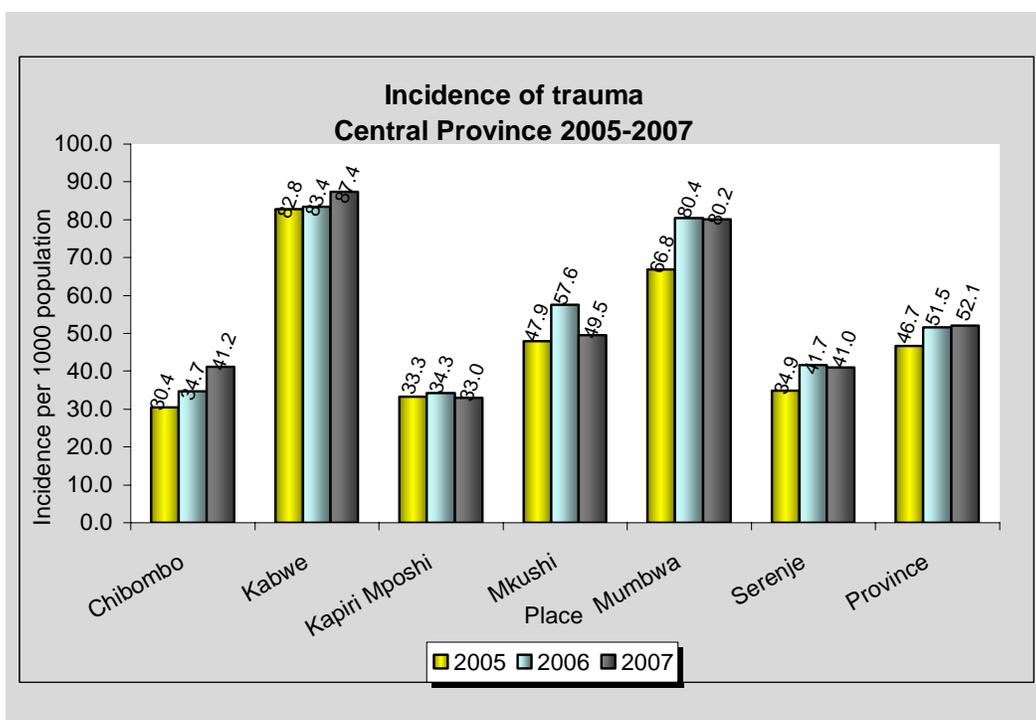




Republic of Zambia

Ministry of Health

# Central Province



## Annual Health Statistics Bulletin 2007

Provincial Health Office  
PO BOX 80686  
KABWE, ZAMBIA

*August 2008*



**USAID**  
FROM THE AMERICAN PEOPLE



This publication was made possible through support provided by USAID/Zambia, U.S. Agency for International Development, under the terms of Cooperative Agreement # 690-A-00-04-00153-00, Health Services and Systems Programme. The opinions expressed herein are those of the authors and do not necessarily reflect the views of those of the U.S. Agency for International Development

## Preface

---

The 2007 Central Province Statistical bulletin is a reflection of the disease burden and service delivery statistics arising from implementation of activities planned for 2007. The statistics in here are as much as possible on the major causes of visitations to health facilities and outputs on service delivery.

We anticipate that this information will benefit different users; patients, communities, service providers, programme managers, policy-makers, providers of funds, global agencies and organisations. All these need information in order to measure mortality and morbidity; disease outbreaks; access, coverage and quality of services.

As new programme areas have emerged over the years, the HMIS has not been able to meet all the data requirements. The revision of the HMIS started in 2006 and continued in 2007. This may well be the last bulletin to be compiled using the 1996-2008 HMIS as the revised version was rolled out in December 2007.

An attempt has been made to provide some analysis and explanation of the data. However, users can also interpret the indicators in their own way.

Finally, I hope this report will provide an insight into the progress of activities to the satisfaction of our esteemed readers.



Dr Dickson M. Suya  
**Provincial Health Director**  
**CENTRAL PROVINCE**

## Acknowledgements

---

The process of compiling, analysing data and producing this bulletin would not have been possible without the vital input of health personnel working at facility and district levels. The effort of the health workers in compiling and maintaining various HMIS records and registers which is a critical input to this bulletin cannot go unnoticed. The tremendous effort put in by the staff in consistently keeping tallies and updated registers which at times seems a diversion from the core business of health service delivery is highly appreciated. It has allowed the completion of this process which reflects their daily inputs.

I wish to recognise and appreciate the tremendous contributions and technical assistance provided by Mr. Paul Chishimba and Mr. Patrick M. Chewa from Health Services and Systems Programme. Over and above, my deepest gratitude goes to HSSP for agreeing to technically and financially support this activity. Without this generous contribution of personnel and huge financial resource, this activity would not have been possible.

It is the hope of the Provincial Health Office that the production of the bulletin will motivate health staff at all levels in the province to appreciate and value the keeping of statistical records in order to make a meaningful contribution to the planning and implementation process of health programmes.

Lastly, but certainly not the least, I wish to thank all those who contributed in one way or another in making the publication of this bulletin a success, but could not be individually mentioned here.



Gloria Silondwa  
Provincial Data Management Specialist  
CENTRAL PROVINCE

## List of Abbreviations

---

AIDS	Acquired Immunodeficiency Syndrome
DHMT	District Health Management Team
DHO	District Health Office
DHIO	District Health Information Officer
DPT-Hib + HepB	Diphtheria, Pertussis, Tetanus, Haemophilus Influenza and Hepatitis B
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HSSP	Health Services and Systems Programme
IDSR	Integrated Disease Surveillance and Response
MMR	Maternal Mortality Ratio
NHSP	National Health Strategic Plan
PHO	Provincial Health Office
STI	Sexually Transmitted Infections
TB	Tuberculosis
tTBA	trained Traditional Birth Attendant
UTH	University Teaching Hospital
WHO	World Health Organisation
ZDHS	Zambia Demographic and Health Survey
ZVCTS	Zambia Voluntary Counselling and Testing Services

## Table of Contents

---

Preface .....	i
Acknowledgements .....	ii
List of Abbreviations .....	iii
Table of Contents .....	iv
List of Tables .....	vi
List of Figures.....	vii
Executive Summary .....	xi
<b>Chapter 1: Background.....</b>	<b>1</b>
1.1 Geography and Administration .....	1
1.2 Data sources .....	1
1.3 Scope of analysis .....	1
1.4 Limitations of this report.....	1
<b>Chapter 2: Disease Burden.....</b>	<b>2</b>
2.1 Major causes of illness.....	2
2.1.1 Malaria .....	2
2.1.2 Respiratory infections (non-pneumonia).....	4
2.1.3 Respiratory infections (pneumonia).....	5
2.1.4 Diarrhoea non-bloody .....	6
2.1.5 Diarrhoea-bloody (suspected dysentery).....	7
2.1.6 Trauma (accidents, injuries, wounds, burns).....	8
2.1.7 Eye infections.....	9
2.2 Patient case load.....	10
2.3 Under-five case fatality rates .....	11
2.4 Selected notifiable diseases .....	11
2.4.1 Acute flaccid paralysis.....	11
2.4.2 Non-polio acute flaccid paralysis rate .....	12
2.4.3 Measles .....	13
<b>Chapter 3: HIV, AIDS, Tuberculosis and Sexually Transmitted Infections .....</b>	<b>14</b>
3.1 Counselling and testing .....	14
3.2 Prevention of HIV transmission from mother to child.....	15
3.2.1 Antenatal HIV testing.....	15
3.2.2 Antiretroviral prophylaxis.....	16
3.3 Antiretroviral therapy .....	17
3.3.1 Ever enrolled on anti-retroviral therapy.....	17
3.3.2 Ever-enrolled on antiretroviral therapy against target.....	18
3.3.3 Currently on antiretroviral therapy by end of year .....	18
3.4 Tuberculosis.....	19
3.4.1 Tuberculosis notifications from 2005 to 2007 .....	19
3.4.2 Tuberculosis cure, completion and success rate.....	19
3.5 Sexually transmitted infections.....	21
<b>Chapter 4: Human Resources.....</b>	<b>23</b>
4.1 Number of medical personnel by district.....	23
4.2 Health centre staff daily contacts.....	23
4.3 Community health volunteers.....	24

4.3.1	Trained traditional birth attendants.....	24
4.3.2	Community health workers .....	25
Chapter 5:	Availability of drugs .....	26
5.1	Medical supplies in stock at health facilities.....	26
5.2	Availability of tracer drugs by health centre and hospital.....	26
5.3	Drug kit utilisation at health centres .....	27
Chapter 6:	Health services delivery indicators.....	29
6.1	Health facility utilisation .....	29
6.2	Outpatient department utilisation .....	29
6.3	Health centre per capita attendance .....	29
6.4	Bed occupancy rate-health centre and hospital .....	31
6.5	Hospital outpatient department utilisation.....	32
6.6	Hospital outpatient department percentage by-pass first attendances.....	32
6.7	In-patient turnover rate.....	33
6.8	Average length of stay .....	34
6.9	Maternal health and family planning.....	34
6.9.1	Summary of maternal health indicators.....	34
6.9.2	Antenatal care.....	35
6.9.3	Average number of antenatal visits .....	35
6.9.4	Supervised deliveries.....	36
6.9.5	Complicated deliveries.....	36
6.9.6	Prevalence of still births .....	37
6.9.7	First postnatal attendance .....	37
6.9.8	Maternal mortality .....	39
6.9.9	New family planning acceptors .....	39
6.10	Child health indicators .....	40
6.10.1	Fully immunisation coverage .....	40
6.10.2	BCG -measles dropout rate.....	41
6.10.3	Pregnancies protected against tetanus .....	41
6.10.4	Underweight prevalence.....	43
Chapter 7:	Environmental and public health .....	44
7.1	Malaria control .....	44
7.1.1	Insecticide treated nets.....	44
7.1.2	Indoor residual house spraying.....	44
7.2	Water and sanitation.....	45
7.2.1	Water quality monitoring.....	45
7.3	Pit latrine liming.....	45
References	.....	46

## List of Tables

Table 2.1: Ten major causes of visitations to health facilities, Central Province, 2007 .....	2
Table 2.2: Malaria incidence and case fatality rates by age group in Central Province, 2007 .....	3
Table 2.3: Respiratory infections (non-pneumonia) incidence per 1,000 population, 2005-2007 .....	4
Table 2.4: Respiratory infections: pneumonia incidence and case fatality rates by age group, 2007 .....	6
Table 2.5: Diarrhoea non-bloody incidence and case fatality rates by age group, 2007 .....	7
Table 2.6: Dysentery incidence rate by age group, 2007 .....	7
Table 2.7: Trauma (accidents, injuries, wounds, burns) incidence and case fatality rates by age group, 2007 .....	8
Table 2.8: Eye infection incidence rate by age group and district, 2005 to 2007 .....	9
Table 2.9: Proportion of children under 5 years case load by district, 2005-2007 .....	10
Table 2.10: Under 5 years case fatality rate by district, 2005-2007 .....	11
Table 2.11: Acute flaccid paralysis surveillance performance indicators by district, 2007 .....	12
Table 2.12: Measles (suspected) cases reported to health facilities by age and district, 2005-2007 .....	13
Table 3.1: Proportion of clients taking an HIV test .....	14
Table 3.2: Proportion of clients taking an HIV test .....	14
Table 3.3: Proportion of women starting antenatal clinic who took an HIV test by district, 2007 .....	15
Table 3.4: Prevention of Mother to Child Transmission services in Central Province .....	15
Table 3.5: Number of women tested for HIV and the percentage testing positive by district, 2007 .....	16
Table 3.6: Proportion of babies exposed to HIV given antiretroviral prophylaxis by district, 2007 .....	16
Table 3.7: Cumulative number of patients ever enrolled on antiretroviral therapy by district, 2006-2007 .....	18
Table 3.8: Proportion ever started on antiretroviral therapy against target by district and year .....	18
Table 3.9: Patients currently on antiretroviral therapy by age and sex at end of each year by district .....	19
Table 3.10: Tuberculosis notifications by type, district and sex, 2007 .....	19
Table 3.11: Tuberculosis cure rate 2005 to 2007 .....	21
Table 3.12: Sexually transmitted infection incidence, 2007 .....	21
Table 4.1: Number of health staff by district, December 2007 .....	23
Table 4.2: Number of active tTBAs and deliveries conducted, 2005-2007 .....	24
Table 4.3: Number of active community health workers and patients they attended to, 2005-2007 .....	25
Table 5.1: Percentage of months for which drugs were in stock by district, 2005-2007 .....	26
Table 5.2: Percentage of months in which tracer drugs were available, 2007 .....	27
Table 6.1: Trends of selected service delivery indicators by year .....	29
Table 6.2: Outpatient department utilisation rate in Central Province, 2005-2007 .....	29
Table 6.3: Health centre per capita attendances Central Province, 2005-2007 .....	31
Table 6.4: Bed occupancy rate per district and year, 2005-2007 .....	31
Table 6.5: Percentage of patients in hospital attended to in the outpatient Hospital outpatient department utilisation .....	32
Table 6.6: Hospital outpatient department percentage by-pass first outpatient department attendance, 2005-2007 .....	32
Table 6.7: Health centre and hospital inpatient turnover rate per district and year, 2005-2007 .....	34
Table 6.8: Hospital average length of stay by district, 2005 -2007 .....	34
Table 6.9: Maternal health indicators, Central Province, 2005-2007 .....	34
Table 6.10: First antenatal attendance coverage, 2005-2007 .....	35
Table 6.11: Average antenatal visit, 2005-2007 .....	35
Table 6.12: Percentage of supervised deliveries by place of delivery and district, 2005-2007 .....	36
Table 6.13: Percentage of complicated deliveries in health centres and hospitals by district, 2007 .....	37
Table 6.14: Percentage of total births that were still borne by district, 2005-2007 .....	37
Table 6.15: First postnatal coverage, 2005-2007 .....	38
Table 6.16: BCG -Measles dropout rate by district, 2005-2007 .....	41
Table 6.17: Pregnancies with tetanus toxoid protection, 2005-2007 .....	41
Table 6.18: Underweight prevalence ( per cent ) in under five children, 2005-2007 .....	43
Table 7.1: Distribution of insecticide treated Mosquito Nets (ITN) to pregnant women and children under 5 .....	44

## List of Figures

---

Figure 2.1: Malaria incidence .....	3
Figure 2.2: Incidence of respiratory infections: non-pneumonia .....	4
Figure 2.3: Incidence of respiratory infections: pneumonia .....	6
Figure 2.4: Incidence of diarrhoea: non-bloody .....	7
Figure 2.5: Incidence of suspected dysentery .....	8
Figure 2.6: Incidence of trauma.....	9
Figure 2.7: Incidence of eye infections .....	10
Figure 2.8: Non Acute Flaccid Paralysis rate .....	12
Figure 2.9: Stool adequacy rate .....	13
Figure 3.1: Antiretroviral prophylaxis for preventing HIV transmission from mother to child .....	17
Figure 3.2: Incidence of Sexually Transmitted Infections .....	22
Figure 4.1: Health centre staff daily contacts .....	24
Figure 5.1: Drug kit utilisation .....	27

## Glossary of Terms

---

**Antenatal First Attendance:** First time pregnant woman attends antenatal clinic during that pregnancy.

**Average Antenatal Attendance:** Number of return visits to the Antenatal clinic by a pregnant woman for that particular pregnancy.

**Average length of stay:** The average number of days a patient spends in a health facility from the time of admission to the time of discharge.

**BCG - Measles Dropout Rate:** The difference in proportion between children under one year who received BCG and measles.

**Bed Occupancy Rate:** This is an average percentage of used beds in a given period of time.

**Bed Turnover:** This is the number of admissions per bed during a given period of time.

**Case Fatality Rate:** The number of deaths due to a certain illness out of the cases resulting from that illness.

**Case Load:** The number of times a child less than five years is attacked by a disease or condition in a year.

**Disease Incidence Rate:** The number of new cases that occur within a given period, at a given location in a given population group.

**Fully Immunisation:** The number of children aged one year and below who received or completed a full series of the recommended immunisations.

**Health Centre Daily Staff Contacts:** The average number of clients and patients a trained staff attends to in a day.

**Incidence Rate:** The number of cases of a disease out the total catchment population.

**Institutional Delivery:** A delivery that takes place in a health centre or hospital.

**Maternal Death:** A death of a woman during pregnancy or within 42 days after delivery or termination of pregnancy from bleeding, seizures, infection or any pregnancy related cause (excluding accidents).

**Maternal Mortality Ratio:** The rate of mortality associated with pregnancy and child bearing expressed per 100000 live births.

**Morbidity Rate:** The proportion of people suffering from a particular disease or condition out of a 1000 population.

**Mortality Rate:** The proportion of people dying of a particular disease out of a 1000 admissions.

**New Family Planning Acceptors:** A person who has never before used a modern method of contraception as prescribed by any registered health facility.

**Per Capita Attendance:** The average number of people in a catchment area that attended a health service.

**Peri-Natal Mortality:** The proportion of neonates dying from the time of birth up to the 28th day after birth.

**Post Natal Care First Attendance:** The proportion of women attending PNC for the first time after delivery out of the estimated deliveries.

**Prevalence Rate:** The proportion of people suffering from a disease or condition out of the total catchment area population.

**Rational Drug Prescription:** Prescribing the right medicine, for the right diseases to the right patient in right dosages for right time.

**Sexually Transmitted Disease:** A disease or condition that is transmitted or contracted through coitus.

**Supervised Delivery:** A delivery assisted by either trained Traditional Birth Attendant or any trained Health Staff.

**Tuberculosis Completion Rate:** The proportion sputum smear positive cases who completed treatment with negative sputum smear results at the end of the initial phase but with no or only one negative sputum examination in the continuation and none at the end of treatment out of a total of TB cases enrolled in the same period.

**Tuberculosis Cure Rate:** The proportion of new smear positive cases in a given period of time, who completed treatment and that are declared cured at the end of treatment with a confirmation of at least two negative smear results, one of which must be at completion of treatment out of the new smear positive cases registered for treatment during the same time period.

**Tuberculosis Treatment Success Rate:** The total coverage of cured patients and those completing treatment out of the total tuberculosis cases enrolled in the same period.

**Underweight Ratio:** The number of children aged five years and below whose weight fell below the lower reference line of the under-five card.

## Executive Summary

---

### Introduction

Central Province health statistical bulletin has information covering the three year period 2005-2007 and is primarily based on HMIS.

### Disease burden

- **Malaria**

The incidence and case fatality rates for malaria in the province in 2007 were 291.5 per 1000 population and 28.2 per 1000 admissions respectively. Whereas there was hardly a difference in the case fatality rate in hospitals among the under-fives (27.6 per 1000 admissions) and the older population (28.9 per 1000 admissions), the incidence rate among the under-fives (801.8 per 1000 population) was four times higher than among the older population (183.6 per 1000 population). Under-fives are prone to malaria because they have not developed an adequate immunity to the disease.

Among the districts, among the under-fives and the older population was the highest in Kabwe, 1504.3 and 325.4 respectively. It was the lowest in Mumbwa (303.4 and 84.8 respectively). Whereas the case fatality rate in Kabwe was almost the same among the under-fives and among the older population (19.6 and 18.7 respectively), it was twice as high among the older population than among the under-fives in Mumbwa 50.4 and 23.5 respectively). In the other districts in the province, the incidence rate was higher among the under-fives than among the older population. There was little difference in the case fatality rate between the two groups.

There was a reduction in the incidence rate of malaria in the total population between 2006 and 2007 in all the districts. The reduction in the total population of the province was from 403.5 in 2006 to 291.5 in 2007. In Mumbwa, there was a reduction in the incidence rate in the total population from 2005. The incidence rate in Mumbwa was 392.3 in 2005, 340.5 in 2006 and 123.7 in 2007. In these three years, the incidence rate among the districts in the province was the highest in Kabwe. The incidence rate in Kabwe was 547.0 in 2005, 600.4 in 2006 and 495.7 in 2007 per 1000 of the total population. However, the seeming impressive decline in total incidence in Mumbwa over the period could be as a result of improved diagnostic skills using Rapid Diagnostic Test for plasmodium falciparum which commenced in October 2005. This enables the weeding out of suspected cases of malaria which other districts could be including as real cases.

