



Republic of Zambia

Ministry of Health

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# 2007 Annual Health Statistical Bulletin Eastern Province

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Provincial Health Office  
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## Preface

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The Health Management Information System is a very useful facility based information system for monitoring and evaluating the performance of the health sector and the disease burden. Its information is also used for drawing justifiable action plans and budgets for health facilities and districts.

Some aspects of the HMIS should be improved so that it can avail comprehensive information for monitoring and evaluating the performance of the health sector. Most of the information about the delivery of health care in the communities and in private health facilities is not captured by the HMIS.

Data quality in the HMIS sometimes leaves a lot to be desired. Systems for audit and quality assurance in the compilation of data at the primary source have to be developed to ensure that data reflects the coverage and magnitude accurately. In this regard, capacity building strategies for the new and old staff on the use and management of HMIS data through supportive visits to health facilities and the ongoing performance assessment visits to districts need to be encouraged by all stakeholders. They play an integral part in the improvement of the quality of HMIS data. Cascade training in information technology is equally important in enhancing data procession and analysis.

It is worth mentioning that the use of and potential analysis of this data either at facility, district or provincial level is an invaluable aid in resource allocation. If utilised appropriately, these analyses have the potential to encourage greater efficiency in the allocation of resources, as well as the development of more appropriate responses to diseases affecting our society.

I wish to point out to our esteemed readers that this bulletin can be criticised for possible improvements in future publications.



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**Provincial Health Director**  
**Eastern Province**

## Acknowledgements

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Concerted efforts were made by dedicated staff in order to produce this statistical bulletin.

I sincerely thank all the personnel at the health facilities and the district health offices for their tireless commitment in compiling and aggregating the data that has built the volume in this report. The effort of the health workers in compiling and maintaining various HMIS records and registers which is a critical input to this bulletin cannot go unnoticed. The tremendous effort put in by the staff in consistently keeping tallies and updated registers which at times seems a diversion from the core business of health service delivery is highly appreciated. It has allowed the completion of this process which reflects their daily inputs.

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

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

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

I also wish to recognise the contributions made by other partners in the direct or indirect health service delivery for their provided guidance, and variable moral, physical and material support.



Beron Nsonga  
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## List of abbreviations

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AIDS	Acquired Immunodeficiency Syndrome
CHAZ	Churches Health Association of Zambia
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
HMIS	Health Management Information System
HSSP	Health Services and Systems Programme
IDSR	Integrated Disease Surveillance and Response
ITNs	Insecticide Treated Nets
MMR	Maternal Mortality Ratio
NHSP	National Health Strategic Plan
NMCC	National Malaria Control Centre
PHO	Provincial Health Office
SFH	Society for Family Health
STD	Sexually Transmitted Diseases
STI	Sexually Transmitted Infections
TB	Tuberculosis
TBA	Traditional Birth Attendant
tTBA	trained Traditional Birth Attendant
UTH	University Teaching Hospital
ZDHS	Zambia Demographic and Health Survey

## Table of contents

---

Preface.....	ii
Acknowledgements.....	iii
List of abbreviations.....	iv
Table of contents.....	v
List of tables.....	vii
List of figures.....	viii
Executive summary.....	xi
Maps about Eastern Province.....	xxii
Chapter 1: Background.....	1
1.1 Overview.....	1
1.2 Demographic information.....	1
1.3 Socio-economic status.....	1
1.4 Health facilities.....	2
1.5 Data sources.....	2
1.6 Scope of analysis.....	2
1.7 Limitations of this report.....	3
Chapter 2: Disease burden.....	4
2.1 Major causes of illnesses.....	4
2.1.1 Malaria.....	4
2.1.2 Respiratory infections (non-pneumonia).....	5
2.1.3 Respiratory infections (pneumonia).....	7
2.1.4 Diarrhoea non-bloody.....	9
2.1.5 Trauma (accidents, injuries, wounds, burns).....	10
2.2 Selected notifiable diseases.....	11
2.2.1 Acute flaccid paralysis.....	12
2.2.2 Non-polio acute flaccid paralysis rat.....	12
2.2.3 Stool adequacy rate.....	13
Chapter 3: HIV/AIDS, tuberculosis, and sexually transmitted infections.....	14
3.1 Prevention of HIV transmission from mother to child.....	14
3.1.1 Antenatal HIV testing.....	14
3.1.2 HIV positive results for pregnant women tested during the first antenatal care visit...	14
3.1.3 Antiretroviral prophylaxis.....	16
3.2 Antiretroviral therapy.....	17
3.2.1 Ever enrolled on anti-retroviral therapy.....	17
3.2.2 Ever-enrolled on antiretroviral therapy against target.....	18
3.3 Tuberculosis.....	19
3.3.1 Tuberculosis cure, completion and success rate.....	19
3.4 Sexually transmitted infections.....	20
Chapter 4: Human resources.....	21
4.1 Number of medical personnel by district.....	21
4.2 Health centre staff daily contacts.....	21
4.3 Community health volunteers.....	22
4.3.1 Trained traditional birth attendants.....	22
4.3.2 Community health workers.....	24
Chapter 5: Availability of drugs.....	25
5.1 Medical supplies in stock at health facilities.....	25
5.2 Availability of tracer drugs by health centre and hospital.....	27
5.3 Drug kit utilisation at health centres.....	28
Chapter 6: Health services delivery indicators.....	29
6.1 Health facility utilisation.....	29
6.2 Outpatient department utilisation.....	29
6.3 Health centre per capita attendance.....	30
6.4 Bed occupancy rate-health centre and hospital.....	30
6.5 Hospital outpatient department utilisation.....	32
6.6 Hospital outpatient department percentage by-pass first attendances.....	33

6.7	In-patient turnover rate .....	33
6.8	Average length of stay .....	34
6.9	Maternal health and family planning.....	35
6.9.1	Summary of maternal health indicators.....	35
6.9.2	Antenatal care.....	36
6.9.3	Supervised deliveries .....	37
6.9.4	Complicated deliveries.....	38
6.9.5	Prevalence of still births.....	39
6.9.6	First postnatal attendance.....	39
6.9.7	Maternal mortality.....	40
6.10	Child health indicators .....	41
6.10.1	Fully immunisation coverage .....	41
6.10.2	BCG-measles dropout rate .....	42
6.10.3	Pregnancies protected against tetanus.....	43
6.10.4	Underweight prevalence .....	44
Chapter 7:	Environmental and public health .....	45
7.1	Malaria control .....	45
7.1.1	Insecticide treated nets .....	45
7.2	Water and sanitation .....	46
7.2.1	Water quality monitoring .....	46
7.3	Medical waste management.....	46
7.4	Public health inspections .....	47
7.5	Food inspections .....	48
References	.....	50

