>
<td>76</td>
</tr>
<tr>
<td>MEASLES</td>
<td>76</td>
</tr>
<tr>
<td>MENINGITIS DUE TO HAEMOPHILUS INFLUENZAE</td>
<td>77</td>
</tr>
<tr>
<td>MENINGITIS DUE TO STREPTOCOCCUS PNEUMONIAE</td>
<td>77</td>
</tr>
<tr>
<td>MENINGOCOCCAL INFECTION DUE TO NEISSERIA MENINGITIDIS</td>
<td>77</td>
</tr>
<tr>
<td>MUMPS</td>
<td>78</td>
</tr>
<tr>
<td>NOROVIRUS DISEASE</td>
<td>78</td>
</tr>
<tr>
<td>PERTUSSIS</td>
<td>78</td>
</tr>
<tr>
<td>PLAGUE</td>
<td>79</td>
</tr>
<tr>
<td>PNEUMONIA DUE TO HAEMOPHILUS INFLUENZA</td>
<td>79</td>
</tr>
<tr>
<td>PNEUMONIA DUE TO STREPTOCOCCUS PNEUMONIAE</td>
<td>79</td>
</tr>
<tr>
<td>POLIOMYELITIS</td>
<td>80</td>
</tr>
<tr>
<td>RABIES</td>
<td>80</td>
</tr>
<tr>
<td>RESPIRATORY SYNCYTIAL VIRUS (RSV)</td>
<td>81</td>
</tr>
<tr>
<td>ROTAVIRUS</td>
<td>81</td>
</tr>
<tr>
<td>RUBELLA</td>
<td>81</td>
</tr>
<tr>
<td>SALMONELLOSIS</td>
<td>82</td>
</tr>
<tr>
<td>SHIGELLOSIS</td>
<td>82</td>
</tr>
<tr>
<td>SEVERE ACUTE RESPIRATORY SYNDROME (SARS)</td>
<td>83</td>
</tr>
<tr>
<td>SMALLPOX</td>
<td>84</td>
</tr>
<tr>
<td>SYPHILIS</td>
<td>84</td>
</tr>
<tr>
<td>TETANUS</td>
<td>85</td>
</tr>
<tr>
<td>TETANUS (NEONATAL)</td>
<td>85</td>
</tr>
<tr>
<td>TUBERCULOSIS (PULMONARY)</td>
<td>86</td>
</tr>
</tbody>
</table>

Last updated February 2011
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBERCULOSIS (EXTRA - PULMONARY)</td>
<td>87</td>
</tr>
<tr>
<td>TYPHOID AND PARATYPHOID FEVERS</td>
<td>87</td>
</tr>
<tr>
<td>VIRAL ENCEPHALITIS / MENINGITIS</td>
<td>88</td>
</tr>
<tr>
<td>VIRAL HEPATITIS A</td>
<td>88</td>
</tr>
<tr>
<td>VIRAL HEPATITIS B</td>
<td>89</td>
</tr>
<tr>
<td>YELLOW FEVER (URBAN OR SYLVATIC)</td>
<td>89</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>90</td>
</tr>
</tbody>
</table>
ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

Adults & Adolescents (aged 13 years and older)
A confirmed case of AIDS is defined as an individual, aged 13 years or older, who in the absence of other known causes of immunosuppression has a repeatedly positive screening test for HIV by an approved testing algorithm (e.g. double enzyme linked assay (ELISA) followed by Western Blot if necessary) together with at least two major signs and at least one minor sign or at least one indicator disease.

Major Signs
- Involuntary weight loss of >10% of baseline body weight
- Chronic diarrhoea with at least two loose stools per day for >30 days
- Intermittent or constant fever for >30 days

Minor Signs
- Persistent cough for >30 days
- Generalised pruritic dermatitis
- Herpes zoster, multi-dermatomal
- Oro-pharyngeal candidiasis
- Generalised lymphadenopathy

Indicator diseases (*does not require an HIV test)
- Bacterial pneumonia, recurrent (at least 2 episodes per year)
- Cancer, cervical, invasive
- Candidiasis of bronchi, trachea, or lungs*
- Candidiasis,aesophageal*
- Coccidioidomycosis, disseminated or extrapulmonary
- Cryptosporidiosis, chronic intestinal >30 days*
- Cytomegalovirus disease (other than liver, spleen, or nodes)
- Cytomegalovirus disease (with loss of vision)
- Encephalopathy with no other cause*
- Herpes simplex: chronic ulcer(s) >30 days; or bronchitis, pneumonitis, or oesophagitis*
- Histoplasmosis, disseminated or extrapulmonary
- Isosporiasis, chronic intestinal >30 days
- Kaposi’s sarcoma – age under 60
- Lymphoma, Burkitt’s
- Lymphoma, immunoblastic*
- Lymphoma, primary of brain under 60 years old* (or over 60 yrs)
- Mycobacterium avium complex or M. Kansasii, disseminated/extrapulmonary
- Tuberculosis, any site (pulmonary or extra pulmonary)
- Pneumocystis jiroveci pneumonia*
- Progressive multifocal leukoencephalopathy*
- Toxoplasmosis, of brain (or of internal organ)*
- Non-typhoid salmonella septicemia, recurrent
- Wasting syndrome (defined as ALL of major signs)
- Cryptococcosis extrapulmonary*
- Nocardiosis
- Strongyloidiasis extra-intestinal*

Last updated February 2011
**AIDS case definition for children less than 13 years old**

A confirmed case of AIDS is defined as a child less than 13 years old, who in the absence of other known causes of immunosuppression, has:

- a repeatedly HIV PCR positive test result or an HIV p24 Antigen positive (when children are less than 18 months of age);

**OR**

- a repeatedly positive screening test for HIV antibodies by an approved testing algorithm (e.g. double enzyme linked assay (ELISA) followed by Western Blot if necessary) when children are more than 18 months of age; together with at least two major signs and at least two minor signs or at least one indicator disease (see below).

**Major Signs:**
- Weight loss of more than 10% of baseline
- Failure to thrive
- Chronic diarrhoea for more than one month
- Intermittent or constant fever for more than one month

**Minor Signs:**
- Generalised lymphadenopathy
- Oro-pharyngeal candidiasis
- Repeated common infections (otitis, pharyngitis, etc.)
- Persistent cough (more than one month)
- Generalised dermatitis
- Confirmed maternal HIV infection

**Indicator Diseases:**
- Chronic lymphoid interstitial pneumonitis (more than two months)
- Chronic parotitis (more than two months)
- Common bacterial infections, severe and recurrent
- Candidiasis (oropharyngeal, trachea, lungs)
- Herpes simplex infection, disseminated, with onset after one month of age
- Isosporiasis, chronic and interstitial (more than thirty days)
- Pneumocystis jiroveci pneumonia (PCP)
- Toxoplasmosis, disseminated, with onset after one month of age
- Cytomegalovirus (CMV) infection, with onset after six months
- Tuberculosis, any site
- Progressive multifocal leukoencephalopathy
- Histoplasmosis
- Coccioidiodymycosis, disseminated or extrapulmonary
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis, chronic intestinal more than one month
- Lymphoma (primary) of the brain
- Lymphoma, Burkitt’s
- Lymphoma, Immunoablatic
- Kaposi’s sarcoma

Last updated February 2011
CAMPYLOBACTER

SUSPECTED CASE (GASTROINTESTINAL ILLNESS)
A person presenting with an acute illness characterized by diarrhoea with one or more of the following:
- Nausea and/or vomiting
- Abdominal pain
- Fever
- Malaise
- Headache

CONFIRMED CASE
- **Laboratory confirmed**: A suspected case with laboratory confirmation — isolation of *Campylobacter* from stools.

CHICKENPOX (VARICELLA)

CONFIRMED CASE
- **Laboratory confirmed**: A suspected case that meets one of the laboratory criteria for diagnosis.
- **Clinically confirmed**: For surveillance purposes, any patient in whom a healthcare worker suspects chickenpox. Patient will present with sudden onset of fever and maculopapular rash.

CHLAMYDIAL INFECTIONS

Infections caused by *Chlamydia trachomatis* can be sexually transmitted and may result in urethritis, epididymitis, cervicitis, acute salpingitis (pelvic inflammatory disease), proctitis, or other syndromes (see Lymphogranuloma Venereum). Infection may be asymptomatic.

CONFIRMED CASE
- **Laboratory confirmed**: Detection of *Chlamydia trachomatis* by cell culture, direct antigen, PCR or LCR methods from an intraurethral (male) or endocervical swab (female).

CHLAMYDIAL INFECTIONS (NEONATAL)

Perinatal infections with *Chlamydia trachomatis* may result in ophthalmia neonatorum, and acute inflammatory condition of the conjunctiva among newborns. It could also result in acute pneumonia among newborns and infants.

CONFIRMED CASE
- **Laboratory confirmed**: a case of Ophthalmia Neonatorum (see case definition) with detection of *Chlamydia trachomatis* by cell culture or direct antigen method from conjunctival exudeate or pseudomembrane.

Last updated February 2011
CHOLERA

SUSPECTED CASE
Any case of acute, profuse, watery diarrhoea and vomiting resulting in dehydration or death in a person over the age of 5 years, or Any case of acute watery diarrhoea and vomiting in a person with history of recent travel in an infected area within 5 days of the onset of illness.

CONFIRMED CASE
Laboratory confirmed: A suspected case with isolation of toxigenic Vibrio cholerae O1 or O139 from stool or Vomitus
Epidemiologically confirmed: a suspected case that has had contact with one or more persons who have or had the disease, and at least one case in a chain of transmission has already been laboratory confirmed.

CIGUATERA POISONING

Ciguatera fish poisoning is a syndrome characterized by gastrointestinal (diarrhea, vomiting, abdominal pain) and neurological symptoms (pain and weakness in lower extremities, circumoral and peripheral paresthesias). Gastrointestinal symptoms may occur within 1 hour after eating tropical reef fish, the neurological symptoms may occur at the same time or follow 1-2 days after and may persist for weeks or months.

CONFIRMED CASE
- Clinically confirmed: Clinical syndrome among persons who have eaten a type of fish previously associated with ciguatera fish poisoning (e.g. snapper, grouper, carite or barracuda) or Clinical syndrome and history of ingestion of fish and demonstration of ciguatoxin in epidemiologically implicated fish

CONGENITAL RUBELLA SYNDROME

Congenital rubella syndrome is defined by a constellation of symptoms which were traditionally divided into the two following groups:

Group A symptoms
- Cataract and/or congenital glaucoma
- Congenital heart disease
- Loss of hearing
- Pigmentary retinopathy

Group B symptoms.
- Purpura
- Splenomegaly
- Hepatomegaly/jaundice
- Microcephaly
- Mental retardation
- Meningoencephalitis
- Radiolucent bone disease
- Intrauterine growth retardation

Last updated February 2011
In view of a sub-region decision to eliminate rubella and CRS, CRS surveillance should only target infants less than one year of age.

**SUSPECTED CASE**
- An infant less than one year of age presenting with one or more of the following: Cataracts, low birth weight, hepatosplenomegaly, Patent Ductus Arteriosus, purpura, or hearing impairment; or whose mother had laboratory confirmed rubella infection during pregnancy; AND there is a clinical suspicion of CRS in that infant.

**CONFIRMED CASE**
- **Laboratory confirmed**: A suspected case of CRS with supportive laboratory evidence. Laboratory confirmation of CRS depends upon:
  - Presence of rubella specific IgM in serum within the first week of life
  - Isolation of rubella virus from urine, throat swab or blood
  - Maintenance of IgG antibody level during the first 6 months of life, shown by an HI titer that fails to decrease at the expected rate of a two fold dilution per month
  - Detection of rubella virus in tissues by PCR

- **Clinically confirmed**: A suspected case where repeated attempts to obtain a specimen have fails (see algorithm below)

---

**Sentinel Events**

- **Infant born to mother with laboratory confirmed rubella during pregnancy**
  - Cataracts, PDA, Low Birth Weight, Hearing Impairment, Purpura, Hepatosplenomegaly or any other CRS compatible finding?
  - Suspect CRS
  - Blood sample obtained?
    - No *
      - Clinically Confirmed
    - Yes
      - IgM
        - Discard
        - Laboratory Confirmed CRS

*This path should only be followed after repeated attempts to obtain an adequate sample have failed.*

---

Last updated February 2011
DENGUE FEVER

PROBABLE CASE
A person with acute onset of fever and two or more of the following:
- Headache
- Retro-orbital pain
- Myalgia
- Arthralgia
- Rash (may not be visible on dark-skinned persons)
- Haemorrhagic manifestations
- Supportive serology

CONFIRMED CASE
- **Laboratory confirmed**: A probable case with one or more of the following laboratory findings:
  - Detection of IgM antibodies to one or more of the dengue virus antigens by capture
  - ELISA (this test is most reliable on blood taken more than 5 days after onset).
  - Isolation and identification of dengue virus from acute serum (collected within 3 days of onset) and shipped immediately to the laboratory at 4–8°C.
  - Demonstration of dengue virus in clinical material by PCR.
  - Demonstration of a fourfold or greater rise in flavivirus antibody titres between acute and convalescent phase serum specimens by the HI test.
- **Epidemiologically confirmed**: A probable case occurring at the same location and time as a laboratory confirmed case

DENGUE HAEMORRHAGIC FEVER (DHF) / SHOCK SYNDROME (DSS)

PROBABLE CASE (DHF)
A patient presenting with:

(a) Fever, or history of fever within the past week,
   **AND**
(b) Haemorrhagic tendencies as evidenced by at least one of the following:
   - Positive tourniquet test
   - Petechiae, ecchymoses, or purpura
   - Bleeding from mucosa, gastrointestinal tract, injection sites, or others
   **AND**
(c) Thrombocytopenia (100,000 mm$^3$ or less)
   **AND**
(d) Plasma leakage due to increased capillary permeability as manifested by at least one of the following:
   - A haematocrit on presentation that is $\geq$20% above the average for that age and population
   - A 20% drop in haematocrit following treatment
   - Commonly associated signs of plasma leakage: pleural effusion, ascites, hypoproteinaemia.

CONFIRMED CASE (DHF)
- **Laboratory confirmed**: A probable case fulfilling with diagnostic laboratory findings for dengue fever. If the patient had been infected previously with another serotype, a single blood specimen from a case of DHF will give a reciprocal IgG antibody titre of $\geq 2560$ in the HI test.
- **Epidemiologically confirmed**: This is a probable case occurring during an epidemic or period of high endemic activity, with a history of exposure to dengue.

Last updated February 2011
PROBABLE CASE (DSS)
A probable case of DHF with evidence of circulatory failure manifested by **all** of the following:
- Rapid and weak pulse
- Narrow pulse pressure (20 mmHg or less) *or* hypotension for age
- Cold clammy skin and altered mental status

CONFIRMED CASE (DSS)
- **Laboratory confirmed**: A probable case fulfilling with diagnostic laboratory findings for dengue fever.
- **Epidemiologically confirmed**: A probable case occurring during an epidemic or period of high endemic activity, with a history of exposure to dengue

**DIPHTHERIA**

PROBABLE CASE
A probable case of diphtheria is anyone presenting with **at least two** of the following
- Sore throat
- Tonsillitis
- Pharyngitis
- Laryngitis
- Enlarged cervical lymph nodes
  **AND**
  - A patch or patches of an adherent grey membrane on the tonsils and pharynx with surrounding inflammation.

CONFIRMED CASE
- **Laboratory confirmed**: A probable case from which toxigenic C. diphtheriae has been cultured
- **Epidemiologically confirmed**: A probable case that is linked epidemiologically to a laboratory confirmed case

**E. COLI (PATHOGENIC)**

SUSPECTED CASE (GASTROINTESTINAL ILLNESS)
A person presenting with an acute illness characterized by diarrhoea with one or more of the following:
- Nausea and/or vomiting
- Abdominal pain
- Fever
- Malaise
- Headache

Stools in patients infected with pathogenic *E. coli* may range from mild and non-bloody to stools that are virtually all blood but contain no fecal leukocytes.

Notes:
- EHEC (Enterohemorrhagic *E. coli*) produce Shiga toxins. EHEC infection can be manifest as hemolytic uremic syndrome (HUS) or thrombotic thrombocytopenic purpura (TTP).
- ETEC (Enterotoxigenic *E. coli*) is commonly known as travelers diarrhoea. ETEC produces both a heat liable and heat stable enterotoxin
- EIEC (Enteroinvasive *E. coli*) is characterized by watery diarrhoea and the presence of fecal leukocytes

Last updated February 2011
- EPEC (Enteropathogenic *E. coli*), diarrhoeal illness in this category is virtually confined to children less than 1 year of age in whom it causes watery diarrhoea with mucus, fever and dehydration
- EAggEC (Enteroaggregative *E. coli*) is an important cause of infant diarrhoea

**PROBABLE CASE**
A suspected case that is epidemiologically linked to a confirmed case through ingestion of contaminated food.

**CONFIRMED CASE**
- **Laboratory confirmed:** A suspected case with laboratory confirmation — isolation of pathogenic *E. coli* from stools.

---

**GONOCOCCAL INFECTION**

Sexually transmitted infections caused by *Neisseria gonorrhoeae* may result in urethritis, cervicitis, acute salpingitis (pelvic inflammatory disease), proctitis or pharyngitis. Infection may be asymptomatic

**CONFIRMED CASE**
- Isolation of *Neisseria gonnorhoeae* from a clinical specimen
- **OR**
- Observation of typical gram-negative intracellular diplococci in a urethral smear obtained from a man. Culture, PCR and LCR are other methods available for confirmation of gonococcal infection from swabs (urethral, vaginal or eye).

---

**GONOCOCCAL INFECTION (NEONATAL)**

Perinatal infection with *Neisseria gonorrhoeae* may result in opthalmia neonatorum, an acute inflammatory condition of the conjunctiva among newborns.

**CONFIRMED CASE**
- **Laboratory confirmed:** A case of Ophtalmia Neonaturum (see case definition) with isolation of *Neisseria gonnorhoeae* from an eye swab.

---

**HIV INFECTION**

**CONFIRMED CASE**
- **Laboratory confirmed:** The diagnosis of HIV infection is based on laboratory confirmation using one or more of the following:

  **In Adults and Children over 18 months:**
  Repeatedly reactive screening tests for HIV antibody by an approved testing algorithm (e.g. double enzyme linked assay (ELISA) followed by Western Blot if necessary) in persons aged more than 18 months.

  Direct identification of virus in host tissues by virus isolation through Culture or Polymerase Chain Reaction: PCR or HIV antigen detection (p24 antigen).

  **In Children less than 18 months:**

---

Last updated February 2011
In cases of HIV positive mothers, their children may carry maternal antibodies for up to 18 months. In order to make a definitive diagnosis of HIV infection, viral material needs to be demonstrated by, for instance, a PCR test or p24Ag. Such a test should be done at least twice, at one month and at four months of age. The second PCR test should take place between four and six months of age.

In the absence of diagnostic facilities for these tests, HIV infection in infants born to HIV positive mothers is defined as the persistence of HIV antibodies beyond the age of 18 months. Antibody testing in the absence of breastfeeding should be carried-out every three to six months until two consecutive negative results, or to age 18 months, if infection is ruled out by two consecutive non-reactive antibody tests.

In the special case that a non-reactive infant has been exposed to breastmilk of an HIV positive mother, HIV testing of that child should take place three months after breastfeeding is stopped.

### INFLUENZA

**SUSPECTED CASE**
A person with fever, headache, myalgia, cough

**CONFIRMED CASE**
- **Laboratory confirmed**: A suspected case with positive laboratory findings
- **Epidemiologically confirmed**: A suspected case linked to a laboratory confirmed case in an epidemic situation.

### LEPROSY (HANSEN'S DISEASE)

The clinical classification of leprosy is as follows:
- **Lepromatous** leprosy (multibacillary): nodules, papules, macules and diffuse infiltrations are bilateral, symmetrical and usually numerous and extensive; involvement of the nasal mucosa may lead to crusting, obstructed breathing and epistaxis; ocular involvement leads to iritis and eratitis.
- **Tuberculoid** leprosy (paucibacillary): skin lesions are single or few, sharply demarcated, anaesthetic or hypoesthetic, bilateral and asymmetrical; peripheral nerve involvement tends to be severe.
- **Borderline** leprosy: has features of both polar forms and is more labile.
- **Indeterminate** leprosy: manifested by hypo-pigmented maculae with ill-defined borders, and if untreated, may progress to tuberculoid, borderline or lepromatous disease. Most indeterminate lesions self heal.

**CONFIRMED CASE**
- **Laboratory confirmed**: A case of leprosy is defined as a person having one or more of the following features, and who has yet to complete a full course of treatment:
  - Hypopigmented or reddish skin lesion(s) with definite loss of sensation;
  - Involvement of the peripheral nerves, as demonstrated by definite thickening with loss of sensation;
  - Skin smear positive for acid-fast bacilli.

Last updated February 2011
LEPTOSPIROSIS

SUSPECTED CASE
Any person presenting three or more of the following:
- Fever
- Headache
- Myalgia of calves and/or thighs
- Conjunctival suffusion
- Meningitis
- Jaundice

CONFIRMED CASE
- Laboratory confirmed: A suspected case that is laboratory confirmed.

MALARIA

SUSPECTED CASE
A person with chills followed by fever and sweating.

CONFIRMED CASE
- Laboratory confirmed: A suspected case with laboratory confirmation – identification of Plasmodium species on peripheral blood smear.

Confirmed cases are classified as follows:
- Imported: Malaria acquired outside the country
- Autochthonous – Indigenous: Malaria acquired by mosquito transmission in an area where malaria is a regular occurrence
- Autochthonous – Introduced: Malaria acquired by mosquito transmission from an imported case in an area where malaria is not a regular occurrence
- Induced: Malaria acquired through artificial means (e.g. blood transfusion, sharing of syringes or needles)
- Congenital: Malaria acquired through transplacental transmission
- Cryptic: An isolated case of malaria not associated with secondary cases, as determined by appropriate epidemiologic investigations.

MEASLES

SUSPECTED CASE (MEASLES/RUBELLA)
For surveillance purposes, 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 illness

CONFIRMED CASE (MEASLES)
- Laboratory confirmed: A suspected case that meets one of the laboratory criteria for diagnosis, which are:
  - Presence of measles-specific IgM antibodies
  - A four-fold increase in measles antibody between acute and convalescent stages
  - Isolation of measles virus

Last updated February 2011
- **Epidemiologically confirmed**: Any suspected case linked epidemiologically to a laboratory confirmed case.
- **Clinically confirmed**: A suspected case where no blood sample is taken or where the patient cannot be assessed. (This category denotes a weakness in the surveillance system)

**MENINGITIS DUE TO HAEMOPHILUS INFLUENZAE**

**SUSPECTED CASE**
A person presenting with:
- Fever – usually of sudden onset
- Headache
- Signs of meningeal irritation/or bulging fontanelles in babies (commonly preceded by an upper or lower respiratory tract infection).

**AND**
- two of the following
  - Pleocytosis of the CSF
  - Elevated levels of proteins in CSF (> 45mg/100ml.)
  - Raised CSF pressure (> 180mm water).

**PROBABLE CASE**
A clinically compatible illness with detection of *H. influenzae* type b antigen in cerebrospinal fluid.

**CONFIRMED CASE**
- **Laboratory confirmed**: A clinically compatible illness that is culture confirmed.

**MENINGITIS DUE TO STREPTOCOCCUS PNEUMONIAE**

**SUSPECTED CASE**
A person presenting with:
- Fever – usually of sudden onset
- Headache
- Signs of meningeal irritation/or bulging fontanelles in babies (commonly preceded by an upper or lower respiratory tract infection).

**AND**
- two of the following
  - Pleocytosis of the CSF
  - Elevated levels of proteins in CSF (> 45mg/100ml.)
  - Raised CSF pressure (> 180mm water).

**CONFIRMED CASE**
- **Laboratory confirmed**: A clinically compatible illness that is laboratory confirmed.

**MENINGOCOCCAL INFECTION DUE TO NEISSERIA MENINGITIDIS**

**SUSPECTED CASE**
An individual presenting with sudden onset of fever > 38.5°C and one of the following:
- Neck stiffness
- Altered consciousness
- Other meningeal signs

Last updated February 2011
- A petechial or purpurial rash
- A bulging fontanelle in children < 1 year

**PROBABLE CASE**
A suspected case with a turbid CSF.

**OR**
A suspected case identified during an ongoing epidemic with an epidemiologic link to a confirmed case.

**CONFIRMED CASE**
**Laboratory confirmed:** A clinically compatible case that is culture confirmed.

---

**MUMPS**

**CONFIRMED CASE**
- **Laboratory confirmed:** A suspected case with positive laboratory findings.
- **Clinically confirmed:** A person presenting with fever and swelling of the salivary glands.

---

**NOROVIRUS DISEASE**

**SUSPECTED CASE (GASTROINTESTINAL ILLNESS)**
A person presenting with an acute illness characterized by one or more of the following:
- Diarrhoea
- Nausea and/or vomiting
- Abdominal pain
- Fever
- Malaise
- Headache

**PROBABLE CASE**
A suspected case that is epidemiologically linked to a confirmed case.

**CONFIRMED CASE**
- **Laboratory confirmed:** A suspected or probable case or any other individual with laboratory confirmation.

---

**PERTUSSIS**

**CONFIRMED CASE**
- **Laboratory confirmed case:** A case that is a suspected case with positive laboratory findings
- **Epidemiologically confirmed case:** A suspected case that is linked epidemiologically to a laboratory confirmed case.
- **Clinically confirmed:** A suspected case of pertussis is anyone presenting with a cough lasting at least 2 weeks and paroxysms (fits) of coughing, inspiratory “whoop” at the end of the coughing fit and vomiting after coughing

Last updated February 2011
PLAGUE

SUSPECTED CASE
A person presenting with fever and leukocytosis
AND
One or more of the following:
- Regional lymphadenitis (bubonic or pharyngeal plague)
- Septicaemia without an evident bubo (septicaemic plague)
- Pneumonia
- Primary pneumonic plague (inhalation of infectious droplets)
- Secondary pneumonic plague (haematogenous spread in a bubonic or septicaemic case)

PROBABLE CASE
A suspected case with supportive laboratory results with
- Demonstration of *Yersinia pestis* antigen in appropriate clinical specimens,
  OR
- Single or high antibody titre to *Yersinia pestis* in the absence of a history of immunization

CONFIRMED CASE
- **Laboratory confirmed**: A suspected or probable case with:
  - Isolation of *Yersinia pestis* from a clinical specimen,
    OR
  - Demonstration of a fourfold or greater rise in reciprocal serum IgG antibody titres to *Yersinia pestis*

PNEUMONIA DUE TO *HAEMOPHILUS INFLUENZA*

SUSPECTED CASE
Any person with acute onset of:
- Shaking chill
- Fever
- Pleural pain
- Cough
- Dyspnea
- Sputum production (rust coloured)
- Coryza

CONFIRMED CASE
- **Laboratory confirmed**: A suspected case in which Haemophilus influenzae has been isolated

PNEUMONIA DUE TO *STREPTOCOCCUS PNEUMONIAE*

SUSPECTED CASE
Any person with acute onset of:
- Shaking chill
- Fever
- Pleural pain
- Cough
- Dyspnea

Last updated February 2011
Sputum production (rust coloured)

The patients may also have:
- nausea,
- vomiting
- malaise
- myalgia

**CONFIRMED CASE**
- **Laboratory confirmed**: A suspected case in which *Streptococcus pneumoniae* has been isolated from blood or secretions from lower respiratory tract

---

**POLIOMYELITIS**

**SUSPECTED CASE**
Any person with acute flaccid paralysis (AFP) (including Guillain-Barré Syndrome and transverse myelitis)

**OR**
Any person with paralytic illness at any age when polio is suspected.

**CONFIRMED CASE**
The following scheme is used in the PAHO region for case classification.

---

**RABIES**

Rabies exposure
- History of abrasive contact (bite or scratch) with an animal suspected of being rabid
- History of contact with livestock suspected of being rabid
- History of contact with bats

**SUSPECTED CASE**
Rabies may be suspected in a person with any of the following clinical signs:
- Acute encephalomyelitis preceded by fever, headache, malaise, anxiety or apprehension
- Spasm of the muscles on attempt to swallow
- Delirium and convulsions
- Hyper activity or paralysis
- Coma and death usually by respiratory failure within 7 to 10 days of onset

Last updated February 2011
PROBABLE CASE
A case that meets the clinical case definition above and who has been exposed to a suspected rabid animal within the past 3 months

OR
Any person who has had abrasive contact with a confirmed rabid animal

CONFIRMED CASE
- **Laboratory confirmed**: Any suspected or probable case with a positive diagnostic laboratory result

RESPIRATORY SYNCYTIAL VIRUS (RSV)

SUSPECTED CASE
RSV disease spectrum includes a wide array of symptoms, from rhinitis and otitis media to pneumonia and bronchiolitis.

CONFIRMED CASE
- **Laboratory confirmed**: A suspected case with a positive diagnostic laboratory result.

ROTAVIRUS

SUSPECTED CASE
Severe gastroenteritis, usually in infants and young children, characterized by vomiting fever and diarrhoea.

CONFIRMED CASE
- **Laboratory confirmed**: A suspected case in which the stool demonstrates the presence of rotavirus antigen by EIA.

RUBELLA

Special attention should be paid to the diagnosis of rubella in pregnancy in view of the mild and non-specific nature of many of the symptoms, and the grave consequences to the child (please see separate case definition for Congenital Rubella Syndrome).

SUSPECTED CASE (RUBELLA/MEASLES)
For surveillance purposes, 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 illness.

PROBABLE CASE (RUBELLA)
A person experiencing an acute illness with low grade fever, and a diffuse, punctate, maculopapular rash, and two or more of the following:
- Headache
- Malaise
- Mild coryza
- Conjunctivitis

Last updated February 2011
- Post auricular, occipital or posterior cervical lymphadenopathy
- Arthralgia or arthritis

CONFIRMED CASE (RUBELLA)
- **Laboratory confirmed:** A probable case with a positive laboratory test result. Criteria for laboratory diagnosis of rubella are:
  - Presence of rubella specific IgM antibody in serum by ELISA
  - Demonstration of a four-fold increase in antibody titer between acute and convalescent sera measured by Hemagglutination inhibition (HI), or latex agglutination (LA).
  - Isolation of rubella virus from throat swab, urine or blood
- **Epidemiologically confirmed:** A probable case who had been in contact with a laboratory confirmed case within the past 18 days.

SALMONELLOSIS

SUSPECTED CASE (GASTROINTESTINAL ILLNESS)
A person presenting with an acute illness characterized by diarrhoea with one or more of the following:
- Nausea and/or vomiting
- Abdominal pain
- Fever
- Malaise
- Headache

PROBABLE CASE
A suspected case that is epidemiologically linked to a confirmed case through ingestion of contaminated food.

CONFIRMED CASE
- **Laboratory confirmed:** A suspected or probable case or any other individual with laboratory confirmation — isolation of *Salmonella* from stools or any other body site.

SHIGELLOSIS

SUSPECTED CASE (GASTROINTESTINAL ILLNESS)
A person presenting with an acute illness characterized by diarrhoea with one or more of the following:
- Nausea and/or vomiting
- Abdominal pain
- Fever
- Malaise
- Headache

In addition to the general symptoms of a gastrointestinal illness, a Shigellosis may include the following more specific symptoms:
- Tenesmus
- Blood in stools
- Mucus in stools

PROBABLE CASE
A suspected case that is epidemiologically linked to a confirmed case through ingestion of contaminated food.

Last updated February 2011
CONFIRMED CASE
- **Laboratory confirmed**: A suspected or probable case or any other individual from whose stools *Shigella* has been isolated.

SEVERE ACUTE RESPIRATORY SYNDROME (SARS)

Only individuals fulfilling one of the following surveillance case definitions should be officially reported to WHO. However, national public health authorities may choose to use additional operational categories e.g. "persons under investigation for SARS" or "suspect" cases, before the definitive results of testing are available.

PRELIMINARY POSITIVE CASE
An individual with clinical evidence for SARS AND who meets the laboratory case definition of SARS-CoV infection where testing has only been performed at a national reference laboratory.

CONFIRMED CASE OF SARS
A preliminary positive case where testing performed at a national reference laboratory has been independently verified by a WHO International SARS Reference and Verification Laboratory.

OR
A preliminary positive case of SARS where at least one case in the first chain of transmission identified in the country/area has been independently verified by a WHO International SARS Reference and Verification Laboratory.

OR
An individual with clinical and epidemiological evidence* for SARS AND with preliminary laboratory evidence of SARS-CoV infection based on the following tests performed at a national reference laboratory or a designated sub-national laboratory:
- a) A single positive antibody test for SARS-CoV, OR
- b) A positive PCR result for SARS-CoV on a single clinical specimen and assay.

*Epidemiological evidence for SARS is linkage to a chain of human transmission where at least one case in the first chain of transmission identified in the country area has been independently verified by a WHO International SARS Reference and Verification Laboratory

PROBABLE CASE OF SARS
An individual with clinical evidence of SARS epidemiologically linked to a preliminary positive or confirmed case of SARS.

OR
An unverifiable case of SARS if epidemiologically linked to a preliminary positive or confirmed case.

UNVERIFIABLE CASE OF SARS
An individual with clinical evidence of SARS but in whom initial laboratory results are negative, if done, and the patient is lost to follow up.

OR
A deceased individual with a pre-morbid history of illness compatible with SARS AND
- a) whose autopsy findings are consistent with the pathology of pneumonia or ARDS but in whom SARS-CoV testing was not done or was incomplete OR
- b) in whom neither an autopsy nor laboratory testing were performed.

