Sierra Leone National Disease Surveillance and Response Strategic Plan

2012 - 2017

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Foreword

It is common knowledge that morbidity and mortality in Sierra Leone are mainly due to infectious diseases such as malaria, pneumonia and acute respiratory infections (ARI), Tuberculosis, HIV/AIDS, diarrhoeal diseases and some epidemic-prone infections prominent among which are Yellow fever, Lassa fever, Measles and Cholera. Therefore, the main response by the Ministry of Health and Sanitation (MoHS) to health sector development, especially at the end of the civil war in 2002, has been through the implementation of a variety of vertical programmes and projects by different stakeholders with their individual surveillance systems often following administrative, economic, and political or donor pressures. As a result, several parallel data collection systems have evolved mainly along program-lines and these have to a large extent been uncoordinated. Sometimes the coordination mechanism has been weak and has resulted in duplication of efforts. Hence instituting a robust integrated disease surveillance and response was deemed necessary by the MoHS so as to provide the much needed data for timely interventions, advocacy, better planning and evidence-based decision-making to implement appropriate strategies for disease prevention and control.

In a bid to strengthen the epidemiology and disease surveillance capacity of the public health sector in Sierra Leone, the MoHS in collaboration with World Health Organization (WHO) country office and the US Centers for Disease Control and Prevention (CDC), constituted a multi-disciplinary Surveillance, Epidemiology and Laboratory Technical Working Group (SELTWG), conducted short-courses on epidemiology, public health surveillance and outbreak investigation for national and district surveillance/M&E officers and evaluated the disease surveillance systems to establish the current status of the national disease surveillance system with a view to develop and operationalize a national strategic plan for public health surveillance and response in Sierra Leone.

This National Disease Surveillance and Response Strategic Plan have been developed in compliance with the Integrated Disease Surveillance and Response (IDSR) strategy developed by WHO and International Health Regulation (IHR) 2005 guidelines. Major changes include the inclusion of non-communicable diseases as well as other emerging/re-emerging diseases and the integration of the laboratory services, the private health sector and academia in disease surveillance and response.

This effort of the MoHS and its partners is geared towards ensuring that surveillance activities under various programs in the country by all stakeholders including private practitioners, traditional healers, laboratory services, pharmacists and training institutions will integrate into and fully participate in the new National Disease Surveillance and Response agenda.

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Chief Medical Officer

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This strategic plan is the result of a seven months process of stakeholder consultations, literature review, field visits to conduct interviews followed by careful analysis of data and information.

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Acronyms and abbreviations

AFENET	African Field Epidemiology Network
AFP	Acute Flaccid Paralysis
APHL	Association of Public Health Laboratories
CDC	Centres for Disease Control and Prevention
CHA	Community Health Assistant
CHC	Community Health Centre
CHO	Community Health Officer
CHP	Community Health Post
CMO	Chief Medical Officer
COMAHS	College of Medicine and Allied Health Sciences
DPC	Disease Prevention and Control
DDPC	Directorate of Disease Prevention and Control
DHMT	District Health Management Team
DMO	District Medical Officer
DPI	Directorate of Planning and Information
DSO	District Surveillance Officer
EHO	Environmental Health Officer
EPI	Expanded Programme on Immunization
FELTP	Field Epidemiology and Laboratory Training Programme
FBOs	Faith Based Organizations
HMIS	Health Management Information System
IDSR	Integrated Disease Surveillance and Response

IHR	International Health Regulations
MoHS	Ministry of Health and Sanitation
MCHP	Maternal Child Health Post
MDG	Millennium Development Goals
M&E	Monitoring and Evaluation
NACP	National HIV/AIDS Control Programme
NAS	National Aids Secretariat
NDSRP	National Disease Surveillance and Response Strategic Plan
NGO NSO NSP	Non-Governmental Organization National Surveillance Officer National Surveillance Programme
NTD PHEIC	Neglected Tropical Disease Public Health Emergencies of International Concern
PHU RCH	Peripheral Health Unit Reproductive and Child Health
SETWG	Surveillance and Epidemiology Technical Working Group
SELTWG	Surveillance, Epidemiology, and Laboratory Technical Working Group
SLDHS	Sierra Leone Demographic and Health Survey
WHO	World Health Organization

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Executive summary

Common causes of morbidity and mortality in Sierra Leone are mainly due to infectious diseases such as malaria, pneumonia and Acute Respiratory Infections, tuberculosis, HIV/AIDS, diarrhoeal diseases and some epidemic-prone infections prominent among which are Yellow fever, Lassa fever, measles and cholera. Therefore, the main response to health sector development at the end of the civil war in 2002 was through the implementation of a variety of vertical programmes and projects by different stakeholders with their individual surveillance systems often following administrative, economic, and political and or donor pressures. As a result several parallel data collection systems have evolved mainly along program-lines and these have to a large extent been uncoordinated. Sometimes the coordination mechanism has been weak and has resulted in duplication of efforts. Hence instituting a robust integrated disease surveillance and response system was deemed necessary to provide the much needed data for timely interventions, advocacy, better planning and guide decision-making in disease prevention and control. This led to the establishment of a DDPC in 2005 by the MoHS.

In a bid to strengthen the epidemiology and disease surveillance capacity of the public health sector in Sierra Leone, the MoHS in collaboration with WHO country office and the US CDC, constituted a multi-disciplinary SELTWG. They also conducted short-courses on epidemiology, public health surveillance and outbreak investigation for national and district surveillance/M&E officers. An evaluation of the national disease surveillance systems was also conducted to establish the current status and challenges of the system, with the view to develop and operationalize the National Disease Surveillance and Response Strategic plan for Sierra Leone.

In April, 2010, the MoHS through the DDPC convened an interdisciplinary working group comprised of key national officers from the various disease control programs and the DPI, members from academia, the national health laboratory services, WHO, CDC, Association of Public Health Laboratories (APHL) and other stakeholders to help advice and guide the strategic planning process and forge consensus among stakeholders.

In 1999, with support from WHO, MoHS established a surveillance unit that focused primarily on acute flaccid paralysis (AFP), measles, yellow fever, and neonatal tetanus. In 2003, MoHS, in collaboration with WHO, conducted an assessment of disease surveillance in Sierra Leone. In 2004 Sierra Leone adopted the Integrated Diseases Surveillance and Response (IDSR) strategy and adapted the technical guideline with the selection of 22 priority disease. However, the implementation of IDSR was not functional until 2005 when restructuring within the MoHS led to the development of the DDPC which coordinates the national surveillance programme and five other programmes under its supervision. In 2008, further revision of the IDSR guidelines took place in line with the International Health Regulation (IHR) 2005 and list of priority diseases was updated to 37 with inclusion of non-communicable diseases as well as other emerging/re-emerging diseases such as dengue, trachoma, anthrax, and human influenza caused by a new sub-type. The majority of these diseases are reported on a weekly or monthly basis.

Two directorates (DPC & DPI) are responsible for health information in the country. DPC is basically responsible for planning, coordinating, supervising and monitoring of the major national disease control programmes (Disease surveillance programme, Malaria Control programme, TB/Leprosy, NTD, NACP, and EPI) fall under its purview. Each of these programmes is headed by programme managers with support staff (such as monitoring and evaluation officers, data managers, public health sisters etc) at national level. At district level each of these programmes has corresponding specific disease focal points who are directly involved with planning, supervising, coordinating and monitoring of programme activities supervised by the District Medical Officers (DMO). The national disease surveillance programme is primarily responsible for planning, coordinating, supervising and monitoring of surveillance activities throughout the country. The programme collects analyses and disseminates information on immediately and weekly reportable diseases. Reporting occurs from the PHU level to the district level and finally to the DPC at national level, via mobile phone. Zero reporting is expected from all PHUs for the weekly reportable diseases.

Within each district, the DHMT is led by a DMO who supervises district surveillance officers, district monitoring and evaluation officers, and focal persons for each of the major disease programmes (Malaria, TB/Leprosy, NTD, NACP, and EPI). The DPI is responsible for all health and health-related information collected from health facilities by M&E officers at district and national levels throughout Sierra Leone and from census, demographic and other surveys conducted.

Although communicable diseases are the most common causes of illness, disability and death in Sierra Leone, 2010 district health survey shows that non-communicable chronic diseases are fast becoming significant public health problems and deserve the attention of the MoHS. Two new directorates namely non-communicable diseases, post graduate studies and research and Reproductive and Child Health (RCH) have been created.

Even though disease surveillance in Sierra Leone is key responsibility of the MoHS through the National Disease Surveillance Programme of the DDPC, several other issues contained in the National Constitution, National Health Policy, National Health Strategic plan, PRSP, various Technical Programme Policies and Strategic Plans, as well as interests of other government ministries, agents and departments, UN agencies, NGOs, private sector and academia that could impact the outcome of this strategic plan implementation were taken to consideration in the development of this plan.

An evaluation to assess the current status of the disease surveillance in Sierra Leone commenced with review of relevant documentations (IDSR Technical Guidelines 2008, Laboratory Strategic plan 2010), analysis of existing data (IHR Assessment 2010, FELT Surveillance Evaluations), interview of key informants (DPC Director and Programme heads, National and District surveillance officers and DPI) and conduction of rapid field assessment in four selected districts. The selection of the districts (Freetown, Bo, Kenema, and Tonkolili) was based on geography,

reporting status, and history of recent disease outbreaks. The WHO rapid field assessment tool was adapted and used for this assessment.

The results showed the current laboratory capacity to be limited with weak infra-structure, inadequate number of skilled workers and lack of equipment. Only a few national/central level laboratories (Connaught Hospital, Freetown, Lassa Fever Laboratory (BSL-3) in Kenema, National TB Laboratory and HIV Reference Laboratory in Lakka and NTD Laboratory in Makeni) provide additional testing. There were gaps in standardization and availability of case definitions and case forms; there was need for improved training on specimen collection, handling, and transportation, increased role/involvement of laboratory personnel in surveillance, resources and training for more complete data analysis, integration of data between DPC and DPI, timely and appropriate response to outbreaks and other public health related events, setting up of epidemic preparedness committees, rapid response teams, and allocated budget, improve health and safety and infection control practices, active and integrated supervision with clear performance indicators, identification and development of future training needs as well as integration of feedback reports and distribution of feedback at all levels and development of a framework for routine monitoring and evaluation of surveillance system.

To address the above, this strategic disease surveillance and response plan has been developed to be action-oriented, flexible, and simple to use and to promote surveillance system integration. It is specific and sensitive to our health conditions enough to generate complete, timely, and reliable data and provide capacity building plans to strengthen national disease surveillance activities in terms of surveillance method improvement and workforce development. It provides a framework that will guidethe efforts of the MoHS and its partners over the next five years in strengthening disease surveillance and response leading to a system of continuous, accurate and timely collection of requisite disease surveillance data at all levels of health services and its appropriate analysis, interpretation, dissemination, feedback and use for effective disease prevention and control in Sierra Leone.

It is hoped that by the end of the five years the following would have been achieved:

Epidemic-Prone Diseases and PHEIC, Diseases Targeted for Eradication and Elimination, and Other Diseases of Public Health Importance as well as selected non-communicable Diseases (Hypertension, Diabetes etc.) regularly monitored, documented and response/action guided by information

District & Central Surveillance units strengthened and respond promptly to disease outbreak in the country or individual districts.

Surveillance activities under various programs in the country by all stakeholders integrated into and use the new National Disease Surveillance and Response structure.

Private practitioners, Private hospitals, Traditional healers, Laboratory services and Training Institutions fully participate in the National Disease Surveillance and Response system.

National and District Public Health Laboratories strengthened, participate in investigations of outbreaks/epidemics, diagnosis and confirmation of health conditions.

A national surveillance information technology network for communication established up to the peripheral unit level for reporting, data entry, sharing, analysis, feedback and dissemination.

1. Introduction

1.1 Public health Surveillance in disease control and prevention

Public health surveillance is defined as the ongoing, systematic collection, analysis, and interpretation of data on specific health events for use in the planning, implementation, and evaluation of public health programs [1]. Timely dissemination of these data and information to persons who need to know is essential for effective prevention and control.

Disease surveillance has gone through several developmental phases over the years, especially after the 1968 World Health Assembly, when surveillance played a role in the control and elimination of communicable diseases such as poliomyelitis and smallpox. We have also seen surveillance applied to meet the challenges of such new health problems as human immunodeficiency virus (HIV) infection -- the cause of acquired immunodeficiency syndrome (AIDS) -- and emerging health issues such as injuries and non-communicable diseases. As the scope of surveillance activities changed, so did surveillance methodology evolve with the adoption of computerized systems that permit the rapid transfer and analysis of data. Development and application of new statistical methods have increased the quantitative sophistication of surveillance techniques.

At the same time there was also seen growing interest in developing methods for periodic evaluation of public health surveillance systems on the basis of usefulness, cost, and quality. Recently, explicit criteria have been formulated for evaluating surveillance systems using the following eight attributes: a) sensitivity, b) specificity, c) predictive value positive, d) representativeness, e) timeliness, f) simplicity, g) flexibility, and h) acceptability [1]. This rigorous evaluation has enhanced the scientific basis of public health surveillance and will ensure that a particular system is meeting its objectives and serving a useful public health function.

Common causes of morbidity and mortality in Sierra Leone are mainly infectious diseases such as malaria, pneumonia and acute respiratory infections, tuberculosis, HIV/AIDS, diarrhoeal diseases and some epidemic-prone infections prominent among which are Yellow fever, Lassa fever, measles and cholera (DHS 2008). To counteract their impact on the population, the MoHS has been implementing a number of public health interventions across the nation.

Following the end of the Sierra Leone civil war in 2002, the main response to health sector development was through the implementation of a variety of vertical disease control programmes and projects by different stakeholders with their individual surveillance systems. Often, these followed administrative, economic, political or donor –driven pressures. As a result several parallel data collection, transmission, analysis and interpretation systems have evolved mainly along program-lines. These have to a large extent been uncoordinated or poorly coordinated leading to duplication of efforts and ineffectiveness.