## List of tables

---

Table 1.1: Population statistics by districts in 2007 .....	1
Table 1.2: Health facilities in Eastern Province .....	2
Table 2.1: Malaria incidence and case fatality rates by age group in Eastern Province, 2007..	4
Table 2.2: Respiratory infections (non-pneumonia) incidence per 1,000 population, 2007.....	5
Table 2.3: Respiratory infections: pneumonia incidence and case fatality rates, 2007.....	8
Table 2.4: Diarrhoea: non-bloody incidence and case fatality rates by age group, 2007.....	9
Table 2.5: Trauma (accidents, injuries, wounds, burns) incidence and case fatality rates.....	10
Table 2.6: Acute flaccid paralysis surveillance performance indicators by district, 2007.....	12
Table 3.1: Percentage of women starting antenatal clinic who took an HIV test, 2007. ....	14
Table 3.2: Number of women tested for HIV and the percentage testing positive, 2007. ....	16
Table 3.3: Proportion of infants exposed to HIV given antiretroviral prophylaxis, 2007 .....	16
Table 3.4: Cumulative number of patients ever enrolled on antiretroviral therapy. ....	17
Table 3.5: Proportion ever started on antiretroviral therapy against target .....	19
Table 3.6: Tuberculosis cure rate 2005 to 2007 .....	19
Table 3.7: Sexually transmitted infection incidence, 2007 .....	20
Table 4.1: Number of health staff by district, December 2007 .....	21
Table 4.2: Number of active tTBAs and deliveries conducted, 2005-2007.....	24
Table 4.3: Number of active community health workers and patients they attended to .....	24
Table 5.1: Percentage of months for which drugs were in stock by district, 2005-2007 .....	25
Table 5.2: Percentage of months in which tracer drugs were available, 2007.....	27
Table 6.1: Trends of selected service delivery indicators by year .....	29
Table 6.2: Outpatient department utilisation rate in Eastern Province, 2005-2007 .....	30
Table 6.3: Health centre per capita attendances Eastern Province, 2005-2007.....	30
Table 6.4: Bed occupancy rate per district and year, 2005-2007 .....	32
Table 6.5: Hospital outpatient department utilisation.....	33
Table 6.6: Hospital OPD percentage by-pass first outpatient department attendance .....	33
Table 6.7: Health centre and hospital inpatient turnover rate per district and year .....	34
Table 6.8: Hospital average length of stay by district, 2005-2007.....	35
Table 6.9: Maternal health indicators, Eastern Province, 2005-2007 .....	36
Table 6.10: First antenatal attendance coverage, 2005-2007.....	36
Table 6.11: Percentage of supervised deliveries by place of delivery and district.....	37
Table 6.12: Percentage of complicated deliveries in health centres and hospitals.....	38
Table 6.13: Percentage of total births that were still borne by district, 2005-2007.....	39
Table 6.14: First postnatal coverage, 2005-2007.....	40
Table 6.15 Trends of maternal mortality ratio per 100000 deliveries in health facilities .....	40
Table 6.16: Child health indicators, 2005-2007 .....	41
Table 6.17: Fully immunised children under 1 year by district, 2005-2007 .....	42
Table 6.18: BCG-Measles dropout rate by district, 2005-2007 .....	43
Table 6.19: Pregnancies with tetanus toxoid protection, 2005-2007 .....	44
Table 6.20: Percentage of underweight under-five children by district, 2005-2007.....	44
Table 7.1: Distribution of ITNs to pregnant women and children under 5 .....	45
Table 7.2: Water quality monitoring, 2007 .....	46
Table 7.3: Inventory of incinerators in each district, 2007.....	47
Table 7.4: Public health inspections 2005-2007 .....	47
Table 7.5: Food inspections 2005-2007.....	49



## List of figures

---

Figure 2.1: Malaria incidence rate.....	5
Figure 2.2: Incidence rate of respiratory infections: non-pneumonia .....	7
Figure 2.3: Incidence rate of respiratory infections: pneumonia .....	9
Figure 2.4: Incidence rate of diarrhoea: non-bloody.....	10
Figure 2.5: Incidence rate of trauma.....	11
Figure 3.1: Antiretroviral prophylaxis for PMTCT.....	17
Figure 4.1: Number of health centre staff daily contacts.....	22
Figure 5.1: Number of drug kits opened per 1000 patients seen at health centres .....	28

## Glossary of terms

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**Antenatal First Attendance:** First time a 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 10000 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 cases enrolled in the same period.

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

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

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

## Executive summary

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### Introduction

The main objective of this document is to provide trends of selected indicators on disease burden and service delivery in the province from 2005 to 2007 using data collected mainly by the HMIS. The indicators are compared by districts and two broad age groups namely under-fives and the older population. The report does not provide detailed explanations about the factors behind the trends in the indicators.

### Disease burden

- **Malaria**

The incidence rate of malaria in the province in 2007 was nearly five times higher among the under-fives than among the older population in 2007. Among the districts, the incidence rate of malaria was the highest in Chama (769) followed by Chadiza (660). The lowest incidence rate was in Chipata (395). The hospital case fatality rate for malaria in the province was lower among the under-fives than among the older population. Among the districts it was the highest in Chipata (72 per 1000 admissions) followed by Lundazi (56 per 1000 admissions) and the lowest was in Nyimba (14 per 1000 admissions). There was no hospital in Chadiza.

The incidence rate of malaria per 1000 population in the province increased from 410 in 2005 to 525 in 2006 and then it decreased to 510 in 2007. Among the districts, the incidence rate in Chipata reduced from 463 in 2005 to 436 in 2006 and to 395 in 2007. In Chadiza, it increased from 459 in 2005 to 590 in 2006 and to 660 in 2007.

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

The incidence rate of respiratory infection (non-pneumonia) in 2007 was about three times higher among the under-fives (505) than among the older population (142). Among the districts, the highest incidence rate was in Nyimba (345 per 1000 population) followed by Chama (275 per 1000 population). The lowest incidence rate was in Chipata (146 per 1000 population).

The total case fatality rate was the highest in Chama (61 per 1000 admissions) and the lowest was in Nyimba (3 per 1000 admissions).