Last updated February 2011
Notes: One or more cases in the first chain of human transmission occurring in countries/areas previously free of SARS should always be independently verified by a WHO International SARS Reference and Verification Laboratory. In the event of a large outbreak where sub-national laboratories may be designated to perform SARS testing by the national health authority, WHO recommends that at least one case in all subsequent new (independent) chains of transmission should be independently verified by a national SARS reference laboratory.

SMALLPOX

The last naturally acquired case of smallpox in the world occurred in 1977 and global eradication was certified in 1979 by WHO and sanctioned by the World Health Assembly in 1980. Smallpox was a systemic viral disease generally presenting with a characteristic skin eruption. High fever, malaise, headache, vomiting preceded the appearance of the rash.

CONFIRMED CASE: A suspected case with laboratory confirmation by identification of the virus.

SYphilIS

Syphilis is a complex, sexually transmitted infection with a highly variable clinical course resulting from initial infection with *Treponema pallidum*. Congenital syphilis may result from untreated women becoming pregnant and infecting their offspring.

CONFIRMED CASE (PRIMARY SYphilIS)

- **Laboratory confirmed:** A case of Genital Ulcer Syndrome (see case definition) with laboratory confirmation: Nontreponemal (VDRL/RPR) and treponemal (MHATP/TPHA or FTA) reactive serology when no history of previous syphilis or treponemal infection
  - OR
  - 4-fold increase in titre over the last known non-treponemal (VDRL/RPR) test
  - OR
  - demonstration of *Treponema pallidum* from a chancre or in aspirated material from a regional lymph node by darkfield, fluorescent antibody, or equivalent microscopic methods.

SUSPECTED CASE (SECONDARY SYphilIS)

An individual with any of the following:
- localised or diffused
- mucocutaneous lesions
- generalised lymphadenopathy
- alopecia,
- loss of eyelashes and lateral third of eyebrows, iritis, splenomegaly

CONFIRMED CASE (SECONDARY SYphilIS)

- **Laboratory confirmed:** A confirmed case is a suspected case with laboratory confirmation: Non-treponemal (VDRL/RPR) and (MHATP/TPHA or FTA) reactive serology
  - OR
  - Non-treponemal (VDRL/RPR) serology titre greater than or equal to 1:8
  - OR
  - Demonstration of *Treponema pallidum* from a chancre or in aspirated material from a regional lymph node by darkfield, fluorescent antibody, or equivalent microscopic methods.

Last updated February 2011
CONFIRMED CASE (OTHER SYPHILIS: SEROLOGICAL SYPHILIS)

- **Laboratory confirmed:** An individual who does not meet the criteria for primary, secondary, or congenital syphilis with the following diagnosis laboratory confirmation: Non-treponemal (VDRL/RPR) and/or treponemal (MHATP/TPHA or FTA) reactive serology with no known previous treatment for syphilis
  - OR
  - 4-fold rise in non-treponemal (VDRL/RPR) serology titre.

LATENT AND TERTIARY SYPHILIS
Their diagnosis is done occasionally through mother-to-child transmission of syphilis and generally through clinical manifestations such as cardiovascular abnormalities (thoracic aortic aneurysm and aortic insufficiency), skin lesions (localised gumma formation), neurologic manifestations (general paresis, tabes dorsalis and focal neurologic signs) as well as skeleton, testis and cartilage dysfunction and abnormalities.

PROBABLE CASE (CONGENITAL SYPHILIS)
An infant (live or still birth) born to a woman with a diagnosis of syphilis who:
- is untreated OR
- does not have documentation of treatment OR
- did not have an expected decrease in serology titre after treatment OR
- was treated one month or less before delivery OR
- was treated with non-penicillin therapy OR
- an infant (live or stillbirth) with clinical evidence of congenital syphilis on physical examination or long bones X-ray OR
- an infant with a non-treponemal (VDRL/RPR) serology titre which is 4-fold greater than the mother’s titre

PROBABLE CASE (CONGENITAL SYPHILIS)

- **Laboratory confirmed:** A probable case with Laboratory confirmation: Demonstration of *Treponema pallidum* by darkfield microscopy, fluorescent antibody, or other specific stains from nasal discharges or skin lesions, or in placental, umbilical cord or autopsy material of a neonate.

TETANUS

SUSPECTED CASE

- Painful contraction of the muscles of chewing and the neck muscles
- Contractions of the abdominal muscles producing rigidity

CONFIRMED CASE

- **Clinically confirmed:** A suspected case with typical facial expression
- History of exposure

TETANUS (NEONATAL)

Any neonatal death between 3 and 28 days of age should be investigated.

CONFIRMED CASE

Last updated February 2011
 Clinically confirmed: A neonate with normal ability to suck and cry during the first 2 days of life, and inability to suck normally developing between 3 and 28 days, AND with one or more of the following:
  o Facial grimace
  o Stiffness of body, arching of back
  o Generalised spasms or convulsions

SUSPECTED CASE
Any neonate reported as having suffered from neonatal tetanus between 3 and 28 days of age and not investigated

TUBERCULOSIS (PULMONARY)

SUSPECTED CASE
Anyone with symptoms of TB must be suspected of having TB and evaluated for the disease. In addition, anyone found to have a positive tuberculin skin test reaction must be evaluated for TB disease.

Clinicians must think of the possibility of TB when they see a patient with symptoms of the disease or abnormal chest X-ray findings.

Note: Prior BCG immunization may complicate the interpretation of a positive skin test in a child or recently immunized adult. BCG immunization of uninfected (tuberculine negative) people can induce tuberculine reactivity in more than 90% of vaccinees

Symptoms of pulmonary tuberculosis disease include:
- Persistent productive cough for three weeks or more, and sometimes
- Chest pain when coughing or breathing
- Bloodstained sputum or haemoptysis

Pulmonary TB can be sputum smear positive (PTB+) or sputum smear negative (PBT-)

The general symptoms of tuberculosis disease (pulmonary or extra-pulmonary) include:
- Weight loss
- Malaise
- Fatigue
- Fever
- Night sweats

CONFIRMED CASE
Laboratory confirmed: A suspected case with laboratory confirmation (Detection of acid fast bacilli on sputum smear or isolation of Mycobacterium tuberculosis, M. bovis or M. africanum from sputum).

Note:
- Any patient diagnosed with both pulmonary and extra-pulmonary tuberculosis should be classified as a case of pulmonary tuberculosis.
- New case: A patient who has never had treatment for tuberculosis or took anti-tuberculous drugs for less than 4 weeks.
- Relapse case: A patient previously treated for tuberculosis and declared cured by a medical officer after one full course of chemotherapy, but who reports back to the health service bacteriologically positive (smear or culture).

Last updated February 2011
TUBERCULOSIS (EXTRA - PULMONARY)

** SUSPECTED CASE **
Anyone with symptoms of TB must be suspected of having TB and evaluated for the disease. In addition, anyone found to have a positive tuberculin skin test reaction must be evaluated for TB disease.

Clinicians must think of the possibility of TB when they see a patient with symptoms of the disease or abnormal chest X-ray findings.

The general symptoms of tuberculosis disease (pulmonary or extra-pulmonary) include:
- Weight loss
- Malaise
- Fatigue
- Fever
- Night sweats

The symptoms of extra-pulmonary tuberculosis disease depend on the part of the body that is affected by the disease.

** CONFIRMED CASE **
- **Laboratory confirmed**: A suspected case with laboratory confirmation (Detection of acid fast bacilli or isolation of *Mycobacterium tuberculosis*, *M. bovis* or *M. africanum* from extra-pulmonary site).

** Note:**
- Any patient diagnosed with both pulmonary and extra-pulmonary tuberculosis should be classified as a case of pulmonary tuberculosis.
- New case: A patient who has never had treatment for tuberculosis or took anti-tuberculous drugs for less than 4 weeks.
- Relapse case: A patient previously treated for tuberculosis and declared cured by a medical officer after one full course of chemotherapy, but who reports back to the health service bacteriologically positive (smear or culture).

** TYPHOID AND PARATYPHOID FEVERS **

** SUSPECTED CASE **
A person presenting with an acute illness characterized by 3 or more of the following symptoms:
- Fever
- Headache
- Malaise
- Anorexia
- Non productive cough
- Constipation or diarrhea

**PROBABLE CASE**
A suspected case which is epidemiologically linked to a confirmed case in an outbreak.

** CONFIRMED CASE **
**Laboratory confirmed**: A Suspected or Probable case with Laboratory confirmation (Isolation of *Salmonella typhi* from blood, stool, or other clinical specimen).
VIRAL ENCEPHALITIS / MENINGITIS

SUSPECTED CASE (VIRAL MENINGITIS)
Fever of sudden onset, followed by two or more of the following:
   - Headache
   - Nausea
   - Vomiting
   - Stiffness and pain in the neck
   - Maculopapular, vesicular or petechial rash

   AND two of the following

   - Pleocytosis of the spinal fluid
   - Elevated protein
   - Negative for bacteria

SUSPECTED CASE (VIRAL ENCEPHALITIS)
Fever of sudden onset, followed by three or more of the following:
- Headache
- Meningeal signs
- Drowsiness, stupor
- Confusion, disorientation
- Tremors, convulsions
- Coma
- Spasticity, spastic paralysis

PROBABLE CASE (VIRAL MENINGITIS/ENCEPHALITIS)
A suspected case with concurrent or recent symptoms of a disease which is known to be associated with CNS infection, e.g. herpes, mumps, measles.

OR
A suspected case with laboratory detection of an enterovirus in a site other than the CNS, e.g. faeces.

CONFIRMED CASE (VIRAL MENINGITIS/ENCEPHALITIS)
- Laboratory confirmed: A suspected or probable case with:
  - Detection of a virus or viral protein in the central nervous system.
  - Specific viral antibody for herpes, mumps, or measles in the CSF.
  - Positive serology for an arbovirus known to be associated with CNS infection.
  - Positive enterovirus serology and epidemiological linkage to a case with enterovirus in the CNS.

VIRAL HEPATITIS A

SUSPECTED CASE
Abrupt onset of fever with jaundice within one week, and with one or more of the following:
- Anorexia
- Malaise
- Fatigue
- Nausea
- Abdominal discomfort

Last updated February 2011
OR

A symptomatic person without jaundice but with a history of close contact with a confirmed case within the past 2 weeks.

CONFIRMED CASE

- **Laboratory confirmed**: A suspected case with a positive laboratory result for Hepatitis A (anti-HAV IgM).

VIRAL HEPATITIS B

SUSPECTED CASE

A person presenting with jaundice, and a history of insidious onset of at least 3 of the following:

- Malaise
- Anorexia
- Lethargy
- Right upper quadrant tenderness
- Itching
- Rash
- Arthralgia
- Dark urine, pale stools.

CONFIRMED CASE

- **Laboratory confirmed**: A suspected case with a positive diagnostic laboratory test. Commercial kits are used to test for antigen and antibody to Hepatitis B virus.
  - **HBsAg** (Hepatitis B surface Antigen) is present in high titre in the serum during acute disease, and in the carrier state. If symptoms are present, a positive HBsAg test is accepted as diagnostic.
  - **IgM anti-Hbc** (IgM antibody to the core antigen of the Hepatitis B virus). The presence of IgM specific for the Hepatitis B virus is diagnostic.
  - **HBeAg** The presence of Hepatitis ‘e’ antigen in an infected person indicates a high level of infectivity and is important in the management of pregnant women whose babies are at risk of contracting hepatitis and becoming permanent carriers.

YELLOW FEVER (URBAN OR SYLVATIC)

CONFIRMED CASE

A suspected case of yellow fever is a person with an illness characterised by an acute onset of fever followed by **two or more** of the following symptoms:

- Headaches or backaches
- Muscle pain
- Nausea and/or vomiting
- Fatigue/lethargy

AND at least one of the following:

- Jaundice
- Reduced amounts of urine production
- Bleeding from nose, gums or skin

Last updated February 2011
- Blood in vomit, stool or urine

**PROBABLE CASE**
A probable case of yellow fever is a suspected case fulfilling one or more of the following criteria:
- Living/working in an area where yellow fever is enzootic or endemic
- Presence in the neighborhood or village, within the last two weeks, of a person ill with fever and jaundice

**CONFIRMED CASE**
- **Laboratory confirmed:** A confirmed case of yellow fever is a suspected case with positive laboratory test results

**REFERENCES**


WHO guidelines for the global surveillance of severe acute respiratory syndrome (SARS) WHO/CDS/CSR/ARO/2004.1

Caribbean Outbreak Response Toolkit (CORT)

CORT is a series of tools that can support CAREC Member Countries when investigating communicable disease outbreaks. The tools currently available are:

- **Outbreak Investigation** - information to guide you through the investigation and management of an infectious disease outbreak

- **Foodborne Disease Outbreaks** - tools specific for investigation of foodborne disease outbreaks

- **Case Investigation Forms** - downloadable forms to assist you in the investigation of cases during an outbreak

- **Specimen collection guide** - information to assist in the collection of appropriate clinical specimens

- **Laboratory Investigation Form** - a downloadable form for use when collecting specimens for testing in the national and/or regional reference laboratory

- **Outbreak Reporting Form** - a downloadable or printable form to assist you in summarizing and reporting the results of an outbreak investigation

- **Introduction to Epidemiology** - links to websites with information on epidemiology

- **Introduction to Biostatistics** - links to websites with information on basic statistics for epidemiologists and public health practitioners

- **Free Public Health Software** - links to free software downloads to assist in the collection and analysis of epidemiological data

These tools are available on the following website:

```
www.carec.net/outbreak
```

The CORT website also links to key websites providing regular updates on outbreak activity in the region and around the world.

If you would like to provide feedback on the tools, including suggestions for additional ones, please contact CAREC Epidemiology:

- **Telephone**
  868-622-4261/4262

- **FAX**
  868-622-1008, 868-622-2792

- **Email**
  carec-epidemiology@carec.paho.org

Last updated April 2008
Outbreak Reporting Form
The outbreak reporting form is a mechanism for collecting and archiving standard information from outbreak investigations. This form has been developed to capture key information from an outbreak investigation. All outbreaks for which an outbreak investigation was conducted should be recorded on the form, especially ones with unusually large numbers of cases and/or with the potential to spread to other countries. The outbreak reporting form can be completed manually or electronically.

CAREC is requesting that CAREC Member Countries:

a) Complete an outbreak reporting form as soon as possible following the completion of an outbreak investigation
b) E-mail, fax or mail the form to CAREC
c) Provide updates and amendments to reports as required

Given the ability of outbreaks to cross borders and oceans, CAREC is responsible for:

a) Collecting and archiving outbreak investigations forms from CAREC Member Countries
b) Producing and disseminating summaries of outbreaks in the region
c) Analyzing and reporting on regional outbreak trends

Why do we need to collect information on outbreaks?
Sharing the findings of an outbreak investigation will help public health professions in the Caribbean to:

1. Understand potential risk factors associated with specific types of outbreaks
2. Realize the potential impact of different types of outbreaks
3. Gain insight into investigation techniques and strategies
4. Increase preparedness for potential outbreaks based on a good understanding of temporal and spatial outbreak trends

PLEASE NOTE: This reporting tool is not for issuing outbreak alerts. If you are experiencing an outbreak, it is important that you share this information with other relevant public health professionals as an alert.

If you have any questions on this outbreak reporting form, or any other matter relating to CORT or outbreaks in general, please contact:

CAREC
1-868-622-4261/4262
carec-epidemiology@carec.paho.org

Question and Answer

Q. What type of outbreaks should be recorded on the outbreak reporting form?
A. All outbreaks for which an outbreak investigation was conducted should be recorded on the form, especially those with unusually large numbers of cases and/or with the potential for spread to other countries.
Q. Who should complete this report?
A. Each country should decide this individually. Usually it will be the national epidemiologist or someone who was directly involved in the outbreak investigation.

Q. Who should send the report to CAREC?
A. The National Epidemiologist or his/her delegate.

Q. Can I email this form?
A. Yes, the form is set up in Microsoft Word to allow for electronic entry. If you do not have an electronic copy of this form, please visit the CORT website www.carec.net/outbreak, see appendix 11.2 of this document or contact CAREC Epidemiology. We would encourage people to send the form via email to carec-epidemiology@carec.paho.org

Q. What will happen to the information once CAREC receives it?
A. It will be entered into a database and analyzed.

Q. What happens if some of the information changes or additional information is received after I have sent the report to CAREC?
A. You can submit a new form just recording the information that has changed. In section A (Q. 7) indicate that this is “an updated report”.

Q. Should I fill in the laboratory sections (Sections G and H) if all the specimens tested were negative?
A. Yes, this information is very important to capture. Simply indicate the number tested and that ‘0’ were positive. Also indicate the actual tests conducted.

CAREC
Tele: 1-868-622-4261/4262 Fax: 1-868-622-1008
carec-epidemiology@carec.paho.org

Last updated April 2008
### 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): 

7. Is this a first report or an updated/amended report? 

### B. Type of Outbreak

8. Food-borne
   - Respiratory
   - Water-borne
   - Sexually transmitted infection
   - Vector-borne
   - EPI disease
   - Other, please specify below

9. Was a vehicle/vector/source identified? Yes No

10. If yes, please specify: 

### C. Descriptive Epidemiology (person, place)

11. Number of cases: 
   - Suspected or Probable
   - Confirmed
   - Total

12. List number of cases (suspect, probable and confirmed) by age group and gender:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Cases</th>
<th>Male</th>
<th>Female</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 – 4 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 – 14 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 – 24 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 – 44 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45 – 64 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65+ years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. Was the whole country affected? Yes No

14. If no, describe the areas affected: 

15. Exposure setting (check all that apply):
   - General community
   - Health institution (e.g. hospital, nursing home)
   - Other institution (e.g. prison, boarding home)
   - Hotel or resort complex
   - Restaurant
   - School or child care facility
   - Other, please specify,
   - Don't know

### D. Clinical Details

16. Common Symptoms/Syndromes (check all that apply):
   - Nausea
   - Vomiting
   - Diarrhea
   - Abdominal cramps
   - Fever
   - Rash
   - Respiratory symptoms
   - Hemorrhagic symptoms
   - Genital ulcer
   - Genital discharge
   - Neurological symptoms
   - 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

### E. Case Summary (time)

21. Please record number of cases per unit time. Record time interval as:
   - Month (i.e. Jan 04, Feb 04, Mar 04), or
   - Epidemiological week (i.e. 23, 24, 25), or
   - Day (record as exact date, i.e. 23/06/04)

<table>
<thead>
<tr>
<th>Time Interval</th>
<th>Number Suspect/Probable Cases</th>
<th>Number of Confirmed Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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)

<table>
<thead>
<tr>
<th>24. Type of Specimen</th>
<th>Number Tested</th>
<th>Number Positive</th>
<th>Etiologic Agent</th>
<th>Subtype 1</th>
<th>Subtype 2</th>
<th>Antimicrobial Resistance Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>25. Type of Specimen</th>
<th>Number Tested</th>
<th>Number Positive</th>
<th>Etiologic Agent</th>
<th>Subtype 1</th>
<th>Subtype 2</th>
<th>Antimicrobial Resistance Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Odds Ratio or Relative Risk</th>
<th>95% Confidence Intervals</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 12.1: CARIBBEAN EPIDEMIOLOGY CENTRE (CAREC)
#### ANNUAL AIDS REPORTING FORM

1. **Country:**  
2. **Unit/Programme:**  
3. **Reporting Year:**

4. **Total number of AIDS cases reported during this period:**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Male</th>
<th>Female</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-39</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Total Cases

5. **Total number of AIDS deaths reported during this period:**

6. **Route of Transmission**

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTCT of HIV*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSM**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVDU***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood and Blood Products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterosexual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Total Cases

---

* Mother-to-Child Transmission of HIV  
** Men who have Sex with Men: homosexuals and bisexuals  
*** Intravenous Drug Use

Completed by: __________________________           ________________________          _______________

Authorized by: __________________________           ________________________          _______________

(Please print name clearly)                    (Designation)                  (Date)

Send to: CARIBBEAN EPIDEMIOLOGY CENTRE (CAREC), P.O. Box 164, Port of Spain, Trinidad  
Telephone: 1-868-622-4261   Fax: 1-868-622-1008   Email: carec-epidemiology@carec.paho.org
### Appendix 12.1

CARIBBEAN EPIDEMIOLOGY CENTRE (CAREC)

NOTES ON COMPLETING THE ANNUAL AIDS REPORTING FORM

<table>
<thead>
<tr>
<th>Section No.</th>
<th>Notes/Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Enter the name of the country for which data is being submitted</td>
</tr>
<tr>
<td>2.</td>
<td>Indicate the name of the institution or unit sending this report to CAREC</td>
</tr>
<tr>
<td>3.</td>
<td>Enter the year for which data is being submitted</td>
</tr>
</tbody>
</table>
| 4.          | Indicate the total number of AIDS **cases** reported during this period  
NOTE: AIDS case defined as patient fulfilling the following: HIV positive test with major and minor signs or an indicator disease |
| 5.          | Indicate the total number of AIDS **deaths** reported during this period  
NOTE: AIDS death is defined as death caused by opportunistic infections of AIDS and/or HIV Wasting syndrome  
Causes of death should be analysed during quality of care surveys at country level |
| 6.          | Enter the number of reported AIDS cases broken down by gender and 5 year age groups.  
Where gender or age group is unknown, these cases should be entered in the *unknown* column (gender) or *unknown* row (age group) provided  
Each row and column in this section should be summed and the total should be entered in the corresponding *total* row or column.  
The grand total for this section should equal the number of cases reported in Section 4 |
| 7.          | Enter the number of reported AIDS cases broken down by gender and reported mode of transmission.  
Where gender or mode of transmission is unknown, these cases should be entered in the *unknown* column (gender) or *unknown* row (mode of transmission) provided  
Each row and column in this section should be summed and the total should be entered in the corresponding *total* row or column.  
The grand total for this section should equal the number of cases reported in Section 4 |
<table>
<thead>
<tr>
<th>6. Age (years)</th>
<th>Male</th>
<th>Female</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35-39</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-49</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Route of Transmission</th>
<th>Male</th>
<th>Female</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTCT of HIV*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSM**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVDU***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood/ Blood Products</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterosexual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Mother-to-Child Transmission of HIV  
** Men who have Sex with Men: homosexuals and bisexuals  
*** Intravenous Drug Use

Completed by: __________________________   ________________________   _______________

Authorized by: __________________________   ________________________   _______________

(Please print name clearly)   (Designation)   (Date)
### Appendix 12.2

**CARIBBEAN EPIDEMIOLOGY CENTRE (CAREC)**

NOTES ON COMPLETING THE ANNUAL HIV REPORTING FORM:

<table>
<thead>
<tr>
<th>Section No.</th>
<th>Notes/Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Enter the name of the country for which data is being submitted</td>
</tr>
<tr>
<td>2.</td>
<td>Indicate the name of the institution or unit sending this report to CAREC</td>
</tr>
<tr>
<td>3.</td>
<td>Enter the year for which data is being submitted</td>
</tr>
<tr>
<td>4.</td>
<td>Indicate the total number of HIV cases reported during this period</td>
</tr>
</tbody>
</table>
| 5.          | Record the HIV Seroprevalence rate(s) that was(ware) reported by any studies performed during this period. If no studies were performed during this period, this section should be left blank. Targeted groups include:  
  - FCSW - Female Commercial Sex Workers  
  - MSM - Men who have Sex with Men: Includes homosexuals and bisexuals  
  - STI Patients  
  - Blood donors  
  - Pregnant Women  
  - Other – Please specify the targeted group |
| 6.          | Enter the number of reported HIV cases broken down by gender and 5 year age groups. Where gender or age group is unknown, these cases should be entered in the unknown column (gender) or unknown row (age group) provided. Each row and column in this section should be summed and the total should be entered in the corresponding total row or column. The grand total for this section should equal the number of cases reported in Section 4 |
| 7.          | Enter the number of reported HIV cases broken down by gender and reported mode of transmission. Where gender or mode of transmission is unknown, these cases should be entered in the unknown column (gender) or unknown row (mode of transmission) provided. Each row and column in this section should be summed and the total should be entered in the corresponding total row or column. The grand total for this section should equal the number of cases reported in Section 4 |
Appendix 12.3: CARIBBEAN EPIDEMIOLOGY CENTRE (CAREC)

ANNUAL STI REPORTING FORM

1. Country:  
2. Unit/Programme:  
3. Reporting Year:  
4. Total number of STI cases reported during this period:

5. STI prevalence rate in studies concluded during this period among specific groups:
   Blood Donors: _____ %  
   MSM: _____ %  
   FSW: _____ %

   Pregnant Women: _____ %  
   (Specify Group): _____ %

6. SYNDROME  
   AETIOLOGY  
   SEX  
   AGE GROUP  
   TOTAL

<table>
<thead>
<tr>
<th>SYNDROME</th>
<th>AETIOLOGY</th>
<th>SEX</th>
<th>10-14</th>
<th>15-19</th>
<th>20-24</th>
<th>&gt;24</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genital Discharge</td>
<td>Gonorrhoea</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chlamydia</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other/Unknown</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genital Ulcer</td>
<td>Syphilis</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other/Unknown</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Syndrome, but laboratory test is positive (serology positive)</td>
<td>Syphilis</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chlamydia</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   TOTAL

7. INFANTS (< 10 years)

<table>
<thead>
<tr>
<th>SYNDROME</th>
<th>AETIOLOGY</th>
<th>NUMBER OF CASES</th>
<th>TOTAL NO. OF INFANT CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmia Neonatorum</td>
<td>Gonorrhoea</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chlamydia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congenital Syphilis</td>
<td>Other/Unknown</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Completed by: __________________________           ________________________          _______________
Authorized by: __________________________           ________________________          _______________

(Please print name clearly)                                   (Designation)                                         (Date)
### Appendix 12.3

**CARIBBEAN EPIDEMIOLOGY CENTRE (CAREC)**

**NOTES ON COMPLETING THE ANNUAL STI REPORTING FORM**

<table>
<thead>
<tr>
<th>Section No.</th>
<th>Notes/Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Enter the name of the country for which data is being submitted</td>
</tr>
<tr>
<td>2.</td>
<td>Indicate the name of the institution or unit sending this report to CAREC</td>
</tr>
<tr>
<td>3.</td>
<td>Enter the year for which data is being submitted</td>
</tr>
<tr>
<td>4.</td>
<td>Indicate the total number of STI cases reported during this period</td>
</tr>
</tbody>
</table>
| 5.          | Record the STI Prevalence rate(s) that was(were) reported by any studies performed during this period. 
If no studies were concluded during this period, this section should be left blank. 
Targeted groups include:  
- Blood donors  
- Men who have Sex with Men: Includes homosexuals and bisexuals (MSM)  
- Female Sex Workers (FSW)  
- Pregnant Women  
- Others – Please specify the targeted group 
Please also indicate the disease under study e.g. Chlamydia, Syphilis etc. |
| 6.          | Enter the number of reported STI cases broken down by gender, age group and syndrome. 
Where gender or age group is unknown, these cases should be entered in the *unknown* column or *unknown* row (U) provided.  
Each row and column in this section should be summed and the total should be entered in the corresponding *total* row or column. |
| 7.          | Enter the number of reported STI cases for infants (< 10 years) broken down by syndrome and aetiology.  
Enter the total number of infant STI cases in the column provided (last column of table).  
The grand total for this section plus the grand total from section 6 should equal the number of cases reported in Section 4. |
HIV Case Based Surveillance

Protocol

Introduction
HIV case-based surveillance aims to set-up a regional Caribbean database including anonymized longitudinal data on individual HIV patients. Information from the moment of HIV diagnosis will be collected, as well as longitudinal information during follow-up and treatment. These data allow advanced regional and national reporting on the HIV epidemic, monitoring and evaluation of access to treatment, treatment program and quality outcomes, including HIV Early Warning Drug Resistance indicators and a number of other indicators requested by international partners and funding agencies.

The number of variables and the detail of the data collected are greater compared to traditional surveillance. Over the past years however, countries have been implementing national health information systems, electronic medical records and/or HIV patient monitoring systems which will provide the majority of data required for HIV case-based surveillance.

This protocol describes the implementation of HIV case-based surveillance including the objectives, role and responsibilities of the different partners involved, data ownership and confidentiality, unique patient identifier, variables and data structure, data validation, dissemination of results and additional reporting requests.

Parties involved
- Caribbean countries, represented by their Ministry of Health / National AIDS program
- HIV clinics, laboratories and HIV testing sites in the Caribbean countries
- The regional coordinating center, PHCO / CAREC

Objectives of HIV-case based surveillance
- Collect structured case-based information on HIV diagnosis, follow-up and treatment in the Caribbean countries
- Improve regional and national reporting on the HIV epidemic, monitoring and evaluation of access to treatment, and treatment program and quality outcomes, including HIV Early Warning Drug Resistance indicators and a number of other indicators requested by international partners and funding agencies.

Methods
On a regular basis (proposal 2x per year) participating countries will electronically submit their data to the regional coordinating centre. The definition of variables and data structure is described in detail in the attached data exchange protocol. The way these data will be collected in-country will depend on the data availability. Data might come from national health information systems, HIV surveillance records, electronic medical records, or HIV patient monitoring systems, or a combination of these. A regional database will be set up at the coordinating centre, using data submitted by countries in an established standard format. For each submission of data a number of –automated- data validation checks will be done. Depending on this...
validation further queries might be sent to the country, to clarify or correct inconsistencies. The coordinating center will produce regional reports, and assist individual countries to run their own country reports. Since a standardized structure is used in country and at the coordinating centre, the tools to run these reports can be shared.

Unique patient identifier
Each country is responsible for assigning a unique identifier to each patient in such a way that within country each patient has a unique code, which will be constant over time, and that anonymity is guaranteed. This might require the existing unique identifier to be encrypted before submitting the data to the regional coordinating center.

Data validation
For each submission of data, a number of -automated- data validation checks will be done on the submitted data. On a regular basis an on site validation will take place in which data collection methods will be reviewed, and where appropriate comparison between submitted data and source documents can be done on a sample of records.

Ownership of data and dissemination of results
Each individual country, presented by the Ministry of Health remains the only owner of its own data. The regional coordinating center will act as a third party and guardian of the data, but does not have ownership. No data can be shared with other parties, unless explicit written approval by the Ministries of Health of the countries involved.
The coordinating center has the right to publish regional reports on the condition that individual countries are not identifiable.
The coordinating center can only publish reports including identifiable countries, after written approval by the Ministry of Health of each country involved.

Role and responsibilities of each of the partners
- The regional coordinating center: will coordinate HIV case-based surveillance, receive and validate data submissions from the participating countries, provide regional reports and support for individual country reports.
- Caribbean countries, represented by their Ministry of Health / National AIDS program: coordinate in-country the collection of HIV case-base surveillance, assure timely submission of data to the regional coordinating center, produce country reports.
- HIV clinics, laboratories and HIV testing sites in the Caribbean countries: collect HIV case-based data, as part of national health information system, electronic medical record, HIV patient monitoring, HIV surveillance data. Submit data in a timely manner. Answer to queries from data validation efforts.

Additional requests and research proposals
Participating countries and researchers attached to a research institute in at least one of the participating countries are welcome to make requests for additional analyses or for specific research proposals. Each individual proposal will be send to all participating countries for approval.

