



Republic of Zambia

MINISTRY OF HEALTH

# Annual Health Statistical Bulletin

## 2009

***DRAFT NO. 12***

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March, 2011



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## List of Abbreviations

<b>AFP</b>	Acute Flaccid Paralysis
<b>AIDS</b>	Acquired Immunodeficiency Syndrome
<b>ARCC</b>	African Regional Certification Commission
<b>ART</b>	Antiretroviral Treatment
<b>BCG</b>	<i>Bacillus Calmette Guerin</i>
<b>CBoH</b>	Central Board of Health
<b>CDE</b>	Classified Daily Employees
<b>CHW</b>	Community Health Worker
<b>CSO</b>	Central Statistical Office
<b>DANIDA</b>	Danish International Development Agency
<b>DHIO</b>	District Health Information Officer
<b>DHIO</b>	District Health Information Officer
<b>DMS</b>	Data Management Specialist
<b>DOT</b>	Directly Observed Treatment
<b>DPT</b>	<i>Diphtheria, Pertusis</i> and Tetanus
<b>FANC</b>	Focused Antenatal care
<b>HC</b>	Health Centre
<b>HIA</b>	Health Information Aggregation form
<b>HIV</b>	Human Immunodeficiency Virus
<b>HMIS</b>	Health Management Information System
<b>HSSP</b>	Health Services and Systems Program
<b>IDSR</b>	Integrated Disease Surveillance and Response
<b>IMCI</b>	Infant and Maternal Child Initiative
<b>IP</b>	In Patient
<b>ITN</b>	Insecticide Treated Nets
<b>MCH</b>	Maternal and Child Health
<b>OPV</b>	Oral Polio Vaccine
<b>PHO</b>	Provincial Health Office
<b>RDT</b>	Rapid Diagnostic Test
<b>RI</b>	Respiratory Infections
<b>SMC</b>	Suspected Measles Cases
<b>STD</b>	Sexually Transmitted Diseases
<b>STI</b>	Sexually Transmitted Infections
<b>TT</b>	<i>Tetanus Toxoid</i>
<b>tTBA</b>	trained Traditional Birth Attendant
<b>UTH</b>	University Teaching Hospital
<b>WHO</b>	World Health Organisation



## **Preface**

This report presents findings of the 2009 Annual Health Statistical Bulletin, the eleventh (11<sup>th</sup>) bulletin that the Ministry of Health has produced since 1999.

The main objectives of this bulletin are to provide valuable information for assessing health status and health services utilisation for monitoring health sector performance. It provides the national picture and covers the three year period 2007 to 2009. Details of facility and district statistics are not included.

I wish to urge district and provincial medical offices to take up the initiative of producing similar annual health statistical bulletins so that facility, district and provincial level information is analyzed for informed decision-making.

In order to ensure that the quality of these data and their reliability are enhanced, supportive interventions already in place such as regular trainings among new and old staff on the use and management of routine data, data audit exercises and performance assessment, should be strengthened.

In order to further strengthen this report, feedback on its contents or presentation would be greatly appreciated.

**Hon. Kapembwa Simbao, MP**  
**MINISTER OF HEALTH**



## Acknowledgments

Many people have contributed to the successful production of the *2009 Annual Health Statistical Bulletin*. The input of all personnel at the health facilities, the district, the province and the national level were vital to this process.

My thanks and appreciation are extended to Dr. Christopher Simoonga (Acting Director of Policy & Planning), Mr. Chipalo Kaliki (Acting Deputy Director of Monitoring and Evaluation), Ms. Brivine Sikapande (Senior M & E Officer), Mr. Calvin Kalombo (Senior M & E Officer), Mr. Trust Mufune (Senior M & E Officer), Mr. Patrick Amanzi (M & E Officer), Ms. Julian Belemu (NAO accounting Officer) and Mr. Masauso Phiri (Data Management Officer), for their tireless efforts and commitment shown throughout the compilation of this report.

Other individuals whose efforts were instrumental in the timely submission of the reports to the Ministry of Health headquarters are the Data Management Specialists (DMS) from the provinces. They include Ms. Gloria Silondwa (Central Province), Mr. Edwin Gwai (Copperbelt Province), Mr. Beron Nsonga (Eastern province), Mr. Whiteson Mvula (Luapula Province), Mr. Lewis Mwila (Lusaka Province), Mr. Denis Choba (Northern Province), Mr. Ndonji Kaleji (North-Western Province), Mr. Josephat Kunda (Southern Province) and Mr. Francis Sibeso (Western Province).

I also wish to recognize the contributions made by all program officers at national, provincial, district and facility levels for their patience and diligence in providing the required information during the desk reviews and field interviews; without their co-operation, this bulletin would not have been a success.

Further, I wish to thank all those who contributed in one way or another in making the publication of this bulletin a success.

**Dr. Peter Mwaba**  
**Permanent Secretary**  
**MINISTRY OF HEALTH**





## Executive Summary

Chapter	Indicator	Summary comments
Chapter 1: <b>Background</b>	Report Completeness	<ul style="list-style-type: none"> <li>The proportion of complete reports submitted to the national level reduced from 92% in 2007 to 87% in 2008 and then increased to 93% in 2009, with Copperbelt Province having the highest proportion of HMIS report completeness while Lusaka had the lowest.</li> </ul>
Chapter 2: <b>Levels of Health Care System</b>	Number of Health Facilities	<ul style="list-style-type: none"> <li>1881 health facilities were recorded in the country. Out of this number, 1,490 were Government owned while 267 were private and 124 were mission.</li> <li>There were 6 Third Level Hospitals; 21 Second Level Hospitals 84 First Level Hospitals; 436 Urban Health Centres; 1,059 Rural Health Centres; and 275 Health Posts.</li> <li>Total number of beds and cots recorded was 25,918 and 3,298, respectively</li> </ul>
Chapter 3: <b>Disease Burden</b>	Malaria Incidence	<ul style="list-style-type: none"> <li>The annual malaria incidence was estimated at 358 cases per 1,000 population in 2007, and dropped to 246 cases per 1,000 population in 2009.</li> </ul>
	Diarrhoea (non-bloody incidence)	<ul style="list-style-type: none"> <li>The national incidence rate of diarrhoea reduced from 76 per 1,000 population in 2007 to 69 per 1,000 population in 2008 and then increased slightly to 72 per 1,000 population in 2009.</li> </ul>
	respiratory infections (non-pneumonia) incidence	<ul style="list-style-type: none"> <li>The national respiratory infections (non-pneumonia) incidence rate reduced from 219 per 1,000 population in 2007 to 198 per 1,000 population in 2008 and then increased to 238 1,000 population in 2009</li> </ul>
	Non-polio acute flaccid paralysis (AFP rate)	<ul style="list-style-type: none"> <li>The non-polio AFP rate for children under 15 years of age increased from 1.8 per 100, 000 in 2007 to 3.3 per 100,000 in 2009.</li> </ul>
	measles detection rate	<ul style="list-style-type: none"> <li>The annualized measles detection rate decreased from 3.4 per 100,000 population in 2007 to 2.5 per 100,000 population in 2009. The minimum target for this indicator was 2 per 100,000 population.</li> <li>The proportion of negative samples that were <i>Rubella IgM</i> positive increased from 21% in 2007 to 34% in 2008 and then reduced to 24% in 2009.</li> <li>Non-measles febrile rash rate per 100,000 population increased from 3.4 in 2007 to 6.0 in 2008 and declined to 2.5 in 2009.</li> </ul>



Chapter Name	Indicator	Summary Comments
Chapter 3: <b>Disease Burden</b> (continues...)	TB notification rate	<ul style="list-style-type: none"> <li>TB notification rate per 100,000 population reduced from 414.6 per 100,000 population in 2007 to 377.9 per 100,000 population in 2008 and further to 376.8 per 100,000 population in 2009.</li> <li>TB completion rate reduced from 8.2 percent in 2007 to 6.5 percent in 2008 and then to 5.1 percent in 2009.</li> <li>TB cure rate from 76.7 percent in 2007 to 78.1 percent in 2008 and then to 82.6 percent in 2009</li> <li>TB success rate increased from 84.9 percent in 2007 to 84.6 percent in 2008 and then to 87.6 percent in 2009.</li> </ul>
	Number of clients on ARVs	<ul style="list-style-type: none"> <li>the number of clients accessing ARVs increased from 156,299 in 2007 to 219,576 in 2008 and then 283,863 in 2009</li> </ul>
Chapter 4: <b>Human Resource</b>	Number of Health Personnel	<ul style="list-style-type: none"> <li>836 medical doctors, 1,424 Clinical Officers, 1,130 Environmental Health Technologists and 120 Nutritionists, were recorded in 2009.</li> <li>Out of 9,932 nurses recorded countrywide, 5,436 were Enrolled Nurses, 2,025 were Registered Nurses, 1,789 Enrolled Midwives and 682 were Registered Midwives</li> </ul>
Chapter 5: <b>Service Delivery Indicators</b>	Health Centre utilisation	<ul style="list-style-type: none"> <li>Health centre utilization decreased from 1.22 per capita attendances in 2007 to 1.10 per capita in 2008 and then to 0.99 in 2009.</li> <li>Overall, health centre utilization during the period under review was higher for the age group 5 years and below than the age group 5 years and above.</li> </ul>
	Hospital average length of stay (ALoS)	<ul style="list-style-type: none"> <li>The national hospital average length of stay (ALoS) decreased from 4.9 in 2007 to 4.8 in 2008 and then to 4.7 in 2009.</li> </ul>
	Hospital Bed Occupancy Rate	<ul style="list-style-type: none"> <li><b><u>To be updated after data verification &amp; validation exercise</u></b></li> </ul>



<b>Chapter 6: Child Health</b>	Immunisation coverage	<ul style="list-style-type: none"> <li>National child immunization coverage increased from 85% in 2007 to 90% in 2008 and then to 94% in 2009, with Lusaka having the highest immunization coverage while .... had the lowest.</li> </ul>
	Underweight prevalence	<ul style="list-style-type: none"> <li>The national child underweight prevalence decreased from 10% in 2007 to 6% in 2008 and then to 3% in 2009.</li> </ul>

<b>Chapter 7: Maternal Health</b>	Antenatal coverage	<ul style="list-style-type: none"> <li>The national antenatal coverage increased from 92% in 2007 to 98% in 2008 and then decreased to 88% in 2009, with Central province having the highest coverage while Copperbelt had the lowest.</li> </ul>
	Average antenatal	<ul style="list-style-type: none"> <li>The national average antenatal visits reduced from 2.8 in 2007 to 2.6 in both 2008 and 2009.</li> </ul>
	Institutional deliveries,	<ul style="list-style-type: none"> <li>The proportion of institutional deliveries reduced from 46% in 2007 to 45% in 2008 and then to 44% in 2009</li> </ul>
	Supervised deliveries	<ul style="list-style-type: none"> <li>Supervised deliveries decreased from 62% in 2007 to 60% in 2008 and then to 58% in 2009</li> </ul>
	Deliveries attended by tTBA	<ul style="list-style-type: none"> <li>The proportion of deliveries attended by tTBA reduced from 17% in 2007 to 15% in 2008 and then increased to 23% in 2009</li> </ul>
	first postnatal coverage	<ul style="list-style-type: none"> <li>first postnatal coverage declined slightly from 56% in 2007 to 55% in 2008 and then increased to 64%</li> </ul>



# Chapter 1: Background

## 1.1 Introduction

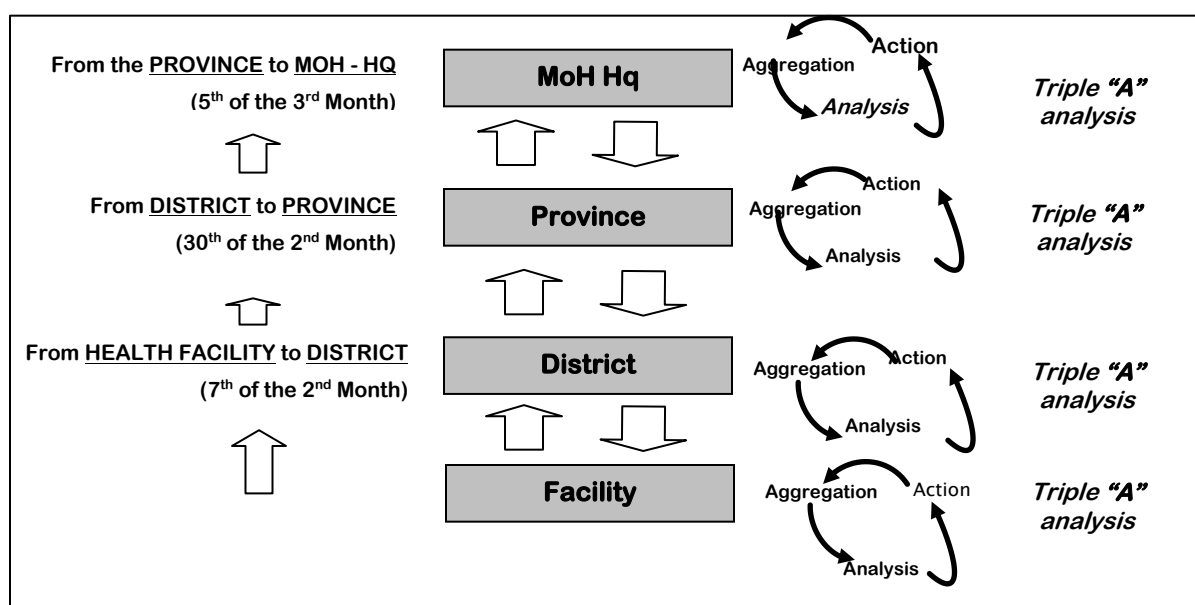
Every year, the Ministry of Health produces the Annual Health Statistical Bulletin. This bulletin is the eleventh (11<sup>th</sup>) in the series of statistical bulletins produced since 1999.

Compilation of data for this bulletin was carried out during the period June to September, 2010. The main objectives of this bulletin are to provide useful information which includes the number of health facilities in the country, trends in the incidence of disease burden, proportion of fully immunized children, maternal health indicators, among others. Data compiled for this bulletin covers all the public, mission and some private health facilities.

## 1.2 HMIS Data flow guideline

All data that is submitted from the health facilities to the national office follows an HMIS *data flow* guide. This guide was designed to detect and minimize the errors that may be captured at each level of the service delivery (i.e. from the health centre to the national level). This means that before data is submitted to the next level, it is verified and validated making it more reliable for policy formation, analysis and program implementation. This scenario is illustrated in figure 1.1.

**Figure 1.1 HMIS Data flow guideline**





**Notes:**  Data submission to the next level  Feedback to each level of health care delivery

The key steps in the flow of HMIS data from the health facility to the national level are as follows:

- Step 1:** Health workers collect data during service provision at the facility;
- Step 2:** At the end of the day, week, and/or month, data are validated, collated and added to the relevant *health information aggregation forms*;
- Step 3:** The Health Centre-In-Charge sends the HIA reports to the District Health Office by the **7<sup>th</sup> day** of the following month for data capture and processing by the District Health Information Officer (DHIO).
- Step 4:** The DHIO validates the data and enters it onto the District Health Information System (DHIS) database. The DHIO provides **feedback** (*see arrows going down*) on the data received from the health facility.
- Step 5:** The DHIO sends the district dataset to the Provincial Health Office (i.e. at the province) by the end of the **second month** for further processing and assessment. At the province, the provincial data Manager receives the dataset from the district. Again, the Provincial Data Manager provides **feedback** (*See arrows going down*) on the data received from the District Health Office.
- Step 6:** After the dataset reaches the provincial level, it is submitted to the Ministry of Health Headquarters by the **5<sup>th</sup> of the third month**, for final aggregation, analysis and action related sector interventions. Again once it is received, the National Data Manager provides **feedback** (*See arrows going down*) on the data received from the provincial data manager.

### 1.3 Triple “A” Analysis

The *triple A guidelines* focus on the processes of assessment, analysis and action. This process forms a cycle, with the results of actions becoming the focus of assessment, analysis, and further refinement of action during the next cycle. This process is also known as the problem solving cycle in Quality Assurance (QA).