- **Respiratory infections (non-pneumonia)**

The incidence and case fatality rates for respiratory infections non-pneumonia in Central Province were 248.2 per 1000 population and 19.3 per 1000 admissions respectively. Among the districts, the highest incidence rate was recorded in Mumbwa (367.6 per 1000 population), followed by Kabwe and Mkushi. The lowest incidence rate (214.7 per 1000 population) was in Serenje. The highest case fatality rate was recorded in Kapiri Mposhi (23.6 per 1000 admissions) closely followed by Chibombo and Serenje. The case fatality was lowest in Kabwe at 2.9 per 1000 admissions.

The incidence of non-pneumonia respiratory infections in the province increased from 165.8 in 2005 to 224.6 in 2006 and to 248.2 per 1000 population in 2007. This was also the case among the districts except for fluctuations in Kabwe and Mkushi.

- **Respiratory infections pneumonia**

The provincial incidence rate for pneumonia in 2007 was 32.8 per 1000 population with a fatality rate of 86.6 per 1000 admissions. The province had a higher incidence and fatality rates in the under-five age group. Among the districts, the highest incidence was in Kabwe (52 per 1000 population.), followed by Mkushi and Mumbwa. The lowest incidence was in Kapiri Mposhi (17 per 1000 population).

The case fatality from the three facilities in Kabwe namely Kabwe General Hospital, Kabwe Mine Hospitals and Ngungu mini hospital was by far the highest among the districts (228.5 per 1000 admissions). Other fatalities in Kabwe are for referrals from other districts such as Kapiri Mposhi (which has no X-Ray facilities), Mkushi and Serenje. The second highest case fatality rate was in Mumbwa (85.5 per 1000) and the lowest was in Chibombo (35.9 per 1000 admissions).

- **Diarrhoeal diseases (non-bloody)**

In 2007, the provincial incidence rate was 70.8 per 1000 population and the case fatality rate was 78 per 1000 admissions. Among the districts, the highest incidence rate was in Mumbwa (128.2 per 1000 population) followed by Kabwe (103.5 per 1000 population). Incidence was lowest in Serenje and Mkushi at 37.5 per 1000 population. The highest case fatality rate was recorded in Kabwe, 161.2 per 1000 admissions, followed closely by Kapiri Mposhi and Mumbwa at 74.1 and 73.3 per 1000 population respectively. The lowest was in Chibombo at 40.1 per 1000 admissions.

- **Notifiable diseases**

- **Acute flaccid paralysis /suspected polio.**

This is a condition that affects those younger than 15 years. It presents with sudden onset of weakness of the limbs without a history of injury. The two main acute flaccid paralysis surveillance indicators are non acute flaccid paralysis rate measured per 100,000 children less than 15 years and stool adequacy rate.

In the province 13 acute flaccid paralysis cases out of the expected target of 12 were detected. A 100 per cent stool adequacy rate was achieved. Also, an annualised non acute flaccid paralysis rate of 2.1 above the set target of 1 was also achieved. The highest number of acute flaccid paralysis cases was detected in Mumbwa. In Kapiri Mposhi 1 out of 3 expected cases were detected. The set target of the annualised non polio acute flaccid paralysis rate was reached in 3 districts, namely; Chibombo, Kabwe and Mumbwa. No cases were detected in Mkushi and Serenje.

#### ○ Measles surveillance

Suspected measles cases were highest in 2007 and lowest in 2006 at the provincial level among both the under-fives and the older age groups. Among the under-fives, there were 137 suspected measles cases in 2005, 115 in 2006 and 155 in 2007. Suspected cases were higher among those aged 5 years and above than for those under five years in all the years except in 2006. The under-five measles incidence rate was the same in 2005 and 2007. It was 0.7 per 1000 population. In 2006, it was 0.5.

#### ○ Tuberculosis notifications

In 2007 in the province, there were 3458 cases. Of this number, 1970 (57 per cent) were males and 1488 (43 per cent) were females. The new smear sputum positive cases were 26.5 per cent, while the smear sputum positive relapse cases were 3.2 per cent. Most of the tuberculosis cases were in Kabwe District (42.7 per cent). The lowest were in Serenje District (4.1 per cent). The high HIV prevalence in Kabwe and its having a provincial referral hospital account for its high number of cases.

#### ▪ Number of patients on antiretroviral therapy

This refers to the total number of patients who were started on antiretroviral therapy in the facility ever since inception of the antiretroviral therapy programme regardless of the current status (dead, still on antiretroviral therapy, transferred out, lost to follow up, or stopped). It does not include those who had transferred in.

The number of clients ever enrolled on antiretroviral therapy doubled from 7931 by 2006 to 15,551 by 2007. Of all the clients ever enrolled on antiretroviral therapy by both 2006 and 2007, 57 per cent of them were females and 43 per cent were males. All the districts except Kapiri Mposhi and Mumbwa recorded a 100 per cent increase between

2006 and 2007. This should be due to many sites that were opened and also the sensitisation about antiretroviral therapy.

## **Human resource**

### **▪ Health centre staff load**

There is a concentration of staff in the urban area in this case Kabwe district as opposed to the rest of the districts which are in rural areas. Even among the rural districts the more rural the district is, the fewer the staff such as in Mkushi and Serenje districts.

In 2007, out of the 30 doctors in the province, 18 (60 per cent) were in Kabwe. The remaining 40 per cent were distributed in the other five districts in the province. There were 3 (10 per cent) doctors in Chibombo, 2 (6.7 per cent) in Kapiri Mposhi, 1 (3.3 per cent), 4 (13.3 per cent) in Mkushi and 2 (6.7 per cent) in Serenje. More than 50 per cent of the nurses were also in Kabwe, leaving the other districts to share the rest. There were 325 (55.7 per cent) nurses in Kabwe.

The districts with relatively higher staff levels have low health centre daily staff client contact such as Kabwe while those districts with low staff levels such as Mkushi have relatively higher daily staff client contact. The daily staff client contacts in Kabwe were 10 in 2005 and 9 in 2006 and 2007. In Mkushi they were 23 in 2005 and 28 in 2006 and 2007. This scenario entails that staff should be fairly re-distributed between the urban and rural districts.

### **▪ Trained traditional birth attendants (tTBAs)**

This is a trained community health volunteer who can do uncomplicated deliveries in the community. The number of active tTBAs reduced from 578 in 2005 to 540 in 2006 and 533 in 2007 in the province. Despite a decline in active tTBAs the number of deliveries they did remained relatively stable. These were 12118 in 2005, 11509 in 2006 and 12638 in 2007. The decline in the number of active tTBAs could be attributed to: lack of supportive supervision by the facility staff; inadequate incentives such as clean delivery kits, transport and community support; high attrition rate due to deaths and movements; and non-availability of retraining package at both provincial and district levels.

### **▪ Community health workers**

These are community based health providers trained to offer basic primary health care within the community. They are identified by local communities and trained for 6 weeks. One community health worker is supposed to service a population of 500. At provincial level there has been a significant drop in the number of active community health workers

between 2006 and 2007 despite the number having slightly increased in 2005 to 2006. They were 577 in 2005, 588 in 2006 and 476 in 2007. The drop in the number of active community health workers between 2006 and 2007 could be attributed to non-availability of incentives such as community health worker kits; re-training package at both provincial and district levels and poor community support to community health workers.

All the districts registered a significant drop in community health worker client contact between 2006 and 2007 which is attributed to shortage of community health worker kits. Their client contacts were 459319 in 2006 and 207819 in 2007.

### **Availability of essential drugs**

- **Drugs availability**

The percentages of months for which drugs were in stock for a whole month increased from 64 per cent in 2005 to 69 per cent in 2006 and to 70 per cent in 2007 at health centre level. In hospitals, the respective percentages were 89, 90 and 89.

Among the tracer drugs, the percentage of months in which anti malaria drugs were in stock was generally low compared to other tracer drugs despite malaria being the leading cause of disease incidence in the province. Tracer drugs were least out of stock in Chibombo. They were most out of stock in Kapiri Mposhi. The high level of stock-outs in districts such as Kapiri Mposhi and Serenje could be as a result of inadequate supplies from Medical Stores Limited, poor drug inventory management at facility level, over prescribing by clinicians and pilfering by staff.

- **Drug kit utilisation at health centres**

This indicator describes the number of drug kits opened per 1000 patients. It measures the number of drug kits utilised during the time period usually a month per 1000 number of curative contacts, first attendances, re-attendances and in-patients inclusive in a health centre.

Among the tracer drugs, the percentage of months in which anti malaria drugs were in stock was generally low compared to other tracer drugs despite malaria being the leading cause of disease incidence in the province. Tracer drugs were least out of stock in Chibombo. They were most out of stock in Kapiri Mposhi. The high level of stock-outs in districts such as Kapiri Mposhi and Serenje could be as a result of inadequate supplies from Medical Stores Limited, poor drug inventory management at facility level, over prescribing by clinicians and pilfering by staff.

## Health service delivery indicators

### ▪ Health centre outpatient department utilisation

This is the average number of times a person in a catchment area seeks a health service from the health centre over a period. The purpose of this indicator is to assist managers of health units in improving accessibility of outpatient departments at health facilities to the general population. In rural areas, the per capita outpatient department attendance should not be less than 1 per year while urban areas it should not be less than 3 attendances. If the outpatient department health facilities are under-utilised, measures to improve the quality of service and accessibility by the general public need to be taken.

The per capita attendance for the total population declined from 1.13 in 2005 to 0.89 in 2006 and to 0.83 in 2007. That could be due to a shortage of rural health centre drug kits in 2006 and 2007. The trends for total attendances in all the districts were downward from 2005 to 2007. Among the under-fives, the per capita attendance reduced from 2.86 in 2005 to 2.13 in 2006 and to 0.05 in 2007. In the older population, the per capita attendance was 0.76 in 2005, 0.90 in 2006 and 0.87 in 2007.

### ▪ Bed occupancy rate

This is the percentage of available beds occupied by inpatients during a given period (usually one year). Two parameters, the need for service, and the service delivery determine the bed occupancy rate.

The bed occupancy rate for the province fluctuated from 34 per cent in 2005, 36 per cent in 2006 and 35 per cent in 2007. The health centre bed occupancy rate declined over the three years from 15 per cent in 2005 to 14 per cent in 2006 and to 12 per cent in 2007 while the hospital rate increased from 52 per cent in 2005 to 60 per cent in 2006. It was also 60 per cent in 2007. The bed occupancy rates for the districts increased in Kapiri Mposhi and Kabwe over the three years. There was a reduction in Mkushi and Mumbwa and no clear trend in Serenje and Chibombo.

### ▪ Maternal health

#### ○ Antenatal visits

Figures suggest that most of the women made at least one antenatal visit during a pregnancy from 2005 to 2007. More women than expected attended antenatal clinic at least once in all the three years. The number of pregnant women in the province who made at least one antenatal visit during a pregnancy in 2005 was 56546, in 2006, 56230 and in 2007 63253.

An expectant woman is expected to attend antenatal care at least three times before delivery. In the province this was the case in 2005 when the average number of visits was 3. In 2006 and 2007, they also almost made the expected 3 visits. The average number of antenatal visits was highest for Mumbwa district in 2005 (3.2) and 2007 (3.1) and in Kabwe in 2006 (3.1). In all the three years, the number was lowest in Serenje. It was 2.6 in 2005, 2.5 in 2006 and 2.5 in 2007.

- **Institutional deliveries**

The expected target on institutional deliveries of 40 per cent was not achieved in the province from 2005 to 2007. In 2005, the percentage of supervised deliveries in health facilities in the province was 39 per cent. It was 36 per cent in 2006 and 38 per cent in 2007. Among the districts, almost all the deliveries over the three years in Kabwe were in health facilities. This was the only district in which deliveries in institutions was above the expected target of 80 per cent. The rest of the districts were way short of this target. On deliveries assisted by trained Traditional Birth Attendants (tTBAs), Serenje district recorded the highest percentage in 2005 and in 2006, but, Mumbwa district in 2007.

- **Caesarean section rate**

At hospital level, the percentage of complicated deliveries in 2007 in Kabwe district (34) was almost twice the percentage in the whole province (17.9) and more than twice the level of the second highest level among the districts in Chibombo (15.1). An even higher unevenness was recorded for the percentage of caesarean births. The percentage in Kabwe was 26.0 compared to 9.0 for the whole province and 7.0 for Chibombo. This level which is almost twice above the expected level cannot be explained by referrals from other districts to Kabwe because they also have hospitals.

- **Stillbirth**

A still birth is a delivery of a dead foetus after 28 weeks of gestation which may be fresh or macerated. A high prevalence of still births indicates intra uterine complications due to a number of factors which may include inadequately treated STIs and HIV infection.

The percentage of still births in the province was the highest in 2005 (0.08 per cent). It reduced almost 3 times in 2006 to 0.03 per cent and it remained at this level in 2007 (0.03 per cent). Among the districts, the highest proportion of still births in 2005 was recorded in Kabwe (0.18 per cent) and in 2006 along with Mkushi (0.04 per cent). The highest percentage of still births in 2007 was in Mumbwa (0.07 per cent).

- **Institutional maternal mortality**

Maternal mortality is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. Maternal mortality rate is the number of aternal deaths in a period per 1000 women of reproductive age.

The rate of deaths among females occurring during pregnancy, at delivery, or within 42 days of delivery was highest in 2006 at 3.48 per 1000 and lowest in 2005 at 2.06 per 1000. In all the years, the rate among the districts was highest in Kabwe. It was 3.51 in 2005, 3.48 in 2006 and 2.89 in 2007.

- **Postnatal attendances**

This refers to the woman attending postnatal care for the first time within 6 days and 6 weeks of delivery. This indicator looks at improving the health and well being of both the mother and the baby. Due to the circumstances, the target for this indicator was higher in urban than in rural areas, 80 per cent and 40 per cent respectively. Since about 76 per cent of the population in the province lives in rural areas and 24 per cent in urban areas, the target for the whole province is about 49 per cent.

The expected target of 49 per cent postnatal coverage was exceeded in the province from 2005 to 2007. The achieved coverage also continuously increased from 56 per cent in 2005 to 63 per cent in 2006 to 69 per cent in 2007. Among the districts, the highest coverage in all the years was achieved in Kabwe.

- **Family planning**

In the province both the new family planning acceptors and the new family planning acceptors rate constantly increased from 2005 to 2007 with a higher increase between 2006 and 2007 than between 2005 and 2006. The number of new family planning acceptors per 1000 women of reproductive age aged 15-49 years was 85.4 in 2005, 91.2 in 2006 and 112.2 in 2007.

Among the districts, the highest rate was in Chibombo district in all the three years. The rate was 128.1 in 2005, 111.7 in 2006 and 121.5 in 2007. In all the years, the rate was the lowest in the urban district of Kabwe. It was 37.2 in 2005, 43.0 in 2006 and 42.6 in 2007. Its defies the expectation that there would be more people per unit of measurement accepting family planning in rural areas than in urban areas. Could it really be that family planning is universal in Kabwe and that a saturation point was reached sometime back such that the new family planning

acceptors would only be from the pool of women coming into the reproductive age group now, hence the lower rate than in the rural districts?

- **Pregnancies protected against tetanus**

Pregnancies protected against tetanus are those which have received two or more doses of tetanus toxoid. The 80 per cent target of pregnancies with tetanus toxoid was exceeded in the province from 2005 to 2007. That was also the case in all the districts in the province. The tetanus toxoid protection was the highest in 2006 and lowest in 2005.

- **Child health**

- **Expanded programme for immunisation**

Fully immunisation coverage refers to the number of children under the age of one who have completed the recommended series of immunisations. Table 6.19 shows that the province achieved above the 80 per cent target of full immunisation coverage of children under-one year. Constantly, the coverage was increasing from 2005 to 2007.

In 2005, all the districts achieved the 80 per cent of the set target, except, Serenje district. Throughout the years, from 2005 to 2007, Kabwe district recorded the highest coverage with a sharp increase from 2006 and 2007. In 2005 and 2006, the lowest coverage was in Serenje. However, from 2005 to 2007, its coverage was constantly increasing.

Kapiri Mposhi, district had a constant increase in its coverage from 2005 and 2007 but was lowest in 2007. The actual number of fully immunised under one year was highest for Chibombo district from 2005 to 2007. However, the number was reported lowest for Serenje district in 2005 and 2006 and Mkushi in 2007.

- **Growth monitoring**

Underweight prevalence is the total number of children aged five years and below whose weight is low for their age. The weight for these children is below the lower line on the child health card. The target of less than 10 per cent of underweight children below 5 years was attained in 2007 in the province when 8 per cent of these children were underweight. This was after a continuous reduction from 12 per cent in 2005 to 11 per cent in 2006.

Among the districts, only in Kabwe was this percentage less than 10 per cent in the three years in Kabwe. However, all the districts achieved the target of 10 per cent or less in 2007 after continuous reductions from 2005. In Serenje district, this percentage was more than halved from 22 per cent in 2005 to 10 per cent in 2007.

## **Chapter I: Background**

The main objective of this document is to provide trends of selected indicators on disease burden and service delivery in the province from 2005 to 2007. This bulletin presents data on indicators collected from the HMIS and those not captured in the main stream HMIS such as antiretroviral services and human resources. The indicators are compared by districts and two broad age groups namely under-fives and the rest of the older population. The report does not provide detailed explanations about the factors behind the trends in the indicators.

### **1.1 Geography and Administration**

Central Province as the name suggests is centrally located. It is the fourth largest province in Zambia. It is located between longitudes 27 and 31 degrees east and latitudes 13 and 16 degrees south. It covers an area of 94,394 square kilometres. In 2007, there were 6 administrative districts. They were Chibombo, Kabwe, Kapiri Mposhi, Mkushi, Mumbwa and Serenje.

Arable agriculture is the dominant economic activity in the province. Chibombo, Mkushi and Kabwe have scores of large scale commercial farms with huge acreages under cultivation by rainfall and irrigation. Production levels are very high due to the use of modern farming methods with high usage of fertilisers and mechanisation.

### **1.2 Data sources**

Data used to compile this report is from all public health institutions in the province and a few private institutions where the HMIS is running. The HMIS includes the Antiretroviral Information System (ARTIS), Integrated Disease Surveillance and Response (IDRS), Zambia Prevention Care and Treatment (ZPCT) reporting forms and the district human resource establishment registers.

### **1.3 Scope of analysis**

Information included in this report is for the period 2005 to 2007. The district is the lowest unit of analysis. This provides a comparative picture by districts to which all health facilities have contributed. District health offices are encouraged to start compiling district health statistical reports so that detailed health facility data is analysed.

### **1.4 Limitations of this report**

Data from most private health institutions was not included in this report as most private health institutions do not report in the HMIS. While every care was taken in the preparation and collection of this data, there is no guarantee that different sources have compiled or reported data in a consistent way.

## Chapter 2: Disease Burden

This chapter presents the top ten causes of disease burden in Central Province which caused high morbidity and mortality from 2005 to 2007. These include malaria, respiratory infections (pneumonia and non-pneumonia) and diarrhoeal diseases (bloody and non-bloody).

Disease burden is measured by its incidence and fatality recorded at health facilities. Disease incidence is defined as the number of new cases that occur during a specified period of time in a defined population, while case fatality rate is the number of deaths from a particular illness out of total admissions over a period.

### 2.1 Major causes of illness

Table 2.1 outlines the ten major causes of visitation according to incidence in the province during the year 2007. In 2007, malaria continued to be the leading cause of morbidity and mortality in the province accounting for 27.6 per cent of the morbidity episodes. Malaria was the leading cause of ill health with a total incidence rate of 291.5, followed by respiratory tract infection (non pneumonia) at 248.2, and diarrhoea non-bloody at 70.8. The least cause of visitation to health facilities is digestive system related illnesses. Incidence rate for malaria and diarrhoea non-bloody is higher in the under five age group than the older age group. Eye infections and pneumonia are also more common in the under fives.