July 15, 2011
### A: REPORTING SOURCE INFORMATION

| Date form completed: | Day, Mo., Year |

- **Is the reporting source the same as diagnosis facility?**
  - YES
  - NO (IF NO, COMPLETE BELOW)

| Name of reporting source facility: |

| Name of person reporting the case: |

| Address of person reporting the case: |

| Telephone number of person reporting the case: |

| E-mail address of person reporting the case: |

### B: DIAGNOSIS FACILITY INFORMATION

| Name of diagnosis facility: |

| Facility record number: |

| Address of diagnosis facility: |

| Diagnosis facility type: |

- ANC/PMTCT CLINIC
- BLOOD BANK
- HOSPITAL
- LABORATORY
- PRIVATE HEALTH CLINIC
- PUBLIC HEALTH CLINIC
- STI CLINIC
- TUBERCULOSIS CLINIC
- VCT SITE
- OTHER, SPECIFY ___________

### C: PATIENT INFORMATION

| Patient’s first name: | Patient’s maiden name (if applicable): |

| Patient’s last name: | Patient’s coded unique identifier (if applicable): |

| Actual Date of birth: | Day, Mo., Year |

| Or Estimated DOB: | Day, Mo., Year |

| Sex: |

- MALE
- FEMALE

| Current city/town of residence: |

| Current country of residence: |

| Country of birth: |

| Nationality: |

| Education completed: |

- NO FORMAL SCHOOLING
- PRIMARY
- SECONDARY
- TECHNICAL/VOCATIONAL
- UNIVERSITY AND HIGHER

| Occupation Status: |

- EMPLOYED
- UNEMPLOYED

| Race/Ethnicity: |

| Current Status: |

- ALIVE
- DEAD
- UNKNOWN

| Date of death: | Day, Mo., Year |

| Cause of death: |

- HIV-RELATED
- OTHER/UNKNOWN

### D: RISK FACTORS/EXPOSURES

**Preceding the first positive HIV test, this patient had (respond to all categories):**

- Had sex with male(s) in the past 12 months
- Had sex with female(s) in the past 12 months
- Had sex with person(s) of known HIV-positive status in the past 12 months
- Had sex with sex worker(s) in the past 12 months
- Exchanged sex for money, drugs or material gain in the past 12 months
- Injected nonprescription drugs in the past 12 months
- Used non-injected illicit drug (e.g. crack, cocaine, marijuana, hallucinogens, etc) in the past 12 months
- Any history of incarceration in prison in the last five years
- Perinatal exposure to HIV
- Received transfusion(s) of blood, blood products or clotting factors
- Received a transplant of tissue or organ or artificial insemination
- Occupational exposure while working in a health care setting or laboratory or providing safety or emergency services
### E. CLINICAL/IMMUNOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Date of First WHO Stage</th>
<th>CD4 Count and Date of Test</th>
<th>Viral Load Count and Date of Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>First WHO Stage 1</td>
<td>Day Mo. Year</td>
<td>Day Mo. Year</td>
</tr>
<tr>
<td>First WHO Stage 2</td>
<td>Day Mo. Year</td>
<td>Day Mo. Year</td>
</tr>
<tr>
<td>First WHO Stage 3</td>
<td>Day Mo. Year</td>
<td>Day Mo. Year</td>
</tr>
<tr>
<td>First WHO Stage 4</td>
<td>Day Mo. Year</td>
<td>Day Mo. Year</td>
</tr>
</tbody>
</table>
**F: TREATMENT AND CARE**

<table>
<thead>
<tr>
<th>Has the patient had prior ART experience before the first visit?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Did the patient transfer in from another clinic/country?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If the patient has dropped out what is the date?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What is the reason if the patient has dropped out?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deceased</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Does patient receive HIV medical care?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Does patient receive prophylaxis for opportunistic infections?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ART Regimen</th>
<th>Start Date for ART Regimen</th>
<th>Stop Date for ART Regimen</th>
<th>Reason to Stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.___________</td>
<td>Day</td>
<td>Mo.</td>
<td>Year</td>
</tr>
<tr>
<td>2.___________</td>
<td>Day</td>
<td>Mo.</td>
<td>Year</td>
</tr>
<tr>
<td>3.___________</td>
<td>Day</td>
<td>Mo.</td>
<td>Year</td>
</tr>
<tr>
<td>4.___________</td>
<td>Day</td>
<td>Mo.</td>
<td>Year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Planned Date of Next Visit</th>
<th>Actual Visit Date</th>
<th>Planned Date of Next Visit</th>
<th>Actual Visit Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td>Mo.</td>
<td>Year</td>
<td>Day</td>
</tr>
<tr>
<td>Day</td>
<td>Mo.</td>
<td>Year</td>
<td>Day</td>
</tr>
<tr>
<td>Day</td>
<td>Mo.</td>
<td>Year</td>
<td>Day</td>
</tr>
<tr>
<td>Day</td>
<td>Mo.</td>
<td>Year</td>
<td>Day</td>
</tr>
<tr>
<td>Day</td>
<td>Mo.</td>
<td>Year</td>
<td>Day</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Planned Date of Next Visit</th>
<th>Actual Visit Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td>Mo.</td>
</tr>
<tr>
<td>Day</td>
<td>Mo.</td>
</tr>
<tr>
<td>Day</td>
<td>Mo.</td>
</tr>
<tr>
<td>Day</td>
<td>Mo.</td>
</tr>
<tr>
<td>Day</td>
<td>Mo.</td>
</tr>
</tbody>
</table>

**THIS SECTION TO BE COMPLETED BY NATIONAL SURVEILLANCE UNIT**

<table>
<thead>
<tr>
<th>Date report was received at national surveillance unit:</th>
<th>Day</th>
<th>Mo.</th>
<th>Year</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type of report:</th>
</tr>
</thead>
<tbody>
<tr>
<td>New</td>
</tr>
</tbody>
</table>
HIV case based surveillance
Data Exchange Protocol

Version 1.0
February 2011

Updates maintained by:
Dr. Ward Schrooten

CAREC Caribbean Epidemiology Center / PHCO PAHO HIV Caribbean Office
16-18 Jamaica Boulevard, Federation Park
P.O. Box 164, Port of Spain, Republic of Trinidad and Tobago
Tel: 001 (868) 622-4261, Fax: 001 (868) 622-2792
Email: schroowa@carec.paho.org
1. Introduction

HIV case-based surveillance aims to collect data on individual patient level on a longitudinal basis, starting from the moment of HIV diagnosis. Collated at a regional level these data provide insight into the HIV epidemic and into HIV care provided in the region.

In other parts of the world HIV cohort studies have collected information over more than a decade. The methodology and standardized structures of such cohorts are well known. This data exchange protocol is partly based on the HICDEP data exchange protocol (http://www.cphiv.dk/).

2. Data format

Data are to be transferred in comma separated value (csv) files, text files (txt), open document format (ods), Excel 2003 files (xls) or Access 2003 files (mdb), after discussion with the regional coordinating center.

3. Unique key

All patients have a unique identifier. Each country is responsible for assigning their own unique identifier in such a way that within country each patient has a unique code and that anonymity is guaranteed.

4. Variable definitions

The standard minimum dataset consists of a set of 8 normalized tables. All tables include the patient unique identifier (as unique or foreign key). For collecting antiretroviral therapy history (TblART) 4 alternative table structures are provided in order of preference, of which 1 structure should be chosen. Similarly for collecting other medication (TblMED) 2 alternatives are provided, of which 1 structure should be chosen.

At least one of the tables HIV staging information (TblStage) or opportunistic infections (TblDIS) should be provided.

*Overview of the tables:*

<table>
<thead>
<tr>
<th>Table</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>TblPatientinfo</td>
<td>Contains patient information</td>
</tr>
<tr>
<td>TblVisit</td>
<td>Contains all patient visits to the healthcare system</td>
</tr>
<tr>
<td>TblDIS</td>
<td>Contains all opportunistic infections</td>
</tr>
<tr>
<td>TblStage</td>
<td>Contains all staging information</td>
</tr>
<tr>
<td>TblCD4</td>
<td>Contains all CD4 test results</td>
</tr>
<tr>
<td>TblVL</td>
<td>Contains all VL test results</td>
</tr>
<tr>
<td>TblARTx</td>
<td>Contains ART treatment history (x refers to 1 out of 4 alternatives for this table)</td>
</tr>
<tr>
<td>TblMEDx</td>
<td>Contains other, non ART treatments (x refers to 1 out of 2 alternatives for this table)</td>
</tr>
</tbody>
</table>
Description of the tables:

Within each table the variables are defined as following:
“Variable name: description of the variable: field type”
e.g. DOB: Actual date of birth: date field
Coding options are provided where appropriate, including the option “unknown”.

For date fields:
- The date format could be day/month/year, month/day/year, or year/month/day, as long as it is used consistently within the country.
- If the day of the month is unknown, use the 15th, e.g. x May 2010 could be entered as 15/5/2010
- If the month is unknown, use July 1st, e.g. x 2010 could be entered as 1/7/2010
- If the complete date is unknown, use 11/11/1911

TblPatient

1. ID: Patient unique identifier: text field
2. DOB: Actual date of birth: date field
3. EDOB: Estimated date of birth: tag box (tagged = estimated)
4. Sex: text field (M or F)
5. Nationality: (at the moment of diagnosis): text field

<table>
<thead>
<tr>
<th>Country name or country code</th>
</tr>
</thead>
<tbody>
<tr>
<td>See annex 1</td>
</tr>
</tbody>
</table>

6. BCountry: Country of birth: text field

<table>
<thead>
<tr>
<th>Country name or country code</th>
</tr>
</thead>
<tbody>
<tr>
<td>See annex 1</td>
</tr>
</tbody>
</table>

7. RCountry: Country of residence (at the moment of diagnosis): text field

<table>
<thead>
<tr>
<th>Country name or country code</th>
</tr>
</thead>
<tbody>
<tr>
<td>See annex 1</td>
</tr>
</tbody>
</table>

8. Education: Highest level of education (at the moment of diagnosis): text field

<table>
<thead>
<tr>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>primary</td>
</tr>
<tr>
<td>secondary</td>
</tr>
<tr>
<td>tertiary / university</td>
</tr>
</tbody>
</table>
9. Risk behavior at the moment of diagnosis consists of 12 variables. Answering “Yes” to more than 1 risk behavior is possible. A response to all of these 12 items is requested.

   Risk1: Had sex with male(s) in the past 12 months: text field
   Risk2: Had sex with female(s) in the past 12 months: text field
   Risk3: Had sex with person(s) of known HIV-positive status in the past 12 months: text field
   Risk4: Had sex with sex worker(s) in the past 12 months: text field
   Risk5: Exchanged sex for money, drugs or material gain in the past 12 months: text field
   Risk6: Injected nonprescription drugs in the past 12 months: text field
   Risk7: Used non-injected illicit drug (e.g. crack, cocaine, marijuana, hallucinogenics, etc) in the past 12 months: text field
   Risk8: Any history of incarceration in prison in the last 5 years: text field
   Risk9: Perinatal exposure to HIV: text field
   Risk10: Received transfusion(s) of blood, blood products or clotting factors: text field
   Risk11: Received a transplant of tissue or organ or artificial insemination: text field
   Risk12: Occupational exposure while working in a health care setting or laboratory or providing safety or emergency services: text field

   For each of the above risk variables:

   Yes
   No
   Unknown

10. Pos_d: Date of HIV positive diagnosis: date field
11. ARTexp: ART experienced at first visit in ART clinic

   Yes
   No
   Unknown

12. TransIn: Transfer in (from outside national public health system): text field

   No
   Yes, but not on therapy
   Yes, on therapy
   Unknown
13. Drop_rs: Reason drop-out from HIV case-based surveillance: text field

<table>
<thead>
<tr>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deceased</td>
</tr>
<tr>
<td>Lost-to-follow-up</td>
</tr>
<tr>
<td>Transfer-out (outside national public health system)</td>
</tr>
</tbody>
</table>

14. Drop_d: Date drop-out from HIV case-based surveillance: date field

TblVisit
1. ID: Patient unique identifier: text field
2. Vis_d: Contact date: date field
3. Site: Site where the visit took place: text field
   The coding for this variable can be decided upon by the country, normally the names of the clinics where each visit took place.
4. Nextvis_d: Date planned next visit: date field

TblDIS
1. ID: Patient unique identifier: text field
2. DIS_start: start date opportunistic infection: date field
3. DIS_stop: stop date opportunistic infection: date field
4. DIS: opportunistic infection: text field

<table>
<thead>
<tr>
<th>Opportunistic infections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute necrotizing ulcerative stomatitis</td>
</tr>
<tr>
<td>Atypical disseminated leishmaniasis</td>
</tr>
<tr>
<td>Atypical mycobacteriosis, disseminated or pulmonary</td>
</tr>
<tr>
<td>Candidiasis of oesophagus/trachea/bronchi</td>
</tr>
<tr>
<td>Chronic diarrhoea &gt;1 month</td>
</tr>
<tr>
<td>Chronic herpes simplex</td>
</tr>
<tr>
<td>Chronic isosporiasis</td>
</tr>
<tr>
<td>Cryptococcosis, extrapulmonary</td>
</tr>
<tr>
<td>Cryptosporidiosis with diarrhoea &gt; 1month</td>
</tr>
<tr>
<td>Cytomegalovirus disease</td>
</tr>
<tr>
<td>Disseminated mycosis</td>
</tr>
<tr>
<td>Condition</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Extrapulmonary tuberculosis</td>
</tr>
<tr>
<td>Generalised lymphadenopathy</td>
</tr>
<tr>
<td>Herpes simplex infection, mucocutaneous/visceral</td>
</tr>
<tr>
<td>Herpes Zoster</td>
</tr>
<tr>
<td>HIV encephalopathy</td>
</tr>
<tr>
<td>Invasive cervical carcinoma</td>
</tr>
<tr>
<td>Kaposi's sarcoma</td>
</tr>
<tr>
<td>Lymphoma</td>
</tr>
<tr>
<td>Minor mucocutaneous manifestations</td>
</tr>
<tr>
<td>Non-typhoid Salmonella septicaemia</td>
</tr>
<tr>
<td>Oral candidiasis</td>
</tr>
<tr>
<td>Oral hairy leukoplakia</td>
</tr>
<tr>
<td>Other Disease</td>
</tr>
<tr>
<td>Pneumocystis carinii pneumonia</td>
</tr>
<tr>
<td>Progressive, multifocal leukoencephalopathy</td>
</tr>
<tr>
<td>Pulmonary tuberculosis</td>
</tr>
<tr>
<td>Recurrent bacterial pneumonia</td>
</tr>
<tr>
<td>Recurrent septicaemia</td>
</tr>
<tr>
<td>Recurrent upper respiratory tract infections</td>
</tr>
<tr>
<td>Severe bacterial infections</td>
</tr>
<tr>
<td>Sympt HIV ass nephropathy or cardiomyopathy</td>
</tr>
<tr>
<td>Toxoplasmosis of the brain</td>
</tr>
<tr>
<td>Unexplained anemia, neutrop, thrombocyt</td>
</tr>
<tr>
<td>Unexplained prolonged fever &gt; 1 month</td>
</tr>
<tr>
<td>Wasting syndrome</td>
</tr>
<tr>
<td>Weight loss &lt;10%</td>
</tr>
<tr>
<td>Weight loss &gt;=10%</td>
</tr>
</tbody>
</table>

**TblStage**

1. ID: Patient unique identifier: text field
2. Stage_d: Date staging was done: date field
3. Stage: WHO stage: numeric field

August 2010  6
| 1 | 2 | 3 | 4 |

**TblCD4**
1. ID: Patient unique identifier: text field
2. Cd4_d: date CD4 measurement: date field
3. Cd4_v: result CD4 measurement (in cells/mm³): numeric field

**TblVL**
1. ID: Patient unique identifier: text field
2. RNA_d: date VL measurement: date field
3. RNA_v: result VL measurement (copies/ml): numeric field

If the VL result is above or below detection limit, the numeric result of the detection limit is entered (e.g. <400 will be entered as 400 )

**TblARTx**

There are a number of structures in use to collect information on therapy history. Therefore, for the table ART history, 4 options are provided, in order of preference. The table structure which matches with the way ART history is collected in the country should be selected:
- TblART1: By ART drug, start en stop date
- TblART2: By ART drug, date prescribed (dispensed) and number of days prescribed (dispensed)
- TblART3: By ART regimen, start en stop date
- TblART4: By ART regimen, date prescribed (dispensed) and number of days prescribed (dispensed)

**TblART1**
1. ID: Patient unique identifier: text field
2. Startdate: start date drug: date field
3. Stopdate: stop date drug: date field
4. Drug: name antiretroviral: text field
   Full drug names or standard abbreviations (e.g. 3TC) can be used, as long it is consistent
5. Stopreason: the reason the drug was stopped. For calculation of HIV drug resistance early warning indicators it is essential to know if a drug should not be considered as start ART. The stop reason should
indicate if this drug was provided for the sole purpose of post exposure prophylaxis or prevention of mother to child transmission: text field

<table>
<thead>
<tr>
<th>PEP only</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMTCT only</td>
</tr>
<tr>
<td>Drug Stock-out</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Unknown</td>
</tr>
</tbody>
</table>

**TblART2**

Tbl_ART2 can include the prescription of antivirals as being done by the physician, or the dispensing of antivirals as being done by the pharmacist.

1. ID: Patient unique identifier: text field
2. Presdate: prescription (or dispensing) date: date field
3. NDays: number of days prescribed (dispensed): numeric field
4. Drug: name antiretroviral: text field
   Full drug names or standard abbreviations (e.g. 3TC) can be used, as long it is consistent
5. Stopreason: the reason the drug was stopped. For calculation of HIV drug resistance early warning indicators it is essential to know if a drug should not be considered as start ART. The stop reason should indicate if this drug was provided for the sole purpose of post exposure prophylaxis or prevention of mother to child transmission: text field

<table>
<thead>
<tr>
<th>PEP only</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMTCT only</td>
</tr>
<tr>
<td>Drug Stock-out</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Unknown</td>
</tr>
</tbody>
</table>

**TblART3**

1. ID: Patient unique identifier: text field
2. Startdate: start date regimen: date field
3. Stopdate: stop date regimen: date field
4. Regimen: name regimen: text field
5. Stopreason: the reason the regimen was stopped. For calculation of HIV drug resistance early warning indicators it is essential to know if a regimen should not be considered as start ART. The stop reason should indicate if this regimen was provided for the sole purpose of post exposure prophylaxis or prevention of mother to child transmission: text field

<table>
<thead>
<tr>
<th>PEP only</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMTCT only</td>
</tr>
<tr>
<td>Drug Stock-out</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Unknown</td>
</tr>
</tbody>
</table>

August 2010
mother to child transmission: text field

<table>
<thead>
<tr>
<th></th>
<th>TblART4</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEP only</td>
<td>Tbl_ART4 can include the prescription of antivirals as being done by the physician, or the dispensing of antivirals as being done by the pharmacist.</td>
</tr>
<tr>
<td>PMTCT only</td>
<td></td>
</tr>
<tr>
<td>Drug Stock-out</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
</tr>
</tbody>
</table>

1. ID: Patient unique identifier: text field
2. Presdate: prescription (or dispensing) date: date field
3. NDays: number of days prescribed (dispensed): numeric field
4. Regimen: name regimen: text field
   Full drug names or standard abbreviations (e.g. 3TC) can be used, as long it is consistent
5. Stopreason: the reason the regimen was stopped. For calculation of HIV drug resistance early warning indicators it is essential to know if a regimen should not be considered as start ART. The stop reason should indicate if this regimen was provided for the sole purpose of post exposure prophylaxis or prevention of mother to child transmission: text field

<table>
<thead>
<tr>
<th></th>
<th>TblMEDx</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEP only</td>
<td>For the table for other (non ART) medication, 2 options are provided, in order of preference. The table structure which matches with the way medication history is collected in the country should be selected:</td>
</tr>
<tr>
<td>PMTCT only</td>
<td>- TblMED1: By drug, start en stop date</td>
</tr>
<tr>
<td>Drug Stock-out</td>
<td>By drug, date prescribed (dispensed) and number of days prescribed (dispensed)</td>
</tr>
<tr>
<td>Other</td>
<td>Although this table could be used for any non-ART drug, only INH and CTX are considered for HIV case-based surveillance.</td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
</tr>
</tbody>
</table>

August 2010
**TblMED1**

1. ID: Patient unique identifier: text field
2. Startdate: start date drug: date field
3. Stopdate: stop date drug: date field
4. Drug: drug name: text field
   
   Full drug names or standard abbreviations can be used, as long it is consistent

<table>
<thead>
<tr>
<th>INH</th>
<th>CTX</th>
</tr>
</thead>
</table>

**TblMED2**

Tbl_MED2 can include the prescription of drugs as being done by the physician, or the dispensing of drugs as being done by the pharmacist.

1. ID: Patient unique identifier: text field
2. Presdate: prescription (or dispensing) date: date field
3. NDays: number of days prescribed (dispensed): numeric field
4. Drug: name drug: text field

   Full drug names or standard abbreviations can be used, as long it is consistent

| INH | CTX |
#### Annex 1: Country codes

<table>
<thead>
<tr>
<th>Country names</th>
<th>ISO 3166-1-alpha-2 code</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFGHANISTAN</td>
<td>AF</td>
</tr>
<tr>
<td>ÁLAND ISLANDS</td>
<td>AX</td>
</tr>
<tr>
<td>ALBANIA</td>
<td>AL</td>
</tr>
<tr>
<td>ALGERIA</td>
<td>DZ</td>
</tr>
<tr>
<td>AMERICAN SAMOA</td>
<td>AS</td>
</tr>
<tr>
<td>ANDORRA</td>
<td>AD</td>
</tr>
<tr>
<td>ANGOLA</td>
<td>AO</td>
</tr>
<tr>
<td>ANGUILLA</td>
<td>AI</td>
</tr>
<tr>
<td>ANTARCTICA</td>
<td>AQ</td>
</tr>
<tr>
<td>ANTIGUA AND BARBUDA</td>
<td>AG</td>
</tr>
<tr>
<td>ARGENTINA</td>
<td>AR</td>
</tr>
<tr>
<td>ARMENIA</td>
<td>AM</td>
</tr>
<tr>
<td>ARUBA</td>
<td>AW</td>
</tr>
<tr>
<td>AUSTRALIA</td>
<td>AU</td>
</tr>
<tr>
<td>AUSTRIA</td>
<td>AT</td>
</tr>
<tr>
<td>AZERBAIJAN</td>
<td>AZ</td>
</tr>
<tr>
<td>BAHAMAS</td>
<td>BS</td>
</tr>
<tr>
<td>BAHRAIN</td>
<td>BH</td>
</tr>
<tr>
<td>BANGLADESH</td>
<td>BD</td>
</tr>
<tr>
<td>BARBADOS</td>
<td>BB</td>
</tr>
<tr>
<td>BELARUS</td>
<td>BY</td>
</tr>
<tr>
<td>BELGIUM</td>
<td>BE</td>
</tr>
<tr>
<td>BELIZE</td>
<td>BZ</td>
</tr>
<tr>
<td>BENIN</td>
<td>BJ</td>
</tr>
<tr>
<td>BERMUDA</td>
<td>BM</td>
</tr>
<tr>
<td>BHUTAN</td>
<td>BT</td>
</tr>
<tr>
<td>BOLIVIA, PLURINATIONAL STATE OF</td>
<td>BO</td>
</tr>
<tr>
<td>BOSNIA AND HERZEGOVINA</td>
<td>BA</td>
</tr>
<tr>
<td>BOTSWANA</td>
<td>BW</td>
</tr>
<tr>
<td>BOUVET ISLAND</td>
<td>BV</td>
</tr>
<tr>
<td>BRAZIL</td>
<td>BR</td>
</tr>
<tr>
<td>BRITISH INDIAN OCEAN TERRITORY</td>
<td>IO</td>
</tr>
<tr>
<td>BRUNEI DARUSSALAM</td>
<td>BN</td>
</tr>
<tr>
<td>Country</td>
<td>Code</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>BULGARIA</td>
<td>BG</td>
</tr>
<tr>
<td>BURKINA FASO</td>
<td>BF</td>
</tr>
<tr>
<td>BURUNDI</td>
<td>BI</td>
</tr>
<tr>
<td>CAMBODIA</td>
<td>KH</td>
</tr>
<tr>
<td>CAMEROON</td>
<td>CM</td>
</tr>
<tr>
<td>CANADA</td>
<td>CA</td>
</tr>
<tr>
<td>CAPE VERDE</td>
<td>CV</td>
</tr>
<tr>
<td>CAYMAN ISLANDS</td>
<td>KY</td>
</tr>
<tr>
<td>CENTRAL AFRICAN REPUBLIC</td>
<td>CF</td>
</tr>
<tr>
<td>CHAD</td>
<td>TD</td>
</tr>
<tr>
<td>CHILE</td>
<td>CL</td>
</tr>
<tr>
<td>CHINA</td>
<td>CN</td>
</tr>
<tr>
<td>CHRISTMAS ISLAND</td>
<td>CX</td>
</tr>
<tr>
<td>COCOS (KEELING) ISLANDS</td>
<td>CC</td>
</tr>
<tr>
<td>COLOMBIA</td>
<td>CO</td>
</tr>
<tr>
<td>COMOROS</td>
<td>KM</td>
</tr>
<tr>
<td>CONGO</td>
<td>CG</td>
</tr>
<tr>
<td>CONGO, THE DEMOCRATIC REPUBLIC</td>
<td>CD</td>
</tr>
<tr>
<td>OF THE</td>
<td></td>
</tr>
<tr>
<td>COOK ISLANDS</td>
<td>CK</td>
</tr>
<tr>
<td>COSTA RICA</td>
<td>CR</td>
</tr>
<tr>
<td>CÔTE D’IVOIRE</td>
<td>CI</td>
</tr>
<tr>
<td>CROATIA</td>
<td>HR</td>
</tr>
<tr>
<td>CUBA</td>
<td>CU</td>
</tr>
<tr>
<td>CYPRUS</td>
<td>CY</td>
</tr>
<tr>
<td>CZECH REPUBLIC</td>
<td>CZ</td>
</tr>
<tr>
<td>DENMARK</td>
<td>DK</td>
</tr>
<tr>
<td>DJIBOUTI</td>
<td>DJ</td>
</tr>
<tr>
<td>DOMINICA</td>
<td>DM</td>
</tr>
<tr>
<td>DOMINICAN REPUBLIC</td>
<td>DO</td>
</tr>
<tr>
<td>ECUADOR</td>
<td>EC</td>
</tr>
<tr>
<td>EGYPT</td>
<td>EG</td>
</tr>
<tr>
<td>EL SALVADOR</td>
<td>SV</td>
</tr>
<tr>
<td>EQUATORIAL GUINEA</td>
<td>GQ</td>
</tr>
<tr>
<td>Eritrea</td>
<td>ER</td>
</tr>
<tr>
<td>ESTONIA</td>
<td>EE</td>
</tr>
<tr>
<td>ETHIOPIA</td>
<td>ET</td>
</tr>
<tr>
<td>FALKLAND ISLANDS (MALVINAS)</td>
<td>FK</td>
</tr>
<tr>
<td>Country</td>
<td>Code</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>FAROE ISLANDS</td>
<td>FO</td>
</tr>
<tr>
<td>FIJI</td>
<td>FJ</td>
</tr>
<tr>
<td>FINLAND</td>
<td>FI</td>
</tr>
<tr>
<td>FRANCE</td>
<td>FR</td>
</tr>
<tr>
<td>FRENCH GUIANA</td>
<td>GF</td>
</tr>
<tr>
<td>FRENCH POLYNESIA</td>
<td>PF</td>
</tr>
<tr>
<td>FRENCH SOUTHERN TERRITORIES</td>
<td>TF</td>
</tr>
<tr>
<td>GABON</td>
<td>GA</td>
</tr>
<tr>
<td>GAMBIA</td>
<td>GM</td>
</tr>
<tr>
<td>GEORGIA</td>
<td>GE</td>
</tr>
<tr>
<td>GERMANY</td>
<td>DE</td>
</tr>
<tr>
<td>GHANA</td>
<td>GH</td>
</tr>
<tr>
<td>GIBRALTAR</td>
<td>GI</td>
</tr>
<tr>
<td>GREECE</td>
<td>GR</td>
</tr>
<tr>
<td>GREENLAND</td>
<td>GL</td>
</tr>
<tr>
<td>GRENADA</td>
<td>GD</td>
</tr>
<tr>
<td>GUADELOUPE</td>
<td>GP</td>
</tr>
<tr>
<td>GUAM</td>
<td>GU</td>
</tr>
<tr>
<td>GUATEMALA</td>
<td>GT</td>
</tr>
<tr>
<td>GUERNSEY</td>
<td>GG</td>
</tr>
<tr>
<td>GUINEA</td>
<td>GN</td>
</tr>
<tr>
<td>GUINEA-BISSAU</td>
<td>GW</td>
</tr>
<tr>
<td>GUYANA</td>
<td>GY</td>
</tr>
<tr>
<td>HAITI</td>
<td>HT</td>
</tr>
<tr>
<td>HEARD ISLAND AND MCDONALD ISLANDS</td>
<td>HM</td>
</tr>
<tr>
<td>HOLY SEE (VATICAN CITY STATE)</td>
<td>VA</td>
</tr>
<tr>
<td>HONDURAS</td>
<td>HN</td>
</tr>
<tr>
<td>HONG KONG</td>
<td>HK</td>
</tr>
<tr>
<td>HUNGARY</td>
<td>HU</td>
</tr>
<tr>
<td>ICELAND</td>
<td>IS</td>
</tr>
<tr>
<td>INDIA</td>
<td>IN</td>
</tr>
<tr>
<td>INDONESIA</td>
<td>ID</td>
</tr>
<tr>
<td>IRAN, ISLAMIC REPUBLIC OF</td>
<td>IR</td>
</tr>
<tr>
<td>IRAQ</td>
<td>IQ</td>
</tr>
<tr>
<td>IRELAND</td>
<td>IE</td>
</tr>
<tr>
<td>ISLE OF MAN</td>
<td>IM</td>
</tr>
<tr>
<td>Country Name</td>
<td>Code</td>
</tr>
<tr>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td>ISRAEL</td>
<td>IL</td>
</tr>
<tr>
<td>ITALY</td>
<td>IT</td>
</tr>
<tr>
<td>JAMAICA</td>
<td>JM</td>
</tr>
<tr>
<td>JAPAN</td>
<td>JP</td>
</tr>
<tr>
<td>JERSEY</td>
<td>JE</td>
</tr>
<tr>
<td>JORDAN</td>
<td>JO</td>
</tr>
<tr>
<td>KAZAKHSTAN</td>
<td>KZ</td>
</tr>
<tr>
<td>KENYA</td>
<td>KE</td>
</tr>
<tr>
<td>KIRIBATI</td>
<td>KI</td>
</tr>
<tr>
<td>KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF</td>
<td>KP</td>
</tr>
<tr>
<td>KOREA, REPUBLIC OF</td>
<td>KR</td>
</tr>
<tr>
<td>KUWAIT</td>
<td>KW</td>
</tr>
<tr>
<td>KYRGYZSTAN</td>
<td>KG</td>
</tr>
<tr>
<td>LAO PEOPLE'S DEMOCRATIC REPUBLIC</td>
<td>LA</td>
</tr>
<tr>
<td>LATVIA</td>
<td>LV</td>
</tr>
<tr>
<td>LEBANON</td>
<td>LB</td>
</tr>
<tr>
<td>LESOTHO</td>
<td>LS</td>
</tr>
<tr>
<td>LIBERIA</td>
<td>LR</td>
</tr>
<tr>
<td>LIBYAN ARAB JAMAHIRIYA</td>
<td>LY</td>
</tr>
<tr>
<td>LIECHTENSTEIN</td>
<td>LI</td>
</tr>
<tr>
<td>LITHUANIA</td>
<td>LT</td>
</tr>
<tr>
<td>LUXEMBOURG</td>
<td>LU</td>
</tr>
<tr>
<td>MACAO</td>
<td>MO</td>
</tr>
<tr>
<td>MACEDONIA, THE FORMER YUGOSLAV REPUBLIC OF</td>
<td>MK</td>
</tr>
<tr>
<td>MADAGASCAR</td>
<td>MG</td>
</tr>
<tr>
<td>MALAWI</td>
<td>MW</td>
</tr>
<tr>
<td>MALAYSIA</td>
<td>MY</td>
</tr>
<tr>
<td>MALDIVES</td>
<td>MV</td>
</tr>
<tr>
<td>MALI</td>
<td>ML</td>
</tr>
<tr>
<td>MALTA</td>
<td>MT</td>
</tr>
<tr>
<td>MARSHALL ISLANDS</td>
<td>MH</td>
</tr>
<tr>
<td>MARTINIQUE</td>
<td>MQ</td>
</tr>
<tr>
<td>MAURITANIA</td>
<td>MR</td>
</tr>
<tr>
<td>MAURITIUS</td>
<td>MU</td>
</tr>
<tr>
<td>MAYOTTE</td>
<td>YT</td>
</tr>
<tr>
<td>Country</td>
<td>Code</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>MEXICO</td>
<td>MX</td>
</tr>
<tr>
<td>MICRONESIA, FEDERATED STATES OF</td>
<td>FM</td>
</tr>
<tr>
<td>MOLDOVA, REPUBLIC OF</td>
<td>MD</td>
</tr>
<tr>
<td>MONACO</td>
<td>MC</td>
</tr>
<tr>
<td>MONGOLIA</td>
<td>MN</td>
</tr>
<tr>
<td>MONTENEGRO</td>
<td>ME</td>
</tr>
<tr>
<td>MONTENEGRO</td>
<td>MS</td>
</tr>
<tr>
<td>MOROCCO</td>
<td>MA</td>
</tr>
<tr>
<td>MOZAMBIQUE</td>
<td>MZ</td>
</tr>
<tr>
<td>MYANMAR</td>
<td>MM</td>
</tr>
<tr>
<td>NAMIBIA</td>
<td>NA</td>
</tr>
<tr>
<td>NAURU</td>
<td>NR</td>
</tr>
<tr>
<td>NEPAL</td>
<td>NP</td>
</tr>
<tr>
<td>NETHERLANDS</td>
<td>NL</td>
</tr>
<tr>
<td>NETHERLANDS ANTILLES</td>
<td>AN</td>
</tr>
<tr>
<td>NEW CALEDONIA</td>
<td>NC</td>
</tr>
<tr>
<td>NEW ZEALAND</td>
<td>NZ</td>
</tr>
<tr>
<td>NICARAGUA</td>
<td>NI</td>
</tr>
<tr>
<td>NIGER</td>
<td>NE</td>
</tr>
<tr>
<td>NIGERIA</td>
<td>NG</td>
</tr>
<tr>
<td>NIUE</td>
<td>NU</td>
</tr>
<tr>
<td>NORFOLK ISLAND</td>
<td>NF</td>
</tr>
<tr>
<td>NORTHERN MARIANA ISLANDS</td>
<td>MP</td>
</tr>
<tr>
<td>NORWAY</td>
<td>NO</td>
</tr>
<tr>
<td>OMAN</td>
<td>OM</td>
</tr>
<tr>
<td>PAKISTAN</td>
<td>PK</td>
</tr>
<tr>
<td>PALAU</td>
<td>PW</td>
</tr>
<tr>
<td>PALESTINIAN TERRITORY, OCCUPIED</td>
<td>PS</td>
</tr>
<tr>
<td>PANAMA</td>
<td>PA</td>
</tr>
<tr>
<td>PAPUA NEW GUINEA</td>
<td>PG</td>
</tr>
<tr>
<td>PARAGUAY</td>
<td>PY</td>
</tr>
<tr>
<td>PERU</td>
<td>PE</td>
</tr>
<tr>
<td>PHILIPPINES</td>
<td>PH</td>
</tr>
<tr>
<td>PITCAIRN</td>
<td>PN</td>
</tr>
<tr>
<td>POLAND</td>
<td>PL</td>
</tr>
<tr>
<td>PORTUGAL</td>
<td>PT</td>
</tr>
<tr>
<td>Country</td>
<td>Code</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>PUERTO RICO</td>
<td>PR</td>
</tr>
<tr>
<td>QATAR</td>
<td>QA</td>
</tr>
<tr>
<td>RÉUNION</td>
<td>RE</td>
</tr>
<tr>
<td>ROMANIA</td>
<td>RO</td>
</tr>
<tr>
<td>RUSSIAN FEDERATION</td>
<td>RU</td>
</tr>
<tr>
<td>RWANDA</td>
<td>RW</td>
</tr>
<tr>
<td>SAINT BARTHELEMY</td>
<td>BL</td>
</tr>
<tr>
<td>SAINT HELENA, ASCENSION AND TRISTAN DA CUNHA</td>
<td>SH</td>
</tr>
<tr>
<td>SAINT KITTS AND NEVIS</td>
<td>KN</td>
</tr>
<tr>
<td>SAINT LUCIA</td>
<td>LC</td>
</tr>
<tr>
<td>SAINT MARTIN</td>
<td>MF</td>
</tr>
<tr>
<td>SAINT PIERRE AND MIQUELON</td>
<td>PM</td>
</tr>
<tr>
<td>SAINT VINCENT AND THE GRENADINES</td>
<td>VC</td>
</tr>
<tr>
<td>SAMOA</td>
<td>WS</td>
</tr>
<tr>
<td>SAN MARINO</td>
<td>SM</td>
</tr>
<tr>
<td>SAO TOME AND PRINCIPE</td>
<td>ST</td>
</tr>
<tr>
<td>SAUDI ARABIA</td>
<td>SA</td>
</tr>
<tr>
<td>SENEGAL</td>
<td>SN</td>
</tr>
<tr>
<td>SERBIA</td>
<td>RS</td>
</tr>
<tr>
<td>SEYCHELLES</td>
<td>SC</td>
</tr>
<tr>
<td>SIERRA LEONE</td>
<td>SL</td>
</tr>
<tr>
<td>SINGAPORE</td>
<td>SG</td>
</tr>
<tr>
<td>SLOVAKIA</td>
<td>SK</td>
</tr>
<tr>
<td>SLOVENIA</td>
<td>SI</td>
</tr>
<tr>
<td>SOLOMON ISLANDS</td>
<td>SB</td>
</tr>
<tr>
<td>SOMALIA</td>
<td>SO</td>
</tr>
<tr>
<td>SOUTH AFRICA</td>
<td>ZA</td>
</tr>
<tr>
<td>SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS</td>
<td>GS</td>
</tr>
<tr>
<td>SPAIN</td>
<td>ES</td>
</tr>
<tr>
<td>SRI LANKA</td>
<td>LK</td>
</tr>
<tr>
<td>SUDAN</td>
<td>SD</td>
</tr>
<tr>
<td>SURINAME</td>
<td>SR</td>
</tr>
<tr>
<td>SVALBARD AND JAN MAYEN</td>
<td>SJ</td>
</tr>
<tr>
<td>SWAZILAND</td>
<td>SZ</td>
</tr>
<tr>
<td>SWEDEN</td>
<td>SE</td>
</tr>
<tr>
<td>Country</td>
<td>Code</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>SWITZERLAND</td>
<td>CH</td>
</tr>
<tr>
<td>SYRIAN ARAB REPUBLIC</td>
<td>SY</td>
</tr>
<tr>
<td>TAIWAN, PROVINCE OF CHINA</td>
<td>TW</td>
</tr>
<tr>
<td>TAJIKISTAN</td>
<td>TJ</td>
</tr>
<tr>
<td>TANZANIA, UNITED REPUBLIC OF</td>
<td>TZ</td>
</tr>
<tr>
<td>THAILAND</td>
<td>TH</td>
</tr>
<tr>
<td>TIMOR-LESTE</td>
<td>TL</td>
</tr>
<tr>
<td>TOGO</td>
<td>TG</td>
</tr>
<tr>
<td>TOKELAU</td>
<td>TK</td>
</tr>
<tr>
<td>TONGA</td>
<td>TO</td>
</tr>
<tr>
<td>TRINIDAD AND TOBAGO</td>
<td>TT</td>
</tr>
<tr>
<td>TUNISIA</td>
<td>TN</td>
</tr>
<tr>
<td>TURKEY</td>
<td>TR</td>
</tr>
<tr>
<td>TURKMENISTAN</td>
<td>TM</td>
</tr>
<tr>
<td>TURKS AND CAICOS ISLANDS</td>
<td>TC</td>
</tr>
<tr>
<td>TUVALU</td>
<td>TV</td>
</tr>
<tr>
<td>UGANDA</td>
<td>UG</td>
</tr>
<tr>
<td>UKRAINE</td>
<td>UA</td>
</tr>
<tr>
<td>UNITED ARAB EMIRATES</td>
<td>AE</td>
</tr>
<tr>
<td>UNITED KINGDOM</td>
<td>GB</td>
</tr>
<tr>
<td>UNITED STATES</td>
<td>US</td>
</tr>
<tr>
<td>UNITED STATES MINOR OUTLYING ISLANDS</td>
<td>UM</td>
</tr>
<tr>
<td>URUGUAY</td>
<td>UY</td>
</tr>
<tr>
<td>UZBEKISTAN</td>
<td>UZ</td>
</tr>
<tr>
<td>VANUATU</td>
<td>VU</td>
</tr>
<tr>
<td>VATICAN CITY STATE</td>
<td>see HOLY SEE</td>
</tr>
<tr>
<td>VENEZUELA, BOLIVARIAN REPUBLIC OF</td>
<td>VE</td>
</tr>
<tr>
<td>VIET NAM</td>
<td>VN</td>
</tr>
<tr>
<td>VIRGIN ISLANDS, BRITISH</td>
<td>VG</td>
</tr>
<tr>
<td>VIRGIN ISLANDS, U.S.</td>
<td>VI</td>
</tr>
<tr>
<td>WALLIS AND FUTUNA</td>
<td>WF</td>
</tr>
<tr>
<td>WESTERN SAHARA</td>
<td>EH</td>
</tr>
<tr>
<td>YEMEN</td>
<td>YE</td>
</tr>
<tr>
<td>ZAMBIA</td>
<td>ZM</td>
</tr>
<tr>
<td>ZIMBABWE</td>
<td>ZW</td>
</tr>
<tr>
<td>Unknown</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
CAREC TEMPLATE LABORATORY FORM FOR HIV CASE SURVEILLANCE