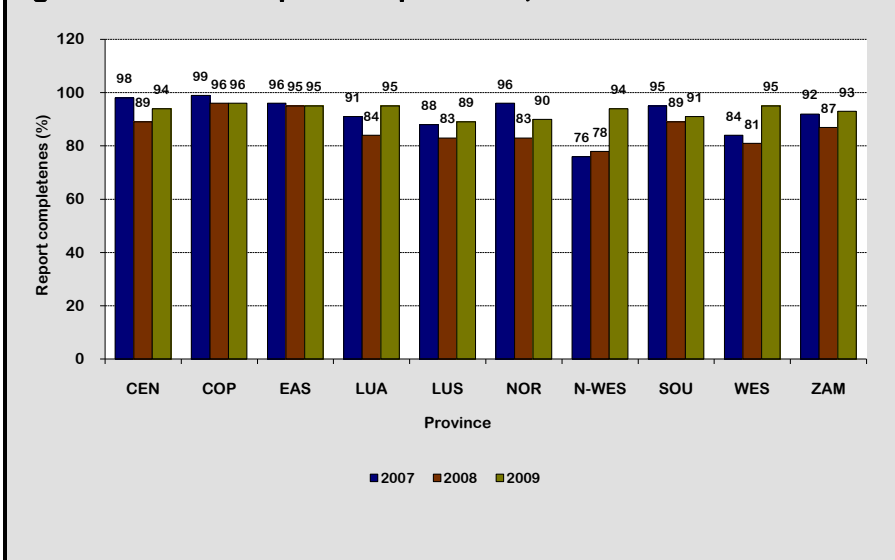


## 1.4 Report Completeness

Report completeness is defined as the number of reports received from health institutions (i.e. health centres and hospitals) during a given period of time per the number of reports that should have been received during the time period. The main purpose of this indicator is to increase the quality and completeness of HMIS data. Report completeness should be as close as possible to 100%, and at least more than 90% (HMIS, 1998).

Figure 1.2 presents data on report completeness by province for the period 2007 to 2009. The figure shows that there was a slight reduction in the proportion of complete reports submitted to the national level from 92% in 2007 to

**Figure 1.2: HMIS Report Completeness, 2007 to 2009**



87% in 2008 while in 2009; it increased to 93%. Provincial comparison shows that Copperbelt Province had the highest proportion of HMIS report completeness during the period under review. North-Western Province on the other hand, had the lowest proportion of report completeness during the period 2007 and 2008 while in 2009 Lusaka Province was lowest.

## 1.5 Outline of the remaining Chapters

The remaining Chapters have been arranged as follows:

**Chapter Two:** Provides a general description of the different levels of health care systems in Zambia. Information about the number of government, mission and private health facilities is also provided.



- Chapter Three:** Discusses *disease burden* and focuses on the major causes of visits to the health facilities. The chapter also discusses the top five (5) causes of morbidity in the health facilities and these are compared by age group and province.
- Chapter Four:** Discusses key indicators on *human resources* such as the number of *medical doctors, nurses, clinical officers*.
- Chapter Five:** This chapter presents information on key *health service performance indicators* such as *health centre (HC) utilisation, bed occupancy rates* and *hospital average length of stay*.
- Chapter Six:** This chapter presents information on *child health indicators* such as *underweight prevalence* and *child vaccination*.
- Chapter Seven:** This chapter presents information on maternal health indicators such as *antenatal coverage, average antenatal visits, institutional deliveries* and *first postnatal attendance*.
- Limitations:** This section outlines some limitations of the report.
- Conclusion:** This section makes concluding remarks on a few health indicators



## Chapter 2: Level of Health Care System

### 2.1 Introduction

This section provides a general description of the different levels of health care systems in Zambia. Information about the number of government, mission and private health facilities is also provided.

### 2.2 Description of the different levels of health Care System in Zambia

In Zambia, health services are provided by Government institutions, church institutions, mining and other industrial companies. The National Health Strategic Plan (NHSP) of 2006-2010 defines the framework within which both public and private service delivery is organized, which is based on the Zambia Basic Health Care Package (CBoH *et al* 2003). This package is delivered through a system which comprises of 5 levels of health care as follows:

#### 2.2.1 Third Level Hospitals

Third level hospitals also called *Specialist or Tertiary Hospitals* are the highest referral hospitals in Zambia. These hospitals cater for a catchment population of approximately 800,000 and above, and have sub-specializations in internal medicine, surgery, paediatrics, obstetrics, gynaecology, intensive care, psychiatry, training and research. All complicated cases not attended to at second level hospitals are referred to third level hospitals. Currently, there are six (6) Third level hospitals in the country.

#### 2.2.2 Second Level Hospitals

Second level hospitals, also referred to as *Provincial or General Hospitals*, are found at provincial level. They are intended to cater for a catchment population of between 200,000 and 800,000 people, with services in internal medicine, general surgery, paediatrics, obstetrics and gynaecology, dental, psychiatry and intensive care services. These hospitals also act as referrals for the first level institutions, including the provision of technical back up and training functions. Currently, there are twenty one (21) second level hospitals in the country.





### 2.2.3 First Level Hospitals

First level hospitals, also referred to as *District Hospitals* are found at district level. They are the third largest levels of care after the Second and Third Level referral hospitals. These serve a population of between 80,000 and 200,000 and provide services such as medical, surgical, obstetric and diagnostic services and all clinical services in support of health centre referrals. Currently, there are eighty four (84) first level hospitals in the country.

### 2.2.4 Health Centres

There are two types of health centres in the health care delivery system in Zambia. These are urban health centres, which serve a catchment population of between 30,000 to 50,000 people; and rural health centres, which serve a population of 10,000 people. Currently, there are 436 urban health centres and 1,059 rural health centres in the country.

### 2.2.5 Health Posts

These are the lowest levels of health care and are built in communities. They cater for a catchment population of approximately 3,500 in rural areas and 1,000 to 7,000 in the urban settings and are set up within 5km radius for sparsely populated areas. The types of health services offered at this level are basic first aid rather than curative. Currently, there are 275 health posts in the country.

## 2.3 Number of health facilities by province, facility type and ownership

*Table 2.1* presents a summary analysis of the list of health facilities in the country by province, facility type and ownership, for 2009 (*Please refer to Appendix A*).

**Table 2.1: Summary analysis of the list of health facilities by province, 2009**

Province	Summary analysis for 2009
Central	<p>🏥 <b>189 health facilities</b> were recorded in Central province. Out of this number, <b>165</b> were Government owned health facilities, <b>14</b> (private) and <b>10</b> (mission).</p> <ul style="list-style-type: none"> <li>○ There were <b>2</b> Second Level Hospitals; <b>7</b> First Level Hospitals; <b>31</b> Urban Health Centres; <b>114</b> Rural Health Centres; and <b>35</b> Health Posts.</li> <li>○ The province has no Third Level Hospital;</li> <li>○ Total number of beds and cots recorded was <b>1,958</b> and <b>225</b>, respectively.</li> </ul>



Table 2.1: Summary analysis of the list of health facilities by province, 2009, continued...

Province	Summary analysis for 2009
<b>Copperbelt</b>	<ul style="list-style-type: none"> <li>235 health facilities were recorded in Copperbelt province. Out of this number, 164 were Government owned health facilities, 61 (private) and 10 (mission).</li> <li>There were 3 Third Level Hospitals; 9 second level hospitals; 8 First Level Hospitals; 137 urban health centres; 53 rural health centres; and 25 health posts.</li> <li>Total number of beds and cots recorded was 4,907 and 969, respectively</li> </ul>
<b>Eastern</b>	<ul style="list-style-type: none"> <li>227 health facilities were recorded in Eastern province. Out of this number, 211 were Government owned health facilities and 16 were mission health facilities. There were no private health facilities recorded during the period under review.</li> <li>There were 2 Second Level Hospitals; 8 First Level Hospitals; 8 Urban Health Centres; 156 Rural Health Centres; and 53 Health Posts.</li> <li>The province has no Third Level Hospital;</li> <li>Total number of beds and cots recorded was 3,242 and 365, respectively.</li> </ul>
<b>Luapula</b>	<ul style="list-style-type: none"> <li>142 health facilities were recorded in Luapula Province. Out of this number, 132 were Government owned health facilities 3 (private) and 7 (mission).</li> <li>There was 1 Second Level Hospital; 5 First Level Hospitals; 1 Urban Health Centre; 125 Rural Health Centres; and 10 Health Posts.</li> <li>The province has no Third Level Hospital;</li> <li>Total number of beds and cots recorded was 1,856 and 178, respectively</li> </ul>
<b>Lusaka</b>	<ul style="list-style-type: none"> <li>In 2009 279 health facilities were recorded in Lusaka Province. Out of this number, 116 were Government owned health facilities, 156 (private) and 7 (mission).</li> <li>The province has no Second Level Hospital;</li> <li>There were 3 Third Level Hospitals; 15 First Level Hospitals; 182 urban health centres; 47 rural health centres; and 32 health posts.</li> <li>Total number of beds and cots recorded was 2,911 and 515, respectively</li> </ul>
<b>Northern</b>	<ul style="list-style-type: none"> <li>216 health facilities were recorded in Northern Province. Out of this number, 189 were Government owned health facilities 9 private and 18 (mission).</li> <li>There were 2 Second Level Hospitals; 6 First Level Hospitals; 14 Urban Health Centre; 145 Rural Health Centres; and 49 Health Posts.</li> <li>The province has no Third Level Hospital;</li> <li>Total number of beds and cots recorded was 2,938 and 202, respectively.</li> </ul>

**Table 2.1: Summary analysis of the list of health facilities by province, 2009, continued...**

Province	Summary analysis
<b>North-western</b>	<ul style="list-style-type: none"> <li>✚ <b>167 health facilities</b> were recorded in North-Western Province. Out of this number, <b>137</b> were Government owned health facilities <b>8</b> (private) and <b>22</b> (mission).</li> <li>✚ There were <b>2</b> Second Level Hospitals; <b>10</b> First Level Hospitals; <b>19</b> Urban Health Centre; <b>120</b> Rural Health Centres; and <b>16</b> Health Posts.</li> <li>✚ The province has no Third Level Hospital;</li> <li>✚ Total number of beds and cots recorded was <b>2,599</b> and <b>263</b>, respectively</li> </ul>
<b>Southern</b>	<ul style="list-style-type: none"> <li>✚ <b>252 health facilities</b> were recorded in Southern Province. Out of this number, <b>216</b> were Government owned health facilities <b>13</b> (private) and <b>23</b> (mission).</li> <li>✚ There were <b>2</b> Second Level Hospitals; <b>13</b> First Level Hospitals; <b>34</b> Urban Health Centre; <b>172</b> Rural Health Centres; and <b>31</b> Health Posts.</li> <li>✚ The province has no Third Level Hospital;</li> <li>✚ Total number of beds and cots recorded was <b>3,418</b> and <b>328</b>, respectively.</li> </ul>
<b>Western</b>	<ul style="list-style-type: none"> <li>✚ <b>174 health facilities</b> were recorded in Western Province. Out of this number, <b>160</b> were Government owned health facilities <b>3</b> (private) and <b>11</b> (mission).</li> <li>✚ There was <b>1</b> Second Level Hospital; <b>12</b> First Level Hospitals; <b>10</b> Urban Health Centres; <b>127</b> Rural Health Centres; and <b>24</b> Health Posts.</li> <li>✚ The province has no Third Level Hospital;</li> <li>✚ Total number of beds and cots recorded was <b>2,089</b> and <b>253</b>, respectively.</li> </ul>
<b>All provinces combined</b>	<ul style="list-style-type: none"> <li>✚ <b>1881 health facilities</b> were recorded in the country. Out of this number, <b>1,490</b> were Government owned health facilities <b>269</b> (private) and <b>124</b> (mission).</li> <li>✚ There were <b>6</b> Third Level Hospitals; <b>84</b> First Level Hospitals; <b>21</b> Second Level Hospitals; <b>436</b> Urban Health Centres; <b>1,059</b> Rural Health Centres; and <b>275</b> Health Posts.</li> <li>✚ Total number of beds and cots recorded was <b>25,918</b> and <b>3,298</b>, respectively</li> </ul>



## Chapter 3: Disease Burden

### 3.1 Introduction

Disease burden is measured using the incidence and case fatality rates of any given disease. Disease incidence is defined as the number of new cases of a disease in a specific population over a period of time while case fatality rate is measured as total number of deaths from a specific illness out of the total number of cases admitted in a given health facility (Katzenellebogen, 1997).

This chapter presents data on the ten (10) major causes of morbidity to health facilities. It also presents data on notifiable diseases (e.g. acute flaccid paralysis, TB, measles, etc), number of HIV/TB core infected patients and number of clients on ART. Some key interventions put in place to explain variations observed for each indicator are also included.

### 3.2 Communicable diseases

#### 3.2.1 Major Causes of illness for all ages combined

*Table 3.1* presents information on the top ten (10) causes of visits to health facilities for 2007, 2008 and 2009, for all age groups combined. The three tables show a decline in malaria incidence rate from 359 per 1,000 population in 2007 to 252 per 1,000 population in 2008 and 246 per 1,000 population in 2009. During the same period under review, respiratory infection (non-pneumonia) was the second highest cause of morbidity and diarrhoea (non-bloody) being the third highest.


**Table 3.1: Ten (10) Major Causes of Visits to Health Facilities (for all ages combined), Zambia, 2007 to 2009**

Ten Major Causes of Visits to Health Facilities, Zambia 2007 (All ages) - 2007		Ten Major Causes of Visits to Health Facilities, Zambia 2008 (All ages) – 2008		Ten Major Causes of Visits to Health Facilities, Zambia 2009 (All ages) – 2009	
Disease Name	Incidence per 1,000 pop	Disease Name	Incidence per 1,000 pop.	Disease Name	Incidence per 1,000 pop
Malaria	359	Malaria	252	Malaria	246
Respiratory infection: non-pneumonia	219	Respiratory infection: non-pneumonia	198	Respiratory Infection Non-Pneumonia	238
Diarrhoea: non-bloody	76	Diarrhoea: non-bloody	69	Diarrhoea: non-bloody	72
Trauma <sup>2</sup>	50	Trauma <sup>2</sup>	47	Muscular Skeletal And Connective Tissue NonTrauma	39
Skin infections	38	Skin infections	38	Trauma Injuries Wounds Burns	34
Respiratory infections: pneumonia	37	Muscular skeletal & connective tissue	32	Eye Diseases Infectious total	30
Eye infection	35	Eye infection	31	Respiratory Infection Pneumonia	29
Muscular skeletal & connective tissue	30	Respiratory infections: pneumonia	30.8	Digestive System Non-Infectious	28
Digestive system not infectious	27	Skin infections	30.5	Skin Diseases Non-Infectious	20
Ear/Nose/throat infections	26	Ear/Nose/throat infections	27	Dental Carries	19

### 3.2.2 Major Causes of illness for under 5 and over 5 years

Tables 3.2 presents data for 2007, 2008 and 2009 on the incidence per 1,000 population for top ten (10) causes of visits to health facilities, for under 5 years age group and 5 years and above age group.

The table shows that although malaria is still the leading cause of morbidity in both the under 5 and over 5 year age groups, the

*Although malaria is still the leading cause of morbidity in both the under 5 and over 5 years age group, the incidence has been decreasing over time.*

incidence has been decreasing over time. In the under 5 years age group, malaria incidence reduced from 940 per 1,000 population in 2007 to 620 per 1,000 population in 2009. In the over 5 years age group, malaria incidence reduced from 220 per 1,000 population in 2007 to 154 per 1,000 population in 2009. Overall, for all diseases combined, the incidence was higher in the under 5 years age group than the 5 years and above age group.