The incidence rate in the province increased from 140 in 2005 to 174 in 2006 and to 214 in 2007. The incidence rate also increased yearly from 2005 to 2006 and to 2007 in Chadiza, Katete, Lundazi, Mambwe, Nyimba and Petauke.

## **Respiratory infections (pneumonia)**

The incidence rate for pneumonia in the province in 2007 was 52 cases per 1000 population. The case fatality rate in the hospitals was 109 cases per 1000 admissions. The incidence and case fatality rates were higher among the under-fives than among the older population. The incidence rate among the under-fives at 134 per 1000 population was more than four times higher than in the older group at 31 per 1000 population. The difference in the case fatality between these age groups was not as high. The case fatality rate among the under-fives was 121 per 1000 admissions compared to 96 per 1000 admissions in the older age group.

The incidence rate among the districts was the highest among the under-fives in Katete followed by Chama (233 and 230 per 1000 population respectively). In the older age group, the incidence rate was the highest in Mambwe (59 per 1000 population) followed by Chadiza (40 per 1000 population). The case fatality among the under-fives was the highest in Chama (229 per 1000 admissions) and among the older age groups in Chipata (138 per 1000 admissions).

In Chadiza, Katete, Lundazi and Petauke, the annual incidence rate of pneumonia increased yearly. The lowest incidence rate in each year was in Petauke (29 in 2005, 31 in 2006 and 32 in 2007). Only in Chama was there a yearly reduction in the incidence rate per 1000 of the total population from 63 in 2005 to 49 in 2006 and to 34 in 2007.

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

Diarrhoeal diseases (non-bloody) were the third leading cause of morbidity in 2007 after malaria and respiratory infections (non-pneumonia). The incidence rate in the province in 2007 was about 9 times higher among the under-fives (253) than among the older population (29).

Among the districts, the total incidence rate in 2007 was the highest in Nyimba (135 per 1000 population) followed by Chama (118 per 1000 population). The lowest was in Chipata (50 per 1000 population). The highest total case fatality rate among the districts was in Petauke (48 per 1000 admissions) followed by Lundazi (88 per 1000 admissions). The lowest case fatality rate was in Nyimba (9 per 1000 admissions).

- **Notifiable diseases**

Notifiable diseases are diseases that should be reported to the next levels immediately they are diagnosed because they can easily and/or quickly spread causing high morbidity and mortality. These diseases have been classified in the Integrated Disease Surveillance and Response (IDSR) strategy, to ensure that they are effectively prevented, managed and controlled when they occur.

In the HMIS, there are ten notifiable diseases namely; acute flaccid paralysis, measles, neonatal tetanus, dysentery, cholera, plague, rabies, typhoid fever, yellow fever and tuberculosis and currently. Recently, human influenza was added to the list. Every single case should be investigated and followed up at each level of service delivery system

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

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

Sixteen cases were expected to be detected in 2007 in the province but 12 were. If no case is detected in a place then the situation is termed "silent" The situation was silent in Katete in 2007. Apart from Katete, suspected cases of acute flaccid paralysis were detected in all the districts.

- **Number of patients on antiretroviral therapy**

More females than males were enrolled on antiretroviral therapy by 2006 and 2007 in the whole province and in all the districts. Almost all of those enrolled by 2007 were in Katete (2,178) and in Chipata (2,185). Out of 5,393 enrolled by the end of 2007 4,363 i.e. 80.9 per cent were Chipata and Petauke. There is clearly a need to ensure that enrolment is equitable among the districts.

## **Human resource**

- **Health centre staff load**

This is the average number of daily client contact for each specified health worker in an institution over a specified reporting period usually a quarter or year. The total number of contacts during that period is divided by the number of qualified staff days. Holidays and weekends are excluded and it is assumed that each qualified staff member works 8 hours a day. A high figure of staff daily contacts imply that staffing levels are low and that might affect the quality of health care offered.

The contacts per day increased yearly in all the districts except in Lundazi and Petauke. The average number of contacts in Lundazi was 42 in 2005, 39 in 2006 and 30 in 2007. In Petauke, they were 27 in 2005, 36 in 2006 and 34 in 2007.

- **Trained traditional birth attendants**

Traditional Birth Attendants (tTBAs) are women chosen by the community members from within their communities. They provide safe motherhood services including performing uncomplicated deliveries after undergoing six weeks basic training in reproductive health. The average number of deliveries done by tTBAs decreased from 26 in 2005 to 25 in 2006 and to 18 in 2007 in the province. The total number of deliveries done by the tTBAs also decreased from 18,786 in 2005 to 17,105 in 2006 and 15,850 in 2007. The decrease in the number of deliveries by tTBAs could be attributed to: lack of supportive supervision by the facility staff; inadequate incentives such as clean delivery kits, transport and community support and non-availability of retraining package at both provincial and district levels.

- **Community health workers**

Community health workers are chosen from within the communities by members. They undergo a four weeks training in basic preventive and curative care of minor ailments.

The number of patients seen by community health workers increased from 596,748 in 2005 to 643,584. However there was a drop by about 400,000 in 2007 to 244,569. The average number of patients seen by community health workers dropped from 892 in 2005 to 480 in 2007. All the districts recorded huge drops in the average number of patients seen by community health workers between 2005 and 2006. The biggest drop was recorded in Katete where the average number of patients seen was 1,060 in 2005 and 215 in 2007. Community health workers are now playing a lesser role in the treatment of patients due to various factors. Their number also consequently reduced from 998 in 2005 to 480 in 2007.

### **Availability of essential drugs**

- **Drugs availability**

This is measured by the proportion of months during a period that a drug or medical supply was in stock.

The percentage of months for which drugs were in stock was lower in health centres than in hospitals in all the years at the provincial level. This was largely the case at district level as well. The exceptions were Chipata, Nyimba and Petauke in 2006. The drugs situation continuously deteriorated in the province between 2005 and 2007. The percentage of months at the provincial level in which drugs were in stock in health centres dropped from 74 per cent in 2005 to 73 per cent in 2006 and to 67 per cent in 2007. In hospitals at the provincial level, it dropped from 89 per cent in 2005 to 86 per

cent in 2007. Summing the health centres and hospitals, the drop was from 75 per cent in 2005 to 74 per cent in 2006 and to 68 per cent in 2007.