**REPORTING LABORATORY INFORMATION**

- **Date form completed:**
- **Name of reporting laboratory:**
- **Reporting laboratory number:**
- **Name of person reporting the case:**
- **Address of reporting laboratory:**
- **Telephone number of person reporting the case:**
- **E-mail address of person reporting the case:**

**LABORATORY REFERRALS**

- **Was some testing performed at another laboratory?**
  - Yes; No (If yes, complete the section below)
- **What tests were done at the referring/reference lab?**
  - HIV SCREENING TEST
  - HIV CONFIRMATORY TEST(S)
  - CD4 TESTING
  - VIRAL LOAD TESTING
- **Name of ref. laboratory**
- **Ref. Laboratory number:**

**PATIENT INFORMATION**

- **Patient first name:**
- **Maiden name (if applicable):**
- **Patient last name:**
- **Patient code (if applicable):**
- **Date of birth:**
- **Sex:**
  - MALE
  - FEMALE
  - NOT RECORDED ON LAB REQUEST
- **Is this patient currently pregnant (females only):**
  - YES
  - NO
  - NOT RECORDED ON LAB REQUEST

**LABORATORY RESULTS: HIV ANTIBODY TESTS PERFORMED BY REPORTING LABORATORY**

<table>
<thead>
<tr>
<th>SCREENING:</th>
<th>Date specimen was obtained from patient</th>
<th>Positive</th>
<th>Negative</th>
<th>Not performed</th>
<th>Test result date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day Mo. Year</td>
<td></td>
<td></td>
<td></td>
<td>Day Mo. Year</td>
</tr>
<tr>
<td>HIV-EIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV RAPID TEST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER(SPECIFY):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONFIRMATORY:</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-EIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV RAPID TEST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV-1WESTERN BLOT/IFA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER (SPECIFY):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD 4 TESTING</td>
<td>Count:</td>
<td></td>
<td></td>
<td>Percent:</td>
<td></td>
</tr>
<tr>
<td>VIRAL LOAD TESTING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**THIS SECTION TO BE COMPLETED BY NATIONAL SURVEILLANCE UNIT**

- **Date received by national surveillance unit:**
- **Type of report:**
  - NEW
  - UPDATE

Revised July 2007
SARI Case Investigation Form: Clinical and Epidemiologic Record

Country: ..........................................................

Doctor: ........................................................................
Hospital/Site: ..................................................................
Ward: ........................................................................
E-mail: ........................................................................

Laboratory Where Sample Sent: ........................................

Hospital/Medical Record Number: ..........................
Admission Date: ......../...../........    Discharge Date: ......../...../........
Last Name,.................................................. First Name:………………………………………..
Date of Birth: ....../....../..............   Age: ..........................
Sex:.............................
Date of Onset of Illness: ....../....../..............  Epidemiologic Week Number:..........................
Sample taken:  Yes ☐   No ☐   Date Sample Taken: ......../........./................

Type of sample taken: ................................................

Flu Shot:   Yes ☐   No ☐   Date of Vaccination: ......../........./................

Clinical and Epidemiological Profile

<table>
<thead>
<tr>
<th>Clinical Profile</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudden fever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhinorrhea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sore throat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Otitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortness of breath</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty breathing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bronchitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bronchiolitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Epidemiological Profile</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenopathies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headache</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myalgia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomiting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diarrhea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sporadic case</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part of cluster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part of outbreak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal contact</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Travel History  Yes ☐          No ☐          Where  ...............  

Treatment:  Antivirals  Yes ☐          No ☐          

        Antibiotics  Yes ☐          No ☐          

Laboratory Result: Virology.........................  Bacteriology .....................

Final Diagnosis: ..........................................................................................

Note: A cluster is defined as three or more persons geospatially or socially linked with onset of disease within 10 days of each other.
FLOWCHART:
SARI SURVEILLANCE ACTIVITIES AT SENTINEL SITES

ARI patient arrives at sentinel site

Admitted to ward - meets case definition

Case investigated

SURVEILLANCE ACTIVITIES:
- Collection of SARI death data for Form C.
- Collection of denominator data for Form C.
- Communication with all partners at sentinel site
- Communication with National Laboratory, EPI, and the National Epidemiologist.

NO

Surveillance Officer detects SARI case through review of admission log book

ACTION:
1. Records necessary information using SARI Case Investigation form A.
2. Takes clinical samples, completes laboratory request form B, and arranges sample processing.
3. Alerts surveillance officer and forwards form A.
4. Start to fill the weekly report form C.

A MISSED SARI CASE

YES

Action:
1. Extracts data from health records to form A
2. Take clinical samples if within time.

FORM A: SARI Case Investigation Form: Clinical & Epidemiological Record.

FORM B: Laboratory Investigation Form – at sentinel site use in-country form

FORM C: Weekly Data Collection Form: SARI Hospitalizations and Deaths
Weekly Data Collection Form: SARI Hospitalizations and Deaths

Country: ____________________________ Epidemiologic Week #: ____________________________

Hospital: ___________________________ Week Starting Date: ____________________________

<table>
<thead>
<tr>
<th>Surveillance of Severe Acute Respiratory Infection (SARI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>SARI Admissions</td>
</tr>
<tr>
<td>Hospital medical admissions</td>
</tr>
<tr>
<td>SARI Deaths</td>
</tr>
<tr>
<td>Deaths in medical admissions</td>
</tr>
<tr>
<td>Hospital Admissions</td>
</tr>
<tr>
<td>Deaths in hospitalized patients</td>
</tr>
</tbody>
</table>

Surveillance Coordinator ____________________________ Signature: ____________________________ Date: ____________

Notes:
- The Epidemiological Week begins on a Sunday and ends on a Saturday. The date on Sunday is recorded as the Week Start Date.
- Hospital admissions constitutes all admissions to hospital
- Hospital medical admissions constitute all admissions to the medical ward, medical admissions to the paediatric ward, and medical admissions to the intensive care unit (for each particular age group).
- Deaths in hospitalized patients constitute all deaths in those admitted to hospital.
- Deaths in medical admissions constitutes all deaths on the medical ward, in medical patients on the paediatric ward, in medical patients in the intensive care unit.
REPORTING OF COMMUNICABLE DISEASES
LABORATORY SURVEILLANCE
MINIMUM DATASET

Introduction:

In the regional communicable disease surveillance system, the major role of the public health laboratory is 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 confirmed cases to CAREC on a four-weekly basis.

Minimum Dataset:

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

<table>
<thead>
<tr>
<th>District/Parish/Region</th>
<th>Reporting Site</th>
<th>Epidemiological Week of Case</th>
<th>Patient ID number</th>
<th>Patient Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age</th>
<th>Date of birth</th>
<th>Physician name</th>
<th>Date of onset of illness</th>
<th>Is patient hospitalized</th>
<th>Syndrome</th>
<th>Clinical Diagnosis</th>
<th>Date specimen collected</th>
<th>Specimen ID number</th>
<th>Type of Specimen</th>
<th>Laboratory test(s) performed</th>
<th>Laboratory confirmed aetiologic agent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Data Recording Format:**

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

1. **Reporting Site**  
   a. Name of site or unique site code/identifier

2. **Epidemiological Week of Case**  
   a. Based on epidemiological week (according to PAHO classification) of date of onset of illness

3. **Patient ID number**  
   a. As assigned by countries or institutions

4. **Patient Name**  
   a. Last name followed by First name

5. **Address**  
   a. Street Number  
   b. Street Name  
   c. City/Town/Parish/Region  
   d. Postal Code (if used)

6. **Sex**  
   a. Use the following abbreviations: M (for males) or F (for females)

7. **Age**  
   a. Age either in months or years

8. **Date of birth**  
   a. Record in the following format: dd/mm/yyyy

9. **Physician name**  
   a. Last name followed by First name

10. **Date of onset of illness**  
    a. Record in the following format: dd/mm/yyyy

11. **Is patient hospitalized**  
    a. Use the following abbreviations: Y (Yes), N (No), UNK (UNK = unknown)
12. 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

13. Clinical Diagnosis
   a. Name of condition/disease

14. Date specimen collected
   a. Record in the following format: dd/mm/yyyy

15. Specimen ID number
   a. Assigned by national laboratory

16. 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

17. Laboratory test type performed
   a. Please refer to the following CAREC publication “Laboratory Users Manual”

18. Laboratory confirmed aetiologic agent
   a. Record according to accepted nomenclature
### 1. Patient Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Name</td>
<td></td>
</tr>
<tr>
<td>First Name</td>
<td></td>
</tr>
<tr>
<td>Patient ID</td>
<td></td>
</tr>
<tr>
<td>Gender (M/F)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Date of Birth</td>
<td></td>
</tr>
<tr>
<td>Street</td>
<td></td>
</tr>
<tr>
<td>City/Parish</td>
<td></td>
</tr>
<tr>
<td>City/Parish</td>
<td></td>
</tr>
<tr>
<td>County</td>
<td></td>
</tr>
<tr>
<td>Postal Code</td>
<td></td>
</tr>
<tr>
<td>Tel:</td>
<td></td>
</tr>
<tr>
<td>Fax:</td>
<td></td>
</tr>
</tbody>
</table>

### 2. Referring Doctor

<table>
<thead>
<tr>
<th>Field</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
</tr>
<tr>
<td>Reporting Address</td>
<td></td>
</tr>
<tr>
<td>Tel:</td>
<td></td>
</tr>
<tr>
<td>Fax:</td>
<td></td>
</tr>
</tbody>
</table>

### 3. Provisional Diagnosis, Additional Notes

> information on risk factors, travel history, lab findings, etc.

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

<table>
<thead>
<tr>
<th>Field</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen ID</td>
<td></td>
</tr>
<tr>
<td>Name of food/env sample</td>
<td></td>
</tr>
<tr>
<td>Where specimen(s) collected</td>
<td></td>
</tr>
</tbody>
</table>

### 5. Case/Specimen Status

- Single case
- Outbreak
- Survey
- Unknown

### 6. Date of Onset of Illness

<table>
<thead>
<tr>
<th>Date of Onset of Illness</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset: dd mm yy</td>
<td></td>
</tr>
</tbody>
</table>

### 7. Outcome

- Hospitlized?
- Died?

### 8. Signs and Symptoms

- Fever → Temp: _______________ → Onset: dd mm yy
- Rash → Location: _______________ → Onset: dd mm yy
- Pain → Location: _______________

### 9. Syndromic Classification

- Fever & Respiratory or Acute Respiratory Infection
- Fever & Neurologic

### 10. Immunization History

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>Y □ N dd mm yy</td>
</tr>
<tr>
<td>DPT</td>
<td>Y □ N dd mm yy</td>
</tr>
<tr>
<td>HBV</td>
<td>Y □ N dd mm yy</td>
</tr>
<tr>
<td>MMR</td>
<td>Y □ N dd mm yy</td>
</tr>
<tr>
<td>MR</td>
<td>N □ N dd mm yy</td>
</tr>
<tr>
<td>ART Drug Info.</td>
<td></td>
</tr>
</tbody>
</table>

### 11. Laboratory Use

<table>
<thead>
<tr>
<th>Field</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Referred to CAREC</td>
<td></td>
</tr>
<tr>
<td>Name of Testing Lab</td>
<td></td>
</tr>
</tbody>
</table>

### 12. Laboratory Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nat Lab Specimen ID</td>
<td></td>
</tr>
<tr>
<td>Test(s) Performed</td>
<td></td>
</tr>
<tr>
<td>Date(s) Tested</td>
<td></td>
</tr>
<tr>
<td>Laboratory diagnosis</td>
<td></td>
</tr>
</tbody>
</table>

### 13. Case/Specimen Status

<table>
<thead>
<tr>
<th>Field</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved by (Testing Lab)</td>
<td></td>
</tr>
<tr>
<td>Date:</td>
<td></td>
</tr>
</tbody>
</table>

**CAREC USE: Specimen ID (1)____________________ (2)____________________ (3)____________________**
MINIMUM, OPTIMUM AND OPTIONAL DATA SET FOR Chronic Non-Communicable Diseases, Violence and Injuries

Technical specifications
This draft of *Technical specifications* is prepared by the Pan American Health Organization (PAHO) Inter-programmatic Chronic Non communicable Disease surveillance working group (1) in the period of March 2007 till June 2008. The work has been based on World Health Organization (WHO) chronic disease and risk factor (RF) surveillance principles and PAHO’s Core Health Data initiative. The starting point was the list of chronic non communicable disease indicators prepared by the Caribbean Epidemiology Center (CAREC) in 2004 but that had not been tested or applied. The working group has consulted the following materials during its work: List of CDC indicators for chronic disease surveillance (2), Canadian Primary Health Care Indicators (3), Brazil’s (4) and Mexico’s (5) national lists of indicators. List includes suggestions received from epidemiologists from Montserrat, Dominica, and Barbados, as well as from Chile, Argentina, Paraguay, Uruguay and Brazil within PAHO’s non communicable disease unit (NC) effort for sub regional harmonization in the English-speaking Caribbean and MERCOSUR countries, during spring of 2008.
Table of Contents

Summary .............................................................................................................................................. 1
Section I: Mortality from CNCDs ............................................................................................................ 2
  Ischemic Heart Disease Mortality Rates ............................................................................................ 2
  Ischemic Heart Disease PYLL ............................................................................................................ 4
  Cerebrovascular Disease Mortality Rates .......................................................................................... 6
  Cerebrovascular Disease PYLL .......................................................................................................... 8
  Malignant Neoplasm Mortality Rates ............................................................................................... 10
  Malignant Neoplasm PYLL ................................................................................................................. 12
  Cervical Cancer Mortality Rates ..................................................................................................... 14
  Cervical Cancer PYLL ....................................................................................................................... 16
  Lung Cancer Mortality Rates .......................................................................................................... 18
  Lung Cancer PYLL ............................................................................................................................. 20
  Breast Cancer Mortality Rates ......................................................................................................... 22
  Breast Cancer PYLL ........................................................................................................................... 24
  Cancer of the Digestive System Mortality Rates ............................................................................. 26
  Cancer of the Digestive System PYLL .............................................................................................. 28
  Diabetes Mortality Rates .................................................................................................................. 30
  Diabetes PYLL .................................................................................................................................. 32
  Chronic Lower Respiratory Diseases Mortality Rates ...................................................................... 34
  Chronic Lower Respiratory Diseases PYLL ...................................................................................... 36
  External Causes Mortality Rates ...................................................................................................... 38
  External Causes PYLL ........................................................................................................................ 40
  Land Transport Accidents Mortality Rates ...................................................................................... 42
  Land Transport Accidents PYLL ........................................................................................................ 44
  Assault (homicide) Mortality Rate .................................................................................................... 46
  Assault (homicide) PYLL ................................................................................................................... 48
Section II: Prevalence and Incidence ................................................................................................... 50
  of Selected CNCDs .......................................................................................................................... 50
    Diabetes Mellitus—Prevalence ........................................................................................................ 50
    Diabetes Mellitus—Incidence ........................................................................................................... 52
    Hypertension—Prevalence .............................................................................................................. 54
    Hypertension—Incidence ................................................................................................................ 56
    Overweight—Prevalence .................................................................................................................. 58
    Obesity—Prevalence ....................................................................................................................... 60
Section III: Risk Factors for CNCDs .................................................................................................... 62
  Smoke Exposure ............................................................................................................................... 62
  Current adult daily smokers of tobacco ............................................................................................. 63
  Current adult smokers of tobacco ..................................................................................................... 65
  Tobacco consumption among the youth ........................................................................................... 67
  Average age adult and young consumer started smoking ................................................................. 69
  Secondhand tobacco smoke exposure of adults and youth ............................................................... 71
  Alcohol Consumption ...................................................................................................................... 72
  Binge drinking in men ......................................................................................................................... 73
  Binge drinking in women ................................................................................................................... 75
  Alcohol consumption of the youth ................................................................................................... 77
  Annual per capita alcohol consumption ............................................................................................ 78
  Diet—fruits & vegetables ................................................................................................................... 79
Summary

With a global momentum to scale up the response to the leading national and Regional public health burden in morbidity, premature mortality and disability generated by chronic non communicable diseases (CNCD) and their risk factors (RF), it became increasingly important to countries and to the Region to be able to report accurate, timely and comparable data to different national and international entities in order to secure development or expansion of health programs, strengthen the health care system, and use the information for strengthening the whole government approach for sectoral decisions and partnership building.

The existing data set has been developed through collaborative work of experts from PAHO Washington DC (WDC) programs and PAHO country offices, WHO-HQ, and CAREC. The proposed data set represents a selection of standard data that are most likely to be a part of data collection in national and international reporting and are included in the PAHO/WHO mandates related to CNCDs and RFs. It is a work in progress, and modifications will be made periodically to assure that user needs are met.

The purpose of this work was to, for the first time, offer to public health officials the opportunity to uniformly define, collect and report chronic disease data on an annual basis as part of the chronic disease surveillance process. Selection of data by experts was led by international Resolutions dedicated to CNCDs and RFs, importance to public health, and availability of national level data.

The list of data is proposing a step-wise approach through core, optimum and optional data sets. Among 44 core, 19 optimum and 12 optional data, 10 are related to cardiovascular diseases, 7 to cancer, 9 to diabetes, 2 to asthma and COPD, 3 to violence and injuries, 7 to tobacco, 6 to alcohol, 9 to fruit and vegetable consumption, 3 to physical inactivity, 3 to overweight and obesity and 6 on preventive service provision. The remaining data cover overarching sociodemographic data and conditions such as poverty, health insurance, production, import and export of selected goods.

The offered data set combines multiple data sources in one functional annual reporting system as a foundation for chronic non communicable disease surveillance. Besides national data sources, this data set uses several international studies as a source, as their methodology have been accepted and used by countries as part of national efforts for international comparability. The data set is a contribution to remedy the fragmentation of traditional country surveillance systems where each program follows its own data and indicators and does not combine data sources nor look at context and other sector information.

The proposed data set should facilitate further analysis on a national, sub regional and Regional level and generation of more complex indicators for chronic non communicable diseases.

### Ischemic Heart Disease Mortality Rates

<table>
<thead>
<tr>
<th>Name</th>
<th>Age-standardized mortality rate per 100,000 population for deaths &lt;70 years due to Ischemic Heart Disease (ICD10 I20-I25)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Deaths &lt;70 years due to ischemic heart disease, expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>Age-standardized mortality rates per 100,000 for deaths &lt;70 years due to ischemic heart disease, using the WHO World Standard Population.</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>The sum of the weighted age-specific mortality rates per 100,000 populations (by 5 year age groupings) for deaths &lt;70 years due to ischemic heart disease using the WHO world Standard Population.</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
</tr>
</tbody>
</table>
|  | • Measurement Unit: per 100,000  
|  | • Type: rate  
|  | • Categories: female, male; age <70 years  
| **Data sources** | obtained from corresponding mortality registries and population distributions |

*Continued on the next page*
Ischemic Heart Disease Mortality Rates, continued

Significance and rational

Ischemic heart disease (IHD) is one of the largest components of cause specific mortality in the region and predictions say that in the next 2 decades there will be a near tripling of deaths of ischemic heart diseases in the region of the Americas. The crude mortality rate provides useful information about tendencies over time and it is valuable information if observed in connection with public health interventions in the observed population allowing comparison of tendencies.

Characteristics of indicator and data sources

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors.

The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used.

Another indicator that can be computed and provides information on premature mortality for a specific cause is Potential Years of Life Lost (PYLL). Regarding data sources, there are countries where death certificates are not obligatory so sub registration of deaths occurs; or certificates are not filled in appropriately by health professionals. This brings the possibility of different types of errors.

Continued on the next page
### Ischemic Heart Disease PYLL

<table>
<thead>
<tr>
<th>Name</th>
<th>Potential Years of Life Lost (PYLL) rate due to ischemic heart disease (ICD10 I20-I25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>PYLL is a measure of premature mortality. The PYLL due to ischemic heart diseases measures the total number of years a person would have lived additionally, had they not died prematurely from ischemic heart disease. Premature death refers to deaths occurring before the country-specific estimated life expectancy. Rate is expressed per 100,000.</td>
</tr>
<tr>
<td>Case definition</td>
<td>premature death due to ischemic heart diseases</td>
</tr>
</tbody>
</table>
| Calculation method | \[
\frac{(\text{estimated life expectancy} - \text{mean age at death for premature deaths}) \times \text{no. of premature deaths}}{\text{population under estimated life expectancy}} \times 100,000
\] |
| Parameters | • Numerator: \((\text{estimated life expectancy} - \text{mean age at death for premature deaths}) \times \text{no. of premature deaths}\)  
• Denominator: population under life expectancy  
• Measurement unit: per 100,000  
• Type: rate  
• Categories: female, male; age under country-specific estimated life expectancy  
• Frequency of collection: annual |
| Data sources | Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries. |

*Continued on the next page*
### Ischemic Heart Disease PYLL, continued

<table>
<thead>
<tr>
<th>Significance and rational</th>
<th>PYLL due to ischemic heart disease can be used by public health community and researchers to evaluate the impact of health promotion programs, lifestyle changes and modification of risk factors on increasing the life expectancy of the population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limitations of indicator and data sources</td>
<td>One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).</td>
</tr>
</tbody>
</table>
## Cerebrovascular Disease Mortality Rates

<table>
<thead>
<tr>
<th>Name</th>
<th>Age-standardized mortality rate per 100,000 population for deaths &lt;70 years due to cerebrovascular disease (stroke) (ICD10 I60 –I69)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Deaths &lt;70 years due to cerebrovascular disease expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.</td>
</tr>
<tr>
<td>Case definition</td>
<td>Age-standardized mortality rates per 100,000 for deaths &lt;70 years due to cerebrovascular disease (stroke), using the WHO World Standard Population.</td>
</tr>
<tr>
<td>Calculation method</td>
<td>The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths &lt;70 years due to cerebrovascular disease (stroke) using the WHO World Standard Population.</td>
</tr>
</tbody>
</table>
| Parameters | • Measurement unit: per 100,000  
• Type: rate  
• Categories: female, male; age <70 years  
• Frequency of collection: annual |
| Data sources | Obtained from corresponding mortality registries and population distributions. |
| Significance and rational | Cerebrovascular disease (stroke) is one of the largest components of cause specific mortality in the region and predictions say that in the next 2 decades there will be a near tripling of deaths of cerebrovascular disease (stroke) in the region of Americas. |

*Continued on the next page*
Cerebrovascular Disease Mortality Rates, continued

**Characteristics of indicator and data sources**

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors.

The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used.

Another indicator that can be computed and provides information on premature mortality for a specific cause is Potential Years of Life Lost (PYLL). Regarding data sources, there are countries where death certificates are not obligatory so sub registration of deaths occurs; or certificates are not filled in by health professionals. This brings the possibility of different types of errors.

*Continued on the next page*
### Cerebrovascular Disease PYLL

**Name**
Potential Years of Life Lost (PYLL) rate due to cerebrovascular disease (stroke) (ICD10 I60-I69)

**Definition**
PYLL is a measure of premature mortality. The PYLL due to cerebrovascular disease (stroke) measures the total number of years persons would have lived additionally, had they not died prematurely from cerebrovascular disease (stroke). Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000

**Case definition**
premature death due to cerebrovascular disease (stroke)

**Calculation method**
\[
\frac{(\text{estimated life expectancy} - \text{mean age at death for premature deaths}) \times \text{no. of premature deaths}}{\text{population under estimated life expectancy}} \times 100,000
\]

**Parameters**
- **Numerator:** (estimated life expectancy - mean age at death for premature deaths) \times \text{no. of premature deaths}
- **Denominator:** Population under estimated life expectancy
- **Measurement unit:** per 100,000
- **Type:** rate
- **Categories:** female, male; age under country-specific estimated life expectancy
- **Frequency of collection:** annual

**Data sources**
Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

*Continued on the next page*
### Cerebrovascular Disease PYLL, continued

<table>
<thead>
<tr>
<th><strong>Significance and rational</strong></th>
<th>PYLL due to cerebrovascular diseases can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors on increasing the life expectancy of the population.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Limitations of indicator and data sources</strong></td>
<td>One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.</td>
</tr>
<tr>
<td></td>
<td>Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).</td>
</tr>
</tbody>
</table>
### Malignant Neoplasm Mortality Rates

<table>
<thead>
<tr>
<th>Name</th>
<th>Age-standardized mortality rate per 100,000 population for deaths &lt;70 years due to malignant neoplasm (total) (ICD10 C00-C97)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Definition</th>
<th>Deaths &lt;70 years due to malignant neoplasm (total) expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Case definition</th>
<th>Age-standardized mortality rates per 100,000 for deaths &lt;70 years due to malignant neoplasm (total), using the WHO World Standard Population.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Calculation method</th>
<th>The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths &lt;70 years due to malignant neoplasm (total) using the WHO World Standard Population.</th>
</tr>
</thead>
</table>

| Parameters | • Measurement unit: per 100,000  
• Type: rate  
• Categories: female, male; age <70 years  
• Frequency of collection: annual |
|------------|------------------------------------------------------------------------------------------------------------------|

<table>
<thead>
<tr>
<th>Data sources</th>
<th>Obtained from corresponding mortality registries and population distributions.</th>
</tr>
</thead>
</table>

*Continued on the next page*
### Malignant Neoplasm Mortality Rates, continued

#### Significance and rational
It is estimated that approximately one in two males and one in three females will have a diagnosis of cancer during their lifetime and currently there are between 25.5-240.4/100,000 mortalities due to neoplasm in Latin America and the Caribbean.\(^1\) Significant morbidity and mortality from cancer of the lung, colon and rectum, female breast, cervix, oral cavity and pharynx, and multiple other cancers can be reduced through known interventions.

#### Characteristics of indicator and data sources
Cancer is not a single disease, but rather numerous diseases with different causes, risks, and potential interventions and interpretation of increases or decreases in cancer mortality can only be made by examination of the specific crude mortality rates of every type of cancer.

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors.

The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used. Another indicator that can be computed and provides information on premature mortality for a specific cause is Potential Years of Life Lost (PYLL).

---

Malignant Neoplasm PYLL

**Name**
Potential Years of Life Lost (PYLL) rate due to malignant neoplasm (total)  
(ICD10- C00-C97)

**Definition**
PYLL is a measure of premature mortality. The PYLL due to malignant neoplasm (total) (ICD10 C00-C97) measures the total number of years persons would have lived additionally, had they not died prematurely from malignant neoplasm. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000

**Case definition**
premature death due to malignant neoplasm (total)

**Calculation method**
\[
\frac{(\text{estimated life expectancy} - \text{mean age at death for premature deaths}) \times \text{no. of premature deaths}}{\text{population under estimated life expectancy}} \times 100,000
\]

**Parameters**
- **Numerator:**  
  \((\text{estimated life expectancy} - \text{mean age at death for premature deaths}) \times \text{no. of premature deaths}\)
- **Denominator:** Population under estimated life expectancy
- **Measurement unit:** per 100,000
- **Type:** rate
- **Categories:** female, male; age under country-specific estimated life expectancy
- **Frequency of collection:** annual

**Data sources**
Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

**Significance and rational**
PYLL due to malignant diseases can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors on increasing the life expectancy of the population

*Continued on the next page*
Neoplasm PYLL, continued

<table>
<thead>
<tr>
<th>Limitations of indicator and data sources</th>
</tr>
</thead>
</table>

One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.

Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).
## Cervical Cancer Mortality Rates

<table>
<thead>
<tr>
<th>Name</th>
<th>Age-standardized mortality rate per 100,000 population for deaths &lt;70 years due to cervical cancer (ICD 10 C53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Deaths &lt;70 years due to cervical cancer expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.</td>
</tr>
<tr>
<td>Case definition</td>
<td>Age-standardized mortality rates per 100,000 for deaths &lt;70 years due to cervical cancer, using the WHO World Standard Population.</td>
</tr>
<tr>
<td>Calculation method</td>
<td>The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths &lt;70 years due to cervical cancer using the WHO World Standard Population.</td>
</tr>
<tr>
<td>Parameters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Measurement unit: per 100,000</td>
</tr>
<tr>
<td></td>
<td>• Type: rate</td>
</tr>
<tr>
<td></td>
<td>• Categories: female; age &lt;70 years</td>
</tr>
<tr>
<td></td>
<td>• Frequency of collection: annual</td>
</tr>
<tr>
<td>Data sources</td>
<td>Obtained from corresponding mortality registries and population distributions.</td>
</tr>
</tbody>
</table>

*Continued on the next page*
Cervical Cancer Mortality Rates, continued

Significance and rational
Cervical cancer is one of the cancers with higher incidence, prevalence and mortality in the region of the Americas. It is estimated that in Latin America and the Caribbean the incidence rate of cervical cancer is between 28.6-32.6/100,000 and the mortality rate is between 12.9-16/100,000 and approximately 40-60% of cervical cancer deaths could be prevented by increasing screening of targeted population.²
Other factors that increase the risk of cervical cancer are: Cigarette smoking; infection with the high risk human papilloma virus; and certain sexual practices, including having multiple partners, early age at first intercourse and history of sexually transmitted disease. Education and preventive health programs to change behavior and modify these risk factors can also be developed.

Limitations of indicator and data sources
Besides previously mentioned limitations due to reporting and vital statistics and crude and standardized mortality rate, specifically regarding cervical cancer, the prevalence of hysterectomy should be taken into account when declining death rates for cervical cancer are reported.
A limitation of the use of data from cancer registries is that they can have different coverage (hospital, sub national population ones and national population ones) and that can be reflected in the number of cases reported, so an under reporting can occur.

Continued on the next page

### Cervical Cancer PYLL

<table>
<thead>
<tr>
<th>Name</th>
<th>Potential Years of Life Lost (PYLL) Rate due to cervical cancer (ICD10 C53)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>PYLL is a measure of premature mortality. The PYLL due to cervical cancer measures the total number of years persons would have lived additionally, had they not died prematurely from cervical cancer. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>premature death due to cervical cancer</td>
</tr>
</tbody>
</table>
| **Calculation method** | \[
\frac{(\text{female estimated life expectancy} - \text{mean age at death for premature female deaths}) \times \text{no. of premature female deaths}}{\text{female population under estimated life expectancy}} \times 100,000
\]
| **Parameters** |  
- **Numerator**: (Female estimated life expectancy – Mean age at death for premature female deaths) * Number of premature female deaths
- **Denominator**: Population under estimated life expectancy
- **Measurement unit**: per 100,000
- **Type**: rate
- **Categories**: female; age under country-specific estimated life expectancy
- **Frequency of collection**: annual |
| **Data sources** | Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries. |
| **Significance and rational** | PYLL due to cervical cancer can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors for increasing the life expectancy of the population. |

*Continued on the next page*
Cervical Cancer PYLL, continued

**Limitations of indicator and data sources**

One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.

Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).
## Lung Cancer Mortality Rates

<table>
<thead>
<tr>
<th>Name</th>
<th>Age-standardized mortality rate per 100,000 population for deaths &lt;70 years due to lung cancer including trachea, bronchus and lung. (ICD10 C33- C34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Deaths &lt;70 years due to lung cancer including trachea, bronchus and lung expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.</td>
</tr>
<tr>
<td>Case definition</td>
<td>Age-standardized mortality rates per 100,000 for deaths &lt;70 years due to lung cancer including trachea, bronchus and lung, using the WHO World Standard Population.</td>
</tr>
<tr>
<td>Calculation method</td>
<td>The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths &lt;70 years due to lung cancer including trachea, bronchus and lung using the WHO World Standard Population.</td>
</tr>
</tbody>
</table>
| Parameters | • Measurement unit: per 100,000  
• Type: rate  
• Categories: female, male; age <70 years  
• Frequency of collection: annual |
| Data sources | Obtained from corresponding mortality registries and population distributions. |

*Continued on the next page*
Lung Cancer Mortality Rates, continued

**Significance and rational**

Approximately 80%–90% of lung cancer mortality is attributable to cigarette smoking. Lung cancer mortality is also associated with environmental tobacco smoke and certain workplace exposures. The 5-year relative survival rate is <15%, among one of the lowest of common cancers. Therefore mortality rates can be particularly useful to detect trends and to serve for developing targeted programs and policies that limit tobacco smoke and exposure can help to decrease mortality rates due to lung cancer.

Because lung cancer has a long latency period, years might pass before changes in smoking behavior or patterns of clinical practice affect lung cancer mortality among the general population.

**Characteristics of indicator and data sources**

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors. The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used.

A limitation of the use of data from cancer registries is that they can have different coverage (hospital, sub national population ones and national population ones) and that can be reflected in the number of cases reported, so under reporting can occur.

*Continued on the next page*
**Lung Cancer PYLL**

<table>
<thead>
<tr>
<th>Name</th>
<th>Potential Years of Life Lost (PYLL) rate due to lung cancer including trachea, bronchus and lung (ICD10 C33- C34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>PYLL is a measure of premature mortality. The PYLL due to lung cancer including trachea, bronchus and lung measures the total number of years persons would have lived additionally, had they not died prematurely from lung cancer. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000</td>
</tr>
<tr>
<td>Case definition</td>
<td>premature death due to lung cancer</td>
</tr>
</tbody>
</table>
| Calculation method | \[
\frac{\text{estimated life expectancy} - \text{mean age at death for premature deaths}}{\text{population under estimated life expectancy}} \times \frac{\text{no. of premature deaths}}{100,000}
\] |
| Parameters | 
- **Numerator**: (Estimated life expectancy – Mean age at death for premature deaths) * Number of premature deaths  
- **Denominator**: Population under estimated life expectancy  
- **Measurement unit**: per 100,000  
- **Type**: rate  
- **Categories**: female, male; age under country-specific estimated life expectancy  
- **Frequency of collection**: annual |
| Data sources | Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries |
| Significance and rational | PYLL due to lung cancer can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors to increase the life expectancy of the population. |

*Continued on the next page*
Lung Cancer PYLL, continued

Limitations of indicator and data sources

One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.

Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).
Breast Cancer Mortality Rates

Name
Age-standardized mortality rate per 100,000 population for deaths <70 years due to female breast cancer (ICD10 C50)

Definition
Deaths <70 years due to female breast expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.

Case definition
Age-standardized mortality rates per 100,000 for deaths <70 years due to female breast, using the WHO World Standard Population.

Calculation method
The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to female breast cancer using the WHO World Standard Population.

Parameters
- Measurement unit: per 100,000
- Type: rate
- Categories: female; age <70 years
- Frequency of collection: annual

Data sources
Obtained from corresponding mortality registries and population distributions.

Significance and rational
The incidence of breast cancer in Latin America and the Caribbean is between 25.9-46/100,000 and the mortality rate is aprox 10.5-15.1/100,000. As breast cancer is considered an evitable cause of death with a high survival rate, crude and standardized mortality rates as well as PYLL provides information for decisions regarding screening and strengthening secondary and tertiary health care level.

Continued on the next page
Characteristics of indicator and data sources

The standardized mortality rate (using world population estimation as reference) is very useful for further comparisons as it eliminates differences in age. However, when used to compare effectiveness of screening vs. non screening program, crude mortality rates fail to take into account the response capacity of the health care system as well as that some types of tumors are so aggressive that even the earliest detection will fail to eradicate them.

A limitation of the use of data from cancer registries is that they can have different coverage (hospital, sub national population ones and national population ones) and that can be reflected in the number of cases reported, so under reporting can occur.
# Breast Cancer PYLL

**Name**
Potential Years of Life Lost (PYLL) rate due to female breast cancer. (ICD 10 C50)

**Definition**
PYLL is a measure of premature mortality. The PYLL due to female breast cancer measures the total number of years persons would have lived additionally, had they not died prematurely from female breast cancer. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000

**Case definition**
premature death due to female breast cancer

**Calculation method**
\[
\text{PYLL} = \left( \frac{\text{female estimated life expectancy} - \text{mean age at death for premature female deaths}}{\text{female population under estimated life expectancy}} \right) \times \frac{\text{no. of premature female deaths}}{100,000}
\]

**Parameters**
- **Numerator**: (Female estimated life expectancy – Mean age at death for premature female deaths) * Number of premature female deaths
- **Denominator**: Population under estimated life expectancy
- **Measurement unit**: per 100,000
- **Type**: rate
- **Categories**: female; age under country-specific estimated life expectancy
- **Frequency of collection**: annual

**Data sources**
Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

**Significance and rational**
PYLL due to breast cancer can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors to increase the life expectancy of the population

*Continued on the next page*
Breast Cancer PYLL, continued

**Limitations of indicator and data sources**

One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.

Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).
Cancer of the Digestive System Mortality Rates

Name
Age-standardized mortality rate per 100,000 population for deaths <70 years due to cancers of the digestive system (ICD10 C15-C26, C48)

Definition
Deaths <70 years due to cancers of the digestive system expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.

Case definition
Age-standardized mortality rates per 100,000 for deaths <70 years due to cancers of the digestive system, using the WHO World Standard Population.

Calculation method
The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to cancers of the digestive system using the WHO World Standard Population.

Parameters
- Measurement unit: per 100,000
- Type: rate
- Categories: female, male; age <70 years
- Frequency of collection: annual

Data sources
Obtained from corresponding mortality registries and population distributions.

Significance and rational
Cancer of the colon, rectum and stomach are some of the most common in Latin America and is on increase in the Caribbean. Significant morbidity and mortality from cancer of, colon and rectum, oral cavity and pharynx, can be reduced through preventive actions and programs of early detection and treatment.

Continued on the next page
Cancer of the Digestive System Mortality Rates, continued

Characteristics of indicator and data sources

The standardized mortality rate (using world population estimation as reference) is very useful for further comparisons as it eliminates differences in age. However, when used to compare effectiveness of screening vs. non screening program, crude mortality rates fail to take into account the response capacity of the health care system as well as that some types of tumors are so aggressive that even the earliest detection will fail to eradicate them.

A limitation of the use of data from cancer registries is that they can have different coverage (hospital, sub national population ones and national population ones) and that can be reflected in the number of cases reported, so under reporting can occur.

Continued on the next page
Cancer of the Digestive System PYLL

Name
Potential Years of Life Lost (PYLL) rate due to cancer of the digestive system (ICD10 C15-C26, C48)

Definition
PYLL is a measure of premature mortality. The PYLL due to cancer of digestive system measures the total number of years persons would have lived additionally, had they not died prematurely from cancer of digestive system. Premature death refers to deaths occurring before the country-specific estimated life expectancy. Rate is expressed per 100,000

Case definition
premature death due to cancer of digestive system

Calculation method
\[
\frac{(\text{estimated life expectancy} - \text{mean age at death for premature deaths}) \times \text{no. of premature deaths}}{\text{population under estimated life expectancy}} \times 100,000
\]

Parameters
- **Numerator**: (Estimated life expectancy – Mean age at death for premature deaths) × Number of premature deaths
- **Denominator**: Population under estimated life expectancy
- **Measurement unit**: per 100,000
- **Type**: rate
- **Categories**: female, male; age under country-specific estimated life expectancy
- **Frequency of collection**: annual

Data sources
Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

Continued on the next page
## Cancer of the Digestive System PYLL, continued

<table>
<thead>
<tr>
<th>Significance and rational</th>
<th>PYLL due to digestive cancer can be used by public health community and researchers to evaluate the impact of health promotion programs, life style changes and modification of risk factors to increase the life expectancy of the population</th>
</tr>
</thead>
</table>
| Characteristics of indicator and data sources | One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.  

Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS). |
### Diabetes Mortality Rates

**Name**

Age-standardized mortality rate per 100,000 population for deaths <70 years due to underlying cause being diabetes (IC10 E10-E14),

**Definition**

Deaths <70 years due to underlying cause being diabetes expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.

**Case definition**

Age-standardized mortality rates per 100,000 for deaths <70 years due to underlying cause being diabetes, by 100,000 population using the WHO World Standard Population.

**Calculation method**

The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths <70 years due to underlying cause being diabetes using the WHO World Standard Population.

**Parameters**

- **Measurement unit**: per 100,000
- **Type**: rate
- **Categories**: female, male; age <70 years
- **Frequency of collection**: annual

**Data sources**

Obtained from corresponding mortality registries and population distributions.

**Significance and rational**

Mortality rates of diabetes are originated mostly through information of diabetes as associated cause of death due to complications of cardiovascular nature, renal insufficiency or amputation complications. Long-term complications of diabetes and premature death can be prevented through early screening and achieving good disease control. Means to prevent complications and death include improved quality of care, patient education and self management.

*Continued on the next page*
**Diabetes Mortality Rates, continued**

<table>
<thead>
<tr>
<th>Characteristics of indicator and data sources</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors. The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used.</td>
<td></td>
</tr>
</tbody>
</table>

A limitation of the use of data from cancer registries is that they can have different coverage (hospital, sub national population ones and national population ones) and that can be reflected in the number of cases reported, so under reporting can occur.

*Continued on the next page*
## Diabetes PYLL

### Name
Potential Years of Life Lost (PYLL) Rate due to diabetes (ICD10 E10-E14)

### Definition
PYLL is a measure of premature mortality. The PYLL due to diabetes measures the total number of years persons would have lived additionally, had they not died prematurely from diabetes or a related complication. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000.

### Case definition
premature death due to diabetes or a related complication

### Calculation method
\[
\text{PYLL} = \frac{(\text{Estimated life expectancy} - \text{Mean age at death for premature deaths}) \times \text{Number of premature deaths}}{\text{Population under estimated life expectancy}} \times 100,000
\]

### Parameters
- **Numerator**: (Estimated life expectancy – Mean age at death for premature deaths) * Number of premature deaths
- **Denominator**: Population under estimated life expectancy
- **Measurement unit**: per 100,000
- **Type**: rate
- **Categories**: female, male; age under country-specific estimated life expectancy
- **Frequency of collection**: annual

### Data sources
Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

---

*Continued on the next page*
### Diabetes PYLL, continued

<table>
<thead>
<tr>
<th>Significance and rational</th>
<th>PYLL due to diabetes can be used by public health officials and researchers to evaluate the impact of screening programs, life style changes and disease management to increase the life expectancy of the population.</th>
</tr>
</thead>
</table>
| Limitations of indicator and data sources | One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.  

Another important limitation is that PYLL does not account for the amount of disability or suffering/quality of life involved with certain health conditions. |
### Chronic Lower Respiratory Diseases Mortality Rates

<table>
<thead>
<tr>
<th>Name</th>
<th>Age-standardized mortality rate per 100,000 population for deaths &lt;70 years due to lower respiratory diseases (ICD10 J40-J47)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Deaths &lt;70 years due to respiratory diseases expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>Age-standardized mortality rates per 100,000 for deaths &lt;70 years due to lower respiratory diseases using the WHO World Standard Population.</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths &lt;70 years due respiratory diseases, using the WHO World Standard Population.</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
</tr>
</tbody>
</table>
| • Measurement unit: per 100,000  
• Type: rate  
• Categories: female, male; age <70 years  
• Frequency of collection: annual |
| **Data sources** | Obtained from corresponding mortality registries and population distributions. |
| **Significance and rational** | The mortality from lower respiratory diseases has increased by 40% in the past 2 decades and elimination of tobacco use is the most effective way to reduce the morbidity and mortality due to lower respiratory diseases because approximately 90% of COPD is attributable to smoking. Other risk factors for lower respiratory diseases include occupational exposure, second hand smoke and air pollution. |

*Continued on the next page*
### Characteristics of indicator and data sources

The accuracy of the listing of the cause of death for chronic lung diseases, including COPD and asthma, might be low, especially among decedents aged >35 years.

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors. The use of a standard population is needed and for this purpose, the WHO World Standard Population will be used.

### Limitations of indicator and data sources

Causes of death and other variables listed on the death certificate might be inaccurate. The number of contributing causes of death listed on the death certificate might vary by person completing the death certificate and geographic region.
### Chronic Lower Respiratory Diseases PYLL

<table>
<thead>
<tr>
<th>Name</th>
<th>Potential Years of Life Lost (PYLL) Rate due to chronic lower respiratory disease (ICD10 J40-J47)</th>
</tr>
</thead>
</table>

#### Definition
PYLL is a measure of premature mortality. The PYLL due to chronic lower respiratory diseases measures the total number of years persons would have lived additionally, had they not died prematurely from chronic lower respiratory diseases. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000.

#### Case definition
Premature death due to chronic lower respiratory diseases

#### Calculation method
\[
\text{PYLL} = \frac{\text{Estimated life expectancy} - \text{Mean age at death for premature deaths}}{\text{Population under estimated life expectancy}} \times \text{no. of premature deaths} \times 100,000
\]

#### Parameters
- **Numerator**: (Estimated life expectancy – Mean age at death for premature deaths) * Number of premature deaths
- **Denominator**: Population under estimated life expectancy
- **Measurement unit**: per 100,000
- **Type**: rate
- **Categories**: female, male; age under country-specific estimated life expectancy
- **Frequency of collection**: annual

#### Data sources
Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries.
### Lower Respiratory Diseases PYLL, continued

<table>
<thead>
<tr>
<th>Significance and rational</th>
<th>PYLL due to lower respiratory diseases can be used by public health officials and researchers to evaluate the impact of health promotion programs, lifestyle changes and modification of risk factors to increase the life expectancy of the population.</th>
</tr>
</thead>
</table>
| Limitations of indicator and data sources | One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.  

Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS). |
## External Causes Mortality Rates

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-standardized mortality rate per 100,000 population for deaths &lt;70 years due to external causes (ICD10 V01-Y89) including all type of transport accidents; accidental falls; accidental drowning; suicide and intentional self-harm; and homicide and injury purposely inflicted by another person.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths &lt;70 years due to external causes expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-standardized mortality rates per 100,000 for deaths &lt;70 years due to external causes, using the WHO World Standard Population.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calculation method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths &lt;70 years due to external causes including all type of transport accidents; accidental falls; accidental drowning; suicide and intentional self-harm; and homicide and injury purposely inflicted by another person using the WHO World Standard Population.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameters</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measurement unit:</strong></td>
<td>per 100,000</td>
</tr>
<tr>
<td><strong>Type:</strong></td>
<td>rate</td>
</tr>
<tr>
<td><strong>Categories:</strong></td>
<td>female, male; age &lt;70 years</td>
</tr>
<tr>
<td><strong>Frequency of collection:</strong></td>
<td>annual</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data sources</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtained from corresponding mortality registries and population distributions.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Significance and rational</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths coded to external causes of death are an important part of the causes of death collection because they are used for injury surveillance and provide valuable information to support the development of policy for disease and injury prevention</td>
<td></td>
</tr>
</tbody>
</table>

*Continued on the next page*
| Limitations of indicator and data sources | The indicator may underestimate the real number of deaths since a percentage of these deaths don’t occur in hospitals and in some countries may not be recorded. Also, if the cause of death is classified to an injury code, the underlying external cause of death may not be captured. |

*Continued on the next page*
## External Causes PYLL

<table>
<thead>
<tr>
<th>Name</th>
<th>Potential Years of Life Lost (PYLL) rate due to external causes (ICD10 V01-Y89)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>PYLL is a measure of premature mortality. The PYLL due to external causes measures the total number of years persons would have lived additionally, had they not died prematurely from external causes. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>premature death due to external causes</td>
</tr>
</tbody>
</table>
| **Calculation method** | \[
\frac{(\text{estimated life expectancy} - \text{mean age at death for premature deaths}) \times \text{no. of premature deaths}}{\text{population under estimated life expectancy}} \times 100,000
\] |
| **Parameters** |  
- **Numerator:** (Estimated life expectancy – Mean age at death for premature deaths) *Number of premature deaths  
- **Denominator:** Population under estimated life expectancy  
- **Measurement unit:** per 100,000  
- **Type:** rate  
- **Categories:** female, male; age under country-specific estimated life expectancy  
- **Frequency of collection:** annual |
| **Data sources** | Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries |

*Continued on the next page*
### External Causes PYLL, continued

<table>
<thead>
<tr>
<th>Significance and rational</th>
<th>PYLL due to external causes can be used by public health officials and researchers to evaluate the impact of health promotion programs, lifestyle changes and modification of risk factors to increase the life expectancy of the population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limitations of indicator and data sources</td>
<td>One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering involved with certain health conditions. That is measured using Disability Adjusted Life Years (DALYS).</td>
</tr>
</tbody>
</table>
### Land Transport Accidents Mortality Rates

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>Age-standardized mortality rate per 100,000 population for deaths &lt;70 years due to Land transport accidents (ICD 10 V01-V89),</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Deaths &lt;70 years due to land transport accidents expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>Age-standardized mortality rates per 100,000 for deaths &lt;70 years due to land transport accidents using the WHO World Standard Population.</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths &lt;70 years due to land transport accidents using the WHO World Standard Population.</td>
</tr>
</tbody>
</table>
| **Parameters** | - **Measurement unit:** per 100,000  
  - **Type:** rate  
  - **Categories:** female, male; age <70 years  
  - **Frequency of collection:** annual |
| **Data sources** | Obtained from corresponding mortality registries and population distributions. |
| **Significance and rational** | Land transport accidents are a leading cause of injury, both fatal and non-fatal and deaths due to land transport accidents are an important part of the causes of death data collection because they are used for surveillance of injuries due to road traffic accidents and provide valuable information to support the development of policy for accidents and injury prevention. |

*Continued on the next page*
Limitations of indicator and data sources

The indicator may underestimate the real number of deaths since a percentage of these deaths do not occur in hospitals and in some countries may not be recorded. Also, if the cause of death is classified to an injury code, the underlying external cause of death may not be captured.

Continued on the next page
**Land Transport Accidents PYLL**

**Name**
Potential Years of Life Lost (PYLL) rate due to Land Transport Accidents (ICD 10 V01-V89)

**Definition**
PYLL is a measure of premature mortality. The PYLL due to land transport accidents measures the total number of years persons would have lived additionally, had they not died prematurely from land transport accidents. Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000

**Case definition**
premature death due to land transport accidents

**Calculation method**
\[
\left(\frac{\text{estimated life expectancy} - \text{mean age at death for premature deaths}}{\text{population under estimated life expectancy}}\right) \times \text{no. of premature deaths} \times 100,000
\]

**Parameters**
- **Numerator**: (Estimated life expectancy – Mean age at death for premature deaths) *Number of premature deaths
- **Denominator**: Population under estimated life expectancy
- **Measurement unit**: per 100,000
- **Type**: rate
- **Categories**: female, male; age under country-specific estimated life expectancy
- **Frequency of collection**: annual

**Data sources**
Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries

*Continued on the next page*
Land Transport Accidents PYLL, continued

Significance and rational

PYLL due to land transport accidents can be used by public health officials and researchers to evaluate the impact of screening programs, life style changes and disease management to increase the life expectancy of the population.

Limitations of indicator and data sources

One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally.

Another important limitation is that PYLL does not account for the amount of disability or suffering/quality of life involved with certain health conditions.
### Assault (homicide) Mortality Rate

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>Age-standardized mortality rate per 100,000 population for deaths &lt;70 years due to Assault (homicide) (ICD10 X85-Y09),</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Deaths &lt;70 years due to assault expressed per 100,000 population standardized to a standard population. This is necessary to control for differing age distributions from country to country. The WHO World Standard Population, which reflects the average age structure of the world’s population expected over the next generation (from 2000 to 2025), will be used.</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>Age-standardized mortality rates per 100,000 for deaths &lt;70 years due to assault using the WHO World Standard Population.</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>The sum of the weighted age-specific mortality rates per 100,000 population (by 5 year age groupings) for deaths &lt;70 years due to Assault using the WHO World Standard Population.</td>
</tr>
</tbody>
</table>
| **Parameters** | - Measurement unit: per 100,000  
- Type: rate  
- Categories: female, male; age <70 years  
- Frequency of collection: annual |
| **Data sources** | Obtained from corresponding mortality registries and population distributions. |
| **Significance and rational** | Deaths coded to homicide are an important part of the causes of death collection because they support the development of policy for crime prevention |

*Continued on the next page*
Assault (homicide) Mortality Rate, continued

Limitations of indicator and data sources

The indicator may underestimate the real number of deaths since a percentage of these deaths don’t occur in hospitals and in some countries may not be recorded. Also, if the cause of death is classified to an injury code, the underlying external cause of death may not be captured.

Continued on the next page
Assault (homicide) PYLL

Name
Potential Years of Life Lost (PYLL) Rate due to assault (homicide) (ICD10 X85-Y09)

Definition
PYLL is a measure of premature mortality. The PYLL due to assault, measures the total number of years persons would have lived additionally, had they not died prematurely from assault (homicide). Premature death refers to deaths occurring before the country-specific estimated life expectancy. The rate is expressed per 100,000

Case definition
premature death due to assault (homicide)

Calculation method
\[
\frac{\text{(estimated life expectancy - mean age at death for premature deaths) } \times \text{no. of premature deaths}}{\text{population under estimated life expectancy}} \times 100,000
\]

Parameters
- **Numerator**: (Estimated life expectancy – Mean age at death for premature deaths) * Number of premature deaths
- **Denominator**: Population under estimated life expectancy
- **Measurement unit**: per 100,000
- **Type**: rate
- **Categories**: female, male; age under country-specific estimated life expectancy
- **Frequency of collection**: annual

Data sources
Obtained from corresponding mortality registries and WHO life expectancy tables for specific countries
**Assault (homicide) PYLL**, continued

<table>
<thead>
<tr>
<th>Significance and rational</th>
<th>PYLL due to assault can be used by public health officials and researchers to evaluate the impact of screening programs, lifestyle changes and disease management to increase the life expectancy of the population.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limitations of indicator and data sources</td>
<td>One of the problems is that death at a young age seems sometimes to be too heavily weighted in calculating the PYLL. All future years of life are weighed equally. Another important limitation is that PYLL does not account for the amount of disability or suffering/quality of life involved with certain health conditions.</td>
</tr>
</tbody>
</table>
# Section II: Prevalence and Incidence of Selected CNCDs

## Diabetes Mellitus—Prevalence

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence and Standard Deviation of Diabetes Mellitus (ICD10 E10-E14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Diabetics registered in the population, expressed as a percentage of the corresponding mid-year population, for a given year</td>
</tr>
<tr>
<td>Case definition</td>
<td>An individual who reports having ever being diagnosed with diabetes(^3) e.g. elevated fasting plasma glucose (\geq 7 \text{ mmol/l} (126 \text{ mg/dl})) or in 2-h levels of plasma glucose (\geq 11.1 \text{ mmol/l} (200 \text{ mg/dl})) during an OGTT (Oral Glucose Tolerance Test). Fasting is defined as no caloric intake at least 8 hours prior to measurement.</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of respondents who reported to be diagnosed with diabetes/ total number of respondents of the survey</td>
</tr>
</tbody>
</table>

### Parameters
- **Numerator**: number of respondents who have elevated fasting plasma glucose \(\geq 7 \text{ mmol/l} (126 \text{ mg/dl})\) or 2-h plasma glucose \(\geq 11.1 \text{ mmol/l} (200 \text{ mg/dl})\) (self-reported)
- **Denominator**: total number of respondents of the survey
- **Measurement unit**: per 100
- **Type**: rate
- **Categories**: female, male; aged 25-64 and by age group 25-34, 35-44, 45-54, 55-64
- **Frequency of collection**: every 3-5 years

### Data sources
National or sub national risk factors surveys. (STEPS or similar)

### Significance and rational
This indicator is useful to monitor the occurrence of diabetes, to inform interventions for treatment and policy action, evaluation of diabetes prevention programs and advocacy to implement diabetes prevention programs.

---

### Diabetes Mellitus--Prevalence, continued

| Limitations of indicator and data sources | There are several limitations with this indicator. The first limitation is that approximately one third of cases of diabetes are undiagnosed. As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or measurement. |

Continued on the next page
### Diabetes Mellitus—Incidence

<table>
<thead>
<tr>
<th>Name</th>
<th>Incidence and Standard Deviation of diabetes mellitus (ICD10 E10-E14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Population who report having being diagnosed with diabetes during the last year expressed as percentage of total respondents of the survey</td>
</tr>
<tr>
<td>Case definition</td>
<td>An individual who reports having being diagnosed with diabetes during the last year by a health professional OR Diabetes incidence as detected for the first time through the health care system. Diabetes mellitus is defined as elevated fasting plasma glucose $\geq 7$ mmol/l (126 mg/dl) or 2-h plasma glucose $\geq 11.1$ mmol/l (200 mg/dl).(^4) Fasting is defined as no caloric intake at least 8 hours prior to measurement.</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of respondents who have reported being diagnosed with diabetes mellitus during the last year/ total number of respondents of the survey OR Number of respondents who have elevated fasting plasma glucose $\geq 7$ mmol/l (126 mg/dl) or 2-h plasma glucose $\geq 11.1$ mmol/l (200 mg/dl) measured in a health care center during the last year/ total number of persons (ages 25-64) whose fasting plasma glucose was measured during the last year</td>
</tr>
<tr>
<td>Parameters</td>
<td>- <strong>Numerator</strong>: Number of respondents who have reported being diagnosed with diabetes mellitus during the last year OR Number of respondents who have elevated fasting plasma glucose $\geq 7$ mmol/l (126 mg/dl) or 2-h plasma glucose $\geq 11.1$ mmol/l (200 mg/dl) measured in a health care center during the last year - <strong>Denominator</strong>: total number of respondents of the survey OR Total number of persons (ages 25-64) whose fasting plasma glucose was measured during the last year</td>
</tr>
<tr>
<td>- Measurement unit: per 100</td>
<td></td>
</tr>
<tr>
<td>- Type: Rate</td>
<td></td>
</tr>
<tr>
<td>- Categories: Male, Female; aged 25-64 and by age group 25-34, 35-44, 45-54, 55-64</td>
<td></td>
</tr>
<tr>
<td>- Frequency of collection: Every 3-5 years</td>
<td></td>
</tr>
</tbody>
</table>

### Diabetes Mellitus—Incidence, continued

<table>
<thead>
<tr>
<th><strong>Data sources</strong></th>
<th>National or sub national risk factors surveys. (STEPS or similar) OR properly constituted Diabetic Registers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Significance and rational</strong></td>
<td>This indicator measures the incidence of population diagnosed with diabetes in one defined geographical area and specific time point. It is useful to monitor the occurrence of diabetes, surveillance, to inform interventions for screening and policy action.</td>
</tr>
<tr>
<td><strong>Limitations of indicator and data sources</strong></td>
<td>There are several limitations with this indicator. The first limitation is that approximately one third of cases of diabetes are undiagnosed. If information is used from self reported sample surveys, data might be a subject of systematic error resulting from non coverage, non response or measurement.</td>
</tr>
</tbody>
</table>
Hypertension—Prevalence

Name
Prevalence and Standard Deviation of Hypertension (ICD10 I10-I15)

Definition
Population who reports having ever being diagnosed with hypertension by health professional expressed as percentage of total respondents of the survey, for a given year

Case definition
An individual whose blood pressure is $\geq 140/90$ mmHg

Calculation method
number of respondents who have blood pressure $\geq 140-90$ mmHg (from self-reported or measured in a health care center)/total number of respondents of the survey

Parameters
- **Numerator**: Number of respondents from the survey who have blood pressure $\geq 140/90$ mmHg (from self-report or measured in a health care center)
- **Denominator**: total number of respondents of the survey
- **Measurement unit**: per 100
- **Type**: Rate
- **Categories**: Male, Female; age 25-64 and by age group 25-34, 35-44, 45-54, 55-64
- **Frequency of collection**: Every 3-5 years

Data sources
National or sub national risk factors surveys (STEPS or similar)

Significance and rational
Approximately 20%–30% of coronary heart disease and 20%–50% of strokes are attributable to uncontrolled hypertension. Blood pressure-related cardiovascular complications can occur before the onset of established hypertension. Lifestyle risk factors like excessive caloric intake, physical inactivity, excessive alcohol consumption, and deficient potassium intake are related to onset or maintenance of elevated blood pressure.

Continued on the next page

---

Hypertension—Prevalence, continued

Limitations of indicator and data sources

The indicator may not include persons with hypertension who have their blood pressure successfully controlled through lifestyle changes and without medication.

As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non-response or appropriate data weighting.