**Table 3.2: Ten (10) Major Causes of Visits to Health Facilities (for under 5 years and over 5 years), Zambia, 2007 to 2009**

<b>Ten Major Causes of Visits to Health Facilities, Zambia 2007 (Under 5) – 2007</b>	
<b>Disease Name</b>	<b>Incidence per 1,000 pop. (under 5)</b>
Malaria	940
Respiratory infection: non-pneumonia	539
Diarrhoea: non-bloody	248
Respiratory infection: pneumonia	111
Eye infection	109
Skin Infections	89
Trauma	56
Ear/Nose/Throat Infections	54
Intestinal worms	34
Anemia	29

<b>Ten Major Causes of Visits to Health Facilities, Zambia 2008 (Under 5) – 2008</b>	
<b>Disease Name</b>	<b>Incidence per 1,000 pop. (under 5)</b>
Malaria	641
Respiratory infection: non-pneumonia	467
Diarrhoea: non-bloody	225
Eye Infections	93
Respiratory infection: pneumonia	85
Skin infections	72
Trauma: accidents, injuries, wounds, burns	53
Ear / Nose / Throat infections	53
Skin Diseases (not infectious)	33
Intestinal Worms	28

<b>Ten Major Causes of Visits to Health Facilities, Zambia 2009 (Under 5) - 2009</b>	
<b>Disease Name</b>	<b>Incidence per 1,000 pop. (under 5)</b>
Malaria	620
Respiratory Infection Non-Pneumonia	568
Diarrhoea Non-Bloody	230
Eye Diseases Infectious	91
Respiratory Infection Pneumonia	81
Skin Diseases Non-Infectious	46
Trauma Injuries Wounds Burns	42
Skin Infections	40
Digestive System Non-Infectious	30
Anemia	27

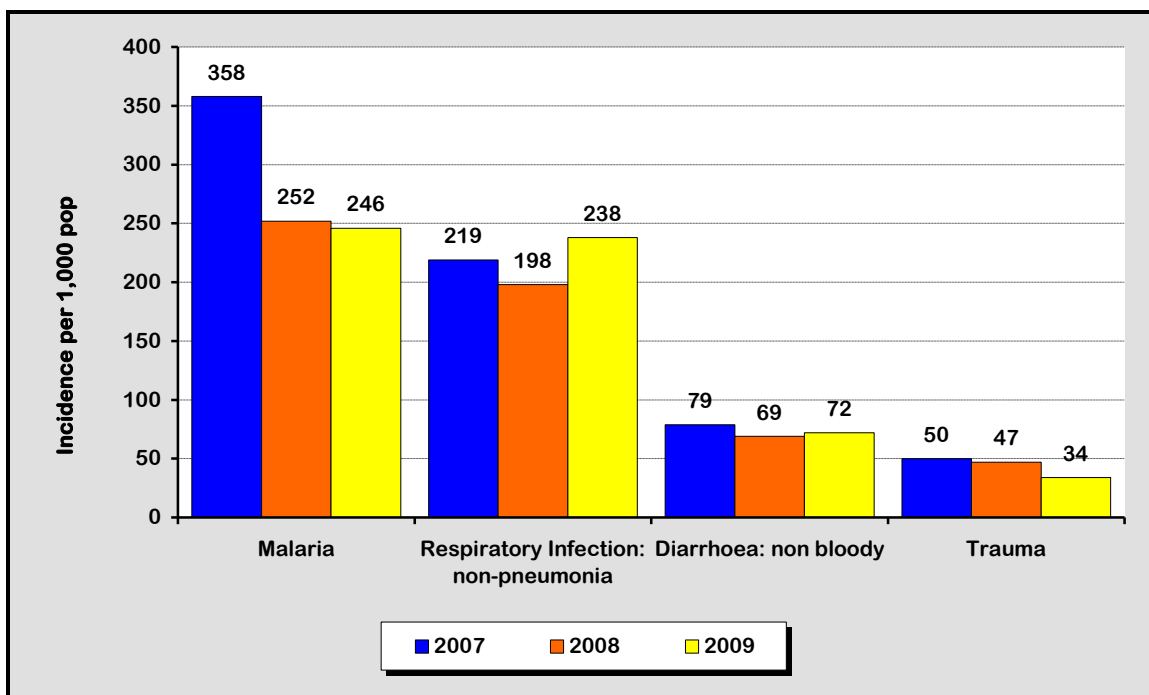
<b>Ten Major Causes of Visits to Health Facilities, Zambia 2007 (Over 5) – 2007</b>	
<b>Disease Name</b>	<b>Incidence per 1,000 pop (Over 5)</b>
Malaria	220
Respiratory infection: non-pneumonia	143
Respiratory infections: pneumonia	39
Muscular skeletal and connective tissue (not trauma)	36
Diarrhoea: non-bloody	35
Dental diseases	30
Digestive system (not infectious)	27
Skin infections	26
Eye infections	19
Sexually transmitted diseases	15

<b>Ten Major Causes of Visits to Health Facilities, Zambia 2008 (Over 5) – 2008</b>	
<b>Disease Name</b>	<b>Incidence per 1,000 pop (Over 5)</b>
Malaria	158
Respiratory infection: non-pneumonia	133
Trauma: accidents, injuries, wounds, burns	45
Muscular skeletal and connective tissue (not trauma)	39
Diarrhoea: non-bloody	32
Dental diseases	28
Digestive system (not infectious)	26
Ear / Nose / Throat infections	21
Skin infections	21
Respiratory infection: pneumonia	18

<b>Ten Major Causes of Visits to Health Facilities, Zambia 2009 (Over 5) - 2009</b>	
<b>Disease Name</b>	<b>Incidence per 1,000 pop (Over 5)</b>
Respiratory Infection Non-Pneumonia	154
Malaria	153
Muscular Skeletal and Connective Tissue NonTrauma	47
Trauma Injuries Wounds Burns	33
Diarrhoea Non-Bloody	33
Digestive System Non-Infectious	27
Dental Carries	23
Respiratory Infection Pneumonia	15
Eye Diseases Infectious	15
Throat Diseases	14



**Figure 3.1: Trends in the 5 major causes of visits to health facilities, Zambia, 2007 to 2009**



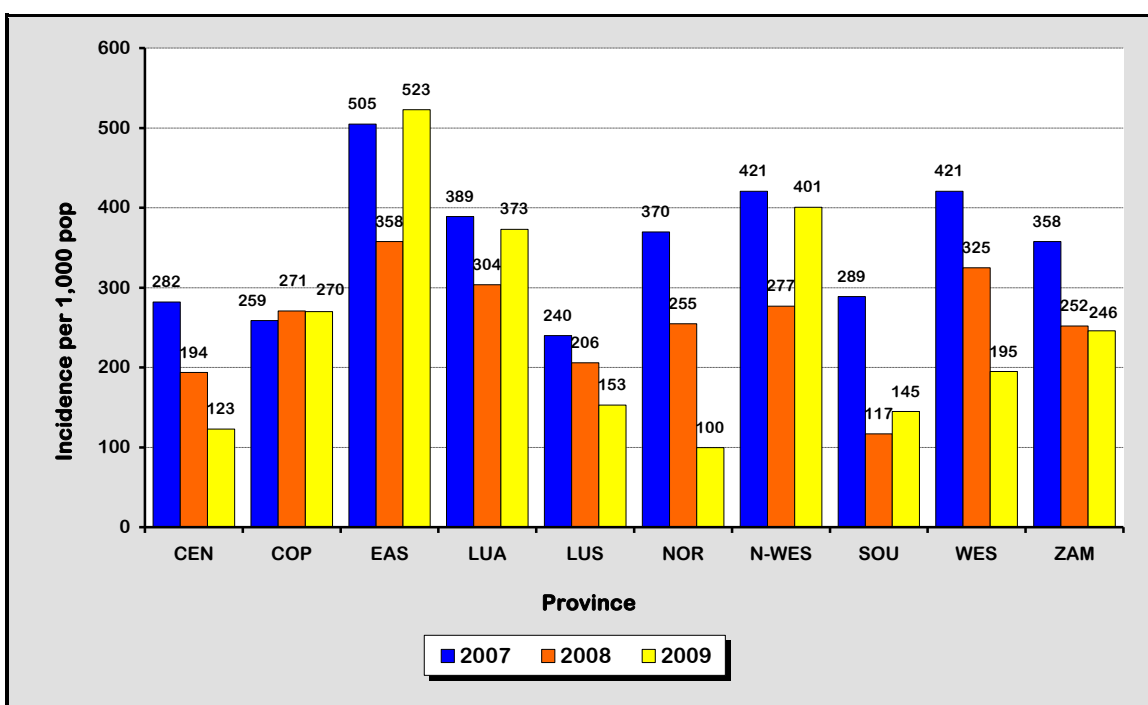
### 3.2.3 Malaria

The Government of the Republic of Zambia has identified the eradication of malaria and other major diseases as a priority to attain the Millennium Development Goals targets for reducing maternal and child mortality rates in Zambia (MoFNP, 2006). The country is also implementing specific short and medium-term programmes under the National Malaria Control Action Plan (NMCAP) aimed at scaling up malaria control and prevention strategies.

*The annual malaria incidence was estimated at 358 cases per 1,000 population in 2007, a drop from 246 cases per 1,000 population in 2009.*

#### 3.2.3.1 Malaria incidence

Figure 3.2 presents data on malaria incidence per 1,000 population, by province. The figure shows that the national incidence of malaria has been reducing during the period 2007 to 2009. The indicator reduced from 358 per 1,000 population in 2007 to 252 in 2008 and then to 246 per 1,000 population in 2009. A reduction of malaria incidence during the same period under review was observed for Central, Lusaka, Northern and Western provinces. The rest of the provinces had a fluctuating pattern.

**Figure 3.2: Malaria Incidence per 1,000 Population, 2007 - 2009**

In an effort to explain the trends of the indicators and interventions put in place to address health sector challenges, consultative meetings with program officers at all levels of the health care were conducted using semi-structured interviews. This information is indicated in the table 3.3:

**Table 3.3: Some interventions on malaria incidence**

**General observed trend:** There has been a general reduction of malaria incidence during the period 2007 to 2009. The indicator reduced from **358 per 1,000 population** in 2007 to **252** in 2008 and then to **246** in 2009.

Reasons that may explain the reduction in malaria incidence

- ✿ Use of rapid diagnostic test kits (RDTs) to confirm malaria cases has helped rule out fevers not related to malaria.
- ✿ Distribution of insecticide treated nets (ITNs) has had an impact on the reduction of malaria incidence in all provinces.
- ✿ Management protocols have contributed in reducing the reservoirs of infections among the community.
- ✿ Information, Education & Communication (IEC) on malaria has continued, hence people are able to apply personal protection measures against mosquito bites.
- ✿ Intermittent Preventive Treatment (IPT), in pregnant women is an effective malaria prevention strategy.





	<ul style="list-style-type: none"> <li>• Involvement of the communities in various malaria control strategies has proved to be very effective and sustainable.</li> </ul>
(i) Interventions that would need strengthening	<ul style="list-style-type: none"> <li>• Intensification of supervision in areas using RDTs</li> <li>• Health education via local radio station is very vital and should be encouraged</li> <li>• Intensification of indoor – residual spraying.</li> </ul>

### 3.2.3.2 Malaria Case Fatality Rate (hospitals only)

Malaria case fatality rate (CFR) is defined as the number of deaths in health institution due to malaria per 1,000 of cases admitted to health institution with diagnosed malaria.

Table 3.4 presents data on hospital case fatality rate

<b>Table 3.4 Malaria Case Fatality Rate per 1,000 admissions, by age group (Hospital Only), Zambia, 2007 - 2009</b>									
Province	2007			2008			2009		
	Under 5	Over 5	Total	Under 5	Over 5	Total	Under 5	Over 5	Total
Central	38	39	38	41	48	44	27	21	24
Copperbelt	61	22	40	38	28	32	29	22	25
Eastern	42	53	47	50	48	49	29	13	21
Luapula	38	41	39	39	41	40	23	18	21
Lusaka	36	31	34	34	48	41	19	66	43
Northern	28	27	28	23	40	31	29	12	20
North-Western	26	25	26	26	24	25	19	13	16
Southern	39	59	49	34	46	40	37	23	30
Western	34	64	50	33	55	43	25	36	30
<b>Zambia</b>	<b>41</b>	<b>38</b>	<b>40</b>	<b>38</b>	<b>40</b>	<b>39</b>	<b>26</b>	<b>25</b>	<b>26</b>

per 1,000 admissions for malaria, by age group and province, for the period 2007 to 2009. The table shows an overall reduction of hospital malaria case fatality rate during the period under review from 40 per 1,000 admissions in 2007 to 26 per 1,000 admissions in 2009.

### 3.2.4 Diarrhoea (non Bloody)

Dehydration caused by severe diarrhoea is a major cause of morbidity and mortality among young children. A simple and effective response to dehydration is a prompt increase in fluid intake. Exposure to diarrhoea-causing agents is frequently related to the use of contaminated water and to unhygienic practices in food preparation and disposal of excreta (DHS, 2007).

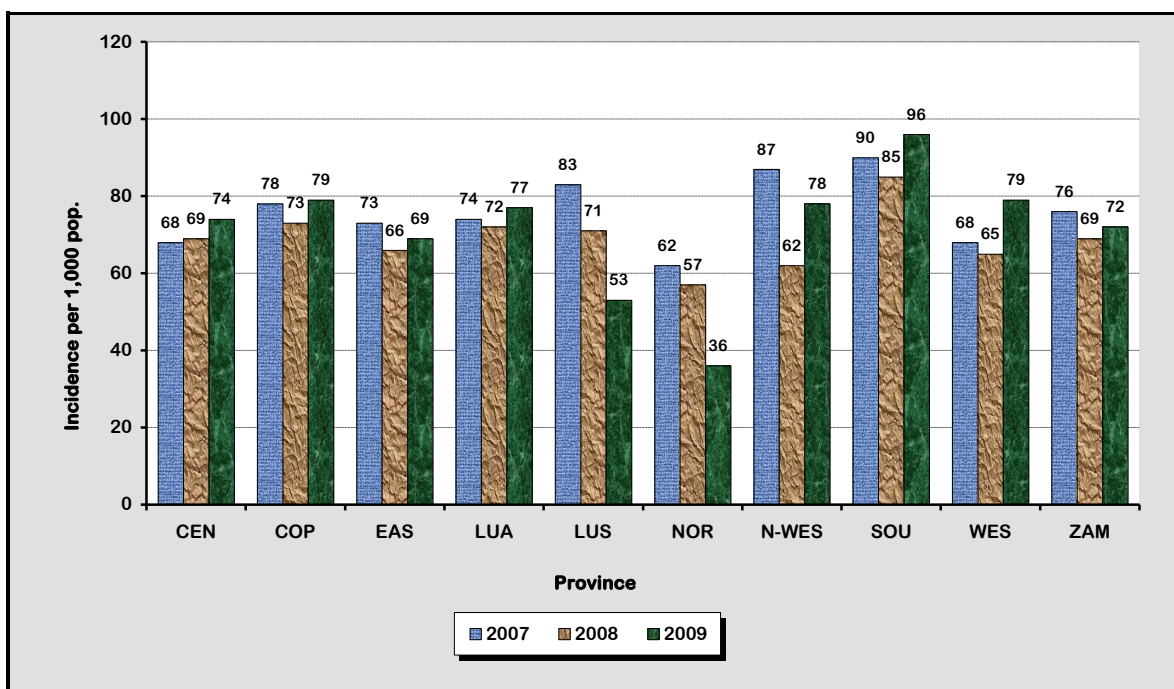


### 3.2.4.1 Diarrhoea (non-bloody) incidence)

In the HMIS, diarrhoea (non-bloody) incidence is defined as the number of new cases of diarrhoea (non-bloody) per 1,000 catchment population (HMIS, 2010). *Figure 3.3* presents trends of diarrhoea (non-bloody) incidence by province for the period 2007 to 2009. The figure shows that the national incidence rate of diarrhoea (non-bloody) has been fluctuating during the period 2007 to 2009. It reduced from 76 per 1,000 population in 2007 to 69 per 1,000 population in 2008 and then increased slightly to 72 per 1,000 population in 2009.

*The national incidence rate of diarrhoea (non-bloody) has been fluctuating during the period 2007 to 2009. It reduced from 76 per 1,000 population in 2007 to 69 per 1,000 population in 2008 and then increased slightly to 72 per 1,000 population in 2009.*

**Figure 3.3: Incidence of diarrhoea (non-bloody) per 1,000 population by Province, 2007-2009**





Program officers at provincial, district and facility level were asked questions on reasons for the observed variations on diarrhoea (non-bloody) and interventions put in place to address it. This information is included in the table below:

**Table 3.5: Some interventions on Diarrhoea (non-bloody) incidence**

<p><b>General observed trend:</b></p>	<p>The national incidence rate of diarrhoea (non-bloody) has been fluctuating during the period 2007 to 2009. The incidence reduced from 76 per 1,000 population in 2007 to 69 per 1,000 population in 2008 and then increased slightly to 72 per 1,000 population in 2009.</p>
<p>Reasons that may explain the observed variations</p>	<ul style="list-style-type: none"> <li>✿ Most districts have sunk boreholes with support from UNICEF in 2008 and plans are still underway to sink more boreholes.</li> <li>✿ The program to promote integrated pit-latrines and hand washing supported by UNICEF has contributed to the reduction of diarrhea incidence during the period 2007 to 2008.</li> <li>✿ Management for diarrhoea cases has generally improved and most districts have sufficient drugs and other logistics in the event of an outbreak like cholera.</li> <li>✿ Improved awareness on the use of clean drinking water is an important intervention for the reduction of diarrhoea (non-bloody).</li> </ul>
<p>Interventions that may need strengthening</p>	<ul style="list-style-type: none"> <li>✿ On-going sensitization of communities on diarrhea prevention should be encouraged if the incidence of diarrhoea (non bloody) has to reduce.</li> <li>✿ Chlorination of water sources can help reduce the incidence of diarrhea.</li> <li>✿ Regular inspection of food and premises is encouraged.</li> <li>✿ There is need to protect wells by fencing them</li> <li>✿ Strengthening epidemic preparedness committees at zonal and facility level should be encouraged</li> </ul>



### 3.2.4.2 Diarrhoea (non-bloody) case fatality rate (hospitals only)

In the HMIS, diarrhoea (non-bloody) case fatality rate is defined as the number of deaths due to diarrhoea (non-bloody) per 1,000 admissions of diagnosed diarrhoea (non-bloody). Table 3.6 presents data on

**Table 3.6: Diarrhoea (non-bloody) Case Fatality Rate per 1,000 admissions, by age group (Hospital Only), Zambia, 2007 - 2009**

Province	2007			2008			2009		
	Under 5	Over 5	Total	Under 5	Over 5	Total	Under 5	Over 5	Total
Central	114	134	123	126	108	118	146	145	116
Copperbelt	93	98	96	43	77	58	65	94	68
Eastern	88	60	74	93	78	87	91	93	84
Luapula	64	78	70	61	64	62	78	60	70
Lusaka	156	28	127	48	80	59	71	10	38
Northern	26	32	28	42	40	41	27	23	23
North-Western	47	35	43	26	61	37	49	50	40
Southern	101	103	102	64	86	73	58	59	59
Western	71	98	84	72	164	118	132	174	144
<b>Zambia</b>	<b>87</b>	<b>92</b>	<b>89</b>	<b>60</b>	<b>85</b>	<b>70</b>	<b>80</b>	<b>79</b>	<b>71</b>

hospital case fatality rate per 1,000 admissions by age group and province, for the period 2007 to 2009. The table shows that there was a reduction in hospital CFR of diarrhoea (non-bloody) of 89 deaths per 1,000 admissions in 2007 to 71 in 2009. The table also shows that overall, hospital CFR was higher for the age group 5 years and above than the age group 5 years and below in 2007 and 2008 unlike in 2009 where an inverse picture of the age groups was observed.