Table 2.1: Ten major causes of visitations to health facilities, Central Province, 2007

Disease	Incidence per 1,000 population		
	Under 5	5 years and above	Total
Malaria	801.8	183.6	291.5
Respiratory Infections-non pneumonia	632.1	167	248.2
Diarrhoea: non-bloody	253.1	32.2	70.8
Trauma	59.5	50.6	52.1
Skin infections	103.5	27.7	40.9
Eye infections	121.8	17.8	36.0
Respiratory tract infection - pneumonia	103.7	17.8	32.8
Dental diseases	4.4	33.1	28.1
Muscular skeletal (not trauma)	4.7	32.3	27.5
Digestive system (not infectious)	22.8	28.3	27.4

Source: MOH (HMIS) Central Province

#### 2.1.1 Malaria

Table 2.2 shows that incidence and case fatality rates for malaria in the province in 2007 were 291.5 per 1000 population and 28.2 per 1000 admissions respectively. Whereas there was hardly a difference in the case fatality rate in hospitals among the under-fives (27.6 per 1000 admissions) and the older population (28.9 per 1000 admissions), the incidence rate among the under-fives (801.8 per 1000 population) was four times higher than among the older population (183.6 per 1000 population). Under-fives are prone to malaria because they have not developed an adequate immunity to the disease.

Among the districts, among the under-fives and the older population was the highest in Kabwe, 1504.3 and 325.4 respectively. It was the lowest in Mumbwa (303.4 and 84.8 respectively). Whereas the case fatality rate in Kabwe was almost the same among the under-fives and among the older population (19.6 and 18.7 respectively), it was twice as high among the older population than among the under-fives in Mumbwa 50.4 and 23.5 respectively). In the other districts in the province, the incidence rate was

higher among the under-fives than among the older population. There was little difference in the case fatality rate between the two groups.

**Table 2.2: Malaria incidence and case fatality rates by age group in Central Province, 2007**

District	Incidence rate per 1,000 population (All health facilities)			Case fatality rate per 1,000 admissions (Hospitals only)		
	Under 5	5 years and above	Total	Under 5	5 years and above	Total
Chibombo	535.6	139.1	211.6	20.6	20.5	20.6
Kabwe	1504.3	325.4	495.7	19.6	18.7	19.1
Kapiri Mposhi	903.5	176.2	302.8	32.1	41.8	35.9
Mkushi	957.3	230.5	366.4	27.5	20.5	24.4
Mumbwa	303.4	84.8	123.7	23.5	50.4	37.0
Serenje	910.5	181.5	312.0	33.6	30.4	32.5
<b>Province</b>	<b>801.8</b>	<b>183.6</b>	<b>291.5</b>	<b>27.6</b>	<b>28.9</b>	<b>28.2</b>

Source: MOH (HMIS) Central Province

Figure 2.1 shows that there was a reduction in the incidence rate of malaria in the total population between 2006 and 2007 in all the districts. The reduction in the total population of the province was from 403.5 in 2006 to 291.5 in 2007. In Mumbwa, there was a reduction in the incidence rate in the total population from 2005. The incidence rate in Mumbwa was 392.3 in 2005, 340.5 in 2006 and 123.7 in 2007. In these three years, the incidence rate among the districts in the province was the highest in Kabwe. The incidence rate in Kabwe was 547.0 in 2005, 600.4 in 2006 and 495.7 in 2007 per 1000 of the total population. However, the seeming impressive decline in total incidence in Mumbwa over the period could be as a result of improved diagnostic skills using Rapid Diagnostic Test for plasmodium falciparum which commenced in October 2005. This enables the weeding out of suspected cases of malaria which other districts could be including as real cases.

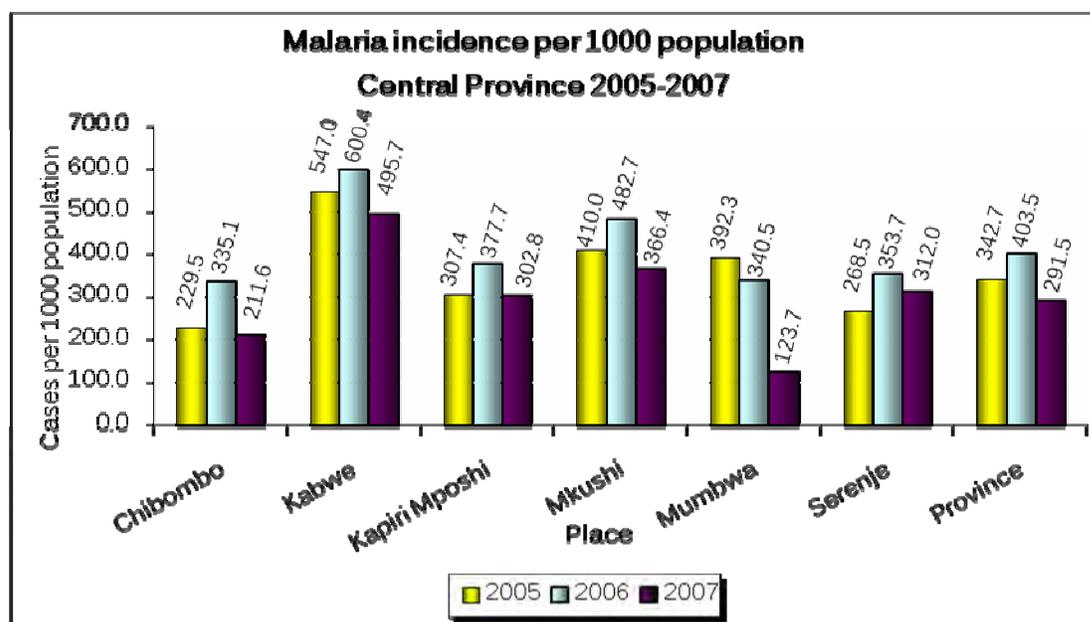


Figure 2.1: Malaria incidence

## 2.1.2 Respiratory infections (non-pneumonia)

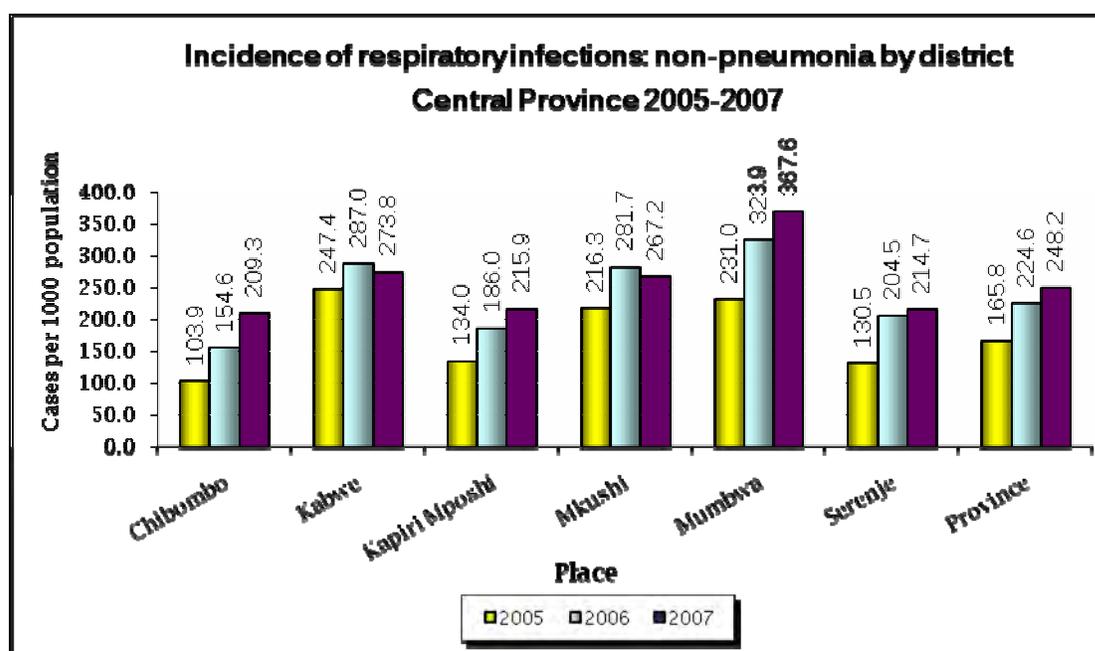
Table 2.3 shows that the incidence and case fatality rates for respiratory infections non-pneumonia in Central Province were 248.2 per 1000 population and 19.3 per 1000 admissions respectively. The highest incidence rate was recorded in Mumbwa (367.6 per 1000 population), followed by Kabwe and Mkushi. The lowest incidence rate (214.7 per 1000 population) was in Serenje. The highest case fatality rate was recorded in Kapiri Mposhi (23.6 per 1000 admissions) closely followed by Chibombo and Serenje. The case fatality was lowest in Kabwe at 2.9 per 1000 admissions.

**Table 2.3: Respiratory infections (non-pneumonia) incidence per 1,000 population, 2005-2007**

District	Incidence rate per 1,000 population (All health facilities)			Case fatality rate per 1,000 admissions (Health centres and hospitals)		
	Under 5	5 years and above	Total	Under 5	5 years and above	Total
Chibombo	501.2	143.9	209.3	38.7	5.8	23.3
Kabwe	896.6	168.6	273.8	0	4.9	2.9
Kapiri Mposhi	578.2	139.6	215.9	6.6	48.3	23.6
Mkushi	612.7	187.7	267.2	15.2	9.5	12.7
Mumbwa	877	257.2	367.6	5.8	68.2	20.8
Serenje	512.6	149.7	214.7	23.6	22.6	23.1
<b>Province</b>	<b>632.1</b>	<b>167</b>	<b>248.2</b>	<b>14.6</b>	<b>26.4</b>	<b>19.3</b>

Source: MOH (HMIS) Central Province.

Figure 2.2 shows that the incidence of non-pneumonia respiratory infections in the province increased from 165.8 in 2005 to 224.6 in 2006 and to 248.2 per 1000 population in 2007. This was also the case among the districts except for fluctuations in Kabwe and Mkushi.



*Figure 2.2: Incidence of respiratory infections: non-pneumonia*

### 2.1.3 Respiratory infections (pneumonia)

Table 2.4 shows that the provincial incidence rate for pneumonia stands at 32.8 per 1000 population with a fatality rate of 86.6 per 1000 admissions. The province had a higher incidence and fatality rates in the under-five age group. Among the districts, the highest incidence was in Kabwe (52 per 1000 population.), followed by Mkushi and Mumbwa. The lowest incidence was in Kapiri Mposhi (17 per 1000 population).

The case fatality from the three facilities in Kabwe namely Kabwe General Hospital, Kabwe Mine Hospitals and Ngungu mini hospital was by far the highest among the districts (228.5 per 1000 admissions). Other fatalities in Kabwe are for referrals from other districts such as Kapiri Mposhi (which has no X-Ray facilities), Mkushi and Serenje. The second highest case fatality rate was in Mumbwa (85.5 per 1000) and the lowest was in Chibombo (35.9 per 1000 admissions).

**Table 2.4: Respiratory infections: pneumonia incidence and case fatality rates by age group, 2007**

District	Incidence rate per 1,000 population (All health facilities)			Case fatality rate per 1,000 admissions (Health centres and hospitals)		
	Under 5	5 years and above	Total	Under 5	5 years and above	Total
Chibombo	91.8	17.9	31.4	42.8	25.4	35.9
Kabwe	194.3	27.9	52	225.2	232.7	228.5
Kapiri Mposhi	57.6	8.5	17.0	50.9	71.4	58
Mkushi	154.9	18.0	43.6	61.1	39.6	54.4
Mumbwa	114.3	26.4	42.1	98	69.2	85.5
Serenje	68.2	13.4	23.2	55.1	31.8	46.6
<b>Province</b>	<b>103.7</b>	<b>17.8</b>	<b>32.8</b>	<b>88.3</b>	<b>84.1</b>	<b>86.6</b>

Source: MOH (HMIS) Central Province 2007

Figure 2.3 illustrates the trend of the pneumonia incidence rate over a 3 year period 2005 to 2007 for the province and its districts. The incidence of pneumonia in 2007 was slightly higher than in the previous years in the whole province. Among the districts, Kabwe incidence was highest in Mumbwa. Incidence appears to have increased sharply in Mkushi in 2007 due to more diagnosis of pneumonia as more people have been trained in IMCI.

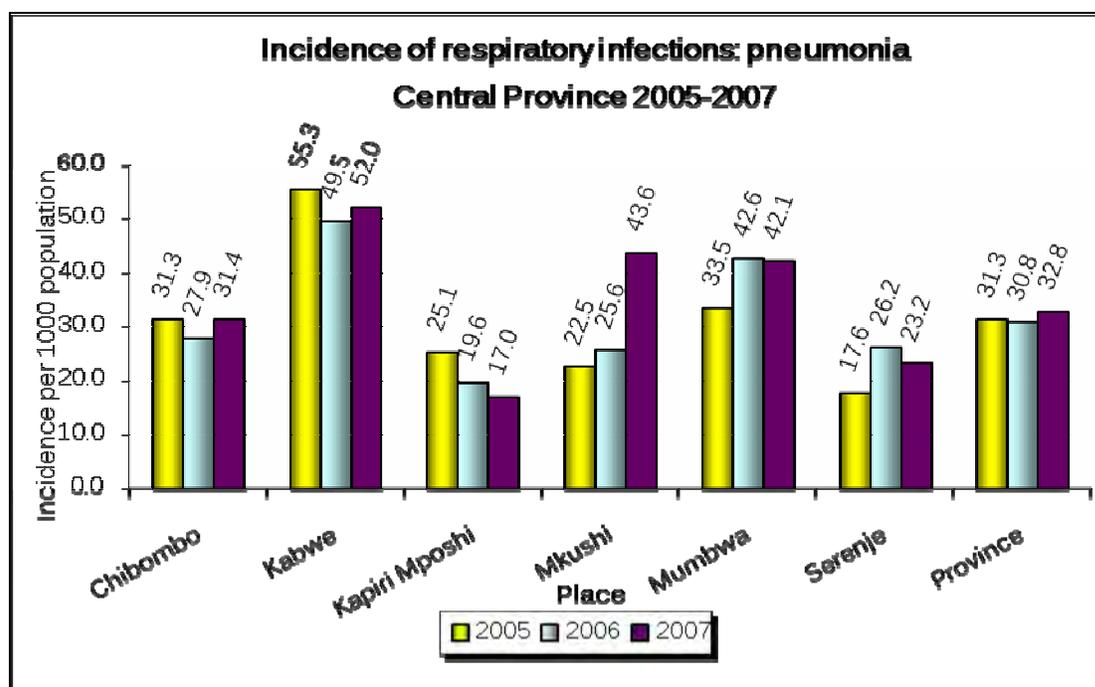


Figure 2.3: Incidence of respiratory infections: pneumonia

#### 2.1.4 Diarrhoea non-bloody

Table shows that the provincial incidence rate stands at 70.8 per 1000 population and the case fatality rate at 78 per 1000 admissions. Among the districts, the highest incidence rate was in Mumbwa (128.2 per 1000 population) followed by Kabwe (103.5 per 1000 population). Incidence was lowest in Serenje and Mkushi at 37.5 per 1000 population. The highest case fatality rate was

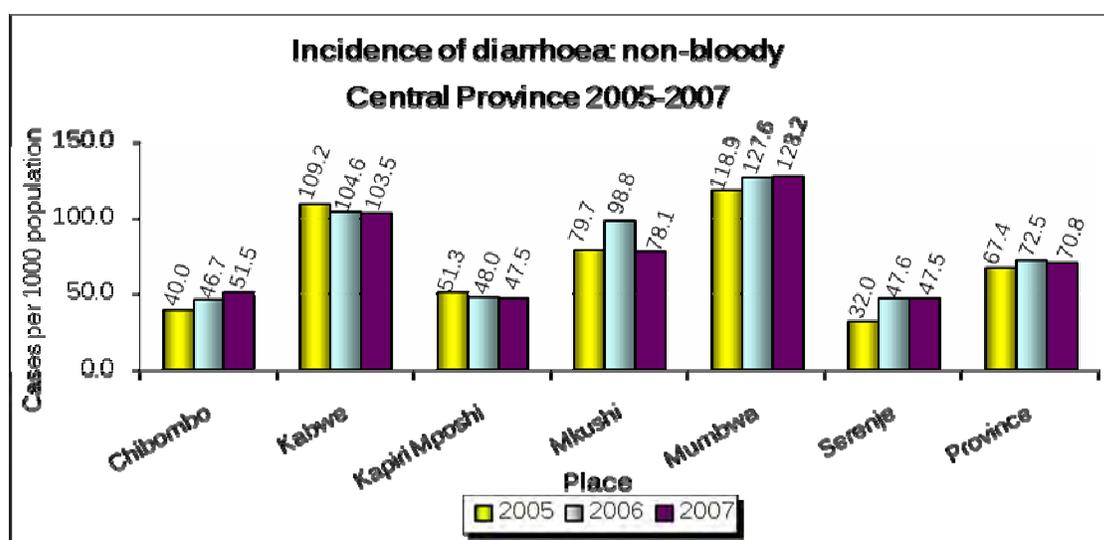
recorded in Kabwe, 161.2 per 1000 admissions, followed closely by Kapiri Mposhi and Mumbwa at 74.1 and 73.3 per 1000 population respectively. The lowest was in Chibombo at 40.1 per 1000 admissions.

**Table 2.5: Diarrhoea non-bloody incidence and case fatality rates by age group, 2007**

District	Incidence rate per 1,000 population (All health facilities)			Case fatality rate per 1,000 admissions (Hospitals only)		
	Under 5	5 years and above	Total	Under 5	5 years and above	Total
Chibombo	183	22	51.5	32.1	50.0	40.1
Kabwe	383.1	56.4	103.5	137.7	180.6	161.2
Kapiri Mposhi	177.2	20.2	47.5	80.1	62.8	74.1
Mkushi	288.1	29.8	78.1	37	49.3	41.3
Mumbwa	463.7	55.5	128.2	73.4	73.0	73.3
Serenje	158.8	23.2	47.5	34.3	59.3	44.4
<b>Province</b>	<b>253.1</b>	<b>32.2</b>	<b>70.8</b>	<b>69.3</b>	<b>89.8</b>	<b>78</b>

Source: MOH (HMIS) Central Province.

Figure 2.4 also shows the trends in incidence rates for the period 2005 to 2007. It shows a steady decline in incidence rates in Kabwe and Kapiri Mposhi and a slight steady increase in Chibombo, Mumbwa and Serenje.



*Figure 2.4: Incidence of diarrhoea: non-bloody*

### 2.1.5 Diarrhoea-bloody (suspected dysentery)

Table 2.6 shows that the provincial incidence rate was 6.7 per 1000 population. The incidence rate among under-fives was more than twice as high as among the older age group. Among the districts, the highest incidence rate (13.3 per 1000 population) was in Kabwe followed by Mkushi (8.9 per 1000 population). The lowest was in Serenje at 3.7 per 1000 population but Figure 2.5 shows that the rate was increasing.

**Table 2.6: Dysentery incidence rate by age group, 2007**

	Incidence rate per 1,000 population (All health facilities)

District	Under 5	5 years and above	Total
Chibombo	10.8	4.5	5.6
Kabwe	31.9	10.2	13.3
Kapiri Mposhi	10.3	3.5	4.6
Mkushi	17.3	6.9	8.9
Mumbwa	12.2	4.9	6.2
Serenje	7.3	2.9	3.7
<b>Province</b>	<b>13.7</b>	<b>5.2</b>	<b>6.7</b>

Source: MOH (HMIS) Central Province.

### 2.1.6 Trauma (accidents, injuries, wounds, burns)

Trauma includes but is not restricted to accidents, injuries, wounds and burns. It is the fourth leading cause of morbidity in the province. Table 2.7 shows that the trauma incidence rate in the province in 2007 was 52.1 per 1000 population. Its case fatality rate was 11.8 per 1000 admissions. The major causes of fatalities were road traffic accidents and burns. The incidence and case fatality rate was higher among the under-fives, 59.5 and 23.6 respectively. Hospital registers indicate that their incidence rate is mainly attributed to burns, wounds and accidents and their case fatality is mainly due to burns.