Therefore, instituting a robust integrated disease surveillance and response system will provide the much needed data and information for better planning, advocacy, timely interventions and programme evaluation. This will also guide decision-making for overall disease prevention and control strategies. This need has long been identified by the MoHS and led to the establishment of the DDPC in 2005 to coordinate the activities of the various infectious disease control and surveillance programmes. Although disease surveillance in Sierra Leone is the key responsibility of the MoHS through the National Disease Surveillance Programme of the DDPC in collaboration with the DPI, involvement of several other stakeholders and partners is important for effective collaboration in disease control and prevention. Effective conduct of disease surveillance and response activities require the development of a comprehensive national disease surveillance and response strategic plan to guide the process and ensure achievement of the desired outcomes.

1.2 Strategic plan development process

In 2010, the MoHS decided to strengthen the epidemiology and disease surveillance capacity of the public health sector in Sierra Leone. In collaboration with WHO country office and the US CDC, the following key steps were outlined to chart the course of achieving this goal:

- Constitute a multi-disciplinary Surveillance and Epidemiology Technical Working Group (SETWG)
- Conduct short-courses on epidemiology, public health surveillance and outbreak investigation for national and district surveillance/M&E officers
- Evaluate the disease surveillance systems and review the current status of the national integrated disease surveillance and response (IDSR) system, identify challenges facing Sierra Leone's public health surveillance structure, and propose recommendations for addressing such challenges
- Develop and operationalize a national strategic plan for public health surveillance and response in Sierra Leone

In April, 2010, the MoHS through the DDPC convened an interdisciplinary working group (the Surveillance and Epidemiology Technical Working Group, SETWG). The group comprised of key officers from the various disease control programmes, the Directorate of Planning and Information (DPI), College of Medicine and Allied Health Sciences (COMAHS), Njala University Department of Community Health Sciences, the national laboratory services, Ministry of Agriculture - Veterinary Division, WHO, USA CDC, AFENET, APHL, and other stakeholders. The SETWG was later merged with the existing Laboratory Technical Working Group due to significant overlap in membership and for effective public health surveillance and response collaboration. The SELTWG has helped advice and guide the strategic planning process and helped forge consensus among stakeholders.

The DDPC in collaboration with SELTWG has overseen the process of developing this strategic plan through group consensus meetings and consultative processes at different levels of the health system. (See figure 1). This enabled stakeholders to contribute to the design and content of the essential components of the National Surveillance and Response Strategic Plan (NDSRP).

Figure 1: National Disease Surveillance Strategic Plan development Road Map

2. The Republic of Sierra Leone-Brief Country Profile

2.1: Geography and Administrative Structure

The republic of Sierra Leone is situated on the West Coast of Africa, bordering the North Atlantic Ocean, between Guinea and Liberia (See Map below). It has a tropical climate with two distinct seasons; the dry season starts in November and ends in April, while the rainy season starts in May and ends in October. The land area covers approximately 71,740 sq, km, about 28,000 sq miles. About 37 percent of the population reside in urban areas. There are about 20 distinct language groups in Sierra Leone reflecting the diversity of cultural traditions.

Administratively, the country is divided into four major regions, namely Northern Region, Southern Region, Eastern Region and the Western Area where the capital Freetown is located. The regions are divided further into twelve districts, which are in turn sub-divided into chiefdoms, governed by local paramount chiefs. With the recent devolution of services to local communities, the country has been divided into 19 local councils that have been further sub-divided into 392 wards. Each ward is headed by an elected councillor.

2.2: Demography

The population of Sierra Leone increased from 2,180,355 in 1963 to 4,976,871 in 2004 (Central Statistics Office, 1963; SSL, 2006). Currently the projected population for 2010 is 5.8 million people. The annual population growth rate is 1.8 percent per annum as obtained during the 1985-2004 (See table 1). The pie chart below shows the percentage (%) distribution of 2004 census population by district.

Population distribution by Districts-2004 population census

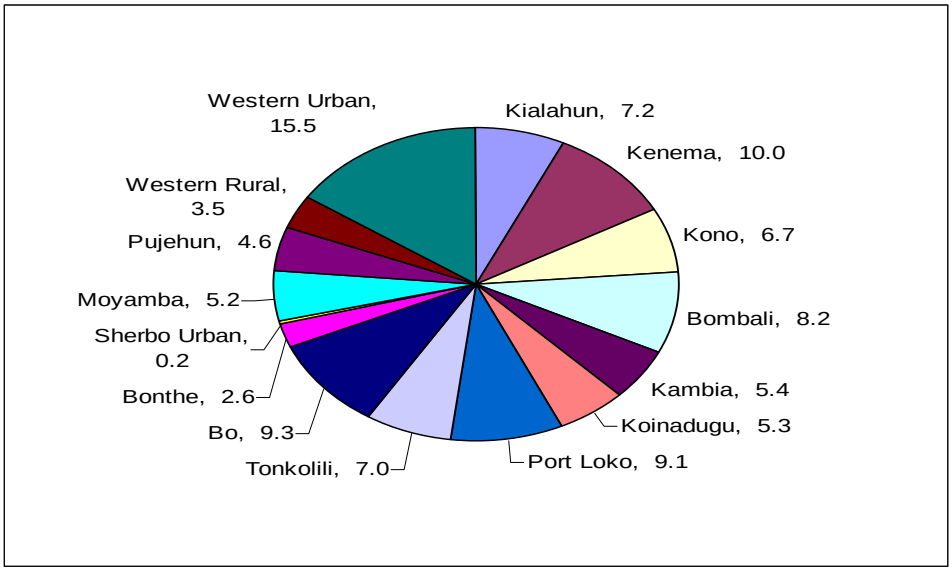


Table 1: National Demographic Indicators

National Indicators		
1. Demography & Population	**Indicator**	**Additional Information (e.g. year data refers to)**
Population (number)	5,484,670	**2008 Projected Population**
Population Under 5 (%)	1,042,544	**2011 Projected Population**
Population Under Age 15 (%)	41.7%	**2004 Population Census**
Population of Women of Child-bearing Age	1,307,598	**2011 Projected Population**
Urban Population (%)	36.7%	**2004 Population Census**
Population Growth Rate (%)	1.8%	**2004 Population Census**
Life Expectancy – Male (years)	47.5 years	**Census 2004**
Life Expectancy – Female (years)	49.4 years	**Census 2004**

The national Census of 2004 reported the country's population to be about 4.98 million with a growth rate of 1.8% a decline from 2.3% according to the 1984 Census. The fertility rate, however, remains high at 6.5. This slow down in population could be due to deaths and emigration due to the conflict. There are 94 males to 100 females, and an average household size of 6. There are about twenty (20) ethnic groups in country: Temne, Mende and Krio being the major ones. The official language spoken is English but the following languages are widely spoken: Mende, Temne, Kono, kuranko, Krio and Limba.

2.3: Socio-Economic Situation

Sierra Leone is classified by the UN as one of the least developed countries. In 2010, Sierra Leone ranked 152 out of 178 in the UN Human Development Index. It is one of nine countries in Africa whose income per capita has actually fallen compared to 1960s levels. About 70 % of Sierra Leoneans were living below the poverty line in 2007[1]. The average national income (GNI) per person was US$220 in 2006. In the period 2006 - 2007, real GDP growth was 11.2[2]. Also GDP in agriculture has increased in recent years. Post-war growth performance to date has indeed been robust – averaging 7.5% per year over the last 5 years. (See table 2).

Sierra Leone has great untapped potential to participate in the world economy and to share in that growth: it has unexploited fertile lands on which to grow and harvest food and abundant seas; it has mineral resources of tremendous value; and it has a large natural deep water port with which it can connect people and their produce to the outside world.

The country's main economic sectors include mining, agriculture and fisheries. The mining of diamonds, bauxite and Rutile provides the major source of hard currency. Agriculture employs two-thirds of the country's 5.8million strong population in 2010, the majority of which are involved in subsistence agriculture. That sector accounted for 51% of the country's GDP. Sierra Leone's manufacturing sector continues to develop and consists mainly of the processing of raw materials and of light manufacturing for the domestic market. The service sector has been growing mainly due to a number of Nigerian banks entering the market. Coming from a low baseline, there is much potential for growth in several sectors. The economic prospects look good and living standards should rise over time if the current stabilizing macroeconomic policy can be maintained.

Table 2: Socio-Economic Indicators

2. Income & The Economy	**Indicator**	**Additional Information (e.g. year data refers to)**
GDP Per Capita ($)	**US$ 660**	**PRSP 2008**
Population Living Below $1 a Day (%)	**About 70%**	**PRSP 2003**
Country Income Classification (Low, Lower Middle, Upper Middle or High)	**Low**	**PRSP 2003**
Government Allocation to Health	**US$ 18.4 million**	**2008 Budget Speech**

[1] PRSP progress report 2007
[2] Situation analysis report commissioned before formulation of HSSP

2.4: Political context

Sierra Leone operates a multi-party presidential system of government with an Executive President and one national House of Representatives or parliament. The National Constitution provides all citizens the right to education and health without any form of discrimination. The government is a signatory to several international and regional social and economic policy declarations, and is committed to implementing the appropriate programmes. There is demonstrable political commitment to health of the population by the Government of Sierra Leone (GoSL) because population health is a key element under three of the five pillars that form the basis for the 2004 Poverty Reduction Strategy Programme (PRSP) (See table 3). The GoSL also has an obligation towards its citizens, having ratified all the human rights conventions including the Convention on the elimination of all forms of discrimination against women and the Convention on the rights of the child. There is a Parliamentary Committee on Health which, members attend Annual National Health Review and Planning Workshops and contribute to discussions. All Local Councils have health committees charged with the responsibility for the health of the population in their districts/areas. In April 2010, the government launched the free health care initiative for pregnant women, lactating mothers and children under five years of age.

Table 3: Strategic pillars of the Poverty Reduction Strategy Paper (PRSP) Sierra Leone

Pillar 1: To promote Good Governance, Peace and Stability	Ensuring that public and civil society institutions and systems protect and benefit the poor, through: • strengthened security and stability; • legal and civil service reforms, • decentralization, • anti-corruption and • peace building
Pillar 2: To promote Macroeconomic Stability and Pro -Poor Sustainable Growth	Economically empowering the poor by ensuring: • macroeconomic stability and reform, • development of commercial infrastructure, • sustainable industrial development, • increased access to services and • social protection for the most vulnerable
Pillar 3: To promote Sustainable Rural Livelihood and Community Empowerment	Ensuring the poor have the resources and power to lift themselves out of poverty through: • greater access to social and community infrastructure, • increased household resilience to stresses and shocks, • improved natural capital, • strengthened social, economic and physical capital

Pillar 4: To promote a Child First and Youth and Gender Sensitive Development	Ensuring that gender, poverty and age disadvantaged people have access to enhanced child welfare, equal opportunities, empowerment and personal capacity building
Pillar 5: To promote a Caring Society that values its people and its Environment	Ensuring that all people are treated as equal in need, especially those unable to benefit from the other pillars; the disabled, the aged, people chronically ill, Etc and that all development is done so as to protect the environment for the people of tomorrow.

2.5: Health Situation

The majority of the causes of illness and death in Sierra Leone are preventable. Most deaths can be attributed to malaria, pneumonia and ARI, nutritional deficiencies, anaemia, tuberculosis and HIV/AIDS. Diarrhoeal diseases and acute respiratory infections are also major causes of out-patient attendance and illness in the country. The greatest burden of disease is on rural populations especially females. Over 24% of children under five had malaria in the last two weeks of the latest household survey done 2008 (SLDHS, 2008).

The prevalence of HIV in the general population increased from 0.9% in 2002 to 1.53% in 2005 and appears to have stabilized. The SLDHS 2008 survey reported a HIV prevalence of 1.5% in the general population. This may be related to the marked improvement in the HIV/AIDS programme implementation. For example, VCCT sites increased from 20 in 2005 to 369 in 2008 and PMTCT sites increased from 18 in 2005 to 326 by the end of 2008. (NAS Report-2008).

More than 85% of the pregnant women attended ante-natal care services at least once in their most recent pregnancy, but only 42% actually delivered in a health facility. In 2008, 21% of children under age 5 were found to be underweight for their age while 36% were stunted for their age and 10% were wasted for their height. Children in rural areas are more likely to be stunted and wasted than children in urban areas. (See table 4).

Availability of safe water and proper sanitation is a major factor affecting the health status of the population. Almost half of the population has no access to safe drinking water, and only 13% have access to improved non-shared sanitation facilities. The situation is worse in rural areas compared to urban communities: rural communities had 34% of safe water access compared to coverage of 84% for urban communities.

Health care costs remain very high in Sierra Leone, resulting in poor utilization (on average 0.5 visits per person per year). Out of pocket expenses are about 70% and remain among the highest in Africa (NHA Report, 2007). A review commissioned by the Ministry in 2007 established that

even modest charges tended to exclude over 50% of the population from seeking health care and exemption systems in current use do not seem to work (Health Financing Assessment, Oxford Policy Management 2008). Implementation of free health care for children under-five years, pregnant women, and lactating mothers was commenced in April 2010 as a practical policy option towards addressing the health of the poor majority.