The table below provides possible reasons and interventions that the provinces, districts and health facilities could consider putting in place to address hospital malaria incidence.

**Table 3.7: Some interventions on CFR for Diarrhoea (non-bloody)- hospitals only**

**General observed trend:** There was a reduction in hospital CFR of diarrhoea (non-bloody) of 89 deaths per 1,000 admissions in 2007 to 71 in 2009.

Interventions that may need strengthening

- ✚ There is need to strengthen referral system for management of complicated diarrhoea
- ✚ There is need to improve staffing levels especially for facilities manned by classified daily employees (CDEs).
- ✚ There is need to intensify, the on - going sensitization of communities on diarrhea prevention than having to do this when there is an outbreak.



### 3.2.5 Respiratory Infection (non pneumonia)

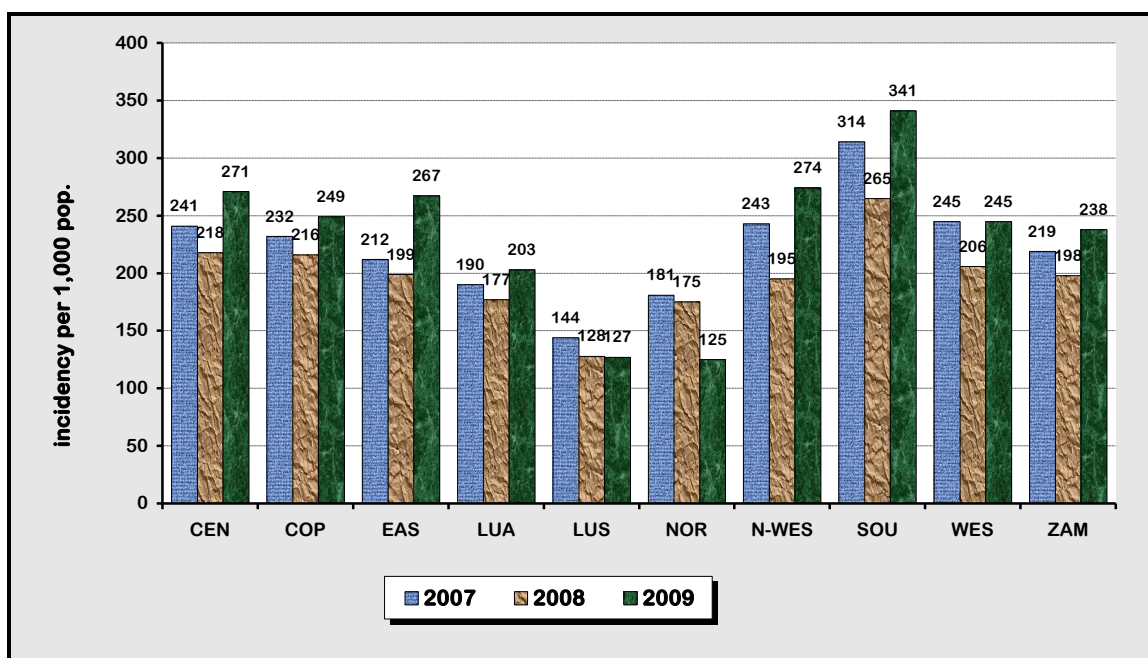
Acute respiratory infection (ARI) is among the leading causes of childhood morbidity and mortality throughout the world. Early diagnosis and treatment with antibiotics can prevent a large proportion of deaths caused by ARI (ZDHS, 2007).

#### 3.2.5.1 Respiratory Infection (non pneumonia) incidence

In the HMIS, respiratory infection (non-pneumonia) incidence is defined as the number of new cases of respiratory infection (non- pneumonia) per 1,000 catchment population (HMIS, 2008).

*Figure 3.4 shows trends of the incidence of respiratory infections (non-pneumonia) per 1,000 population by province. The figure shows that the national respiratory infections (non-pneumonia) incidence rate reduced from 219 per 1,000 population in 2007 to 198 per 1,000 population in 2008 and then increased to 238 1,000 population in 2009.*

**Figure 3.4: Respiratory Infection (non-pneumonia) Incidence per 1,000 Population, 2007 - 2009**



Program officers at provincial, district and facility level were asked questions on reasons for the observed variations on respiratory infections (non-pneumonia) and interventions put in place to address it. This information is included in *table 3.7*.

**Table 3.7: Some interventions on respiratory infections (non-pneumonia) incidence**

<b>General observed trend:</b> The national respiratory infections (non-pneumonia) incidence rate reduced from <b>219 per 1,000 population</b> in 2007 to <b>198 per 1,000 population</b> in 2008 and then increased to 238 per 1,000 population in 2009.	
Reasons that may explain the observed variations	<ul style="list-style-type: none"> <li>Although the trend of the incidence of respiratory infections (non-pneumonia) has been reducing, little education by most households to keep their children warm has been done.</li> <li>IMCI programs have contributed to proper diagnosis of pneumonia cases. In addition, the program helps in training health workers in general diagnosis of health conditions.</li> <li>Improved case management and availability of drugs during the period under review contributed to the reduction of the indicator</li> </ul>
Interventions that may need strengthening	<ul style="list-style-type: none"> <li>There is need to strengthen sensitization &amp; education to communities.</li> <li>More support in case management and provision of guidelines and protocols.</li> </ul>

### 3.2.5.2 Respiratory Infection (non pneumonia) case fatality rate hospitals only

Table 3.8 presents data on *hospital case fatality rate per 1,000 admissions* for respiratory infections (non-pneumonia) by age group and province, for the period 2007 to

2009. The table shows that in 2007 and 2008, Southern Province had the highest hospital case fatality rate while in 2009 Western Province had the highest case fatality rate. The table shows that for all provinces

<b>Table 3.8: Respiratory Infections: Non-Pneumonia Case Fatality Rate per 1,000 admissions, by age group (Hospital Only), Zambia, 2007 - 2009</b>									
Province	2007			2008			2009		
	Under 5	Over 5	Total	Under 5	Over 5	Total	Under 5	Over 5	Total
Central	33	41	38	44	52	48	20	35	28
Copperbelt	52	61	56	24	100	55	18	39	26
Eastern	51	21	32	34	22	28	40	26	33
Luapula	30	36	33	42	73	57	42	18	27
Lusaka	9	16	13	14	28	22	32	53	42
Northern	16	15	16	10	7	9	5	5	5
North-Western	14	49	24	6	7	6	11	17	12
Southern	41	40	40	27	38	33	18	27	22
Western	46	48	47	82	59	67	53	92	69
<b>Zambia</b>	<b>39</b>	<b>44</b>	<b>41</b>	<b>27</b>	<b>60</b>	<b>42</b>	<b>26</b>	<b>35</b>	<b>29</b>

and age groups combined, *hospital case fatality rate per 1,000 admissions* for respiratory infections (non-pneumonia), increased from *41 per 1,000 admissions* in 2007 to *42 per 1,000 admissions* in 2008 and then decreased to *29 per 1,000 admissions* in 2009.





### 3.3 Notifiable Diseases

Notifiable diseases are any diseases that are required by law to be reported to government authorities immediately. The collation of information allows the authorities to monitor the diseases, and provide early warning of possible outbreaks. Government has enacted regulations for reporting of both human and animal (generally livestock) diseases.

Notifiable diseases are classified as such because they can easily and/or quickly spread within the population, causing high morbidity and mortality. These diseases have been classified in the Integrated Disease Surveillance and Response (IDSR) strategy, to ensure that they are effectively prevented, managed and controlled when they occur (IDSR, 2002) to reduce fatalities and also so as to comply with International Health Regulations (IHR) 2005.

In the HMIS, there are ten (10) notifiable diseases namely; *acute flaccid paralysis (AFP)*, *measles*, *neonatal tetanus*, *dysentery*, *cholera*, *plague*, *rabies*, *typhoid fever*, *yellow fever*, *tuberculosis (TB)* and currently the eleventh notifiable disease is *human influenza*. Every single case should be investigated and followed up at each level of service delivery system.

This section discusses notifiable diseases, which include AFP, measles, neonatal tetanus and *tuberculosis (TB)*.

#### 3.3.1 Acute Flaccid Paralysis (AFP)/Suspected Polio

Acute flaccid paralysis (AFP) is a condition in a person under 15 years of age presenting with sudden onset of weakness of the limbs without prior history of injury (IDSR, 2006). The two key AFP surveillance indicators are *non-polio AFP rate* and *stool adequacy rate*. According to WHO, a surveillance system that is able to detect at least one case of non-polio AFP case for every 100,000 children under 15 years (non-polio AFP rate) will also be able to detect any wild poliovirus. Stool adequacy rate is the percentage of two (2) stools collected within 14 days of onset of paralysis and the target is 80% (IDSR, 2002).

All detected AFP cases should be adequately investigated by having two (2) stool samples collected within 14 days post onset of paralysis, and specimen transported under reverse cold chain within 72 hours of collecting the first stool sample for testing in a WHO accredited national polio laboratory. The National Polio Laboratory is located at



the Virology Laboratory, University Teaching Hospital. Zambia successfully presented her complete country documentation for polio-free status in October 2005 to the African Regional Certification Commission (ARCC). The evidence documentation was satisfactory and Zambia was awarded status of having no indigenous wild poliovirus circulating.

*Table 3.9a* shows that non-polio AFP rate for children under 15 years of age increased from 1.8 per 100, 000 in 2007 to 3.1 per 100,000 in 2008 and then 3.3 per 100,000 in 2009. All the 9 provinces achieved the operational surveillance indicator of 2.0 per 100, 000 children less than 15 years.

### 3.3.1.1 Acute Flaccid Paralysis Indicators

**Table 3.9a: AFP Surveillance Performance Indicators by Province, 2007 and 2009**

Provinces	Expected number of AFP Cases			Detected AFP cases			Annualised non-polio AFP rate *		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Central	12	13	13	13	16	21	2.1	2.5	3.2
Copperbelt	18	18	19	10	18	27	1.1	2.0	2.9
Eastern	16	17	17	11	22	24	1.4	2.7	2.8
Luapula	9	10	10	9	14	12	1.9	2.9	2.4
Lusaka	17	17	18	16	30	33	1.9	3.5	3.7
Northern	16	16	17	17	20	24	2.1	2.4	2.8
North – Western	7	7	7	10	12	13	2.8	3.3	3.5
Southern	15	15	15	10	35	30	2.4	4.7	3.9
Western	9	9	9	8	21	22	2.0	4.7	4.8
<b>Zambia</b>	<b>119</b>	<b>122</b>	<b>126</b>	<b>105</b>	<b>188</b>	<b>206</b>	<b>1.8</b>	<b>3.1</b>	<b>3.3</b>

*\*1 per 100,000 children less than 15 years of age.*





Table 3.9b shows that stool adequacy rate was sustained above the target of 80% but decreased from 95% in 2007 to 89% in 2008 and then increased to 91% in 2009.

**Table 3.9b: AFP Surveillance Performance Indicators by Province, 2007 and 2009**

Provinces	AFP cases with 2 stools within 14 days of onset (Stool adequacy)*					
	2007		2008		2009	
	No.	%	No.	%	No.	%
Central	11	85.0	16	100.0	21	100.0
Copperbelt	10	100.0	15	83.0	24	89.0
Eastern	11	100.0	20	91.0	23	96.0
Luapula	8	89.0	12	86.0	11	92.0
Lusaka	15	94.0	27	90.0	28	85.0
Northern	17	100.0	18	90.0	23	96.0
North – Western	9	90.0	12	100.0	12	92.0
Southern	10	100.0	31	89.0	25	83.0
Western	9	100.0	17	81.0	21	95.0
<b>Zambia</b>	<b>100</b>	<b>95.0</b>	<b>168</b>	<b>89.0</b>	<b>188</b>	<b>91.0</b>

**Table 3.10: Some interventions on AFP Surveillance Performance Indicators**

**General observed trend:** All provinces achieved certification level of AFP surveillance for both non-polio AFP rate and stool adequacy rate indicators

Reasons that may explain the observed variations	<ul style="list-style-type: none"> <li>The surveillance system is supported by four (4) WHO Surveillance Officers and nine (9) Ministry of Health Provincial Surveillance Officers that ensure active surveillance for suspected poliomyelitis cases or AFP cases is conducted regularly.</li> <li>So far, the indicators show evidence that there is no wild poliovirus circulating in the country since the two core indicators are at certification level standard.</li> </ul>
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### 3.3.2 Non – Polio AFP Rate

All the provinces attained both the certification and operational surveillance indicator for non-polio AFP rate. The highest operational non-polio AFP rate was in Western and Southern provinces at 4.8 and 3.9 respectively while the lowest was Luapula Province with 2.8 per 100,000 children under 15 years of age. Districts that do not detect and report any AFP cases are referred to as “*silent districts*” and such districts could reduce the performance indicators and hence need to be closely monitored.

To sustain the performance of the indicators, every after 2 months provincial cluster surveillance technical review meetings for the district and provincial level surveillance staff are held every quarter. However, the frequency of technical monitoring meetings has reduced due to declining financing to these activities.

**Table 3.12: Some interventions on Non- AFP Surveillance Performance Indicators**

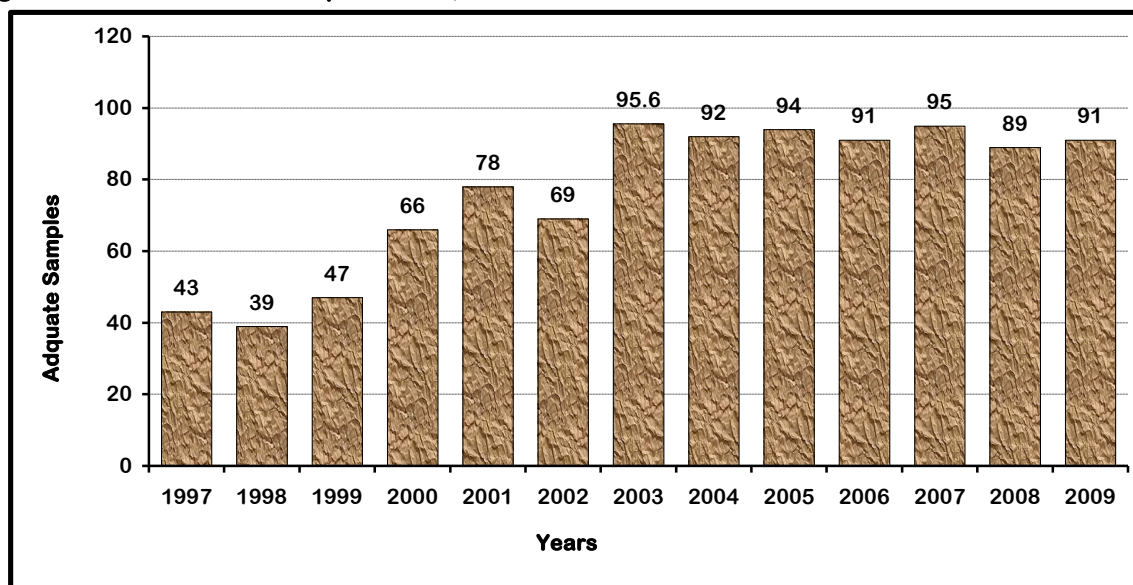
<b>General observed trend:</b>	From 2000, all provinces have been recording the expected minimum non-polio AFP rate of 1 per 100,000
Reasons that may explain the observed variations	<ul style="list-style-type: none"> <li data-bbox="521 1073 1372 1228">✚ There has been sustained AFP surveillance hence the non-polio AFP rate increased and has been sustained above 2 per 100,000 children &lt; 15 years since the year 2000, except for the year 2007 which was at 1.8 per 100,000 &lt;15 years.</li> <li data-bbox="521 1270 1372 1398">✚ There is need for efforts by MOH, WHO and other partners to ensure that the indicators are sustained, as it is the sensitivity indicator in the detection of any possible wild polio virus.</li> </ul>



### 3.3.3 Stool Adequacy Rate

Figure 3.5 shows that in 2007 and 2009, the country achieved stool adequacy rates of 95% and 91%, respectively.

