



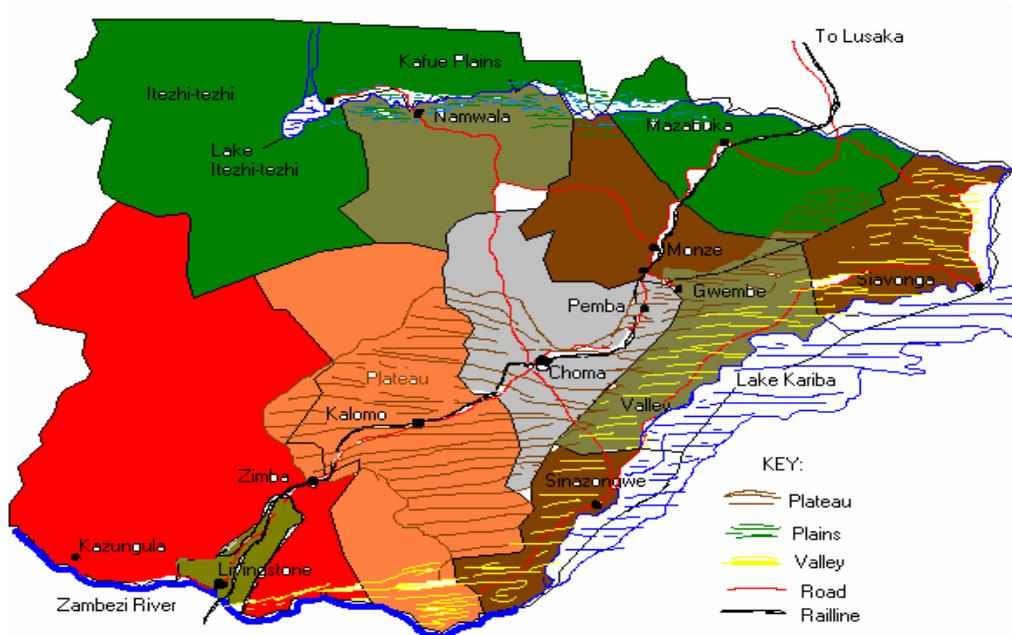
Republic of Zambia

Ministry of Health

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# 2007

## Annual Health Statistical Bulletin – Southern Province



Provincial Health Office,  
P. O. Box 60206,  
LIVINGSTONE, ZAMBIA

*August 2008*



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## Preface

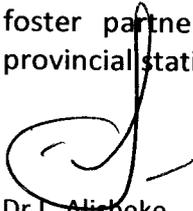
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The Ministry of Health has prioritised the importance of the delivery of cost effective quality health care services to the people of Zambia. In this regard, Southern Province Health Office (PHO) continues to facilitate implementation of coordinated quality health interventions in order to achieve effective delivery of health care services in the province.

This statistical bulletin would serve as a useful tool and provide guidance to the PHO, DHOs and health facilities in assessing their current performance and planning for the future with a resolve to provide sustainable and equitable quality health services for the benefit of the population.

Southern PHO hopes that the production of a statistical bulletin will become a consistent annual activity and will therefore appreciate comments or contributions from other stakeholders and so that the next bulletin may be improved upon.

The statistical information herein does not include most of the health care activities by the private sector. It is hoped that with time, DHOs and private health facilities can foster partnerships to incorporate private sector initiatives and statistics in the provincial statistical bulletins.



Dr L. Alisheke

**Provincial Health Director  
Southern Province**

## Acknowledgements

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This is the first Statistical Health Bulletin for Southern Province. The process of analysing data, compiling and producing this bulletin would not have been facilitated without the vital input of health personnel working at facility and district levels. 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 for it is a critical input to this bulletin.

I wish to extend my gratitude to the Data Management Specialist Mr. Mukuka Chanda and the Data Associate Ms. Vivian Njekwa at the Provincial Health Office, and the District Health Information Officer: Mr. Clarence Musumo–Livingstone District Health Management Team, Mr. Mushala Lubinda–Kazungula District Health Management Team, Mr. Kennedy Kamwi–Kalomo DHMT, Mr. Oliver Sakala–Choma District Health Management Team, Mr. Clarence Hamalala–Sinazongwe District Health Management Team, Ms. Lillian Membele–Gwembe District Health Management Team, Mrs. Jane Munang’andu–Monze District Health Management Team, Mr. Benard Uteka–Mazabuka District Health Management Team, Mr. Joseph Phiri–Itezhi-Tezhi District Health Management Team, Mrs. Delinah Mukate–Siavonga District Health Management Team and Mr. Mukwiza Namaambo, Data Associate–Namwala District Health Management Team for their tireless efforts in the quest to improve quality of care in the province and compilation of this report.

I further wish to recognise and appreciate the tremendous contributions and technical assistance provided by Mr. Paul Chishimba and Mr. Patrick M. Chewe from HSSP in the compilation and production of this bulletin. 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 PHO that the production of the bulletin will assist 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.

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.



Mukuka Chanda  
**Provincial Data Management Specialist**  
**Southern Province**

## List of Abbreviations

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AIDS	Acquired Immunodeficiency Syndrome
BCG	Bacillus Calmette Guerin
DHMT	District Health Management Team
DHO	District Health Office
DHIO	District Health Information Officer
DPT-Hib + HepB	Diphtheria, Pertusis, Tetanus, Haemophilus Influenza and Hepatitis B
HIV	Human Immunodeficiency Virus
ITNs	Insecticide Treated Nets
HMIS	Health Management Information System
HSSP	Health Services and Systems Programme
IDSR	Integrated Disease Surveillance and Response
MMR	Maternal Mortality Ratio
OPV	Oral Polio Vaccine
PHO	Provincial Health Office
STI	Sexually Transmitted Infections
TB	Tuberculosis
TBA	Traditional Birth Attendant
tTBA	trained Traditional Birth Attendant
WHO	World Health Organisation
ZDHS	Zambia Demographic and Health Survey

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## Glossary of Terms

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**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 postnatal clinic 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 tuberculosis.

**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

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### Introduction

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

### Disease Burden

#### ▪ Malaria

Malaria was not the leading cause of attendances at health facilities in the province in 2007 among both the under-fives and the older population. In the whole province, the incidence rate of malaria among the under-fives in 2007 was about five times higher at 711.8 than among the older population at 194.1 per 1,000.

Among the districts, the incidence rate of malaria in 2007 was the highest in Gwembe district. Among the under-fives, it was 1,303.1 per 1,000 population and 332.6 per 1,000 in the older population. Itezhi-Tezhi district recorded the highest case fatality rate of malaria in hospitals at 87 per 1,000 admissions and Gwembe the lowest at 19 per 1,000 admissions.

Clear successes in the fight against malaria were seen in Kazungula and Livingstone. The incidence rate was 360.9 per 1,000 population in Kazungula in 2005. It reduced to 345.5 in 2006 and to 149.6 in 2007. In Livingstone, it reduced from 318.6 in 2005 to 297.6 in 2006 and to 271.3 in 2007. Incidence increased in Sinazongwe from 411.1 in 2005 to 464.5 in 2006 and to 473.8 in 2007.

#### ▪ Respiratory Infections (non-Pneumonia)

This was the leading cause of attendances at health facilities in the province in 2007. The incidence rate was 24.6 per 1,000 population under-five years and 220.3 per 1,000 among the older population. The incidence rate in the total general population was 320.8 per 1,000 population. It was 220.5 per 1,000 population in 2005 and 270.0 per 1,000 population in 2006. The percentage increase for the incidence rate from 2005 to 2007 was about 45 per cent. The number of cases in the province increased from 316,445 in 2005 to 400,432 in 2006 and to 494,566 in 2007.

Among the districts, the incidence rate increased in all the districts. The sharpest increases were in Itezhi-Tezhi where the incidence rate increased by 70.4 per cent from 235.5 in 2005 to 401.4 in 2006 and by 44.4 per cent from 401.4 in 2006 to 579.5 in 2007.

#### ▪ **Respiratory infections (pneumonia)**

The provincial respiratory infections (pneumonia) consultations have been fluctuating between 38,282 in 2005 to 38,485 in 2007 (incidence of 26.7 per 1,000 population in 2005 to 25.0 per 1,000 population in 2007). Monze and Choma districts recorded increases in number of cases while significant reductions were in Gwembe and Siavonga districts.

#### ▪ **Diarrhoea diseases (non-bloody)**

Diarrhoeal diseases (non-bloody) has generally been on an upward trend in the province. The number of cases has increased from 115,481 cases in 2005 to 140,708 cases in 2007. Mazabuka and Kalomo districts recorded increases in the number of cases while Gwembe district recorded a downward trend in the number of cases.

#### ▪ **Notifiable diseases**

##### ○ **Acute Flaccid Paralysis /suspected polio.**

The non-polio Acute Flaccid Paralysis rate was at .0 per 100,000 children less than 15 years of age and 100 per cent stool adequacy rate. The non-polio Acute Flaccid paralysis rate was .0 for 6 districts whilst the remaining 5 districts had 0 per 100,000 children less than 15 years of age.

##### ○ **Measles surveillance**

Overall the general picture of the province shows a steady reduction of the incidence of measles from 1.0 per 1000 in 2005 to 0.3 per 1000 children under-five in 2007. In 2007 Choma recorded the highest incidence of measles cases at 2.4 per 1000 children under the age of 5 years, followed by Gwembe at 1.7. In the same year Kazungula and Namwala recorded the lowest incidence of 0.1

##### ○ **Tuberculosis notifications**

The total notification in the province was 6,012 of which 3,094 (51 per cent) were females and 2,918 (49 per cent) were males. Out of the total notifications 1,103 (18 per cent) were sputum smear positive. 55 per cent of the sputum smear positives were males while 45 per cent were females. Livingstone district had the highest number of notifications at 1,858, followed by Monze 1,102 and Choma 1,034 while Gwembe recorded the lowest notifications of 54.

- **Number of patients on antiretroviral therapy**

The total number of patients by sex that have been put on antiretroviral therapy ever since the programme started. The total number of patients ever enrolled on antiretroviral increased from 11,400 in 2006 to 18,603 in 2007. There were more females enrolled on antiretroviral than males in both 2006 and 2007. A total cumulative number of 10,859 females were enrolled as compared to 7,714 males at the end of 2007.

### **Human resource**

In 2007, Choma district had had the highest number of medical professional including support staff although it had half the number of doctors (12) that Livingstone had (24). The medical doctors in Livingstone represented 35 per cent of the number of doctors in the province. Choma had 18 per cent of the number of doctors in the province. Kazungula had no medical doctor and the vast Kalomo district only had 1 medical doctor. The picture is the same with regard to the mismatch in the number of medical personnel and the population size. Districts with small populations such as Livingstone and Siavonga have medical staff than a large district like Kalomo.

- **Health centre staff load**

On average, staff patient ratio in Southern province during the period 2005 to 2007 has been on the increase from 15.62 in 2005 to 15.72 in 2007. Further analysis reveals that Livingstone district has had the lowest contact of 8.96 in 2005, 7.47 in 2006 and 7.14 in 2007. Itezhi-Tezhi district has had the highest contact ratio of 33.67 in 2005, 51.64 in 2006 rising to 61.50 in 2007. Statistically, the assumption therefore is that Itezhi-Tezhi district has the highest ration of staff patient contacts in the period under review.

### **Trained Traditional Birth Attendants**

There has been a reduction in the number of deliveries conducted by tTBAs as well as the number of active tTBAs. The number of deliveries conducted by tTBAs reduced from 17,767 in 2005 to 16,559 in 2006 and 15,392 in 2007.

- **Community Health Workers**

On average, the number of Community Health Workers in reduced significantly to 730 in 2007 from 300 and 856 in 2005 and 2006 817.

## Availability of essential drugs

### ▪ **Drugs availability**

From 2005-2007, drug supply at HC level has not been 100 per cent as expected. This is for a fact that the drug supply system is not full supply and there are frequent stock-outs of most drugs as seen through the tracer drugs. Availability of tracer drugs was 71 per cent in 2005 and 72 per cent in 2007.

### ▪ **Drug kit utilisation at health centres**

Provincial figure for drug kits per 1000 outpatient attendances was 1.16 in 2005 and 0.75 in 2007. This varied between 1.13 for Itezhi-Tezhi (high) and 0.56 for Siavonga.

## Health service delivery indicators

### ▪ **Health centre utilisation**

#### ○ **Out patients under-five years**

There has been a 1 per cent reduction in the total number of <5 years OPD consultations in 2007 compared to 2005 from 1.28-1.39 per capita attendance. The decrease is most marked in Kalomo district though increased from 1.01 in 2005 to 1.09 in 2007. The top five diagnoses in 2007 included; Respiratory infection non pneumonia 29 per cent, Malaria 28 per cent, Diarrhoea non-bloody 11 per cent Skin infections 5 per cent and Eye Infections 6 per cent, of the total OPD less than 5 years diagnoses.

#### ○ **Out patients 5 years and above**

Outpatient department attendances in the population 5 years and above increased from 0.89 in 2005 to 1.06 in 2007. Reduction in outpatient department consultation was noticeable in Kalomo district while overall province reflected growth in Itezhi-Tezhi and Gwembe districts. The major causes of morbidity in 2007 included Respiratory infection non pneumonia 22 per cent, Malaria 20 per cent, Diarrhoea non-bloody 4 per cent, Skin Infections 4 per cent and Eye Infections 3 per cent.

### ▪ **Bed occupancy rate**

The bed occupancy rate is defined as the average percentage of available beds occupied during a given period of time in a health facility. Ideally, the bed occupancy rate should not be less than 80 per cent.

The bed occupancy rate in hospitals was 49 per cent in 2005, 42 per cent in 2006 and 44 per cent in 2007. Respective rates in health centres were 49 per cent, 42 per cent and 44 per cent.

Among the districts, the bed occupancy rate in health centres decreased annually in Choma, Kalomo, Namwala and Sinazongwe for all the 3 years whereas in Monze it increased annually.

- **Maternal health**

- **Antenatal visits**

The percentage of expected pregnancies that made at least one antenatal visit reduced from 98 per cent (74,999) in 2005 to 96 per cent (75,870) in 2006 and to 92 per cent (75,258) in 2007 in the province. The total average number of antenatal visits was 2.5 in 2005, 3.5 in 2006 and 2.9 in 2007.

- **Institutional deliveries**

The coverage in the province reduced from 37 per cent in 2005 to 36 per cent in 2006 and 38 per cent in 2007.

- **Caesarean section rate**

The proportion of caesarean section births in the hospitals in the province in 2007 was 7 per cent. In health facilities, it was three times less at 2 per cent. This gap could mainly be attributed to the non-availability of facilities and medical doctors in rural health facilities. However, the percentage of caesarean section births was still below the threshold of 15 per cent recommended by WHO. Unnecessary risks in vertex deliveries can be averted by caesarean section.

- **Stillbirth**

The percentage of still births in the province was 2.5 in 2005, 3.5 in 2006 and 2.9 in 2007.

Among the districts in 2005, Siavonga recorded the highest proportion of still births at 3.9 per cent followed by Kazungula at 3.8 per cent, while both Choma and Gwembe recorded the lowest at 2.1 per cent. In 2006, Namwala District recorded the highest at 6.2 per cent followed by Siavonga at 3.9 per cent. In 2007, Gwembe recorded the highest percentage of still births at 6.5 per cent followed by Namwala at 5.4 per cent where as Kazungula and Choma recorded the lowest at 2.0 per cent and 2.1 per cent, respectively.

- **Institutional Maternal Mortality Ratio**

Maternal mortality ratio is calculated by multiplying the number of maternal deaths divided by the number of live births per 100, 000 live births.

Among the districts, the maternal mortality ratios in health facilities in Livingstone followed by Monze were the highest in all the three years under review. In 2005, 2006 and 2007, the respective ratios per 100,000 births were 284, 268 and 230 in Livingstone. In Monze, they were 178, 238 and 229. In the whole province, the ratio was 102 in 2005, 116 in 2006 and 94 in 2007.

- **Postnatal attendances**

The first postnatal coverage is supposed to be offered comprehensively with child health BCG, OPV I, DPT-Hib+HepB I at 6 weeks.

The provincial coverage of first postnatal coverage was below the national target of 80 per cent in all the 3 years under review. Among the districts Choma recorded the highest percentage of first postnatal coverage for all the three years under review with 67 per cent, 66 per cent and 68 per cent in 2005, 2006 and 2007 respectively. Coverage of 68 per cent was also attained in Siavonga in 2008. It was followed by Monze at 60 per cent coverage in 2005, Siavonga at 60 per cent coverage in 2006 and Monze at 67 per cent coverage in 2007.

- **Family planning**

New family planning acceptance 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. The provincial picture shows that there was an increase between 2005 and 2006 from 146 to 165 and a decrease between 2006 and 2007 from 165 to 148 new family planning acceptors per 1,000 women of child bearing age 15-49 years old.

Kalomo district recorded the highest rate of new family planning acceptors in 2005 of 194 followed by Itezhi-Tezhi with 174 while Livingstone recorded the lowest at 93. In 2006, Kalomo recorded the highest rate of 208 followed by Itezhi-Tezhi at 190 while Livingstone and Namwala recorded the lowest at 127 respectively. In 2007, Mazabuka recorded the highest rate of 180 and the lowest was Livingstone with 116. It is worth noting that Livingstone recorded the lowest rate in all the 3 years under review despite it being an urban area. The rate in Livingstone was 93 in 2005, 127 in 2006 and 116 in 2007.

- **Pregnancies protected against tetanus**

Kalomo district recorded the highest coverage in 2005, 2006 and 2007. Namwala recorded the lowest coverage of 69 per cent in 2005 and 62 per cent in 2007 while Siavonga was lowest in 2006 at 65 per cent. The provincial picture shows a reduction in tetanus toxoid coverage from 89 per cent in 2005, to 86 per cent in 2006 and to 80 per cent in 2007.

- **Child Health**

- **Expanded programme for immunisation**

Children are considered to be fully immunised when they have received a vaccination against tuberculosis (BCG), three doses each of the diphtheria, pertussis, tetanus/hepatitis B/Haemophilis influenza type (DPT-HepB-Hib), and polio vaccines, and a measles vaccination by the age of 12 months. The BCG vaccination should be given at birth or at the first clinical contact (not long after birth). The DPT-HepB-Hib and polio immunisations require three doses of the vaccines at approximately 6, 10 and 14 weeks of age; and measles should be given at or soon after reaching 9 months of age. The national target for the indicator is 80 per cent and the threshold is 70 per cent.