Continued on the next page
## Hypertension—Incidence

### Name

Incidence and Standard Deviation of hypertension (ICD10 I10-I15)

### Definition

Population who report having being diagnosed with hypertension by a health professional during the last year expressed as percentage of population surveyed.

### Case definition

An individual who has been diagnosed with blood pressure 140/90 mmHg\(^7,8\) and over by a health professional during the last year OR hypertension incidence as detected for the first time through the health care system.

### Calculation method

- Number of respondents who report having being diagnosed with hypertension during the last year / total number of respondents of the survey
- OR
- Number of respondents with blood pressure \(\geq 140/90\) mmHg measured in a health care center during the last year / total number of persons (ages 25-64) whose blood pressure was measured during the last year

### Parameters

- **Numerator**: Number of respondents who reported having being diagnosed with hypertension by a health professional during the last year
- OR
- Number of respondents with blood pressure \(\geq 140/90\) mmHg measured in a health care center during the last year
- **Denominator**: total number of respondents of the survey
- OR
- Total number of person (ages 25-64) whose blood pressure was measured during the last year
- **Measurement unit**: per 100
- **Type**: Rate
- **Categories**: Male, female; aged 25-64 and by age group 25-34, 35-44, 45-54, 55-64
- **Frequency of collection**: Every 3-5 years

### Data sources

National or sub national risk factors surveys. (STEPS or similar) OR properly constituted Hypertension Registers

---

\(^7\) A.V. Chobanian et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. 2003, op.cit

\(^8\) World Health Organization (WHO), International society of Hypertension Writing Group. 2003 WHO/ISH statement of management of hypertension. 2003, op.cit
### Hypertension—Incidence, continued

#### Significance and rational

Blood pressure-related cardiovascular complications can occur before the onset of established hypertension. And approximately 20%–30% of coronary heart disease and 20%–50% of strokes are attributable to uncontrolled hypertension therefore, screening and early detection can help to develop programs directed to modify Lifestyle risk factors like excessive caloric intake, physical inactivity, excessive alcohol consumption, and deficient potassium intake are related to onset or maintenance of elevated blood pressure.

#### Limitations of indicator and data sources

The indicator may not include persons with hypertension who have not undergone screening for blood pressure

As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or measurement.
## Overweight—Prevalence

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence and Standard Deviation of overweight among Adults and adolescents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Population who has a body mass index (BMI between 25.00 and 29.99 kg/m(^2)) calculated from self reported weight and height or measured height and weight expressed as percentage of population surveyed.</td>
</tr>
</tbody>
</table>
| **Case definition** | **Adult**: An overweight person is an individual whose BMI is between 25.00-29.99 kg/m\(^2\)

Guidelines have established additional BMI cut points for weight\(^9\): underweight, <18.50; Normal, 18.50-24.99; overweight, 25.00-29.99; obesity I 30.00-34.99; obesity II 35.00-39.99; Obesity III \(\geq\) 40.00

**Adolescent**: An overweight adolescent is an individual whose weight falls in the 85\(^{th}\) percentile according to 2007 WHO growth reference for adolescents.\(^{10}\) |
| **Calculation method** | **Adults**: Number of respondents who have BMI between 25.00-29.99 / number of respondents whose height and weight were reported or were measured.

**Adolescents**: Number of adolescents whose weight falls in the 85\(^{th}\) percentile according to 2007 WHO growth reference for adolescents |

---


Overweight—Prevalence, continued

Parameters

- **Numerator:**
  - Adults: Number of respondents who have a body mass index (BMI) between 25.00 kg/m² and 29.99 calculated from self-reported or measured weight and height.
- **Denominator:** Respondents for whom BMI can be calculated from their self-reported weight and height (excluding unknowns or refusals to provide weight or height).
- **Measurement unit:** per 100
- **Type:** Rate
- **Adolescents:** Number of adolescents whose weight falls in the 85th percentile according to 2007 WHO growth reference for adolescents from self-reported or measured weight and height.
- **Categories:**
  - ADULT: Male, female; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64.
  - ADOLESCENT: Male and female; ages 13-15 years
- **Frequency of collection:** every 3-5 years

Data sources

National or sub national risk factors surveys (STEPS, GSHS)

Significance and rational

The prevalence of overweight and obesity have been progressively increasing in Latin America and the Caribbean. Overweight may lead to obesity and it increases the likelihood of developing several chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancer, this is important because it is preventable and an appropriate amount, intensity and duration of regular physical activity in combination with decreased caloric, fat intake might reduce a person’s BMI.

Limitations of indicator and data sources

If self reported data are used they may be subject to errors and has limitations as respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and of the prevalence of overweight. Additionally for data analysis appropriate data weighing needs to be done when there is not a 100% coverage/response, and errors due to measurement should also be considered.
Obesity—Prevalence

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence and Standard Deviation of Obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Population who have a body mass index (BMI over 30.00 kg/m² calculated from self reported weight and height or measured height and weight expressed as percentage of population surveyed.</td>
</tr>
<tr>
<td>Case definition</td>
<td><strong>Adult:</strong> An obese person is an individual whose calculated BMI is 30.00 kg/m² and over. Guidelines have established additional BMI cut points for weight(^{11}): underweight,&lt;18.50; Normal, 18.50-24.99; overweight, 25.00-29.99; obesity I 30.00-34.99; obesity II 35.00-39.99; Obesity III (\geq)40.00  <strong>Adolescent:</strong> An obese adolescent is an individual whose weight falls in 97(^{th}) percentile according to 2007 WHO growth reference for adolescents.(^{12})</td>
</tr>
<tr>
<td>Calculation method</td>
<td><strong>Adult:</strong> Number of respondents who have BMI 30.00 kg/m² and over /number of respondents whose height and weight were reported or were measured <strong>Adolescent:</strong> Number of adolescents whose weight falls in the 97(^{th}) percentile according to 2007 WHO growth reference for adolescents</td>
</tr>
</tbody>
</table>


\(^{12}\) Onis M et al. Development of a WHO growth reference for school-aged children and adolescents. 2007, op.cit

Continued on the next page
Obesity—Prevalence, continued

Parameters

- **Numerator**: Respondents who have a body mass index (BMI) 30.00 kg/m² and over, calculated from self-reported or measured weight and height.
- **Denominator**: Respondents for whom BMI can be calculated from their self-reported weight and height (excluding unknowns or refusals to provide weight or height).
- **Measurement unit**: per 100
- **Type**: Rate
- **Adolescents**: Number of adolescents whose weight falls in the 97th percentile according to 2007 WHO growth reference for adolescents from self-reported or measured weight and height
- **Categories**:
  - ADULT: Male, female; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64
  - ADOLESCENT: Male, female; ages 13-15
- **Frequency of collection**: Every 3-5 years

Data sources

National or sub national risk factors surveys. (STEPS, GSHS)

Significance and rational

The prevalence of overweight and obesity have been progressively increasing in Latin America. Overweight may lead to obesity and it increases the likelihood of developing several chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancer, this is important because it is preventable and an appropriate amount, intensity and duration of regular physical activity in combination with decreased caloric, fat intake might reduce a person’s BMI

Limitations of indicator and data sources

If self reported data are used they may be subject to errors and has limitations as respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and of the prevalence of overweight. Additionally for data analysis appropriated data weighting needs to be done when there is not a 100% coverage/response, and errors due to measurement should also be considered.
Smoke Exposure

There are some 4,000 known chemicals in tobacco smoke. About 50 of them are known to cause cancer in humans. Tobacco smoke in enclosed areas is breathed by everyone, exposing smokers and non-smokers alike.

For Smoke Exposure, the three definitions of tobacco used are as follows:\textsuperscript{13}:

**Smoking any tobacco product**: Smoking any form of tobacco, including cigarettes, cigars, pipes, bidis, kreteks, etc.

**Current Smoking**: Smoking at the time of the survey, including daily and non-daily smoking.

**Daily Smoking**: Smoking every day at the time of the survey.

# Current adult daily smokers of tobacco

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence (and Standard Deviation) of current daily smokers of tobacco among adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Population who report to be current daily smokers expressed as percentage of population surveyed.</td>
</tr>
<tr>
<td>Case definition</td>
<td>A current daily smoker is an individual who reports smoking tobacco every day</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of respondents who report being current daily smokers / total number of respondents of the survey</td>
</tr>
<tr>
<td>Parameters</td>
<td></td>
</tr>
</tbody>
</table>
  - **Numerator**: Number of respondents who report being daily smokers  
  - **Denominator**: Total number of respondents of the survey  
  - **Measurement unit**: per 100  
  - **Type**: Rate  
  - **Categories**: Male, Female; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64  
  - **Frequency of collection**: Every 3-5 years |
| Data sources | National or sub national risk factors surveys. (STEPS or similar) |
| Significance and rational | The prevalence of tobacco smoking is high in Latin America and exposure to second hand smoke is common in Latin America and the Caribbean. Smoking is a highly addictive behavior that is linked to an increased risk of poor general health and frequent hospitalization. Smoking increases the risk of heart disease, cancer, stroke and chronic lung disease. In addition environmental tobacco smoke has been demonstrated to increase the risk of heart disease and cancer among non-smokers. The information will support implementation of tobacco control policies. |

*Continued on the next page*
Current adult daily smokers of tobacco, continued

<table>
<thead>
<tr>
<th>Limitations of indicator and data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>The indicator does not convey the lifetime or current amount of cigarettes smoked or smoking habits besides tobacco. The indicator does not measure intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoker among non-smokers.</td>
</tr>
<tr>
<td>As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non-response and inadequate data weighting</td>
</tr>
</tbody>
</table>

Continued on the next page
## Current adult smokers of tobacco

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence (and Standard Deviation) of current smokers of tobacco among adults</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Definition</th>
<th>Population reporting to be current smokers expressed as percentage of surveyed population.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Case Definition</th>
<th>A current smoker is an individual who reports smoking tobacco</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Calculation method</th>
<th>Number of respondents who report smoking tobacco / total number of respondents of the survey</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Numerator</strong>: Number of respondents who report being currently smoker</td>
</tr>
<tr>
<td>• <strong>Denominator</strong>: Total number of respondents of the survey</td>
</tr>
<tr>
<td>• <strong>Measurement unit</strong>: per 100</td>
</tr>
<tr>
<td>• <strong>Type</strong>: rate</td>
</tr>
<tr>
<td>• <strong>Categories</strong>: female, male; ages 25-64, and by age group 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td>• <strong>Frequency of collection</strong>: every 3-5 years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data sources</th>
<th>National or sub national risk factors surveys. (STEPS or similar)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Significance and rational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence of smoking tobacco is high in Latin America and exposure to second hand smoke is common in Latin America and the Caribbean. Smoking is a highly addictive behavior that is linked to an increased risk of poor general health. Smoking increases the risk of heart disease, cancer, stroke and chronic lung disease. Environmental tobacco smoke has been demonstrated to increase the risk of heart disease and cancer among nonsmokers. The information will support implementation of tobacco control policies.</td>
</tr>
</tbody>
</table>

*Continued on the next page*
Current adult smokers of tobacco, continued

Limitations of indicator and data sources
The indicator does not convey the lifetime or amount of cigarettes smoked or smoking other products besides tobacco. The indicator does not measure intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoker among non-smokers.

As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or measurement.

Continued on the next page
## Tobacco consumption among the youth

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence (and Standard Deviation) of tobacco consumption among the youth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Young population who report smoking one or more times during the last 30 days expressed as percentage of surveyed population</td>
</tr>
<tr>
<td>Case definition</td>
<td>An individual 13-15 year old who reports smoking one or more times during the last 30 days</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of respondents who report smoking tobacco once or more times during the last 30 days / total number of respondents of the survey (13-15 years old)</td>
</tr>
<tr>
<td>Parameters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- <strong>Numerator</strong>: Number of young respondents (13-15 years old) who report smoking one or more times during the last 30 days</td>
</tr>
<tr>
<td></td>
<td>- <strong>Denominator</strong>: Total number of respondents of the survey (13-15 years old)</td>
</tr>
<tr>
<td></td>
<td>- <strong>Measurement unit</strong>: per 100</td>
</tr>
<tr>
<td></td>
<td>- <strong>Type</strong>: Rate</td>
</tr>
<tr>
<td></td>
<td>- <strong>Categories</strong>: Male, female; ages 13-15</td>
</tr>
<tr>
<td></td>
<td>- <strong>Frequency of collection</strong>: every 3-5 years</td>
</tr>
<tr>
<td>Data sources</td>
<td>National or sub national risk factors survey (GYTS, GSHS)</td>
</tr>
<tr>
<td>Significance and rational</td>
<td>Prevalence of smoking tobacco is high in Latin America and exposure to second hand smoke is common in Latin America and the Caribbean. Smoking is a highly addictive behavior that is linked to an increased risk of poor general health. Smoking increases the risk of heart disease, cancer, stroke and chronic lung disease. Environmental tobacco smoke has been demonstrated to increase the risk of heart disease and cancer among nonsmokers. The information will support implementation of tobacco control policies.</td>
</tr>
</tbody>
</table>
Limitations of indicators and data sources

The indicator does not convey the lifetime or amount of cigarettes smoked or smoking other products besides tobacco. The indicator does not measure intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoker among non-smokers. As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or measurement.

Continued on the next page
## Average age adult and young consumer started smoking

<table>
<thead>
<tr>
<th>Name</th>
<th>Average age started smoking (and Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Average age at which surveyed individuals start smoking tobacco</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>Age at which a person starts smoking tobacco</td>
</tr>
</tbody>
</table>
| **Calculation method** | **Adults**: sum of all ages at which adults reported started smoking tobacco / total number of adult respondents who smoke  
**Adolescents**: sum of all ages at which adolescents reported started smoking tobacco / total number of adolescent respondents who smoke |
| **Parameters** |  
- **Numerator**: Sum of all ages at which adults and adolescents reported starting smoking tobacco  
- **Denominator**:  
  - **Adult**: Total number of adult respondents who smoke  
  - **Adolescents**: Total number of adolescent respondents who smoke  
- **Type**: mean  
- **Categories**:  
  - **ADULT**: Male, Female, ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64  
  - **ADOLESCENT**: Male and Female, Total ages 13-15  
- **Frequency of collection**: every 3-5 years |
| **Data sources** | National or sub national risk factors surveys (STEPS, GHSH, GYTS) |
| **Significance and rational** | Individuals are starting to smoke at early ages in Latin America and the Caribbean. Smoking is a highly addictive behavior that is linked to an increased risk of poor general health and frequent hospitalization. Individuals that start to smoke young increase their risk of heart disease, cancer, stroke and chronic lung disease. Environmental tobacco smoke has been demonstrated to increase the risk of heart disease and cancer among nonsmokers. |
Average age adult and young consumer started smoking, continued

Limitations of indicators and data sources

The indicator does not convey the lifetime, amount of cigarettes smoked or intent or attempts to quit smoking among smokers or exposure to environmental tobacco smoker among non-smokers.

As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or data weighing.
### Secondhand tobacco smoke exposure of adults and youth

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence of population (and Standard Deviation) exposed to second hand smoke</th>
</tr>
</thead>
</table>

**Definition**
Population who report being exposed to second hand smoke expressed as percentage of surveyed population

**Case definition**
Individual that reports exposure to second hand smoke

**Calculation method**
Number of respondents that reports exposure to second hand smoke / total number of respondents in the survey

**Parameters**
- **Numerator**: Number of respondents that reports exposure to second hand smoke
- **Denominator**: total number of respondents in the survey
- **Measurement unit**: per 100
- **Type**: rate
- **Categories**:
  - **ADULT**: Male, female; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64
  - **ADOLESCENT**: Male, female; ages 13-15
- **Frequency of collection**: every 3-5 years

**Data sources**
National or sub national risk factors surveys (STEPS, GSHS, GYTS)

**Significance and rational**
Environmental tobacco smoke has been demonstrated to increase the risk of heart disease and cancer among non-smokers therefore it is important to identify the prevalence of second hand smoke to develop policies

**Limitations of indicators and data sources**
The indicator does not convey the length and amount of cigarettes smoke and each of these factors can affect the risk of developing cancer and other chronic diseases.

As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non-response or inadequate data weighting
Alcohol Consumption

Different drinking patterns give rise to very different health outcomes in different population groups. WHO states that though the total amount of alcohol drank in a week might be similar, the quantity and frequency is crucial in determining health risks (2004). For alcohol consumption, the five definitions for alcohol drinking and consumption are as follow:\textsuperscript{14}:

**Alcohol:** extremely broad range of types of alcohol available. Most popular categories of alcohol consumed are beer from barley, wine from grapes, and certain distilled spirits.

**Men who are binge drinkers:** Adult male (25-64 years old) who reported drinking five or more drinks in one sitting on one or more occasions during the last month.

**Women who are binge drinkers:** Adult female (25-64 years old) who reported drinking four or more drinks in one sitting on one or more occasions during the last month.

**Alcohol consumption among the youth:** school age children, ages 13-15 years old, who reported drinking at least one drink containing alcohol in one or more days during the last 30 days.

**Adult per capita alcohol consumption:** generally estimated by dividing the sum of alcohol production and imports less alcohol export by the adult population (aged 15 years or older).

### Binge drinking in men

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence (and Standard Deviation) of binge drinking among men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Male population who report having ( \geq 5 ) (5 or more) drinks in one sitting on one or more occasion during the last month expressed as percentage of all the male population surveyed.</td>
</tr>
<tr>
<td>Case definition</td>
<td>An individual who has ( \geq 5 ) drinks in one sitting, on one or more occasions during the last month. Binge drinking refers to heavy drinking and a heavy drinker is an individual who has more than 5 drinks in one or more occasions during the last month. (^{15})</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of male respondents who report having ( \geq 5 ) drinks in one sitting, on one or more occasions during the last month / total number of male respondents who report having a specific number, including zero, drinks on one occasion during the previous month</td>
</tr>
</tbody>
</table>
| Parameters | • Numerator: Number of male respondents who report having \( \geq 5 \) drinks in one sitting on one or more occasions during the last month  
• Denominator: total number of male respondents who report having a specific number, including no drinks on one occasion during the last month (excluding unknowns and refusals)  
• Measurement unit: per 100  
• Type: rate  
• Categories: Male; ages 25-64 years and by age groups 25-34, 35-44, 45-54, 55-64  
• Frequency of collection: every 3-5 years |
| Data sources | National or sub national risk factor surveys (STEPS or similar) |
| Significance and rational | Alcohol abuse is strongly associated with injuries, violence, fetal alcohol syndrome, chronic liver disease, some cancers, and risk of other acute and chronic health effects. Binge drinking is an indicator that serves to estimate prevalence of alcohol abuse among the population, track changes over time and be used for alcohol control related policies. |

Binge drinking in men, continued

Limitations of indicators and data sources

The indicator does not convey the frequency of binge drinking or the specific amount of alcohol consumed.

As with all self reported sample surveys, data might be subject to systematic error resulting from non-coverage, non-response or measurement

Continued on the next page
## Binge drinking in women

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence (and Standard Deviation) of binge drinking among women</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Women who report having ≥4 drinks (4 or more) in one sitting on one or more occasions during the last month expressed as percentage of all women who participated in the study</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>Binge drinking refers to heavy drinking and a heavy drinking female is a woman who has ≥4 drinks in one sitting on one or more occasions during the last month&lt;sup&gt;16&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Number of female respondents who report having ≥4 drinks in one sitting on one or more occasions during the last month / total number of female respondents who report having a specific number, including no drinks on one occasion during the previous month</td>
</tr>
</tbody>
</table>
| **Parameters** | • **Numerator:** Number of Female respondents who report having ≥4 drinks in one sitting on one or more occasions during the last month  
• **Denominator:** Total number of female respondents who report having a specific number, including no drinks on one occasion during the previous month (excluding unknowns and refusals)  
• **Measurement unit:** per 100  
• **Type:** rate  
• **Categories:** Women; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64  
• **Frequency of collection:** every 3-5 years |
| **Data sources** | National or sub national risk factors surveys (STEPS or similar) |
| **Significance and rational** | Alcohol abuse is strongly associated with injuries, violence, fetal alcohol syndrome, chronic liver disease, some cancers, and risk of other acute and chronic health effects. Binge drinking is an indicator that serves to estimate prevalence of alcohol abuse among the population, track changes over time and be used for alcohol control related policies. |

Binge drinking in women, continued

Limitations of indicators and data sources

The indicator does not convey the frequency of binge drinking or the specific amount of alcohol consumed.

As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non-response or inadequate data weighting.

Continued on the next page
### Alcohol consumption of the youth

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence (and Standard Deviation) of alcohol consumption among the youth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Young population (13-15 years old) who had at least one drink containing alcohol on one or more days during the last 30 days.</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>A young individual (13-15 years) who reports having had at least one drink containing alcohol on one or more days during the last 30 days</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Number of young respondents (13-15 years old) who report having had at least one drink containing alcohol on one or more days during the last 30 days/ total number of respondents of the survey</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
</tr>
</tbody>
</table>
  - **Numerator**: Number of young respondents (13-15 years old) who report having had at least one drink containing alcohol on one or more days during the last 30 days.  
  - **Denominator**: total number of respondents of the survey  
  - **Measurement unit**: per 100  
  - **Type**: rate  
  - **Categories**: male, female; ages 13-15  
  - **Frequency of collection**: every 3-5 years |
| **Data sources** | National or sub national risk factors surveys (GSHS) |
| **Significance and rational** | Alcohol use and abuse is strongly associated with injuries, violence, fetal alcohol syndrome, chronic liver disease, and risk of other acute and chronic health effects. This data can be used to evaluate trends and promote alcohol policy initiatives. |
| **Limitations of indicators and data sources** | The indicator does not convey the frequency or the specific amount of alcohol consumed.  
  As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non-response or inadequate data weighting |
### Annual per capita alcohol consumption

<table>
<thead>
<tr>
<th>Name</th>
<th>Annual per capita alcohol consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>The annual per capita alcohol consumption is the total estimated alcohol consumption in a country in a given year per liter of pure alcohol</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>per capital alcohol consumption</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>alcohol production + alcohol imports - alcohol exports / adult population (15 years of age and over)</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
</tr>
</tbody>
</table>
|  | • Numerator: alcohol production + alcohol imports - alcohol exports  
|  | • Denominator: adult population (15 years of age and over)  
|  | • Frequency of collection: every 3-5 years |
| **Data sources** | National information from government agencies or data sets of FAO and UN Statistical office |
| **Significance and rational** | Estimates of per capita alcohol consumption of adult population are the best available for monitoring trends. Among those who drink at all, the heaviest drinking 10% consume over 50% or more of alcohol consumed. The estimates can be a good proxy for problems of chronic heavy drinking such as cirrhosis of the liver. They can also be indicative of the extent of alcohol related problems and in that way valuable in order to assist with patterns that require attention from policy makers. |
| **Limitations of indicators and data sources** | The information tends to underestimate consumption within countries with larger populations below age of 15 as case in many developing counties. Also it does not include informal production, duty free sales, variation in beverage strength are some of the things that are not taking in to account in the calculation |
Diet—fruits & vegetables

Fruits and vegetables are important components of a healthy diet. Sufficient daily consumption could help prevent major CNCDs (WHO, 2002). An estimate of 2.7 million lives could potentially be saved each year if fruits and vegetables consumption were increased to a sufficient amount. The Joint FAO/WHO Expert Consultation on diet, nutrition and prevention of chronic diseases (2003), recommends the intake of a minimum of 400g of fruit and vegetables per day (excluding potatoes and other starchy tubers) for the prevention of chronic diseases.\(^7\)

Fruit and vegetable definitions vary significantly between countries and regions. However, many definitions specify the following:\(^3\)

**Fruit**: is the fleshy part around the seeds of a plant, has a sweet taste and are most often eaten raw as a dessert or snack.

**Vegetable**: as part of plant that is eaten cooked or raw with main meals, have different colors and is high in nutritional value and good for the health

Diet – fruits

<table>
<thead>
<tr>
<th>Name</th>
<th>Mean number (and Standard Deviation) of servings of fruits per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Average of the number of serving of fruit consumed by total of the population.</td>
</tr>
<tr>
<td>Case definition</td>
<td>A serving size of fruit is defined as: 1/2 cup raw, cooked, frozen or canned fruits (in 100% juice), 1/4 cup dried fruit</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Sum of all the number of servings consumed by all respondents / total number of respondents of the survey</td>
</tr>
</tbody>
</table>

**Parameters**
- **Numerator**: Sum of all the number of servings consumed by all respondents
- **Denominator**: total number of respondents of the survey
- **Measurement unit**: per 100
- **Type**: mean
- **Categories**:
  - ADULT: Male, Female; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64
  - ADOLESCENT: Male and Female; ages 13-15 years
- **Frequency of collection**: every 3-5 years

| Data sources | Obtained from National or sub risk factors surveys (GSHS, STEPS) |

**Significance and rational**
A diet of ≥5 servings of fruits and vegetables/day is associated with reduced risk of coronary heart disease and certain types of cancer, including cancer of colon, rectum, oral cavity, pharynx, stomach, and esophagus. The mean of the serving of fruits in the population provides an overview of the current diet of the population and can be used for planning or evaluating effects of health promotion policies and programs.

*Continued on the next page*
Diet – fruits, continued

<table>
<thead>
<tr>
<th>Limitations of indicators and data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>It conveys the average number of daily servings of fruits consumed. There can be errors in the measurement of serving sizes.</td>
</tr>
<tr>
<td>As with all self reported sample surveys, data might be subject to errors resulting from non response, inadequate data weighting.</td>
</tr>
</tbody>
</table>

Continued on the next page
## Diet – vegetables

<table>
<thead>
<tr>
<th>Name</th>
<th>Mean number (and Standard Deviation) of servings of vegetables per day</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Average of the number of servings of vegetables consumed by the population</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>A serving size is: 3/4 cup (6 oz.) 100% vegetable juice, 1/2 cup cooked, canned or frozen legumes (beans and peas), OR 1 cup of raw, green leafy (e.g. spinach, artichoke, etc.), cruciferous vegetables (e.g. broccoli, kale, etc.), and taproot vegetables (e.g. carrots); excluding potatoes and other starchy tubers</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Sum of all the number of servings of vegetables consumed by all the respondents / total number of respondents of the survey</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td>- <strong>Numerator</strong>: Sum of all the number of servings consumed by all the respondents</td>
</tr>
<tr>
<td></td>
<td>- <strong>Denominator</strong>: total number of respondents of the survey</td>
</tr>
<tr>
<td></td>
<td>- <strong>Measurement unit</strong>: per 100</td>
</tr>
<tr>
<td></td>
<td>- <strong>Type</strong>: Mean</td>
</tr>
<tr>
<td></td>
<td>- <strong>Categories</strong>:</td>
</tr>
<tr>
<td></td>
<td>- ADULT: Male, Female; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>- ADOLESCENT: Male and Female; ages 13-15</td>
</tr>
<tr>
<td></td>
<td>- <strong>Frequency of collection</strong>: every 3-5 years</td>
</tr>
<tr>
<td><strong>Data sources</strong></td>
<td>Obtained from National or sub risk factors surveys (GHSH, STEPS)</td>
</tr>
<tr>
<td><strong>Significance and rational</strong></td>
<td>A diet of ≥5 servings of fruits and vegetables/day is associated with reduced risk of coronary heart disease and certain types of cancer, including cancer of colon, rectum, oral cavity, pharynx, stomach, and esophagus. The mean of the serving of fruits in the population provides an overview of the current diet of the population and can be used for planning or evaluating effects of health promotion policies and programs.</td>
</tr>
</tbody>
</table>

*Continued on the next page*
Diet-vegetables, continued

Limitations of indicators and data sources

It conveys the average number of daily servings of vegetables consumed. There can be an error regarding measurement of serving sizes.

As with all self reported sample surveys, data might be subject to errors resulting from non-coverage, non response or data weighting.

Continued on the next page
### Diet-vegetables and fruits

<table>
<thead>
<tr>
<th>Name</th>
<th>Percentage of population (and Standard Deviation) who eats 5 or more servings of fruit and vegetable a day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Population who report eating 5 or more servings of fruits and vegetables a day expressed as percentage of all persons surveyed.</td>
</tr>
<tr>
<td>Case definition</td>
<td>An individual who consumes ≥ 5 servings of fruit and vegetables</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of people who eats 5 or more servings of fruit and vegetables/ total number of respondents of the survey, including those who report eating 0 servings of fruits and vegetables.</td>
</tr>
<tr>
<td>Parameters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Numerator: Number of people who eat 5 or more servings of fruit and vegetables</td>
</tr>
<tr>
<td></td>
<td>• Denominator: Total number of respondents of the survey, including those who report eating 0 servings of fruits and vegetables</td>
</tr>
<tr>
<td></td>
<td>• Measurement unit: per 100</td>
</tr>
<tr>
<td></td>
<td>• Type: rate</td>
</tr>
<tr>
<td></td>
<td>• Categories:</td>
</tr>
<tr>
<td></td>
<td>o ADULT: Male, female; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>o ADOLESCENT: Male, female; ages 13-15 years</td>
</tr>
<tr>
<td></td>
<td>• Frequency of collection: every 3-5 years</td>
</tr>
<tr>
<td>Data sources</td>
<td>National or sub national risk factors surveys (STEPS, GSHS, GYTS)</td>
</tr>
<tr>
<td>Significance and rational</td>
<td>A diet of ≥5 servings of fruits and vegetables/day is proved to be a protective factor for development of any chronic non communicable diseases, particularly coronary heart disease and certain types of cancer, including cancer of colon, rectum, oral cavity, pharynx, stomach, and esophagus. The percentage of population that eats 5 or more serving of fruit is useful information for developing programs to improve nutrition and dietary habits in the population and increase consumption of fruits and vegetables.</td>
</tr>
</tbody>
</table>
### Diet- vegetables and fruits, continued

<table>
<thead>
<tr>
<th>Limitations of indicators and data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>The indicator conveys the percentage of the adult population who report, on average consuming 5 or more servings of fruits and vegetables a day. Self reported sample surveys may be subjected to different type of errors resulting from non-coverage, non response or data weighting.</td>
</tr>
</tbody>
</table>
Physical Activity

Surveillance of population levels of physical activity using a standardized protocol is an important and necessary part of public health response to current concerns regarding the lack of physical activity in many populations. Surveillance of physical activity in populations is most often undertaken using questionnaires, as these are relatively inexpensive and easy to administer compared to objective measurement techniques.

The levels of activity are defined as\(^{18}\):

- **High**
  A person reaching any of the following criteria is classified in this category:
  - vigorous-intensity activity on at least 3 days achieving a minimum of at least 1,500 MET-minutes/week OR
  - 7 or more days of any combinations of walking, moderate- or vigorous-intensity activities achieving a minimum of at least 3,000 MET-minutes per week

- **Moderate**
  A person not meeting the criteria for the “high” category, but meeting any of the following criteria is classified in this category:
  - 3 or more days of vigorous-intensity activity of at least 20 minutes per day OR
  - 5 or more days of moderate-intensity activity or walking of at least 30 minutes per day OR
  - 5 or more days of any combination of walking, moderate- or vigorous-intensity activities achieving a minimum of at least 600 MET-minutes per week

- **Low**
  - A person not meeting any of the above mentioned criteria falls in this category

Metabolic Equivalents (METs) are commonly used to express the intensity of physical activities. MET is the ratio of a person’s working metabolic rate relative to their resting metabolic rate. One MET is defined as the energy cost of sitting quietly and is equivalent to a caloric consumption of 1kcal/kg/hour. For the calculation of this indicator the total time spent in physical activity during a typical week, the number of days as well as intensity of the physical activity are taken into account.

## High levels Prevalence

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence (and Standard Deviation) of the population of adults with high levels of physical activity (defined as &gt;1500 Met-minutes).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Population with high levels of physical activity expressed as percentage of all the population surveyed.</td>
</tr>
<tr>
<td>Case definition</td>
<td>Any person reaching any of the following criteria is classified in this category:</td>
</tr>
<tr>
<td></td>
<td>• Vigorous-intensity activity on at least 3 days achieving a minimum of at least 1,500 MET-minutes/week OR</td>
</tr>
<tr>
<td></td>
<td>• 7 or more days of any combinations of walking, moderate- or vigorous-intensity activities achieving a minimum of at least 3,000 MET-minutes per week</td>
</tr>
<tr>
<td>*</td>
<td>Metabolic Equivalents (METs) are commonly used to express the intensity of physical activities. MET is the ratio of a person’s working metabolic rate relative to their resting metabolic rate. One MET is defined as the energy cost of sitting quietly and is equivalent to a calorific consumption of 1 kcal/kg/hour</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of persons whose physical activity is assessed as high / total # survey respondents</td>
</tr>
<tr>
<td>Parameters</td>
<td>• Numerator: Number of respondents whose physical activity is assessed as high (≥1500 MET minutes)</td>
</tr>
<tr>
<td></td>
<td>• Denominator: Total number of survey respondents</td>
</tr>
<tr>
<td></td>
<td>• Measurement unit: per 100</td>
</tr>
<tr>
<td></td>
<td>• Type: rate</td>
</tr>
<tr>
<td></td>
<td>• Categories: Male, female,; ages 25-64 years and by age group 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>• Frequency of collection: every 3-5 years</td>
</tr>
<tr>
<td>Data sources</td>
<td>Obtained from National or sub national Risk factor studies using instrument G-PAQ, or instruments that express the estimated levels of physical activity using continuous indicator as MET –minutes per week or time spent in physical activity</td>
</tr>
</tbody>
</table>

*Continued on the next page*
High levels Prevalence, continued

Significance and rational

Physical activity reduces the risk for heart disease, colon cancer, stroke, type 2 diabetes and its complications, as well as for overweight, and osteoporosis. Information about the population with low levels of physical activity is used to implement policies and develop strategies to increase physical activity.