Table 4: Key Health Indicators

Key Indicator	**SLDHS 2008**
Infant mortality rate	89/1000 live births
Under-five mortality rate	140/1000 live births
Maternal mortality ratio	857/100,000 live births
Contraceptive prevalence rate (%)	6.7
Health service utilization rate	0.5 visit per person/year
Underweight prevalence (Children under 5)	21.1/3.5%
Stunting Prevalence (Children under 5)	36.4%/20.6%
DPT immunization coverage	54.6%
Fully immunized children	30.2%
Anaemia (Children 6 – 59 months)	76%
Anaemia (Women 15-49)	46%
HIV prevalence (Adults 15-49)	1.5%

2.6: Health infrastructure and organization

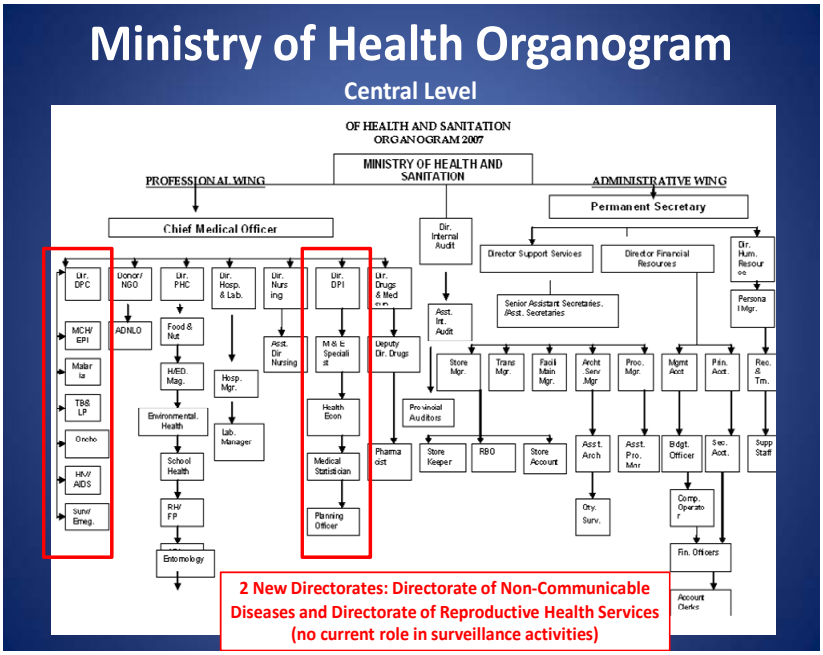
The country's health service delivery system is pluralistic. Government, religious missions, local and international NGOs and the private sector all provide services. There are public, private for profit, private non-profit and traditional medicine practices. The private sector is underdeveloped compared to countries in the sub-region such as Ghana and involved mainly in curative care for inpatients and outpatients on a fee-for-service basis. Private health facilities operate under the authority of individual owners and/or boards of directors, mainly in urban areas. The non-poor tend to use private health facilities more often than the poor. Traditional healers and Traditional Birth Attendants (TBAs) are reported to be providing a significant amount of health care. TBAs attend to almost 90% of the deliveries at the community level.

The Government passed the Hospital Boards Act in 2003 and the Local Government Act in 2004 in the context of the civil service reforms. Both laws devolved responsibility and accountability of some government functions to the local level for effectiveness and efficiency of service delivery.

As part of the public sector reforms started in 2003, the Ministry of Health and Sanitation is now organized into two main divisions[3] at the central level: medical services and management services. The Ministry is headed by the Minister of Health and Sanitation, and the Deputy Minister (See figure 2: Organogram). At the district level, the same two division approach is adopted namely district health services and the district health management. The district Medical officer (DMO) heads both arms and is also a non-elected member of the local government council. District health services form the core component of primary health care. They are comprised of a network of peripheral health units (PHUs), the district hospital and the District Health Management Team (DHMT) (See figure 3).

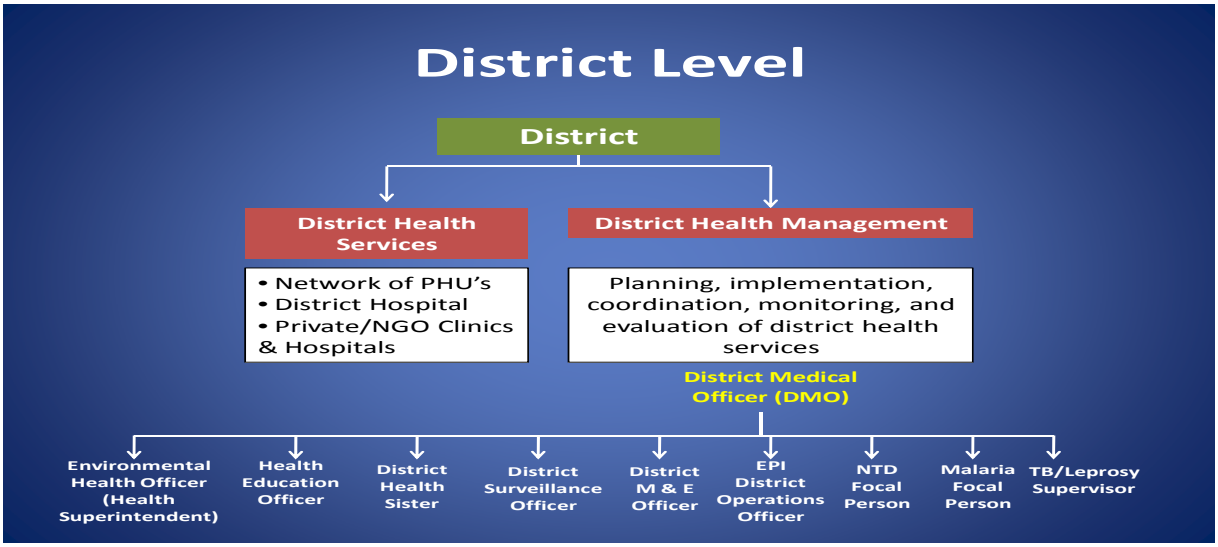
Overall, the health service organization is based on the primary health care concept which was started in the 1980s. The public health delivery system comprises three levels: (a) peripheral health units (community health centres, community health posts, and maternal and child health posts) for first line primary health care; (b) district hospitals for secondary care; and (c) regional/national hospitals for tertiary care (Fig 4)

Figure 2: MoHS Health System at the Central Level



[3] Central Ministry of Health and Sanitation Structure [MOHS 2006]

Figure 3: MoHS Health System at District Level



The PHUs are the first line health services, and are further sub-classified into three levels. The maternal and child health posts (MCHPs) are situated at village level for populations of less than 5000. They are staffed by MCH Aides and supported by community health volunteers and trained Traditional Birth Attendants (TBAs) to provide numerous services: antenatal care, supervised deliveries, postnatal care, family planning, growth monitoring and promotion for under-five children, immunization, health education, management of minor ailments, and referral of cases to the next higher level. (See table 5)

Community Health Posts (CHPs) are at small town level with population between 5,000 and 10,000 and are staffed by Community Health Assistant (CHA), State Enrolled Community Health Nurses (SECHNs) and MCH Aides. They provide the same types of services that are provided at the MCHPs but they also include prevention and control of communicable diseases and rehabilitation. They refer more complicated cases to the Community Health Centres (CHCs) which are located at Chiefdom level, usually covering a population ranging from 10,000 to 20,000 and staffed with a community health officer (CHO), CHA, SECHN, MCH Aides, an epidemiological disease control assistant and an environmental health assistant. They provide all the services provided at the CHP level in addition to environmental sanitation and supervise the CHPs and MCHPs within the Chiefdom.

The District Hospital is a secondary level facility providing back-stopping for the PHUs. It provides the following services: outpatient services for referred cases from PHUs and the population living within its immediate environs, inpatient services, and diagnostic services, management of accidents and emergencies, and technical support to PHUs. The District Health Management Team (DHMT) is responsible for the overall planning, implementation,

coordination, disease surveillance and response and overall monitoring and evaluation (M&E) of all district health services under the leadership of the District Medical Officer. Other members include the medical officer in charge of the district hospital and schedule officers for various programs and units including the District Surveillance officers (DSO) and M&E officers. (See figure 4)

Figure 4: MoHS Overall Healthcare Services Organization

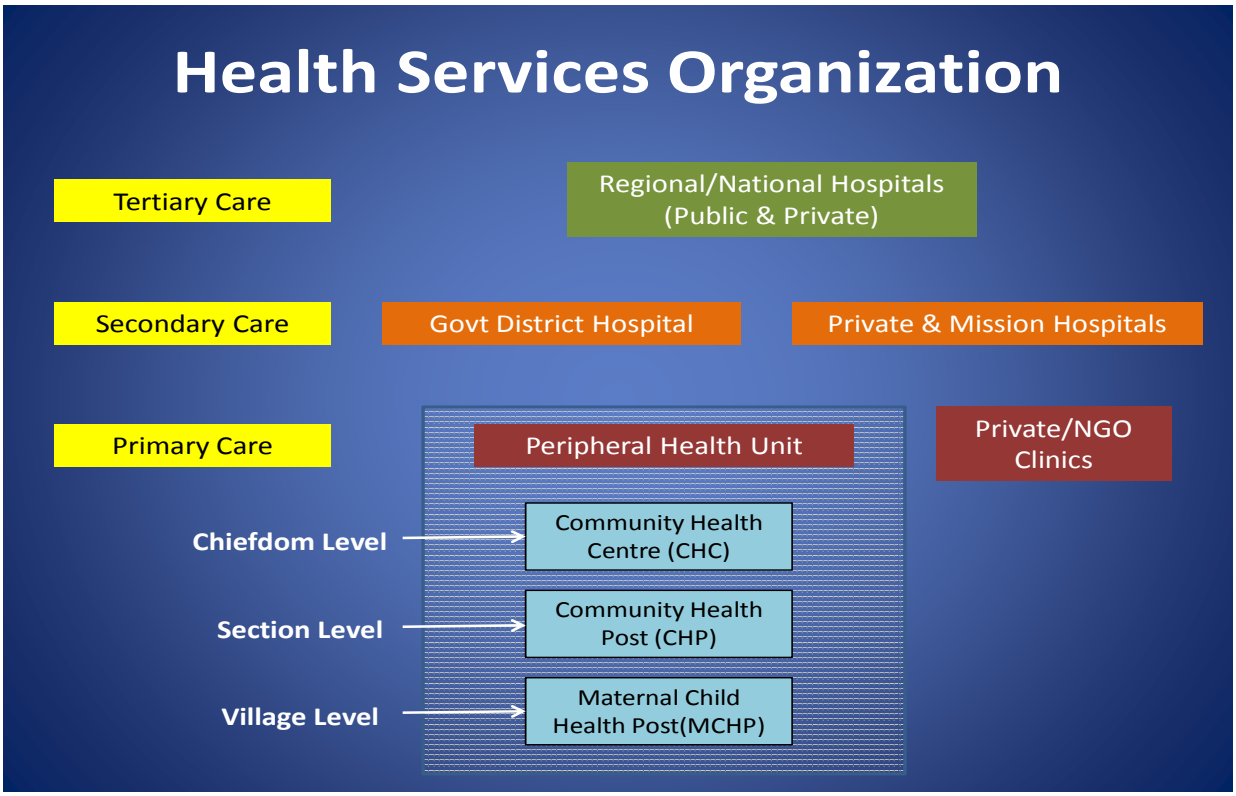


Table 5: MoHS Peripheral Health Unit (PHU) Services

Peripheral Health Units

Facility	Level	Population	Provider Training Level	Services
Maternal Child Health Posts (MCHP)	Village	< 5,000	• MCH Aides	• Antenatal care • Supervised deliveries • Postnatal care • Family planning • Growth monitoring • Immunization • Health education • Minor ailments
Community Health Posts (CHP)	Section	5,000-10,000	• MCH Aides • State enrolled community health nurses (SECHN) • Community health assistants (CHA)	Above plus • Prevention and control of communicable diseases • Rehabilitation
Community Health Centre (CHC)	Chiefdom	10,000 – 20,000	• MCH Aides • SECHN • CHA • Community health officer (CHO) • Disease control assistant • Environmental health asst	Above plus • Environmental sanitation • Supervision of CHPs and MCHPs within chiefdom

3. Disease Surveillance in Sierra Leone

3.1: History of the National Disease Surveillance System

In 1999, with support from WHO, MoHS established a surveillance unit that focused primarily on acute flaccid paralysis (AFP), measles, yellow fever, and neonatal tetanus. In 2003, MoHS, in collaboration with WHO, conducted an assessment of disease surveillance in Sierra Leone. In 2004 Sierra Leone adopted the Integrated Diseases Surveillance and Response (IDSR) strategy and adapted the technical guideline with the selection of 22 priority disease. However, the implementation of IDSR was not functional until 2005 when restructuring within the MoHS led to the development of the DDPC which coordinates the national surveillance programme and five other programmes under its supervision. These programmes are (1) National Disease Surveillance Programme, (2) National Malaria Control Programme, (3) National TB/Leprosy Control Programme (4) National Onchocerciasis and Neglected Tropical Disease (NTD) Programme, (5) National HIV/AIDS Control Programme and (6) Expanded Programme on Immunization (see figure 6). In 2008, further revision of the IDSR guidelines took place in line with the International Health Regulation (IHR) 2005 and list of priority diseases was updated to 37 with inclusion of non-communicable diseases as well as other emerging/re-emerging diseases such as dengue, trachoma, anthrax, and human influenza caused by a new sub-type. The majority of these diseases are reported on a weekly or monthly basis.