Among the districts, the rate of incidence was highest in Kabwe (87.4) followed by Mumbwa (80.2). It was lowest in Kapiri Mposhi (33.0). The highest case fatality rate (18.8) was in Mkushi, followed by Kapiri Mposhi (17.1) and the lowest was in Chibombo (2.7). There were no fatalities in Chibombo among the under fives.

Figure 2.6 shows that the provincial incidence rate of trauma increased steadily from 2005 (46.7) to 2006 (51.5) and to 2007(52.1). There was also an increasing trend in Kabwe and Chibombo over the same period of time.

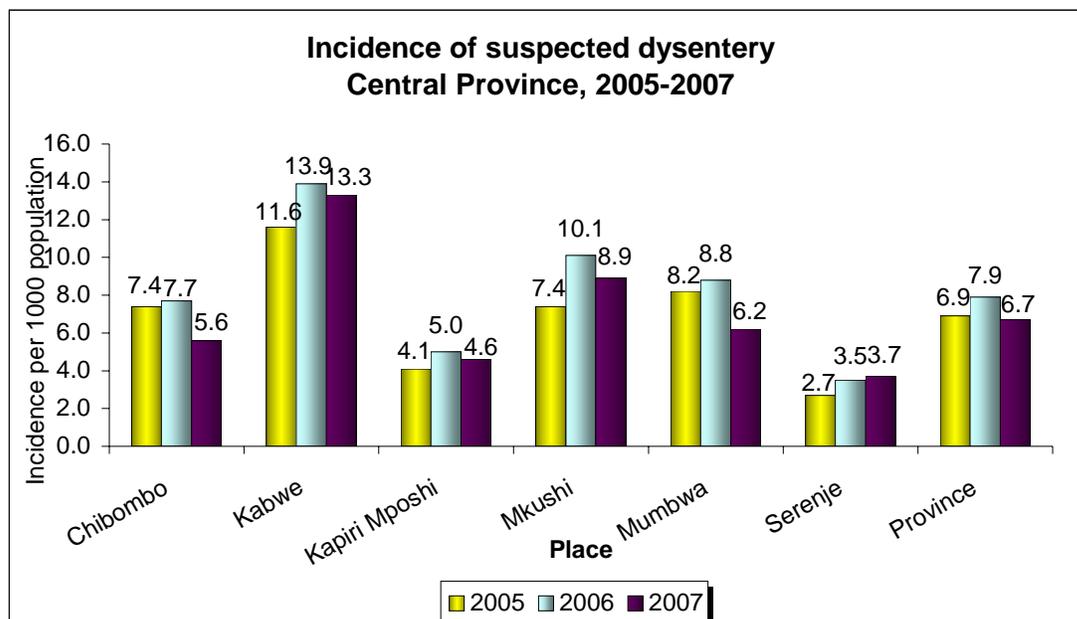


Figure 2.5: Incidence of suspected dysentery

Table 2.7: Trauma (accidents, injuries, wounds, burns) incidence and case fatality rates by age group, 2007

	Incidence rate per 1,000 population (All health facilities)	Case fatality rate per 1,000 admissions (Hospitals only)

District	Under 5	5 years and above	Total	Under 5	5 years and above	Total
Chibombo	50.5	39.1	41.2	0	4.3	2.7
Kabwe	102.2	84.9	87.4	46.1	11.7	15.2
Kapiri Mposhi	39.5	31.6	33	58.1	7.8	17.1
Mkushi	46.7	50.1	49.5	64.9	11	18.8
Mumbwa	95.2	76.9	80.2	38.7	4.4	10.8
Serenje	47.5	39.6	41	5.3	9.3	8.1
<b>Province</b>	<b>59.5</b>	<b>50.6</b>	<b>52.1</b>	<b>23.6</b>	<b>8.8</b>	<b>11.8</b>

Source: MOH (HMIS) Central Province.

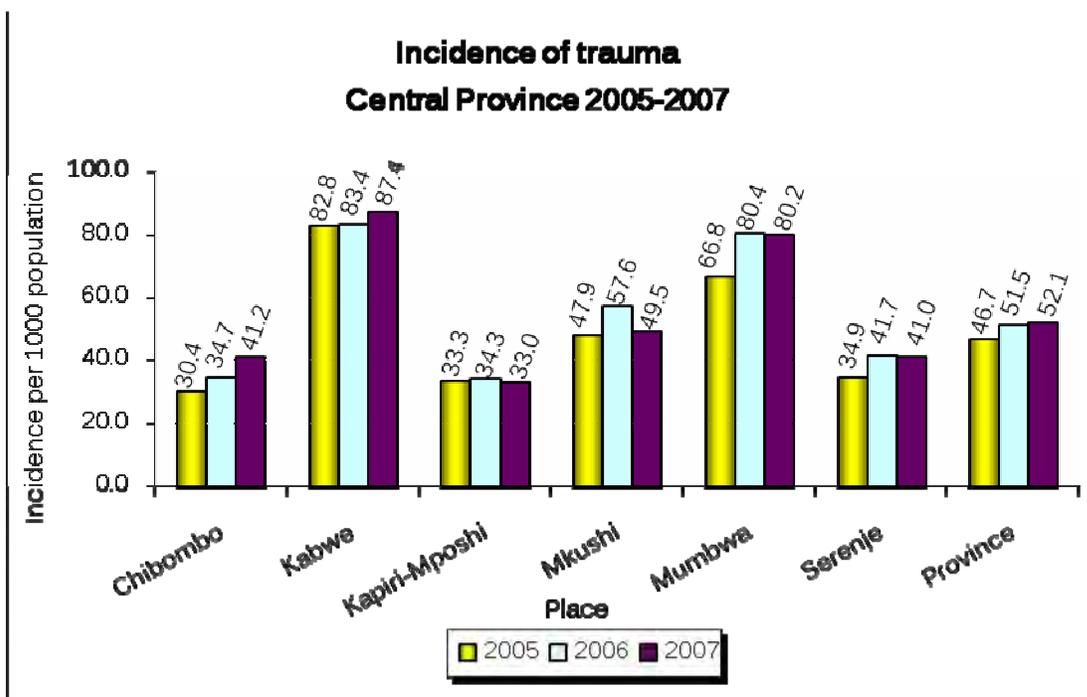


Figure 2.6: Incidence of trauma

### 2.1.7 Eye infections

Table 2.8 shows that the incidence rate for eye infections in the province in the year 2007 was 36.0 per 1000 population. The incidence rate among the under-fives was more than six times higher than in the older group. In both groups among the districts, incidence was highest in Mumbwa (48.7) followed by Mkushi (38.4). The rate was lowest in Serenje (30.2).

Table 2.8: Eye infection incidence rate by age group and district, 2005 to 2007

District	Incidence rate per 1,000 population (All health facilities)		
	Under 5	5 years and above	Total
Chibombo	101.6	16.4	32
Kabwe	126.5	22.7	37.7
Kapiri Mposhi	128.5	14.1	34.0
Mkushi	124.8	18.6	38.4

Mumbwa	161.0	24.3	48.7
Serenje	103.8	14.1	30.2
<b>Province</b>	<b>121.8</b>	<b>17.8</b>	<b>36.0</b>

Source: MOH (HMIS) Central Province.

Figure 2.7 shows a fluctuating trend in eye infections in all the districts of the province except in Serenje where incidence increased by year. In all the three years, the incidence was highest in Mumbwa and lowest in Serenje.

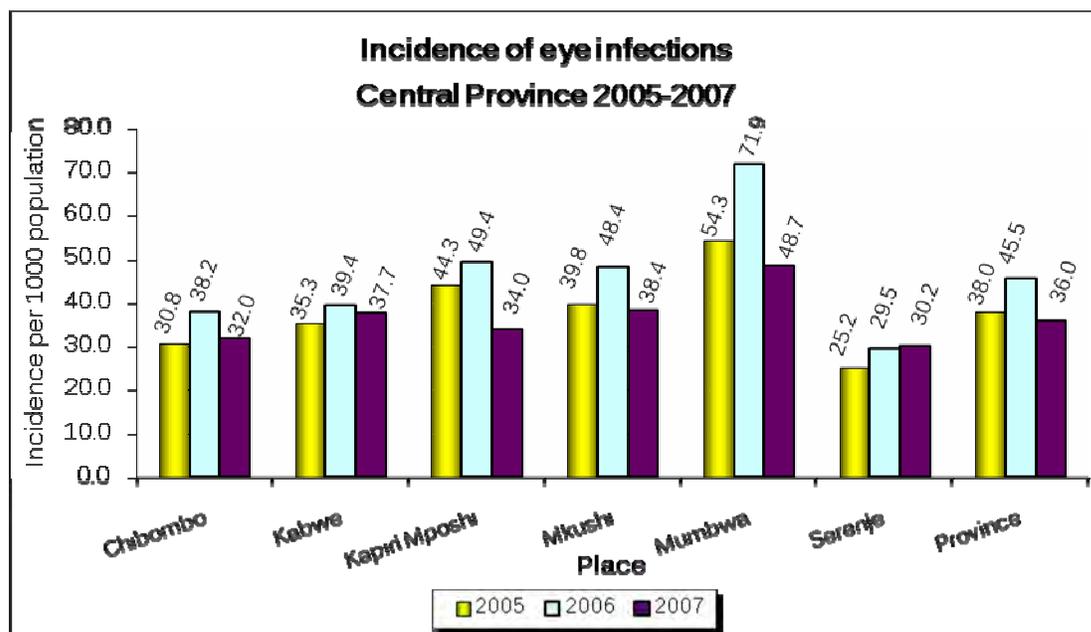


Figure 2.7: Incidence of eye infections

## 2.2 Patient case load

This is the average number of times a person in a catchment area is attended to at a health facility with an ailment in a year. The proportion of children under 5 years case load measures the number of under-five cases out of the total outpatient department first attendances. This indicator was generated from annual data for the outpatient department first attendances in health facilities.

Table 2.9 shows that the provincial proportion of under-five patient case load was highest in 2005 and lowest in 2007. This also continuously declined from 2005 to 2007. In 2005, the highest proportion was reported in Kapiri Mposhi and the lowest in Kabwe. However, in 2006 and 2007, the proportion was lowest in Mumbwa. Between 2005 and 2006, there was a sharp decrease in the proportion in Mkushi by 0.13. In each year the proportion was highest in Kapiri Mposhi although it was declining every year.

District	Proportion of children under 5 years case load		
	2005	2006	2007
Chibombo	0.46	0.40	0.38
Kabwe	0.36	0.36	0.35
Kapiri Mposhi	0.51	0.45	0.42

Mkushi	0.50	0.37	0.38
Mumbwa	0.39	0.35	0.34
Serenje	0.50	0.43	0.40
<b>Province</b>	<b>0.44</b>	<b>0.40</b>	<b>0.38</b>

Source: MOH (HMIS) Central Province.

### 2.3 Under-five case fatality rates

Under-five case fatality rate measures the deaths of under-five children from any disease or condition per 1000 admissions at health facility level in a specified period. Table 2.10 shows that the under-five case fatality rate was highest in 2006 and lowest in 2005. Among the districts, the case fatality rate was the highest in Kabwe in all the years probably because most ailments in the district are attended to at health facilities where the data is captured. That is not the case in the other districts.

**Table 2.10: Under 5 years case fatality rate by district, 2005–2007**

District	Under 5 years mortality rate		
	2005	2006	2007
Chibombo	35.5	43.2	35.3
Kabwe	103.8	103.8	104.3
Kapiri Mposhi	41.6	53.6	48.9
Mkushi	36.6	52.4	48.4
Mumbwa	66.0	68.8	53.9
Serenje	36.5	40.2	36.5
<b>Province</b>	<b>53.9</b>	<b>63.2</b>	<b>55.5</b>

Source: MOH (HMIS) Central Province

### 2.4 Selected notifiable diseases

These are diseases that are reported to other levels of care immediately they are diagnosed. These diseases can quickly spread within the community causing high morbidity and mortality. They have been classified in the Integrated Disease Surveillance and Response (IDSR) strategy in order to effectively prevent, manage and control them. There are ten notifiable diseases in the HMIS namely; acute flaccid paralysis, measles, neonatal tetanus, dysentery, cholera, plague, rabies, typhoid fever, yellow fever and tuberculosis.

#### 2.4.1 Acute flaccid paralysis

This is a condition that affects those younger than 15 years. It presents with sudden onset of weakness of the limbs without a history of injury. The two main acute flaccid paralysis surveillance indicators are non acute flaccid paralysis rate measured per 100,000 children less than 15 years and stool adequacy rate. A non acute flaccid paralysis cases is determined by an investigation of 2 stools within 14 days of onset. Table 2.12 shows acute flaccid paralysis surveillance performance indicators by all the districts within the province in 2007.

In the province 13 acute flaccid paralysis cases out of the expected target of 12 were detected. A 100 per cent stool adequacy rate was achieved. Also, an annualised non acute flaccid paralysis rate of 2.1 per 100,000 children aged less than 15 years, above the set target of 1, was also achieved. The highest number of acute flaccid paralysis cases was detected in Mumbwa. In Kapiri Mposhi 1 out of 3 expected cases were detected. The set target of the annualised non polio acute flaccid paralysis rate was reached in 3 districts, namely; Chibombo, Kabwe and Mumbwa. No cases were detected in Mkushi and Serenje.

**Table 2.11: Acute flaccid paralysis surveillance performance indicators by district, 2007**

District	Number of Acute flaccid paralysis cases		Annualised non-polio acute flaccid paralysis rate *	(Stool adequacy)*	
	Expected	Detected		Number	Percent
Chibombo	3	3	1.9	3	100
Kabwe	2	3	3.4	3	100
Kapiri Mposhi	3	1	0.7	1	100
Mkushi	1	0	0	0	0
Mumbwa	2	6	7.3	6	100
Serenje	1	0	0	0	0
<b>Province</b>	<b>12</b>	<b>13</b>	<b>2.1</b>	<b>13</b>	<b>100</b>

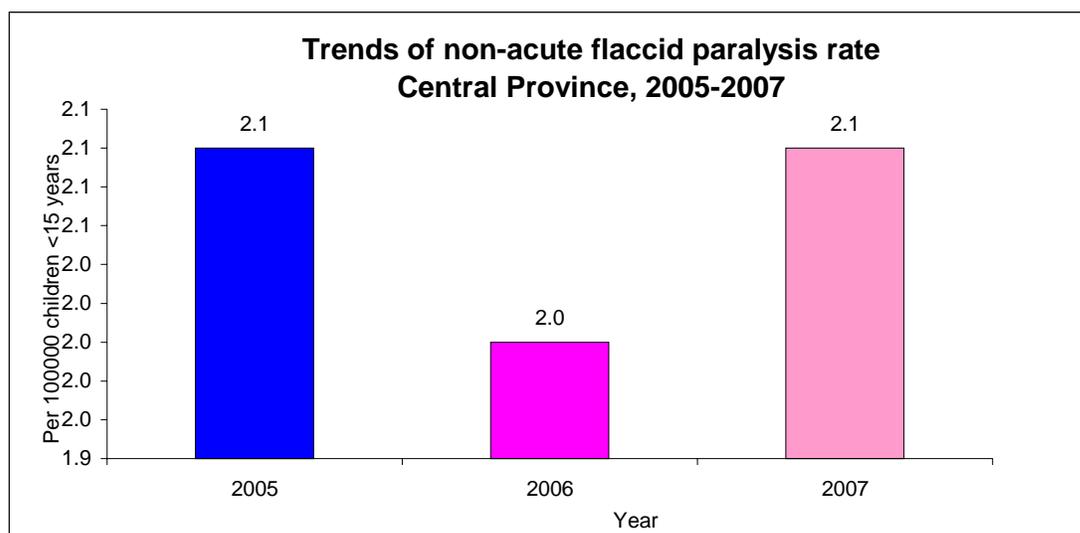
Source: Acute Flaccid Paralysis surveillance database

### 2.4.2 Non-polio acute flaccid paralysis rate

In every 100 000 children under 15 years a non-polio acute flaccid paralysis case should be detected. Figure 2.8 shows that from 2005 to 2007, this rate was above the expected target of 1. Both in 2005 and 2007, the rate was the same but it declined in 2006.

#### Stool adequacy rate

All detected acute flaccid paralysis cases should be adequately investigated by having two stool samples collected within 14 days of post onset 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 percentage of acute flaccid paralysis cases in which two stools were collected within 14 days of onset of paralysis is the stool adequacy rate. The target is 80 per cent.



*Figure 2.8: Non Acute Flaccid Paralysis rate*

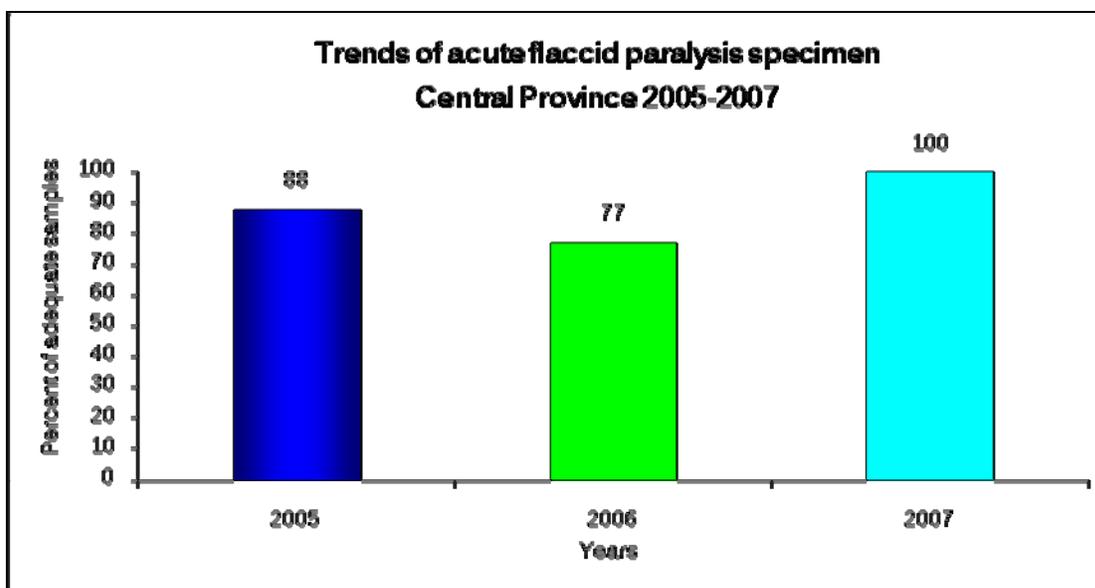


Figure 2.9: Stool adequacy rate

### 2.4.3 Measles

Measles is among the ten notifiable diseases. Serum sample are collected for testing to detect IgM antibodies for measles virus.

Table 2.15 shows that suspected measles cases were highest in 2007 and lowest in 2006 at the provincial level among both the under-fives and the older age groups. Among the under-fives, there were 137 suspected measles cases in 2005, 115 in 2006 and 155 in 2007. Suspected cases were higher among those aged 5 years and above than for those under five years in all the years except in 2006. The under-five measles incidence rate was the same in 2005 and 2007. It was 0.7 per 1000 population. In 2006, it was 0.5.

In 2005, the highest number of suspected measles cases for the under fives were in Kabwe district. In 2006 and 2007, the highest number of cases was reported in Chibombo. However, the highest incidence rate in 2007 was in Kabwe. The lowest number of cases and the incidence rate was reported in Mkushi district in 2005 and 2007. Three districts, namely; Serenje, Mumbwa and Kapiri Mposhi reported the lowest rate in 2007.

District	Under-5 years			5 years and above			Under-five incidence per 1000		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Chibombo	4	74	100	0	63	99	0.1	2.8	1.8
Kabwe	74	51	49	63	33	69	2.8	1.9	1.9
Kapiri Mposhi	16	5	2	20	3	12	0.4	0.1	0
Mkushi	1	0	2	3	0	2	0	0	0.1
Mumbwa	36	8	2	64	15	4	1.2	0.3	0
Serenje	6	3	0	3	4	0	0.2	0.1	0
<b>Province</b>	<b>137</b>	<b>115</b>	<b>155</b>	<b>153</b>	<b>100</b>	<b>182</b>	<b>0.7</b>	<b>0.5</b>	<b>0.7</b>

Source: MOH (HMIS) Central Province.