Limitations of indicators and data sources

The calculation of the MET minutes has to be done and it can lead to errors in measurement.

As with all self reported sample surveys, data might be subject to error resulting from recall bias, non-coverage, non-response or inadequate data weighting.

Continued on the next page
### Moderate levels Prevalence

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence (and Standard Deviation) of the population of adults with moderate levels of activity (defined as &gt;600 MET-minutes–1500 Met-minutes).</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Definition</th>
<th>Population with moderate levels of physical activity expressed as percentage of all population surveyed.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Case definition</th>
<th>An individual whose physical activity is &gt;600 MET-minutes but less than 1500 MET minutes and is reported as follows:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• 3 or more days of vigorous-intensity activity of at least 20 minutes per day OR</td>
</tr>
<tr>
<td></td>
<td>• 5 or more days of moderate-intensity or walking of at least 30 minutes per day OR</td>
</tr>
<tr>
<td></td>
<td>• 5 or more days of any combination of walking, moderate- or vigorous-intensity activities achieving a minimum of at least 600 MET-minutes per week.</td>
</tr>
</tbody>
</table>

*Metabolic Equivalents (METs) are commonly used to express the intensity of physical activities. MET is the ratio of a person’s working metabolic rate relative to their resting metabolic rate. One MET is defined as the energy cost of sitting quietly and is equivalent to a caloric consumption of 1kcal/kg/hour

<table>
<thead>
<tr>
<th>Calculation method</th>
<th>Number of people whose physical activity is assessed as moderate ( &gt;600 MET-minutes but &lt;1500 MET minutes) / total number of respondents in the survey</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Parameters</th>
<th>• Numerator: Number of people whose physical activity is assessed as moderate (&gt;600 MET-minutes but &lt;1500 MET minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Denominator: total number of respondents of the survey</td>
</tr>
<tr>
<td></td>
<td>• Measurement unit: per 100</td>
</tr>
<tr>
<td></td>
<td>• Type: rate</td>
</tr>
<tr>
<td></td>
<td>• Categories: Male, female.; ages 25-64 years and by age group 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>• Frequency of collection: every 3-5 years</td>
</tr>
</tbody>
</table>

*Continued on the next page*
Moderate levels Prevalence, continued

Data sources
Obtained from National or sub risk factors surveys using instrument G-PAQ, STEPS, GSHS or instruments that express the estimated levels of physical activity using continuous indicator as MET-minutes per week or time spent in physical activity.

Significance and rational
Physical activity reduces the risk for heart disease, colon cancer, stroke, Type 2 diabetes and its complications, overweight, and osteoporosis. Therefore information on levels of physical activity is important to develop strategies to increase physical activity among the population.

Limitations of indicators and data sources
The calculation of the MET minutes has to be done and it can lead to errors in measurement.
As with all self reported sample surveys, data might be subject to error resulting from, recall bias, non-response or inadequate data weighing.

Continued on the next page
**Low levels Prevalence**

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence (and Standard Deviation) of the population of adults with low levels of physical activity (defined as &lt;600 MET-minutes per week OR less than 30 minute of walking a day on less than 5 days a week).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Population with low levels of physical activity expressed as percentage of all population surveyed.</td>
</tr>
<tr>
<td>Case definition</td>
<td>• An individual whose physical activity is &lt;600 MET-minutes per week.</td>
</tr>
<tr>
<td></td>
<td>*Metabolic Equivalents (METs) are commonly used to express the intensity of physical activities. MET is the ratio of a person’s working metabolic rate relative to their resting metabolic rate. One MET is defined as the energy cost of sitting quietly and is equivalent to a caloric consumption of 1kcal/kg/hour</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of people whose reported physical activity is &lt; 600 MET minutes per week / total number of respondents of the survey</td>
</tr>
<tr>
<td>Parameters</td>
<td>• <strong>Numerator:</strong> Number of people whose reported physical activity is &lt; 600 MET minutes per week</td>
</tr>
<tr>
<td></td>
<td>• <strong>Denominator:</strong> total number of respondents of the survey</td>
</tr>
<tr>
<td></td>
<td>• <strong>Measurement unit:</strong> per 100</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type:</strong> rate</td>
</tr>
<tr>
<td></td>
<td>• <strong>Categories:</strong> Female. Male; ages 25-64 years and by age group 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>• <strong>Frequency of collection:</strong> every 3-5 years</td>
</tr>
</tbody>
</table>

*Continued on the next page*
Low levels Prevalence, continued

Data sources

Obtained from National or sub national Risk factor studies using instrument G-PAQ, GSHS, STEPS or instruments that express the estimated levels of physical activity using continuous indicator as MET-minutes per week or time spent in physical activity.

Significance and rational

Physical activity reduces the risk for heart disease, colon cancer, stroke, Type 2 diabetes and its complications, overweight, and osteoporosis. Therefore information on levels of physical activity is important to develop strategies to increase physical activity among the population.

Limitations of indicators and data sources

The calculation of the MET minutes has to be done and it can lead to errors in measurement. As with all self reported sample surveys, data might be subject to systematic error resulting from recall bias, non-response or inadequate data weighting.

Continued on the next page
### Physical inactivity among the youth

<table>
<thead>
<tr>
<th>Name</th>
<th>Prevalence (and Standard Deviation) of physical inactivity among the youth</th>
</tr>
</thead>
</table>

**Definition**

Young persons (13-15 years old) who report not having any type of physical activity for at least 60 minutes daily during the last 7 days.

<table>
<thead>
<tr>
<th>Case definition</th>
<th>A young individual whose physical activity is less than 60 minutes per day.</th>
</tr>
</thead>
</table>

**Calculation method**

Number of young people who report **not having** any type of physical activity for at least 60 days minutes per day, every day during the last 7 days)/ total number of respondents of the survey.

**Parameters**

- **Numerator**: Number of young persons who report **not having** any type of physical activity for at least 60 minutes per day, during the last 7 days)
- **Denominator**: total number of respondents of the survey
- **Measurement unit**: per 100
- **Type**: rate
- **Categories**: Female, Male; ages 13-15
- **Frequency of collection**: every 3-5 years

<table>
<thead>
<tr>
<th>Data sources</th>
<th>Obtained from National or sub national Risk factor studies (GYTS)</th>
</tr>
</thead>
</table>

**Significance and rational**

Physical activity reduces the risk for heart disease, colon cancer, stroke, Type 2 diabetes and its complications, overweight, and osteoporosis. Therefore information on levels of physical activity is important to develop strategies to increase physical activity among youth.

<table>
<thead>
<tr>
<th>Limitations of indicators and data sources</th>
<th>As with all self reported sample surveys, data might be subject to recall bias or, systematic error resulting from, non-response or inadequate data weighting</th>
</tr>
</thead>
</table>

Minimum, Optimum, and Optional Data Set for NCDs, Violence and Injury
Section 3: Risk Factors for Chronic Disease
Last updated: September 30, 2009
# Systolic blood pressure

<table>
<thead>
<tr>
<th>Name</th>
<th>Mean (and Standard Deviation) of systolic blood pressure in the population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Average of the systolic blood pressure levels in the surveyed population</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>level of systolic blood pressure</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Sum of all the measurements of systolic blood pressure / total number of respondents who had their blood pressure measured</td>
</tr>
</tbody>
</table>

**Parameters**
- **Numerator:** Sum of all the measurement of systolic blood pressure
- **Denominator:** Total number of respondents who had their blood pressure measured
- **Measurement unit:** per 100
- **Type:** Mean and SD
- **Categories:** Female, Male; ages 25 - 64 and by age group 25-34, 35-44, 45-54, 55-64
- **Frequency of collection:** every 3-5

**Data sources**
National of sub national risk factors survey (STEPS or similar)

**Significance and rational**
Blood Pressure control among adults is important in preventing or delaying the onset or progression of Hypertensive disease and its complications (e.g., cardiovascular disease, stroke, and end-stage renal disease). Systolic BP is a reliable marker of age-related vascular target organ damage therefore the mean level of systolic pressure provides valuable information for assessment of BP control programs in population. It is also useful for comparing trends and track changes in the population over time.

**Limitations of indicators and data sources**
Data might be subject to measurement errors.
Diastolic blood pressure

Name: Mean (and Standard Deviation) of diastolic blood pressure in the population

Definition: Average of the diastolic blood pressure measured in the surveyed population

Case definition: Level of diastolic blood pressure

Calculation method: Sum of all the measurement of diastolic blood pressure / total number of adult respondents who had their blood pressure measured

Parameters:
- Numerator: Sum of all the measurements of diastolic blood pressure
- Denominator: total Number of respondents who had their blood pressure measured in the study
- Measurement unit: per 100
- Type: Mean and SD
- Categories: Female, Male; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64
- Frequency of collection: every 3-5 years

Data sources: National of sub national risk factors survey (STEPS or similar)

Significance and rational: Blood Pressure control among adults is important in preventing or delaying the onset or progression of Hypertensive disease and its complications (e.g., cardiovascular disease, stroke, and end-stage renal disease).

Limitations of indicators and data sources: Data might be subject to measurement errors.
### Blood Glucose

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>Mean (and Standard Deviation) of fasting blood glucose in the population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Average of the levels of fasting blood glucose measured in the surveyed population</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>Level of blood glucose</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Sum of all the levels of blood glucose in the study population / total number of adult respondents who had their blood glucose checked</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Numerator</strong>: Sum of all the levels of blood glucose in the study population</td>
</tr>
<tr>
<td></td>
<td>• <strong>Denominator</strong>: Total number of respondents who had their blood glucose checked</td>
</tr>
<tr>
<td></td>
<td>• <strong>Measurement unit</strong>: per 100</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: Mean and SD</td>
</tr>
<tr>
<td></td>
<td>• <strong>Categories</strong>: Female, Male; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>• <strong>Frequency of collection</strong>: every 3-5 years</td>
</tr>
<tr>
<td><strong>Data sources</strong></td>
<td>National of sub national risk factors survey (STEPS or similar)</td>
</tr>
<tr>
<td><strong>Significance and rational</strong></td>
<td>Glycemic control among adults is important in preventing or delaying the onset or progression of diabetes and diabetes related complications (e.g., retinopathy, lower extremity amputations, and end-stage renal disease). A mean blood glucose level is useful to provide information about the level in the population and support the development of programs to improve management of blood glucose levels.</td>
</tr>
<tr>
<td><strong>Limitations of indicators and data sources</strong></td>
<td>Data might be subject to error resulting from measurement or variation depending on the test and the method used.</td>
</tr>
</tbody>
</table>
### Body Mass Index (BMI)

<table>
<thead>
<tr>
<th>Name</th>
<th>Mean (and Standard Deviation) of BMI in the population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>BMI average in the surveyed population.</td>
</tr>
<tr>
<td>Case definition</td>
<td>Level of BMI</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Sum of all the levels of BMI in the studied population /total number of adult respondents who had their BMI measured</td>
</tr>
<tr>
<td>Parameters</td>
<td>Numerator: Sum of all BMI in the studied population</td>
</tr>
<tr>
<td></td>
<td>Denominator: Total number of respondents whose BMI was measured</td>
</tr>
<tr>
<td></td>
<td>Type: Mean</td>
</tr>
<tr>
<td></td>
<td>Categories: Female, Male; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>Frequency of collection: every 3-5 years</td>
</tr>
<tr>
<td>Data sources</td>
<td>National or sub national risk factors survey (STEPS or similar)</td>
</tr>
<tr>
<td>Significance and rational</td>
<td>BMI is a derived indicator and most common measure to classify overweight (BMI 25.00 -29.99) and obesity (BMI 30.00 and more). The mean BMI for an adult population should be in the range of 21.00 to 23.00 kg/m². The Prevalence of obesity has been increasing in the Region of the Americas and obesity increases the risk for multiple chronic diseases, including heart disease, stroke, and hypertension, type 2 diabetes etc. It is important to follow trends of mean BMI in population so preventive programs are intensified.</td>
</tr>
</tbody>
</table>

Continued on the next page

---

Body Mass Index (BMI), continued

Limitations of indicators and data sources

If not measured but used self reported data to assess BMI, this might be subject to errors and has limitations as respondents tend to overestimate their height and underestimate their weight, leading to underestimation of BMI and of the prevalence of overweight. Additionally for data analysis, appropriated data weighting needs to be done when there is not a 100% coverage/response, and errors due to measurement should also be considered.
**Waist Circumference**

<table>
<thead>
<tr>
<th>Name</th>
<th>Median of Waist Circumference in the population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Measure of central tendency for waist circumference that divides the distribution of surveyed population in two equal parts.</td>
</tr>
<tr>
<td>Case definition</td>
<td>Size of Waist circumference</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Arrange the levels of waist circumference in order according to their value on a measurement scale. If n is an odd number the median will be the value corresponding to the middle observation. If n is the even number the median will be the average of the two middle waist circumferences.</td>
</tr>
</tbody>
</table>
| Parameters | • **Type:** Median  
• **Categories:** Male, female,; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64  
• **Frequency of collection:** every 3-5 years |
| Data sources | National of sub national risk factors survey (STEPS or similar) |
| Significance and rational | Changes in waist circumference reflect changes in risk factors for cardiovascular disease and other forms of chronic diseases. Waist circumference is more powerful determinant of subsequent risk of type 2 diabetes than BMI. |

*Continued on the next page*
### Health insurance coverage—private/social

<table>
<thead>
<tr>
<th>Name</th>
<th>Health insurance coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Percentage of population who report having any kind of health insurance</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>An individual who has any kind of health insurance. Please specify percentage of people who have social insurance, private insurance and prepaid plans</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Number of people who has any kind of health insurance / Midyear resident population</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
</tr>
</tbody>
</table>
  - **Numerator:** Number of people who have any kind of health insurance  
  - **Denominator:** Midyear resident population  
  - **Measurement unit:** per 100  
  - **Type:** rate  
  - **Categories:** Female. Male; ages 25 -64 and older, groups by age 25-34, 35-44, 45-54, 55-64  
  - **Frequency of collection:** annual |
| **Data sources** | Obtained from National or sub national studies or health insurance data |
| **Significance and rational** | Lack of health insurance remains a major determinant of access to necessary health services, including preventive health care in many countries. Certain socioeconomic conditions, including a lack of health insurance coverage and poverty, are associated with poor health status and chronic disease. This information can be used to develop strategies to increase health insurance coverage in the population or detect sections of the population who may be at risk. |

*Continued on the next page*
Health insurance coverage—private/social, continued

<table>
<thead>
<tr>
<th>Limitations of indicators and data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage for health care procedures and services can vary across insurance and other health plans. Required payments and copayments by patients can vary across insurance and other health plans, thereby affecting the financial ability of patients to receive services. Because individual persons might move in and out of health insurance, this indicator might underestimate the prevalence of a lack of health insurance. Self reported sample surveys, data might be subject to errors resulting from non appropriate data weighting.</td>
</tr>
</tbody>
</table>

Continued on the next page
**Social health insurance coverage**

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>Population covered by social health insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Percentage of population who have social health insurance</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>An individual whose financing of health care costs are through a (government-mandated) social insurance program</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Number of people who have any kind social health insurance / Midyear resident population</td>
</tr>
</tbody>
</table>

**Parameters**
- Numerator: Number of people who have social health insurance
- Denominator: Midyear resident population
- Measurement unit: per 100
- Type: rate
- Categories: Female, Male; ages 25 and older, groups by age 25-34, 35-44, 45-54, 55-64
- Frequency of collection: annual

**Data sources**
Obtained from National or sub national health accounts

**Significance and rational**
Lack of insurance remains a major determinant of access to necessary health services, including preventive care. People covered by social health insurance have access to the services that are included in the nationally defined, benefit package therefore this information can be used to develop strategies to increase health insurance coverage in the population and quality of care in the population that is already covered
Social health insurance coverage, continued

**Limitations of indicators and data sources**

Covered health care procedures and services can vary across different types of insurances and other health plans affecting the financial ability of patients to receive services and although in social health insurance there is a predefined benefit package and the financing of health care costs are defined through the government, variability can exist. Because social health insurance has difficulties covering workers in the informal sector until the country has reached a high level of economic development, and individual persons might move in and out of health insurance, this indicator might underestimate the prevalence of a lack of social health insurance.
### Women’s preventive care: pap smear/ mammograms

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>Pap smear among women within the last 3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Female population who report having ever had a Pap smear within the last 3 years expressed as percentage of all female population screened.</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>A woman who has had a Pap test performed within the last 3 years.</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Number of female Respondents who report having ever had a Pap test in the last 3 years / total number of female respondents</td>
</tr>
</tbody>
</table>

**Parameters**
- **Numerator:** Number of Female respondents who report having ever had a Pap test within the last 3 years
- **Denominator:** Total number of female respondents in the survey
- **Measurement unit:** per 100
- **Type:** rate
- **Categories:** Female, ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64
- **Frequency of collection:** every 3-5 years

**Data sources**
National of sub national risk factors surveys (STEPS or similar)

**Significance and rational**
Cervical cancer is one of the leading causes of death among women in the region of the Americas. It is estimated that in Latin America and the Caribbean the incidence rate of cervical cancer is between 28.6-32.6/100,000 and the mortality rate is between 12.9-16/100,000. Approximately 40-60% of cervical cancer deaths can be prevented by increased use of the Pap test and effective, timely treatment. Therefore it is important to develop initiatives and programs to increase the proportion of women who undergo screening for cervical cancer.

**Limitations of indicators and data sources**
Recommendation for screening age groups and frequency varies by country, depending of capacity of health care system to perform screening as well as of distribution of risk groups.

As with all self reported sample surveys, data might be subject to error resulting from non-response or inadequate data weighting.

*Continued on the next page*
**Women’s preventive care: pap smear/mammogram, continued**

<table>
<thead>
<tr>
<th>Name</th>
<th>Mammogram use among women between 45-64 years</th>
</tr>
</thead>
</table>

**Definition**
Female population between 45-64 years who report having ever had a mammogram expressed as percentage of all female population surveyed.

**Case definition**
A woman between 45-64 years old who has ever had a mammogram

**Calculation method**
Number of female respondents 45-64 years old who report having ever had a mammogram / # of total female respondents between 45-64 years old

**Parameters**
- **Numerator**: Number of female respondents 45-64 years who report having ever had a mammogram
- **Denominator**: Total number of female respondents between 45-64 years old
- **Measurement unit**: per 100
- **Type**: rate
- **Categories**: Female; ages 45-64 and by age groups 45-54, 55-64.
- **Frequency of collection**: every 3-5 years

**Data sources**
National or sub national risk factors surveys, or disease specific register (STEPS)

**Significance and rational**
Breast cancer is the most common cancer among women. Mammography screening with or without clinical breast examination can reduce breast cancer deaths by 16% in women aged >40 years, risk reduction is greater among women aged >50 therefore it is useful to keep track of the trends in the percentage of women that undergo screening for breast cancer

**Limitations of indicators and data sources**
Recommendations for mammography screening of age groups and frequency varies by country, depending of capacity of health care system to perform screening as well as of distribution of risk groups.

As with all self reported sample surveys, data might be subject to errors resulting from, non-response or inadequate data weighting.
**Blood pressure screening**

<table>
<thead>
<tr>
<th>Name</th>
<th>Blood pressure control rate among adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Population who report having their blood pressure checked within the previous year expressed as percentage of population surveyed.</td>
</tr>
<tr>
<td>Case definition</td>
<td>An individual who reports having had his/her blood pressure checked within the previous year</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of adult respondents who report having ever had his/her blood Pressure checked / total number of adult respondents</td>
</tr>
<tr>
<td>Parameters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Numerator</strong>: Number of respondents who report having had his/her blood Pressure checked during the last year</td>
</tr>
<tr>
<td></td>
<td>• <strong>Denominator</strong>: Total number of respondents of the survey</td>
</tr>
<tr>
<td></td>
<td>• <strong>Measurement unit</strong>: per 100</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: rate</td>
</tr>
<tr>
<td></td>
<td>• <strong>Categories</strong>: Female, Male; ages 25 and by age group 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>• <strong>Frequency of collection</strong>: every 3-5 years</td>
</tr>
<tr>
<td>Data sources</td>
<td>National of sub national studies/reports done by NGOs or other partners</td>
</tr>
<tr>
<td>Significance and rational</td>
<td>Blood Pressure control among adults is important in preventing or delaying the onset or progression of Hypertensive disease and its complications (e.g., cardiovascular disease, stroke, and end-stage renal disease).</td>
</tr>
<tr>
<td>Use</td>
<td>Develop programs to increase screening activities on Hypertension detection</td>
</tr>
<tr>
<td>Limitations of indicators and data sources</td>
<td>As with all self reported sample surveys, data might be subject to errors resulting from non-response or inadequate measurement.</td>
</tr>
</tbody>
</table>
### Blood glucose screening

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>Blood glucose check up rate among adults</th>
</tr>
</thead>
</table>

**Definition**

Population who report having their blood glucose checked within the previous year expressed as percentage of all population surveyed.

**Case definition**

An individual who reports having had his/her blood glucose checked within the previous year

**Calculation method**

Number of adult respondents who report having ever had his/her blood glucose checked / total number of adult respondents

**Parameters**

- **Numerator**: Number of respondents who report having had his/her blood glucose checked during the last year
- **Denominator**: Total number of respondents of the survey
- **Measurement unit**: per 100
- **Type**: rate
- **Categories**: Female, Male; ages 25-64 and by age group 25-34, 35-44, 45-54, 55-64
- **Frequency of collection**: every 3-5 years

**Data sources**

National of sub national studies/reports done by NGOs or other partners

**Significance and rational**

Glycemic control among adults is important in preventing or delaying the onset or progression of metabolic syndrome, diabetes or diabetes-related complications (e.g., retinopathy, lower extremity amputations, and end-stage renal disease). Monitoring of blood glucose can assist to develop programs to increase the proportion of adults that undergo blood glucose check up.

**Limitations of indicators and data sources**

The reliability and validity of this indicator is unknown. As with all self reported sample surveys, data might be subject to systematic error resulting from, non-response or inadequate measurement and data weighting.
## Cholesterol screening

<table>
<thead>
<tr>
<th>Name</th>
<th>Cholesterol check up rate among adults</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Definition</th>
<th>Population who report having their cholesterol checked within the previous year expressed as percentage of population surveyed</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Case definition</th>
<th>An individual who reports having had his/her cholesterol checked within the previous year</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Calculation method</th>
<th>Number of adult Respondents who report having had his/her cholesterol checked within 1 year / total number of adult respondents</th>
</tr>
</thead>
</table>

### Parameters

- **Numerator**: Number of respondents who report having had a blood cholesterol examination during the last year
- **Denominator**: Total number of respondents of the survey
- **Measurement unit**: per 100
- **Type**: rate
- **Categories**: Female, Male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64
- **Frequency of collection**: every 3-5 years

<table>
<thead>
<tr>
<th>Data sources</th>
<th>National of sub national studies/reports done by NGOs or other partners</th>
</tr>
</thead>
</table>

### Significance and rational

Although rates of cholesterol check ups have increased, there are still a large percentage of adults that have not had it. Elevated levels of serum cholesterol can lead to development of atherosclerosis. Approximately 30 -40% of coronary heart disease and 10-20% of strokes are attributable to elevated serum cholesterol. Elevated serum cholesterol has been associated with physical inactivity, high fat intake, smoking cigarettes, diabetes, and obesity. Lifestyles changes and medications can reduce cholesterol and prevent heart disease among persons with elevated serum cholesterol. The information obtained in this indicators can be used to develop programs to increase the proportion of adults that undergo blood cholesterol check up.

*Continued on the next page*
### Cholesterol screening, continued

<table>
<thead>
<tr>
<th>Limitations of indicators and data sources</th>
<th>Validity and reliability of this indicator can be low because patients might not be aware of specific tests conducted on their blood samples collected in clinical settings.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>As with all self reported sample surveys, data might be subject to systematic error resulting from, non-response or inadequate measurement.</td>
</tr>
</tbody>
</table>
Eye examination of diabetics

Name
Eye examination rate among adults with diabetes

Definition
Population of diabetics who report having received at least one clinical eye examination within the previous year expressed as percentage of diabetics in the population surveyed.

Case definition
An individual with diabetes who report having a clinical eye examination during the last year

Calculation method
Number of people who report to have had an eye examination within the previous year / total number of respondents who report being diabetics

Parameters
- **Numerator**: Number of people who report being diabetics and have had a clinical eye examination within the previous year
- **Denominator**: Total number of respondents who report being diabetics
- **Measurement unit**: per 100
- **Type**: rate
- **Categories**: Female; Male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64
- **Frequency of collection**: every 3-5 years

Data sources
Obtained from National or sub risk factors surveys (STEPS or similar)

Significance and rational
Persons with diabetes are at increased risk for blindness as a result of retinopathy. Diabetes is the leading cause of new cases of blindness among adults aged 20–74 years. This indicator is useful for developing strategies and prevention programs to increase quality of care among adults with diabetes.

Limitations of indicators and data sources
The reliability and validity of the indicator are unknown. As with all self reported sample surveys, data might be subject to systematic error resulting from, non-response or inadequate data collection.
### Foot examination of diabetics

<table>
<thead>
<tr>
<th>Name</th>
<th>Foot examination rate among adults with diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Population of diabetics who report having received at least one clinical foot examination within the previous year expressed as percentage of population surveyed who are diabetics.</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>A person with diabetes who has had a clinical foot examination during the last year</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Number of people who are diabetics and have had a clinical foot examination within the previous year / Number of total respondents with diabetes</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Numerator</strong>: Number of people with diabetes who report having had a clinical foot examination within the previous year</td>
</tr>
<tr>
<td></td>
<td>• <strong>Denominator</strong>: Total number of respondents who have diabetes</td>
</tr>
<tr>
<td></td>
<td>• <strong>Measurement unit</strong>: per 100</td>
</tr>
<tr>
<td></td>
<td>• <strong>Type</strong>: rate</td>
</tr>
<tr>
<td></td>
<td>• <strong>Categories</strong>: Female, Male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>• <strong>Frequency of collection</strong>: every 3-5 years</td>
</tr>
<tr>
<td><strong>Data sources</strong></td>
<td>Obtained from National or sub risk factors surveys (STEPS)</td>
</tr>
<tr>
<td><strong>Significance and rational</strong></td>
<td>People with diabetes are at increased risk for vascular peripheral complications that cause pathologic changes of their lower extremities that, when combined with minor trauma and infection, can lead to serious foot problems, including amputation. Routine and periodic foot examination can enable early detection of peripheral vascular complications. Diabetes is the leading cause of non-traumatic amputation and observing the trends in the percentage of amputations can help to develop strategies and prevention programs to increase clinical foot examination among adults with diabetes</td>
</tr>
<tr>
<td><strong>Limitations of indicators and data sources</strong></td>
<td>The reliability and validity of the indicator are not well known. Self reported sample surveys, data might be subject to error resulting from non-coverage/inappropriate data weighting.</td>
</tr>
</tbody>
</table>
### Hospital discharges diagnoses and stays due to CNCDs

#### Acute Myocardial Infarction—hospital discharge

<table>
<thead>
<tr>
<th>Name</th>
<th>Hospital discharge with diagnosis of Acute Myocardial infarction (ICD10 I21-I220)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Hospitalized cases with a principal diagnosis expressed as percentage of all hospitalization in the given year.</td>
</tr>
<tr>
<td>Case definition</td>
<td>Hospital discharge with a diagnosis of Myocardial infarction during the last year</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of cases discharged from the hospital with a diagnosis of Myocardial infarction during the last year / total number of hospitalizations during a given year</td>
</tr>
</tbody>
</table>
| Parameters | - **Numerator**: Number of cases discharged from the hospital with a diagnosis of Myocardial infarction during a given year  
- **Denominator**:  
- **Measurement unit**: per 100  
- **Type**: rate  
- **Categories**: Female, male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64  
- **Frequency of collection**: every 3-5 years |
| Data sources | Hospital registries |
| Significance and rational | Substantial differences in CHD death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors therefore records from hospitalizations can help to keep track of high risk groups as well as to identify success of preventive programs and PHC interventions aimed to control and reduce hospitalizations due to Coronary heart disease. |

Continued on the next page
**Acute Myocardial Infarction—hospital discharge, continued**

<table>
<thead>
<tr>
<th>Limitations of indicators and data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial numbers of persons with acute myocardial infarction die before reaching a hospital. Because heart disease is a chronic disease that can have a long preclinical phase, years might pass before changes in behavior or clinical practice affect population morbidity and mortality. A substantial number of misdiagnoses, particularly among women, have been reported.</td>
</tr>
</tbody>
</table>

Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to hospitalize patients. Multiple admissions for an individual patient can falsely elevate the number of persons hospitalized. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete.

*Continued on the next page*
## Myocardial Infarction—hospital stay

<table>
<thead>
<tr>
<th>Name</th>
<th>Average Length of Stay in Hospital Because of Myocardial Infarction (MI) (ICD10 I21-I22)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Mean of hospital day bed occupancy in a given year with cases of Myocardial Infarction (MI)</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>Hospital stay because of MI</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Sum of all the bed days in use by cases of MI in a given year / number of cases of MI discharged in a given year.</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
</tr>
</tbody>
</table>
  - Numerator: Sum of all the bed day in use by cases of MI in a given year  
  - Denominator: number of cases of MI discharged in a given year.  
  - Measurement unit: per 100  
  - Type: average/mean  
  - Categories: female, male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64  
  - Frequency of collection: every 3-5 years |
| **Data sources** | Hospital registries |
| **Significance and rational** | Hospital bed utilization can be assessed through admission rates, length of stay and bed day use for inpatients. Following trends of average length of stay due to MI contributes to the assessment of overall performance, resource utilization and can support resource planning. |

*Continued on the next page*
Stroke—hospital discharge

**Name**
Hospital discharge with diagnosis of stroke (ICD10 I60-I69)

**Definition**
Hospitalized cases with a diagnosis of stroke expressed as percentage of all hospitalization in the given year.

**Case definition**
Hospital cases discharged with a diagnosis of stroke during the last year.

**Calculation method**
Number of hospital cases discharged with a diagnosis of stroke during the last year / total number of cases hospitalized in a given year

**Parameters**
- **Numerator**: Number of hospital cases discharged from the hospital with a diagnosis of stroke in a given year
- **Denominator**: total number of cases hospitalized in a given year
- **Measurement unit**: per 100
- **Type**: rate
- **Categories**: Female. Male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64
- **Frequency of collection**: every 3-5 years

**Data sources**
Hospital registries

**Significance and rational**
Substantial differences in cerebrovascular disease death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors therefore records from hospitalizations can help to keep track of high risk groups as well as of success of preventive programs and PHC interventions aimed to control and reduce hospitalizations due to stroke.

*Continued on the next page*
Stroke—hospital discharge, continued

Limitations of indicators and data sources

Substantial numbers of persons with acute stroke die before reaching a hospital. Although the two major types of stroke — hemorrhagic (approximately 10% of stroke) and ischemic (approximately 65% of stroke share certain risk factors, their treatment varies. It is important to notice that distinction because it can lead to coding errors.

Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms can affect decisions by health-care providers to hospitalize patients. Multiple admissions for an individual patient can falsely elevate the number of persons hospitalized. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete.
Stroke—hospital stay

**Name**
Average Length of Stay in Hospital Because of Stroke (ICD10 I60-I69)

**Definition**
Mean of hospital day bed occupancy in a given year with cases of Stroke

**Case definition**
Hospital stay because of stroke

**Calculation method**
Sum of all the bed days in use by cases of stroke in a given year / number of cases of stroke discharged in a given year.

**Parameters**
- **Numerator**: Sum of all the bed day in use by cases of stroke in a given year
- **Denominator**: number of cases of stroke discharged in a given year.
- **Measurement unit**: per 100
- **Type**: average/mean
- **Categories**: female, male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64
- **Frequency of collection**: every 3-5 years

**Data sources**
Hospital registries

**Significance and rational**
Hospital bed utilization can be assessed through admission rates, length of stay and bed day use for inpatients. Following trends of average length of stay due to stroke contributes to the assessment of overall performance, resource utilization and can support resource planning.
COPD—hospital discharge

<table>
<thead>
<tr>
<th>Name</th>
<th>Hospital discharge with diagnosis of COPD (ICD10 J40-J47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Hospital cases with a principal diagnosis of COPD expressed as part of overall hospitalization in the given year</td>
</tr>
<tr>
<td>Case definition</td>
<td>Hospital case discharged with a principal diagnosis of COPD during the last year.</td>
</tr>
<tr>
<td>Calculation method</td>
<td>Number of case who have been discharged from the hospital with a diagnosis of COPD during a given year/ total number of cases hospitalized during a given year</td>
</tr>
</tbody>
</table>
| Parameters | - **Numerator**: Number of cases discharged from the hospital with a diagnosis of COPD during a given year  
- **Denominator**: Total number of cases hospitalized during a given year  
- **Measurement unit**: per 100  
- **Type**: rate  
- **Categories**: Female, Male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64  
- **Frequency of collection**: every 3-5 years |
| Data sources | Hospital registries |
| Significance and rational | Mortality from COPD has increased by 40% in the past 2 decades. Elimination of tobacco use is the most effective way to reduce COPD because approximately 90% of COPD is attributable to smoking. Other risk factors for COPD include occupational exposure and ambient air pollution if preventive programs are developed to modify risk factors it should be possible to see a decrease in the amount of hospitalizations. |

Continued on the next page
COPD—hospital discharge, continued

Limitations of indicators and data sources

Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms could affect decisions by health-care providers to hospitalize patients. Multiple admissions for an individual patient can falsely elevate the number of persons hospitalized. Because state hospital discharge data are not universally available, aggregation of state data to produce nationwide estimates will be incomplete.