Fully immunised under-ones were 97 per cent in 2005 and 2006 and 87 per cent in 2007. That was above the national target of 80 per cent. Among the districts, the highest coverage was attained in Choma in 2005, 2006 and 2007. The lowest coverage in 2005 and 2007 was in Namwala and in 2006, in Itezhi-Tezhi.

- **Low birth weight**

The percentage of low birth weight babies in the province was constant at 6 per cent in 2005, 2006 and 2007.

- **Growth monitoring**

The underweight prevalence measures the proportion of children less than five years old whose weight was below the lower reference line of their Under-five Clinic Card during a weighing session out of the total number of children weighed. The prevalence reduced from 15 per cent in 2005 to 14 per cent in 2006 and to 11 per cent in 2007. This was better than the national average of 20 per cent.

Gwembe is the only district which recorded a yearly increase from 29 per cent in 2005 to 32 per cent 2006 and to 36 per cent in 2007. Gwembe district is in the valley and drought prone. Livingstone recorded the lowest underweight prevalence in all the three years under review. Prevalence was 5 per cent in 2005, 6 per cent in 2006 and 4 per cent in 2007.

# Chapter 1: Background

The bulletin aims to make available statistical health information pertinent to health service delivery and disease burden in the province during the period 2005-2007. The bulletin sets the stage and an opportunity to assess the progress made this far in the delivery of effective quality health services to the population in Southern province. Hopefully it shall prove useful to the districts, hospitals and other health institutions in the province in the identification of their present situation, and more importantly in planning for the future years.

## 1.1 Geography and administration

Southern province is situated in the southwest of Zambia and covers 85,283 km<sup>2</sup>. It borders with Western province on the western part and with Central and Lusaka provinces on the northern part. On the south-eastern side, the province shares international borders with Zimbabwe and in the south-western direction with Zimbabwe, Botswana and Namibia.

The province has three major topographical features:

- The plateau that covers Kalomo, Choma, eastern side of Monze and Mazabuka.
- The Zambezi valley along the Zambezi River and Lake Kariba. This area covers the eastern parts of Kalomo, Gwembe, Sinazongwe and Siavonga districts.
- The Kafue Plains covering Namwala, Itezhi-Tezhi, western Monze and Mazabuka.

The provincial capital is Livingstone located about 10 km from the Zimbabwean border and about 500 km from Lusaka. There are eleven (11) districts in the province namely: Livingstone, Kazungula, Kalomo, Choma, Sinazongwe, Gwembe, Namwala, Itezhi-Tezhi, Monze, Mazabuka and Siavonga.

## 1.2 Socio-economic status:

Predominantly the people of Southern Province are farmers, specialized in cattle rearing. There is also a lot of fishing along the Zambezi and Kafue rivers and Lake Kariba. Kafue and Kariba hydroelectric power stations and Zambia Sugar Company in Mazabuka provide employment to the people in the province. After several years of drought, 2003 and 2004 had sufficient rainfall to support the crop- and live-stock production sector.

### **1.3 Communication**

A good road and railway network passing through Livingstone, Kalomo, Choma, Monze and Mazabuka districts services the province. There is also a reasonable road network linking Choma to Sinazongwe on the eastern side and Namwala and Itezhi-Tezhi districts on the western side. The road from Namwala to Itezhi-Tezhi is impassable during the rainy season. The province has a number of feeder roads, but some of them are difficult to use during the rainy season. This state of affairs has a negative impact on the delivery of services and makes delivery of logistics to health facilities difficult. All the district health offices have telephone facilities. Most of the health centres lack communication facilities, such as phones and radios making referral of patients difficult.

### **1.4 Demographic information**

The summary of population estimates for the province is shown in Table 1-1. In 2000, life expectancy at birth assuming that the children do not acquire HIV in their adult life for was determined to be 59.5 for males and 59.1 for females in the province This is an increase from 53.8 for males and 52.4 for females in 1990 and is attributed to the reduction in childhood mortality from the malaria control programme and other maternal and child health interventions such as promotion of breastfeeding.

### **1.5 Data sources**

The primary source of data for the bulletin is the HMIS. Its sub-units are Health Status, Human Resources, Assets, Finances, and Drugs and Supplies which provide a holistic view of health status and performance of the health sector in the province.

Data from vertical reporting systems which do not fall directly under the HMIS such as the Zambia Voluntary and Counselling Service, the PMTCT programme, the tuberculosis database, antiretroviral data bases maintained by cooperating partners and the Epidemiological Surveillance system among others.

### **1.6 Scope of analysis**

The district was the unit of analysis. Each indicator was compared by district and age group. This report does attempt to provide reasons to the performance of any given indicator in relation to increase, decrease, or indeed fluctuating over a given period of time, and highlights particular areas that would require further investigations.

### **1.7 Limitations of the report**

Data used to compile this report came from various sources and may have limitations in completeness and correctness. While the HMIS system is functioning

quite well and is undoubtedly an extremely useful tool for health managers, it is not entirely flawless.

While every care was taken in the preparation and collection of this data, we are not able to guarantee that different sources have compiled or reported data in a consistent way. Under reporting is most likely one of the major limitations with the HMIS.

Data used in this bulletin was from all public health facilities and some private facilities. Therefore, overall utilisation of health facilities might not be a reflection of the whole health care system because data from some private institutions was not included.

It is hoped that the district Health Information Office along with the management teams will in the coming years address some of these issues and ensure that future editions of the provincial statistical bulletin will be more comprehensive in terms of the health activities covered and the quality of the data collected.

**Table 1.1: Distribution of district population by selected age groups-2007**

Age Category	Percentage	Districts											Province
		Choma	Gwembe	Itezhi-Tezhi	Kalomo	Kazungula	Livingstone	Mazabuka	Monze	Namwala	Siavonga	Sinazongwe	
Children 0-11 Months	4	9,672	1,772	2,257	8,877	3,512	5,015	10,367	8,378	4,470	2,886	4,262	61,467
Under-five Years	20	48,359	8,861	11,287	44,386	17,559	25,076	51,829	41,888	22,349	14,432	21,309	307,337
5-14 Years	31.2	75,440	13,824	17,608	69,242	27,391	39,119	80,854	65,345	34,864	22,515	33,242	479,445
Women 15-49 Years	22	53,195	9,748	12,416	48,824	19,314	27,584	57,012	46,077	24,584	15,876	23,440	338,070
All Adults 15 Years+	48.8	117,996	21,622	27,540	108,301	42,843	61,186	126,464	102,207	54,532	35,215	51,994	749,902
Total Male (All ages)	51.4	124,283	22,774	29,007	114,071	45,126	64,446	133,202	107,653	57,437	37,091	54,764	789,856
Total Female (All ages)	48.6	117,513	21,534	27,427	107,857	42,667	60,936	125,946	101,788	54,308	35,071	51,781	746,828
<b>Total Population</b>	<b>100</b>	<b>241,796</b>	<b>44,308</b>	<b>56,435</b>	<b>221,929</b>	<b>87,793</b>	<b>125,382</b>	<b>259,148</b>	<b>209,441</b>	<b>111,745</b>	<b>72,162</b>	<b>106,545</b>	<b>1,536,684</b>
Expected Pregnancies	5.4	13,057	2,393	3,047	11,984	4,741	6,771	13,994	11,310	6,034	3,897	5,753	82,981
Expected Deliveries	5.2	12,573	2,304	2,935	11,540	4,565	6,520	13,476	10,891	5,811	3,752	5,540	79,908
Expected Live Births	4.95	11,969	2,193	2,793	10,985	4,346	6,206	12,828	10,367	5,531	3,572	5,274	76,066

## Chapter 2: Disease Burden

The chapter discusses the major causes of attendances in the health facilities of Southern province. The causes are compared by district and two broad age groups, under-five and over five using incidence rates, prevalence and case fatality rates.

### 2.1 Major causes of illnesses

Table 2.1 gives an insight into the top ten (10) causes of attendances in health facilities of Southern province in 2007 by two major age groups. Malaria was not the leading cause in both broad age groups. Respiratory infections non-pneumonia was the leading cause with an incidence rate of 724.6 per 1,000 population under-five years and 220.3 per 1,000 among the older population. The incidence rate in the total general population was 320.8 per 1,000. It was followed by malaria with an incidence rate of 297.3 per 1,000 and diarrhoea non-bloody, 91.3. Suspected dysentery was the lowest at 13.3 per 1,000 of the total general population.

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

Disease	Incidence per 1,000 population		
	Under-five	5 years and above	Total
Respiratory infections, non-pneumonia	724.6	220.3	320.8
Malaria	711.8	194.1	297.3
Diarrhoea, non-bloody	288	42.3	91.3
Trauma	62.3	58.6	59.3
Skin infections	119.8	35.6	52.4
Eye Infections	149	26.2	50.6
Ear, nose and throat infections	79.2	31.3	40.9
Respiratory infections, pneumonia	70.2	13.7	25
Skin diseases (not infectious)	39	15.3	20
Diarrhoea, bloody(suspected dysentery)	27.9	9.7	13.3

Source: HMIS

Table 2.2 presents data from health facilities on respiratory infections (non-pneumonia) incidence per 1,000 population and case fatality rates per 1,000 admissions by age group and district in 2007. Itezhi-Tezhi recorded the highest incidence rate in all the age groups while Livingstone recorded the lowest with 181.6 per 1000 population.

The incidence rate of respiratory infections (non-pneumonia) increased every year from 2005 to 2007. In the province, it was 220.5 per 1,000 population in 2005, 270.0 in 2006 and 320.8 in 2007 as shown in Figure 2.1. The percentage increase for the incidence rate from 2005 to 2007 was about 45 per cent. Among the districts, the incidence rate increased in all the districts. The sharpest increases were in Itezhi-Tezhi where the incidence rate increased by 70.4 per cent from 235.5 in 2005 to 401.4 in 2006 and by 44.4 per cent from 401.4 in 2006 to 579.5 in 2007.

**Table 2.2: Respiratory infections-non pneumonia incidence and case fatality rates by age group in Southern Province, 2007**

District	Incidence rate per 1,000 population (All Districts)			Case Fatality rate per 1,000 admissions (Hospitals only)		
	Under-five	5 years and above	Total	Under-five	5 years and above	Total
Choma	727.9	208.6	312.4	82.7	56.5	72.0
Gwembe	1207.2	363.5	532.3	25.0	0	12.8
Itezhi-Tezhi	1108.3	447.3	579.5	0	0	0
Kalomo	624.8	189.1	274.2	5.6	10.2	7.3
Kazungula	403.3	140.3	192.9	-	-	-
Livingstone	487.3	105.2	181.6	84.7	36.2	50.8
Mazabuka	757.8	227.9	333.9	52.1	70.0	60.5
Monze	731	241.9	339.8	10.3	22.1	18.0
Namwala	795.6	252.8	361.4	0	23.3	18.5
Siavonga	1083.8	286.9	446.3	4.3	26.3	11.5
Sinazongwe	645.8	192.4	283.1	0	16.6	8.0
<b>Province</b>	<b>724.6</b>	<b>220.3</b>	<b>320.8</b>	<b>-</b>	<b>39.4</b>	<b>39.0</b>

Source: HMIS

Note: There was no hospital in Kazungula

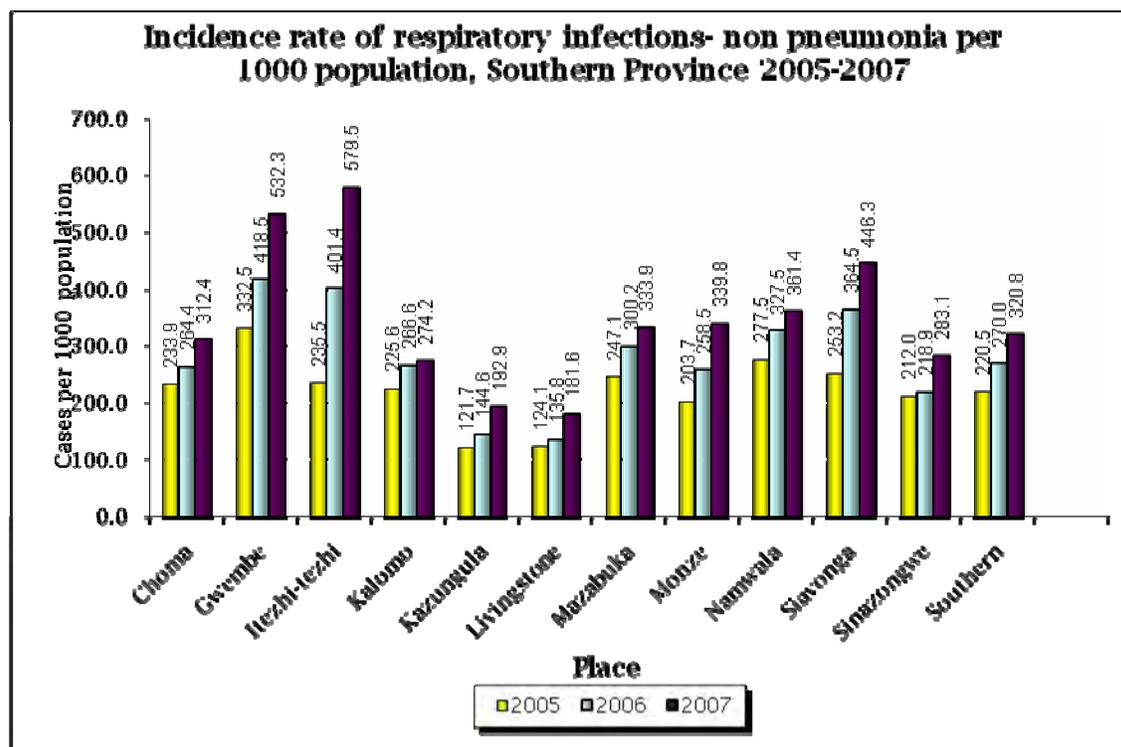


Figure 2.1: Incidence rate of respiratory infections-non pneumonia

## 2.1.1 Malaria

As shown in Table 2.3, the incidence rate of malaria in 2007 was the highest in Gwembe district. Among the under-fives, it was 1,303.1 per 1,000 population and 332.6 per 1,000 in the older population. In the whole province, the incidence rate of malaria among the under fives in 2007 was about five times higher at 711.8 than among the older population at 194.1 per 1,000. Itezhi-Tezhi district recorded the highest case fatality rate of malaria in hospitals at 87 per 1,000 admissions and Gwembe the lowest at 19 per 1,000 admissions.

**Table 2.3: Malaria incidence per 1,000 population by district and broad age groups, 2007**

District	Incidence rate per 1,000 population (All health facilities)			Case fatality rate per 1,000 admissions (Health centres and hospitals)		
	Under-five	5 years and above	Total	Under-five	5 years and above	Total
Gwembe	1303.1	332.6	526.7	526.7	31.3	19.0
Sinazongwe	1151.2	304.4	473.8	24.8	25.7	25.2
Siavonga	973.7	217.1	368.4	17.4	64.6	34.3
Choma	880.9	231.0	361.0	69.4	69.0	69.2
Itezhi-Tezhi	642.1	288.8	359.5	73.0	100.0	87.0
Monze	708.8	207.2	307.5	40.2	46.0	43.3
Mazabuka	700.7	178.3	282.8	28.1	52.8	39.8
Livingstone	651.8	176.2	271.3	71.4	69.2	70.0
Namwala	524.1	167.2	238.6	56.3	91.5	72.8
Kalomo	417.1	109.7	169.7	61.8	78.6	70.2
Kazungula	347	100.2	149.6	-	-	-
<b>Province</b>	<b>711.8</b>	<b>194.1</b>	<b>297.3</b>	<b>41.0</b>	<b>57.6</b>	<b>49.1</b>

*Source: HMIS*

*Note: There was no hospital in Kazungula*

Figure 2.2 shows clear successes in the fight against malaria in Kazungula and Livingstone. The incidence rate was 360.9 per 1,000 population in Kazungula in 2005. It reduced to 345.5 in 2006 and to 149.6 in 2007. In Livingstone, it reduced from 318.6 in 2005 to 297.6 in 2006 and to 271.3 in 2007. Incidence increased in Sinazongwe from 411.1 in 2005 to 464.5 in 2006 and to 473.8 in 2007.

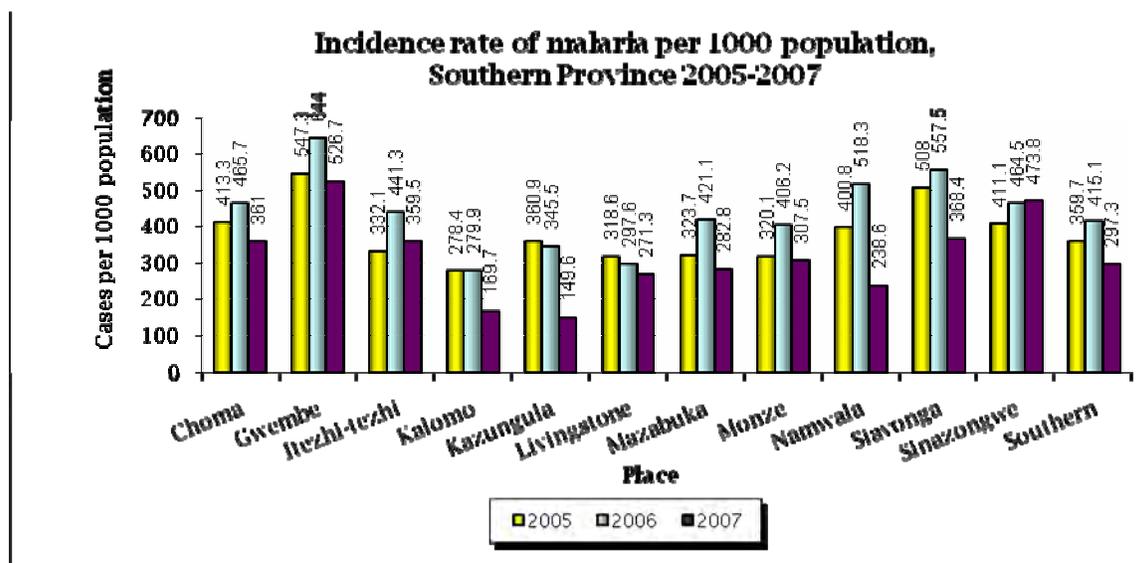


Figure 2.2: Incidence rate of malaria

### 2.1.2 Diarrhoea-non-bloody

As shown in Table 2.4, in 2007, the highest numbers of cases of diarrhoea non-bloody (170.3 cases per 1,000 population) were in Itezhi-Tezhi followed by Siavonga with 156.7 cases per 1,000 population. The incidence rate in among under-fives was higher than among the older population in all districts. The highest hospital case fatality, 165.5 per 1,000 admissions was recorded in Namwala and the lowest in Sinazongwe at 25.9 per 1000 admissions. In Siavonga, Monze and Choma, the case fatality rate was higher among those above 5 years than the under-fives.