## Chapter 3: HIV, AIDS, Tuberculosis and Sexually Transmitted Infections

The primary objective of the health sector for HIV, AIDS, tuberculosis and STIs is to provide prevention, care, and treatment and support to at least 80 per cent of the population by 2010. HIV prevalence in the population aged 15-19 years in Central Province was 18 per cent in 2007. This was above the national average of 14.3percent. Therefore, about 232, 794 people were infected with HIV. Out of these 46,559 were eligible for antiretroviral therapy.

### 3.1 Counselling and testing

Persons who want to take an HIV test have to undergo counselling so that they understand what HIV is, how it is transmitted, how it can be prevented, what it does to the human being, that there is no cure, the difference between HIV and AIDS and so on. Table 3.1 shows that there was an increase from 10,266 in 2005 to 39,205 in 2007 in the number of people counselled and tested for HIV in the province. The percentage of those taking an HIV test after counselling was almost 100 except in Kapiri Mposhi. This is expected because the main entry point for counselling and testing was the clinic for patients whose treatment could best be determined after confirming their HIV status.

**Table 3.1: Proportion of clients taking an HIV test**

District	Number of counselling and testing clients					
	2005		2006		2007	
	Clients	Percentage tested	Attended	Percentage tested	Attended	Percentage tested
Chibombo	1653	95.9	4222	97.9	5767	98.6
Kabwe	4491	98.2	9229	95.8	14414	97.8
Kapiri Mposhi	1557	84.7	6870	62.8	7586	84.5
Mkushi	853	99.4	1581	98	4423	93.2
Mumbwa	1624	100	2508	99	4707	99.6
Serenje	88	100	812	98.3	2308	99.6
<b>Province</b>	<b>10266</b>	<b>96.2</b>	<b>25222</b>	<b>87.7</b>	<b>39205</b>	<b>95</b>

Source: ZVCTS database

Table 3.2 shows that the number of clients that took an HIV test increased by more than three times between 2005 and 2007 from 9875 in 2005 to 37296 in 2007. This can be attributed to the rapid scale up in the number of sites providing counselling and testing services. Among the clients, HIV prevalence declined over the period. HIV prevalence among the clients was lower in 2007 (38.2 per cent) than in 2005 (57.4 per cent). Nevertheless, the level in 2007 was still very high. As more people opt to test for HIV, it is less likely that only those who are quite sick are the ones testing.

**Table 3.2: Proportion of clients taking an HIV test**

District	Number of counselling and testing clients								
	2005			2006			2007		
	Tested	Positive	Percentage found positive	Tested	Positive	Percentage found positive	Tested	Positive	Percentage found positive
Chibombo	1586	894	56.4	4134	2452	59.3	5680	2908	51.2
Kabwe	4410	2835	64.3	8839	5130	58.0	14093	5618	39.9
Kapiri Mposhi	1319	538	40.8	4315	2009	46.6	6410	2032	31.7
Mkushi	848	452	53.3	1549	718	46.4	4123	1216	29.5
Mumbwa	1624	910	57.0	2483	1200	48.3	4689	1809	38.6

Serenje	88	39	44.3	798	509	63.8	2301	667	29.0
<b>Province</b>	<b>9875</b>	<b>5668</b>	<b>57.4</b>	<b>22118</b>	<b>12018</b>	<b>54.3</b>	<b>37296</b>	<b>14250</b>	<b>38.2</b>

Source: ZVCTS database

### 3.2 Prevention of HIV transmission from mother to child

Women infected with HIV can transmit it to their child during pregnancy, during birth and while breastfeeding. The transmission probability through any of these ways can be reduced to various levels by implementing some strategies.

#### 3.2.1 Antenatal HIV testing

As shown in Table 3.3, only 26.5 per cent of pregnant women who attended antenatal clinic in the province took an HIV test in 2007. This could be attributed to few facilities offering PMTCT services (56 out of 151) in the province. Although there were 102 out of 151 health facilities providing VCT and antenatal care, only the PMTCT sites tested antenatal women for HIV.

Among the districts, the highest percentage of pregnant women attending antenatal clinic for the first time who tested for HIV was 62.4 per cent in Kabwe. This percentage was below the provincial average of 26.5 per cent in four of the six districts. It was as low as 5.1 per cent Kapiri Mposhi. The high coverage for Kabwe can be attributed to the fact that Kabwe is the only urban district in the province. Therefore, the community is within easy reach of the health facilities offering PMTCT services.

**Table 3.3: Proportion of women starting antenatal clinic who took an HIV test by district, 2007.**

District	Antenatal first visits	Tested for HIV	Percentage tested
Chibombo	14740	3783	25.7
Kabwe	7579	4728	62.4
Kapiri Mposhi	13696	692	5.1
Mkushi	7340	2314	31.5
Mumbwa	11653	2826	24.3
Serenje	8245	1413	17.1
<b>Province</b>	<b>63253</b>	<b>16756</b>	<b>26.5</b>

Source: ZVCTS database

As shown in Table 3.4, there was an increase in the number and percentage of health facilities offering PMTCT in Central Province. There were 23 health facilities out of 151 total health facilities offering PMTCT in 2005 (15.2 per cent). This increased to 37.1 per cent in 2006 and to 59.6 per cent in 2007. By 2007, the highest proportion of health facilities offering PMTCT among the districts was in Chibombo (96.0 per cent followed by Mkushi (85.7 per cent) and Mumbwa (67.9 per cent). The lowest coverage of 23.8 per cent was in Serenje.

**Table 3.4: Prevention of Mother to Child Transmission services in Central Province**

District	Proportion of health facilities providing PMTCT services								
	2005			2006			2007		
	Health facilities offering PMTCT	Percentage of health facilities offering PMTCT	Health facilities offering PMTCT	Health facilities offering PMTCT	Percentage of health facilities offering PMTCT	Health facilities offering PMTCT	Health facilities offering PMTCT	Percentage of health facilities offering PMTCT	
Chibombo	25	3	12.0	25	3	12.0	25	24	96.0
Kabwe	31	8	25.8	31	14	45.2	31	14	45.2
Kapiri Mposhi	25	4	16.0	25	8	32.0	25	10	40.0

Mkushi	21	3	14.3	21	13	61.9	21	18	85.7
Mumbwa	28	3	10.7	28	8	28.6	28	19	67.9
Serenje	21	2	9.5	21	5	23.8	21	5	23.8
<b>Province</b>	<b>151</b>	<b>23</b>	<b>15.2</b>	<b>151</b>	<b>56</b>	<b>37.1</b>	<b>151</b>	<b>90</b>	<b>59.6</b>

Source: ZVCTS data base.

The highest number of antenatal attendances in the province was in Chibombo District and 25.7 per cent tested for HIV, in 2007 despite only 12 per cent of facilities offering PMTCT services. The second highest ANC attendance in 2007 was in Kapiri Mposhi. However, only 5.4 per cent tested for HIV despite having 32.0 per cent of 25 facilities providing PMTCT services. This could be attributed to poor data capturing and record keeping. In Mkushi 61.9 per cent of facilities offered PMTCT services in 2007 but only 31.5 per cent of antenatal clients tested for HIV. Mkushi has the lowest qualified human resource in the province and has a high staff turnover which adversely affected the availability of PMTCT services. HIV positive results for pregnant women tested during the first antenatal care visit

Table 3.5 shows that the percentage of pregnant women who took an HIV test at their first antenatal care visits in Central Province found to have HIV was 16.8 per cent. Among the districts, only in Kabwe and Mumbwa was prevalence among pregnant women attending their first antenatal clinic for the pregnancy above the provincial average. The respective percentages were 24.7 and 17.6. The lowest prevalence among these women was 12.7 per cent in Serenje.

**Table 3.5: Number of women tested for HIV and the percentage testing positive by district, 2007.**

District	Tested for HIV	Tested positive	Percentage tested positive
Chibombo	3783	557	14.7
Kabwe	2383	589	24.7
Kapiri Mposhi	1692	245	14.5
Mkushi	2314	366	15.8
Mumbwa	2826	498	17.6
Serenje	1413	180	12.7
<b>Province</b>	<b>14411</b>	<b>2435</b>	<b>16.8</b>

Source: ZVCTS database

### 3.2.2 Antiretroviral prophylaxis

This refers to the administration of antiretroviral drugs to women with HIV both during pregnancy and after birth and to babies born to mothers with HIV immediately after birth or within 72 hours of birth to prevent HIV transmission from mother to newborn.

Table 3.6 shows that only 8.2 per cent of babies known to be exposed to HIV received antiretroviral prophylaxis in 2007. The data also indicates that the more rural the district is, the more difficult it is to provide antiretroviral prophylaxis to babies exposed to HIV. The highest percentage of babies exposed to HIV given antiretroviral prophylaxis among the districts was in Kabwe (28.7 per cent). This may possibly be due to the fact that accessibility of the service in urban areas is easier than for the other districts as the health facilities are within reach of the clients. The lowest percentage of babies exposed to HIV given antiretroviral prophylaxis was in Mkushi. Most of Mkushi is rural and most mothers deliver at homes due to long distances to health facilities.

**Table 3.6: Proportion of babies exposed to HIV given antiretroviral prophylaxis by district, 2007.**

District	Estimated HIV-Exposed Births	Number given prophylaxis	Percentage of babies exposed to HIV-given prophylaxis
----------	------------------------------	--------------------------	---

Chibombo	2837	157	5.5
Kabwe	1204	346	28.7
Kapiri Mposhi	2549	102	4.0
Mkushi	1320	27	2.0
Mumbwa	1452	200	13.8
Serenje	1398	56	4.0
<b>Province</b>	<b>10760</b>	<b>888</b>	<b>8.2</b>

Source: ZVCTS database

Figure 3.1 is a graphical representation of mothers with HIV and babies exposed to HIV that received antiretroviral prophylaxis. The number of babies exposed to HIV who got antiretroviral prophylaxis was lower than mothers with HIV who got antiretroviral prophylaxis in the province.

### 3.3 Antiretroviral therapy

#### 3.3.1 Ever enrolled on anti-retroviral therapy

This refers to the total number of patients who were started on antiretroviral therapy in the facility ever since inception of the antiretroviral therapy programme regardless of the current status (dead, still on antiretroviral therapy, transferred out, lost to follow up, or stopped). It does not include those who had transferred in.

Table 3.7 shows that the number of clients ever enrolled on antiretroviral therapy doubled from 7931 by 2006 to 15,551 by 2007. Of all the clients ever enrolled on antiretroviral therapy by both 2006 and 2007, 57 per cent of them were females and 43 per cent were males. All the districts except Kapiri Mposhi and Mumbwa recorded a 100 per cent increase in ever enrolled on antiretroviral therapy between 2006 and 2007. This should be due to many mobile and static sites that were opened and also the intensified sensitisations about antiretroviral therapy.

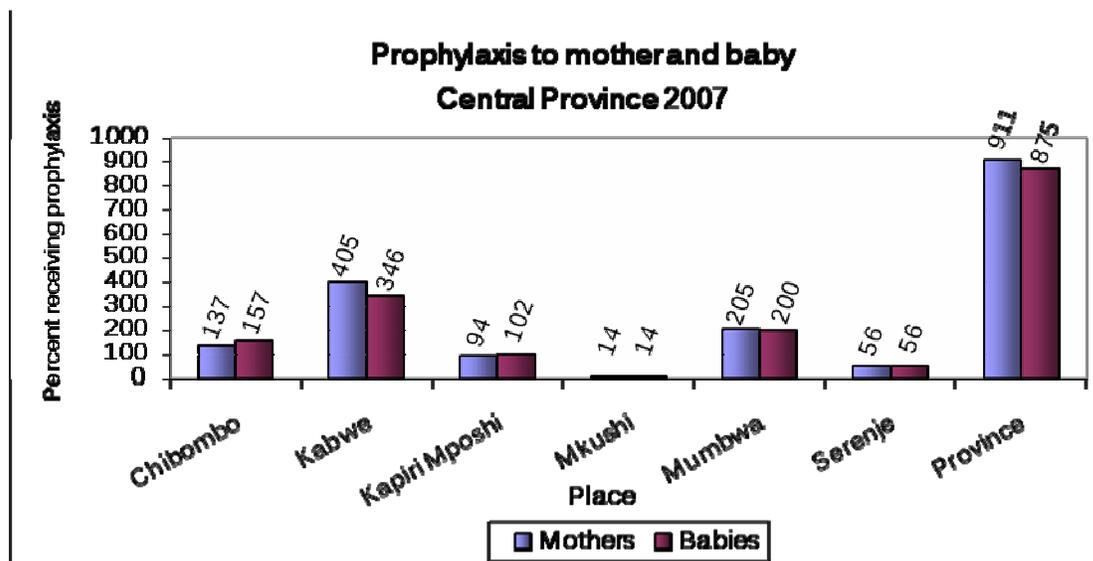


Figure 3.1: Antiretroviral prophylaxis for preventing HIV transmission from mother to child

Nearly half of the clients enrolled on antiretroviral therapy by 2006 (43.3 per cent) and by 2007 (45.7 per cent) were from Kabwe. Provision of antiretroviral therapy in Kabwe was started earlier than in the other districts in 2002. This was started in

2005 and after in the other districts. There are also more sites providing antiretroviral therapy in Kabwe. More personnel have also been trained in antiretroviral therapy /OIT management.

**Table 3.7: Cumulative number of patients ever enrolled on antiretroviral therapy by district, 2006-2007.**

District	2006			2007		
	Males	Females	Total	Males	Females	Total
Chibombo	363	384	747	808	964	1772
Kabwe	1548	1887	3435	3079	4023	7102
Kapiri Mposhi	770	1247	2027	1159	1787	2946
Mkushi	273	248	621	668	841	1509
Mumbwa	224	367	610	490	708	1198
Serenje	199	292	491	432	591	1024
<b>Province</b>	<b>3377</b>	<b>4425</b>	<b>7931</b>	<b>6636</b>	<b>8914</b>	<b>15551</b>

Source: MOH (HMIS) Central Province.

### 3.3.2 Ever-enrolled on antiretroviral therapy against target

Table 3.8 shows that the target of clients ever enrolled on antiretroviral therapy by 2006 was not met in the province. However, the target was exceeded by 61.3 per cent by 2007. Among the districts, targets were exceeded in Kabwe by 2006 by 46.6 per cent and by 2007 by 148 per cent. All districts apart from Chibombo and Serenje exceeded the targets by 2007.

**Table 3.8: Proportion ever started on antiretroviral therapy against target by district and year.**

District	2006			2007		
	Target	On antiretroviral therapy	Percentage of target attained	Target	On antiretroviral therapy	Percentage of target attained
Chibombo	1539	747	48.5	1914	1772	91.3
Kabwe	2343	3435	146.6	2864	7102	248.0
Kapiri Mposhi	2040	2047	100.0	2491	2845	114.2
Mkushi	742	621	83.7	908	1509	166.2
Mumbwa	1054	610	57.9	1286	2772	215.6
Serenje	893	491	55.0	1090	1024	93.9
<b>Province</b>	<b>8611</b>	<b>7951</b>	<b>92.3</b>	<b>10553</b>	<b>17024</b>	<b>161.3</b>

Source: MOH (HMIS) Central Province.

### 3.3.3 Currently on antiretroviral therapy by end of year

This is the count of patients who attend a facility for antiretroviral therapy. It includes patients initially enrolled at the facility who still receive antiretrovirals from the facility plus those who transferred to the facility from others.

Table 3.9 shows that the total number of patients currently on treatment at the end of the year increased by 72 per cent from 2006 to 2007. The number of paediatric currently on antiretroviral therapy increased by 58 per cent from 2006 to 2007 while that for adults increased by 78 per cent over the same period. In both 2006 and 2007, there were more females on treatment than were males. Kabwe District had the highest number of clients on treatment in 2006 and 2007. The increase from 2006 to 2007 was highest in Chibombo District, an almost three fold increase.

**Table 3.9: Patients currently on antiretroviral therapy by age and sex at end of each year by district**

District	2006					2007				
	0-14 years		15 and above		Total	0-14 years		15 and above		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Chibombo	13	5	250	277	565	25	20	748	914	1707
Kabwe	86	101	1462	1786	3435	131	155	2329	3074	5689
Kapiri Mposhi	41	57	729	1200	2027	70	85	1159	1787	3101
Mkushi	10	8	232	337	587	21	11	367	521	920
Mumbwa	8	17	235	350	610	12	12	436	423	883
Serenje	10	6	119	173	308	19	13	249	353	634
<b>Province</b>	<b>168</b>	<b>194</b>	<b>3027</b>	<b>4123</b>	<b>7532</b>	<b>279</b>	<b>296</b>	<b>5288</b>	<b>7072</b>	<b>12934</b>

Source: MOH (HMIS) Central Province.

### 3.4 Tuberculosis

Tuberculosis is a disease that commonly affects the lungs, but also other organs. It is caused by the bacterium *Mycobacterium tuberculosis*. The *M. tuberculosis* complex includes *M. tuberculosis* and *M. africanum*, primarily from humans, and *M. bovis*, primarily from cattle. *M. tuberculosis* and *M. africanum* are transmitted by exposure to the bacilli in airborne droplet nuclei produced by people with pulmonary or laryngeal tuberculosis during expiratory efforts, such as coughing and sneezing.

#### 3.4.1 Tuberculosis notifications from 2005 to 2007

Table 3.10 shows that the total tuberculosis cases in 2007 in the province were 3458. Of this number, 1970 (57 per cent) were males and 1488 (43 per cent) were females. The new smear sputum positive cases were 26.5 per cent, while the smear sputum positive relapse cases were 3.2 per cent. The highest percentage of tuberculosis cases in the province were in Kabwe District (42.7 per cent). The lowest were in Serenje District (4.1 per cent). The high HIV prevalence in Kabwe and its having a provincial referral hospital account for its high number of cases.

#### 3.4.2 Tuberculosis cure, completion and success rate

Table 3.11 presents the coverage on Tuberculosis cure, completion and treatment success rates in the six districts in the province from 2005 to 2007.

**Table 3.10: Tuberculosis notifications by type, district and sex, 2007**

District	Sex	Notifications by type of tuberculosis							Total
		Sputum Smear		Extra pulmonary tuberculosis	Relapse positive	Others previously treated	Treatment after default	Treatment after default	
		Positive	Negative						
Chibombo	Male	65	42	36	8	9	0	0	160
	Female	53	54	59	3	19	0	0	188
	<b>Total</b>	<b>118</b>	<b>96</b>	<b>95</b>	<b>11</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>348</b>
Kabwe	Male	260	441	128	39	10	66	1	945
	Female	159	242	62	17	10	42	1	513
	<b>Total</b>	<b>419</b>	<b>683</b>	<b>190</b>	<b>56</b>	<b>20</b>	<b>108</b>	<b>2</b>	<b>1478</b>
Kapiri Mposhi	Male	89	214	63	10	27	11	0	414
	Female	61	223	60	7	30	5	0	386
	<b>Total</b>	<b>150</b>	<b>437</b>	<b>123</b>	<b>17</b>	<b>57</b>	<b>16</b>	<b>0</b>	<b>800</b>
Mkushi	Male	35	26	16	6	4	0	0	87
	Female	27	11	4	3	4	0	0	59

	<b>Total</b>	<b>62</b>	<b>37</b>	<b>20</b>	<b>9</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>146</b>
Mumbwa	Male	71	110	62	6	27	0	0	276
	Female	61	127	56	1	14	0	0	267
	<b>Total</b>	<b>132</b>	<b>237</b>	<b>118</b>	<b>15</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>543</b>
Serenje	Male	23	44	11	2	8	0	0	88
	Female	14	32	6	1	2	0	0	55
	<b>Total</b>	<b>37</b>	<b>76</b>	<b>17</b>	<b>3</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>143</b>
<b>Province</b>	Male	553	877	116	71	85	77	1	1970
	Female	375	689	257	40	79	47	1	1488
	<b>Total</b>	<b>918</b>	<b>1566</b>	<b>573</b>	<b>111</b>	<b>164</b>	<b>124</b>	<b>2</b>	<b>3458</b>

Source: Tuberculosis database

Table 3.11 shows Tuberculosis Cure, Completion and Success Rate. Cure refers to a patient whose sputum was positive at diagnosis and at the end of treatment the sputum was negative. Treatment completion refers to patients whose sputum was positive and turns negative at two months but does not have the sputum examined at eight months.