Whereas in 2005 and 2006, drugs did not run out in hospitals in Katete and Mambwe, stock outs were reported in the health facilities in all districts in 2007. The best stocked health facilities in 2007 were in Chadiza where stocks were available for 78 per cent of the months. Health centres in Chama were the most poorly stocked. Whereas the hospital in Chama had drugs in stock for 99 per cent of the months in 2005, 98 per cent in 2006 and 98 per cent in 2007, drugs in the health facilities in the districts were in stock for 48 per cent of the months in 2005, 55 per cent in 2006 and 51 per cent in 2007.

- **Drug kit utilisation at health centres**

This indicator describes the number of drug kits opened per 1000 patients in health centres. It measures the number of drug kits utilised during the time period usually a month per 1000 number of curative contacts, first attendances, follow-up attendances and inpatients inclusive. The standard drug kit is intended to serve 1,000 patients. There is need for further investigation if more than 1.2 kits per 1,000 patients or less than 0.8 kits per 1,000 patients are opened.

There was a decrease in the number of drug kits opened per 1000 patients from 2005 to 2007. The decrease was observed for the whole province from 1.2 to 0.8 per 1000 patients. Continuous annual decreases were also observed in Chadiza, Chama, Chipata, Lundazi, Mambwe and Petauke. There was excessive usage of the drug kit in Petauke in all the three years.

## **Health centre utilisation**

- **Outpatient department utilisation**

This is measured by the average number of times the population in a catchment area of a health facility seeks health services from it. However, usage of this indicator can be precarious because the population in the catchment area can seek health services elsewhere and the population from other catchment areas may seek health services at it. The outpatient department utilisation rate in the province gradually increased from 1.3 visits per person in 2005 to 1.5 in 2006 and to 1.7 in 2007. Districts that also recorded a continuous increase over the period were Chadiza, Katete, Nyimba and Petauke.

- **Bed occupancy rate**

This indicator measures the percentage of available beds in health centres and hospitals occupied in a period (usually one year). The national target is that not be less than 80 per cent of the beds should be occupied in a health facility.





The bed occupancy rate in the province decreased in the health centres from 22 per cent in 2005 to 20 per cent in 2006 and to 18 per cent in 2007 while that in the hospitals increased from 46 per cent in 2005 to 53 per cent in 2006 and to 54 per cent in 2007. Beds in health centres in the districts are under-utilised. At no time was the bed occupancy rate in health centres even close to the national target of 80 per cent. Beds are also under utilised in the hospitals in the districts although not to the same extent as in health centres. Only in Chama was the bed occupancy rate above the 80 per cent target.

## **Maternal health**

Maternal health issues are some of the major public health concerns and they provide the foundation for subsequent success to child health. The risks in pregnancy both to the mother and un-born child need to be identified early so that effective interventions are put in place.

### **o Antenatal visits**

Pregnant women should have antenatal care up to the time of labour. This section presents data on first antenatal coverage. The target in Zambia is that 90 per cent of expected pregnancies in a catchment population in a given period should attend antenatal clinic at least once during a pregnancy.

The number of pregnant women in the province who went to antenatal clinic at least once in 2005 were 76,692, in 2006 81,701 and in 2007 85,076. Over the three years, there was an increase in the percentage of pregnant women visiting the antenatal clinic at least once from 91 per cent in 2005 to 95 per cent in 2006 and to 96 per cent in 2007. In all the three years, the target was not attained only in Lundazi. In Katete district the higher antenatal coverage is due to the influx of women from neighbouring districts such as, Chadiza, Chipata, Mambwe and Petauke and also from the neighbouring country of Mozambique. The increasing coverage in Nyimba might also include women from Mozambique.

### **o Institutional deliveries**

The target on institutional deliveries of 50 per cent was not achieved in the province from 2005 to 2007. In 2005, the percentage of supervised deliveries in health facilities in the province was 24. It was 22 in 2006 and 25 in 2007. However, the target was achieved in Katete and Chipata where respectively 76 per cent and 53 per cent of all deliveries were supervised. The lowest percentage of supervised deliveries in all the three years (22 per cent in 2005, 32 per cent in 2006 and 25 per cent in 2007) was in Chama and the highest in Katete where the respective percentages were 67, 66 and 76.

- **Caesarean section rate**

Complicated deliveries are usually delivered by other means rather than spontaneous vertex delivery. According to WHO standards, 15 per cent of all deliveries must be delivered by caesarean section. The aim is to minimise complications during delivery.

More deliveries were done at health centres (21,051) than at hospitals (12,565) in the province in 2007. The percentage of the deliveries which were complicated was higher in hospitals (19 per cent) than in health centres (3 per cent). This could be due to the fact that health centres refer most of the anticipated complicated deliveries to the hospitals. The percentage of caesarean births in the province at 12 per cent was just about at the expected level of 15 per cent.

At health centre level, the percentage of complicated deliveries was the lowest at 2 per cent in Chadiza, Chipata, Mambwe, and Petauke. It was the highest in Nyimba at 5 per cent. At hospital level, the percentage of complicated deliveries in 2007 in Katete (27 per cent) was the highest among the districts. It was followed by Lundazi (20 per cent), Chipata (19 per cent) and Mambwe (16 per cent). The percentage of caesarean births was also close to this order with 19 per cent in Katete, 14 per cent in Lundazi and 12 per cent in Chipata.

- **Stillbirths**

A still birth is a delivery of a dead foetus after 28 weeks of gestation. The foetus may be fresh or macerated.

The percentage of still births in the province was 8 in 2005, 5 in 2006 and 7 in 2007. In 2005, the highest proportion of still births was in Lundazi (15 per cent), the second highest was in Chipata with 9 per cent and the lowest was in Chadiza at 1 per cent. In 2006, the highest was in Chipata at 10 per cent followed by Petauke, Nyimba, Lundazi and Chama at 4 per cent while the lowest were in Chadiza and Mambwe at 2 per cent. In 2007, the highest was in Chipata at 12 per cent followed by Lundazi (10 per cent) and the lowest was in Chadiza at 2 per cent.

- **Institutional maternal mortality ratio**

Maternal mortality is the death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. Maternal mortality ratio is the number of maternal deaths in a period per 100,000 women of reproductive age.

The maternal mortality ratio in health facilities in Eastern Province was 84 in 2005, 93 in 2006 and 87 in 2007.

### **First postnatal attendance**

This refers to the woman attending postnatal care for the first time within 6 days and 6 weeks of delivery. Due to the circumstances, the target for this indicator was higher in urban than in rural areas, 80 per cent and 40 per cent respectively.