**Figure 3.5: Trends of AFP Specimens, 1996 – 2009**



Although the non-polio AFP and the stool adequacy rates are presented by province, it is important that all facilities and districts strive to satisfy the indicators at facility or district levels if the provincial and national indicators are to be achieved and sustained.

**Table 3.13: Some interventions on AFP Specimen (Stool adequacy)**

<b>General observed trend:</b> In 2007 and 2009, the country achieved stool adequacy rate of 95% and 91%, respectively.	
Reasons that may explain the observed variations	<ul style="list-style-type: none"> <li>Stool samples adequacy or stool adequacy is a quality indicator for the samples being tested. Target is 80% of samples that have been collected <math>\leq 14</math> days post onset of paralysis.</li> <li>This indicator was only achieved in 2003 and has been sustained since then. Initially, the surveillance programmes focus was to raise the detection rate and the officers identified these cases late. Through retraining this trend was reversed.</li> </ul>



### 3.3.4 Measles Surveillance Performance Indicators

Measles case-based and laboratory-based surveillance involves confirming every suspected measles case in non-outbreak times. Once a measles outbreak is confirmed, the rest of the cases within the same outbreak are epidemiologically-linked. In such instances, the first five suspected cases of measles are confirmed and the subsequent cases are confirmed by epidemiological linkage. Serum samples are collected for antibody testing to confirm the disease. The process involves detecting *IgM* antibodies for measles virus in serum. The *rubella IgM* testing is done on negative samples.

The annualized non-measles febrile rash rate increased from 3.4 per 100,000 population in 2007 to 2.5 per 100,000 population in 2009. This information is presented in *Table 3.15a*. The minimum target for this indicator is 2 per 100,000 population.

Non-measles febrile rash rate per 100,000 population increased from 3.4 in 2007 to 6.0 in 2008 and then declined to 2.5 in 2009.

**Table 3.15a: Measles surveillance performance indicators by Province, 2007 – 2009**

Provinces	# total SMC with sample			Non-measles febrile rash rate (Cases per 100,000 pop -target 2/100,000)			Number of Measles <i>IgM</i> positive cases		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Central	70	64	26	4.0	4.5	1.9	20	6	0
Copperbelt	119	153	67	5.4	6.8	3.0	17	24	10
Eastern	18	33	25	1.1	2.0	1.4	0	0	1
Luapula	75	29	50	2.6	1.6	4.8	50	13	0
Lusaka	149	317	110	6.9	15.7	5.8	30	39	3
Northern	20	113	9	1.1	5.8	0.4	2	15	2
North – Western	81	25	17	2.6	2.8	2.2	62	4	0
Southern	42	100	35	2.5	5.6	1.7	4	14	9
Western	31	37	13	3.2	4.0	1.3	2	0	1
<b>Zambia</b>	<b>605</b>	<b>871</b>	<b>352</b>	<b>3.4</b>	<b>6.0</b>	<b>2.5</b>	<b>186</b>	<b>115</b>	<b>26</b>

*Table 3.15b* shows that measles *IgM* rate reduced from 31% in 2007 to 13% in 2008 and then to 7% in 2009 due to the under 5 year measles immunization campaign conducted in 2007. The minimum target following a measles immunization campaign should be less than 10%. The next measles supplemental immunization is planned for the year 2010. The Table also shows that the proportion of negative samples that were *Rubella IgM* positive increased from 21% in 2007 to 34% in 2008 and then reduced to 24% in 2009.

**Table 3.15b: Measles surveillance performance indicators by Province, 2007 – 2009**

Provinces	% of the Measles IgM Positive (target ≤10%)			Number of Rubella IgM positive cases			% of the Rubella IgM Positive		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Central	29	9	0	7	20	4	14	34	15
Copperbelt	14	16	15	24	53	8	24	41	14
Eastern	0	0	4	4	0	11	22	0	46
Luapula	67	45	0	0	4	15	0	25	30
Lusaka	20	12	3	25	95	22	21	34	21
Northern	10	13	22	1	0	6	6	0	86
North – Western	77	16	0	4	47	2	21	224	12
Southern	10	14	26	10	28	8	26	33	31
Western	6	0	8	12	9	2	41	24	17
<b>Zambia</b>	<b>31</b>	<b>13</b>	<b>7</b>	<b>87</b>	<b>256</b>	<b>78</b>	<b>21</b>	<b>34</b>	<b>24</b>

Table 3.15c shows that the percentage of districts with at least 1 sample per year reduced from 76% in 2007 to 60% in 2009.

**Table 3.15c: Measles surveillance performance indicators by Province, 2007 – 2009**

Provinces	No. of districts with at least 1 sample per year			% districts with at least 1 sample per year (Target is 80%)		
	2007	2008	2009	2007	2008	2009
Central	4	6	4	67	100	67
Copperbelt	10	8	8	100	80	80
Eastern	4	4	5	50	50	63
Luapula	7	5	3	100	71	43
Lusaka	3	4	4	75	100	100
Northern	12	10	5	100	83	42
North – Western	3	3	4	43	43	57
Southern	7	11	7	64	100	64
Western	5	6	3	71	86	43
<b>Zambia</b>	<b>55</b>	<b>57</b>	<b>43</b>	<b>76</b>	<b>79</b>	<b>60</b>



### 3.3.5 Tuberculosis

Tuberculosis (TB) is one of the notifiable diseases and is caused by a germ called *Mycobacterium Tuberculosis*. It normally affects the lungs although sometimes other parts of the body are also affected. Anyone who has been coughing for more than two weeks and has night sweats, lost weight, and losing appetite could be having TB. The most important test to make a diagnosis is sputum smear examination. Sputum tests confirm the diagnosis and assists in helping to put the patient on the correct treatment.

#### 3.3.5.1 Tuberculosis Notification Rate

Tuberculosis notification rate is defined as the total number TB notifications per 100,000 population.

*Table 3.16* presents data on TB notification rate per 100,000 population, by province. The table shows a general decline in the notification rate per 100,000 population from 414.6 per 100,000 population in 2007 to 377.9 per 100,000 population in 2008 and then to 376.8 per 100,000 population in 2009. Provincial comparisons show that, during the period 2007 to 2009, Lusaka Province had the highest TB notification rate per 100,000 population compared to the rest of the provinces. Northern Province on the other hand had the lowest TB notification rate per 100, 000 population.

**Table 3.16: TB Notification Rate Per 100,000 population, 2007 to 2009**

Province	2007			2008			2009		
	Total notified	Est. Total pop	Notification rate/ 100,000	Total notified	Est. Total pop	Notification rate/ 100,000	Total notified	Est. Total pop	Notification rate/ 100,000
Central	3,454	1,260,491	274.0	3,025	1,301,776	232.4	2,969	1,343,835	220.9
Copperbelt	10,863	1,927,576	563.6	19,860	1,980,824	1,002.6	10,586	2,034,012	520.4
Eastern	3,171	1,601,500	198.0	2,803	1,647,860	170.1	2,814	1,695,490	166.0
Luapula	2,318	965,605	240.1	1,954	997,579	195.9	1,956	1,030,572	189.8
Lusaka	17,157	1,660,070	1,033.5	16,624	1,697,730	979.2	17,649	1,733,830	1,017.9
North Western	2,132	731,351	291.5	1,966	756,261	260.0	1,887	781,800	241.4
Northern	2,141	1,534,170	139.6	2,035	1,577,310	129.0	1,833	1,619,980	113.1
Southern	6,147	1,499,462	409.9	6,051	1,545,880	391.4	5,988	1,592,864	375.9
Western	3,032	912,226	332.4	3,015	937,419	321.6	2,909	963,107	302.0
<b>Zambia</b>	<b>50,415</b>	<b>12,160,516</b>	<b>414.6</b>	<b>47,333</b>	<b>12,525,791</b>	<b>377.9</b>	<b>48,591</b>	<b>12,896,830</b>	<b>376.8</b>

### 3.3.5.2 Tuberculosis Completion Rate

Tuberculosis completion rate is defined as the total completed TB cases per the total number of enrolled TB cases, expressed as a percentage.

Table 3.17 presents data on TB completion rate by province. The Table shows a general decline in TB completion rate from 8.2 percent in 2007 to 6.5 percent in 2008 and then to 5.1 percent in 2009. The table also shows that during the period 2007 to 2009, North-Western province had the highest proportion of TB completion rate compared to the rest of the provinces. Southern Province on the other hand had the lowest TB completion rate.

**Table 3.17: TB completion Rate (%), 2007 to 2009**

Province	2007			2008			2009		
	Completed	Total enrolled	Completion rate (%)	Completed	Total enrolled	Completion rate (%)	Completed	Total enrolled	Completion rate (%)
Central	22	1,037	2.1	28	916	3.1	30	820	3.7
Copperbelt	223	2,596	8.6	182	2,876	6.3	210	3,044	6.9
Eastern	69	726	9.5	55	853	6.4	31	788	3.9
Luapula	99	677	14.6	79	706	11.2	70	627	11.2
Lusaka	348	4,179	8.3	260	3975	6.5	145	3,322	4.4
North									
Western	120	536	22.4	87	506	17.2	72	433	16.6
Northern	105	813	12.9	75	776	9.7	111	763	14.5
Southern	17	1,299	1.3	15	1,203	1.2	28	1,324	2.1
Western	62	1,124	5.5	55	995	5.5	44	1,002	4.4
<b>Zambia</b>	<b>1,076</b>	<b>13,137</b>	<b>8.2</b>	<b>836</b>	<b>12,806</b>	<b>6.5</b>	<b>671</b>	<b>13,173</b>	<b>5.1</b>

### 3.3.5.3 Tuberculosis Cure Rate

Tuberculosis cure rate is defined as the total TB cases cured per the total number of enrolled TB cases, expressed as a percentage.

*Table 3.18* presents data on TB cure rates, by province. The figure shows a general increase in TB cure rate from 76.7 percent in 2007 to 78.1 percent in 2008 and then to 82.6 percent in 2009. The table also shows that during the period 2007 to 2009, Southern Province had the highest proportion of TB cure rates compared to the rest of the provinces. Luapula Province on the other hand had the lowest TB cure rates during the period under review.



**Table 3.18: TB Cure Rate (%), 2007 to 2009**

Province	2007			2008			2009		
	Cured	Total enrolled	Cure rate (%)	Cured	Total enrolled	Cure rate (%)	Cured	Total enrolled	Cure rate (%)
Central	864	1,037	83.3	740	916	80.8	672	820	82.0
Copperbelt	1,970	2,596	75.9	2,174	2,876	75.6	2,346	3,044	77.1
Eastern	532	726	73.3	650	853	76.2	603	788	76.5
Luapula	416	677	61.4	511	706	72.4	441	627	70.3
Lusaka	3,282	4,179	78.5	3,150	3,975	79.2	2,796	3,322	84.2
North									
Western	385	536	71.8	380	506	75.1	319	433	73.7
Northern	601	813	73.9	596	776	76.8	542	763	71.0
Southern	1,089	1,299	83.8	1,032	1,203	85.8	1,128	1,324	85.2
Western	843	1,124	75.0	769	995	77.3	791	1,002	78.9
<b>Zambia</b>	<b>10,081</b>	<b>13,137</b>	<b>76.7</b>	<b>10,002</b>	<b>12,806</b>	<b>78.1</b>	<b>10,875</b>	<b>13,173</b>	<b>82.6</b>

### 3.3.5.4 Tuberculosis Success Rate

Tuberculosis success rate is defined as the total number of both TB cured and completed cases per the total number of enrolled TB cases, expressed as a percentage.

*Table 3.19* presents data on TB success rate by province, for the period 2007 to 2009. The table shows a general increase in TB success rate from 84.9 percent in 2007 to 84.6 percent in 2008 and then to 87.6 percent in 2009. The table also shows that during the period 2007 to 2009, North-Western Province had the highest proportion of TB success rates compared to the rest of the provinces. Luapula Province on the other hand had the lowest TB success rate in 2007, Copperbelt lowest in 2008 while Eastern had the lowest success rate in 2009.

**Table 3.19: TB Success Rate (%), 2007 to 2009**

Province	2007			2008			2009		
	Cured + completed	Total enrolled	Success rate (%)	Cured + completed	Total enrolled	Success rate (%)	Cured + completed	Total enrolled	Success rate (%)
Central	886	1,037	85.4	768	916	83.8	702	820	85.6
Copperbelt	2,193	2,596	84.5	2,356	2,876	81.9	2,556	3,044	84.0
Eastern	601	726	82.8	705	853	82.6	634	788	80.5
Luapula	515	677	76.1	590	706	83.6	511	627	81.5
Lusaka	3,630	4,179	86.9	3,410	3,975	85.8	2,941	3,322	88.5
North Western	505	536	94.2	467	506	92.3	391	433	90.3
Northern	706	813	86.8	671	776	86.5	653	763	85.6
Southern	1,106	1,299	85.1	1,047	1,203	87.0	1,156	1,324	87.3
Western	905	1,124	80.5	824	995	82.8	835	1,002	83.3

<b>Zambia</b>	<b>11,157</b>	<b>13,137</b>	<b>84.9</b>	<b>10,838</b>	<b>12,806</b>	<b>84.6</b>	<b>11,546</b>	<b>13,173</b>	<b>87.6</b>
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Program officers at provincial, district and facility level were asked questions on reasons for the observed some TB indicators and interventions put in place to address them. This information is included in the table below:

**Table 3.20: Some interventions on TB Notifications**

**General observed trend:** There was a general decline in the number of notifications from **50,415** in 2007 to **48,591** in 2009

Reasons that may explain the reduction in the number of TB notifications	<ul style="list-style-type: none"> <li>✿ Poor record keeping in the TB data.</li> <li>✿ Community awareness not adequate to sensitize people on the need for seeking TB treatment early.</li> <li>✿ The program mainly uses the passive case finding as part of the expanded DOTS strategy, which relies on a mobilized community for bringing in new cases for TB screening. This is a challenge, besides the stigma that is a major influencing factor in the health seeking behavior of TB suspects; health facilities are faced with declining numbers of volunteers to support this type of work. This also influences the follow-up of patients that do not adhere to treatment, as this is the key function of the TB treatment supporters.</li> </ul>
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**Table 3.20: Some planned activities on TB, continues...**

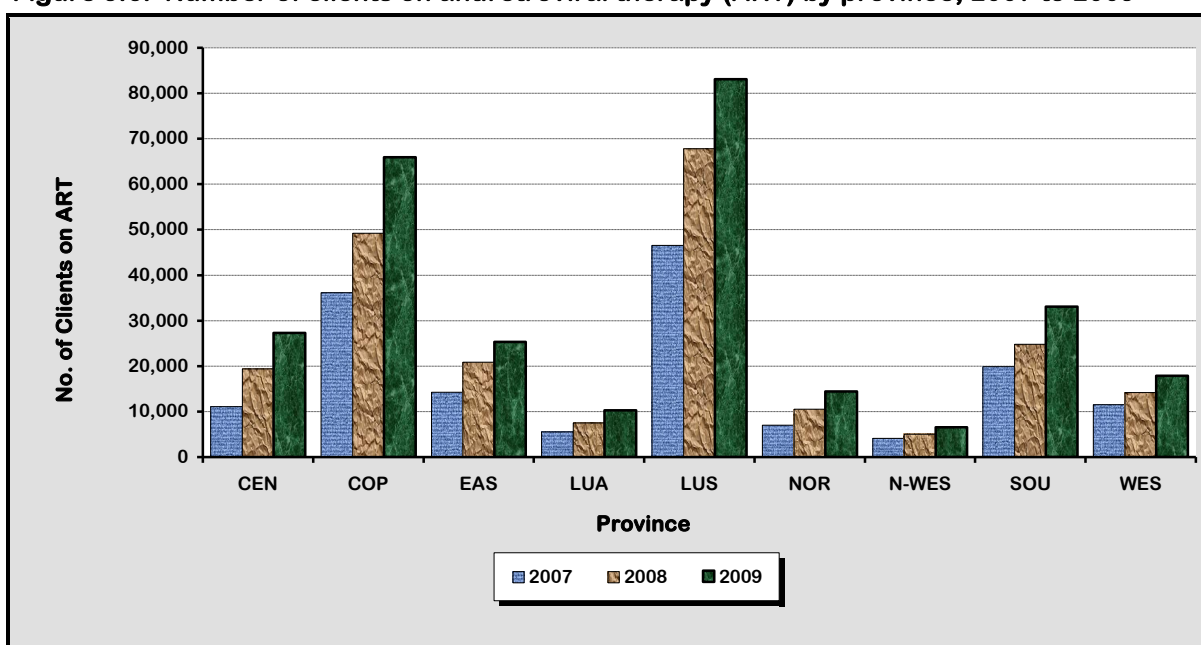
- ✚ Improve laboratories for accurate diagnosis, especially for TB in children and TB/HIV co-infected patients.
- ✚ Improving advocacy, communication and social mobilization for improved community awareness and addressing issues of stigma.
- ✚ There is need to begin to implement active case finding using interventions that work such as symptom screening.