Figure 5: Responsibility for Disease Surveillance at Central Level

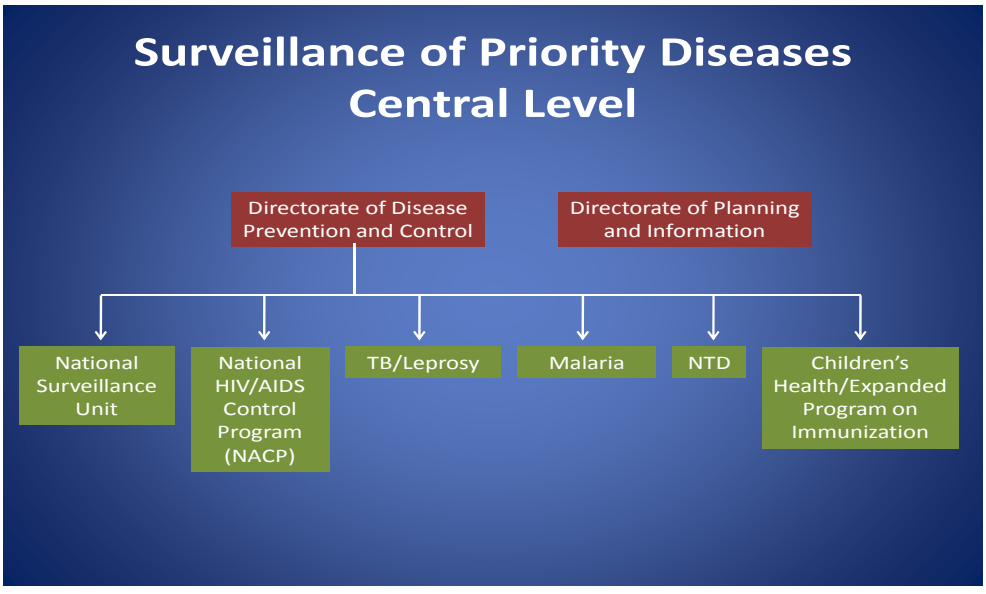


Table 7: List of current surveillance priority diseases in Sierra Leone, IDSR 2008

Priority Diseases in Sierra Leone

Epidemic Prone and IHR Recommended Diseases		
1. Acute watery diarrhea (susp cholera)	6. Viral hemorrhagic fever	11. Dengue
2. Acute bloody diarrhea (susp shigella)	7. Human influenza, new subtype	12. Trachoma
3. Measles	8. Yellow Fever	13. Anthrax
4. Meningitis	9. SARS	14. Typhoid fever
5. Plague	10. Smallpox	15. Hepatitis B
Diseases Targeted for Eradication and Elimination		
16. Polio	18. Leprosy	20. Yaws
17. Guinea worm	19. Neonatal tetanus	21. Noma
Other Diseases of Public Health Importance		
22. Diarrhoea in children <5	27. STI	32. Asthma
23. Pneumonia in children <5	28. Trypanosomiasis	33. Diabetes mellitus
24. HIV/AIDS	29. Tuberculosis	34. Epilepsy
25. Malaria	30. Schistosomiasis	35. Hypertension
26. Onchocerciasis	31. Soil transmitted helminths	36. Sickle cell disease
		37. Malnutrition

3.2: Structure of the Surveillance System

The MoHS has two directorates DDPC & DPI that are responsible for health information in the country. DDPC is basically responsible for planning, coordinating, supervising and monitoring of the major national disease control programmes (such as Disease surveillance programme, Malaria Control programme, TB/Leprosy, NTD, NACP, and EPI) fall under its purview. Each of these programmes is headed by programme managers with support staff (such as monitoring and evaluation officers, data managers, public health sisters etc) at national level. At district level each of these programmes has corresponding specific disease focal points who are directly involved with planning, supervising, coordinating and monitoring of programme activities. The National Disease Surveillance Programme (NDSP) leads disease surveillance activities in the country. At national level there is a programme manager, 4 national surveillance officers (NSOs), data manager and support staff. The NDSP is primarily responsible for planning,

coordinating, supervising and monitoring of surveillance activities. The programme collects analyses and disseminates information on immediately and weekly reportable diseases.

At district level, there are 28 DSOs that are supervised by the DMOs in the 13 district. Reporting occurs from the PHU level to the district level and finally to the DPC at national level, via mobile phone. Zero reporting is expected from all PHUs for the weekly reportable diseases. The DHMT participate in the preparation of national health policies and is responsible for their implementation at the respective districts including planning and management of district healthcare services,; disease surveillance and response; health promotion; curative and rehabilitative services, ensuring provision of safe water and environmental sanitation; health data management, dissemination and utilization.

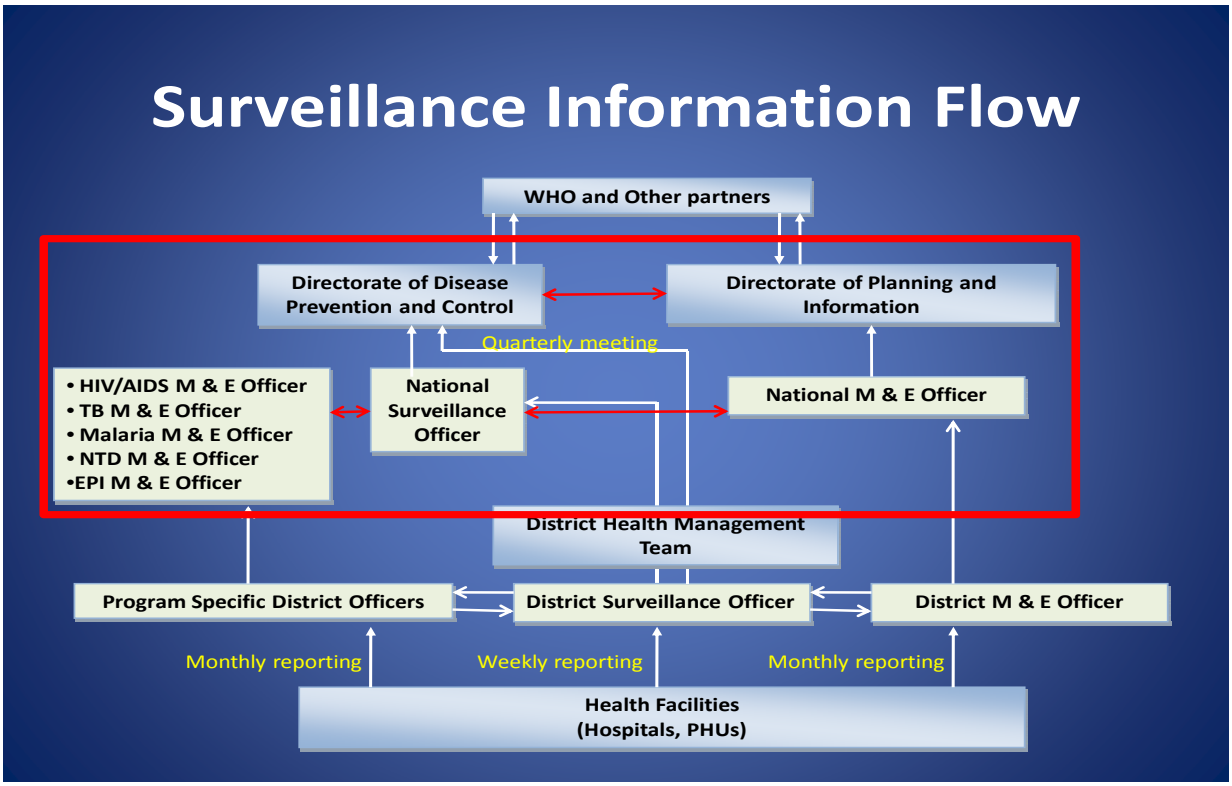
The DPI is responsible for all health and health-related information collected from health facilities by M&E officers at district and national levels throughout Sierra Leone and from census, demographic and other surveys conducted.

Although communicable diseases are the most common causes of illness, disability and death in Sierra Leone, 2010 district health survey shows that non-communicable chronic diseases are fast becoming significant public health problems and deserve the attention of the MoHS. Two new directorates namely non-communicable diseases, post graduate studies and research and Reproductive and Child Health (RCH) have been created.

3.3: Surveillance system information flow and outbreak/case investigation

Reporting starts from the PHU level to the district level and finally to the national level, primarily via mobile phone and email. Zero reporting is expected from all PHUs for the weekly reportable diseases. All epidemic- prone, IHR recommended diseases, and diseases targeted for eradication or elimination are reported immediately using case-based forms. This data is collated, analysed and submitted weekly as national report to the WHO. Other diseases of public health importance are reported on monthly basis in collaboration with DPI using PHU or hospital monthly morbidity and mortality forms (PHUFs and HFs) (Figure 6).

Figure 6: Surveillance Information Flow Chart

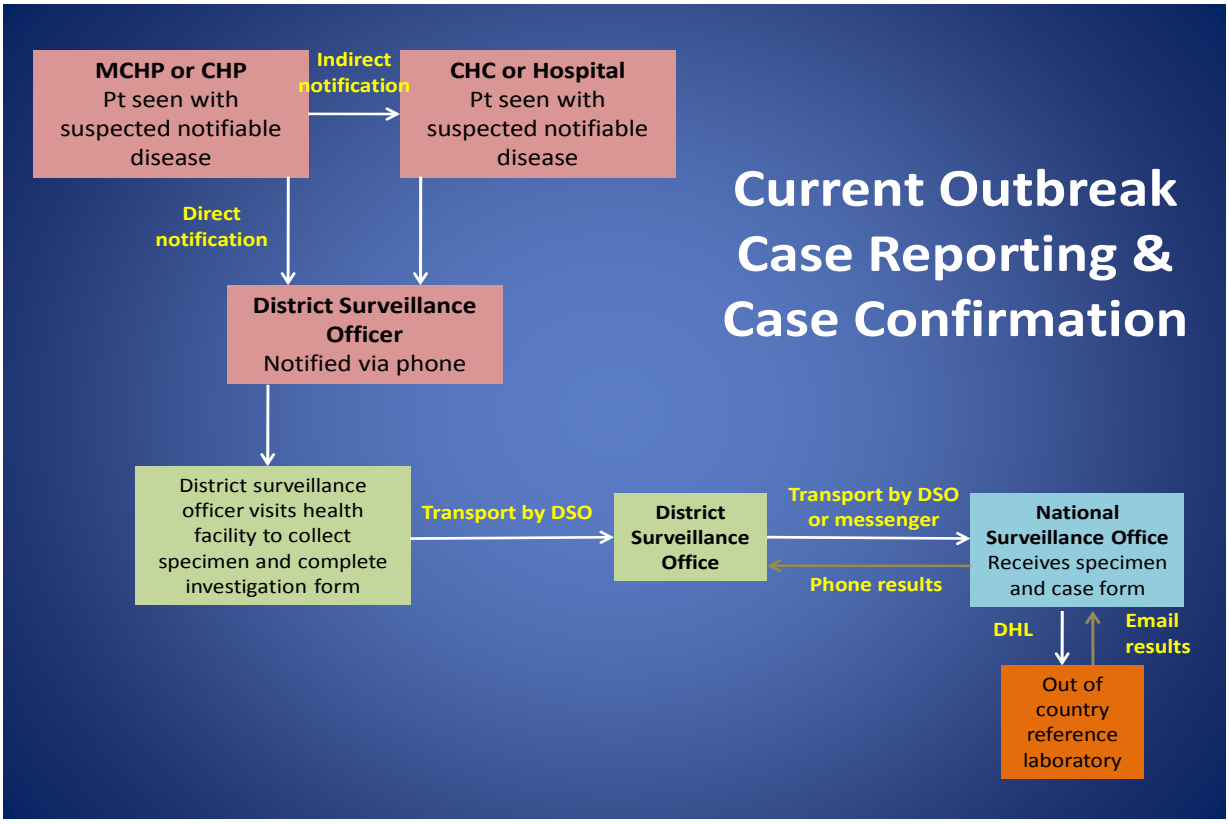


A national weekly report which includes number of cases, deaths, attack rate, and case fatality rate, timeliness and completeness of reporting are collated and analysed for the production and publication of weekly epidemiological bulletin which is co-authored by the National Disease Surveillance Programme and the WHO country office.

Supervision by the National Surveillance Programme at the district level and local health facility (PHUs) occurs routinely. Quarterly integrated surveillance meetings are conducted: district surveillance officers present all surveillance and some programmatic data from their district (including surveillance information on HIV/AIDS, TB, etc) and all national programme managers under the DDPC attend to review data and discuss disease trends.

In addition, district surveillance officers play a key role in the investigation and response to suspected outbreaks. When a notifiable disease is reported, officers visit the health facility to complete a case investigation form and collect specimen for laboratory confirmation. These are transported to the national level where case data is analyzed and specimens are confirmed locally or shipped out of the country for laboratory analysis (Fig 7). Response to outbreaks is coordinated with assistance from the national surveillance office and other national or sub-regional partners and may include further investigation, community education, vaccination campaigns and mass treatments.

Figure 7: Outbreak or Case Investigation Algorithm



3.4: Surveillance Programme Financing

Since the end of 2008, the 19 local councils (12 district councils, 5 town councils, the Freetown City Council and the Western Area Rural Council) are now responsible for managing the delivery of both primary and secondary health care services in the country. Starting third quarter of 2005, tied grants amounting to about a quarter of the national health budget were transferred to the Local Councils for the DHMT. [4] These grants are supposed to cover activities such as vaccination campaigns, epidemic control including disease surveillance and outbreak investigation, infrastructure improvements and expansion, and the operational expenses of the DHMT. In practice, many Local Councils turn these grants over to the DHMT who plan the activities and manage the funds with varying degrees of supervision from the Local Council.

WHO provides financial support to the disease surveillance programme with incentives to NSOs and DSOs for supportive supervision of districts/PHUs and payments for DHL courier delivery services of specimens to the reference laboratories in Abidjan-Cote d' Ivoire and Dakar-Senegal.

[4] This team is lead by the District Medical Officer (DMO) and is responsible for the management of primary health care at the district level, including running the district hospital as well as overseeing and supplying the clinics in the district.

4. Evaluation of the National Surveillance System

An evaluation to assess the current status of the disease surveillance system in Sierra Leone was conducted during March 2011.