Slightly above half of the women that delivered made at least one postnatal visit. In 2005, 39 per cent did, 39 per cent again in 2006 and 44 per cent in 2007. Among the districts, the highest coverage in all the years was achieved in Katete (69 per cent) in 2007. The lowest was in Lundazi (18 per cent) in 2005 and 19 per cent in 2007.

- **Pregnancies protected against tetanus**

Pregnancies protected against tetanus are those which have received two or more doses of tetanus toxoid. The target to protect 80 per cent of pregnant women with tetanus toxoid was not achieved in the province from 2005 to 2007. The coverage in the province in 2005 and 2006 was 79 per cent. It reduced to 61 per cent in 2007.

Among the districts, the target was also not achieved in any of the years in Chama and Lundazi. The targets achieved in Chama were 69 per cent in 2005, 62 per cent in 2006 and 70 per cent in 2007. In Lundazi, the coverage was 67 per cent in 2005, 62 per cent in 2006 and 41 per cent in 2007. The target was exceeded each year in 2005-2007 in Katete and Mambwe. In Katete, the coverage was 83 per cent in 2005, 83 per cent again in 2006 and 93 per cent in 2007. In Mambwe, the coverage was 88 per cent in 2005, 91 per cent in 2006 and 87 per cent in 2007.

- **Child health**

Zambia is committed to attaining the Millenium Development Goal number 4 on reducing under-five mortality by two thirds between 1990 and 2015. Strategies include universal immunisation, growth monitoring and nutrition promotion.

- **Expanded programme for immunisation**

The target of fully immunising 80 per cent of the children aged less than one year of age was achieved in the province only in 2005 when 85 per cent of the children less than 1 year old were fully immunised Full immunisation coverage refers to the number of children under the age of one who have completed the recommended series of immunisations. Coverage was 79 per cent in 2005 and 78 per cent in 2007.

Among the districts, the best performance was in Petauke where the target coverage of 80 per cent was exceeded by 14 per cent in 2005 and 2007 and 16 per cent in 2006. Chipata was next by exceeding the target by 7 per cent in 2005, 5 per cent in 2006 and 8 per cent in 2007. The target was not attained in all the three years in the rest of the districts.

BCG–measles dropout rate measures the difference in the proportion between children less than one year of age who received BCG and measles vaccines. The target is to achieve a rate of 10 per cent or less. In the period 2005 to 2007, the target dropout rate was achieved in the province in 2005 when the rate was 8 per cent. The rate was 21 per cent in 2006 and in 2007. Whereas the target rate was achieved in five districts, Chadiza (0.37 per cent), Chama (4 per cent), Chipata (0.7 per cent), Katete (8 per cent) and Nyimba (6 per cent) in 2005, it was only achieved in Mambwe in 2006 (0.2 per cent) and in Chadiza in 2007 (7 per cent).

The target of protecting 80 per cent of pregnancies against tetanus, i.e. those which received two or more doses of tetanus toxoid was not achieved in the province from 2005 to 2007. The coverage in the province was 79 per cent in 2005, 79 per cent again in 2006 and a reduced 61 per cent in 2007. The target was also not achieved in any of the years in two of the eight districts namely Chama and Lundazi. The targets achieved in Chama were 69 per cent in 2005, 62 per cent in 2006 and 70 per cent in 2007. In Lundazi, the coverage was 67 per cent in 2005, 62 per cent in 2006 and 41 per cent in 2007. Also in two of the eight districts namely Katete and Mambwe, the target was exceeded in all the three years. In Katete, the coverage was 83 per cent in 2005, 83 per cent again in 2006 and 93 per cent in 2007. In Mambwe, the coverage was 88 per cent in 2005, 91 per cent in 2006 and 87 per cent in 2007. In the rest of the districts, the target was achieved in some years and in others it was not.

- **Underweight prevalence**

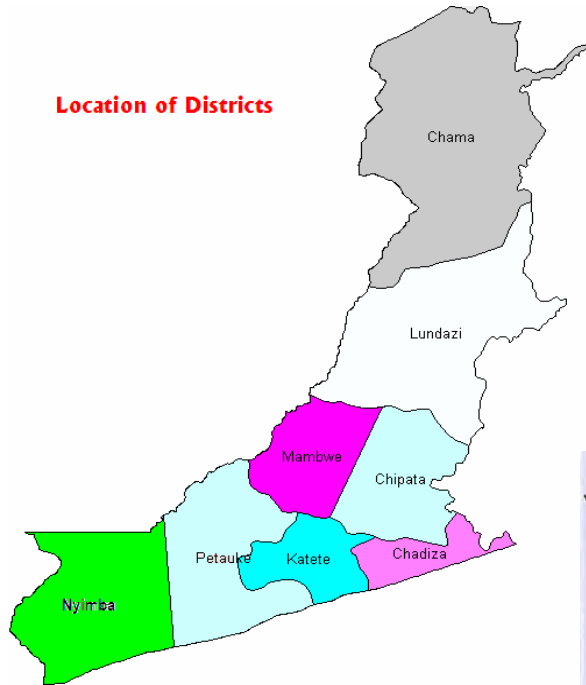
Underweight prevalence is the total percentage under-five children whose weight is low for their age. The weight for these children is below the lower line on the child health card. The indicator can be used to assess food security, economic status and also nutrition value knowledge in homes. It can also signal the children at risk of severe protein energy malnutrition.

The target of less than 10 per cent of under-five underweight children was attained in 2006 and in 2007. Underweight prevalence was 10 per cent in 2005. It reduced to 8 per cent in 2006 and to 5 per cent in 2007. There was also an annual reduction in all the districts. Since the guidelines state that if the underweight prevalence reduces or increases