The national TB program is currently using the WHO recommended program on the stop TB strategy which addresses the following 6 components:

- ✚ Pursuing quality DOTS expansion and enhancement.
- ✚ Addressing TB/HIV, multi-drug resistance (MDR)-TB and other challenges.
- ✚ Contributing to health system strengthening.
- ✚ Engaging all case providers.
- ✚ Involving affected communities & patients
- ✚ Enabling & promoting research

### 3.4 Number of Clients on Antiretroviral Therapy (ART)

Figure 3.6 presents data on the number of clients ever commenced on ART. The figure shows that overall; the number of clients accessing ARVs has been increasing overtime from 156,299 in 2007 to 219,576 in 2008 and then 283,863 in 2009.

**Figure 3.6: Number of clients on antiretroviral therapy (ART) by province, 2007 to 2009**

Year	Central	Copperbelt	Eastern	Luapula	Lusaka	Northern	North-Western	Southern	Western	Zambia
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<b>2007</b>	11,120	36,149	14,294	5,541	46,616	7,002	4,146	19,893	11,538	<b>156,299</b>
<b>2008</b>	19,444	49,276	20,905	7,523	67,825	10,523	5,070	24,827	14,183	<b>219,576</b>
<b>2009</b>	27,292	65,954	25,321	10,273	83,109	14,396	6,541	33,073	17,904	<b>283,863</b>

**Table 3.22: Some interventions on clients on antiretroviral therapy (ART)**

**General observed trend:** Overall, the number of clients accessing ARVs has been increasing overtime from **156,299** in 2007 to **219,576** in 2008 and then **238,863** in 2009.

Reasons that may explain the increase in the indicator

- ✿ Increased awareness on the availability of drugs in all the health facilities.
- ✿ Political will to focus on children.
- ✿ Increased training of health care workers.
- ✿ Increased numbers of health facilities offering the service



## Chapter 4: Human Resource

### 4.1 Introduction

Human resource is recognized worldwide as the most important component in the effective delivery of health services. In Zambia, the availability of appropriate human resources is the most important pre-requisite for the delivery of the Basic Health Care Package. It is critical to have not only adequate numbers of staff, but also appropriate skills mix to maximally benefit the consumers of health care services (MoH Action Plan Report, 2004).

This section discusses data on the number of medical health in the country by province.

### 4.2 Number of Health personnel by province

*Table 4.1* presents data on the number of medical health personnel by province for 2009, which include medical doctors, medical licentiates, clinical officers, registered and enrolled nurses, registered and enrolled midwives, environmental health technologists (EHTs), Laboratory Technologist, Pharmacists, Nutritionists, Orthopaediatricians, Physiotherapist and other personnel.

The table shows that in 2009 there were 836 medical doctors in the country, 1,424 Clinical Officers, 1,130 Environmental Health Technologists and 120 Nutritionists. The table also shows that out of 9,932 nurses recorded countrywide during the period under review, 5,436 were enrolled nurses, 2,025 registered nurses, 1,789 enrolled midwives and 682 registered midwives.

When all provinces were compared, Lusaka had the highest proportion of medical health workers followed Copperbelt while Luapula Province had the lowest proportion of health workers compared to the other provinces, during the period under review.

**Table 4.1: Actual Staffing by provinces, Zambia, 2009**

Type of staff position	Central	Copperbelt	Eastern	Luapula	Lusaka	Northern	North Western	Southern	Western	Total
Doctors	41	133	33	33	442	26	25	73	30	836
Medical Licentiate	4	4	7	4	6	4	1	3	5	38
Clinical Officers	138	241	131	77	303	121	75	239	99	1,424
Dentistry	24	54	21	8	72	12	9	34	12	246
Environmental Health	112	130	149	95	127	114	81	220	102	1,130
Nutrition	10	22	11	6	34	9	6	15	7	120
Orthopaediatrics	0	1	0	0	5	0	0	0	0	6
Laboratory Sciences	47	129	39	21	160	34	23	70	23	546
Pharmacy	21	49	22	13	139	11	17	38	7	317
Physiotherapy	25	46	15	9	40	15	10	32	14	206
Radiography	16	52	18	6	59	17	8	36	16	228
Registered Midwife	58	200	37	25	183	50	21	84	24	682
Enrolled Midwife (ZEM)	174	395	175	58	314	143	50	399	81	1,789
Registered Nurse (RN)	189	467	137	102	568	150	68	273	71	2,025
Enrolled Nurse (ZEN)	452	1,128	506	283	1,075	353	446	824	369	5,436
Other health worker	35	88	21	10	80	19	10	47	24	334
<b>Total Clinical</b>	<b>1,346</b>	<b>3,139</b>	<b>1,322</b>	<b>750</b>	<b>3,607</b>	<b>1,078</b>	<b>850</b>	<b>2,387</b>	<b>884</b>	<b>15,363</b>
<b>Population</b>	<b>1,342,465</b>	<b>2,011,463</b>	<b>1,738,419</b>	<b>1,022,343</b>	<b>1,723,055</b>	<b>782,776</b>	<b>1,643,639</b>	<b>1,594,743</b>	<b>960,569</b>	<b>12,819,472</b>
<b>Clinical workers per 100,000 population</b>	<b>100.0</b>	<b>156.0</b>	<b>76.0</b>	<b>73.0</b>	<b>209.0</b>	<b>138.0</b>	<b>52.0</b>	<b>150.0</b>	<b>92.0</b>	<b>120.0</b>



## Chapter 5: Service Delivery Indicators

### 5.1 Introduction

This section presents data on key *health service performance indicators* for the period 2007 to 2009 which include *health centre (HC) utilisation, hospital OPD utilisation, inpatient admissions, bed occupancy rates, hospital average length of stay, etc.* The chapter has also included some key interventions put in place to explain variations observed, for each of these indicators.

### 5.2 Health centre utilization

The main goal of this indicator is to improve accessibility of health centres for the general population. The more the qualified health staff in a given province, the fewer the clients each one of them will attend to per day. The purpose of this indicator is to assist program managers of respective health facilities to direct their interventions towards health facilities under-utilized. In rural areas, the per capita attendances should not be less than 1 per year while urban areas should not be less than 3 attendances. In the HMIS, health centre utilization is defined as the number of first attendances and admissions at health centre level during a given period of time per the catchment population (MoH, 2003).

Table 5.1 presents data on health centre utilization by province and age group. The table shows that for all provinces and ages combined, health centre utilization has been decreasing during the period 2007 to

Province	2007			2008			2009		
	Under 5	Over 5	Total	Under 5	Over 5	Total	Under 5	Over 5	Total
Central	2.50	0.85	1.14	2.20	0.74	1.00	2.02	0.76	1.01
Copperbelt	2.46	0.90	1.21	2.19	0.80	1.08	2.17	0.79	1.08
Eastern	3.05	1.00	1.41	2.84	1.04	1.40	2.72	0.94	1.29
Luapula	2.40	0.72	1.04	2.15	0.69	0.97	2.21	0.63	0.94
Lusaka	2.53	0.92	1.26	2.36	0.87	1.17	1.71	0.53	0.76
Northern	1.95	0.57	0.85	1.62	0.58	0.78	1.37	0.48	0.66
North-Western	3.01	0.96	1.37	2.14	0.77	1.04	1.83	0.69	0.92
Southern	2.69	1.05	1.37	2.19	0.88	1.14	2.34	0.90	1.18
Western	2.73	1.21	1.47	2.53	1.10	1.33	1.69	0.89	1.05
<b>Zambia</b>	<b>2.56</b>	<b>0.90</b>	<b>1.22</b>	<b>2.24</b>	<b>0.83</b>	<b>1.10</b>	<b>2.01</b>	<b>0.73</b>	<b>0.99</b>

2009. It decreased from 1.22 per capita attendances in 2007 to 1.10 per capita in 2008 and then to 0.99 in 2009. Overall, health centre utilization during the period under review was higher for the age group 5 years and below than the age group 5 years and above.

**Table 5.2: Some interventions on health centre utilization**

**General observed trend:** Health centre utilization decreased from 1.22 per capita attendances in 2007 to 1.10 per capita in 2008 and then to 0.99 in 2009.

Interventions that may need strengthening	<ul style="list-style-type: none"> <li>✿ There is need to put in place incentives which should attract qualified health workers to work in rural areas.</li> <li>✿ Need to strengthen outreach activities for health services.</li> <li>✿ Improve funding to districts/facilities .</li> <li>✿ Need to continue constructing health facilities and staff houses.</li> <li>✿ Need to train more staff so that capacities of health centres are enhanced.</li> </ul>
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### 5.3 Bed occupancy rate

Bed occupancy rate is defined as *the percentage of available beds occupied during a given period of time*. In other words, the indicator is used for measuring efficiency of a given hospital. The purpose of this indicator is to maximize the utilization of health facilities for inpatient treatment. Bed Occupancy rates give the average percentage of beds in use during the period under review (usually one year). Ideally, the bed occupancy rate should not be less than 80%.

Figure 5.1 shows data on the trends of hospital bed occupancy rate by province from  
 XXX  
 XXX

**Figure 5.1: Hospital Bed Occupancy Rate by province 2007-2009, Zambia**

XX



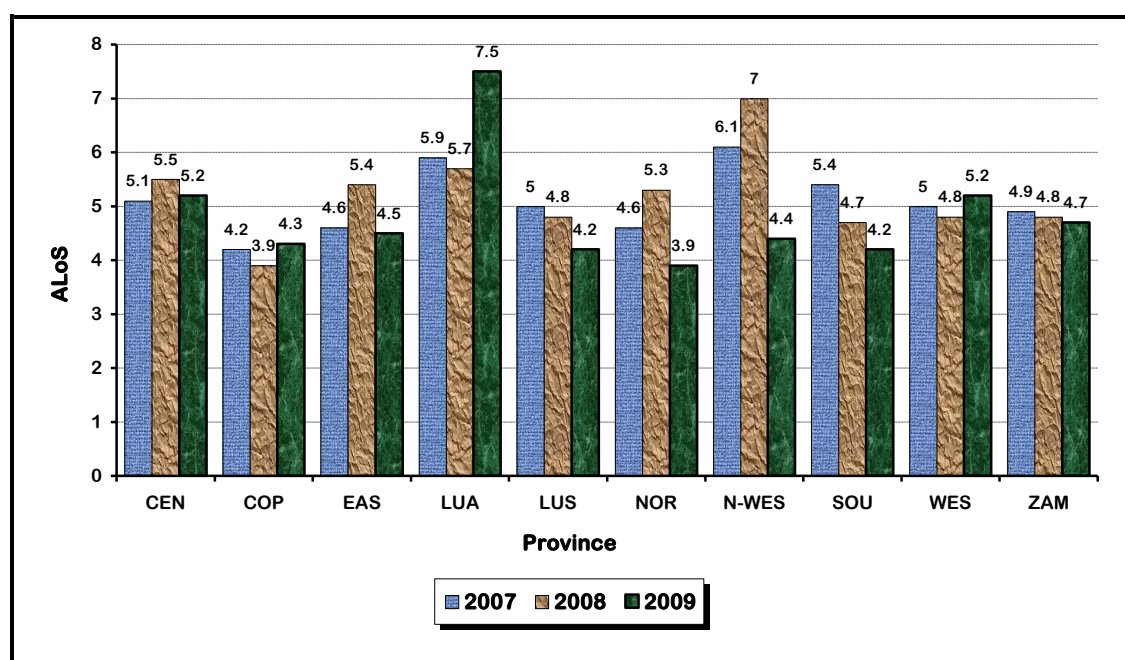


## 5.5 Hospital average length of stay (ALoS)

Hospital average length of Stay measures the average number of days a patient stays in an inpatient health facility. The purpose of this indicator is to optimize the appropriate use of facilities for each patient. The recommended average length of stay in a district Hospital is 6 days or lower. When the bed occupancy rate drops and where the average length of stay remains stable, the (in-patient) staff workload reduces.

Figure 5.2 presents trends of hospital average length of stay by province for the years 2007, 2008 and 2009. The figure shows that the national hospital average length of stay has been reducing slightly from 4.9 in 2007 to 4.8 in 2008 and then to 4.7 in 2009. North-Western Province had the highest hospital average length of stay in 2007 and 2008 while in 2009 Luapula province had the highest average length of stay.

**Figure 5.2: Hospital Average Length of Stay, by province, 2007-2009, Zambia**





## Chapter 6: Child Health

### 6.1 Introduction

This chapter presents data on key indicators on child survival such as child vaccination. The chapter also includes some key interventions put in place to explain variations observed across provinces, district and facilities during the period 2007 to 2009.

### 6.2 Immunisation coverage

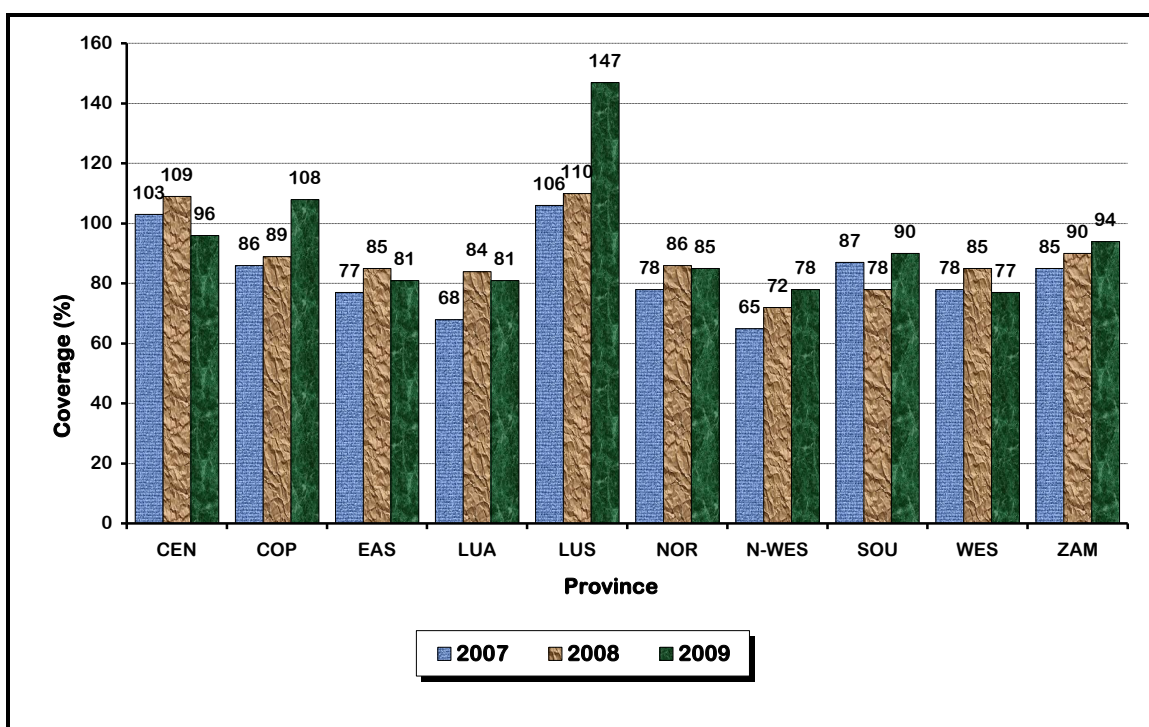
Many early childhood deaths can be prevented by immunizing children against preventable diseases and by ensuring that children receive prompt and appropriate treatment when they become ill.

Universal immunization against vaccine-preventable diseases is crucial to reducing infant and child mortality. The Government of Zambia has adapted the WHO guidelines for vaccinating children through the Expanded Programme on Immunization (EPI). Children are considered fully immunized when they have received a vaccination against tuberculosis (BCG), three doses each of the *diphtheria, pertussis, tetanus/hepatitis B/Haemophilis influenza* type b (DPT-HepB-Hib), and polio vaccines, and a measles vaccination by the age of 12 months. The BCG vaccination should be given at birth or at the first clinical contact (DHS, 2007).