4.1. Methods

We reviewed existing documentations (IDSR Technical Guidelines 2008, Laboratory Strategic plan 2010), previous evaluation reports (IHR Assessment 2009, FELTP 2010 disease –specific and district-level surveillance evaluations), and interviewed key informants (DPC Director and Programme Managers, NSOs, DSOs and DPI national and district M&E officers). A rapid field assessment was conducted in four selected districts (Western Area, Bo, Kenema, and Tonkolili), one from each region based on geography, reporting status, and history of recent outbreaks. The WHO rapid field assessment tool was adapted and used for this exercise. Four teams comprising a team leader (Representative of partner-organizations; WHO, CDC, DDPC, AFENET), NSOs, National Laboratory personnel and DSOs conducted the assessment. One of each of the following; District hospital, CHC, CHP, MCHP, Private or NGO facility and District laboratory were randomly selected and visited. In all, a total of four (4) DHMTs, 13 Health facilities and 12 Laboratories were visited. Data collected from the desk reviews, interviews, observations and use of the WHO rapid assessment tool were collated and analyzed to extract information on the Strengths, weaknesses, opportunities and threats of the surveillance and response system. The standard components of the surveillance and response process stipulated in the WHO rapid assessment tool were assessed at different levels of the surveillance system and finding summarized according to these components.

4.2: Results

Case Definitions

- **Strengths:**
  - Clinical case definitions were available in IDSR Technical Guidelines manual
  - IDSR technical guideline was present at 63% of sites visited (district and health facility levels)
  - Printed clinical case definitions were available and easily accessible at some local health facilities
  - Most health facility staff (83%) interviewed were able to locate/provide correct case definitions for at least 2 priority diseases
- **Weaknesses**
  - No standard disease terminology on case investigation forms at different levels e.g. “Diarrhoea & vomiting” vs. “diarrhea” vs. “acute watery diarrhea”

"Diarrhoea with blood (Shigella)" (IDSR, 2008) vs. "Bloody diarrhea" (district) vs. "Shigellosis" (national)

- Lack of distinction between clinical (Syndromic) and laboratory based (disease specific) case definitions e.g. "Suspected Influenza Like Illness (ILI)" (national) vs. "Infar H1N1" (district) vs. "Human influenza caused by a new subtype" (IDSR)

- **Opportunities**
  Standardize case definitions according to levels and make them accessible at all levels

Case Reporting

- **Strengths**

- **Completeness:**

  - According to previous surveillance evaluations & DPI statistics, 75-80% of health facilities in the country are reporting monthly data
  - Data reporting from HIV/AIDS PMTCT sites ranged from 56 to 99% between districts in 2009

- **Timeliness:**

  - Accurate reporting on timeliness of weekly data was unavailable at district level but district to national level was 75%

  - Timeliness of report on monthly data was between 70-80% (DPI, MoHS)

- **Weaknesses**

  - No standard weekly case reporting form available at time of visit; e.g. Bo district: Guinea worm, Buruli Ulcer, Cholera; Tonkolili district: no weekly case reporting form; National: Chickenpox, Diarrhea, Cholera
  - Weekly case reporting forms not available at most (70%) health facilities or DHMTs visited
  - 77% of district and local health facilities visited ran out of necessary forms (monthly or weekly) at some point in the previous 6 months
  - Monthly HIV/AIDS data collection forms were available at 60% of reporting sites included in an FELTP evaluation
  - Lack of reporting from many private/NGO facilities
  - Zero reporting not being consistently practiced

- **Opportunities**

  - Standardize all weekly case reporting using IDSR case-based and summary forms (PHU, District, National)
  - Utilize version number to ensure same version utilized at all levels
  - Provide adequate copies (stock) of forms at all levels
  - Prioritize DSO visits to private/NGO facilities to increase reporting

Specimen Collection

- **Strengths**

- 67% of staff interviewed reported receiving some form of assistance from a laboratory (primarily for specimen collection, DOT laboratory)

- **Weaknesses**

- No standard guidelines for specimen collection, transport, or storage
- Only 33% of DSO's and Health Facility staff interviewed reported receiving some training in specimen collection
- Ability to collect different types of specimens and availability of specimen collection supplies varied widely between facilities

- **Opportunities**

- Utilize either laboratory staff or trained health care workers to collect specimens
- Orient or train DSOs and health facility staff on basic specimen management

Specimen Management (Collection, Transport, Storage and Processing)

- The only private hospital and health facilities with DOT laboratories visited (for sputum only) reported ability to process specimens

Strengths

- Availability of motorcycles and fuel subsidy for all DSOs

- Specimen collected at the PHU is transported in a vaccine carrier to the district by the DSO within 48 hours. It is stored in a solar refrigerator between 0-48hrs before being carried to national level by either DSO or a messenger within 24hrs from where the specimen is sent to a Reference Laboratory in 24-72hrs via DHL. Health facilities do not generally store specimens

- **Opportunities**
    - Training of DSOs and health care staff on proper specimen management
    - Increase the involvement of laboratory staff in routine surveillance

Key Laboratory Findings:

Strengths

- Molecular: a few specialized laboratories are available in the country
- Some national/central level specialized laboratories (Connaught Hospital - Freetown, Lassa Fever Laboratory (BSL-3) - Kenema, National TB Laboratory- Freetown, HIV Reference Laboratory- Lakka and NTD Laboratory- Makeni) provide additional testing

Weaknesses

Current laboratory capacity was found to be limited with weak infra-structure, inadequate number of skilled workers and inadequate equipment

Current diagnostic services are limited to the following:

- Rapid tests: HIV, malaria, Hepatitis B
- Hematology: Haemoglobin estimation, manual WBC counts
- Microbiology: microscopy for TB, malaria, parasitological examination (culture only at central level)
- Biochemistry: urinalysis by dipstick, occasionally glucose
- Histology: limited (only at central level)
- Serology: all non-rapid tests sent out of country to Abidjan, Cote d' Ivoire (Yellow fever, measles, etc)

Data Analysis

Generally, there is poor data analysis at the Health facility level. At district level, basic descriptive analysis using line-lists for person, maps for place, and histogram (epi-curves) for time, are done and posted on the wall. The NSOs at national level calculate incidence and case fatality rates using Microsoft Excel. Programme specific analysis using Epi-info are done at WHO while the monthly data are analyzed by DPI under the HMIS. All health facilities had population denominators for their catchment area.

- **Strengths**
  - District M & E officers generally have adequate access to computer/internet resources (HMIS)
  - Recent FELTP training has encouraged many officers to analyze data by person, place, time
  - Basic data analysis occurring at district level
  - Denominators available for rate calculations

- **Weaknesses**

  - Access/utilization of HMIS at national level for DPC officers not optimized
  - Computers and other resources often not available/functional for data analysis for non M & E officers at district level
  - Poor use of epi-info or statistical programs

- **Opportunities**

  - Allocate resources to improve computer and internet access for DSO and other programme officers
  - Encourage additional data analysis at both district and national level
  - Provide additional training to reinforce lessons learned from first FELTP course
  - Convene meetings between DPI and DPC officers to harmonize data management and integrate disease surveillance for all diseases (in progress)

Feedback

- **Strengths**

- Weekly feedback are produced by surveillance unit at national level including;
  - Weekly case attack and fatality rates
  - Percentage of PHU's reporting weekly (completeness and timeliness)
  - Weekly AFP summary form
  - Disease bulletin (in conjunction with WHO)
- Quarterly feedback provided through;
  - Quarterly integrated surveillance review meetings by National Surveillance Programme
  - DPI Quarterly reports
- Annual feedback provided by
  - Various programmes via annual reports (i.e. NACP- HIV/AIDS, NSP, NTD)
  - DPI annual report

- **Weaknesses**
  - Inadequate routine feedback provided to district or health facility level
  - Weekly epidemiological bulletin is not published consistently
- **Opportunities**
  - At district level, utilize in-charges meeting to distribute feedback materials
  - Develop key indicators and standard format for quarterly meetings (in progress)
  - Distribute summaries of quarterly meeting presentation and minutes
  - Involve all DPC programmes and DPI in quarterly meetings to improve integration
  - Assign clear roles and responsibilities for development of written feedback materials

Supervision

Current expectations are that DSO supervises health facilities monthly and NSO supervise DSO quarterly. However, it was observed that DSO was supervising health facilities but reporting inconsistently. In the past six months before the assessment the NSO visit to the DSO ranged from 1 – 4 times.

- **Strengths**
  - Regular supervision being conducted at national and district levels with supervisory checklists
  - Written supervision reports by NSO provided to NSP manager at national level
- **Weaknesses**
  - DSOs are not able to visit all health facilities regularly. This is in part, due to heavy workload, limitations in time, inadequate transport and/or fuel, bad road conditions, etc
  - DSOs do not receive written supervision report from national only oral during quarterly integrated review meetings. It is unclear if any actions are taken based on recommendations of supervisory visits as there is poor follow-up
- **Opportunities**
  - More active involvement of those supervised in the supervision process (i.e. review checklist together and co-sign)
  - Provide copy of supervision report to the person being supervised
  - Establish clear performance indicators
  - Reassess expected number of field visits to each facility based on health facility number, logistics, etc
  - Provide appropriate funding in strategic plan budget for logistics
  - Integration of supervision at district level (DHMT)- consider interdisciplinary supervisory visits by DHMT
  - Document clear roles/responsibilities for all officers/focal points

Monitoring and Evaluation of the Surveillance System

This is done mainly by recording the number of PHUs reporting and timeliness and completeness of reporting using the monthly DPI and weekly DPC forms. There is no existing monitoring and evaluation framework for the National Surveillance Programme.

Epidemic Preparedness and Response

There are no Epidemic management committees at national level. Three of four districts visited (Bo/Kenema/Tonkolili) have developed district epidemic management committees but only one district (Tonkolili) has established a rapid response team composed of DSOs, Lab personnel, Environmental health personnel, Nurses, and CHOs.

Guidelines for establishing an epidemic preparedness plan is in the IDSR Manual. Only two of the four districts visited identified presence of written guidelines for epidemic preparedness. Emergency stocks of drugs, vaccines and supplies were found in two of four districts (Kenema/Western Area). Budget line for epidemic response activities were in two of four districts. The practice currently during outbreaks, is for key personnel at district level to organize into an ad-hoc committee.

In practice there is no standard training on health and safety issues at the health facility level, no routine practice of immunization of health care workers (i.e. Hep B) and materials for infection prevention & control (Hand washing, Eye washing, Spill kits and Disinfectant) are grossly limited. Facility waste is usually disposed of via incinerator or open burial. Personal protective equipment such as Gloves is generally available. Isolation facilities at PHU level are limited. There is no documented procedure for handling/decontaminating items that have come in contact with a viral hemorrhagic fever case.

Active partners interested in preparedness and response include WHO, Office of National Security, NGOs, Ministry of Transport and Communication, Ministry of Agriculture and Food Security, World Food Programme, Port Authority, Civil Aviation, and Civil Society. For example, the Cholera Task Force is collaboration between MoHS and group of NGOs to enhance preparedness and response for cholera outbreak. Members mainly include UNICEF, Save the Children UK, Concern Worldwide, Goal Ireland, Oxfam, Sierra Leone Red Cross Society, MSF and some community members.

- **Strengths**

  - Guidelines on conducting outbreak investigation available in IDSR manual
  - Line listing and contact tracing done during recent outbreak investigations
  - Outbreak investigations resulted in education and/or vaccination campaigns
  - Regular involvement of other partners during investigation

- **Weaknesses**
    - Action thresholds not available for all diseases
    - No indicators to assess timely and appropriate outbreak response
    - Case investigation forms collected at national level but not entered into a database or analyzed by DPC
    - Limited access to previous outbreak reports
- **Challenges**
    - Estimating stock supplies needed (little data available on previous outbreaks in Sierra Leone)
    - Limited half-life of reagents, particularly yellow fever
    - Difficulty in securing donor funding for events that have not yet occurred
    - Difficulty in mobilizing government funding quickly
- **Opportunities**
    - Using existing ad-hoc task force personnel to develop emergency preparedness committees at district and national level
    - Utilize existing IDSR guidelines as tool for development of emergency preparedness and response plan
    - Multidisciplinary approach: multisectoral government involvement, private and public partners
    - Development of safety plan and provision of health and safety training at district level (utilize existing environmental health officer)

Surveillance Workforce Capacity Development/ Training

A series of five day IDSR training, intended for entire country, was conducted for some health facilities mainly targeting the "in-charge" of each facility.

Two CDC-supported FELTP two-week short courses on fundamentals of epidemiology, public health surveillance and outbreak investigation for national and district surveillance officers, and DPI M & E officers took place in Freetown for two cohorts of 25 officers each during June and November 2010. Short course participants were supervised to conduct competency-based field projects on surveillance system evaluation and surveillance data analysis over a 3-month period following completion of their 2-week course. Zonal presentation and awards ceremony were organized were participants presented their completed field projects to stakeholders/partners and received certificate of achievement from CDC and MoHS.

- **Strengths**
    - DHMT and "In charges" receiving basic training in disease surveillance and epidemic management
    - Increased data analysis activities at district level after FELTP course
- **Weaknesses**
    - Only one person (who may leave) is trained at each health facility on IDSR
- **Opportunities**
    - Cascade IDSR training at district level
    - Training of national programme staff and DMO's on surveillance and response
    - Reinforcement of initial FELTP training to surveillance officers with more focus on Epi-info and HMIS data management systems
    - As laboratory component in surveillance system grows, train lab personnel in basic epidemiology and public health surveillance principles
    - Training of all surveillance officers and health facility staff on specimen handling, health and safety practices, infection control and prevention

4.3: Limitations of surveillance evaluation

The Rapid field assessment was not representative of entire country (particularly remote districts such as Kailahun). The selection of health facilities differed by team and the focus was more on the activities of National Surveillance Unit. Further information/evaluation needed of other DPC programmes and DPI.