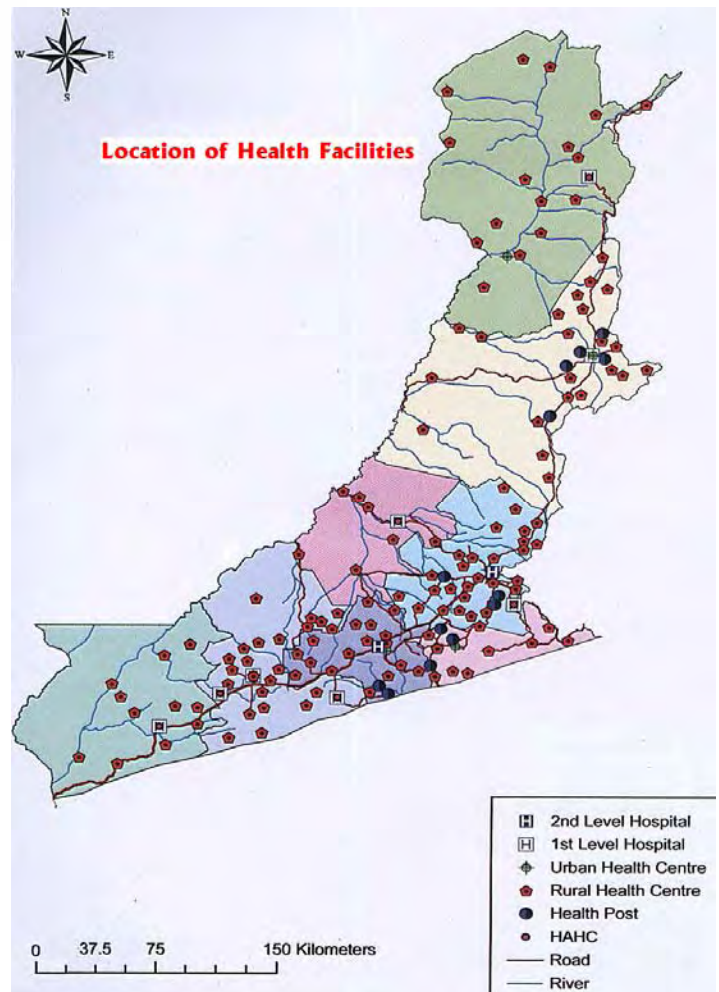
by 5 per cent from the earlier time it should be followed by investigation and action the reduction in underweight prevalence in Nyimba from 18 per cent in 2005 to 12 per cent in 2006 and in Petauke from 16 per cent in 2006 to 9 per cent in 2007, should be investigated.

# Maps about Eastern Province

**Location of Districts**



**Location of Health Facilities**



# Chapter 1: Background

## 1.1 Overview

Eastern Province is one of the nine provinces of Zambia. As the name goes, it is in the eastern part of the country. It shares borders with Northern and Central Provinces on the north-western side and Lusaka Province to the west. It shares international borders with Mozambique to the south and Malawi to the east

There are 8 districts in the province; namely Chadiza, Chama, Chipata, Katete, Lundazi, Mambwe, Nyimba and Petauke. Chipata is the provincial headquarters

There is an International airport in Mfuwe and another airport in Chipata. Airstrips are found in Nyimba, Petauke, Katete and Lundazi. . All the districts are linked by a road network that is generally in poor state.

## 1.2 Demographic information

The total population in the province was projected to be 1.5 million in 2007. The main tribes are the Nsenga, Chewa, Ngoni, Tumbuka, Senga and Kunda. These different groups of people have different cultural practices and beliefs that have an effect on the delivery of health services. The literacy levels of the people were quite low (47 per cent for women and 73 per cent for men.

**Table 1.1: Population statistics by districts in 2007**

District	0- 4 years	0-4 years per cent	5 – 14 years	5 – 14 years per cent	Above 15 years	Total	Male	Female
Chadiza	22,919	20	33,105	29	59,726	115,749	58,167	57,582
Chama	19,152	19	55,985	56	24,099	99,236	49,103	50,133
Chipata	87,153	19	247,699	54	123,848	458,700	229,350	229,350
Katete	44,848	19	133,278	57	55,456	233,582	116,501	117,081
Lundazi	60,659	19	175,281	56	78,358	314,299	155,936	158,363
Mambwe	12,202	20	32,210	54	15,403	59,815	29,935	29,880
Nyimba	18,359	21	46,130	52	24,200	88,689	44,016	44,673
Petauke	60,004	19	170,495	54	85,313	315,812	156,111	159,701
<b>Eastern</b>	<b>325,296</b>	<b>19</b>	<b>894,183</b>	<b>55</b>	<b>466,403</b>	<b>1,685,882</b>	<b>839,026</b>	<b>846,856</b>

*Source:* HMIS

## 1.3 Socio-economic status

The majority of the people of Eastern Province are poor (80 per cent) and 66 per cent are very poor. Most people depend on subsistence farming. There are few commercial farmers. The crops commonly grown are maize, rice, sweet potatoes, sorghum and groundnuts. Tobacco and cotton are grown as commercial crops. Animals reared include cattle, goats, poultry and pigs.



The main formal employers are Government Departments such as health, education and agriculture. Others include parastatals and non-government organisations. Other employers include commercial and small scale trading companies.

#### 1.4 Health facilities

The total number of health facilities inclusive of hospital affiliated health centres in the province in 2007 was 195. There were 2 second level hospitals. These were Saint Francis Mission in Katete and Chipata General Hospital in Chipata. There were 8 district/ first level hospitals, bringing the total number of hospitals to 10. There were 160 health centres and 25 health posts as shown in Table 1.2.

Facility type	Number		Number of health facilities by ownership		
	Beds	Cots	Government	Private/ (Defence)	Mission
Level 2 hospital	798	130	1	0	1
Level 1 hospital	864	120	4	4	4
Rural health	1,521	93	138	0	10
Urban health	100	8	8	0	0
Health posts	32	0	25	0	0
<b>Eastern</b>	<b>3,315</b>	<b>351</b>	<b>176</b>	<b>4</b>	<b>15</b>

*Source:* HMIS

Chadiza is the only district in the province where there is no hospital. The Ministry of Health was building a hospital in Chadiza that should have been completed in 2008.

#### 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 this 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.

## Chapter 2: Disease burden

This chapter presents the top ten causes of morbidity in Eastern Province in 2005, 2006 and 2007. They include malaria, respiratory infections (pneumonia and non-pneumonia) and diarrhoeal diseases (bloody and non-bloody).

Disease burden is measured by its incidence and the case fatality rate for its cases admitted in hospitals. Disease incidence is defined as the number of new cases that occur during a period in a defined population, while case fatality rate is the number of deaths from an illness out of total cases admitted in hospitals in a period.

### 2.1 Major causes of illnesses

#### 2.1.1 Malaria

As shown in Table 2.1, the malaria incidence rate in 2007 was nearly five times higher among the under-fives than among the older population in 2007. Among the districts, the incidence rate of malaria was the highest in Chama (769) followed by Chadiza (660). The lowest incidence rate was in Chipata (395). The hospital case fatality rate for malaria in the province was lower among the under-fives than among the older population. Among the districts it was the highest in Chipata (72 per 1000 admissions) followed by Lundazi (56 per 1000 admissions) and the lowest was in Nyimba (14 per 1000 admissions). There was no hospital in Chadiza.