District	Incidence rate per 1,000 population (All health facilities)			Case Fatality rate per 1,000 admissions (Hospitals only)		
	Under-five	5 years and above	Total	Under-five	5 years and above	Total
Itezhi-Tezhi	485.2	91.5	<b>170.3</b>	153.8	73.2	<b>104.5</b>
Siavonga	466.4	71.8	<b>156.7</b>	27.6	80.2	<b>51.5</b>
Gwembe	383.8	48.2	<b>115.3</b>	200	0	<b>83.3</b>
Mazabuka	313.1	53.5	<b>105.5</b>	104.9	36.1	<b>96.2</b>
Namwala	310.7	42.3	<b>95.9</b>	238.1	106.4	<b>165.5</b>
Kazungula	297.9	44.7	<b>95.4</b>	0	0	<b>0</b>
Sinazongwe	233.1	46.4	<b>83.7</b>	21.1	29.2	<b>25.9</b>
Monze	242.2	43	<b>82.8</b>	149.3	163.4	<b>158.6</b>
Kalomo	294.1	30.2	<b>81.7</b>	178.3	78.1	<b>145.1</b>
Livingstone	229.0	27	<b>67.4</b>	133.8	133.3	<b>133.6</b>
Choma	218.8	24.8	<b>63.6</b>	75.1	106.9	<b>88.2</b>
<b>Province</b>	<b>288.0</b>	<b>42.3</b>	<b>91.3</b>	<b>99.0</b>	<b>103.1</b>	<b>101.0</b>

Source: HMIS

Figure 2.3 shows that the incidence rate of diarrhoea non-bloody increased yearly in Monze and Siavonga between 2005 and 2007. In Monze, it was 57.1 in 2005, 70.3 in 2006 and 82.8 in 2007. In Siavonga, it was 128.9 in 2005, 144.6 in 2006 and 156.7 in 2007.

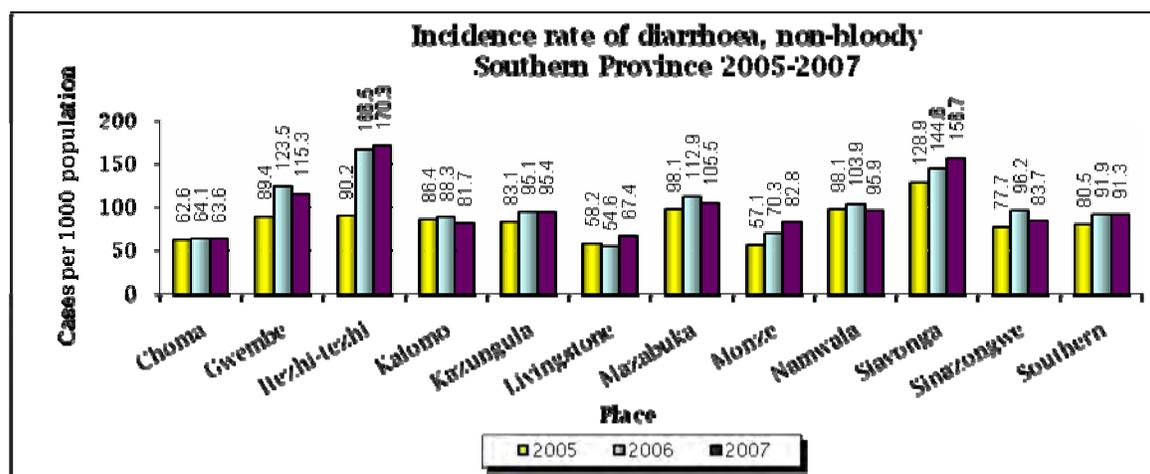


Figure 2.3: Incidence rate of diarrhoea, non-bloody

### 2.1.3 Diarrhoea-bloody (suspected dysentery)

Although dysentery is last among the top ten diseases, it has the potential to culminate into an epidemic. As shown in Table 2.5, the incidence rate dysentery in the province was at least three times higher among the under fives (27.9 per 1000 population) than among the older population (9.7). Among the districts, it was the highest in Gwembe at 28.1 per 1,000 population followed by Sinazongwe at 20.6. The lowest incidence rate was in Livingstone, 7.1 per 1,000 population.

District	Incidence rate per 1,000 population (All health facilities)			Case Fatality rate per 1,000 admissions (Hospitals only)		
	Under-five	5 years and above	Total	Under-five	5 years and above	Total
Choma	28.2	6.9	11.2	0	214.3	136.4
Gwembe	70.8	17.4	28.1	0	0	0
Itezhi-Tezhi	22.3	10.9	13.2	0	0	0
Kalomo	24.8	6.2	9.8	0	0	0
Kazungula	22	7.9	10.7	0	0	0
Livingstone	15.8	5	7.1	142.9	0	100.0
Mazabuka	23	10	12.6	0	0	0
Monze	37.2	12.4	17.4	0	62.5	

Namwala	30.3	8.1	12.5	0	0	0
Siavonga	26.5	15	17.3	0	0	0
Sinazongwe	29.2	18.5	20.6	0	0	0
<b>Province</b>	<b>27.9</b>	<b>9.7</b>	<b>13.3</b>	<b>16.9</b>	<b>40</b>	<b>31.4</b>

Source: HMIS

As shown in Figure 2.4, Gwembe district recorded the highest incidence rate in 2005, 2006 and 2007. The respective rates were 21.9, 30.6 and 28.1. The lowest respective rates were recorded in Livingstone (5.9, 6.8 and 7.1).

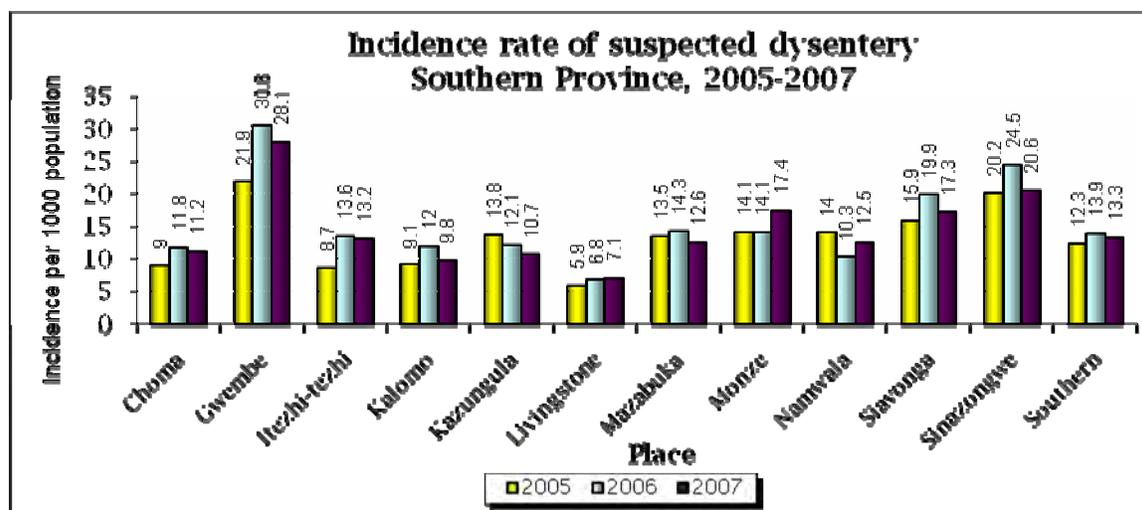


Figure 2.4: Incidence rate of suspected dysentery

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

Trauma was the fourth leading cause of morbidity in Southern Province after respiratory infections non-pneumonia, malaria and diarrhoea non-bloody.

As shown in Table 2.6, the incidence rate in the province among under-fives (62.3 per 1,000 population) was slightly higher than among the older population (58.6 per 1,000 population). Among the districts, the incidence rate in Livingstone (100.8 per 1,000 population) was the highest followed by Itezhi-Tezhi (98.5 per 1,000 population) whilst the lowest was in Kalomo district (34 per 1,000 population).

In the province, the gap in the case fatality rate among the under-fives and the older population was much wider than the gap in the incidence rate. The case fatality rate in hospitals among the under-fives was slightly more than twice as high among the under-fives (21.1 per 1,000 admissions) than among the older population (10.3 per 1,000 admissions).



**Table 2.6: Trauma (accidents, injuries, wounds, burns) 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-five	5 years and above	Total	Under-five	5 years and above	Total
Choma	49.8	52.9	<b>52.3</b>	14.6	14	<b>14.1</b>
Gwembe	74.6	66	<b>67.7</b>	0	0	<b>0</b>
Itezhi-Tezhi	124.8	92	<b>98.5</b>	0	0	<b>0</b>
Kalomo	45.1	33.3	<b>34</b>	37	12.3	<b>17.3</b>
Kazungula	107.1	52.1	<b>63.1</b>	0	0	<b>0</b>
Livingstone	74.8	107.2	<b>100.8</b>	18.6	5.4	<b>6.9</b>
Mazabuka	61.3	61.7	<b>61.6</b>	26.5	17.3	<b>19.3</b>
Monze	45.5	55.9	<b>53.9</b>	15.2	12.6	<b>13</b>
Namwala	52.4	45.9	<b>47.2</b>	65.2	0	<b>16</b>
Siavonga	71.2	64	<b>65.4</b>	52.6	4.8	<b>12.1</b>
Sinazongwe	77.1	63.8	<b>66.4</b>	8.2	6.9	<b>7.2</b>
<b>Province</b>	<b>62.3</b>	<b>58.6</b>	<b>59.3</b>	<b>21.1</b>	<b>10.3</b>	<b>12</b>

Source: HMIS

Figure 2.5 shows that Livingstone recorded the highest incidence rate of trauma in 2005, 2006 and 2007. The respective rates were 81.4, 82.8 and 100.8. The lowest in the respective years were recorded in Kalomo. The respective rates in Kalomo were 39.2, 39.6 and 34.0.

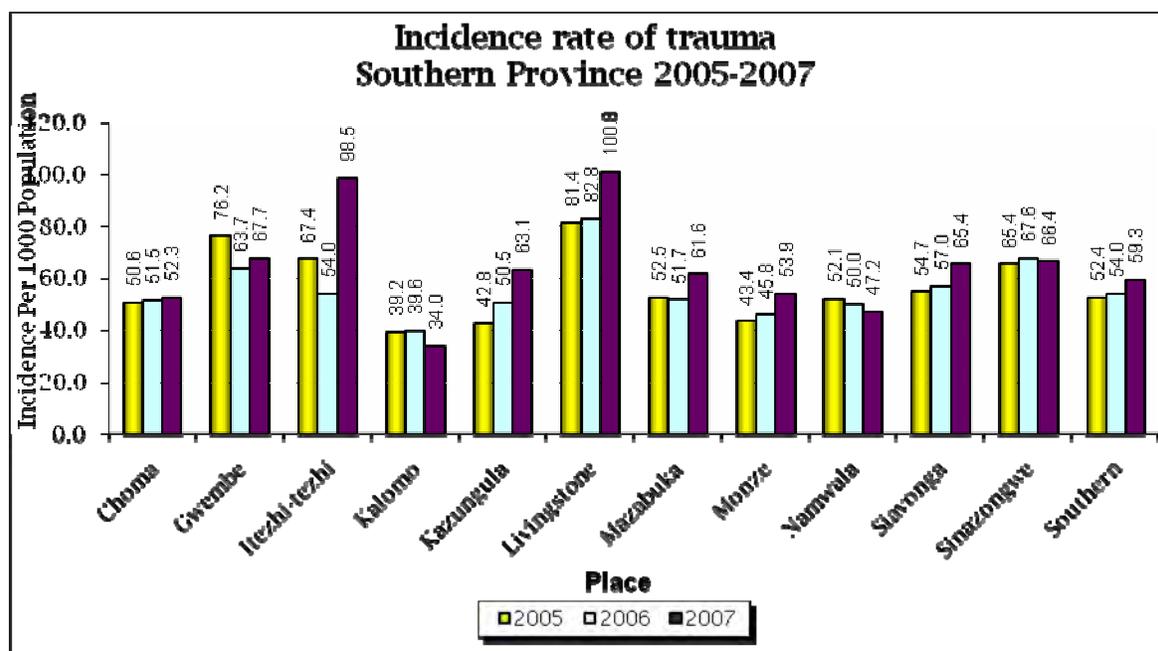


Figure 2.5: Incidence rate of trauma

The incidence of trauma in the province increased every year between 2005 and 2007. It was 52.4, 54.0 and 59.3 per 1,000 population in 2005, 2006, and 2007 respectively. Among the districts, the incidence rate also increased every year in Choma, Kazungula, Livingstone, Monze and Siavonga. In Choma, the incidence rate in the respective years was 50.6, 51.5 and 52.3. In Kazungula, they were 42.8, 50.5 and 63.1, In Monze, 43.4, 45.8 and 53.9 and in Siavonga, 54, 7, 57.0 and 65.4.

### 2.1.5 Skin infections

Skin infections were the fifth leading cause of morbidity in the general population in Southern province in 2007.

As shown in Table 2.5, the incidence rate of skin infection among the under-fives at 119.0 per 1,000 population was about three times higher than among the older population at 35.6 per 1,000 population in 2007.

Among the districts, Itezhi-Tezhi recorded the highest incidence rate of 137.1 per 1,000 population, followed by Kazungula with 73.9 per 1,000 population, whilst Namwala district with an incidence rate of 42.2 recorded the lowest.

Only three districts recorded inpatient case fatalities, of which the highest was in Choma with 151.6 cases per 1,000 population, followed by Mazabuka with 9.7 cases per 1000 population and Monze recorded the lowest at 3 per 1,000 population.

**Table 2.5: Skin Infection Incidence Rate by age group and district, 2005 to 2007**

District	Incidence rate per 1,000 population (All health facilities)			Case Fatality rate per 1,000 admissions (Hospitals only)		
	Under-five	5 years and above	Total	Under-five	5 years and above	Total
Livingstone	89.5	31.2	42.9	0	0	0
Itezhi-Tezhi	289.8	98.9	137.1	0	0	0
Gwembe	119.3	31.7	49.2	0	0	0
Sinazongwe	123	35.9	53.3	0	0	0
Siavonga	163.7	50.7	72.9	0	0	0
Kazungula	178.6	47.7	73.9	0	0	0
Mazabuka	97.3	32.9	45.8	88.3	11.6	9.7
Monze	109.3	37.1	51.6	0	4.2	3
Choma	95.2	25.4	39.3	489.8	8.6	151.6
Namwala	100.6	27.6	42.2	0	0	0
Kalomo	128.3	30.3	49.4	0	0	0
<b>Province</b>	<b>119.0</b>	<b>35.6</b>	<b>52.4</b>	<b>71.8</b>	<b>4.6</b>	<b>27.9</b>

*Source: HMIS*

Figure 2.6, shows that the incidence rate of skin infections was the highest in Itezhi-Tezhi in 2005, 2006 and 2007. The incidence rate also increased in Itezhi-Tezhi from 79.7 in 2005 to 92.9 in 2006 and to 137.1 in 2007. Other districts in which the incidence rate increased every year from 2005 to 2006 and to 2007 were Kazungula, Livingstone, Monze and Sinazongwe. It reduced in Choma and Mazabuka. In Choma, the incidence rate was 77.8 in 2005, 45.3 in 2006 and 39.3 in 2007 while in Mazabuka it was 53.6 in 2005, 51.0 in 2006 and 45.8 in 2007.

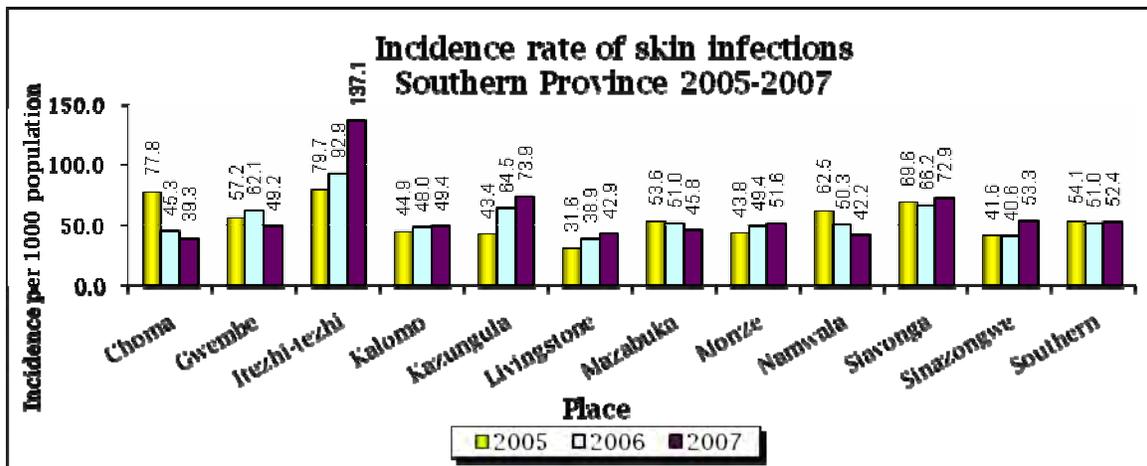


Figure 2.6: Incidence rate of skin infections

## 2.2 Under-five patient case load

This is the proportion of the total under-five outpatient department attendance out of the total outpatient department attendance in all the health facilities. Table 2.6 shows that the districts where the under-five caseload was the highest in 2005, 2006 and 2007 were Gwembe and Siavonga. The lowest was in Livingstone.

Table 2.6: Proportion of children under-five years case load by district, 2005-2007

District	Proportion of children under-five years case load		
	2005	2006	2007
Choma	1.80	2.19	2.00
Gwembe	2.92	3.57	3.15
Itezhi-Tezhi	1.92	2.69	2.31
Kalomo	1.82	1.79	1.53
Kazungula	1.92	2.31	1.61
Livingstone	1.67	1.70	1.65
Mazabuka	1.74	2.03	1.86
Monze	1.84	2.31	2.12
Namwala	2.06	2.37	1.75

Siavonga	2.27	2.83	2.52
Sinazongwe	2.25	2.50	2.54
<b>Province</b>	<b>1.90</b>	<b>2.21</b>	<b>1.96</b>

Source: HMIS

### 2.3 Under-five case fatality rates

Table 2.7 shows case fatality rates among the under-fives by district from 2005 to 2007. The case fatality rate in the province increased from 44.5 per 1000 admissions in 2005 to 48.7 in 2006 and to 51.4 in 2007. Among the districts it also appears to have increased from 55.9 in 2005 to 69.6 in 2006 and to 144.3 in 2007 in Livingstone. It seems to have reduced in Choma from 66.9 in 2005 to 54.3 in 2006 and to 51.0 in 2007. In Gwembe it reduced from 34.8 in 2005 to 32.1 in 2006 and to 26.8 in 2007 as well as in Monze from 45.7 in 2005 to 43.4 in 2006 and to 29.0 in 2007.