A cure rate of 81 per cent was attained in the province in 2005, 79 per cent in 2006 and 83 per cent in 2007. Higher rates could not be attained due to inadequate diagnostic centres in some districts and poor reporting. The treatment success rate attained also fell short of the 85 per cent target by 2 per cent in 2005 and by 5 per cent in 2006. The target was attained in 2007 as the treatment success rate in the province was 85 per cent.

**Table 3.11: Tuberculosis cure rate 2005 to 2007**

District	Cure rate (percentage)			Completion rate (percentage)			Treatment success rate (percentage)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Chibombo	90	95	82	0	0	4	90	95	86
Kabwe	83	82	88	2	1	1.6	85	83	90
Kapiri Mposhi	68	71	75	3	1	0	71	72	75
Mkushi	88	82	84	0	2	1	88	84	86
Mumbwa	73	74	75	3	4	7	76	78	82
Serenje	87	85	85	4	0	0	89	85	85
<b>Province</b>	<b>81</b>	<b>79</b>	<b>83</b>	<b>2</b>	<b>1.6</b>	<b>2</b>	<b>83</b>	<b>80</b>	<b>85</b>

Source: Tuberculosis database

### 3.5 Sexually transmitted infections

These infections which usually affect the reproductive organs of both males and females are transmitted sexually. Some present with ulcers such as genital ulcer syndrome, syphilis, chancroid, lymphogranuloma venereum (LGV), granuloma inguinale, and herpes genitalis and others present with discharges such as genital discharge syndrome, gonorrhoea, Chlamydia and trichomoniasis).

Table 3.12 presents the incidence of sexually transmitted infections in 2007 in under fives and those who were older by district. The incidence rate as expected was higher in those aged five years and above than among the under fives. At the provincial level incidence was 1.2 per 1000 under fives and 16.2 per 1000 of the older population. Among the under fives, the incidence rate was the highest in Mkushi (3.3 per 1000 under fives) followed by Mumbwa district (2.0 per 1000 under fives). These districts are in rural areas. The incidence rate in the urban district of Kabwe was 0.9 per 1000 under fives. Among the older population, the incidence rate was the highest in Kabwe which is an urban area where factors such as high levels of commercial sexual activities lead to high levels of STIs.

**Table 3.12: Sexually transmitted infection incidence, 2007**

District	Incidence rate per 1,000 population (All health facilities)		
	Under 5	5 years and above	Total
Chibombo	1.1	14.2	11.8
Kabwe	0.9	29.1	25
Kapiri Mposhi	0.6	9.8	8.2
Mkushi	3.3	15.5	18.2
Mumbwa	2.0	23.2	19.4
Serenje	0.4	9.3	7.7
<b>Province</b>	<b>1.2</b>	<b>16.2</b>	<b>13.6</b>

Source: MOH (HMIS) Central Province.

Figure 3.2 is graphic representation of the incidence of sexually transmission infections in Central Province for 2005-2007. It shows that the incidence of sexually transmitted infections slightly increased in 2006 in the province and then dropped in 2007. There was a consistent decline in incidence in Kabwe, Kapiri Mposhi and Mkushi districts in the period under review. There was an increase in Chibombo, Mumbwa and Serenje in 2006 and then a decline in 2007, which is in line with the overall provincial trend.

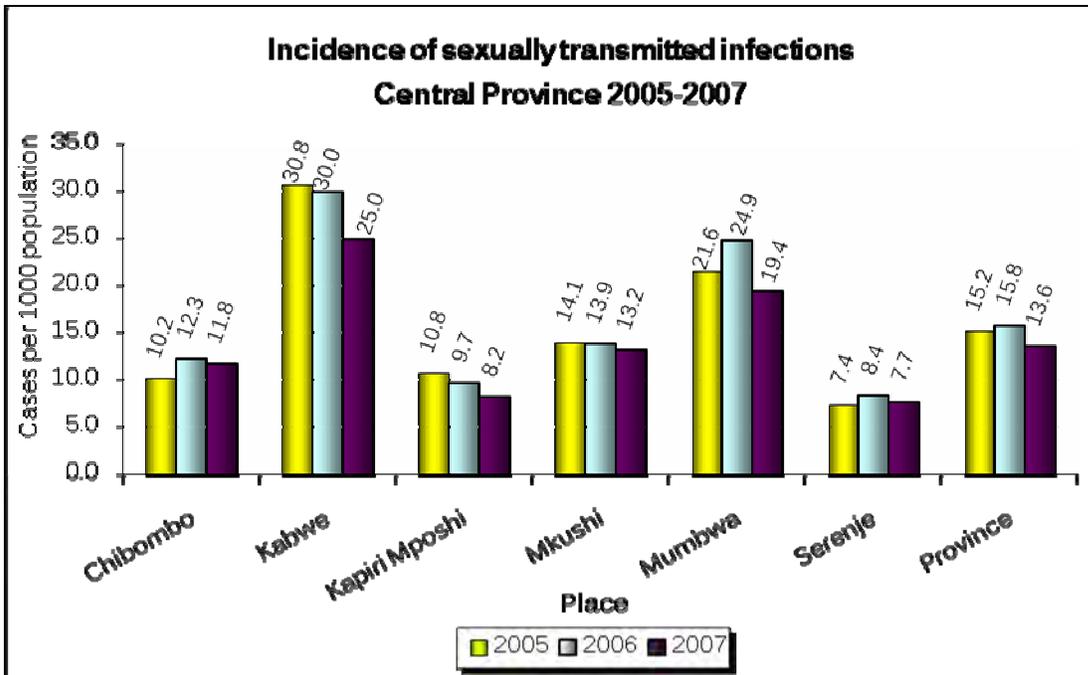


Figure 3.2: Incidence of Sexually Transmitted Infections

## Chapter 4: Human Resources

Human resource is one of the important factors in health service delivery. This chapter looks at staffing levels in the province. The categories of cadres in this chapter include: doctors, clinical officers, nurses, midwives, environmental health technicians, pharmacists/ pharmacy technicians, laboratory technicians etc.

### 4.1 Number of medical personnel by district

As shown in Table 4.1, there is a concentration of staff in the urban area in this case Kabwe district as opposed to the rest of the districts which are in rural areas. Even among the rural districts the more rural the district is, the fewer the staff such as in Mkushi and Serenje districts.

In 2007, out of the 30 doctors in the province, 18 (60 per cent) were in Kabwe. The remaining 40 per cent were distributed in the other five districts in the province. There were 3 (10 per cent) doctors in Chibombo, 2 (6.7 per cent) in Kapiri Mposhi, 1 (3.3 per cent), 4 (13.3 per cent) in Mkushi and 2 (6.7 per cent) in Serenje. More than 50 per cent of the nurses were also in Kabwe, leaving the other districts to share the rest. There were 325 (55.7 per cent) nurses in Kabwe.

Table 4.1: Number of health staff by district, December 2007

Districts	Medical Doctors	Clinical Officers	Nurses	Mid-wives	Staff Cadre Environmental Health Officers/ Technicians	Pharmacists/ Pharmacy Technicians	Laboratory Technicians	Others	Total
Chibombo	3	10	53	30	17	0	2	0	115
Kabwe	18	33	325	64	16	13	8	0	477
Kapiri Mposhi	2	14	98	47	24	1	5	0	191
Mkushi	1	10	46	13	11	0	2	0	83
Mumbwa	4	34	26	35	19	0	3	0	121
Serenje	2	9	36	17	12	1	1	0	78
<b>Province</b>	<b>30</b>	<b>124</b>	<b>584</b>	<b>206</b>	<b>99</b>	<b>15</b>	<b>21</b>	<b>0</b>	<b>1079</b>

Source: District human resource register

### 4.2 Health centre staff daily contacts

This is the average number of daily client contact for each qualified worker in an institution over a specified reporting period usually a quarter or year. It takes the total number of contacts during that period and divides them by the number of available qualified staff days. In determining the period, the indicator takes into account the number of public holidays and assumes that each qualified staff member works 8 hours a day. The staff contacts taken into account are those in the outpatient department, maternal and child health and the inpatient department. A high figure of staff daily contacts imply that staffing levels are low and that might affect the quality of health care offered.

Figure 4.1 shows that the districts with relatively higher staff levels have low health centre daily staff client contact such as Kabwe while those districts with low staff levels such as Mkushi have relatively higher daily staff client contact. The daily staff client contacts in Kabwe were 10 in 2005 and 9 in 2006 and 2007. In Mkushi they were 23 in 2005 and 28 in 2006 and 2007. This scenario entails that staff should be fairly re-distributed between the urban and rural districts. Chibombo and Kapiri Mposhi

recorded an increase in health centre daily staff contacts during the period under review while that of Mumbwa, Kabwe and Mkushi remained relatively stable. Serenje recorded a fluctuating trend.

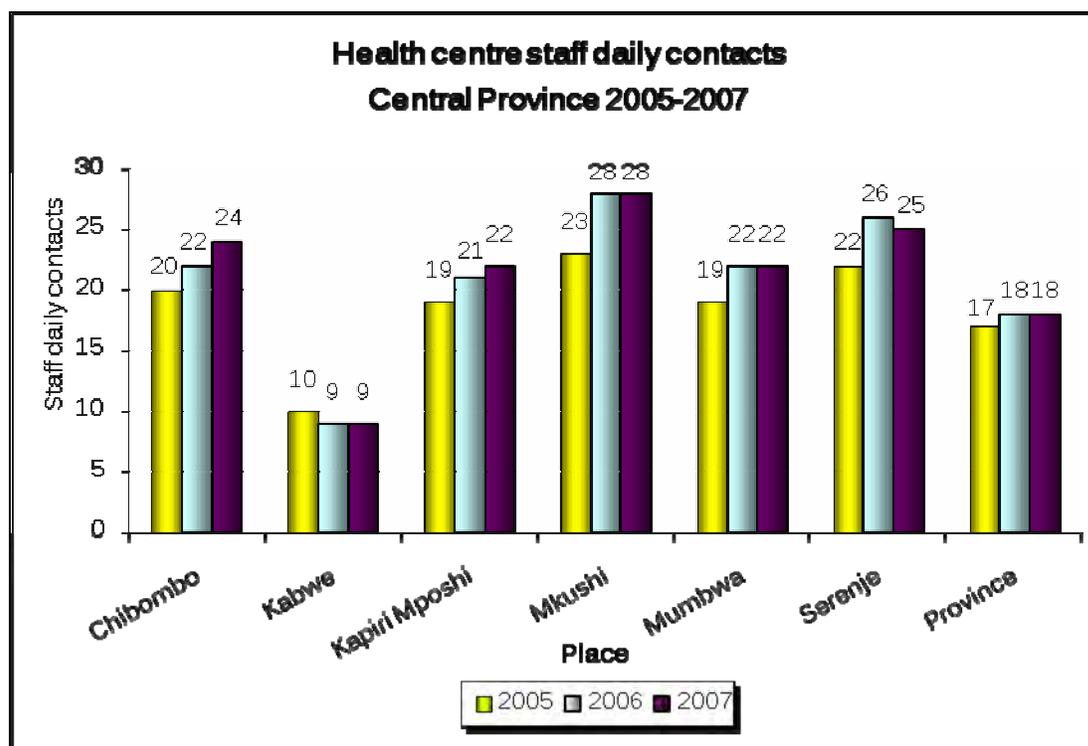


Figure 4.1: Health centre staff daily contacts

### 4.3 Community health volunteers

These are community based health providers trained to offer basic primary health care within the community. They are trained for six (6) weeks and are identified by local communities. The ones referred to in this section are community health workers and Trained Traditional Birth Attendants (tTBAs). One community health worker is supposed to service a population of 500 and one traditional birth attendant services a population of 1000.

#### 4.3.1 Trained traditional birth attendants

This is a trained community health volunteer who can do uncomplicated deliveries in the community. Table 4.2 shows that the number of active tTBAs reduced from 578 in 2005 to 540 in 2006 and 533 in 2007 in the province. Despite a decline in active tTBAs the number of deliveries they did remained relatively stable. These were 12118 in 2005, 11509 in 2006 and 12638 in 2007. The decline in the number of active tTBAs could be attributed to: lack of supportive supervision by the facility staff; inadequate incentives such as clean delivery kits, transport and community support; high attrition rate due to deaths and movements; and non-availability of retraining package at both provincial and district levels.

Table 4.2: Number of active tTBAs and deliveries conducted, 2005-2007

District	2005			2006			2007		
	Active tTBAs	Deliveries		Active tTBAs	Deliveries		Active tTBAs	Deliveries	
		Actual	Average		Actual	Average		Actual	Average

Chibombo	140	2251	16	126	2796	22	128	2518	20
Kabwe	13	283	21	14	297	21	10	181	18
Kapiri Mposhi	132	2746	21	104	1919	18	97	1925	20
Mkushi	62	1687	27	54	1109	20	60	1615	27
Mumbwa	140	2463	18	159	2397	15	159	3301	21
Serenje	90	2688	30	81	2991	37	76	3090	40
<b>Province</b>	<b>578</b>	<b>12118</b>	<b>21</b>	<b>540</b>	<b>11509</b>	<b>21</b>	<b>533</b>	<b>12638</b>	<b>24</b>

Source: MOH (HMIS) Central Province.

At district level Kapiri Mposhi and Serenje experienced the highest decline in number of active tTBAs while Mumbwa had a stable number of active tTBAs. Generally all rural districts have a high number of deliveries conducted by tTBAs as compared to the urban district – Kabwe due to a low number of midwives. In rural districts most of the health facilities are being manned by male health providers. As a result most of community members prefer to be delivered by the tTBAs who are females.

Despite a persistent decline in the number of active tTBAs in the three years under review there was still an upward trend in the number of deliveries conducted by tTBAs in Serenje.

#### 4.3.2 Community health workers

These are community health volunteers trained to offer the primary basic health care package within the community. They are trained for a period of six to eight weeks. Table 4.3 shows the number of active community health workers and the number of clients attended to from 2005 to 2007.

At provincial level there has been a significant drop in the number of active community health workers between 2006 and 2007 despite the number having slightly increased in 2005 to 2006. They were 577 in 2005, 588 in 2006 and 476 in 2007. The drop in the number of active community health workers between 2006 and 2007 could be attributed to non availability of incentives such as community health worker kits; re-training package at both provincial and district levels and poor community support to community health workers.

All the districts registered a significant drop in community health worker client contact between 2006 and 2007 which is attributed to shortage of community health worker kits. Their client contacts were 459319 in 2006 and 207819 in 2007.

**Table 4.3: Number of active community health workers and patients they attended to, 2005-2007**

District	2005			2006			2007		
	Number of active community health workers	Number of patients		Number of active community health workers	Number of patients		Number of active community health workers	Number of patients	
		Total	Average		Total	Average		Total	Average
Chibombo	184	71782	390	146	89503	613	116	57049	492
Kabwe	9	3843	439	14	10203	716	11	5053	449
Kapiri Mposhi	70	33581	481	100	53200	535	88	17766	203
Mkushi	46	23020	498	50	45904	918	52	30848	593
Mumbwa	150	168007	116	160	172395	79	132	66326	504
Serenje	117	129819	110	119	88114	742	75	30366	406
<b>Province</b>	<b>577</b>	<b>430062</b>	<b>746</b>	<b>588</b>	<b>459319</b>	<b>781</b>	<b>476</b>	<b>207819</b>	<b>437</b>

Source: MOH (HMIS) Central Province.

## Chapter 5: Availability of drugs

Drugs are an essential component of health service delivery. Drugs should always be available health facilities. A shortage of a drug in a month even a day could affect the quality of health service delivery. This indicator measures the number of months a drug has been in stock at health facilities in a particular period under review usually a quarter.

### 5.1 Medical supplies in stock at health facilities

This is measured by the percentage of months in which specific drugs were not in stock for the whole month. Possible reasons that may lead to stock outs include: poor logistical planning and management, pilferage, over prescribing by staff and unusual disease trends.

Table 5.1 shows that the percentages of months for which drugs were in stock for a whole month increased from 64 per cent in 2005 to 69 per cent in 2006 and to 70 per cent in 2007 at health centre level. In hospitals, the respective percentages were 89, 90 and 89.

At district level, Table 5.1 shows disparities in availability of drugs. In 2007, health facilities in Chibombo were the best stocked and those in Kapiri Mposhi the least stocked. Drugs were available without a stock-out in 89 per cent of the months in Chibombo and in 62 per cent of the months in Kapiri Mposhi. In actual fact, health facilities in Chibombo were the best stocked even in 2005 and 2006. Drugs were available without a stock-out in a month, for 76 per cent of the months in 2005 and for 83 per cent of the months in 2007 in Chibombo. The least stocked health facilities in 2005 were in Kabwe (61 per cent) and Serenje (per cent). In 2006, it was health facilities in Mkushi (58 per cent).

**Table 5.1: Percentage of months for which drugs were in stock by district, 2005-2007**

District	Percentage of months if stock in health centres			Percentage of months if stock in hospitals			Percentage of months in stock in both health centres and hospitals		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Chibombo	76	83	89	95	98	86	76	84	89
Kabwe	61	70	67	88	96	98	62	72	69
Kapiri Mposhi	65	68	62	42	45	40	63	66	60
Mkushi	63	58	69	89	96	86	64	59	69
Mumbwa	72	79	73	64	61	64	71	77	72
Serenje	61	68	80	42	38	40	58	63	73
<b>Province</b>	<b>64</b>	<b>69</b>	<b>70</b>	<b>89</b>	<b>90</b>	<b>89</b>	<b>65</b>	<b>70</b>	<b>71</b>

Source: MOH (HMIS) Central Province.

### 5.2 Availability of tracer drugs by health centre and hospital

Tracer drugs include fansidar, amoxicillin, co-trimoxazole and antigens such as Bacillus Calmette Guerin, Oral Polio Vaccine and Measles just to mention a few.

Table 5.2 shows the percentage of months in which tracer drugs were in stock in 2007. Among the tracer drugs, the percentage of months in which anti malaria drugs were in stock was generally low compared to other tracer drugs despite malaria being the leading cause of disease incidence in the province. Tracer drugs were least out of stock in Chibombo. They were most out of stock in Kapiri Mposhi. The high level of stock-outs in districts such as Kapiri Mposhi and Serenje could be as a result of inadequate

supplies from Medical Stores Limited, poor drug inventory management at facility level, over prescribing by clinicians and pilfering by staff.

### 5.3 Drug kit utilisation at health centres

This indicator describes the number of drug kits opened per 1000 patients. It measures the number of drug kits utilised during the time period usually a month per 1000 number of curative contacts, first attendances, re-attendances and in-patients inclusive in a health centre.

District	Health centre			Hospital		
	Anti-malarial	Paracetamol	Cotrimoxazole	Fansidar	Amoxicillin	Benzyll Penicillin
Chibombo	86	89	91	92	92	67
Kabwe	56	71	72	100	96	92
Kapiri Mposhi	27	62	71	38	42	50
Mkushi	54	79	67	83	83	92
Mumbwa	64	80	73	64	67	61
Serenje	54	71	73	46	48	38
<b>Province</b>	<b>55</b>	<b>72</b>	<b>72</b>	<b>92</b>	<b>94</b>	<b>86</b>

Figure 5.1 is a graphical presentation of drug kit utilisation in health centres of Central Province from 2005-2007. In 2005 drug kit utilisation was above national standard in all the districts except for Mkushi which recorded utilisation of less than 1000 per curative contacts.