District	Incidence rate per 1,000 population (All health facilities)			Case fatality rate per 1,000 admissions (Hospitals only)		
	Under 5	5 years and above	Total	Under 5	5 years and above	Total
Chadiza	1,846	363	660	-	-	-
Chama	2,035	452	769	15	21	16
Chipata	1,230	187	395	59	90	72
Katete	1,257	371	538	43	53	47
Lundazi	1,410	233	468	60	50	56
Mambwe	1,221	339	515	35	31	34
Nyimba	1,522	380	608	12	16	14
Petauke	1,248	352	531	75	35	51
<b>Eastern</b>	<b>1,376</b>	<b>295</b>	<b>510</b>	<b>49</b>	<b>54</b>	<b>50</b>

*Source:* HMIS

As shown in Figure 2.1, the incidence rate of malaria per 1000 population in the province increased from 410 in 2005 to 525 in 2006 and then it decreased to 510 in 2007. Among the districts, the incidence rate in Chipata reduced from 463 in 2005 to 436 in 2006 and to 395 in 2007. In Chadiza, it increased from 459 in 2005 to 590 in 2006 and to 660 in 2007.

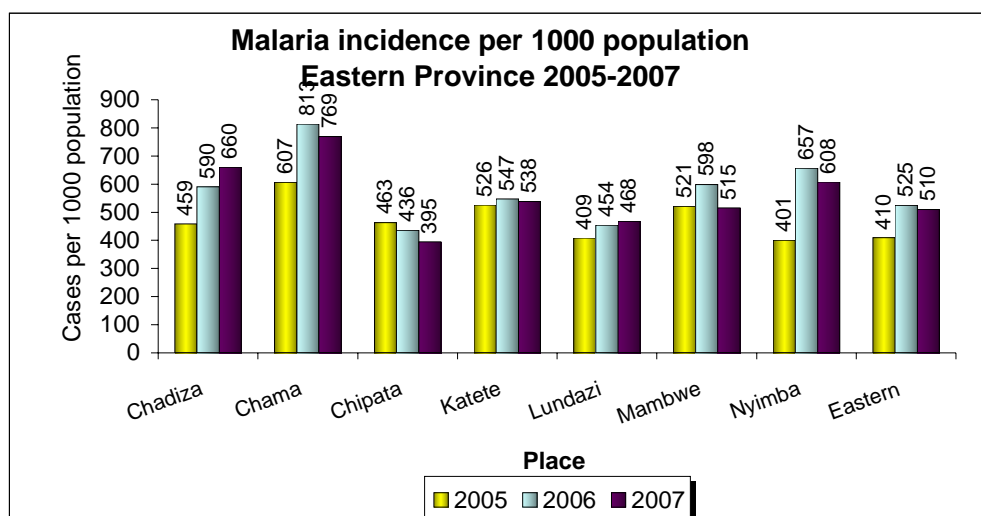


Figure 2.1: Malaria incidence rate

### 2.1.2 Respiratory infections (non-pneumonia)

Table 2.2 presents data on the incidence rate of respiratory infection (non-pneumonia) per 1,000 population in the catchment areas of the health facilities in the district and the case fatality rates per 1,000 admissions in the hospitals in the districts.

Generally, the incidence rate of respiratory infection (non-pneumonia) in 2007 was about three times higher among the under-fives (505) than among the older population (142). Among the districts, the highest incidence rate was in Nyimba (345 per 1000 population) followed by Chama (275 per 1000 population). The lowest incidence rate was in Chipata (146 per 1000 population).

District	Incidence rate per 1,000 population (All health facilities)			Case fatality rate per 1,000 admissions (Health centres and hospitals)		
	Under 5	5 years and above	Total	Under 5	5 years and above	Total
Chadiza	516	158	230	-	-	-
Chama	733	161	275	0	80	61
Chipata	433	74	146	19	75	49
Katete	581	171	248	113	5	23

Lundazi	519	134	211	48	32	41
Mambwe	463	162	222	0	43	23
Nyimba	714	253	345	7	0	3
Petauke	415	181	227	59	20	42
<b>Eastern</b>	<b>505</b>	<b>142</b>	<b>214</b>	<b>51</b>	<b>21</b>	<b>32</b>

*Source:* HMIS

The total case fatality rate was the highest in Chama (61 per 1000 admissions) and the lowest was in Nyimba (3 per 1000 admissions).

Figure 2.2 shows trends of the incidence of respiratory infections (non-pneumonia) per 1,000 populations by districts from 2005 to 2007. The incidence rate in the province increased from 140 in 2005 to 174 in 2006 and to 214 in 2007. The incidence rate also increased yearly from 2005 to 2006 and to 2007 in Chadiza, Katete, Lundazi, Mambwe, Nyimba and Petauke.