**Table 2.7: Under-five years case fatality rate by district, 2005–2007**

District	Under-five years case fatality rates		
	2005	2006	2007
Choma	66.9	54.3	51.8
Gwembe	34.8	32.1	26.8
Itezhi-Tezhi	24.7	126.1	107.1
Kalomo	30.0	40.1	55.6
Kazungula	50.4	144.6	14.9
Livingstone	55.9	69.6	144.3
Mazabuka	57.9	47.8	48.9
Monze	45.7	43.4	29.0
Namwala	68.1	31.9	60.1
Siavonga	53.3	42.5	48.2
Sinazongwe	12.9	34.3	28.7
<b>Province</b>	<b>44.5</b>	<b>48.7</b>	<b>51.4</b>

Source: HMIS

### 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 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

Acute flaccid paralysis is a condition which is mostly found among the population aged less than 15 years old. It is characterised by sudden onset of weakness of the limbs without prior history of injury. The two main acute flaccid paralysis surveillance indicators are non polio acute flaccid paralysis rate measured per 100,000 children less than 15 years and stool adequacy rate. A non acute flaccid paralysis case is determined by an investigation of 2 stools within 14 days of onset. Table 2.8 shows acute flaccid paralysis surveillance performance indicators by district in 2007.

As shown in the Table 2.8, 26 cases were expected to be detected in the province in 2007. However, only 8 were detected. No cases were detected in Choma, Gwembe, Itezhi-Tezhi, Kazungula, and Mazabuka. If no case is detected in a place then the situation is termed "silent".

**Table 2.8: Acute flaccid paralysis surveillance performance indicators by district, 2007**

District	Number of acute flaccid paralysis cases		Stool adequacy percentage
	Expected	Detected	
Choma	4	0	100
Gwembe	1	0	100
Itezhi-Tezhi	1	0	100
Kalomo	4	1	100
Kazungula	1	0	100
Livingstone	2	4	100
Mazabuka	4	0	100
Monze	4	1	100
Namwala	2	1	100
Siavonga	1	1	100
Sinazongwe	2	2	100
<b>Province</b>	<b>26</b>	<b>8</b>	<b>100</b>

*Source: Acute Flaccid Paralysis surveillance database*

*\* Acute Flaccid Paralysis cases with 2 stools within 14 days of onset (1 per 100,000 children less than 15 years of age)*

### 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 2.7 shows that from 2005 to 2007, this rate was above the expected target of 1. It reduced from 2.7 in 2005 to 2.5 in 2006 and to 1.9 in 2007.

### 2.4.3 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%. The stool adequacy rate was 100 per cent in 2007.

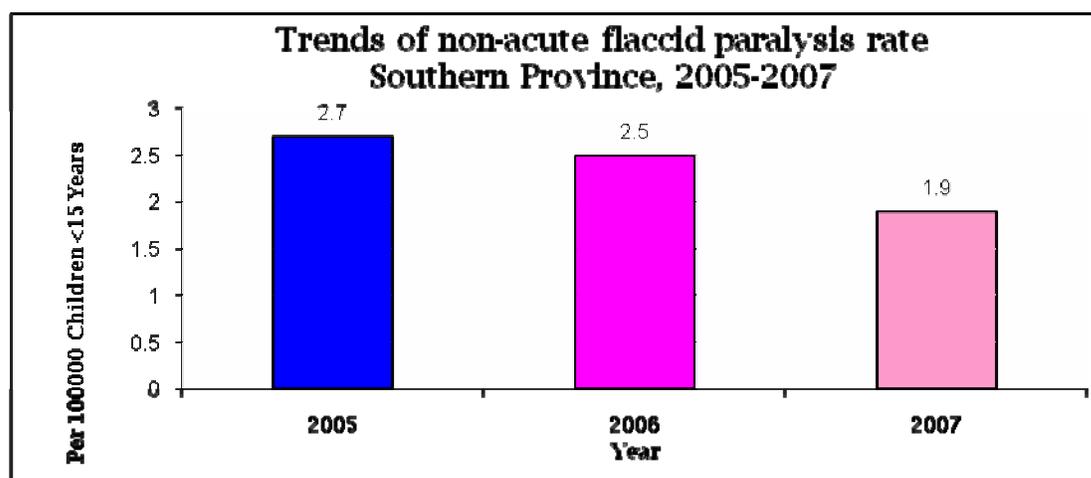


Figure 2.7: Non-acute flaccid paralysis rate

### 2.4.4 Measles

Overall, the incidence rate of suspected measles cases in the province reduced from 1.0 per 1,000 children under-five in 2005 to 0.5 in 2006 and to 0.3 in 2007.

According to Table 2.9, even the absolute number of suspected measles cases among the under-fives and the older population reduced. Among the under-fives, the number reduced from 273 in 2005 to 139 in 2006 and to 79 in 2007. In the older population the number of cases was 336 in 2005, 151 in 2006 and 163 in 2007. Quite unusual there were more cases reported among the population aged 5 years and above than among the under-fives in the three years.

Table 2.9: Measles (suspected) cases reported to health facilities by age and district, 2005-2007

	Under-five years	5 years and above	Incidence rate per 1000 under-five years old children

District	2005	2006	2007	2005	2006	2007	2005	2006	2007
Choma	110	53	43	141	38	132	2.4	1.1	0.9
Gwembe	14	2	0	0	0	0	1.7	0.2	0
Itezhi-Tezhi	16	0	0	7	0	0	1.6	0	0
Kalomo	21	16	16	23	25	17	0.5	0.4	0.4
Kazungula	2	28	0	2	60	0	0.1	1.7	0
Livingstone	29	29	16	32	10	10	1.2	1.2	0.6
Mazabuka	40	8	2	63	13	1	0.8	0.2	0
Monze	12	2	2	6	4	3	0.3	0	0
Namwala	2	1	0	0	1	0	0.1	0	0
Siavonga	15	0	0	37	0	0	1.1	0	0
Sinazongwe	12	0	0	25	0	0	0.6	0	0
<b>Southern</b>	<b>273</b>	<b>139</b>	<b>79</b>	<b>336</b>	<b>151</b>	<b>163</b>	<b>1.0</b>	<b>0.5</b>	<b>0.3</b>

Source: HMIS

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

This section presents data on antiretroviral therapy, PMTCT, tuberculosis and the incidence of STIs in Western Province.

### 3.1 Counselling and testing

Table 3.1 shows that the number of clients counselled for HIV in the province increased from 31,715 in 2006 and to 35,296 in 2007. The number of clients taking an HIV test against the number of clients attending counselling and testing was 15,202 (98 per cent) in 2005, 27,135 (86 per cent) in 2006 and 32,900 (93 per cent) in 2007. By 2007, almost all the clients counselled agreed to take an HIV test in all the districts except in Choma where 72 per cent agreed to take the test and in Siavonga where 62 per cent agreed.

The increase of clients attending counselling and testing could be as a result of the following;

- An increase in the number of HIV testing sites in the districts
- Increase in the mobile HIV counselling and testing
- Increased information education and communication at community level
- Increase in the number of health staff trained in counselling and testing.

Table 3.1: Proportion of clients taking an HIV test

District	Number of counselling and testing clients								
	2005			2006			2007		
	Attended	Testing	Percentage	Attended	Testing	Percentage	Attended	Testing	Percentage
Choma	834	726	87	2,340	2,111	85	3,661	2,494	72
Gwembe	686	685	99	1,070	1,062	99	2,201	2,190	99
Itezhi-Tezhi	324	298	92	410	377	92	848	830	98
Kalomo	3,999	3,981	99	5,480	5,477	99	3,897	3,895	99
Kazungula	-	-	-	3,065	490	16	1,184	1,139	96
Livingstone	6,582	6,502	99	10,431	10,212	97	14,445	14,307	99

Mazabuka	860	852	99	2,564	2,399	94	1,601	1,539	96
Monze	827	802	97	1,674	1,618	97	2,699	2,693	99
Namwala	-	-	-	1,352	1,277	95	735	759	103
Siavonga	1,233	1,142	93	2,131	918	43	2,132	1,322	62
Sinazongwe	229	214	93	1,198	1,194	99	1,893	1,732	92
<b>Province</b>	-	-	-	<b>31,715</b>	<b>27,135</b>	<b>86</b>	<b>35,296</b>	<b>32,900</b>	<b>93</b>

*Source: ZVCT database*

**Note:** HIV/AIDS counselling and testing data for Kazungula and Namwala districts was incomplete at the time of preparing this bulletin.

Table 3.2 shows that the number of clients that took an HIV test doubled between 2006 and 2007. The number was 15,542 in 2006 and 32,141 in 2007. This can be attributed to the rapid scale up in the number of sites providing counselling and testing services. Among the clients, 27 per cent had HIV in 2006.

**Table 3.2: Percentage of counselled clients tested for HIV found to have HIV by district and year**

District	Number of counselling and testing clients								
	2005			2006			2007		
	Tested	Positive	Percentage	Tested	Positive	Percentage	Tested	Positive	Percentage
Choma	726	206	28	2111	803	38	2494	685	27
Gwembe	685	183	27	1062	279	26	2190	359	16
Itezhi-Tezhi	298	75	30	377	145	38	830	81	98
Kalomo	3981	1222	31	5477	259	5	3895	805	21
Kazungula	-	-	-	490	376	77	1139	139	12
Livingstone	6502	1909	29	1075	398	37	14307	3817	27
Mazabuka	852	503	59	2431	1544	64	1539	891	58
Monze	802	309	39	1618	829	51	2693	1578	59
Namwala	-	-	-	1277	914	72	-	-	-
Siavonga	1142	646	57	918	271	30	1322	409	31
Sinazongwe	214	109	51	1194	486	41	1732	486	28
<b>Province</b>	<b>15202</b>	<b>5162</b>	<b>34</b>	<b>15,542</b>	<b>4,219</b>	<b>27</b>	<b>32141</b>	<b>9250</b>	<b>29</b>

*Source: ZVCT database*

### 3.2 Prevention of HIV transmission from mothers to their infants

There are many stages in the prevention of HIV transmission from mothers to their infants because HIV can be transmitted at many stages. The means to prevent HIV transmission at these stages is different. In order for pregnant women to make informed decisions that would favour a healthy pregnancy and delivery, they need information. HIV counselling is routinely offered to all antenatal care attendees in order to maximise the opportunities to prevent the transmission of HIV from mothers to their infants.

### **3.2.1 Antenatal HIV testing**

Women attending antenatal clinic for the first time in a pregnancy are counselled about HIV and the risk of transmission to the unborn infant and after birth. They are then offered an HIV test so that they can be enrolled in a step by step programme to prevent HIV transmission to the infant in case they are already infected. Table 3.3 shows the percentage of pregnant women attending antenatal clinic who took an HIV test on their first antenatal clinic in 2007.

The desired goal is for all women attending antenatal clinic to accept to be tested for HIV. The table shows that the percentage of pregnant women attending antenatal clinic who took an HIV test on their first antenatal clinic in 2007 was the highest in Livingstone at 99 per cent followed by Mazabuka at 90 per cent and then Siavonga at 82 per cent. In the province, 57 per cent of the pregnant women were tested for HIV on their first visit to the antenatal clinic.

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

District	Antenatal first visits	Tested for HIV	Percentage tested
Choma	12,635	5,037	40
Gwembe	2,701	1,182	44
Itezhi-Tezhi	2,767	2,571	71
Kalomo	11,370	4,617	41
Kazungula	4,111	843	21
Livingstone	5,322	5,321	99
Mazabuka	11,344	10,150	90
Monze	10,504	6,314	60
Namwala	4,747	1,604	34
Siavonga	4,985	4,085	82
Sinazongwe	5,227	1,314	25
<b>Province</b>	<b>75,258</b>	<b>43,038</b>	<b>57</b>

*Source: ZVCT database*

### 3.2.2 Antenatal women tested for HIV found with HIV

Table 3.4 shows that 43,038 pregnant women who attended antenatal clinic in the province in 2007 were tested for HIV on their first antenatal care visit. Of these 6263 (15 per cent) tested positive for HIV. Among the districts, the highest HIV prevalence among these women was in Kalomo (30 per cent followed by Livingstone (26 per cent). The lowest was in Gwembe and Sinazongwe where the HIV prevalence was 8 per cent.

**Table 3.4: Number of pregnant women attending antenatal clinic for the first time in the pregnancy tested for HIV and the percentage testing positive by district, 2007.**

District	Tested for HIV	Tested positive	Percentage positive
Choma	5,037	501	10
Gwembe	1,182	97	8
Itezhi-Tezhi	2,571	126	5
Kalomo	4617	1,376	30
Kazungula	843	109	13
Livingstone	5321	1,358	26
Mazabuka	10,150	1,111	11
Monze	6,314	786	12
Namwala	1,604	261	16
Siavonga	4,085	436	11
Sinazongwe	1,314	102	8
<b>Province</b>	<b>43,038</b>	<b>6,263</b>	<b>15</b>

*Source: ZVCT database*

### **3.2.3 Antiretroviral prophylaxis**

Table 3.5 shows the number of babies given antiretrovirals to prevent HIV transmission out of the total number borne by mothers with HIV.

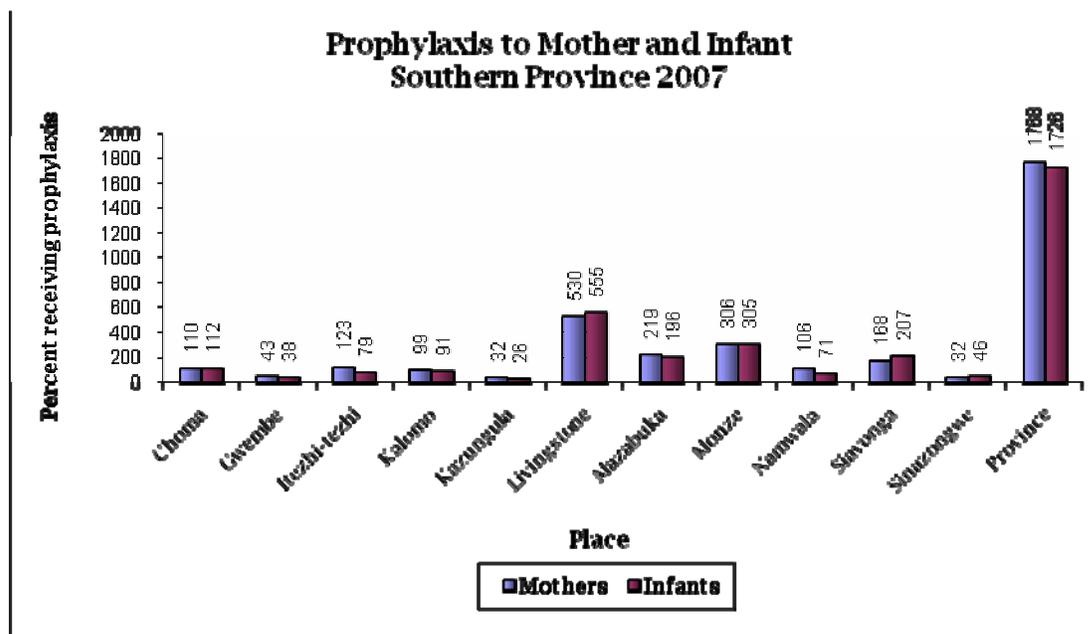
In the province, 85 per cent of babies born to mothers found with HIV were given antiretrovirals to reduce the chances of contracting HIV from their mothers. More than 90 per cent of these mothers in Monze, Siavonga, Choma, Livingstone and Kalomo were given antiretrovirals but only 34 per cent in Kazungula.

**Table 3.5: Proportion of HIV-exposed babies given antiretroviral therapy by district, 2007.**

District	Births exposed to HIV	Number given antiretroviral prophylaxis	Percentage of HIV-exposed babies given antiretroviral prophylaxis
Choma	117	112	96
Gwembe	66	38	58
Itezhi-Tezhi	123	79	64
Kalomo	99	91	92
Kazungula	76	26	34
Livingstone	579	549	95
Mazabuka	271	196	72
Monze	306	305	99
Namwala	106	71	67
Siavonga	213	207	97
Sinazongwe	41	30	74
<b>Province</b>	<b>1,997</b>	<b>1,704</b>	<b>85</b>

Source: ZVCT database

Figure 3.1 shows the number of mothers and babies who were given antiretrovirals to prevent the transmission of HIV from mothers to babies.



**Figure 3.1: Antiretroviral prophylaxis for preventing the transmission of HIV from mothers to babies**

### 3.3 Antiretroviral therapy

#### 3.3.1 Ever-enrolled on antiretroviral therapy

Table 3.6 shows the total number of patients by sex that have ever been on antiretroviral therapy. The total number of patients ever enrolled on antiretroviral therapy increased from 11,400 in 2006 to 18,603 in 2007. In the whole province, there were more females enrolled on antiretroviral therapy than males in both 2006 and 2007. A total cumulative number of 6,831 females and 4569 males were enrolled in 2006. In 2007, 10,859 females were enrolled as compared to 7,714 males. In 2006, more females than males had ever been on antiretroviral therapy in all the districts. However, in 2007 more males than females had ever been on antiretroviral therapy in Itezhi-Tezhi, Kazungula and Namwala.

**Table 3.6: Cumulative number of patients ever enrolled on antiretroviral therapy by district, 2006-2007.**

District	2006			2007		
	Males	Females	Total	Males	Females	Total
Choma	825	1,383	2,208	1,116	1,643	2,759
Gwembe	80	126	206	114	168	282
Itezhi-Tezhi	65	99	164	189	187	376
Kalomo	389	583	972	505	755	1,260
Kazungula	32	64	96	225	166	421
Livingstone	794	1,095	1,889	1,221	1,588	2,809
Mazabuka	1,031	1,364	2,395	1,650	2,462	4,112
Monze	930	1,453	2,383	1,514	2,395	3,909
Namwala	115	216	331	306	208	514
Siavonga	69	116	185	548	897	1,445
Sinazongwe	239	332	571	326	390	716
<b>Province</b>	<b>4,569</b>	<b>6,831</b>	<b>11,400</b>	<b>7,714</b>	<b>10,859</b>	<b>1,8603</b>

*Source: HMIS*

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

Apart from Kalomo and Kazungula, the enrolment target was exceeded in all the districts in both 2006 and 2007. This could indicate a positive shift in perceptions towards HIV and that the population is willing to utilise the life saving antiretroviral therapy. It also entails that the public health facilities should strengthen their preparedness in the provision of antiretroviral therapy so that demand does not overwhelm the facilities.