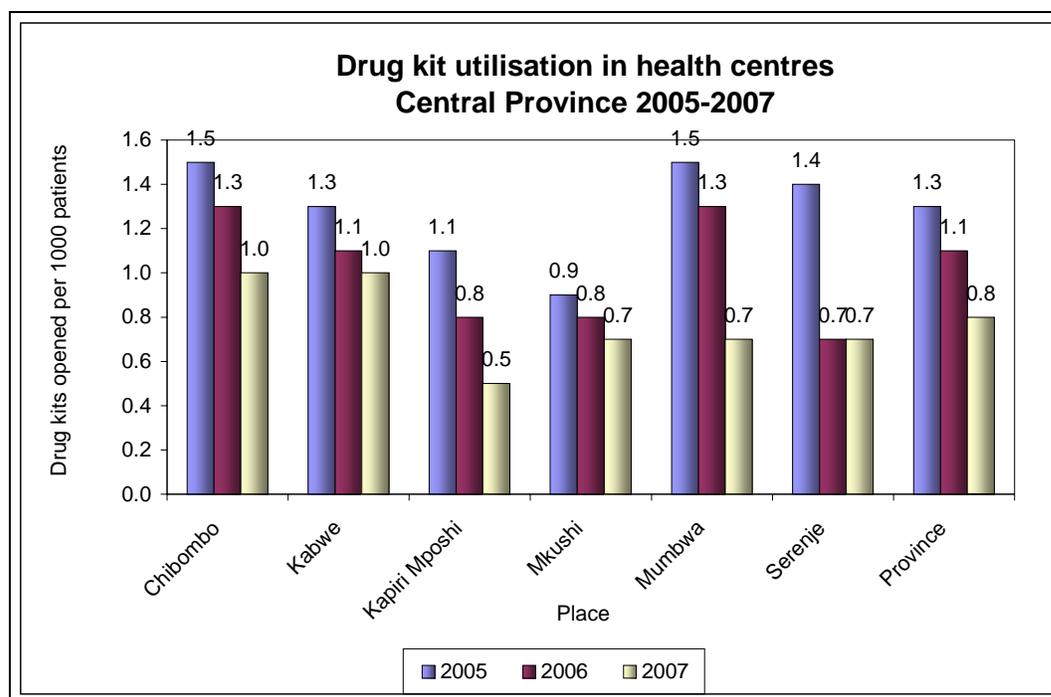


Figure 5.1: Drug kit utilisation

All the districts recorded a downward trend in drug kit utilisation from 2005-2007 with Kapiri Mposhi recording the lowest utilisation in 2007 of less than 600 per curative contacts. Overall drug kit utilisation was low throughout the districts in 2007. Probable cause for low drug kit utilisation in 2007 could be the absence of supplies of drug kits to health facilities in the 1<sup>st</sup> quarter. Even when supply resumed, drug kits were still under supplied to health facilities.

## Chapter 6: Health services delivery indicators

The availability of doctors, paramedical staff, drugs, and supplies affect delivery of health services. This chapter highlights the key health facility utilisation indicators by district.

### 6.1 Health facility utilisation

Table 6.1 shows trends of selected service delivery indicators for the whole province from 2005 to 2007. Health centre bed occupancy rate reduced from 15 per cent in 2005 to 14 per cent in 2006 and to 12 per cent in 2007. Hospital bed occupancy rate was 52 per cent in 2005 and 60 per cent in 2006 and 2007. The average length of stay in hospitals reduced to 4.7 days in 2006 but was the same for 2005 and 2007 at 5 days.

**Table 6.1: Trends of selected service delivery indicators by year**

Indicator	Year		
	2005	2006	2007
Health centre outpatient department utilisation	1.13	1.26	1.17
Health centre under 5 per capita attendance	2.86	2.97	2.58
Health centre over 5 per capita attendance	0.76	0.9	0.87
Health centre bed occupancy rate (percentage)	15.0	14.0	12.0
Hospital bed occupancy rate (percentage)	52.0	60.0	60.0
Hospital average length of stay	5	4.7	5.0

Source : MOH (HMIS) Central Province.

### 6.2 Outpatient department utilisation

Table 6.2 shows that the outpatient department utilisation rate in the province was more or less the same from 2005 to 2007 in both hospitals and health centres. This was also the case in the districts. In the province, the rate was 1.2 in 2005, 1.3 in 2006 and 1.2 in 2007.

**Table 6.2: Outpatient department utilisation rate in Central Province, 2005-2007**

District	Outpatient department utilisation rate		
	2005	2006	2007
Chibombo	0.8	1.0	1.0
Kabwe	1.9	1.9	1.8
Kapiri Mposhi	1.0	1.1	1.1
Mkushi	1.3	1.4	1.3
Mumbwa	1.6	1.9	1.7
Serenje	0.7	1.0	0.8
<b>Province</b>	<b>1.2</b>	<b>1.3</b>	<b>1.2</b>

Source: MOH (HMIS) Central Province.

### 6.3 Health centre per capita attendance

This is the average number of times a person in a catchment area seeks a health service from the health centre over a period. In rural areas, the per capita outpatient department attendance should not be less than 1 per year while in urban areas it should not be less than 3 attendances. If the outpatient department health facilities are under-utilised, measures to improve the quality of service and accessibility by the general public need to be taken.



As shown in Table 6.3 the per capita attendance for the total population declined from 1.13 in 2005 to 0.89 in 2006 and to 0.83 in 2007. That could be due to a shortage of rural health centre drug kits in 2006 and 2007. The trends for total attendances in all the districts were downward from 2005 to 2007. Among the under-fives, the per capita attendance reduced from 2.86 in 2005 to 2.13 in 2006 and to 0.05 in 2007. In the older population, the per capita attendance was 0.76 in 2005, 0.90 in 2006 and 0.87 in 2007.

**Table 6.3: Health centre per capita attendances Central Province, 2005-2007**

District	2005			2006			2007		
	Under 5 year	5 years and above	Total	Under 5 year	5 years and above	Total	Under 5 year	5 years and above	Total
Chibombo	1.89	0.50	0.75	2.13	0.68	0.73	2.03	1.29	0.73
Kabwe	4.76	1.27	1.78	4.66	1.21	1.04	4.16	1.19	0.99
Kapiri Mposhi	2.79	0.60	0.98	2.94	0.73	0.78	2.37	0.78	0.72
Mkushi	3.31	0.79	1.26	3.09	0.96	1.01	2.03	0.92	0.96
Mumbwa	3.59	1.16	1.59	3.65	1.42	1.23	3.25	1.29	1.15
Serenje	1.89	0.46	0.75	2.28	0.67	0.72	1.77	0.57	0.64
Province	2.86	0.76	1.13	2.13	0.90	0.89	0.05	0.87	0.83

Source: MOH (HMIS) Central Province.

#### 6.4 Bed occupancy rate-health centre and hospital

This is the percentage of available beds occupied by inpatients during a period (usually one year). Two parameters, the need for service, and the service delivery determine the bed occupancy rate. The indicator is closely related to two other indicators: the bed turnover rate and the average length of stay. The bed occupancy rate and the turnover rate should be high, while the average length of stay should be low. The bed occupancy rate should be 80 per cent or more. The turnover rate reflects the average number of patients admitted per bed during the period under review. The annual turnover rate should ideally be around 50 in district hospitals. The average length of stay shows how efficient hospital inpatient facilities are used. The average length of stay in a district hospital should be 6 days or less. The three indicators assess the efficiency of use of inpatient facilities. When the bed occupancy rate and turnover rate drop while the average length of stay remains stable, the inpatient facility may be underutilised, resulting in too much idle staff time. When the bed occupancy rate drops and where the average length of stay remains stable, the in-patient staff workload reduces.

As shown in Table 6.4, the bed occupancy rate for the province fluctuated from 34 per cent in 2005, 36 per cent in 2006 and 35 per cent in 2007. The health centre bed occupancy rate declined over the three years from 15 per cent in 2005 to 14 per cent in 2006 and to 12 per cent in 2007 while the hospital rate increased from 52 per cent in 2005 to 60 per cent in 2006. It was also 60 per cent in 2007. The bed occupancy rates for the districts increased in Kapiri Mposhi and Kabwe over the three years. There was a reduction in Mkushi and Mumbwa and no clear trend in Serenje and Chibombo.

**Table 6.4: Bed occupancy rate per district and year, 2005-2007**

District	Health centre bed occupancy rate			Hospital bed occupancy rate			Summary bed occupancy rate		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Chibombo	19	15	14	28	55	51	22	28	25
Kabwe	9	11	9	63	68	74	54	57	62
Kapiri Mposhi	12	15	14	57	61	65	20	25	26
Mkushi	19	14	11	63	57	55	33	29	25
Mumbwa	13	14	11	60	57	56	32	33	29

Serenje	16	13	11	30	38	34	25	26	24
<b>Province</b>	<b>15</b>	<b>14</b>	<b>12</b>	<b>52</b>	<b>60</b>	<b>60</b>	<b>34</b>	<b>36</b>	<b>35</b>

Source: MOH (HMIS) Central Province.

## 6.5 Hospital outpatient department utilisation

Two indicators are used to measure the utilisation of the hospital outpatient department. These are hospital outpatient department bypass first attendances and hospital outpatient department first referred percentage attendance. The indicators show whether the hospital is taking on many patients who should be attended to at the health centres.

As shown in Table 6.5, the utilisation rate for the hospitals outpatient departments in the province hardly changed from 2005 to 2007. It was 4 per cent in 2005, 4 per cent in 2006 and 5 per cent in 2007. The highest utilisation among the districts was in Kabwe where 8 per cent in 2005, 9 per cent in 2006 and 10 per cent in 2007 of the patients at the hospitals were seen in the outpatient department.

District	Outpatient department utilisation rate		
	2005	2006	2007
Chibombo	3	4	6
Kabwe	8	9	10
Kapiri Mposhi	0	0	0
Mkushi	2	2	3
Mumbwa	3	3	5
Serenje	4	6	3
<b>Province</b>	<b>4</b>	<b>4</b>	<b>5</b>

Source: MOH (HMIS) Central Province.

## 6.6 Hospital outpatient department percentage by-pass first attendances

This is the percentage of outpatient department first attendants in hospitals who by-passed health centres. When this percentage is high, there could be a problem at the health centres. As shown in Table 6.6, the rate in the province increased from 26 per cent in 2005 to 33 per cent in 2006 and to 41 per cent in 2007. Among the districts, the rate also increased yearly in Chibombo, Kabwe and Serenje. This data could not be satisfactorily compiled for Kapiri Mposhi as the hospital is also a health centre. All the districts apart from Kapiri Mposhi also recorded an increase in this rate for under-fives. In the province, it increased from 24 per cent in 2005 to 29 per cent in 2006 and to 40 per cent in 2007. The rate among the older population also increased from 27 per cent in 2005 to 33 per cent in 2006 and to 41 per cent in 2007.

District	Under 5 years			5 years and above			Total by-pass attendance		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Chibombo	17	32	39	12	27	37	13	28	39
Kabwe	44	54	59	37	47	56	38	48	56
Kapiri Mposhi	0	13	0	0	32	0	0	30	0
Mkushi	17	20	21	9	11	10	10	11	11
Mumbwa	6	9	16	7	5	7	7	6	9
Serenje	11	15	37	13	17	28	12	16	31
<b>Province</b>	<b>24</b>	<b>29</b>	<b>40</b>	<b>27</b>	<b>33</b>	<b>41</b>	<b>26</b>	<b>33</b>	<b>41</b>

Source: MOH (HMIS) Central Province.

## **6.7 In-patient turnover rate**

In-patient turnover rate is the number of admissions per bed in a period such as a year. The higher the turnover rate, the more active the facility is. As shown in Table 6.7, the turnover rate was higher in the hospitals than in the health centres in all the districts except in Kabwe in 2005 and 2006.

**Table 6.7: Health centre and hospital inpatient turnover rate per district and year, 2005-2007**

District	Health centre inpatient turnover rate			Hospitals inpatient turnover rate		
	2005	2006	2007	2005	2006	2007
Chibombo	5.7	5.6	5.5	6.0	8.0	8.5
Kabwe	9.2	9.3	7.7	7.9	9.1	9.5
Kapiri Mposhi	5.3	5.9	5.5	16.9	18.7	22.8
Mkushi	4.8	3.7	2.7	18.8	15.9	16.8
Mumbwa	5.4	16.2	15.4	12.9	20.1	13.8
Serenje	5.3	4.3	3.7	7.2	9.6	6.1
<b>Province</b>	<b>5.7</b>	<b>7.2</b>	<b>6.7</b>	<b>9.4</b>	<b>11.5</b>	<b>10.7</b>

## 6.8 Average length of stay

Table 6.8 shows the average length of stay in hospitals by districts for the period 2005 to 2007. The provincial average length of stay declined slightly to 4.7 in 2006 from 5.0 in 2007. It increased to 5.0 days in 2007. In Kabwe, it was above the recommended rate of 6.0 that is 2005(7.2), 2006 (6.8) and 2007 (7.0). It was within the acceptable limit in the rest of the districts. It was also above the limit in Chibombo in 2006 at 6.2.

**Table 6.8: Hospital average length of stay by district, 2005 -2007**

District	Hospital average length of stay		
	2005	2006	2007
Chibombo	4.1	6.2	5.4
Kabwe	7.2	6.8	7.0
Kapiri Mposhi	3.1	2.9	2.6
Mkushi	3.0	3.2	2.9
Mumbwa	4.2	2.5	3.7
Serenje	3.8	3.6	5.1
<b>Province</b>	<b>5.0</b>	<b>4.7</b>	<b>5.0</b>

Source: MOH (HMIS) Central Province.

## 6.9 Maternal health and family planning

This section looks at some aspects of integrated reproductive health services: antenatal care, supervised deliveries, postnatal care and family planning.

### 6.9.1 Summary of maternal health indicators

Maternal health indicators measure the quality of maternal health and family planning services provided to the community Table 6.9 shows that the target of 3 average antenatal visits was only achieved in 2005 but this was also almost achieved in 2006 and 2007. On institutional deliveries, the set target of 60 per cent was not reached between 2005 and 2007. The first postnatal attendance increased from 2005 to 2006, but, declined from 2006 to 2007.

**Table 6.9: Maternal health indicators, Central Province, 2005-2007**

Indicator	Period in years			Average 2005-2007
	2005	2006	2007	
First Antenatal visit coverage (percentage)	113	109	118	113
Average antenatal visits	3.0	2.9	2.9	2.9
Institutional deliveries (percentage)	39	36	38	38

Trained Traditional Birth Attendants (percentage)	25	23	25	24
Supervised deliveries (percentage)	64	59	63	62
First postnatal attendance (percentage)	56	63	69	63

Source: MOH (HMIS) Central Province.

## 6.9.2 Antenatal care

Figures in Table 6.10 suggest that most of the women made at least one antenatal visit during a pregnancy from 2005 to 2007. More women than expected attended antenatal clinic at least once in all the three years. The number of pregnant women in the province who made at least one antenatal visit during a pregnancy in 2005 was 56546, in 2006, 56230 and in 2007 63253.

**Table 6.10: First antenatal attendance coverage, 2005-2007**

District	2005			2006			2007		
	Contacts	Target	Percentage of target achieved	Contacts	Target	Percentage of target achieved	Contacts	Target	Percentage of target achieved
Chibombo	13451	12934	104	13086	13491	97	14740	14071	105
Kabwe	7419	5911	126	7762	5939	131	7579	5970	127
Kapiri Mposhi	12580	11280	112	10838	11937	91	13696	12630	108
Mkushi	5984	6119	98	6467	6328	102	7340	6544	112
Mumbwa	10306	7142	114	10607	7311	147	11653	7261	160
Serenje	6806	6660	102	7470	6801	110	8245	6943	119
<b>Province</b>	<b>56546</b>	<b>50046</b>	<b>113</b>	<b>56230</b>	<b>51707</b>	<b>109</b>	<b>63253</b>	<b>53419</b>	<b>118</b>

Source: MOH (HMIS) Central Province.

## 6.9.3 Average number of antenatal visits

An expectant woman is expected to attend antenatal care at least three times before delivery. Table 6.11 shows that in the province this was the case in 2005 when the average number of visits was 3. In 2006 and 2007, they also almost made the expected 3 visits. The average number of antenatal visits was highest for Mumbwa district in 2005 (3.2) and 2007 (3.1) and in Kabwe in 2006 (3.1). In all the three years, the number was lowest in Serenje. It was 2.6 in 2005, 2.5 in 2006 and 2.5 in 2007.

**Table 6.11: Average antenatal visit, 2005-2007**

District	Antenatal attendance types by year								
	2005			2006			2007		
	Total	First	Average	Total	First	Average	Total	First	Average
Chibombo	39866	13451	3.0	37503	13086	2.9	43818	14740	3.0
Kabwe	22508	7419	3.0	23909	7762	3.1	22662	7579	3.0
Kapiri Mposhi	38245	12580	3.0	32606	10838	3.0	39266	13696	2.1
Mkushi	16893	5984	2.8	18255	6467	2.8	20076	7340	2.7
Mumbwa	32470	10306	3.2	32159	10607	3.0	35637	11653	3.1
Serenje	17950	6806	2.6	18499	7470	2.5	20907	8245	2.5
<b>Province</b>	<b>167932</b>	<b>56546</b>	<b>3.0</b>	<b>162931</b>	<b>56230</b>	<b>2.9</b>	<b>182361</b>	<b>63253</b>	<b>2.9</b>

Source: MOH (HMIS) Central Province.

## 6.9.4 Supervised deliveries

Supervised deliveries are those which are assisted by either a tTBA or trained health staff. Table 6.12 shows that the expected target on institutional deliveries of 40 per cent was not achieved in the province from 2005 to 2007. In 2005, the percentage of supervised deliveries in health facilities in the province was 39 per cent. It was 36 per cent in 2006 and 38 per cent in 2007. Among the districts, almost all the deliveries over the three years in Kabwe were in health facilities. This was the only district in which deliveries in institutions was above the expected target of 80 per cent. The rest of the districts were way short of this target. On deliveries assisted by trained Traditional Birth Attendants (tTBAs), Serenje district recorded the highest percentage in 2005 and in 2006, but, Mumbwa district in 2007.

**Table 6.12: Percentage of supervised deliveries by place of delivery and district, 2005-2007**

District	Deliveries in health facilities			Deliveries by trained Traditional Birth Attendants			All supervised deliveries		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Chibombo	26	23	25	18	22	19	44	45	44
Kabwe	95	104	100	5	5	3	100	104	103
Kapiri Mposhi	38	28	33	25	17	16	64	44	49
Mkushi	36	35	31	29	18	26	65	54	57
Mumbwa	32	35	40	36	34	47	68	70	87
Serenje	27	26	27	42	46	46	69	71	73
<b>Province</b>	<b>39</b>	<b>36</b>	<b>38</b>	<b>25</b>	<b>23</b>	<b>25</b>	<b>64</b>	<b>59</b>	<b>63</b>

Source: MOH (HMIS) Central Province.

## 6.9.5 Complicated deliveries

Deliveries not by the spontaneous vertex are usually considered to be complicated. The percentage of complicated deliveries is an indicator that measures the proportion of supervised deliveries with complications at the health centre and the hospital, and the proportion of supervised deliveries done by caesarean section at the hospital. According to WHO standards, 15 per cent of all deliveries must be by caesarean section. The aim is to minimise complications during delivery.

As shown in Table 6.13, more deliveries were done in health centres (11234) than in hospitals (7114) in the province in 2007. The percentage of the deliveries which were complicated was higher in hospitals (9 per cent) than in health centres (3 per cent). This could be due to the fact that health centres refer most of the anticipated complicated deliveries to the hospitals. The percentage of caesarean births in the province at 9 per cent was below the expected 15 per cent.

At health centre level, the percentage of complicated deliveries was the lowest in Chibombo followed by Kabwe. The respective percentages were 1.9 and 2.4. The highest percentage was in Kapiri Mposhi. The high percentage in Kapiri Mposhi could be due to the health centre and hospital being in the same premises. In Kabwe, the low percentage at the health centres could be due to the ease of referring complicated deliveries to the general hospital which is near all the health centres. The low percentage in health facilities in Chibombo is notable but there is no apparent explanation.

At hospital level, the percentage of complicated deliveries in 2007 in Kabwe district (34) was almost twice the percentage in the whole province (17.9) and more than twice the level of the second highest level among the districts in Chibombo (15.1). An even higher unevenness was recorded for the percentage of caesarean births. The percentage in Kabwe was 26.0 compared to 9.0 for the whole province and 7.0 for Chibombo. This level which is almost twice above the expected level cannot be explained by referrals from other districts to Kabwe because they also have hospitals. It should be investigated.