Continued on the next page
## COPD—hospital stay

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>Average Length of Stay in Hospital Because of COPD (ICD10 J40-J47)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Mean of hospital day bed occupancy in a given year with cases of COPD</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>Hospital stay because of COPD</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Sum of all the bed days in use by cases of COPD in a given year / number of cases of COPD discharged in a given year.</td>
</tr>
</tbody>
</table>
| **Parameters**              | **Numerator**: Sum of all the bed day in use by cases of COPD in a given year  
                          | **Denominator**: number of cases of COPD discharged in a given year.  
                          | **Measurement unit**: per 100  
                          | **Type**: average/mean  
                          | **Categories**: female, male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64  
                          | **Frequency of collection**: every 3-5 years                         |
| **Data sources**            | Hospital registries                                                  |
| **Significance and rational** | Hospital bed utilization can be assessed through admission rates, length of stay and bed day use for inpatients. Following trends of average length of stay due to COPD contributes to the assessment of overall performance, resource utilization and can support resource planning. |
**Diabetes—hospital discharge**

<table>
<thead>
<tr>
<th>Name</th>
<th>Hospital discharge with diabetes (ICD10 E10-14)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Hospitalized cases with a principal or contributing diagnosis of diabetes during a given year</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>A case discharged from the hospital with a diagnosis of diabetes during the a given year</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Number of hospitalizations with a principal or contributing diagnosis of diabetes during the last year / total number of hospitalizations during a given year</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Numerator: Number of people Hospitalized with a principal or contributing diagnosis of International Classification of Diseases during a given year</td>
</tr>
<tr>
<td></td>
<td>• Denominator: Total number of cases hospitalized during the last year</td>
</tr>
<tr>
<td></td>
<td>• Measurement unit: per 100</td>
</tr>
<tr>
<td></td>
<td>• Type: rate</td>
</tr>
<tr>
<td></td>
<td>• Categories: Female. Male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>• Frequency of collection: every 3-5 years</td>
</tr>
<tr>
<td><strong>Data sources</strong></td>
<td>Hospital registries</td>
</tr>
<tr>
<td><strong>Significance and rational</strong></td>
<td>Long-term complications of diabetes requiring hospitalization can be prevented through glucose, lipid, and blood pressure regulation, as well as screening and treatment for eye, foot, and kidney abnormalities. Patient education, self-management, and medical care can prevent complications. Therefore this indicator can be used to guide programs that promote screening, preventive and management services to reduce hospitalizations due to diabetes</td>
</tr>
</tbody>
</table>

*Continued on the next page*
Diabetes—hospital discharge, continued

| Limitations of indicators and data sources | Approximately one third of cases of diabetes are undiagnosed and years might pass before improvements in patient self-management and clinical practice affect diabetes-related hospitalization rates

Diagnoses listed on hospital discharge data might be inaccurate. Practice patterns and payment mechanisms might affect decisions by health-care providers to hospitalize patients. Multiple admissions for one person might falsely elevate the number of persons hospitalized. Because no universal availability of state hospital discharge data exists, aggregation of state data to produce nationwide estimates will be incomplete.

Continued on the next page
Amputations due to diabetes

**Name**  
Amputations among adults with diabetes

**Definition**  
Number of amputations within the previous year expressed as percentage of all diabetics

**Case definition**  
An amputation due to diabetic complications during the last year

**Calculation method**  
Number of amputations with underlying cause of diabetes within the previous year / total number of population diagnosed with diabetes

**Parameters**
- **Numerator**: Number of amputations with underlying cause of diabetes within the previous year
- **Denominator**: Total number of population diagnosed with diabetes
- **Measurement unit**: per 100
- **Type**: rate
- **Categories**: Female, Male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64
- **Frequency of collection**: annual

**Data sources**  
Obtained from hospital registries or disease specific registries

**Significance and rational**  
Persons with diabetes are at increased risk for pathologic changes of their lower extremities that, when combined with minor trauma and infection, can lead to serious foot problems, including amputation. Routine and periodic foot examination can enable early detection of peripheral vascular complications. Diabetes is the leading cause of no traumatic amputation so it is important to keep track of the percentage to improve disease management and decrease the number of amputations

**Limitations of indicators and data sources**  
The reliability and validity of the indicator are unknown as with all self reported sample surveys, data might be subject to error resulting from, non-response or inadequate data weighting
## Dialysis patients

<table>
<thead>
<tr>
<th>Name</th>
<th>Percentage of persons on dialysis among persons with diabetes in a given year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Number of persons on dialysis within the previous year expressed as percentage of all diabetics.</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>Dialyses due to diabetic complications during the last year</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Number of dialysis cases with underlying cause of diabetes within the previous year / total number of population diagnosed with diabetes</td>
</tr>
<tr>
<td><strong>Parameters</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- <strong>Numerator</strong>: Number of dialysis cases with underlying cause of diabetes within the previous year</td>
</tr>
<tr>
<td></td>
<td>- <strong>Denominator</strong>: Total number of population diagnosed with diabetes</td>
</tr>
<tr>
<td></td>
<td>- <strong>Measurement unit</strong>: per 100</td>
</tr>
<tr>
<td></td>
<td>- <strong>Type</strong>: rate</td>
</tr>
<tr>
<td></td>
<td>- <strong>Categories</strong>: Female. Male; ages 25-64 and by age groups 25-34, 35-44, 45-54, 55-64</td>
</tr>
<tr>
<td></td>
<td>- <strong>Frequency of collection</strong>: annual</td>
</tr>
<tr>
<td><strong>Data sources</strong></td>
<td>Obtained from hospital registries or disease specific registries</td>
</tr>
<tr>
<td><strong>Significance and rational</strong></td>
<td>Persons with badly managed diabetes are at increased risk for kidney failure. Diabetes is the leading cause of dialysis in many counties in the Region, and severe economic burden for the country economy, so it is important to keep track of the percentage to improve disease management and decrease the number of dialysis due to diabetes.</td>
</tr>
<tr>
<td><strong>Limitations of indicators and data sources</strong></td>
<td>The reliability and validity of the indicator are unknown as with all self reported sample surveys, data might be subject to error resulting from, non-response or inadequate data weighting</td>
</tr>
</tbody>
</table>
### Geographic accessibility of Health Care

<table>
<thead>
<tr>
<th>Name</th>
<th>Geographic accessibility of health care (HC)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Population who report having a HC unit reachable in 60 minutes expressed as percentage of all the population surveyed.</td>
</tr>
<tr>
<td><strong>Case definition</strong></td>
<td>An individual who reports having a HC unit reachable in 60 minutes (either by car or walking)</td>
</tr>
<tr>
<td><strong>Calculation method</strong></td>
<td>Number of people who reports having a HC unit reachable in 60 minutes / Midyear resident population</td>
</tr>
</tbody>
</table>
| **Parameters**              | - Numerator: Number of people who reports having a HC unit reachable in 60 minutes  
- Denominator: Midyear resident population  
- Measurement unit: per 100  
- Type: rate  
- Categories: Female. Male; age 25 years and older, by age groups 25-34, 35-44, 45-54, 55-64  
- Frequency of collection: every 3-5 years |
| **Data sources**            | Obtained from National or sub national studies |
| **Significance and rational** | Geographic location of HC unit is considered to be one of the indicators that has influence and partly determines the access to necessary health services, including preventive care. It is associated with poor health status and chronic disease. Therefore it is important to develop strategies to increase access to HC in the population |
| **Limitations of indicators and data sources** | This indicator does not include other factors related to access to HC as health insurance coverage. |
Socioeconomic and context indicators:

- **Total population. (Male/female ratio):** Total population usually includes all residents regardless of legal status or citizenship. It does not include refugees who are not permanently settled in the country of asylum (these are generally considered to be part of the population of their country of origin). Population estimates are usually based on national population censuses and revised (in-between) censuses which have data on births, deaths and migration. This indicator is indispensable for calculating per capita indicators. It is important to notice that estimation errors of up to 5 percent may be observed for countries with infrequent, and/or incomplete censuses and poor registration systems for births, deaths, and migration.

- **Urban Population:** This is the ratio of the total population that lives within "urban agglomerations" and it is expressed as a percentage of the total population. The urban and rural population are counted in national population censuses, or estimated through surveys. Between these operations, estimates are often updated through projections based on the respective growth rates previously observed for urban and rural populations. This indicator gives important information through time of how the country population shifts to the urban way of life and related economic set-up (declining share of agriculture, increasing share of industry and services). Urbanization is considered to be one of the key drivers for the changes regarding burden of diseases, environmental and behavioral influences on the adoption of new dietary habits, a sedentary lifestyle, as well as consumption of alcohol and tobacco and in that way influence rising prevalence of risk factors for NCDs.

- **Gross national income:** It comprises the total value produced within a country (i.e. its Gross Domestic Product), together with its income received from other countries (notably interest and dividends), less similar payments made to other countries. This information is useful and the main criteria for classifying economies. It provides a rough measure of annual national income per person in different countries. Countries that have a sizable modern industrial sector have a much higher GNI per capita than countries that are less developed.

- **Population below poverty line:** The percentage of the population (rural or urban) living below the national (rural or urban) poverty line. The poverty line is a threshold figure usually defined by the World Bank as 1 US$ a day below which a percentage of population is considered poor. Although different countries have different definitions of poverty. It is well-documented that people who live in poverty suffer from a higher incidence of chronic illness including diabetes, heart disease and hypertension. It is essential that all sectors take responsibility for reducing poverty including public policy action at all levels of government.

- **Income ratio (highest 20%/lowest 20%):** GNP/capita is only a crude measure of average income in a country most notably because the distribution of income within a country is never equal. This information can be used to compare the ratio of income in one country to the world mean and measure international inequality, (inequality between nations, commonly measured by comparing GNP/capita). This can not only affect the access to health care and quality of services provided but also it can also affect the asses to services and affordability of selected essential medicines for chronic diseases. This information can be obtained from the World bank data.
A Healthy diet is important to prevent obesity and several chronic diseases such as Diabetes and Cardiovascular diseases etc. It is known that agricultural policy and production often have a great effect on national diets. Therefore, governments can influence agricultural production through many policy measures. Countries need to take healthy nutrition into account in their agricultural policies.

- **Production of fruits**: Fruits are very important for a healthy diet and it is important to increase and assure its availability and production. Fruits also have a vital role in income and employment generation and diversification of agricultural production systems. Policy and other implications related to increasing fruit and vegetable production and consumption should be considered i.e. provision of inputs, production incentives, capacity building, marketing infrastructure and trade. It can be expressed in the % of global market share in the world or in metric tonnes (thousands). Metric tonnes are preferred and information can be obtained from the national statistics from various ministries/international sources as FAO.

- **Import of fruits**: The fruit industries in many Latin American & Caribbean countries have continued to expand. Fruits and vegetables are very important to ensure nutritional and overall wellbeing, and decrease the risk for chronic diseases. For governments it is important to increase and assure fruits and vegetables availability thought the year, independently of the season. In countries where production is not enough to cover the requirements of the population, imports can be an important source to increase availability and variety among the population. It can be expressed as Quantity, Unit value or Value. Quantity (Metric tonnes) is preferred and information can be obtained from the national statistics from various ministries/international sources as FAO.

- **Export of fruits**: Agricultural resources and specifically production of fruits and vegetables are an important part of the World’s economy since a large portion of the agricultural production derives from the fruits and vegetables sector. Fruit exports volumes have grown enormously and there is an effort to expand and diversify fruit and vegetables availability for consumption. In countries where production is limited (i.e. due to season changes) exports are especially important to assure availability and variety among the population. It can be expressed as Quantity, Unit value or Value. Quantity (Metric tonnes) is preferred and information can be obtained from the national statistics from various ministries/international sources as FAO.

- **Production of Vegetables**: Vegetables are very important for a healthy diet and it is important to increase and assure its availability and production. Vegetables also have a vital role in income and employment generation and diversification of agricultural production systems. Policy and other implications related to increasing fruit and vegetable production and consumption should be considered i.e. provision of inputs, production incentives, capacity building, marketing infrastructure and trade. It can be expressed in the % of global market share in the world or in metric tonnes (thousands). Metric tonnes are preferred and information can be obtained from the national statistics from various ministries/international sources as FAO.

- **Import of Vegetables**: For governments it is important to assure fruits and vegetables availability thought the year, independently of the season. In countries where production is not enough to cover the requirements of the population, imports can be an important source to increase availability and variety among the population. It can be expressed as Quantity, Unit value or Value. Quantity
Export of Vegetables: Trade is a very important part of the economy. The Vegetable industry in many Latin American and Caribbean countries has continued to expand. Vegetables exports volumes have grown enormously and there is an effort to expand and diversify fruit and vegetables availability for consumption. In countries where production is limited (i.e. due to season changes) exports are especially important to assure availability and variety among the population. It can be expressed as Quantity, Unit value or Value. Quantity (Metric tonnes) is preferred and information can be obtained from the national statistics from various ministries/international sources as FAO.

Production of Alcohol: To prevent alcohol medical and social related problems, it is important to have a clear view of their magnitude. Estimates of per capita consumption of alcohol across the national populations can provide policy makers with valuable information of the magnitude of the problem and trends. Therefore, adult per capita consumption estimates are very useful for planning and assessment of public health policies related to alcohol and in order to be able to calculate Annual per capita consumption, information on alcohol production, alcohol imports and alcohol exports is required. As developed countries maintain high barriers regarding alcohol trade to influence the decline in consumption, there is an intensified effort for establishment of new markets in developing countries and countries in transition. This info can be expressed as Quantity, Unit value or Value. Quantity (Metric tonnes) is preferred and information can be obtained from the national statistics from various ministries/international sources as FAO.

Import & export of alcohol: Only approximately 10 per cent of alcoholic beverage production enters into International trade. The bulk of that trade occurs between developed countries, and thus alcohol sales generally add little to developing country export earnings. The largest importing and exporting countries are all developed nations. Products and profits in the international alcohol trade thus flow primarily into the developed countries and countries in transition. It can be expressed as Quantity, Unit value or Value. Quantity (Metric tonnes) is preferred and information can be obtained from the national statistics from various ministries/international sources as FAO.

Production of tobacco: Tobacco is associated with several diseases such as: Cancer of the lung, bladder, larynx, non cancerous respiratory diseases, cardiovascular diseases and some others. It is one of the most preventable sources of mobility and mortality. Total tobacco consumption can be useful for gauging the size of a tobacco market (Total tobacco consumption = production + imports - exports) and it is useful information to follow the trends and promote health policy to regulate industry and decrease consumption. Although crop substitution is often proposed as a means to reduce the tobacco supply, currently the incentives to farmers to grow tobacco are currently much greater than for most other crops. However, it may be a useful strategy where needed to aid the poorest tobacco farmers in transition to other livelihoods, as part of a broader diversification program. Metric tonnes are preferred and information can be obtained from the national statistics from various ministries/international sources as FAO.

Import & export of tobacco: Tobacco trade is a big business, for both the raw material (tobacco leaves) and the finished product (manufactured cigarettes) The developing countries are expected to further increase their share in world tobacco production, according to the UN report (Rome, 2003)… It can be expressed as Quantity, Unit value or Value. Quantity (Metric tonnes) is preferred and information can be obtained from the national statistics from various ministries/international sources as FAO.
preferred and information can be obtained from the national statistics from various ministries/international sources as FAO
Pan American Health Organization
in collaboration with
Caribbean Epidemiology Centre (CAREC/PAHO/WHO)

Surveillance of Non-Communicable Diseases (NCDs)
Reporting Form

Instructions and Notes:

1. This data collection tool has been designed to be used in conjunction with:
   • The Minimum, Optimum and Optional Dataset for Chronic Non-Communicable Diseases, Violence and Injuries, Technical Specifications

2. The data requested is categorized into core, expanded and optional fields which are indicated as follows:

<table>
<thead>
<tr>
<th>Core</th>
<th>Expanded</th>
<th>Optional</th>
</tr>
</thead>
</table>

3. Fields that require data to be entered are shaded in light blue
Age Standardized Mortality Rates per 100,000 Population for Deaths < 70 years

Age-standardized mortality rates can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to age or as a result of other factors.

The use of a standard population is needed. For our purposes, the WHO World Standard Population will be used. This standard population reflects the average age structure of the world’s population expected over the next generation, from 2000 to 2025. This ensures a standard approach with the option of long-term use and facilitates global comparisons.


<table>
<thead>
<tr>
<th>Age group</th>
<th>World Average 2000-2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>8.86</td>
</tr>
<tr>
<td>5-9</td>
<td>8.69</td>
</tr>
<tr>
<td>10-14</td>
<td>8.60</td>
</tr>
<tr>
<td>15-19</td>
<td>8.47</td>
</tr>
<tr>
<td>20-24</td>
<td>8.22</td>
</tr>
<tr>
<td>25-29</td>
<td>7.93</td>
</tr>
<tr>
<td>30-34</td>
<td>7.61</td>
</tr>
<tr>
<td>35-39</td>
<td>7.15</td>
</tr>
<tr>
<td>40-44</td>
<td>6.59</td>
</tr>
<tr>
<td>45-49</td>
<td>6.04</td>
</tr>
<tr>
<td>50-54</td>
<td>5.37</td>
</tr>
<tr>
<td>55-59</td>
<td>4.55</td>
</tr>
<tr>
<td>60-64</td>
<td>3.72</td>
</tr>
<tr>
<td>65-69</td>
<td>2.96</td>
</tr>
<tr>
<td>70-74</td>
<td>2.21</td>
</tr>
<tr>
<td>75-79</td>
<td>1.52</td>
</tr>
<tr>
<td>80-84</td>
<td>0.91</td>
</tr>
<tr>
<td>85-89</td>
<td>0.44</td>
</tr>
<tr>
<td>90-94</td>
<td>0.15</td>
</tr>
<tr>
<td>95-99</td>
<td>0.04</td>
</tr>
<tr>
<td>100+</td>
<td>0.005</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Calculation

1. For each selected mortality condition, determine the number of deaths (by Males, Females and Total) for the age groups: 0-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69.
2. Determine the population estimates (by Males, Females and Total) for the above age groupings.
3. Calculate the age-specific rate for each age group/gender strata, as follows:

\[
\text{Age-specific rate (per age group/gender)} = \frac{\text{Number of deaths from condition}}{\text{Population}} \times 100,000
\]
4. Calculate the age-standardized rate for each age group/gender strata by multiplying each age-specific rates by the appropriate weight in the standard population, as follows:

\[
\text{Age-standardized rate (per age group/gender)} = \text{Age-specific rate per 100,000 population} \times \text{Weight in standard population*}
\]

Where, *weight in standard population* for persons <70 years has been calculated as follows:

<table>
<thead>
<tr>
<th>Age group</th>
<th>Percentage All Age Groups</th>
<th>Percentage &lt; 70 years</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>8.86</td>
<td>9.35</td>
<td>0.0935</td>
</tr>
<tr>
<td>5-9</td>
<td>8.69</td>
<td>9.17</td>
<td>0.0917</td>
</tr>
<tr>
<td>10-14</td>
<td>8.60</td>
<td>9.08</td>
<td>0.0908</td>
</tr>
<tr>
<td>15-19</td>
<td>8.47</td>
<td>8.94</td>
<td>0.0894</td>
</tr>
<tr>
<td>20-24</td>
<td>8.22</td>
<td>8.67</td>
<td>0.0867</td>
</tr>
<tr>
<td>25-29</td>
<td>7.93</td>
<td>8.37</td>
<td>0.0837</td>
</tr>
<tr>
<td>30-34</td>
<td>7.61</td>
<td>8.03</td>
<td>0.0803</td>
</tr>
<tr>
<td>35-39</td>
<td>7.15</td>
<td>7.55</td>
<td>0.0755</td>
</tr>
<tr>
<td>40-44</td>
<td>6.59</td>
<td>6.95</td>
<td>0.0695</td>
</tr>
<tr>
<td>45-49</td>
<td>6.04</td>
<td>6.37</td>
<td>0.0637</td>
</tr>
<tr>
<td>50-54</td>
<td>5.37</td>
<td>5.67</td>
<td>0.0567</td>
</tr>
<tr>
<td>55-59</td>
<td>4.55</td>
<td>4.80</td>
<td>0.0480</td>
</tr>
<tr>
<td>60-64</td>
<td>3.72</td>
<td>3.93</td>
<td>0.0393</td>
</tr>
<tr>
<td>65-69</td>
<td>2.96</td>
<td>3.12</td>
<td>0.0312</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>94.76</strong></td>
<td><strong>100.00</strong></td>
<td><strong>1.00</strong></td>
</tr>
</tbody>
</table>

5. For each gender (Males, Females and Total) sum the products across all age-groupings to obtain the overall age-standardized rate

**Note:** The Microsoft Excel workbook Age Standardized Mortality Rates_calculation wkb provides further assistance.

**References:**
<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>Number of Deaths</th>
<th>Population</th>
<th>Age-Specific Rate per 100,000</th>
<th>Standard Population Weight</th>
<th>Age-Standardized Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males &lt; 70 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-4</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>5-9</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0934994</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>10-14</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0907556</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>15-19</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0893837</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>20-24</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0867455</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>25-29</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0836851</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>30-34</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0803081</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>35-39</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0754538</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>40-44</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0695441</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>45-49</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.06374</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>50-54</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0566695</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>55-59</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.048016</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>60-64</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0392571</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>65-69</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0312368</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>1</td>
<td>#DIV/0!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Females &lt; 70 years</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0934994</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>5-9</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0917054</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>10-14</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0907556</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>15-19</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0893837</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>20-24</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0867455</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>25-29</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0836851</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>30-34</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0803081</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>35-39</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0754538</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>40-44</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0695441</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>45-49</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.06374</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>50-54</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0566695</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>55-59</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.048016</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>60-64</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0392571</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>65-69</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0312368</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>1</td>
<td>#DIV/0!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total &lt; 70 years</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0934994</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>5-9</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0917054</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>10-14</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0907556</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>15-19</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0893837</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>20-24</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0867455</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>25-29</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0836851</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>30-34</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0803081</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>35-39</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0754538</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>40-44</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0695441</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>45-49</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.06374</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>50-54</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0566695</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>55-59</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.048016</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>60-64</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0392571</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>65-69</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>0.0312368</td>
<td>#DIV/0!</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0</td>
<td>0</td>
<td>#DIV/0!</td>
<td>1</td>
<td>#DIV/0!</td>
</tr>
</tbody>
</table>
Determine the country-specific life expectancy for each gender grouping: *Males, Females* and *Overall*

For each disease/gender grouping:

- Determine the mean age of death for those persons that died prematurely, that is those persons that died before the estimated life expectancy
- Determine the number of persons that died prematurely
- Determine the population size under the estimated life expectancy (this will remain constant for all diseases)

For each diseases/gender grouping, **PYLL per 100,000 population** =

$$\frac{\text{Estimated life expectancy} - \text{mean age at death for premature deaths} \times \text{Number of premature deaths}}{\text{Population under estimated life expectancy}} \times 100,000$$

where, premature deaths are deaths which have occurred before the estimated life expectancy
## Ischemic Heart Disease

### PYLL

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Life Expectancy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean age at death for premature deaths</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of premature deaths</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population under life expectancy</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PYLL per 100,000 population

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PYLL</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
</tr>
</tbody>
</table>

Note: Life expectancy should correspond to data year used.
Non-Communicable Disease Indicators to be Reported on a Quarterly Basis

Hospital Discharges

1. Incident Myocardial Infarctions (Heart Attacks):

**Name** Hospital discharge with diagnosis of Acute Myocardial infarction (ICD10 I21-I220)

**Definition** Hospitalized cases with a principal diagnosis of Acute Myocardial infarction in a given month/quarter expressed as a percentage of all hospitalizations in a that month/quarter.

**Case definition** Hospital cases discharged with a principal diagnosis of Myocardial infarction during the last quarter

**Calculation method**
Number of cases discharged from the hospital with a principal diagnosis of Myocardial Infarction during the last quarter / total number of hospitalizations during a given quarter

**Data sources** Hospital registries

**Significance and rational**
Substantial differences in coronary heart disease (CHD) death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors therefore records from hospitalizations can help to keep track of high risk groups as well as to identify success of preventive programs and PHC interventions aimed to control and reduce hospitalizations due to Coronary heart disease.

2. Incident Cerebrovascular Accidents (Stroke):

**Name** Hospital discharge with diagnosis of Cerebrovascular Accident (Stroke) (ICD10 I60-I69)

**Definition** Hospitalized cases with a principal diagnosis of Cerebrovascular Accident (Stroke) expressed in a given quarter expressed as a percentage of all hospitalizations in that quarter.

**Case definition** Hospital cases discharged with a principal diagnosis of Cerebrovascular Accident (Stroke) during the last quarter.

**Calculation method**
Number of hospital cases discharged with a principal diagnosis of Cerebrovascular Accident (Stroke) during the last quarter / total number of hospitalizations during a given quarter

**Data sources** Hospital registries

**Significance and rational**
Substantial differences in cerebrovascular disease (CVD) death rates and preventive measures exist by race, age, sex, place of residence, and other demographic factors therefore records from hospitalizations can help to keep track of high risk groups as well as of success of preventive programs and PHC interventions aimed to control and reduce hospitalizations due to stroke.
3. **Hospital Discharge with Diabetes**

**Name** Hospital discharge with diabetes (ICD10 E10-14)

**Definition** Hospitalized cases with a **principal or contributing** diagnosis of diabetes during a given quarter.

**Case definition** A case discharged from hospital with a **principal or contributing** diagnosis of diabetes during a given quarter.

**Calculation method**
Number of hospitalizations with a **principal or contributing** diagnosis of diabetes during the last quarter / total number of hospitalizations during a given quarter

**Data sources** Hospital registries

**Significance and rational**
Long-term complications of diabetes requiring hospitalization can be prevented through glucose, lipid, and blood pressure regulation, as well as screening and treatment for eye, foot, and kidney abnormalities. Patient education, self-management, and medical care can prevent complications. Therefore this indicator can be used to guide programs that promote screening, preventive and management services to reduce hospitalizations due to diabetes

4. **Amputations due to Diabetes**

**Name** Amputations among adults with diabetes

**Definition** Number of amputations during a given month/quarter expressed as percentage of all hospitalizations with a **principal or contributing** diagnosis of diabetes in a given quarter.

**Case definition** An amputation due to diabetic complications during a given quarter

**Calculation method**
Number of amputations with underlying cause of diabetes within a given quarter / total number of hospitalizations with a **principal or contributing** diagnosis of diabetes

**Data sources** Obtained from hospital registries or disease specific registries

**Significance and rational**
Persons with diabetes are at increased risk for pathologic changes of their lower extremities that, when combined with minor trauma and infection, can lead to serious foot problems, including amputation. Routine and periodic foot examination can enable early detection of peripheral vascular complications. Diabetes is the leading cause of non-traumatic amputation, so it is important to keep track of the percentage occurring to improve disease management and decrease the number of amputations in diabetics.
Appendix 26: Non-Communicable Disease Indicators to be reported each Quarter

Hospital Discharges reported based on date of discharge

Country Name: _______________________________
Year: _______________________________
Quarter Number (1, 2, 3 or 4): _______________________________
Total hospitalizations during quarter: _______________________________

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Age group (Years)</th>
<th>Total Cases</th>
<th>Total Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤49</td>
<td>50-69</td>
<td>≥70</td>
</tr>
<tr>
<td>Incident Myocardial Infarctions (Heart Attacks)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incident Cerebrovascular Accidents (Stroke)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Discharge with Diabetes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amputations due to Diabetes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 - Total cases do not include deaths
CAREC Sample Medical Cause of Death Certificate

**DEMOGRAPHIC DATA ON DECEASED**

1. **DECEDENT’S LEGAL NAME (Include AKA’s if any):**
   - Surname
   - First Name
   - Middle
   (AKA: ___________________________)

2. **SEX:**
   - Male
   - Female

3. **DATE OF BIRTH:**
   - Day
   - Month
   - Year

4. **AGE ON LAST BIRTHDAY:**
   - Years
   - Months
   - Days

5. **OCCUPATION:**

6. **COUNTRY OF BIRTH:**
   - Day
   - Month
   - Year

7. **NATIONALITY:**

8. **STATUS:**
   - Resident
   - Visitor

9. **PLACE OF USUAL RESIDENCE (ADDRESS):**

10. **PLACE OF DEATH (Check only one: see instructions):**
    - Hospital
    - Home
    - Workplace
    - Street
    - Other _______

11. **SPECIFY LOCATION ADDRESS (if possible):**

**PARTICULARS ON CAUSE OF DEATH**

**ITEMS 12-15 MUST BE COMPLETED BY PERSON WHO PRONOUNCES OR CERTIFIES DEATH**

12. **DATE PRONOUNCED DEAD:**
    - Day
    - Month
    - Year
    - am
    - pm

13. **TIME PRONOUNCED DEAD:**
    - Day
    - Month
    - Year

14. **NAME, QUALIFICATION AND SIGNATURE OF PERSON PRONOUNCING DEATH (Only when applicable):**
    - Name
    - Qualification:
    - Signature:

15. **DATE SIGNED:**
    - Day
    - Month
    - Year

16. **ACTUAL OR PRESUMED DATE OF DEATH:**
    - Day
    - Month
    - Year
    - am
    - pm

17. **ACTUAL OR PRESUMED TIME OF DEATH:**

18. **WAS CORONER CONTACTED?**
    - Yes
    - No

19. **CAUSE OF DEATH (See instructions and examples):**

   PART I. Enter the chain of events (diseases, injuries, or complications) that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE. Enter only one cause on a line.

   **IMMEDIATE CAUSE**
   (Final disease or condition resulting in death)
   a. ___________________________ Due to (or as a consequence of):

   Sequentially list conditions, if any, leading to the cause listed on line a.
   b. ___________________________ Due to (or as a consequence of):
   c. ___________________________ Due to (or as a consequence of):

   Enter the **UNDERLYING CAUSE** (disease or injury that initiated the events resulting in death)  
   d. ___________________________

   **PART II.** Enter other significant conditions contributing to death but not resulting in the underlying cause given in Part I.

20. **WAS AN AUTOPSY PERFORMED?**
    - Yes (Go to Q20b)
    - No (Go to Q21)

21. **IF FEMALE AND:**
    - Pregnant:
    - Not pregnant within past year
    - Not pregnant within 42 days of death
    - Not pregnant, but pregnant between 42 days and 1 year before death
    - Unknown if pregnant within the past year

22. **MANNER OF DEATH:**
    - Natural
    - Accident
    - Suicide
    - Homicide
    - Pending investigation
    - Could not be determined

23. **IN THE CASE OF AN INJURY DISCRIIBE HOW THE INJURY OCCURRED:**
    - Driver/Operator
    - Passenger
    - Pedestrian
    - Other (specify): ___________________________

24. **TRANSPORT INJURY, SPECIFY:**

25. **CERTIFIER (Check only one):**
    - Certifying physician:- To the best of my knowledge, death occurred due to the cause(s) and manner stated.
    - Pronouncing & Certifying physician:- To the best of my knowledge, death occurred at the time, date, place and due to the cause(s) and manner stated.
    - Medical Examiner/Coroner:- On the basis of examination and/or investigation, in my opinion, death occurred at the time, date, place and due to the cause(s) and manner stated.

   Signature of Certifier: ___________________________ Date Certified (day/month/year) ___________________________

26. **SIGNATURE**

27. **DATE (Day/ Month/Year)**

**ICD CODES**

<table>
<thead>
<tr>
<th>Official Use By Officers</th>
<th>ICD UC Code</th>
</tr>
</thead>
</table>
### Regional Surveillance Indicators

<table>
<thead>
<tr>
<th>1. Proportion of reporting sites and countries that submit weekly syndromic reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of sites reporting / Total number of reporting sites</td>
</tr>
<tr>
<td>• Number of countries reporting on time / Total number of countries</td>
</tr>
<tr>
<td>• Number of countries reporting / Total number of countries</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Proportion of reporting sites and countries that submit 4-weekly disease reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of countries reporting on time / Total number of countries</td>
</tr>
<tr>
<td>• Number of countries reporting / Total number of countries</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Proportion of countries that submit HIV, AIDS and STIs reports annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of countries reporting on time / Total number of countries</td>
</tr>
<tr>
<td>• Number of countries reporting / Total number of countries</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Proportion of countries that submit non-communicable minimum dataset reports annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of countries reporting on time / Total number of countries</td>
</tr>
<tr>
<td>• Number of countries reporting / Total number of countries</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Proportion of countries that submit non-communicable disease reports quarterly</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of countries reporting on time / Total number of countries</td>
</tr>
<tr>
<td>• Number of countries reporting / Total number of countries</td>
</tr>
</tbody>
</table>

| 6. Number of epidemiological updates (based on syndromic review) produced each year |

| 7. Number of CAREC Surveillance Reports produced each year |

<table>
<thead>
<tr>
<th>8. Number of countries that submit mortality data annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Number of countries reporting on time / Total number of countries</td>
</tr>
<tr>
<td>• Number of countries reporting / Total number of countries</td>
</tr>
</tbody>
</table>

**INDICATOR GOALS:**

- ≥90% of countries reporting on time and completely
- ≥90% of weekly epidemiological updates produced each year
- At least 5 CAREC Surveillance Reports produced each year

_Last updated January 2011_