**Table 3.7: Proportion ever on antiretroviral therapy against target by district and year, Southern Province.**

District	2006			2007		
	Target	On antiretroviral therapy	Percentage achieved	Target	On antiretroviral therapy	Percentage achieved
Choma	1,937	2,208	114	2,369	2,759	116
Gwembe	132	207	157	161	282	175
Itezhi-Tezhi	168	319	190	204	376	181
Kalomo	1,683	972	58	2,051	1,260	61
Kazungula	662	202	31	807	421	52
Livingstone	1,781	3,013	169	2,172	2,809	129
Mazabuka	2,411	2,601	108	2,940	4,112	140
Monze	1,657	2,596	157	2,021	3,909	193
Namwala	337	476	141	410	514	125
Siavonga	766	1,356	177	935	1,445	155
Sinazongwe	321	571	178	391	716	183
<b>Province</b>	<b>11,855</b>	<b>14,153</b>	<b>119</b>	<b>14,460</b>	<b>18,603</b>	<b>129</b>

Source: HMIS

### 3.3.3 Currently on antiretroviral therapy by end the year 2007

In Table 3.8, it appears that in 2006 and 2007, more girls were on antiretroviral therapy than boys. In 2006, more girls were on antiretroviral therapy than boys in Choma, Gwembe, Itezhi-Tezhi, Livingstone, Mazabuka, Monze and Siavonga. In 2007, it was in Choma, Kazungula, Mazabuka, Monze, Siavonga and Sinazongwe. Does it suggest that females who are more likely to be on antiretroviral therapy than males are more likely to put their daughters on therapy than their sons because of the closer bond with their daughters?

**Table 3.8: Patients currently on antiretroviral therapy by age and sex at end of each year by district, Southern Province**

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	
Choma	58	67	663	1,141	1,929	58	76	979	1,643	2,756
Gwembe	11	12	69	114	206	16	16	98	152	282
Itezhi-Tezhi	2	6	63	43	114	15	8	174	179	376
Kalomo	50	26	339	557	972	53	34	452	721	1,260
Kazungula	7	1	64	32	104	9	13	157	216	395
Livingstone	90	99	884	1,304	2,377	159	157	1,245	1,529	3,090
Mazabuka	43	79	988	1,285	2,395	63	100	1,250	1,622	3,035
Monze	31	52	726	1,716	2,525	53	63	980	1,828	2,924
Namwala	7	5	102	240	354	23	17	181	281	502
Siavonga	0	4	75	112	191	4	6	80	127	217
Sinazongwe	2	1	66	87	156	11	14	135	166	326

Province	301	352	4039	6,631	11,323	464	504	5731	8,464	15,163
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Source: HMIS

### 3.4 Tuberculosis

Tuberculosis is also a notifiable disease caused by bacteria Mycobacterium Tuberculosis. It usually affects the lungs although other parts of the body are also affected. Currently in the province the notifications have increased posing a threat on the community and a possible epidemic. The diagnosis is based on laboratory investigation (sputum smear) on anyone who has been coughing for more than two weeks, has night sweats and has lost weight. Sputum examination confirms the diagnosis and gives an indication of the correct drug regimen.

#### 3.4.1 Tuberculosis notifications 2007

Table 3.9 shows the number of tuberculosis notifications per district in the province in 2007. The total notifications in the province were 6,012 of which 3,094 (51 per cent) were females and 2,918 (49 per cent) were males. Out of the total notifications 1,103 (18 per cent) were sputum smear positive. Of the sputum smear positives, 55 per cent were males and 45 per cent were females. Livingstone district had the highest number of notifications at 1,858, followed by Monze 1,102 and Choma 1,034 while Gwembe recorded the lowest notifications of 54.

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

Tuberculosis cure rate is the proportion of new smear positive cases that completed treatment with negative sputum smear results after 8 months of treatment. Tuberculosis completion rate is the proportion sputum cases that completed treatment at 8 months without doing a smear at the end of treatment.

Table 3.10 shows provincial and district cure rates for 2005, 2006 and 2007. In the province, the cure rate was below the national cure rate target of 85 per cent i.e. 77 per cent in 2005, 79 per cent in 2006 and 79 per cent in 2007. Among the districts, the cure rate was above the national target in some years. It was 87 per cent in Itezhi-Tezhi, 91 per cent in Kazungula, and 86 per cent in Mazabuka in 2005. In 2006, it was above the national target in Gwembe (92 per cent), Kazungula (94 per cent), Livingstone (86 per cent), Monze 90 per cent and Sinazongwe 87 (87 per cent). In 2007, it was also above the national target in Kazungula. Other districts in which it was above the national target were Mazabuka (86 per cent) and Namwala (92 per cent).

**Table 3.9: Tuberculosis notifications by type, district and sex, 2007**

District	Sex	Notifications by type							Total
		Sputum Smear		Extra pulmonary tuberculosis	Relapse positive	Others previously treated	Treatment after default	Treatment after Failure	
		Positive	Negative						
Choma	Male	68	324	60	11	86	1	0	550
	Female	51	286	70	5	70	2	0	484
	<b>Total</b>	<b>119</b>	<b>610</b>	<b>130</b>	<b>16</b>	<b>156</b>	<b>3</b>	<b>0</b>	<b>1,034</b>
Gwembe	Male	7	14	6	0	1	1	0	29
	Female	9	14	2	0	0	0	0	25
	<b>Total</b>	<b>16</b>	<b>28</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>54</b>
Itezhi-Tezhi	Male	18	21	18	3	0	6	0	66
	Female	21	53	4	2	0	2	0	82
	<b>Total</b>	<b>39</b>	<b>74</b>	<b>22</b>	<b>5</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>148</b>
Kalomo	Male	40	92	26	7	20	2	0	187
	Female	35	117	31	4	25	1	0	213
	<b>Total</b>	<b>75</b>	<b>209</b>	<b>57</b>	<b>11</b>	<b>45</b>	<b>3</b>	<b>0</b>	<b>400</b>
Kazungula	Male	19	43	6	6	4	1	0	79
	Female	12	52	4	4	7	1	0	80
	<b>Total</b>	<b>31</b>	<b>95</b>	<b>10</b>	<b>10</b>	<b>11</b>	<b>2</b>	<b>0</b>	<b>159</b>
Livingstone	Male	217	290	213	87	82	8	0	897
	Female	169	389	289	28	86	0	0	961
	<b>Total</b>	<b>386</b>	<b>579</b>	<b>492</b>	<b>65</b>	<b>168</b>	<b>8</b>	<b>0</b>	<b>1,858</b>
Mazabuka	Male	114	166	86	19	11	3	0	285
	Female	72	125	123	16	16	2	0	354
	<b>Total</b>	<b>186</b>	<b>291</b>	<b>209</b>	<b>35</b>	<b>27</b>	<b>5</b>	<b>0</b>	<b>639</b>
Monze	Male	62	331	76	10	34	11	0	524
	Female	70	386	64	9	44	5	0	578
	<b>Total</b>	<b>132</b>	<b>717</b>	<b>140</b>	<b>19</b>	<b>78</b>	<b>16</b>	<b>0</b>	<b>1,102</b>
Namwala	Male	12	81	32	1	11	0	0	137
	Female	12	109	37	0	20	0	0	178
	<b>Total</b>	<b>24</b>	<b>190</b>	<b>69</b>	<b>1</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>315</b>
Siavonga	Male	21	16	46	3	0	4	0	90
	Female	19	10	26	7	0	1	0	63
	<b>Total</b>	<b>40</b>	<b>26</b>	<b>62</b>	<b>10</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>153</b>
Sinazongwe	Male	25	24	12	7	4	2	0	74
	Female	28	25	9	6	7	1	0	76
	<b>Total</b>	<b>55</b>	<b>49</b>	<b>21</b>	<b>13</b>	<b>11</b>	<b>3</b>	<b>0</b>	<b>150</b>
Province	Male	603	1407	581	154	253	39	0	2,918
	Female	498	1566	659	81	275	15	0	3,094
	<b>Total</b>	<b>1103</b>	<b>2868</b>	<b>1220</b>	<b>185</b>	<b>528</b>	<b>54</b>	<b>0</b>	<b>6,012</b>

Source: Tuberculosis database

The treatment completion rate reduced from 8 per cent in 2005 to 5 per cent in 2006 and to 3 per cent in 2007. The treatment success rate was 85 per cent in 2005, 85 per cent in 2006 and 84 per cent in 2007.

**Table 3.10: Tuberculosis Cure Rate 2005 to 2007**

District	Cure rate			Completion rate ( per cent)			Treatment success ( per cent)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Choma	67	58	83	7	6	1	74	64	84
Gwembe	50	92	50	13	0	0	63	92	50
Itezhi-Tezhi	87	67	83	3	7	7	94	74	90
Kalomo	78	85	60	1	3	0	79	88	82
Kazungula	91	94	96	0	0	0	91	94	96
Livingstone	83	86	79	0	0	3	83	86	82
Mazabuka	86	84	86	2	1	1	88	85	87
Monze	81	90	84	10	6	5	91	96	89
Namwala	72	50	92	22	28	0	94	78	92
Siavonga	73	78	79	9	4	0	82	82	79
Sinazongwe	76	87	78	18	4	13	94	91	91
<b>Province</b>	<b>77</b>	<b>79</b>	<b>79</b>	<b>8</b>	<b>5</b>	<b>3</b>	<b>85</b>	<b>85</b>	<b>84</b>

*Source: Tuberculosis Database*

### 3.5 Sexually transmitted infections

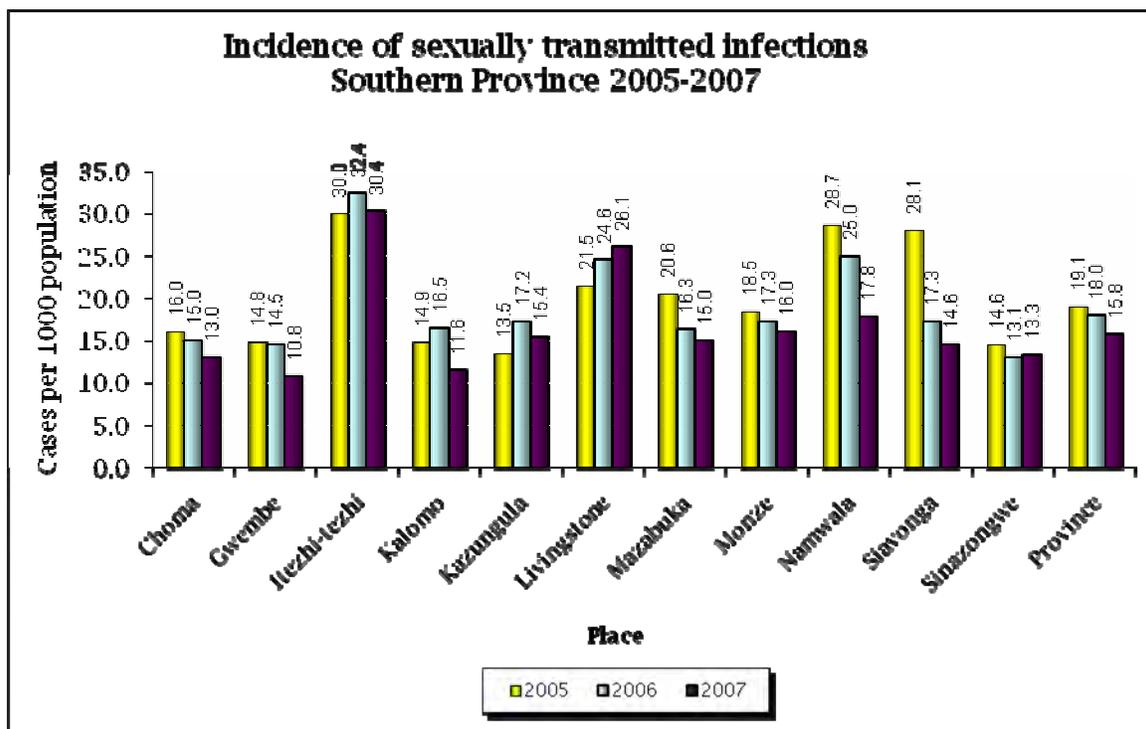
Table 3.11 shows STI incidence rate for 2007. This is the number of cases of STIs per 1,000 population by district. The incidence rate in the province was 15.8. The table indicates a high incidence of STIs in Itezhi-Tezhi at 30.4 followed by Livingstone at 26.1. The lowest at 10.8 was in Gwembe.

Figure 3.2 shows that the incidence of sexually transmitted infections in the province reduced from 19.1 in 2005 to 18.0 in 2006 and to 15.8 in 2007. Among the districts, the incidence of STIs also reduced every year between 2005 and 2006 in Choma, Gwembe, Mazabuka, Monze, Namwala, Siavonga and Sinazongwe. The only district in which the incidence of STIs increased every year in this period was in Livingstone. In Livingstone, the incidence rate was 21.5 per 1000 in 2005, 24.6 in 2006 and 26.1 in 2007.

**Table 3.11: Sexually transmitted infection incidence, 2007**

District	Incidence rate per 1,000 population (All health facilities)		
	Under-five	5 years and above	Total
Choma	0.4	16.2	13.0
Gwembe	0	13.5	10.8
Itezhi-Tezhi	0	38	30.4
Kalomo	0.1	14.3	11.6
Kazungula	0	19.2	15.4
Livingstone	0.6	32.4	26.1
Mazabuka	0.1	18.7	15.0
Monze	0	20.0	16.0
Namwala	0	22.2	17.8
Siavonga	0.1	18.2	14.6
Sinazongwe	0.1	16.6	13.3
<b>Province</b>	<b>0.1</b>	<b>9.6</b>	<b>15.8</b>

Source: HMIS



**Figure 3.2: Incidence rate of sexually transmitted infections**

## Chapter 4: Human resources

The effective delivery of health care cannot be accomplished without adequate human resources. Indicators in this chapter shed some light about the human resources challenges for health care delivery in Southern province.

### 4.1 Number of medical personnel by district

As shown in Table 4.1, there were 68 medical doctors in the province in 2007. Most of these (24 out of the 68) representing 35 per cent were in Livingstone followed by Choma with 12 (18 per cent). There was no medical doctor in Kazungula and there was only 1 doctor in Gwembe, Itezhi-Tezhi and Kalomo. There was no doctor in Kazungula. The highest number of nurses (173) and mid-wives (110) was in Livingstone as well. However, the highest number of clinical officers (35) was in Mazabuka. There was a disproportionately high number of medical staff in districts with small populations such as Livingstone and Siavonga.

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

Districts	Staff Cadre							
	Medical Doctors	Clinical Officers	Nurses	Mid-wives	Environmental Health Officers/Technicians	Pharmacists	Laboratory Technicians	Others
Choma	12	32	191	39	32	2	7	249
Gwembe	1	8	24	16	11	0	2	46
Itezhi-Tezhi	1	4	21	1	8	0	1	48
Kalomo	1	20	47	36	12	1	3	137
Kazungula	0	3	21	8	13	1	1	52
Livingstone	24	32	173	110	16	4	9	181
Mazabuka	8	35	124	88	29	0	9	127
Monze	8	33	91	63	24	1	6	132
Namwala	2	9	38	19	10	1	1	92
Siavonga	6	9	43	25	13	1	4	65
Sinazongwe	5	14	68	31	13	1	2	101
<b>Province</b>	<b>68</b>	<b>199</b>	<b>841</b>	<b>436</b>	<b>181</b>	<b>12</b>	<b>45</b>	<b>1230</b>

Source: HMIS

### 4.2 Health centre staff daily contacts

The health centre daily staff contacts measures the average number of contacts each qualified health worker in a health centre attends to over a period. The overall number of contacts seen in a given period is shared among the total number of qualified health workers available in the same period excluding holidays and weekends. A qualified health worker refers to medical doctors, nurses, environmental health technicians and

clinical officers working in the outpatient department, maternal and child health department and inpatient department.

Figure 4.1 shows that among the districts, the highest number of average daily staff contacts in 2005, 2006 and 2007 were in Itezhi-Tezhi. The least were in Livingstone. That suggests that there were fewer staff in Itezhi-Tezhi than in Livingstone for the demand. The staff contacts in Itezhi-Tezhi also increased yearly while those in Livingstone and Sinazongwe decreased.

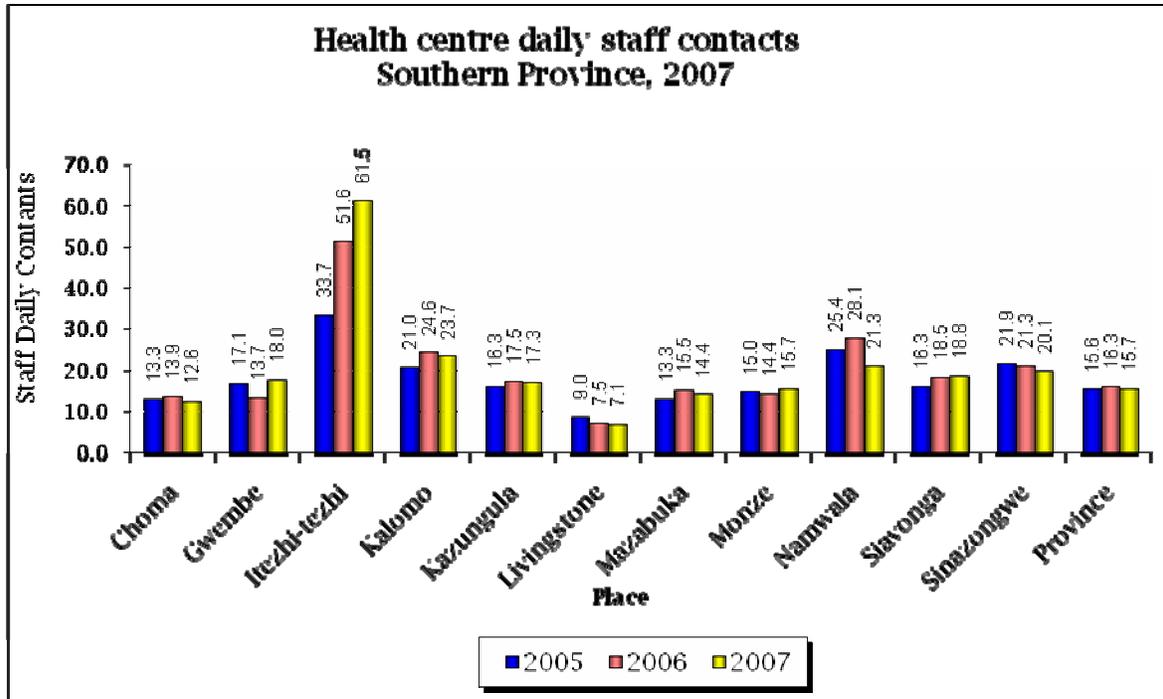


Figure 4.1: Health centre staff daily contacts

### 4.3 Deliveries by trained Traditional Birth Attendants

Trained Traditional Birth Attendants (tTBAs) are charged with the responsibility of assisting women deliver in hygienic conditions at community level Community. However, currently the policy on tTBAs is has emphasis on them providing promotive services and encouraging women to utilise professionals at health facilities.