4.4: Summary of Key Findings and Recommendations

- Standardization and availability of case definitions and case forms
- Improved training on specimen collection, handling, and transport
- Increased role/involvement of laboratory personnel
- Resources and training for more complete data analysis
- Harmonization of data between DPC and DPI
- Focus on timely and appropriate response to outbreaks and other public health related events
- Development of epidemic preparedness committees, rapid response teams, and allocated budget
- Improve health and safety and infection control practices via training and monitoring
- Effective, active and integrated supervision with clear performance indicators
- Identify and develop future training needs at all levels

- Integration of feedback reports and distribution of feedback at all levels
- Develop framework for routine monitoring and evaluation of surveillance system
- Institute Performance Based Incentives for reporting

5. Guiding Principles for the Development of the National Disease Surveillance and Response Strategic Plan 2012-2017

The mission statement, values, guiding principles, goal and objectives of the MoHS national health policy 2004 and the goal, general and specific objectives of the IDSR/IHR below provided the basis for the development of this National Disease Surveillance and Response Strategic Plan.

5.1 National Health Policy 2004

Mission Statement

To ensure that available resources (human, financial, and material) are maximally utilized for the purpose of achieving the Ministry's goal, which is to provide quality, affordable and accessible health care services to the people of Sierra Leone.

Values

- Respect for life
- Right to health for all
- Equity
- Enabling work environment

Guiding principles

- Confidentiality
- Treating all people with dignity and respect
- Full community participation
- Transparency, accountability and efficiency
- Capacity building through learning on-the-job and formal education and training
- Affordability and sustainability

Goal

The overall goal of the health sector is to maintain and improve the health of all Sierra Leonean residents within the country

Objectives

The Government of Sierra Leone has responsibility for ensuring the provision of adequate public health services (including sanitation), for food safety and for effective action against specific communicable and non-communicable diseases.

The health of a country is not the result of health services alone, but can be affected both positively and negatively by the activities of a number of other sectors. The Ministry of Health and Sanitation has a responsibility to provide leadership and health-related advocacy to such sectors to ensure their activities are health promoting.

Priorities

- Public health interventions
- Laws and regulations
- Human resource development
- Decentralization
- Health management, institutional development and governance
- Health financing
- Coordination

5.2. Integrated Disease Surveillance and Response and International Health Regulation

The goal and objectives of the National Disease Surveillance and Response strategic plan are framed in terms of and with particular reference to the Integrated Disease Surveillance and Response system and the 2005 International Health Regulations

Goal

- Improve the ability of districts to detect and respond to diseases and conditions that cause high levels of death, illness and disability in the district's catchment area and with repercussions on global health, by strengthening skills and resources for integrated disease surveillance and response.

General overall objective

- Provide a rational basis for decision-making and implementing public health interventions that are efficacious in responding to priority communicable and non-communicable diseases.

Specific objectives:

- Strengthen the capacity of Sierra Leone to conduct effective surveillance activities
- Integrate the multiple programme surveillance systems so that forms, personnel and resources can be used more efficiently and effectively
- Improve the use of information for decision making
- Improve the flow of surveillance information between and within levels of health system
- Improve laboratory capacity in identification of pathogens and monitoring of drug sensitivity
- Increase the involvement of clinicians and other health workers in the surveillance system
- Emphasize community participation in detection and response to public health problems
- Strengthen the involvement of laboratory personnel in epidemiologic surveillance

5.3: Other Relevant Policy Documents

This national disease surveillance and response strategic plan 2012-2017 has also been developed within the framework of the following key documents:

- Sierra Leone Constitution (1991)
- The National Health Policy (2002)
- The Public Health Act (1960)
- The Local Government Act (2004)
- Millennium Development Goals
- Ouagadougou Declaration on Primary Health Care
- National Health Sector Strategic Plan (2010-2015)
- National Health Strategic Plan 2008 – 2015
- Reproductive Health Policy 2007 – 2015
- Child Health Policy 2007 – 2015
- MoHS Medium Term Rolling Plan and Budget 2007 - 2009
- poverty reduction strategy programme (PRSP) (2004)
- International evidence based/cost effective public health interventions
- National Malaria Control Programme Policy and strategic plan
- National TB/Leprosy Control Programme Policy and plan
- National HIV/AIDS Control Programme Policy and strategic plan
- National EPI Programme Policy (2010)
- Comprehensive Multiyear and plan for EPI (2007 - 2011)
- National Onchocerciasis (NTD) Control Programme Policy and plan

6. National Disease Surveillance and Response Strategic Plan, 2012 - 2017

6.1: Key values:

- Quality
- Equity
- Efficiency
- Integration
- Sustainability
- Accountability

6.2: Principles:

- Action-oriented strategies that promote surveillance system integration, flexibility, simplicity of use and which are practical for Sierra Leone.
- Development of a surveillance system that is specific and sensitive to health conditions by generating complete, timely, and reliable data.
- Capacity building that plans to strengthen national disease surveillance activities in terms of surveillance method improvement and workforce development.
- Development of a work plan that outlines concrete steps to implement proposed strategies including costing.

6.3: Goal

- To provide a framework that will guide the efforts of the MoHS and its partners over the next five years in strengthening disease surveillance and response leading to improved disease prevention and control in Sierra Leone.

6.4: Objectives

- To establish a system of continuous, accurate and timely collection of requisite disease surveillance data at all levels of health services and its appropriate analysis, interpretatio n dissemination, feedback and use for effective disease prevention and control.

- To strengthen and improve outbreak/epidemic detection by establishing early warning signals, promoting early detection through standardized and sensitive case definitions for suspected, probable and confirmed case status.

- To establish and operationalize outbreak/epidemic preparedness and response system (committees and resources) for early detection and effective response

- To strengthen and improve supportive supervision, monitoring and evaluation of the NDSR system.

- To institutionalize workforce capacity development in epidemiology, public health surveillance, outbreak management & public health laboratory management for disease prevention & control.

- To establish the inclusion of the private health sector, laboratory services and IHR into the national disease surveillance and response system.

6.5: Strategic Priorities

The NDSRP objectives have been converted into the following six strategic priorities (SPs). Each of these will have current status, key issues and challenges, policy statement, strategic objectives, actions and expected outputs/ outcomes. These strategic priorities together with the objectives, actions, outputs, indicators and lead-responsibility will constitute the strategic framework that gives thedirectionand scope of work for disease surveillance and response during the 5-year period. This will enable districts and specific programmes develop their respective detailed annual plans to support disease surveillance and response in the country.

SP 1: Harmonization of data collection, analysis, interpretation, feedback and dissemination.

SP 2: Ensure complete integration of surveillance and laboratory systems

SP 3: Development of epidemic management systems

SP 4: Workforce capacity development

SP 5: Integration of private sector surveillance services and IHR into the national disease surveillance system.

SP 6: Strengthen quality of management of the surveillance system

6.6: Expected Outcomes

It is planned that the following outputs will be achieved by the end of the time frame for this strategic plan December, 2017:

- Epidemic-Prone Diseases and PHEIC, Diseases Targeted for Eradication and Elimination, and Other Diseases of Public Health Importance as well as selected non-communicable Diseases (Hypertension, Diabetes etc.) regular monitored, documented and response/action guided by information.

- District & Central Surveillance units strengthened and respond promptly to disease outbreak in the country or individual districts.

- Surveillance activities under various programs in the country by all stakeholders integrated into and use the new National Disease Surveillance and Response structure.

- Private practitioners, Private hospitals, Traditional healers, Laboratory services and Training Institutions fully participate in the National Disease Surveillance and Response system.

- National and District Public Health Laboratories strengthened, participate in investigations of outbreaks/epidemics, diagnosis and confirmation of health conditions.

- A national surveillance information technology network for communication established up to the peripheral unit level for reporting, data entry, sharing, analysis, feedback and dissemination.

6.7: Elaboration of the Strategic Priorities (SP)

SP1: Harmonization of data collection, analysis, interpretation, feedback and dissemination.

Current Status

There are currently multiple case reporting/data collection tools, analysis, interpretations, and divergent/incomplete dissemination of information. Also there is inconsistency in case definitions and access to the case investigation forms/available case definitions. Private sector is not fully involved in data collection and management

Key Issues and Challenges

- Inadequate standardized case definitions.
- Data collection over load of peripheral heath workers (PHW).
- Incomplete reporting leading to inadequate and/or late detection of diseases.
- Poor response leading to high morbidity, mortality and costs.
- Inadequate data transmission from one level to another.
- Limited involvement of private sector in data collection and transmission
- Insufficient data storage and retrieval systems at all levels

Policy

DPI should ensure complete and timely surveillance data transmission to all relevant programme, directorates and key stakeholders including private sector

Strategic objectives, Actions and Targets

Objective 1

Develop and review standard case definitions for all diseases under surveillance by December 2012.

Actions

- National surveillance office should take an inventory of existing case definition of all diseases under surveillance by January 2012.

- DPC should constitute an ad-hoc committee to review and standardize all case definitions for all diseases under surveillance by January 2012.

- Train staff on case definitions and use by December 2012

Objective 2

Complete harmonization of data collection tools at the periphery to include weekly and monthly data by December 2012.

Actions

- Develop, review and harmonize formats and tools for reporting by March 2012
- Develop simple user friendly manuals, protocols and procedures for data management at all levels by February 2012

Objective 3

Complete installation and activation of data transmission network at directorates and programmes by January 2012

Actions

- Install and commission data transmission servers at directorates and programmes by January 2012

- Provide regular feedback to relevant stakeholders in a timely manner as specified in the manual by March 2012

- Conduct data validation regularly as stated in the manual by March 2012

- Develop data storage and retrieval system at all levels by June 2012

Expected Outputs

- List of standardized case definitions adopted by February 2012.
- Staff trained on case definitions and use by December 2012
- Glossary of harmonized data collection tools by March 2012.
- Timely information for action produced by January 2013
- Functional data transmission servers in place by January 2012.
- Functional feedback channels established by February 2012
- Functional data storage and retrieval system established at all levels by June 2012

SP 2: Ensure complete integration of surveillance and network of public health laboratory systems

Current status

Current laboratory capacity for confirmatory testing of suspected epidemic prone diseases is limited. Most collected specimens are sent to a reference laboratory outside of the country. Specialized services including testing for Lassa and other viral hemorrhagic fevers, HIV testing, and TB testing are currently conducted at specialized national/reference laboratories. Adequate laboratory support is essential for providing on-time and reliable confirmation of suspected cases, monitoring drug resistance, and monitoring changes in disease agents;

In 2010, a national laboratory strategic plan was developed. A key component of this plan was the development of a central Public Health reference laboratory in Lakka. This is part of the national public health laboratory system represented in all regions of the country that should support surveillance activities

Key Issues and Challenges

- Need for integration of laboratory services in existing surveillance system
- Lack of guidelines and training on specimen management for district surveillance officers
- Lack of guidelines on health and Biosafety and waste disposal issues
- Inadequate trained laboratory personnel at the national and district level
- Lack of data management system for laboratory and linkage with national surveillance programmes
- Lack of logistics to operationalize laboratory services

Policy Statement

DPC will work with the National Laboratory system, with support of Surveillance Epidemiology Laboratory Technical Working Group (SELTWG), to integrate laboratory based disease surveillance and to strengthen national laboratory capacity. The laboratory and surveillance strategic plans should always be aligned

Strategic Objectives, Actions, and Targets

Objective 1: To ensure complete integration of laboratory and epidemiology components of surveillance system by March 2012.

Actions

- Continue routine meetings of the SELTWG to discuss progress and opportunities for integration (ongoing)
- Involve laboratory personnel at routine surveillance meetings by December 2012
- Continue joint training of lab and epi surveillance personnel in public health surveillance by March 2012
- Include lab personnel in routine surveillance disease investigations by June 2012
- Revise the national surveillance data flow to include laboratory at all levels by January 2012

Objective 2: To ensure improvement in the quality of specimen management by December 2012.

Actions

- Train district surveillance and laboratory surveillance officers on specimen management by September 2012
- Transfer responsibility of specimen collection to district laboratory personnel after sufficient work capacity developed at the district laboratory by Dec 2012

Objective 3: To improve laboratory human resource capacity at the national and district level by Dec 2012

Actions

- Follow up with the national laboratory strategic plan implementation (on going)
- Include lab scientists in the Field Epidemiology and Laboratory Training (FELTP) by December 2012

Expected outputs/outcomes

- Utilization of the national laboratory system to fully support disease surveillance by 2012
- All specimen management handled by laboratory officers and trained DSOs by January 2013
- District and Laboratory surveillance officers trained in public health surveillance by March 2012
- Improved laboratory quality management by June 2013

SP 3: Development of epidemic management systems

Current status

As stated in the national health policy, the health of a country is not the result of health services alone, but can be affected both positively and negatively by the activities of a number of other sectors. The Ministry of Health and Sanitation has a responsibility to provide leadership and health-related advocacy to such sectors to ensure their activities are health promoting. Emergency management is one of such services.

The DPC was created to coordinate an effective epidemic management system; ad hoc committees are formed to respond to outbreaks of diseases. Formation of standing epidemic management committees and rapid response teams are being discussed.

Key Issues and Challenges

- Limited funding
- Human resource constraints
- Poor coordination of emergency inter-sectoral management activities

Policy Statement

The DPC shall establish high level multi sectoral multidisciplinary committee to work with other line ministries and agencies on epidemic and emergency management at central and district levels

Strategic Objectives, Actions and Targets

Objective 1: To establish epidemic management committees at national and district levels by January 2012

Actions

- DPC should initiate formation of epidemic management committees (EMC) at national and district level s by January 2012

- DPC should form EMC and convene an inaugural meeting by March 2012 and sustain regular meetings thereafter

Objective 2: To establish rapid response teams at national and district levels by April 2012

Actions

- DPC and DHMT with EMCs will constitute RRTs by April 2012

Objective 3: To provide enabling resources to make the committees functional by June 2012.