The *DPT-HepB-Hib* and polio immunizations require three doses of the vaccines at approximately 6, 10, and 14 weeks of age; and measles should be given at or soon after reaching 9 months of age (*ibid*, 2007).

In the HMIS, full immunization coverage is defined as the number of children under 1 year of age who have completed the recommended series of immunizations per the number of children under 1 year.

*Figure 6.1* shows data on the trends of immunization coverage by province. The figure shows that national immunization coverage has been increasing over time during the period 2007 to 2009. It increased from 85% in 2007 to 90% in 2008 and then to 94% in 2009. When all provinces are compared, Lusaka province had the highest immunization coverage during the period 2007 to 2009.

**Figure 6.1: Full Immunization Coverage by province 2007- 2009, Zambia****Table 6.1: Some interventions on immunization coverage**

**General observed trend:** National immunization coverage has been increasing overtime during the period 2007 to 2009. It increased from 85% in 2007 to 90% in 2008 and then to 94% in 2009

Reasons that may explain the observed variations

- ✿ The reach every district (RED) strategy introduced by WHO had an impact on the increase in immunization coverage.
- ✿ Child health week has also contributed to the increase.
- ✿ Improvement in the availability of logistics, vaccines & cold chain contributed to the increase in immunization coverage
- ✿ Improvement in transport system for all districts, provided by the MoH headquarters contributed to the rise in immunization coverage.



Interventions that may need strengthening	<ul style="list-style-type: none"> <li>✿ Although the RED strategy has an impact on the immunization coverage, there is need for more resources to follow-up defaulting children.</li> <li>✿ There is need to put in place activities aimed at maintaining the cold chains in all the health centres;</li> <li>✿ There is need to increase the number of motor bikes to facilitate increased outreach activities.</li> <li>✿ There is need to lobby for more stakeholders so that the RED strategy can be sustained.</li> <li>✿ There is need to encourage more data audit programmes at district facility level to validate and verify the data before it is passed on to the next level.</li> <li>✿ Quarterly review meetings at all levels with particular focus on data are very much encouraged.</li> <li>✿ The Ministry of Health headquarters need to find ways of stocking and distributing all essential vaccines to the facilities</li> <li>✿ There is need to build cold chain storage facilities at Provincial Medical Offices (PHOs).</li> </ul>
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### 6.3 Underweight prevalence

Anthropometric data on height and weight are important elements in the measurement and evaluation of the nutritional status of young children in Zambia. This information is important to evaluate and identify sub-groups of the child population that are at increased risk of faltered growth, disease, impaired mental development and death (DHS, 2007).

In the HMIS, underweight prevalence measures the proportion of children under the age of 5 years whose weight is below -2 standard deviation from the mean (-2Z scores)

*Figure 6.2* presents data on underweight prevalence by province and year for the period 2007 to 2009. The figure shows that the national underweight prevalence has been declining from 10% in 2007 to 6% in 2008 and then to 3% in 2009.

The figure also shows that Luapula province recorded the highest underweight prevalence in 2007. The figure also shows that the trend for underweight prevalence has been declining in all the provinces.



Figure 6.2: Proportion of Children Underweight by province, 2007-2009

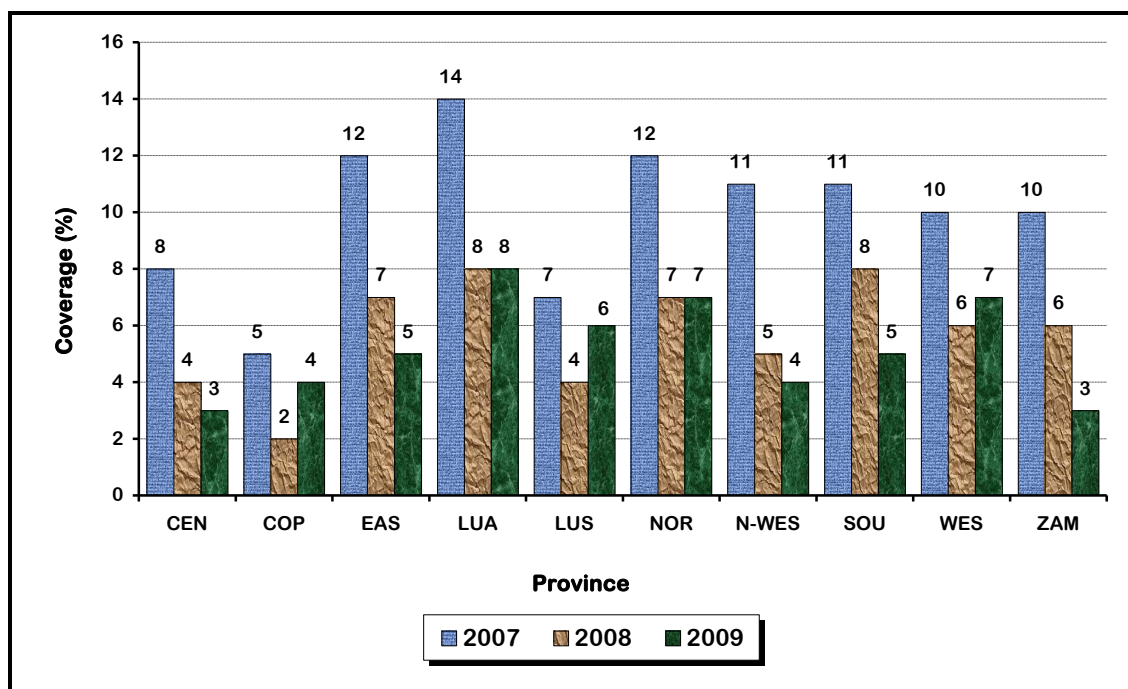


Table 6.2: Some interventions on underweight prevalence

**General observed trend:** The national underweight prevalence has been declining from 10% in 2007 to 6% in 2008 and then to 3% in 2009.

**Reasons that may explain the observed variations**

- ✦ There has been improvement in food security, where most people shifted from fishing to agriculture activities.
- ✦ Management of severe malnutrition and IMCI are helping in sensitizing the communities.
- ✦ During child health week, a lot of children are being de-wormed.
- ✦ Sensitization in food security under a number of organizations such as PAM has contributed to the reduction in underweight prevalence.

**Interventions that may need strengthening**

- ✦ The communities need to be encouraged to form *nutrition clubs* and empower them with income generating activities.
- ✦ There is need to improve monitoring activities where monthly weighing and counseling in cases of underweight children.
- ✦ There is need to intensify nutrition counseling to clients. This is important because it leads to increased turn-out of children for growth monitoring.



## Chapter 7: Maternal Health

### 7.1 Introduction

This chapter presents information on key indicators of importance to maternal health which include *average antenatal visits*, *antenatal coverage*, *institutional deliveries* and *first postnatal attendance*. The health care that a mother receives during pregnancy, at the time of delivery, and soon after delivery is important for the survival and well-being of both the mother and her child. These indicators are important to policymakers and programme implementers in designing appropriate strategies and interventions to improve maternal and child health care services.

The chapter has also included some key interventions put in place to explain variations observed across provinces, districts and facilities on maternal health indicators, during the period 2007 to 2009.

### 7.2 Antenatal care

The major objective of antenatal care is to achieve the optimal health outcome for the mother and the baby. Specifically, the following should be accomplished by a skilled health worker:

- ✿ Early detection of complications and prompt treatment (i.e., detection and treatment of sexually transmitted infections, *anaemia*, *placenta praevia* and maternal malnutrition).
- ✿ Prevention of diseases through immunization and micronutrient supplementation.
- ✿ Birth preparedness and complication readiness and
- ✿ Health promotion and disease prevention by providing health messages and counseling to pregnant women.

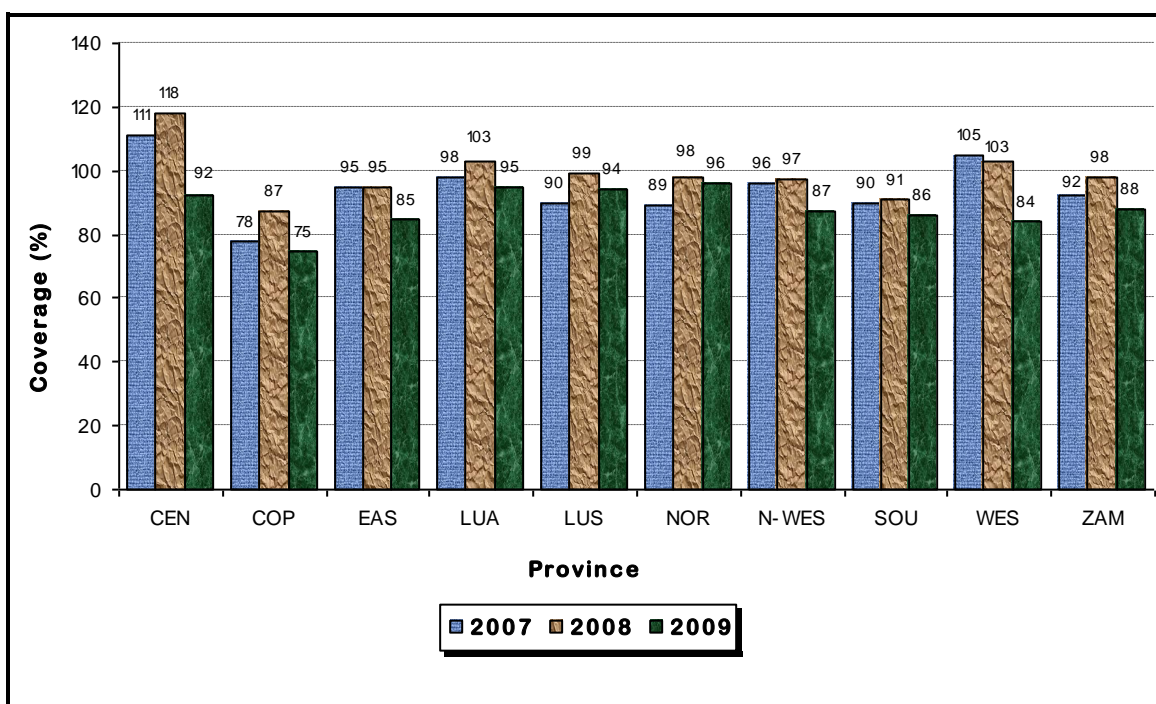


### 7.2.1 First antenatal coverage

First Antenatal Coverage is the percentage of expected pregnancies, in the catchment population, in a given period who present themselves to the health institutions for antenatal services for the first time during a given pregnancy. The target in Zambia is 90% and if the figure falls below 80% the delivery system should be investigated.

*Figure 7.1* shows that the national antenatal coverage increased from 92% in 2007 to 98% in 2008 and then decreased to 88% in 2009. Central province had the highest antenatal coverage during the period under review, compared to rest of the provinces while Copperbelt had the lowest coverage.

**Figure 7.1: First Antenatal Coverage, Zambia, 2007 to 2009, Zambia**





**Table 7.1: Some interventions on antenatal coverage**

**General observed trend:** The national antenatal coverage increased from 92% in 2007 to 98% in 2008 and then decreased to 88% in 2009.

Reasons that may explain the observed variations	<ul style="list-style-type: none"> <li>✿ There has been intensified sensitization to the community to seek ANC services through the Safe Motherhood Action Groups (SMAGs).</li> <li>✿ ANC services are available in all the health facilities.</li> <li>✿ Outreach services have been intensified</li> <li>✿ There is a likelihood that data errors could contribute to the variations in some provinces specially Copperbelt where most of the facilities are urban.</li> <li>✿ Scale up of the PMTCT program has also contributed to the increase in antenatal visits.</li> </ul>
Interventions that may need strengthening	<ul style="list-style-type: none"> <li>✿ There is need to accelerate midwifery training, ensuring equitable distribution and retention of midwives.</li> <li>✿ Continue refresher training for the health providers to focused antenatal care (FANC)</li> <li>✿ Strengthening of the supplies and equipment to improve quality of services</li> <li>✿ Continue with scale up of the PMTCT program.</li> <li>✿ Continue the scale up of the SMAGs program.</li> </ul>

### 7.2.2 Average antenatal visits

In Zambia, the traditional approach to the provision of antenatal care recommends at least 12 ANC visits. The first visit should take place during the first trimester, and visits should continue on a monthly basis through the 28<sup>th</sup> week of pregnancy, and every two weeks thereafter up to the 36<sup>th</sup> week, and then every week until delivery (DHS, 2007).

The assumption is that more visits result in better care for the pregnant woman. However, the newer WHO approach to promoting safe pregnancies recommends that a woman without complications have at least four ANC visits (instead of 12).

This is an updated approach called *Focused Antenatal Care (FANC)*, which emphasizes quality of care during the visits over the quantity of visits. Another key FANC strategy is for each visit to be conducted by a skilled health provider (*Villar et al., 2001*).

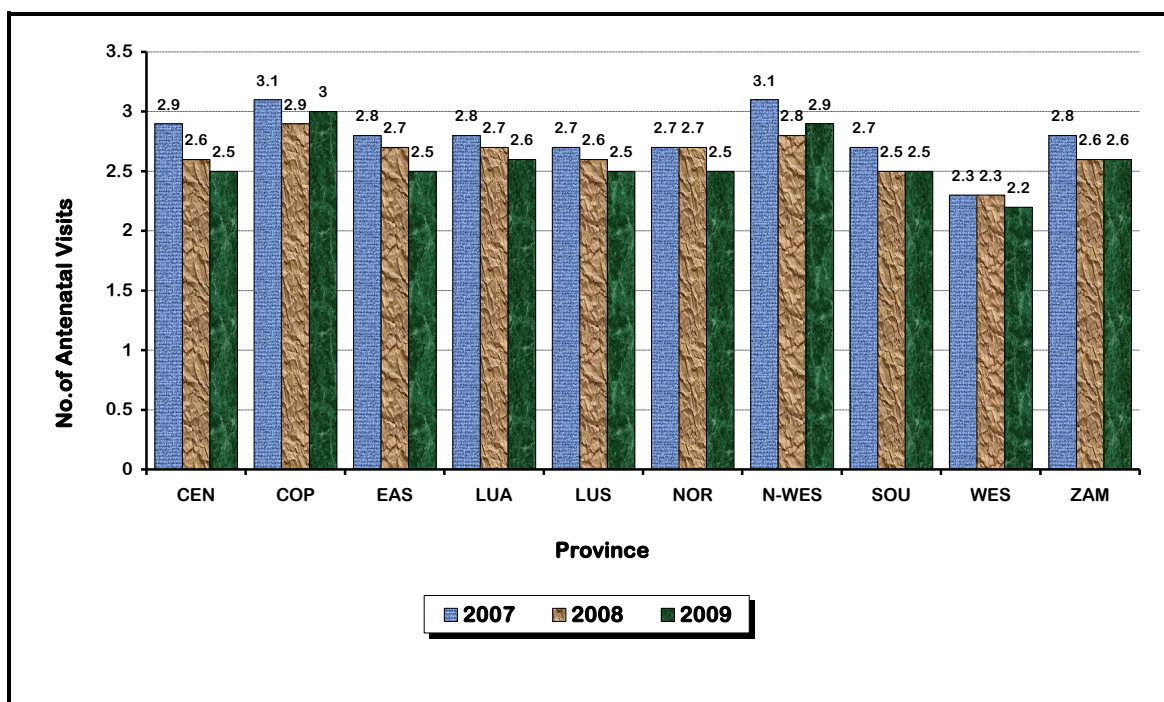
Early detection of problems in pregnancy leads to more timely treatment and referrals in the case of complications. This is of particular importance in Zambia, which is a large and sparsely populated country where physical barriers are a challenge to the health care delivery system. Women who do not receive antenatal care during pregnancy are at higher risk for obstetric emergencies and adverse outcomes.





In the HMIS, average antenatal visits measure the average number of visits to the facility per expectant mother before delivery. *Figure 7.2* shows an overall downward trend of the average antenatal visits from 2.8 in 2007 to 2.6 in both 2008 and 2009. Overall, the provinces showed a downward trend in the average antenatal visits, during the period under review.

**Figure 7.2: Average Visits by province, Zambia, 2007-2009**



**Table 7.2: Some interventions on antenatal visits**

**General observed trend:** Overall, the provinces showed a downward trend in the average antenatal visits, during the period under review.