Table 4.2 shows that the number of active tTBAs and their average number of deliveries reduced yearly between 2005 and 2007 in the province. This was consistent with the revised policy on tTBAs. The number of tTBAs reduced from 932 in 2005 to 897 in 2006 and to 893 in 2007 while their average number of deliveries reduced from 19 in 2005 to 18 in 2006 and to 17 in 2007.

**Table 4.2: Number of active trained traditional birth attendants and deliveries they conducted, 2005-2007**

District	2005			2006			2007		
	Active tTBAs	Deliveries		Active tTBAs	Deliveries		Active tTBAs	Deliveries	
		Actual	Average		Actual	Average		Actual	Average
Choma	196	3184	16	210	2713	13	201	2378	12
Gwembe	50	762	15	47	654	14	60	896	15
Itezhi-Tezhi	43	1071	15	32	969	30	50	1123	22
Kalomo	91	2091	23	97	2658	27	70	2038	29
Kazungula	80	698	9	69	789	11	58	779	13
Livingstone	22	178	8	14	79	6	40	113	3
Mazabuka	111	1606	14	113	1540	14	106	1282	12
Monze	131	4071	31	116	3181	27	123	3085	25
Namwala	86	1688	20	74	1346	18	93	1328	14
Siavonga	17	240	14	19	264	14	16	182	11
Sinazongwe	105	2180	21	107	2366	22	103	2188	21
<b>Province</b>	<b>932</b>	<b>17768</b>	<b>19</b>	<b>897</b>	<b>16559</b>	<b>18</b>	<b>893</b>	<b>15392</b>	<b>17</b>

Source: HMIS

#### 4.4 Patients attended to by community health workers

Community health workers are trained in basic preventive and curative care of minor ailments. As a result, they refer most cases to the next level of health care.

There was a drastic reduction in the average number of patients attended to by community health workers in the province from seen by provincial picture shows a reduction in the number of patients seen by community health workers from 823 in 2005 to 803 in 2006 and to 310 in 2007. As shown in Table 4.3, the number of community health workers also reduced from 856 in 2005 to 817 in 2006 and to 730 in 2007.

Among the districts, the lowest number of community health workers in 2005, 2006 and 2007 were in Livingstone. There were 21 in 2005, 13 in 2006 and 10 in 2007. The lowest average number of patients attended to was also in Livingstone in each of these years. They were 210 in 2005, 210 in 2006 and 310 in 2007. The highest number of community health workers among the districts in 2005 was in Choma (141), in 2006 in Choma and Namwala (157) and in 2007, in Choma (204). The highest average number of patients attended to by community health workers in 2005 was in Namwala (1375), in 2006 in Sinazongwe (932) and in 2007 in Namwala (540).

**Table 4.3: Number of active community health workers and patients attended to by them, 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
Choma	141	117,788	835	157	122,318	779	204	30,007	147
Gwembe	48	35,621	742	68	22,756	335	59	6,638	113
Itezhi-Tezhi	68	31,245	459	37	32,657	883	36	13,042	362
Kalomo	75	52,858	705	88	47,879	544	48	20,559	428
Kazungula	79	72,258	915	80	74,071	926	92	29,918	325
Livingstone	21	4,403	210	13	2,733	210	10	3,099	310
Mazabuka	102	65,645	644	87	59,539	684	49	23,954	489
Monze	131	123,495	943	107	100,093	935	67	27,036	404
Namwala	71	97,656	1,375	157	93,434	595	68	36,751	540
Siavonga	27	16,512	612	27	19,704	730	23	6,422	279
Sinazongwe	94	86,650	922	87	81,081	932	75	28,667	382
<b>Province</b>	<b>856</b>	<b>704,131</b>	<b>823</b>	<b>817</b>	<b>656,265</b>	<b>803</b>	<b>730</b>	<b>226,093</b>	<b>310</b>

Source: HMIS

## Chapter 5: Availability of drugs

The drugs and supplies indicators show utilisation and stock management of basic drugs and supplies. The demand for provision of quality health services is determined by among other factors, availability of essential drugs, supplies and equipment. The indicators also provide information on consumption and rational use of pharmaceuticals.

In summary, the drugs and supplies indicators monitor the following:

- Utilisation of basic drugs and supplies
- Stock management, to avoid outages and overstocking
- Prescription patterns, to support the rational use of pharmaceuticals

### 5.1 Medical supplies in stock at health facilities

This indicator measures the proportion of months during a period that supplies were in stock throughout the whole month at health centres and hospitals. The supplies considered in the health centres include first line anti-malarial drug Coartem or Fansidar, Paracetamol, Cotrimoxazole, Oral Contraceptives, BCG, OPV, DPT-Hib+HepB, Measles and Tetanus Toxoid vaccines.

In the hospitals, the following are considered essential items: Fansidar, Benzyl Penicillin, Amoxycillin, Rifampicin/Isoniazid, Ketamine, Lancets, Rapid Plasma Reagent kits and HIV kits.

### 5.2 Availability of critical drugs in health centres and hospitals

The stocks of drugs in hospitals were better than in health centres in the province. Table 5.1 shows that the percentage of months for which drugs were in stock for the whole month in health centres was 71 per cent in 2005, 70 per cent in 2006 and 72 per cent in 2007. In hospitals it was 83 per cent, 85 per cent and 82 per cent in the respective years. In the part of the month that drugs were not available, patients were given prescriptions to purchase the drugs. This can discontent the community.

The highest consumption of essential drugs was noted in Luangwa district with stock levels of 66 per cent in 2005-2006 and 50 per cent in 2007. The district with average stock was Kafue with 92 per cent in 2005, 95 per cent in 2006 and 87 per cent in 2007.

Among the districts there was no stock-out at the hospital in Namwala in 2005, 2006 and 2007. This was nearly the situation in Monze except that it was 99 per cent in 2006.

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

District	Percentage of complete months in stock in health centres			Percentage of complete months in stock in hospitals			Percentage of complete months in stock in both health centres and hospitals		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Choma	68	75	71	96	86	96	82	81	84
Gwembe	79	76	67	100	82	69	89	79	68
Itezhi-Tezhi	74	78	80	99	93	93	86	85	87
Kalomo	57	54	53	86	96	84	72	75	69
Kazungula	80	77	84	N/A	N/A	N/A	40	39	42
Livingstone	88	85	83	89	82	81	89	84	82
Mazabuka	61	66	73	52	60	66	57	63	70
Monze	80	78	77	100	99	100	90	89	89
Namwala	82	73	78	100	100	100	91	87	89
Siavonga	67	63	61	73	95	96	70	79	79
Sinazongwe	75	68	76	83	84	70	79	76	83
<b>Province</b>	<b>71</b>	<b>70</b>	<b>72</b>	<b>83</b>	<b>85</b>	<b>82</b>	<b>77</b>	<b>78</b>	<b>77</b>

Source: HMIS

Note: Kazungula district does not have a district hospital and hence the blanks in the hospital columns.

### 5.3 Availability of tracer drugs

As shown in Table 5.2, stocks of tracer drugs were better in hospitals than in health centres. Anti-malarial drugs were not in stock for some days in almost all the months in health centres in 2005, 2006 and 2007. They were in stock the whole month for only 20 per cent of the months in 2005, 1 per cent in 2006 and 1 per cent in 2007.

**Table 5.2: Percentage of months in which tracer drugs were available, 2005-2007**

Name of drug	Health centre			Name of drug	Hospital		
	Year				Year		
	2005	2006	2007		2005	2006	2007
Anti-malarial	20	1	1	Fansidar	87	91	83
Paracetamol	86	84	82	Amoxicillin	82	93	88
Cotrimoxazole	66	68	77	Benzyl Penicillin	85	93	91

Source: HMIS

### 5.4 Drug kit utilisation in health centres

The standard health centre drug kit is intended to serve 1,000 patients. However, this does not automatically result into 1,000 patients being served. Some drug kits are opened but it's inevitable that some drugs would be exhausted faster than others. Kits are sometimes opened just to utilise one item which has run out in the other kit.

Figure 5.1 shows that drug kit utilisation in all the health centres in the province reduced from 1.2 per 1,000 patients in 2005 to 0.9 in 2006 and to 0.8 in 2007. Namwala recorded the highest drug kit utilisation in health centres for 2005, followed by Monze, Kalomo and Itezhi-Tezhi; while Gwembe recorded the lowest followed by Siavonga. Most districts recorded a drop in drug kit utilisation between 2006 and 2007 except Kazungula which recorded an increase.

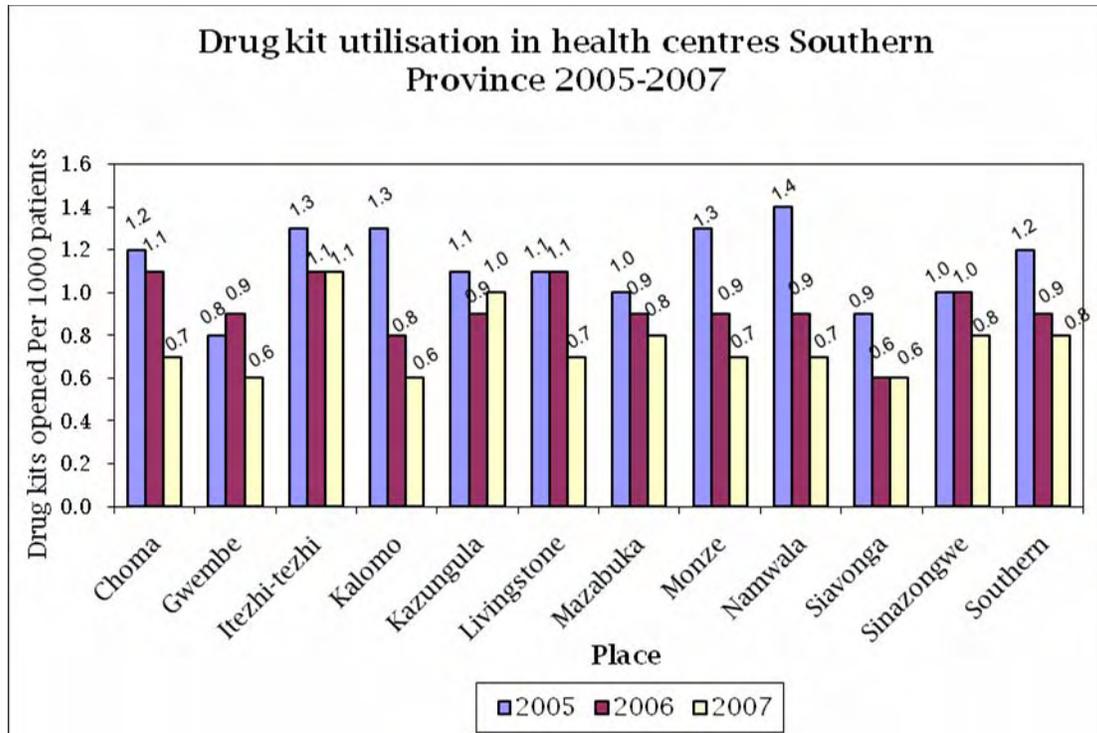


Figure 5.1: Drug kit utilisation

## Chapter 6: Health service 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. There was a slight reduction in the average length of stay in hospitals from 6.0 days in 2005 to 5.7 days in 2006 and to 5.4 days in 2007. The trend of other indicators fluctuated.

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

Indicator	Period in years		
	2005	2006	2007
Health centre outpatient department utilisation	0.9	1.1	1.0
Health centre under-five per capita attendance	2.9	3.2	2.7
Health centre over 5 per capita attendance	0.9	1.1	1.1
Health centre bed occupancy rate	16.0	18.0	14.0
Hospital bed occupancy rate	49.0	42.0	44.0
Hospital average length of stay	6.0	5.7	5.4

*Source: HMIS*

### 6.2 Outpatient department utilisation

Outpatient department utilisation is defined as the average number of outpatient department attendances at health facilities by the catchment population in 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 health facility outpatient departments are under-utilised, measures to improve the quality of service and accessibility by the general public need to be taken.

As shown in Table 6.2, the overall outpatient department utilisation in the province increased from 9.9 in 2005 to 12.8 in 2006. Among the districts, the table also shows that the lowest outpatient department attendance in 2005, 2006 and 2007 was in Livingstone. It was 0.7 in 2005, 2006 and 2009.

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

District	Outpatient department utilisation rate		
	2005	2006	2007
Choma	0.9	1.1	1.0
Gwembe	1.2	1.2	1.5
Itezhi-Tezhi	0.9	1.5	1.5
Kalomo	1.0	0.9	0.8
Kazungula	0.8	1.5	0.9
Livingstone	0.7	0.7	0.7
Mazabuka	0.9	1.1	1.0
Monze	0.8	1.2	1.2
Namwala	0.9	1.2	0.9
Siavonga	0.9	1.3	1.3
Sinazongwe	0.9	1.1	1.2
<b>Province</b>	<b>0.9</b>	<b>1.2</b>	<b>1.1</b>

Source: HMIS

### 6.2.1 Health centre per capita attendance

As shown in Table 6.3, the per capita attendance for those aged 5 years and above increased in most of the districts in the province between 2005 and 2007. This was after the abolition of user fees in rural areas in 2005. User fees mostly affected the adults because children could receive most health services free of charge before the abolition of user fees.

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

District	2005			2006			2007		
	Under-five year	5 years and above	Total	Under-five year	5 years and above	Total	Under-five year	5 years and above	Total
Choma	2.8	1.1	3.9	3.2	1.1	4.3	2.8	1.1	3.9
Gwembe	3.7	0.9	4.6	4.3	1.4	5.7	4.1	1.4	5.5
Itezhi-Tezhi	3.4	1.1	4.5	4.1	1.9	6.0	3.7	2.1	5.8
Kalomo	2.8	0.6	3.4	2.7	0.9	3.6	2.2	0.8	3.0
Kazungula	2.8	0.8	3.6	3.3	1.1	4.4	2.4	0.9	3.3
Livingstone	3.1	0.9	4.0	3.0	0.9	3.9	2.9	0.9	3.8
Mazabuka	2.5	0.9	3.4	2.8	1.1	3.9	2.3	0.9	3.2
Monze	2.6	0.8	3.4	3.1	1.2	4.3	2.8	1.2	4.0
Namwala	3.7	0.9	4.6	3.8	1.2	5.0	2.6	0.9	3.5
Siavonga	3.0	0.9	3.9	3.7	1.2	4.9	3.6	1.3	4.9
Sinazongwe	3.1	0.9	4.0	3.4	1.1	4.5	3.3	1.1	4.4
<b>Province</b>	<b>3.0</b>	<b>0.9</b>	<b>3.9</b>	<b>3.4</b>	<b>1.2</b>	<b>4.6</b>	<b>3.0</b>	<b>1.1</b>	<b>4.1</b>

Source: HMIS

## 6.2.2 Bed occupancy rate in health centres and hospitals

The bed occupancy rate is defined as the average percentage of available beds occupied during a given period of time. Ideally, the bed occupancy rate should not be less than 80 per cent.

As shown in Table 6.4, bed occupancy rate in health centres reduced annually in Choma, Kalomo, Namwala and Sinazongwe for all the 3 years whereas in Monze, it increased annually.

**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
Choma	21	29	18	51	50	47	72	79	151
Gwembe	16	17	15	32	26	15	45	43	88
Itezhi-Tezhi	9	9	9	30	2	12	39	11	50
Kalomo	13	12	8	39	36	39	52	48	100
Kazungula	10	10	6	-	-	-	10	10	20
Livingstone	19	4	10	40	39	41	59	43	102
Mazabuka	20	20	17	43	47	36	63	67	130
Monze	17	20	23	74	73	70	91	93	184
Namwala	20	19	13	55	52	61	75	80	155
Siavonga	7	8	5	56	49	48	63	57	120
Sinazongwe	20	17	13	47	42	44	67	29	96
<b>Province</b>	<b>16</b>	<b>18</b>	<b>14</b>	<b>49</b>	<b>42</b>	<b>44</b>	<b>65</b>	<b>60</b>	<b>58</b>

*Source: HMIS*

**Note:** There was no hospital in Kazungula

## 6.2.3 Hospital outpatient department utilisation

This indicator is measured by the percentage of referred first attendances and by-pass first attendances from health centres. The hospital outpatient department first attendances should be less than one tenth of the health centre attendances because health centres refer less than 10 per cent to. If higher, then health centres are being by-passed or are referring cases which they shouldn't.

Hospital outpatient department utilisation in Itezhi-Tezhi, Mazabuka and Namwala was upward between 2005 and 2007, whereas it was downward in Kalomo. In the rest of the districts, i.e. Choma, Gwembe, Livingstone, Monze, Siavonga, and Sinazongwe, the hospital outpatient department utilisation rate fluctuated. In the whole province the trend also fluctuated. The provincial outpatient department utilisation rate was 0.83 in 2005 0.71 in 2006 and 1.26 in 2007.