Actions

- DPC and DHMT should convene an inaugural meeting by February 2012 and sustain regular meetings thereafter
- Produce National epidemic preparedness and response plan incorporating IHR by March 2012
- Develop Guidelines and SOPs for field investigation and case identification at all levels by April 2012
- Solicit funding for logistics by January 2012
- Train personnel by May 2012

Expected Outputs/Outcomes

- EMC operational by January 2012
- National RRT by April 2012
- Rapid response teams functional by May 2012

SP 4: Workforce capacity development

Current status

Workforce capacity development is essential to acquire the right knowledge and skills to conduct effective disease surveillance and response**.** As of April 2010, when DPC in collaboration with CDC conducted a workforce needs assessment for public health surveillance, there were no formally trained medical epidemiologists in the system and the frontline workers had need for training in basic epidemiology and public health surveillance including data analysis The laboratories are grossly understaffed in terms of trained personnel with a high percentage of unskilled personnel providing services in PHU laboratories. There are no trained laboratory technicians with competencies in public health surveillance.

Key Issues and Challenges

- Inadequate numbers of skilled personnel
- Inadequate exposure of laboratory personnel to disease surveillance and response competencies
- Inadequate surveillance data analysis and interpretation
- Inadequate in-country public health professional development opportunities in public health surveillance and epidemiology
- Lack of defined career paths for disease surveillance personnel

Policy Statement

Investment in people should be a priority. Attaining a critical mass in capacity-development both in epidemiology and public health laboratory management will improve competence; enhance skill, understanding and further advance disease surveillance and response.
The DPC on behalf of the MoHS will lead efforts by all partners involved with Health systems strengthening in the country to institutionalize epidemiology and public health surveillance workforce capacity development at all levels

Strategic Objectives, Actions and Targets

This will have four key elements namely: developing skill in epidemiology through long, medium and short-term field epidemiology training programme, laboratory strengthening including quality assurance and bio- safety, improved communications and data management skills, and training of various categories of health professionals, particularly frontline health workers

Objective 1

Equip all surveillance M & E and public health laboratory officers at national and district levels including programme managers and DMOs with competencies in basic epidemiology, public health surveillance and outbreak investigation as a short-term measure by March 2013

Actions

- DHMT in collaboration with DPC and Laboratory services to identify surveillance, M&E and Public Health Laboratory personnel, including zonal health supervisors, DMOs and p rogram managers yet to be trained in basic epidemiology, Public health surveillance and outbreak investigation by February 2012.

- DPC to collaborate with WHO and CDC to produce a plan for next series of short courses for these national and district level surveillance staff by March 2012.

Objective 2

To train personnel to master degree-level in epidemiology, public health surveillance and lab management at national and regional level as medium-term measure by December 2014

Actions

- DPC and lab services to identify eligible medical, laboratory, and vetenary personnel for 2 year advanced training in field epidemiology and lab management by January 2012.

- DPC and lab services along with human resources department of MoHS should develop a training plan for the 2 year advanced course by March 2012.

- DPC to engage Health systems development partners to source funding for the 2 year training programme by January 2012.

Objective 3

To establish a collaborative in-country training program focused on public health surveillance, epidemiology and laboratory management as a long-term measure by October 2013.

Actions

- DPC with support of SELTWG to constitute a multidisciplinary and multisectoral steering committee on in-country FELTP by January 2012

- DPC on behalf of MoHS to convene inaugural meeting of the steering committee by March 2012

- Steering committee to develop and finalize in-country FELTP plan by May 2012

Objective 4

Equip all peripheral health unit surveillance staff with requisite public health surveillance skills by December 2013

Actions

- DPC to collaborate with DHMT to conduct cascade training for both private and public sector peripheral health unit surveillance staff including community volunteers by December 2012.

- Reorient health staff to an integrated surveillance system and provide the new skills needed. Staff trained should include representatives from the private sector, NGOs and community groups in surveillance by June 2013

Objective 5

Establish a career path in epidemiology and public health surveillance within the MoHS by December 2013

Actions

- DPC in collaboration with Human Resource Department of MoHS to develop a draft career path for epidemiology, public health surveillance and laboratory management professionals by August 2013

- DPC in collaboration with Human resource of MOHS to obtain approval from Directorate of National Human resource by December 2013

Expected Outputs/Outcomes

- Technical health staff trained in basic epidemiology, public health surveillance and outbreak investigation by December 2013
- Technical health staff at central and regional levels trained in advanced epidemiology, public health surveillance and laboratory management by December 2014
- In-country training programme on epidemiology, public health surveillance and laboratory management established by December 2013
- All PHU surveillance staff trained in public health surveillance by December 2013
- Career path in epidemiology and public health surveillance established in MoHS by August 2013

SP 5: Integration of private sector surveillance services into the national disease surveillance system

Current status

Currently other stakeholders in disease surveillance such as the health private sector inclusive of private practitioners, faith based health facilities, traditional healers, community practitioners, and NGOs are not fully participating in data collection, reporting and response.

Key issues and challenges

- Inadequate engagement and motivation for private sector participation in national disease surveillance.
- Limited understanding of importance of public health surveillance among private sector.
- Human resource and time constraint for disease surveillance in the private sector.
- Non user-friendly data collection tools for private sector surveillance.
- Inadequate public health surveillance skills.

Policy statement

MoHS shall engage and motivate private health sector to enhance data completeness and strengthen disease surveillance and response at the national, district and community levels.

Strategic Objectives, Actions and Targets

Objective 1

DPC and DHMT to establish an effective link with private health sector practitioners and obtain inventory of facilities in the district by February 2012

Actions

- DPC and DHMT to convene a meeting with leadership of private health sector organizati ons by February 2012

- Private health sector leadership to ensure active participation of its members in the national disease surveillance system by March 2012

Objective 2

MoHS to facilitate the participation of private sector in other relevant health training and activities by April 2012

Actions

- DPC and DHMT to initiate or strengthen invitation of private practitioners in MOHS activities beginning May 2012

Objective 3

DHMT to include private health sector data collection in the routine schedule of the DSOs and M & E officers by February 2012

Actions

- DPC/DHMT to adapt and disseminate IDSR community level case definitions and train community practitioners by March 2012

- DMOs to convene a briefing and commencement meeting with DSOs by January 2012

Expected Outputs/Outcomes

- Effective link established between DPC /DHMT and private health sector practitioners by March 2012
- Private sector participate in other relevant MoHS health trainings and activities by May 2012
- Private health sector data collection integrated in the routine schedule of the DSOs and M & E officers by February 2012

SP 6: Strengthen quality of management of the surveillance system

Current Situation

The quality of surveillance data including validity, completeness and timeliness of reporting is a key to provision of evidence-based information to ensure effective disease prevention and control. Currently completeness of reporting is about 75% and data on timeliness of reporting is inadequate. There is weak data transmission link between DPI and other programmes and directorates at national level, limited use of modern technology and data management techniques at all levels resulting in inability of the system to receive and act on information promptly.

Key issues and challenges

- Inadequate public health surveillance competencies to carry out effective supportive supervision.
- Suboptimal data sharing at all levels.
- Inadequate capacity for data management.
- Inadequate feedback at all levels.
- Inadequate logistic support.

Policy statement

MoHS shall establish appropriate processes and institutional arrangements at the central and district levels for effective data management, supportive supervision and periodic monitoring and evaluation of the disease surveillance and response system.

Strategic Objectives, Actions and Targets

Objective 1

To strengthen the capacity of the data management unit at all levels by December 2012.

Actions

- DPC and DPI to identify and train designated data managers at central level by June 2012.
- DPC and DPI in collaboration with DHMT to identify and train designated data managers at district level by August 2012

- DPC to designate a liaison officer to enhance coordination and linkage with DPI by February 2012

- DPI to designate a liaison officer to enhance linkage with other programmes by February 2012

Objective 2

MoHS to establish a system of joint disease surveillance supportive supervision and M & E from central to district level by April 2012.

Actions

- DPC to facilitate a collaboration meeting between DPI, and other programmes and directorates to plan joint supervision by February 2012

- DPI and DPC to draw up a joint surveillance supervision and M and E plan by February 2012

- Conduct joint supportive supervision and M and E beginning April 2012

- DPC to hold regular joint quarterly surveillance meetings with DPI & other directorates in attendance (on- going)

- DPI to ensure inclusion of DPC annual surveillance report in their annual health information report by January 2012

Expected Outputs/Outcomes

- Capacity of the data management unit strengthened at all levels by December 2012
- System of joint disease surveillance supportive supervision and M & E, from central to district level, established by March 2012.

Strategic Priority	Strategic Objectives	Strategic actions	Outputs	Indicators
SP1: Harmonization of data collection, analysis, interpretation ,feedback and dissemination	1.1To develop/review standard case definitions for all diseases under surveillance by Dec. 2012	1.1.1 NSO take inventory of existing case definitions for all diseases under surveillance by January 2012	Inventory of case definitions compiled by February. 2012	Copies of compiled case definitions
		1.1.2 DPC to constitute an ad-hoc committee to review and standardize all case definitions by February 2012	List of standardized case definitions produced and adopted by August 2012	Copies of standardized case definitions
		1.1.3 Train staff on case definitions and use by Dec 2012	Staff trained by Dec 2012	No. of staff trained and using case definitions correctly
	1.2.To complete harmonization of weekly and monthly data collection tools for the periphery by Dec 2012	1.2.1 Develop, review and harmonize formats for reporting by March 2012	Glossary of harmonized data collection tools available by April 2012	Copies of glossary

		1.2.2 Develop simple user friendly manuals, protocols and procedures for data management at all levels by February 2012	Standardized data collection and reporting system established Manuals, protocols, bench aid and procedures available by March 2012 Documentation overload reduced at all levels by December 2012	No. of health facilities using harmonized reporting tools No. of health units with and use manuals, protocols, bench aid and procedures for surveillance No. of forms in use at health unit
	1.3.To complete installation and activation of data transmission network at directorates and programmes by January 2012	1.3.1Install and commission data transmission servers at directorates and programmes by January 2012	Functional data transmission servers installed	# Directors & programmes with functional server and accessing data
		1.3.2 Provide regular feedback to relevant stakeholders in a timely manner as specified in the manual by March 2012	Functional feedback channels established	No. of PHUs and other stakeholders receiving feedback regularly
		1.3.3 Conduct data validation regularly as stated in the in manual by March 2012	Data validation conducted	Validation reports produce

		1.3.4 Develop data storage and retrieval system at all levels by June 2012	Data storage and retrieval system established	No. of sites with available data storage and retrieval system
SP 2: Ensure complete integration of surveillance and network of public health laboratory systems	2.1To integrate laboratory and epidemiology components of surveillance system by March 2012	2.1.1 Continue routine meetings of SELTWG on progress and opportunities for integration	Improved collaboration with laboratory management	Minutes and reports
		2.1.2 Involve laboratory personnel in routine surveillance meetings (ongoing) by December 2012	Collaboration fostered and strengthened	Minutes and reports
		2.1.3 Continue joint training of laboratory and epi surveillance personnel in public health surveillance by Dec 2012	District and Laboratory surveillance officers trained in public health surveillance	No. of fully functional laboratories at national and district levels with trained personnel in surveillance after Dec. 2012

		2.1.4 Include laboratory personnel in routine surveillance disease investigations by June 2012	Laboratory personnel participate in disease case investigations	No. of Labs participating fully in disease case investigation at all levels from June 2012
		2.1.5 Revise the national surveillance data flow to include laboratory at all levels by January 2012	The network of public health laboratories system fully integrated and support disease surveillance at all levels	No. of functional laboratories that fully support disease surveillance
	2.2 To ensure improvement in the quality of specimen management by Dec 2012	2.2.1 Train DSO and laboratory surveillance officer on specimen management by September 2012	Personnel trained in specimen management	No. of poor quality specimen rejected per month from December 2012
		2.2.2Transfer specimen collection to district laboratory personnel after sufficient work capacity developed at district laboratory by Dec 2012	All specimen management handled by trained laboratory officers and DSOs	No. of district laboratories with capacity to collect specimen

SP3: Development of epidemic management systems	3.1 To establish functional epidemic management committees at national and district levels by January 2012	3.1.1 DPC to initiate the formation of EMCs at national and district levels by January 2012	EMCs established by Aug 2012	No. of Multi sectoral committees established and functional at national and district levels
		3.1.2 DPC to convene an inaugural meeting and sustain regular meetings by March 2012	Inaugural meeting conducted	Minutes of the meetings
	3.2 To establish rapid response teams at district level by April 2012	3.2.1 DPC,DHMT and national level EMC to constitute RRTs at district level by April 2012	Rapid response teams established at district level by Nov. 2012	No. of districts with functional RRTs
		3.2.2 Training of RRT members at all levels by July 2012	RRT members trained and functional at all levels by July 2012	No. trained and reports produced

	3.3To provide enabling resources to make the committees functional by June 2012	3.3.1DPC and DHMT convene inaugural meeting by February 2012	Meeting convened	Minutes of meetings
		3.3.2 To produce national epidemic preparedness and response plan incorporating IHR by March 2012	Pan produced	Copies of the plan
		3.3.3 to develop Guidelines, SOPs for field investigation and case identification by April 2012	Guidelines and SOPs developed	Copies of the guidelines and SOPs
		3.3.4To train the personnel by May 2012	Training conducted	No. of personnel trained and functional
SP 4: Workforce capacity development	4.1 To train technical staff in basic epidemiology, public health surveillance and o utbreak investigat ion as a short-term measure by March 2013	4.1.1 DHMT in collaboration with DPC and Laboratory services to identify SOs, PHLOs and M&E officers for training by February 2012	Trainees identified	List of trainees
		4.1.2. DPC collaborate with WHO and CDC to produce plan for next series of short courses by March 2012	Training plan produced	Copies of the plan

		4.1.3. Organize and conduct trainings	Short-term trainings conducted	No. of personnel trained at national and district levels
	4.2 To train personnel to master degree level competency in epidemiology, public health surveillance and lab management at national and regional level as medium-term measure by December 2014	4.2.1 DPC and Lab. Services with HR-MoHS to identify eligible medical, laboratory and vet officers for training by January 2012	Trainees identified	List of trainees
		4.2.2 DPC and Lab Services with HR-MoHS to develop a training plan by March 2012	Training plan developed	Copy of the plan
		4.2.3 DPC to engage health systems development partners to source funding for the training by January 2012	Funding for training obtained	No. of personnel trained and deployed at regional and national levels
	4.3 To establish a collaborative in c ountry training programme focus on public health surveillanc e, epidemiology and laboratory management as a long-term measure by October 2016	4.3.1 DPC with support from SELTWG to constitute a multidisciplinary and multisectoral steering committee on in country FELTP by January 2012	Committee set up	List of committee members