**Table 6.13: Percentage of complicated deliveries in health centres and hospitals by district, 2007**

District	Health centre		Hospital		
	All deliveries	Percentage complicated	All deliveries	Percentage complicated	Percentage caesarean
Chibombo	2677	1.9	596	15.1	7.0
Kabwe	3515	2.4	1601	34.0	26.0
Kapiri Mposhi	2127	4.8	1737	5.4	-
Mkushi	957	3.6	839	13.4	6.0
Mumbwa	1194	3.6	1447	9.2	2.0
Serenje	764	3.9	894	9.5	4.0
<b>Total</b>	<b>11234</b>	<b>3.0</b>	<b>7114</b>	<b>17.9</b>	<b>9.0</b>

Source: MOH (HMIS) Central Province.

### 6.9.6 Prevalence of still births

A still birth is a delivery of a dead foetus after 28 weeks of gestation which may be fresh or macerated. A high prevalence of still births indicates intra uterine complications due to a number of factors which may include inadequately treated STIs and HIV infection.

Table 6.14 shows that the percentage of still births in the province was the highest in 2005 (0.08 per cent). It reduced almost 3 times in 2006 to 0.03 per cent and it remained at this level in 2007 (0.03 per cent). Among the districts, the highest proportion of still births in 2005 was recorded in Kabwe (0.18 per cent) and in 2006 along with Mkushi (0.04 per cent). The highest percentage of still births in 2007 was in Mumbwa (0.07 per cent).

**Table 6.14: Percentage of total births that were still borne by district, 2005-2007**

District	2005			2006			2007		
	Still births	Total births	Percentage of total births still borne	Still births	Total births	Percentage of total births still borne	Still births	Total births	Percentage of total births still borne
Chibombo	224	3398	0.07	104	3028	0.03	82	3423	0.02
Kabwe	1031	5558	0.18	210	5756	0.04	224	5627	0.04
Kapiri Mposhi	95	4192	0.02	61	3247	0.02	59	4085	0.01
Mkushi	88	2156	0.04	76	2190	0.04	56	1960	0.03
Mumbwa	49	2272	0.02	69	2485	0.03	190	2846	0.07
Serenje	44	1777	0.02	46	1681	0.03	69	1790	0.04
<b>Total</b>	<b>1531</b>	<b>19441</b>	<b>0.08</b>	<b>556</b>	<b>18387</b>	<b>0.03</b>	<b>680</b>	<b>19955</b>	<b>0.03</b>

Source: MOH (HMIS) Central Province.

### 6.9.7 First postnatal attendance

This refers to the woman attending postnatal care for the first time within 6 days and 6 weeks of delivery. This indicator looks at improving the health and well being of both the mother and the baby. Due to the circumstances, the target for this indicator was higher in urban than in rural areas, 80 per cent and 40 per cent respectively. Since about 76 per cent of the population in the province lives in rural areas and 24 per cent in urban areas, the target for the whole province is about 49 per cent.

Table 6.15 shows that the expected target of 49 per cent postnatal coverage was exceeded in the province from 2005 to 2007. The achieved coverage also continuously increased from 56 per cent in 2005 to 63 per cent in 2006 to 69 per cent in 2007. Among the districts, the highest coverage in all the years was achieved in Kabwe.

**Table 6.15: First postnatal coverage, 2005-2007**

District	2005			2006			2007		
	Contacts	Target	Coverage percentage achieved	Contacts	Target	Coverage percentage achieved	Contacts	Target	Coverage percentage achieved
Chibombo	6324	12456	51	6801	12993	52	7594	13549	56
Kabwe	6220	5692	109	6370	5718	111	6214	5746	108
Kapiri Mposhi	5261	10868	48	5865	11500	51	8589	12166	71
Mkushi	2431	5891	41	3675	60	60	3765	6300	60
Mumbwa	4022	6888	58	4087	6961	59	5294	7007	76
Serenje	2612	6411	41	4562	6548	70	3841	6688	57
<b>Province</b>	<b>26870</b>	<b>48206</b>	<b>56</b>	<b>31360</b>	<b>49812</b>	<b>63</b>	<b>35297</b>	<b>51456</b>	<b>69</b>

Source: MOH (HMIS) Central Province.

## 6.9.8 Maternal mortality

Maternal mortality is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. Maternal mortality rate is the number of maternal deaths in a given period per 1000 women of reproductive age during the same time period

Table 6.16 shows that the rate of deaths among females occurring during pregnancy, at delivery, or within 42 days of delivery was highest in 2006 at 3.48 per 1000 and lowest in 2005 at 2.06 per 1000. In all the years, the rate among the districts was highest in Kabwe. It was 3.51 in 2005, 3.48 in 2006 and 2.89 in 2007.

District	2005			2006			2007		
	Deaths	Deliveries	Rate	Deaths	Deliveries	Rate	Deaths	Deliveries	Rate
Chibombo	6	3275	1.83	8	2994	2.67	5	3415	1.46
Kabwe	19	5408	3.51	38	5658	6.72	33	5745	5.74
Kapiri Mposhi	0	4161	0.00	2	3185	0.63	6	4060	1.48
Mkushi	8	2121	3.77	5	2154	2.32	8	1944	4.12
Mumbwa	3	2228	1.35	4	2467	1.62	2	2818	0.71
Serenje	3	1762	1.70	6	1671	3.59	3	1773	1.69
<b>Province</b>	<b>39</b>	<b>18955</b>	<b>2.06</b>	<b>63</b>	<b>18129</b>	<b>3.48</b>	<b>57</b>	<b>19755</b>	<b>2.89</b>

Source: MOH (HMIS) Central Province.

## 6.9.9 New family planning acceptors

New family planning acceptors rate is the proportion of women of child bearing age group 15-49 years taking up a modern family planning method for the first time.

As shown in Table 6.20, in the province both the new family planning acceptors and the new family planning acceptors rate constantly increased from 2005 to 2007 with a higher increase between 2006 and 2007 than between 2005 and 2006. The number of new family planning acceptors per 1000 women of reproductive age aged 15-49 years was 85.4 in 2005, 91.2 in 2006 and 112.2 in 2007.

Among the districts, the highest rate was in Chibombo district in all the three years. The rate was 128.1 in 2005, 111.7 in 2006 and 121.5 in 2007. In all the years, the rate was the lowest in the urban district of Kabwe. It was 37.2 in 2005, 43.0 in 2006 and 42.6 in 2007. It defies the expectation that there would be more people per unit of measurement accepting family planning in rural areas than in urban areas. Could it really be that family planning is universal in Kabwe and that a saturation point was reached sometime back such that the new family planning acceptors would only be from the pool of women coming into the reproductive age group now, hence the lower rate than in the rural districts?

District	2005		2006		2007	
	Number	Rate	Number	Rate	Number	Rate
Chibombo	8381	128.1	7621	111.7	8650	121.5
Kabwe	1674	37.2	1942	43.0	1934	42.6
Kapiri Mposhi	4399	76.4	4573	75.1	7720	120.6

Mkushi	2510	88.6	3232	103.5	3154	104.2
Mumbwa	3068	84.6	3654	99.6	5225	141.5
Serenje	2659	80.5	4171	123.7	4985	144.8
<b>Total</b>	<b>22691</b>	<b>85.4</b>	<b>24993</b>	<b>91.2</b>	<b>31720</b>	<b>112.2</b>

Source: MOH (HMIS) Central Province.

## 6.10 Child health indicators

Child health indicators measure the provision of quality health care to children below the age of 5 years.

**Table 6.21: Child health indicators, 2005-2007**

Indicator	Period in years			Average
	2005	2006	2007	2005-2007
Fully Immunised under 1 year (percentage)	98	101	105	101
BCG-Measles Dropout Rate (percentage)	12	18	11	14
Pregnancies with tetanus toxoid protection (percentage)	95	102	96	98
Under Weight Prevalence (percentage)	12	11	8	10

Source: MOH (HMIS) Central Province.

Table 6.22 shows that the target of fully immunising 80 per cent of the children aged less than one year of age was achieved in the province in 2005, 2006 and 2007.

The expected below 10 per cent BCG-Measles dropout rate was not achieved from 2005 to 2007. The rate was highest in 2006. It increased from 2005 to 2006 and then decreased from 2006 to 2007.

The 80 per cent target of pregnancies with tetanus toxoid protection was achieved throughout the years from 2005 to 2007. However, the set average percentage was only reached in 2007. The trends show that, there was an increase from 2005 to 2006 and then a decrease from 2006 to 2007.

The expected below 10 per cent underweight prevalence and the set average were only reached in 2007. From 2005 to 2007, the prevalence was constantly decreasing.

### 6.10.1 Fully immunisation coverage

Fully immunisation coverage refers to the number of children under the age of one who have completed the recommended series of immunisations. Table 6.19 shows that the province achieved above the 80 per cent target of full immunisation coverage of children under-one year. Constantly, the coverage was increasing from 2005 to 2007.

In 2005, all the districts achieved the 80 per cent of the set target, except, Serenje district. Throughout the years, from 2005 to 2007, Kabwe district recorded the highest coverage with a sharp increase from 2006 and 2007. Serenje district had the lowest coverage in 2005 and 2006. However, from 2005 to 2007, its coverage was constantly increasing.

Kapiri Mposhi, district had a constant increase in its coverage from 2005 and 2007 but was lowest in 2007. The actual number of fully immunised under one year was highest for Chibombo district from 2005 to 2007. However, the number was reported lowest for Serenje district in 2005 and 2006 and Mkushi in 2007.

**Table 6.22: Fully immunised children under 1 year by district, 2005-2007**

District	2005			2006			2007		
	Immunised	Target	Percentage	Immunised	Target	Percentage	Immunised	Target	Percentage
Chibombo	11503	10766	107	10862	11229	97	11400	11710	97
Kabwe	6207	4919	126	6198	4944	125	7924	4968	160
Kapiri Mposhi	8112	9397	86	8964	9924	90	9617	10521	91
Mkushi	4708	5095	92	5102	5265	97	5078	5446	93
Mumbwa	6367	5947	107	7435	6010	124	7309	6046	121
Serenje	4023	5540	73	4752	6548	84	5299	6688	92
<b>Province</b>	<b>40920</b>	<b>41994</b>	<b>98</b>	<b>43313</b>	<b>43048</b>	<b>101</b>	<b>46627</b>	<b>44470</b>	<b>105</b>

Source: MOH (HMIS) Central Province.

### 6.10.2 BCG -measles dropout rate

BCG-measles dropout rate measures the difference in the proportion between children less than one year of age who received BCG and measles vaccines. Table 6.23 shows that from 2005 to 2007, the province did not achieve the expected below 10 per cent BCG-measles dropout rate. The rate was 12 in 2005, 18 in 2006 and 11 in 2007.

**Table 6.16: BCG -Measles dropout rate by district, 2005-2007**

District	2005			2006			2007		
	Coverage		Drop Out Rate	Coverage		Drop Out Rate	Coverage		Drop Out Rate
	BCG	Measles		BCG	Measles		BCG	Measles	
Chibombo	118	119	-1	128	114	11	140	113	19
Kabwe	171	129	25	178	129	26	172	209	22
Kapiri Mposhi	110	112	-2	126	106	16	141	108	23
Mkushi	126	110	13	121	110	9	124	109	12
Mumbwa	212	156	27	199	148	25	202	224	11
Serenje	114	101	12	157	127	19	175	120	32
<b>Province</b>	<b>136</b>	<b>120</b>	<b>12</b>	<b>146</b>	<b>120</b>	<b>18</b>	<b>155</b>	<b>138</b>	<b>11</b>

Source: MOH (HMIS) Central Province.

In 2005, both Chibombo district and Kapiri Mposhi district recorded negative dropout rate. In the fourth quarter of 2005, these districts had no BCG because of stock-out at the central distribution level. The highest dropout rate in 2005 and 2006 was in Mumbwa district. In 2006, Mkushi district had the lowest rate. In 2007, the dropout rate was highest in Serenje district and lowest in Mumbwa district. Throughout the years 2005 to 2007, dropout rate was constantly increasing for Chibombo, Kapiri Mposhi and Serenje districts while only Mumbwa recorded a constant decrease.

### 6.10.3 Pregnancies protected against tetanus

Pregnancies protected against tetanus are those which have received two or more doses of tetanus toxoid. Table 6.24 shows that the 80 per cent target of pregnancies with tetanus toxoid was exceeded in the province from 2005 to 2007. This was also the case in all the districts in the province. The tetanus toxoid protection was the highest in 2006 and lowest in 2005. The trend shows that, there was an increase from 2005 to 2006 and then a decrease from 2006 to 2007.

**Table 6.17: Pregnancies with tetanus toxoid protection, 2005-2007**

	2005		2006		2007	
	Immunised	Percentage of target	Immunis	Percentage of target	Immunis	Percentage of target

District		Target	immunised	ed	Target	immunised	ed	Target	immunised
Chibombo	11285	12934	87	13407	13491	99	12508	14071	89
Kabwe	7194	5911	122	7125	5939	120	6828	5970	114
Kapiri Mposhi	9833	11280	87	9913	11937	83	11216	123630	89
Mkushi	5801	6119	95	6244	6328	99	6168	6444	94
Mumbwa	7751	7142	109	9372	7211	130	7944	7261	109
Serenje	5687	6660	85	6829	6801	100	6567	6943	95
<b>Province</b>	<b>47551</b>	<b>50046</b>	<b>95</b>	<b>52890</b>	<b>51707</b>	<b>102</b>	<b>51231</b>	<b>53419</b>	<b>96</b>

Source: MOH (HMIS) Central Province.

From 2005 to 2007, all districts reached the expected target of 80 per cent. Kabwe district recorded the highest tetanus toxoid protection in 2005 and 2007. Serenje district recorded the lowest in 2005. In 2006, the toxoid protection was in Mumbwa district, while the lowest was Kapiri Mposhi district. In 2007, both Chibombo and Kapiri Mposhi districts recorded the lowest tetanus toxoid protection.

#### 6.10.4 Underweight prevalence

Underweight prevalence is the total number of children aged five years and below whose weight is low for their age. The weight for these children is below the lower line on the child health card.

As shown in Table 6.25, the target of less than 10 per cent of underweight children below 5 years was attained in 2007 when 8 per cent of these children were underweight. This was after a continuous reduction from 12 per cent in 2005 to 11 per cent in 2006.

Among the districts, only in Kabwe was this percentage less than 10 in the three years. However, in all the districts the target of 10 per cent or less was achieved in 2007 after continuous reductions from 2005. In Serenje district, this percentage was more than halved from 22 per cent in 2005 to 10 per cent in 2007.

<b>District</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Chibombo	12	10	6
Kabwe	7	6	4
Kapiri Mposhi	12	11	9
Mkushi	12	8	6
Mumbwa	11	14	10
Serenje	22	19	10
<b>Province</b>	<b>12</b>	<b>11</b>	<b>8</b>

Source: MOH (HMIS) Central Province.

## Chapter 7: Environmental and public health

Environmental health is a subset of public health. It comprises those aspects of human health, including the qualities of life that are determined by physical, chemical biological, social and psychological factors in the environment. It also involves assessing, correcting, controlling, preventing those factors in the environment that can potentially affect adversely the health of the present and future generation. Environmental health is an outdoor activity.

There were two main sub-areas of environmental health in the province namely:

- Malaria control
- Water and Sanitation

### 7.1 Malaria control

This is a national programme that looks at community interventions that are aimed at reducing malaria incidence. The programme involves creating community awareness on malaria prevention by providing interventions such as insecticide treated bed nets distribution, indoor residual spray and community health education programmes.

#### 7.1.1 Insecticide treated nets

Table 7.1 shows the distribution of insecticide treated nets (ITNs) per district. 100 per cent of the nets received by districts were distributed in the community particularly the pregnant women, under five children and the vulnerable. Despite this distribution, the coverage in each district was below 50 per cent of the targeted population. This is attributed to erratic supply of ITNs by the Society for Family Health.

District	Target Group** (a)	Number of ITNs		Coverage per cent (c/a)*100	Source of ITNs
		Received (b)	Distributed (c)		
Chibombo	17142	5800	5800	34	Society for family health
Kabwe	26600	4507	4507	17	Society for family health
Kapiri Mposhi	68212	8260	8260	12	Society for family health
Mkushi	52505	3200	2240	4	Society for family health
Mumbwa	29900	5200	5200	17	Society for family health
Serenje	34138	4300	4300	13	Society for family health
<b>Province</b>	<b>228497</b>	<b>31267</b>	<b>30307</b>	<b>13</b>	Society for family health

Source: Environmental Health Reports

\*\* Estimated pregnancies and Under Fives

#### 7.1.2 Indoor residual house spraying

The indoor residual spraying has only been carried out in Kabwe. In 2005, 10274 out of a target of 11544 households were sprayed. That represented 89 per cent coverage. In 2006, the coverage increased to 95 per cent (13666 out of 14385 targeted) and in 2007 the coverage was 90 per cent (36816 out of 40907) targeted households.

## 7.2 Water and sanitation

Water and sanitation refers to the activities that are undertaken in the prevention and control of waterborne diseases, water related diseases and water washed diseases. This is done through water quality monitoring, domestic chlorination of water, pit latrine liming and medical waste management.

### 7.2.1 Water quality monitoring

This mainly involves sampling water for bacteriological and chemical analyses and the subsequent interpretation of results for public health use.

Reports on this activity in 2007 were received from all the districts. Table 7.2 shows the number of the samples taken in the districts. Laboratory analysis found that water quality was satisfactory in 100 per cent of the samples collected in Chibombo, Kapiri Mposhi, and Mkushi. The least percentage of satisfactory water samples was in Serenje. Only 69 per cent of the water samples collected in Serenje was found to be satisfactory.

**Table 7.2: Water quality monitoring, 2007**

District	Number of water samples collected	Number of water samples with satisfactory results	Percentage satisfactory
Chibombo	31	31	100
Kabwe	30	26	86
Kapiri Mposhi	92	92	100
Mkushi	04	04	100
Mumbwa	61	57	93
Serenje	26	18	69
<b>Province</b>	<b>244</b>	<b>288</b>	<b>93</b>

*Source: Environmental Health Reports*

### 7.3 Pit latrine liming

This was only done in Kabwe in 2007. The target was to put lime in 7317 pit latrines. Lime was put in 5243 (72 per cent of the pit latrines).

## References

World Health Organisation., *Acute Flaccid Paralysis surveillance performance indicator reports, 2007*. 2007, Geneva: World Health Organisation.

World Health Organisation., *Polio Updates bulletin, September, 2007*. 2007, World Health Organisation: Geneva.

Zambia. Ministry of Health, Zambia. Central Board of Health, and Government of Republic of Zambia, *AFP, measles, neonatal tetanus guidelines*. 2003, Ministry of Health, Central Board of Health: Lusaka.

Zambia. Ministry of Health, *Minister of health declaration statement in November, 2005*. 2005, Ministry of Health: Lusaka.

Zambia. Ministry of Health, USAID, and HCP, *Immunisation Handbook, 2007*. 2007, Ministry of Health, Central Board of Health: Lusaka. Zambia. Ministry of Health, *Manual for Surveillance of Expanded Programme of Immunisations Targeted diseases, Zambia, April, 2005*. 2005, Ministry of Health, Republic of Zambia: Lusaka, Zambia.

Zambia. Central Statistical Office, Zambia. Central Board of Health, and ORC Macro. MEASURE/DHS+ (Programme), *Zambia demographic and health survey, 2001-2002*. 2003, Lusaka, Zambia. Calverton, Md., U.S.A.: Central Statistical Office: Central Board of Health: MEASURE DHS+, ORC Macro.

Zambia. Central Statistical Office., *Zambia 2000 Census of Population and Housing: Population Projections Report*. 2005, Lusaka: Central Statistical Office

Zambia. Central Statistical Office, Zambia. Ministry of Health and ORC Macro. MEASURE/DHS+ (Programme), *Zambia demographic and health survey, preliminary report, 2007*. 2008, Lusaka, Zambia. Calverton, Md., U.S.A.: Central Statistical Office: Ministry of Health: MEASURE DHS+, ORC Macro.