**Table 6.5: Hospital outpatient department utilisation**

District	Outpatient department utilisation rate		
	2005	2006	2007
Choma	0.13	0.10	0.11
Gwembe	0.11	0.13	0.05
Itezhi-Tezhi	0.01	0.05	0.05
Kalomo	0.09	0.06	0.06
Kazungula	-	-	-
Livingstone	0.19	0.24	0.20
Mazabuka	0.04	0.05	0.11
Monze	0.12	0.13	0.11
Namwala	0.03	0.06	0.6
Siavonga	0.06	0.07	0.05
Sinazongwe	0.17	0.16	0.19
<b>Province</b>	<b>0.83</b>	<b>0.71</b>	<b>1.26</b>

*Source: HMIS*

*Note: There was no district hospital in Kazungula*

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

As shown in Table 6.6, the hospital outpatient department percentage first attendance by pass for the under-fives and older population increased annually in all the 3 years in the province. Among the under-fives, it was 23 per cent in 2005, 30 per cent in 2006 and 33 per cent in 2007. Among the older population it was 19 per cent in 2005, 21 per cent in 2006 and 24 per cent in 2007. Among the districts, among the under-fives, it increased yearly in Kalomo, Livingstone, Mazabuka and Sinazongwe. It reduced yearly in Itezhi-Tezhi and Namwala. Choma, Kalomo, Mazabuka and Sinazongwe recorded a yearly increase for those aged 5 years and older.

**Table 6.6: Hospital outpatient department percentage by-pass first outpatient department attendance, 2005-2007**

District	Under-five years			5 years and above			Total by-pass attendance		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Choma	27	21	24	23	24	26	50	45	50
Gwembe	37	27	27	5	5	10	42	32	37
Itezhi-Tezhi	72	48	0	28	25	3	100	73	3
Kalomo	48	63	69	24	43	65	72	106	134
Kazungula	-	-	-	-	-	-	-	-	-
Livingstone	31	38	41	46	40	46	77	78	87
Mazabuka	7	35	39	4	17	22	11	52	61
Monze	3	6	2	6	7	7	9	13	9
Namwala	11	2	0	0	0	0	11	2	0
Siavonga	12	21	19	1	9	2	13	30	21
Sinazongwe	7	9	17	4	8	11	11	17	28
<b>Province</b>	<b>23</b>	<b>30</b>	<b>33</b>	<b>19</b>	<b>21</b>	<b>24</b>	<b>18</b>	<b>20</b>	<b>24</b>

*Source: HMIS*

*Note: There was no district hospital in Kazungula*

### 6.2.5 Inpatient turnover rate

Bed turnover rate is closely related to the bed occupancy rate and average length of stay. The three indicators are jointly used for assessing the efficiency of use of inpatient facilities. Table 6.7 shows the health centre and hospital inpatient turnover rate per district by year.

**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
Choma	6.6	7.0	10.4	6.9	7.3	8.0
Gwembe	5.2	5.3	4.9	6.3	6.8	5.4
Itezhi-Tezhi	23.4	2.3	2.6	5.9	1.0	3.3
Kalomo	6.4	4.2	3.0	6.1	6.2	7.3
Kazungula	3.7	2.7	2.7	-	-	-
Livingstone	211.0	32.7	5.7	7.3	7.7	6.9
Mazabuka	6.2	8.3	7.9	7.1	7.5	5.6
Monze	5.3	6.4	6.3	8.9	8.4	10.1
Namwala	4.9	16.6	5.3	10.5	10.7	9.6
Siavonga	2.9	3.1	1.8	8.0	7.8	7.3
Sinazongwe	16.5	7.2	6.1	8.3	7.2	8.4
<b>Province</b>	<b>7.9</b>	<b>6.8</b>	<b>5.8</b>	<b>7.5</b>	<b>6.7</b>	<b>7.3</b>

*Source: HMIS*

*Note: There was no district hospital in Kazungula*

The inpatient turnover rate in health centres at the provincial level reduced yearly from 7.9 patients in 2005 to 6.8 in 2006 and to 5.8 in 2007. There was hardly any difference in the rate between health centres and hospitals in all the years.

### 6.2.6 Average number of days admitted in hospitals

The recommended average length of stay in a district hospital is 6 or fewer days. When the bed occupancy rate drops and the average length of stay remains stable, the (in-patient) staff workload reduces. A trend analysis is necessary to see which period of the year patients stay longer and for what reason this is.

As shown in Table 6.8 the average length of stay in the province was within the threshold of 6 days or less in all the 3 years under review (6.0 in 2005, 5.3 in 2006, and 5.0 in 2007). Among the districts, average length of stay for all the 3 years was the

highest in Monze (7.5 in 2005, 7.8 in 2006 and 5.4 in 2007). Gwembe and Itezhi-Tezhi had relatively low hospital average length of stay in all the 3 years under review.

**Table 6.8: Average number of days patients were admitted in the district hospitals by District, 2005-2007**

District	Average number of days admitted in hospital		
	2005	2006	2007
Choma	6.7	6.1	5.3
Gwembe	4.6	3.5	2.7
Itezhi-Tezhi	4.6	2.2	3.2
Kalomo	5.7	5.2	4.9
Kazungula	-	-	-
Livingstone	4.9	4.6	5.4
Mazabuka	5.4	5.7	5.8
Monze	7.5	7.8	6.2
Namwala	4.7	4.4	5.7
Siavonga	6.4	5.6	5.9
Sinazongwe	5.1	5.2	4.7
<b>Province</b>	<b>6.0</b>	<b>5.7</b>	<b>5.4</b>

*Source: HMIS*

**Note:** There was no hospital in Kazungula

### 6.3 Maternal Health and Family Planning

Maternal health provides a foundation for the success of child health. Risks in pregnancy both to the mother and unborn child need to be identified early so that timely interventions are done. Early post-natal care and access to family planning are also essential. The aspects of maternal health covered in this section are antenatal care, supervised deliveries, postnatal care and family planning.

#### 6.3.1 Summary of maternal health indicators

Table 6.9 shows that the first antenatal coverage in the province reduced from 98 per cent of expected pregnancies in 2005 to 96 per cent in 2006 and to 92 per cent in 2007. The number of average antenatal visits also reduced from 3.1 in 2005 to 2.9 in 2007 and to 2.7 in 2007.

Institutional deliveries were and the supervised deliveries increased between 2005 and 2007. Institutional deliveries were 37 per cent in 2005, 36 per cent in 2006 and 38 per cent in 2007. Supervised deliveries were 62 per cent in 2005, 58 per cent in 2006 and 57 per cent in 2007.

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

Indicator	Period in years			Average
	2005	2006	2007	2005-2007
First antenatal coverage (percentage)	98	96	92	95
Average number of antenatal visits	3.1	2.9	2.7	2.9
Institutional deliveries (percentage)	37	36	38	37
Trained Traditional Birth Attendants (percentage)	24	22	19	22
Supervised deliveries (percentage)	62	58	57	59
First postnatal attendance (percentage)	50	48	50	49

*Source: HMIS*

### 6.3.2 Antenatal care

Table 6.10 shows the first antenatal coverage from 2005-2007 compared by districts. Rates in a number of cases are more than 100 per cent suggesting problems with baseline populations or capture of this data or encroachment by patients from other catchment areas or all of these. However, the data suggests that coverage declined at the provincial level from 98 per cent in 2005 to 96 per cent in 2006 and to 92 per cent in 2007.

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

District	2005			2006			2007		
	Contacts	Target	Percentage	Contacts	Target	Percentage	Contacts	Target	Percentage
Choma	11,998	12,436	96	12,967	12,740	102	12,635	13,060	97
Gwembe	2,805	2,216	127	2,365	2,303	103	2,701	2,395	113
Itezhi-Tezhi	2,147	2,779	77	2,202	2,896	76	2,767	3,016	92
Kalomo	14,181	9,923	143	13,901	10,362	134	11,370	10,818	105
Kazungula	4,894	4,357	112	4,037	4,517	89	4,111	4,687	88
Livingstone	5,208	6,591	79	5,849	6,591	89	4,867	6,722	72
Mazabuka	9,999	13,034	77	10,553	13,505	78	11,344	13,994	81
Monze	9,684	10,503	92	9,947	10,899	91	10,504	11,309	93
Namwala	4,836	5,517	88	4,348	5,769	75	4,747	6,351	75
Siavonga	3,769	3,672	103	4,702	3,786	124	4,985	3,899	128
Sinazongwe	5,478	5,298	103	4,999	5,522	91	5,227	5,753	91
<b>Province</b>	<b>74,999</b>	<b>76,326</b>	<b>98</b>	<b>75,870</b>	<b>78,890</b>	<b>96</b>	<b>75,258</b>	<b>82,004</b>	<b>92</b>

*Source: HMIS*

### 6.3.3 Average number of antenatal visits

Average antenatal visit measures the average numbers of visits to the health facility per expectant mothers before delivery. The national target is 4.0 visits and if the indicator falls below 3.0 investigations must be instituted.

The table shows a decrease in average number of antenatal visits in Southern Province from 3.1 in 2005 to 2.9 in 2006 and 2.7 in 2007.

**Table 6.11: Average number of antenatal visits, 2005-2007**

District	Antenatal attendance types by year								
	2005			2006			2007		
	Total	First	Average	Total	First	Average	Total	First	Average
Choma	39,955	11,998	3.3	38,317	12,967	3.0	34,438	12,635	2.7
Gwembe	8,390	2,805	3.0	6,226	2,365	2.6	6,433	2,701	2.4
Itezhi-Tezhi	6,857	2,147	3.2	6,587	2,202	3.0	6,758	2,767	2.4
Kalomo	39,686	14,181	2.8	37,122	13,901	2.7	29,092	11,370	2.6
Kazungula	13,813	4,894	2.8	10,747	4,037	2.7	10,106	4,111	2.5
Livingstone	17,032	5,208	3.3	18,649	5,849	3.2	15,575	4,867	3.2
Mazabuka	34,260	9,999	3.4	32,757	10,553	3.1	33,457	11,344	2.9
Monze	31,076	9,684	3.2	30,144	9,947	3.0	30,358	10,504	2.9
Namwala	13,304	4,836	2.8	11,841	4,348	2.7	12,914	4,747	2.7
Siavonga	10,509	3,769	2.8	11,045	4,702	2.3	11,008	4,985	2.2
Sinazongwe	18,466	5,478	3.4	15,780	4,999	3.2	15,495	5,227	3.0
<b>Province</b>	<b>23,3348</b>	<b>74,999</b>	<b>3.1</b>	<b>219,215</b>	<b>75,870</b>	<b>2.9</b>	<b>205,634</b>	<b>75,258</b>	<b>2.7</b>

Source: HMIS

### 6.3.4 Supervised deliveries

Table 6.12 shows figures the trends of institutional deliveries, and deliveries by tTBAs and from 2005 to 2007. The same table also shows trend of supervised deliveries from 2005 to 2007.

Livingstone recorded the highest in institutional deliveries for all the 3 years under review followed by Choma and Siavonga. Namwala however was the lowest in all the 3 years in institutional deliveries for all the years under review. For deliveries attended by tTBAs, Sinazongwe recorded the highest for all the 3 years under review followed by Monze and Itezhi-Tezhi whilst Livingstone and Siavonga recorded the lowest in all the three years under review. The provincial picture shows a decrease in both deliveries attended by tTBAs and overall supervised deliveries whilst institutional deliveries were fluctuating for all the 3 years under review.

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

District	Institutional deliveries			trained Traditional Birth Attendants			Supervised deliveries		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Choma	49	42	43	27	22	19	75	64	62
Gwembe	24	23	24	36	29	39	60	53	63
Itezhi-Tezhi	24	25	30	40	35	39	64	60	69
Kalomo	36	35	34	22	27	20	57	61	54
Kazungula	26	20	21	17	18	17	43	38	38
Livingstone	63	64	65	3	1	2	66	65	66
Mazabuka	35	39	36	13	12	10	48	50	46
Monze	36	35	31	40	30	28	77	66	69
Namwala	19	18	20	32	24	22	51	43	43
Siavonga	43	44	51	7	7	5	50	52	56
Sinazongwe	28	29	31	43	44	39	71	73	70
<b>Province</b>	<b>37</b>	<b>36</b>	<b>38</b>	<b>24</b>	<b>22</b>	<b>19</b>	<b>62</b>	<b>58</b>	<b>57</b>

Source: HMIS

### 6.3.5 Complicated deliveries

Any delivery not through the normal vertex is considered to be complicated. According to WHO standards, 15 per cent of all the deliveries should be by caesarean section in order to avoid potential risks in vertex deliveries.

Table 6.13 shows that the proportion of complicated deliveries in the hospitals was higher than in the health centres. Choma recorded the lowest in the health centres while Kazungula recorded the highest followed by Mazabuka. In Hospitals, Livingstone recorded the highest followed by Monze while Gwembe recorded the lowest. Livingstone recorded the highest in the caesarean section followed by Monze. No caesarean section was recorded in Gwembe because there was no theatre in the hospital there. The proportion of caesarean section births in the hospitals in the province in 2007 was 7 per cent. In health facilities, it was three times less at 2 per cent. This gap could mainly be attributed to the non-availability of facilities and medical doctors in rural health facilities. The percentage of caesarean section births was still below the threshold of 15 per cent recommended by WHO.

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

District	Health centre		All deliveries	Hospital	
	All deliveries	Percentage complicated		Percentage complicated	Percentage caesarean
Choma	3,107	0.6	2,271	12	9
Gwembe	350	3.1	210	4	0
Itezhi-Tezhi	502	2.3	376	11	5
Kalomo	2,484	2.4	1,087	14	4
Kazungula	973	4.4	-	-	-
Livingstone	2,945	1.4	1,276	20	14
Mazabuka	2,301	3.3	2,603	15	4
Monze	1,993	1.2	2,484	17	5
Namwala	767	2.9	451	7	3
Siavonga	384	2.0	1,548	15	5
Sinazongwe	1,029	2.4	680	5	23
<b>Province</b>	<b>16,835</b>	<b>2</b>	<b>12,986</b>	<b>14</b>	<b>7</b>

Source: HMIS

Note: There was no district hospital in Kazungula

### 6.3.6 Prevalence of still births

Table 6.14 presents data on still births and total live deliveries by district from 2005 to 2007. The percentage of still births in the province was 2.5 in 2005, 3.5 in 2006 and 2.9 in 2007.

Among the districts in 2005, Siavonga recorded the highest proportion of still births at 3.9 per cent followed by Kazungula at 3.8 per cent, while both Choma and Gwembe recorded the lowest at 2.1 per cent. In 2006, Namwala District recorded the highest at 6.2 per cent followed by Siavonga at 3.9 per cent. In 2007, Gwembe recorded the highest percentage of still births at 6.5 per cent followed by Namwala at 5.4 per cent where as Kazungula and Choma recorded the lowest at 2.0 per cent and 2.1 per cent, respectively.

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

District	2005			2006			2007		
	Still Births	Total Births	Percentage still births	Still Births	Total Births	Percentage still births	Still Births	Total Births	Percentage still births
Choma	124	5,845	2.1	95	5,624	1.7	115	5,426	2.1
Gwembe	11	513	2.1	11	514	2.1	36	589	6.5
Itezhi-Tezhi	18	637	2.8	22	698	3.2	21	882	2.4
Kalomo	86	3,410	2.5	98	3,468	2.8	167	3,647	4.4
Kazungula	44	1,152	3.8	11	890	1.2	20	977	2.0
Livingstone	123	4,079	3.0	121	4,129	2.9	128	4,275	3.0
Mazabuka	118	4,452	2.7	116	5,079	2.3	94	4,942	2.3
Monze	21	3,751	3.2	89	3,789	2.3	110	4,551	2.4
Namwala	38	1,032	3.7	66	1,064	6.2	68	1,266	5.4
Siavonga	61	1,530	3.9	64	1,634	3.9	65	1,940	3.4

Sinazongwe	50	1,508	3.3	23	1,681	1.4	59	1,783	3.3
<b>Province</b>	<b>694</b>	<b>27,909</b>	<b>2.5</b>	<b>716</b>	<b>28,570</b>	<b>3.5</b>	<b>883</b>	<b>30,278</b>	<b>2.9</b>

Source: HMIS

### 6.3.7 First postnatal attendance

After delivery, mothers should present themselves to a postnatal clinic conducted by health professionals for the first time within 6 weeks of delivery. The national target is 80 per cent. During the first postnatal visit the baby should also be given the BCG, OPV I, DPT-Hib+HepB I vaccine.

As shown in Table 6.15, the provincial coverage of first postnatal coverage was below the national target of 80 per cent in all the 3 years under review. Among the districts Choma recorded the highest percentage of first postnatal coverage for all the three years under review with 67 per cent, 66 per cent and 68 per cent in 2005, 2006 and 2007 respectively. Coverage of 68 per cent was also attained in Siavonga in 2008. It was followed by Monze at 60 per cent coverage in 2005, Siavonga at 60 per cent coverage in 2006 and Monze at 67 per cent coverage in 2007.

Table 6.15: First postnatal coverage, 2005-2007

District	2005			2006			2007		
	Contacts	Target	Percentage	Contacts	Target	Percentage	Contacts	Target	Percentage
Choma	8,046	11,979	67	8,060	12,276	66	8,599	12,573	68
Gwembe	1,129	2,132	53	857	2,217	39	1,006	2,303	44
Itezhi-Tezhi	869	2,674	32	870	2,788	31	1,167	2,904	40
Kalomo	4,018	9,558	42	5,217	9,981	52	3,977	10,415	38
Kazungula	2,063	4,230	49	1,927	4,387	44	1,884	4,555	41
Livingstone	3,461	6,345	55	2,830	6,345	45	2,697	6,521	41
Mazabuka	3,951	12,546	31	4,425	13,005	34	5,494	13,480	41
Monze	6,104	10,110	60	5,688	10,496	54	7,249	10,894	67
Namwala	2,276	5,313	43	1,920	5,558	35	2,078	6,115	34
Siavonga	2,014	3,535	57	2,196	3,645	60	2,538	3,753	68
Sinazongwe	2,934	5,102	58	2,707	5,317	51	2,971	5,541	54
<b>Province</b>	<b>36,865</b>	<b>73,524</b>	<b>50</b>	<b>36,697</b>	<b>76,015</b>	<b>48</b>	<b>39,660</b>	<b>79,054</b>	<b>50</b>

Source: HMIS

### 6.3.8 Maternal mortality

Table 6.16 shows data on number of maternal deaths, live births and maternal mortality ratio in health facilities by districts from 2005 to 2007. Maternal mortality ratio is calculated by multiplying the number of maternal deaths divided by the number of live births per 100, 000 live births.

Among the districts, the maternal mortality ratios in health facilities in Livingstone followed by Monze were the highest in all the three years under review. In 2005, 2006 and 2007, the respective ratios per 100,000 births were 284, 268 and 230 in Livingstone. In Monze, they were 178, 238 and 229. In the whole province, the ratio was 102 in 2005, 116 in 2006 and 94 in 2007.