		4.3.2 DPC to convene an inaugural meeting of the steering committee by March 2012	Meeting conducted	Minutes of meeting
		4.3.3 Steering committee to develop and finalize in-country FELTP plan by May 2012	Plan developed	Copy of the plan
	4.4 Equip all peripheral health unit surveillance staff with requisite public health surveillance skills by December 2013	4.4.1 DPC in collaboration with DHMT conduct cascade training for all PHU surveillance staff including private and community volunteers by Dec 2013	Cascade training on-going in all districts	No. of PHU staff trained in the districts
		4.4.2 Reorient public, private sector, NGOs and community groups on integrated surveillance system by June 2013	Orientation conducted	No. of staff and community groups oriented
	4.5 To establish a career path in epidemiology and public health surveillance within MoHS by	4.5.1 DPC with HR of MoHS develop draft career path proposal by August 2013	Draft career path proposal produced	Copy of the plan

	December 2013	4.5.2 DPC with HR MoHS obtain approval from the National HR Directorate by December 2013	Post approved by national DHR	Post exist in the MoHS scheme of service
SP 5: Integration of private sector surveillance services and IHR into the national disease surveillance system	5.1DPC and DH MT to establish a n effective link with private health sector practitioners and obtain inventory of facilities in the district by February 2012	5.1.1DPC and DHMT to convene meeting with leadership of private health sector organizations by February 2012	Link established and inventory compiled	List of private sector health facilities
		5.1.2 Private health sector leadership to ensure active participation of its members in national disease surveillance system by March 2012	Private sector fully participating in surveillance	No. of private sector trained and in surveillance

	5.2 MOHS to facilitate the participation of private sector in surveillance and other relevant health training and activities by April 2012	5.2.1 DPC and DHMT to strengthen invitation of private practitioners in MoHS activities beginning May 2012	Private sector practitioners participate in MoHS trainings	No. of reports received from private sector
	5.3DHMT to include private health sector data collection in the routine schedule of the DSOs and M & E officers by February 2012	5.3.1 DMOs to convene briefing and commencement meeting with DSOs by January 2012	Meeting conducted	Minutes of meeting and reports received from private sector
		5.3.2 DPC/DHMT to adapt and disseminate IDSR community level case definitions and train community practitioners	IDSR adapted and disseminated	Copies of adapted IDSR
SP 6: To **s**trengthen the quality of the surveillance system.	6.1Strengthen the capacity of the data management unit at all levels by December 2012	6.1.1 DPC and DPI to identify and train designated data managers at central level by June 2012	Data manager identified, trained and deployed at central level	No. of data managers at work at central level

		6.1.2 DPC and DPI to collaborate with DHMT to identify and train designated data managers at district level by August 201	Data manager identified, trained and deployed at district level	No. of districts with data managers at work
		6.1.3 DPC to designate a liaison officer to enhance coordination and linkage with DPI by February 2012	Linkage and coordination with DPI enhanced	Liaison officer in post
		6.1.4 DPI to designate a liaison officer to enhance linkage with other programmes by February 2012	Linkage with programmes enhanced	Liaison officer identified and functional

	6.2 MOHS to establish a system of joint disease surveillance supportive supervision and M & E central to district level by April 2012	6.2.1 DPC to facilitate a collaboration meeting between DPI, programmes and directorates to plan joint supervision by February 2012	Meetings held	Minutes of meetings
		6.2.2DPI and DPC to draw up joint surveillance supervision and M& E plan by February 2012	Plan developed	Copy of Plan
		6.2.3 Conduct joint supportive supervision and M and E beginning April 2012	Joint supervision conducted	No. of joint supervision reports
		6.2.4 DPC to hold regular joint quarterly surveillance meetings with DPI and other directorates in attendance by April 2012 and ongoing	Quarterly meetings held	Minutes and reports
		6.2.5 DPI ensure inclusion of DPC annual surveillance report in their annual health information report	DPC report incorporated in DPI annual report	DPI annual report with DPC input

Strategic Priority	Strategic Objectives	Strategic actions	Timefra
SP1: Harmonization of data collection, analysis, interpretation ,feedback and dissemination	1.1To develop/review standard case definitions for all diseases under surveillance by Dec. 2012	1.1.1 NSO take inventory of existing case definitions for all diseases under surveillance by January 2012	Febr 2012
		1.1.2 DPC to constitute an ad-hoc committee to review and standardize all case definitions by February 2012	Augu
		1.1.3 Train staff on case definitions and use by Dec 2012	Dec
	1.2.To complete harmonization of weekly and monthly data collection tools for the periphery by Dec 2012	1.2.1 Develop, review and harmonize formats for reporting by March 2012	Apri
		1.2.2 Develop simple user friendly manuals, protocols and procedures for data management at all levels by February 2012	Marc to Dece 2012
	1.3.To complete installation and activation of data transmission network at directorates and programmes by January 2012	1.3.1Install and commission data transmission servers at directorates and programmes by January 2012	Janu
		1.3.2 Provide regular feedback to relevant stakeholders in a timely manner as specified in the manual by March 2012	Marc
		1.3.3 Conduct data validation regularly as	Marc onwa

Implementation Plan and Budget 2012-2017

Strategic Priority	Strategic Objectives	Strategic actions	Timeframe	Cost in US$
SP1: Harmonization of data collection, analysis, interpretation ,feedback and dissemination	1.1To develop/review standard case definitions for all diseases under surveillance by Dec. 2012	1.1.1 NSO take inventory of existing case definitions for all diseases under surveillance by January 2012	February. 2012	900
		1.1.2 DPC to constitute an ad-hoc committee to review and standardize all case definitions by February 2012	August 2012	1,150
		1.1.3 Train staff on case definitions and use by Dec 2012	Dec 2012	9,510
	1.2.To complete harmonization of weekly and monthly data collection tools for the periphery by Dec 2012	1.2.1 Develop, review and harmonize formats for reporting by March 2012	April 2012	1,150
		1.2.2 Develop simple user friendly manuals, protocols and procedures for data management at	March 2012 to December 2012	1,150

		all levels by February 2012		
	1.3.To complete installation and activation of data transmission network at directorates and programmes by January 2012	1.3.1Install and commission data transmission servers at directorates and programmes by January 2012	January 2012	-
		1.3.2 Provide regular feedback to relevant stakeholders in a timely manner as specified in the manual by March 2012	March 2012	5,000
		1.3.3 Conduct data validation regularly as stated in the in manual by March 2012	March 2012 onward	1,200
		1.3.4 Develop data storage and retrieval system at all levels by June 2012	June 2012	1,500
SP 2: Ensure complete integration of surveillance and network of public health laboratory systems	2.1To integrate laboratory and epidemiology components of surveillance system by March 2012	2.1.1 Continue routine meetings of SELTWG on progress and opportunities for integration	March 2012 onward	6,000

		2.1.2 Involve laboratory personnel in routine surveillance meetings (ongoing) by December 2012	December 2012 onward	6,000
		2.1.3 Continue joint training of laboratory and epi surveillance personnel in public health surveillance by Dec 2012	Dec 2012 onward	100,000
		2.1.4 Include laboratory personnel in routine surveillance disease investigations by June 2012	June 2012 onward	LAB
		2.1.5 Revise the national surveillance data flow to include laboratory at all levels by January 2012	January 2012 onward	-

	2.2 To ensure improvement in the quality of specimen management by Dec 2012	2.2.1 Train DSO and laboratory surveillance officer on specimen management by September 2012	September 2012	5,000
		2.2.2Transfer specimen collection to district laboratory personnel after sufficient work capacity developed at district laboratory by Dec 2012	Dec 2012	-
	2.3 To improve laboratory human resources capacity at the national and district levels by December 2012	2.3.1 Follow up with the national laboratory strategic plan implementation	2012 onward	
		2.3.2 Include Lab. Scientists in the Field Epidemiology and laboratory training (FELTP)	2012 onward	84,000

SP3: Development of epidemic management systems	3.1 To establish functional epidemic management committees at national and district levels by January 2012	3.1.1 DPC to initiate the formation of EMCs at national and district levels by January 2012	January 2012	1,200
		3.1.2 DPC to convene an inaugural meeting and sustain regular meetings by March 2012	March 2012 onward	1,200
	3.2 To establish rapid response teams at district level by April 2012	3.2.1 DPC,DHMT and national level EMC to constitute RRTs at district level by April 2012	April 2012 to Nov. 2012	1,500

		3.2.2 Training of RRT members at all levels by July 2012	July 2012	20,000
	3.3To provide enabling resources to make the committees functional by June 2012	3.3.1DPC and DHMT convene inaugural meeting by February 2012	February 2012	1,200
		3.3.2 To produce national epidemic preparedness and response plan incorporating IHR by March 2012	March 2012	5,000
		3.3.3 to develop Guidelines, SOPs for field investigation and case identification by April 2012	April 2012	6,000
		3.3.4To train the personnel by May 2012	May 2012	7,400

SP 4: Workforce capacity development	4.1 To train technical staff in basic epidemiology, public health surveillance and o utbreak investigati on as a short-term measure by March 2013	4.1.1 DHMT in collaboration with DPC and Laboratory services to identify SOs, PHLOs and M&E officers for training by February 2012	February 2012	50
		4.1.2. DPC collaborate with WHO and CDC to produce plan for next series of short courses by March 2012	March 2012	1,200
		4.1.3. Organize and conduct trainings	March 2012 onward	5,000
	4.2 To train personnel to master degree level competency in epidemiology, public health surveillance and lab management at national and regional level as medium-term measure by December 2014	4.2.1 DPC and Lab. Services with HR-MoHS to identify eligible medical, laboratory and vet officers for training by January 2012	January 2012	-
		4.2.2 DPC and Lab Services with HR-MoHS to develop a training plan by March 2012	March 2012	1,200
		4.2.3 DPC to engage health systems development partners to source funding for the training by January 2012	January 2012	568,000

	4.3 To establish a collaborative in co untry training programme focus on public health surveillance , epidemiology and laboratory management as a long-term measure by October 2016	4.3.1 DPC with support from SELTWG to constitute a multidisciplinary and multisectoral steering committee on in country FELTP by January 2012	January 2012	-
		4.3.2 DPC to convene an inaugural meeting of the steering committee by March 2012	March 2012	1,000
		4.3.3 Steering committee to develop and finalize in-country FELTP plan by May 2012	March to May 2012	5,000
	4.4 Equip all peripheral health unit surveillance staff with requisite public health surveillance skills by	4.4.1 DPC in collaboration with DHMT conduct cascade training for all PHU surveillance staff including private and community	May 2012 to Dec 2013	1,890,000

	December 2013	volunteers by Dec 2013		
		4.4.2 Reorient public, private sector, NGOs and community groups on integrated surveillance system by June 2013	June 2013	580,000
	4.5 To establish a career path in epidemiology and public health surveillance within MoHS by December 2013	4.5.1 DPC with HR of MoHS develop draft career path proposal by August 2013	August 2013	5,000
		4.5.2 DPC with HR MoHS obtain approval from the National HR Directorate by December 2013	December 2013	-
SP 5: Integration of private sector surveillance services and IHR into the national disease surveillance system	5.1DPC and DHT to establish an effective link with private health sector practitioners and obtain inventory of	5.1.1DPC and DHMT to convene meeting with leadership of private health sector organizations by February 2012	February 2012	1,200

	facilities in the district by February 2012	5.1.2 Private health sector leadership to ensure active participation of its members in national disease surveillance system by March 2012	March 2012 onward	-
	5.2 MOHS to facilitate the participation of private sector in surveillance and other relevant health training and activities by April 2012	5.2.1 DPC and DHMT to strengthen invitation of private practitioners in MoHS activities beginning May 2012	May 2012 onward	-
	5.3DHMT to include private health sector data collection in the routine schedule of the DSOs and M & E officers by February 2012	5.3.1 DMOs to convene briefing and commencement meeting with DSOs by January 2012	January 2012	-
		5.3.2 DPC/DHMT to adapt and disseminate IDSR community level case definitions and train community practitioners by February 2012	February 2012	5,000

SP 6: To **s**trengthen the quality of the surveillance system.	6.1Strengthen the capacity of the data management unit at all levels by December 2012	6.1.1 DPC and DPI to identify and train designated data managers at central level by June 2012	June 2012	1,200
		6.1.2 DPC and DPI to collaborate with DHMT to identify and train designated data managers at district level by August 201	August 201	5,000
		6.1.3 DPC to designate a liaison officer to enhance coordination and linkage with DPI by February 2012	February 2012	2,000
		6.1.4 DPI to designate a liaison officer to enhance linkage with other programmes by February 2012	February 2012	-

	6.2 MOHS to establish a system of joint disease surveillance supportive supervision and M & E central to district level by April 2012	6.2.1 DPC to facilitate a collaboration meeting between DPI, programmes and directorates to plan joint supervision by February 2012	February 2012	1,500
		6.2.2DPI and DPC to draw up joint surveillance supervision and M& E plan by February 2012	February 2012	-
		6.2.3 Conduct joint supportive supervision and M and E beginning April 2012	April 2012 and onward	134,868
		6.2.4 DPC to hold regular joint quarterly surveillance meetings with DPI and other directorates in attendance by April 2012 and ongoing	April 2012 and onward	5,000

		6.2.5 DPI ensure inclusion of DPC annual surveillance report in their annual health information report by January 2013	January 2013	-

Total= US$ 3,478,278*

*This includes the cost for four vehicles, one for each region for joint supervision and M&E