Reasons that may explain the observed variations

- ✿ Late booking have contributed to the downward trend, most pregnant women seek medical services when the pregnancy has already advanced;
- ✿ Some mothers book once mainly to have ANC card in case of complicated delivery
- ✿ Data collection challenges. The data is not entered in the register but on tally sheets thereby increasing the likelihood of undercounting.
- ✿ Focused antenatal care has contributed to low coverage as



	pregnant women attend antenatal only when need arises, otherwise they will stay home until the pregnancy has advanced.
Interventions that may need strengthening	<ul style="list-style-type: none"> <li>✿ There is need for continuous training and refresher courses for every cadre that attends to ANC.</li> <li>✿ There is need to sensitize pregnant women on the importance of seeking early ANC bookings.</li> <li>✿ There is need to scale up safe motherhood action groups (SMAGs) to all the districts.</li> <li>✿ Need to strengthen the quality of ANC to ensure optimum use of patient–staff contact</li> </ul>

### 7.2.2 Deliveries attended to by trained health personnel

In addition to place of birth, assistance during childbirth is an important variable that influences the birth outcome and the health of the mother and infant. The skills and performance of the birth attendant determines whether or not he or she can manage complications and observe hygienic practice. Safe conditions and appropriate interventions during delivery contribute to the reduction of risks of complications and infections that may pose a danger to both the mother and the baby.

According to the 2007 ZDHS, almost half (47 percent) of the births are assisted by a skilled health worker (3 percent by a doctor; 1 percent by a clinical officer; and 42 percent by a nurse or midwife). The percentage of deliveries assisted by a skilled health worker has increased from 43 percent in the 2001-2002 ZDHS to the current level of 47 percent. In the absence a relative is the next most common person assisting a delivery of a nurse or midwife, (25 percent). Twenty three percent of births are assisted by traditional birth attendants and 5 percent of births were assisted by no one (ZDHS, 2007).

In the HMIS, deliveries attended by health personnel is defined as the number of deliveries attended by trained health personnel per the number of estimated deliveries in a catchment population.



Table 7.3 shows that the proportion of institutional deliveries and supervised deliveries has been decreasing during the period 2007 to 2009. Proportion of institutional deliveries reduced from 45% in 2007 to 44% in 2009. Supervised deliveries on the other hand decreased from 62% in 2007 to 60% in 2008 and then to 58% in 2009. The proportion

Province	Institutional deliveries (%)			Trained traditional birth attendants (tTBA) -%			Supervised deliveries (%)		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Central	36	38	35	23	20	30	59	58	69
Copperbelt	56	56	56	11	10	14	67	66	66
Eastern	39	42	45	18	20	38	57	62	69
Luapula	39	42	42	28	22	32	67	64	54
Lusaka	61	64	62	5	4	10	66	68	73
Northern	32	33	33	24	24	13	56	56	21
North-Western	51	43	48	19	15	57	71	58	96
Southern	37	35	40	19	14	19	56	49	49
Western	49	49	36	13	8	14	62	57	28
<b>Zambia</b>	<b>45</b>	<b>45</b>	<b>44</b>	<b>17</b>	<b>15</b>	<b>23</b>	<b>62</b>	<b>60</b>	<b>58</b>

of deliveries attended by tTBA reduced from 17% in 2007 to 15% in 2008 and then increased to 23% in 2009. Lusaka province had the highest proportion of institutional deliveries during the period under review.

**Table 7.4: Some interventions on deliveries attended by health personnel**

**General observed trend:** Proportion of institutional deliveries and supervised deliveries has been decreasing during the period 2007 to 2009

Interventions that may need strengthening	<ul style="list-style-type: none"> <li>There is need to improve staffing levels in health facilities<sup>1</sup>;</li> <li>There is need to build more health facilities which include maternal wings;</li> <li>Community sensitization for mothers to deliver in health facilities should be encouraged.</li> <li>Building mothers' waiting shelters should be encouraged especially where mothers have to cover long distances.</li> <li>Give incentives to mothers e.g. Give nappies and pads to mothers. Some mothers fear to come to institutions because they do not have baby layette</li> <li>There is need to provide incentives to the TBAs for early referrals of clients to facilities</li> </ul>
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<sup>1</sup>

One of the most striking differentials in assistance during childbirth is by urban-rural residence. About eight in ten births to urban women are attended by a skilled provider, compared with three in ten births to women in rural areas. Women in urban areas are more likely (75 percent) to be assisted by a nurse or midwife, while a traditional birth attendant is more likely (31 percent) to assist women in rural areas (2007 ZDHS).



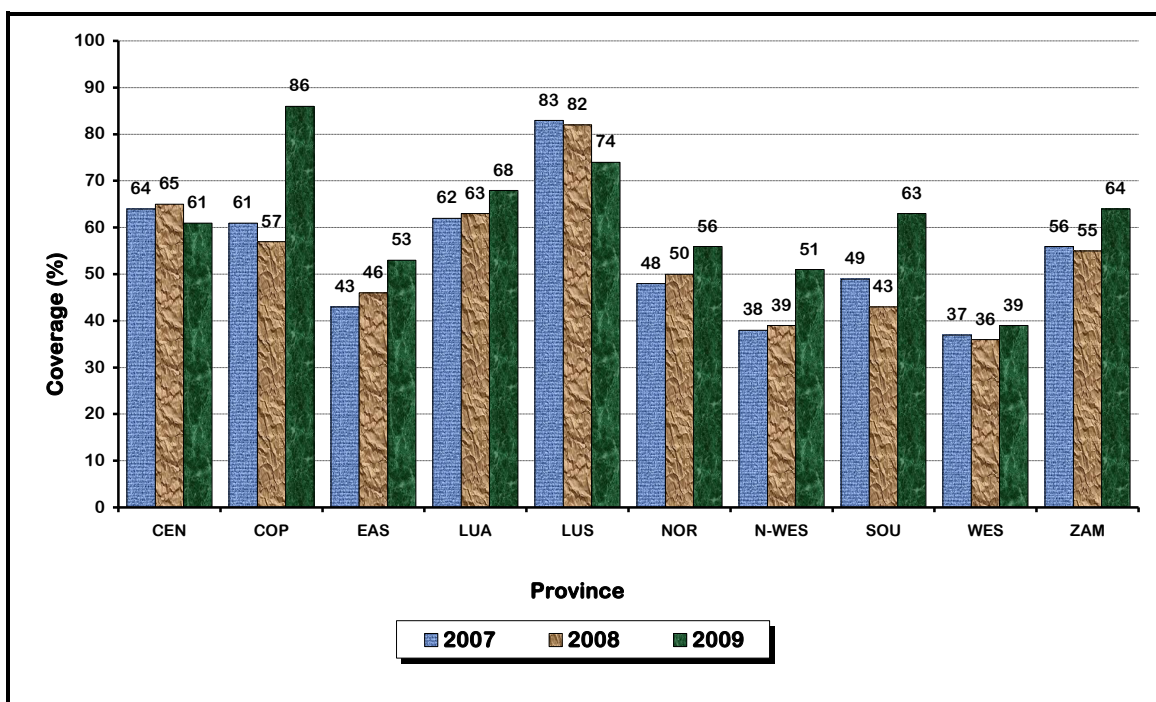
## 7.2.4 First postnatal attendance

The goal for this indicator is to improve the health and well-being of women who recently delivered. The indicator applies to women presenting themselves to a postnatal clinic conducted by health professionals for the first time within 6 weeks of delivery. The national target is 80% and the service delivery system should be investigated if the indicator falls below 70%.

In the HMIS, first postnatal attendance is defined as the number of new attendances at postnatal clinic (x 100) per the number of estimated deliveries in catchment population.

Figure 7.3 shows that Copperbelt, Lusaka and Southern provinces had the highest coverage of first postnatal attendances in 2009. Western and North-western provinces had the lowest coverage during the same period under review. Overall, for all provinces combined, first postnatal attendance has been increasing during the period under review.

**Figure 7.3: First Postnatal Attendance by province, 2007-2009, Zambia**



**Table 7.5: Some interventions on first postnatal attendance**

<b>General observed trend:</b>	Overall, for all provinces combined, first postnatal attendance has been increasing during the period under review.
<b>Reasons that may explain the observed variations</b>	<ul style="list-style-type: none"> <li>✚ Outreach services have been intensified. Mothers are encouraged to avail themselves of postnatal cares services.</li> <li>✚ Safe motherhood action groups (SMAGs) has helped in sensitizing the community.</li> <li>✚ The Implementation of the PMTCT programme</li> </ul>
<b>Interventions that may need strengthening</b>	<ul style="list-style-type: none"> <li>✚ There is need to strengthen the quality and expand coverage of essential obstetric, including ANC, delivery and postnatal services.</li> <li>✚ Provision of emergency obstetric care (EmONC) as per national guidelines for different levels of care should be encouraged.</li> <li>✚ Encourage the health care providers to provide an integrated approach to postnatal and first immunization for the child which both occur at 6 weeks post delivery.</li> <li>✚ Integrate with PMTCT programme which provides continuum of care.</li> </ul>



## Limitations

Data used to compile this report came from various facilities. While every care was taken in the collection of this data, we are not able to guarantee that different sources have compiled or reported the data in a consistent way. Some of the limitations of the data compiled for this bulletin include the following:

### **Provincial data analysis**

Since the unit of analysis for this report was the province, some data collected at the lower levels of the health care system (e.g. health centre) do not filter through to the national level. As a result, readers may not find some indicators of their interest included in this bulletin.

### **Exclusion of data sources from some private health facilities**

Data compiled for this bulletin covers all the public, mission and few private health facilities. Therefore, overall utilization of health facilities might not be a reflection of all health facilities in the country, as some private health facilities are not yet incorporated into the routine health information system, called the Health Management Information System (HMIS).

### **Limited time for the field interviews**

Due to the limited time, field interviews could not cover all the key program officers at national, provincial, district and facility level.



## Conclusion

This report has provided a descriptive analysis of key health sector indicators on disease burden, human resource, maternal and child health. This information is important because it helps both policy makers and program managers to begin to plan more effective and better targeted health sector interventions.

In an effort to explain the trends of the indicators and interventions put in place to address the health sector challenges, consultative meetings with program officers at all levels of the health care were conducted using semi-structured interviews.

Information provided in this report has shown that there has been an improvement in key health indicators such as malaria and diarrhoea incidence rates, fully vaccinated children, antenatal coverage, number of clients accessing ART services and measles surveillance. These marked improvements are an indication of Ministry of Health's concerted efforts aimed at improving the delivery of quality of health services as close to the family as possible.

To provide accurate, objective and timely statistics on a sustainable basis within the health sector, the Ministry of Health needs to play an active role in supporting and/or strengthening the routine information systems through a wide range of statistical capacity measures such as enhanced training activities, technical supportive visits, data audit exercises and performance assessment visits.



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## Appendix A: List of Health Facilities

	Facility Type		Number of Health Facilities by Ownership			Total no. of health facilities	
			GRZ	Private	Mission	No.	%
Central	Level 3 Hospitals		0	0	0	0	0%
	Level 2 Hospitals		1	1	0	2	1%
	Level 1 Hospitals		6	0	1	7	4%
	Health Centres	Rural HC	98	7	9	114	60%
		Urban HC	26	5	0	31	16%
	Heath Posts		34	1	0	35	19%
	<b>Total (Central)</b>		<b>165</b>	<b>14</b>	<b>10</b>	<b>189</b>	<b>100%</b>

	Facility Type		Number of Health Facilities by Ownership			Total no. of health facilities	
			GRZ	Private	Mission	No.	%
Copperbelt	Level 3 Hospitals		3	0	0	3	1%
	Level 2 Hospitals		5	4	0	9	4%
	Level 1 Hospitals		2	4	2	8	3%
	Health Centres	Rural HC	44	2	7	53	23%
		Urban HC	89	48	0	137	58%
	Heath Posts		21	3	1	25	11%
	<b>Total (Copperbelt)</b>		<b>164</b>	<b>61</b>	<b>10</b>	<b>235</b>	<b>100%</b>

	Facility Type		Number of Health Facilities by Ownership			Total no. of health facilities	
			GRZ	Private	Mission	No.	%
Eastern	Level 3 Hospitals		0	0	0	0	0%
	Level 2 Hospitals		1	0	1	2	1%
	Level 1 Hospitals		4	0	4	8	4%
	Health Centres	Rural HC	146	0	10	156	69%
		Urban HC	8	0	0	8	4%
	Heath Posts		52	0	1	53	23%
	<b>Total (Eastern)</b>		<b>211</b>	<b>0</b>	<b>16</b>	<b>227</b>	<b>100%</b>



	Facility Type		Number of Health Facilities by Ownership			Total no. of health facilities	
			GRZ	Private	Mission	No.	%
Luapula	Level 3 Hospitals		0	0	0	0	0%
	Level 2 Hospitals		1	0	0	1	1%
	Level 1 Hospitals		1	0	4	5	4%
	Health Centres	Rural HC	119	3	3	125	88%
		Urban HC	1	0	0	1	1%
	Heath Posts		10	0	0	10	7%
	Total (Luapula)		132	3	7	142	100%

	Facility Type		Number of Health Facilities by Ownership			Total no. of health facilities	
			GRZ	Private	Mission	No.	%
Lusaka	Level 3 Hospitals		3	0	0	3	1%
	Level 2 Hospitals		0	0	0	0	0%
	Level 1 Hospitals		5	8	2	15	5%
	Health Centres	Rural HC	44	0	3	47	17%
		Urban HC	33	147	2	182	65%
	Heath Posts		31	1	0	32	11%
	Total (Lusaka)		116	156	7	279	100%

	Facility Type		Number of Health Facilities by Ownership			Total no. of health facilities	
			GRZ	Private	Mission	No.	%
Northern	Level 3 Hospitals		0	0	0	0	0%
	Level 2 Hospitals		2	0	0	2	1%
	Level 1 Hospitals		5	0	1	6	3%
	Health Centres	Rural HC	124	9	12	145	67%
		Urban HC	13	0	1	14	6%
	Heath Posts		45	0	4	49	23%
	Total (Northern)		189	9	18	216	100%

	Facility Type		Number of Health Facilities by Ownership			Total no. of health facilities	
			GRZ	Private	Mission	No.	%
North-Western	Level 3 Hospitals		0	0	0	0	0%
	Level 2 Hospitals		1	0	1	2	1%
	Level 1 Hospitals		4	1	5	10	6%
	Health Centres	Rural HC	108	0	12	120	72%
		Urban HC	8	7	4	19	11%
	Heath Posts		16	0	0	16	10%
	Total (North-Western)		137	8	22	167	100%




	Facility Type		Number of Health Facilities by Ownership			Total no. of health facilities	
			GRZ	Private	Mission	No.	%
Southern	Level 3 Hospitals		0	0	0	0	0%
	Level 2 Hospitals		1	0	1	2	1%
	Level 1 Hospitals		9	1	3	13	5%
	Health Centres	Rural HC	154	3	15	172	68%
		Urban HC	25	7	2	34	13%
	Heath Posts		27	2	2	31	12%
	<b>Total (Southern)</b>		<b>216</b>	<b>13</b>	<b>23</b>	<b>252</b>	<b>100%</b>

	Facility Type		Number of Health Facilities by Ownership			Total no. of health facilities	
			GRZ	Private	Mission	No.	%
Western	Level 3 Hospitals		0	0	0	0	0%
	Level 2 Hospitals		1	0	0	1	1%
	Level 1 Hospitals		7	0	5	12	7%
	Health Centres	Rural HC	119	3	5	127	73%
		Urban HC	10	0	0	10	6%
	Heath Posts		23	0	1	24	14%
	<b>Total (Western)</b>		<b>160</b>	<b>3</b>	<b>11</b>	<b>174</b>	<b>100%</b>

	Facility Type		Number of Health Facilities by Ownership			Total no. of health facilities	
			GRZ	Private	Mission	No.	%
Zambia	Level 3 Hospitals		6	0	0	6	0%
	Level 2 Hospitals		13	5	3	21	1%
	Level 1 Hospitals		43	14	27	84	4%
	Health Centres	Rural HC	956	27	76	1059	56%
		Urban HC	213	214	9	436	23%
	Heath Posts		259	7	9	275	15%
	<b>Total Health Facilities (Zambia)</b>		<b>1,490</b>	<b>267</b>	<b>124</b>	<b>1,881</b>	<b>100%</b>



## Appendix B: Sample Questionnaire

 Republic of Zambia MINISTRY OF HEALTH  <b>THE 2009 ANNUAL HEALTH STATISTICAL BULLETIN</b> <i>(Interviews with key program managers)</i>				
Name of the interviewer:		Date of the interview:		
Designation of the interviewer				
Name of the interviewee:		Date of the interview		
Designation of the interviewee:				
<b>Sample questionnaire administered to program officers at national, provincial, district &amp; facility level</b>				
<b>INSTRUCTIONS FOR THE INTERVIEWER</b>				
i. Read out the observed trends of each <b><u>indicator</u></b> to the program officer; ii. Find out from the program manager the main reason(s) attributable to the <b><u>observed trends indicated</u></b> in part (i); iii. Try to probe for further <b><u>relevant comments</u></b> from the program manager; iv. When all comments are exhausted and included in this questionnaire, please return the filled out comments to the <b><u>acting deputy director – monitoring &amp; evaluation</u></b> at the ministry of health Hq for consolidation and analysis.				



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