**Table 6.16: Maternal mortality ratio trends in health facilities 2005-2007**

District	2005			2006			2007		
	Deaths	Deliveries	Ratio	Deaths	Deliveries	Ratio	Deaths	Deliveries	Ratio
Choma	16	5,823	134	10	5,178	81	15	5,378	119
Gwembe	1	513	47	0	513	0	1	560	43
Itezhi-Tezhi	2	636	75	5	697	179	0	878	0
Kalomo	5	3,397	52	3	3,459	30.1	5	3,571	48
Kazungula	1	1,113	24	2	886	46	0	973	0
Livingstone	18	4,014	284	17	4,072	268	15	4,221	230
Mazabuka	8	4,409	64	11	5,021	85	3	4,904	22
Monze	18	3,674	178	25	3,715	238	25	4,477	229
Namwala	1	1,009	19	4	1,018	72	2	1,218	33
Siavonga	1	1,514	28	4	1,618	110	3	1,932	80
Sinazongwe	4	1,448	78	7	1,536	131	5	1,709	90
<b>Province</b>	<b>75</b>	<b>27,550</b>	<b>102</b>	<b>88</b>	<b>27,713</b>	<b>116</b>	<b>74</b>	<b>29,821</b>	<b>94</b>

Source: HMIS

### 6.3.9 New family planning acceptors

New family planning acceptance 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. Table 6.17 shows the new family planning acceptors per 1,000 women of childbearing age 15-49 years old from 2005 to 2007.

The provincial picture shows that there was an increase between 2005 and 2006 from 146 to 165 and a decrease between 2006 and 2007 from 165 to 148 new family planning acceptors per 1,000 women of child bearing age 15-49 years old.

**Table 6.17: Number of new family planning acceptors per 1,000 women of child bearing age by district 2005-2007**

District	2005		2006		2007	
	Number	Rate	Number	Rate	Number	Rate
Choma	6,929	137	8,057	155	6,790	128
Gwembe	1,522	169	1,615	172	1,637	168
Itezhi-Tezhi	1,975	174	2,238	190	1,936	158
Kalomo	8,890	194	9,909	208	7,442	150
Kazungula	2,826	158	3,163	170	2,696	140
Livingstone	2,502	93	3,414	127	3,210	116
Mazabuka	7,576	143	9,274	169	10,278	180
Monze	5,654	132	6,972	157	7,360	160
Namwala	3,063	136	2,993	127	3,050	118
Siavonga	1,906	127	2,041	132	2,055	129
Sinazongwe	3,491	162	4,261	189	3,990	170
<b>Total</b>	<b>46,334</b>	<b>146</b>	<b>53,937</b>	<b>165</b>	<b>50,444</b>	<b>148</b>

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*Source: HMIS*

Kalomo district recorded the highest rate of new family planning acceptors in 2005 of 194 followed by Itezhi-Tezhi with 174 while Livingstone recorded the lowest at 93. In 2006, Kalomo recorded the highest rate of 208 followed by Itezhi-Tezhi at 190 while Livingstone and Namwala recorded the lowest at 127 respectively. In 2007, Mazabuka recorded the highest rate of 180 and the lowest was Livingstone with 116. It is worth noting that Livingstone recorded the lowest rate in all the 3 years under review despite it being an urban area. The rate in Livingstone was 93 in 2005, 127 in 2006 and 116 in 2007. Child health indicators

Child health indicators measure the provision of quality health care to under-five children. Table 6.18 summarises the child health indicators in the province for 2005, 2006 and 2007.

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**Table 6.18: Child health indicators, 2005-2007**

Indicator	Period in years			Average
	2005	2006	2007	2005-2007
Fully immunised under 1 year (percentage)	97	100	88	127
BCG-Measles dropout rate (percentage)	1	9	22	11
Pregnancies with tetanus toxoid protection (percentage)	89	86	80	85
Under weight prevalence (percentage)	15	14	11	13

*Source: HMIS*

### 6.3.10 Fully immunisation coverage

Children are considered to be fully immunised when they have received a vaccination against tuberculosis (BCG), three doses each of the diphtheria, pertussis, tetanus/hepatitis B/Haemophilis influenza type (DPT-HepB-Hib), and polio vaccines, and a measles vaccination by the age of 12 months. The BCG vaccination should be given at birth or at the first clinical contact (not long after birth). The DPT-HepB-Hib and polio immunisations require three doses of the vaccines at approximately 6, 10 and 14 weeks of age; and measles should be given at or soon after reaching 9 months of age. The national target for the indicator is 80 per cent and the threshold is 70 per cent.

Table 6.19 shows fully immunised under-ones in the province were 97 per cent in 2005 and 2006 and 87 per cent in 2007. That was above the national target of 80 per cent. Among the districts, the highest coverage was attained in Choma in 2005, 2006 and 2007. The lowest coverage in 2005 and 2007 was in Namwala and in 2006, in Itezhi-Tezhi.

**Table 6.19: Fully immunised children under 1 year by district, 2005-2007**

District	2005			2006			2007		
	Immunised	Target	Percentage immunised	Immunised	Target	Percentage immunised	Immunised	Target	Percentage immunised
Choma	9,176	9,209	100	10140	9,441	107	10,079	9,670	104
Gwembe	1,813	1,644	110	1,594	1,704	94	1,413	1,771	80
Itezhi-Tezhi	1,745	2,059	85	1,661	2,145	77	2,084	2,234	93
Kalomo	8,925	8,394	106	10,051	8,725	115	6,762	9,088	74
Kazungula	3,909	3,255	120	3,487	3,373	103	3,733	3,504	107
Livingstone	4,308	4,881	88	5,665	4,881	116	4,285	5,016	85
Mazabuka	9,227	9,650	96	9,516	10,004	95	8,988	10,367	87
Monze	7,683	10,110	99	7,711	10,496	96	8,041	8,379	96
Namwala	3,229	4,087	79	3,653	4,274	85	3,194	4,704	68
Siavonga	2,734	2,720	101	2,691	2,803	96	2,679	2,885	93
Sinazongwe	3,365	3,926	86	3,333	4,090	81	3,189	4,261	75
<b>Province</b>	<b>5,614</b>	<b>59,935</b>	<b>97</b>	<b>59,502</b>	<b>61,936</b>	<b>97</b>	<b>54,447</b>	<b>61,879</b>	<b>87</b>

Source: HMIS

### 6.3.11 BCG -Measles dropout rate

Children should receive their measles vaccine when they are nine months old and their BCG immediately after birth or within one month after birth. Table 6.20 presents data for BCG and measles coverage and the dropout rate for measles for the period 2005 to 2007. The drop-out rate is calculated by subtracting the measles coverage from the BCG coverage.

In Southern province, the measles drop-out rate has been constantly rising from 1 in 2005 to 22 in 2007. Kalomo, Kazungula and Siavonga districts recorded -33, -3 and -6 as dropout rates in 2005 respectively; this indicates that more children received the Measles vaccine than BCG. In 2006, Kalomo and Namwala recorded negatives in drop-out rates of -14 and -4. In 2007, Kalomo and Livingstone recorded the lowest drop-out rates while Siavonga had the highest.

Even though the table shows a fluctuation in the coverage for both BCG and Measles for the period 2005 to 2007, the overall Provincial coverage remained above the national target of 80 per cent. The Provincial average for BCG coverage for 2005 was 121 per cent, whereas the coverage for Measles for the same year was 87 per cent. A slight drop was noted in subsequent year, 2006, for both BCG and Measles (112 per cent and 82 per cent respectively). In the year 2007 however, an improvement in the coverage for both BCG and Measles was noted, 103 per cent and 107 per cent, respectively.

**Table 6.20: 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	
Choma	125	121	3	145	123	15	142	114	19
Gwembe	167	157	6	139	121	13	139	111	20
Itezhi-Tezhi	130	105	19	129	121	7	139	111	20
Kalomo	110	147	-33	132	150	-14	114	96	16
Kazungula	135	138	-3	132	125	5	149	114	23
Livingstone	75	70	11	112	96	14	101	85	16
Mazabuka	103	101	3	127	102	19	123	91	26
Monze	126	110	13	114	101	11	130	101	22
Namwala	120	100	17	104	108	-4	118	84	29
Siavonga	121	127	-6	125	105	15	149	101	32
Sinazongwe	112	106	5	122	98	20	114	88	23
<b>Province</b>	<b>116</b>	<b>115</b>	<b>1</b>	<b>126</b>	<b>115</b>	<b>9</b>	<b>127</b>	<b>98</b>	<b>22</b>

Source: HMIS

Table 6.21 presents data on pregnancies protected by tetanus toxoid from 2005 to 2007 by district in Southern Province.

Kalomo district recorded the highest coverage in 2005, 2006 and 2007. Namwala recorded the lowest coverage of 69 per cent in 2005 and 62 per cent in 2007 while Siavonga was lowest in 2006 at 65 per cent. The provincial picture shows a reduction in tetanus toxoid coverage from 89 per cent in 2005, to 86 per cent in 2006 and to 80 per cent in 2007.

**Table 6.21: Pregnancies with tetanus toxoid protection, 2005-2007**

District	2005			2006			2007		
	Immunised	Target	Percentage	Immunised	Target	Percentage	Immunised	Target	Percentage
Choma	11,374	12,436	91	11,599	12,740	91	11,923	13,060	91
Gwembe	2,694	2,216	122	1,706	2,303	74	2,176	2,395	91
Itezhi-Tezhi	2,391	2,779	86	2,081	2,896	72	2,200	3,016	73
Kalomo	13,408	9,923	135	11,760	10,362	113	9,762	10,818	90
Kazungula	4,443	4,357	102	4,495	4,517	100	4,132	4,687	88
Livingstone	4,927	6,591	75	6,698	6,591	102	3,452	6,772	51
Mazabuka	9,097	13,034	70	9,814	13,505	73	9,972	13,994	71
Monze	8,479	10,503	81	8,714	10,899	80	9,987	11,309	88
Namwala	3,816	5,517	69	4,263	5,769	74	3,913	6,351	62
Siavonga	2,839	3,672	77	2,453	3,786	65	2,930	3,899	75
Sinazongwe	4,529	5,298	85	4,375	5,522	79	5,194	5,753	90
<b>Province</b>	<b>67,997</b>	<b>76,326</b>	<b>89</b>	<b>67,958</b>	<b>78,890</b>	<b>86</b>	<b>65,641</b>	<b>82,054</b>	<b>80</b>

Source: HMIS

### 6.3.12 Underweight prevalence

The underweight prevalence measures the proportion of children less than five years old whose weight was below the lower reference line of their Under-five Clinic Card during a weighing session out of the total number of children weighed. Table 6.22 shows the underweight prevalence in under-five children in 2005, 2006 and 2007. The prevalence reduced from 15 per cent in 2005 to 14 per cent in 2006 and to 11 per cent in 2007. This was better than the national average of 20 per cent.

Gwembe is the only district which recorded a yearly increase from 29 per cent in 2005 to 32 per cent 2006 and to 36 per cent in 2007. Gwembe district is in the valley and drought prone. Livingstone recorded the lowest underweight prevalence in all the three years under review. Prevalence was 5 per cent in 2005, 6 per cent in 2006 and 4 per cent in 2007.

<b>District</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Choma	12	9	6
Gwembe	29	32	36
Itezhi-Tezhi	13	9	4
Kalomo	17	20	14
Kazungula	11	11	8
Livingstone	5	6	4
Mazabuka	12	11	10
Monze	15	12	6
Namwala	10	9	8
Siavonga	19	21	20
Sinazongwe	23	22	18
<b>Province</b>	<b>15</b>	<b>14</b>	<b>11</b>

*Source: HMIS*

## 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 involves creating community awareness on malaria prevention and providing interventions such as insecticide treated bed nets distribution and indoor residual spraying.

#### 7.1.1 Insecticide treated nets

Table 7.1 shows that province received a total of 245,000 ITNs from National Malaria Control Centre in 2007. Namwala had the highest coverage of 211 per cent in ITNs distribution while Livingstone had the lowest of 31 per cent. On the other hand no ITNs were delivered to Kalomo in 2007 because a lot were distributed in 2006.

District	Target Group** (a)	Number of Insecticide Treated Nets		Coverage percentage (c/a)*100	Source of Insecticide Treated Nets
		Received (b)	Distributed (c)		
Choma	61,416	25,000	25,000	41	National Malaria Control Centre
Gwembe	11,254	20,000	20,000	178	National Malaria Control Centre
Itezhi-Tezhi	14,334	25,000	25,000	174	National Malaria Control Centre
Kalomo	56,370	0	0	—	
Kazungula	22,300	20,000	20,000	90	National Malaria Control Centre
Livingstone	31,847	10,000	10,000	31	National Malaria Control Centre
Mazabuka	65,823	40,000	40,000	61	National Malaria Control Centre
Monze	53,198	65,691	65,691	123	National Malaria Control Centre
Namwala	28,383	60,000	60,000	211	National Malaria Control Centre
Siavonga	18,327	25,000	25,000	136	National Malaria Control Centre
Sinazongwe	27,062	20,000	20,000	74	National Malaria Control Centre

Province	390,318	245,000	245,000	87	
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Source: Environmental Health Reports

\*\* Estimated pregnancies and Under Fives

## 7.1.2 Indoor residual house spraying

Table 7.2 presents data on districts that carry out indoor residual spraying, number of structures targeted, number of structures sprayed and coverage attained from 2005-2007.

In Southern province only Kazungula, Livingstone and Mazabuka were carrying out indoor residual spraying. These were also the pilot districts. The provincial coverage for targeted structures was 86 per cent, 89 per cent and 92 per cent in 2005, 2006 and 2007 respectively. The spraying is effective as a malaria control intervention if the coverage of targeted structures is at least 85 per cent. Among the districts, the coverage was above 85 per cent in 2005, 2006 and 2007 in Livingstone. It was below 85 per cent in Mazabuka in 2005 and 2006 and in Kazungula in 2005.

Table 7.2: Indoor residual house spraying, 2005-2007

District	2005			2006			2007		
	Number of Structures		Percentage sprayed	Number of Structures		Percentage sprayed	Number of Structures		Percentage sprayed
	Target	Sprayed		Target	Sprayed		Target	Sprayed	
Choma	Not yet conducting indoor residual spraying								
Gwembe	Not yet conducting indoor residual spraying								
Itezhi-Tezhi	Not yet conducting indoor residual spraying								
Kalomo	Not yet conducting indoor residual spraying								
Kazungula	6,000	5,000	83	18,000	15,801	88	25,00	23,634	95
Livingstone	24,105	21,936	91	24,139	22,208	92	24,13	22,691	94
Mazabuka	8,000	6,007	75	12,000	10,425	87	14,00	11,690	84
Monze	Not yet conducting indoor residual spraying								
Namwala	Not yet conducting indoor residual spraying								
Siavonga	Not yet conducting indoor residual spraying								
Sinazongwe	Not yet conducting indoor residual spraying								
<b>Province</b>	<b>38,105</b>	<b>32,943</b>	<b>86</b>	<b>54,139</b>	<b>48,434</b>	<b>89</b>	<b>63,139</b>	<b>58,015</b>	<b>92</b>

Source: Environmental Health Reports

## 7.2 Water and sanitation

### 7.2.1 Water quality monitoring

Continuous monitoring of water quality should be done to ensure that it is safe for human usage. Table 7.3 shows data on the number of water samples which were collected and delivered to the food and drugs laboratory for microbiological analysis in the period under review.

In Southern province, 1,250 water samples were collected of which 824 were satisfactory representing 66 per cent. Among the districts, the highest percentage of water samples with satisfactory results was in Kalomo (98 per cent) followed by Namwala and Sinazongwe (97 per cent). The lowest was in Monze (44 per cent).

**Table 7.3: Water quality monitoring, 2007**

District	Number of water samples collected	Number of water samples with satisfactory results	Percentage satisfactory
Choma	23	11	48
Gwembe	9	5	56
Itezhi-Tezhi	20	18	90
Kalomo	186	183	98
Kazungula	358	298	83
Livingstone	8	6	75
Mazabuka	148	No data available	-
Monze	259	113	44
Namwala	187	182	97
Siavonga	89	58	65
Sinazongwe	134	130	97
<b>Province</b>	<b>1,250</b>	<b>824</b>	<b>66</b>

*Source: Environmental Health Reports*

## 7.2.2 Domestic chlorination of water

In the province all the districts distribute and conduct community sensitisation on use of domestic chlorine in the areas with untreated water supply to help reduce diarrhoeal diseases.

Table 7.4 presents data on how many households were targeted for information, education and communication and the number of chlorine bottles that were distributed in the community. Among the districts, the highest coverage was in Itezhi-Tezhi, followed by Siavonga.

**Table 7.4: Distribution of household chlorine**

District	Targeted households	Number of houses visited and IEC given	Number of chlorine bottles distributed	Coverage per cent (c/a)*100
	(a)	(b)	(c)	
Choma	40,299		4,800	12.0
Gwembe	7,385		1,668	22.0
Itezhi-Tezhi	9,312		9,782	105.0
Kalomo	36,988		3,600	9.7
Kazungula	14,594		4,500	31.0
Livingstone	20,897		1,000	5.0
Mazabuka	43,191		12,000	28.0
Monze	34,907		14,640	42.0
Namwala	19,602		150	0.007
Siavonga	12,027		10,000	82.0
Sinazongwe	17,758		308	0.02

<b>Province</b>	256,959		70,701	28.0
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*Source: Environmental Health Reports*

### 7.3 Management of medical waste

In 2007, there were 48 incinerators in Southern Province out of which 9 (19 per cent) were non-functional. Those not functional were 7 in Choma, 1 in Mazabuka and 1 in Siavonga.

**Table 7.5: Inventory of incinerators in each district**

<b>District</b>	<b>Total incinerators</b>	<b>Number operational</b>	<b>Number non operational</b>	<b>Remarks</b>
Choma	12	5	7	7 not working
Gwembe	4	4	0	All are operating
Itezhi-Tezhi	2	2	0	All are operating
Kalomo	4	4	0	All are operating
Kazungula	2	2	0	All are operating
Livingstone	5	5	0	All are operating
Mazabuka	12	11	1	1 not functioning
Monze	5	5	0	All are operating
Namwala	1	1	0	Functioning
Siavonga	2	1	1	Plans to re-site are under way
Sinazongwe	1	1	0	Functioning
<b>Province</b>	<b>50</b>	<b>41</b>	<b>9</b>	

*Source: Environmental Health Reports*

## 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. Central Statistical Office, *Living conditions monitoring survey report 2004*. 2005, Lusaka, Zambia: Central Statistical Office.

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.