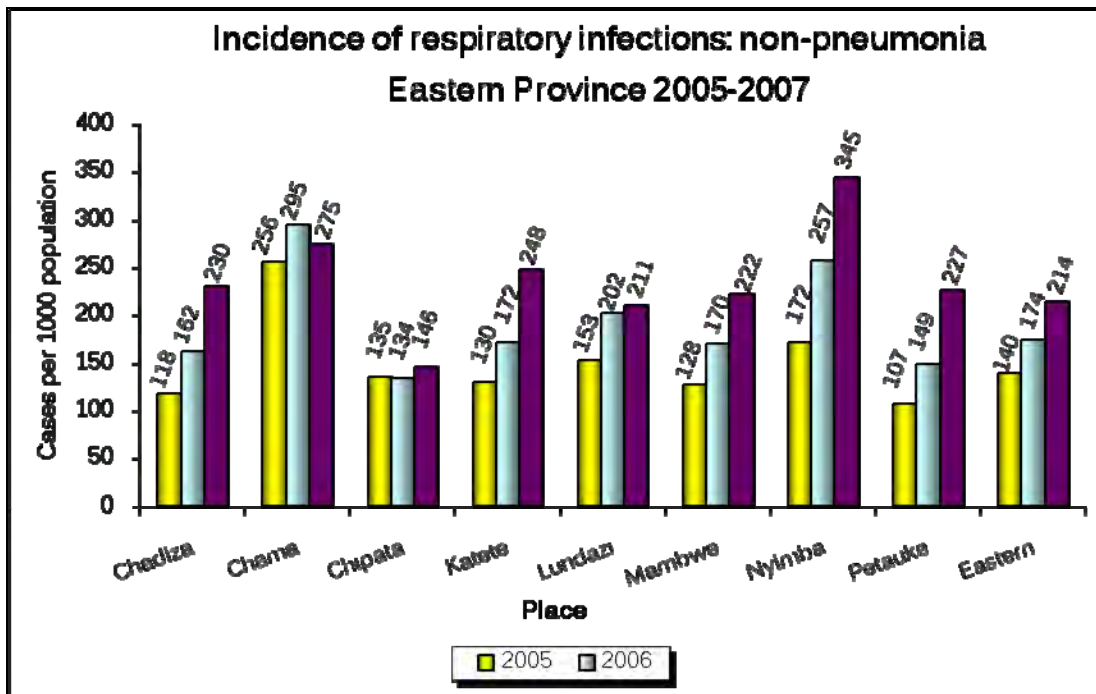


Figure 2.2: Incidence rate of respiratory infections: non-pneumonia

### 2.1.3 Respiratory infections (pneumonia)

As shown in Table 2.3, the incidence rate for pneumonia in the province in 2007 was 52 cases per 1000 population. The fatality rate in the hospitals was 109 cases per 1000 admissions. The incidence and fatality rates were higher among the under-fives than among the older population. The incidence rate among the under-fives at 134 per 1000 population was more than four times higher than in the older group at 31 per 1000 population. The difference in the case fatality between these age groups was not as high. The case fatality rate among the under-fives was 121 per 1000 admissions compared to 96 per 1000 admissions in the older age group.

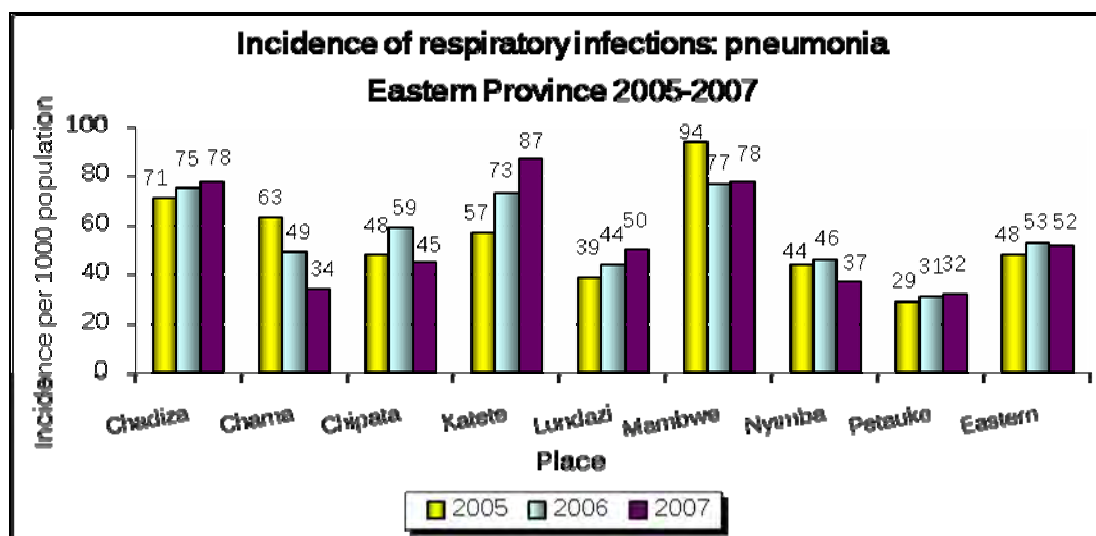
The incidence rate among the districts was the highest among the under-fives in Katete followed by Chama (233 and 230 per 1000 population respectively). In the older age group, the incidence rate was the highest in Mambwe (59 per 1000 population) followed by Chadiza (40 per 1000 population). The case fatality among the under-fives was the highest in Chama (229 per 1000 admissions) and among the older age groups in Chipata (138 per 1000 admissions).

**Table 2.3: Respiratory infections: pneumonia incidence and case fatality rates by age group, 2007**

District	Incidence rate per 1,000 population (All health facilities)			Case fatality rate per 1,000 admissions (Health centres and hospitals)		
	Under 5	5 years and above	Total	Under 5	5 years and above	Total
Chadiza	230	40	78	-	-	-
Chama	64	27	34	229	26	175
Chipata	134	23	45	134	138	136
Katete	233	53	87	141	108	123
Lundazi	131	30	50	71	36	53
Mambwe	152	59	78	62	63	62
Nyimba	97	21	37	85	26	54
Petauke	62	24	32	98	81	91
<b>Eastern</b>	<b>134</b>	<b>31</b>	<b>52</b>	<b>121</b>	<b>96</b>	<b>109</b>

Source: HMIS

Figure 2.3 illustrates the trend of the pneumonia incidence rate from 2005 to 2007 in the province and its districts. In Chadiza, Katete, Lundazi and Petauke, the annual incidence rate of pneumonia increased yearly. The lowest incidence rate in each year was in Petauke (29 in 2005, 31 in 2006 and 32 in 2007). Only in Chama was there a yearly reduction in the incidence rate per 1000 of the total population from 63 in 2005 to 49 in 2006 and to 34 in 2007.



*Figure 2.3: Incidence rate of respiratory infections: pneumonia*

### 2.1.4 Diarrhoea non-bloody

Diarrhoeal diseases (non-bloody) were the third leading cause of morbidity in 2007 after malaria and respiratory infections (non-pneumonia).

As shown in Table 2.4, the incidence rate of diarrhoea (non-bloody) in the province in 2007 was about 9 times higher among the under-fives (253) than among the older population (29).

Among the districts, the total incidence rate in 2007 was the highest in Nyimba (135 per 1000 population) followed by Chama (118 per 1000 population). The lowest was in Chipata (50 per 1000 population). The highest total case fatality rate among the districts was in Petauke (48 per 1000 admissions) followed by Lundazi (88 per 1000 admissions). The lowest case fatality rate was in Nyimba (9 per 1000 admissions).

**Table 2.4: Diarrhoea: non-bloody incidence and case fatality rates by age group, 2007**

District	Incidence rate per 1,000 population (All health facilities)			Case fatality rate per 1,000 admissions (Hospitals only)		
	Under 5	5 years and above	Total	Under 5	5 years and above	Total
Chadiza	271	25	74	-	-	-
Chama	428	41	118	49	56	51
Chipata	191	15	50	94	80	87
Katete	255	32	74	123	91	107
Lundazi	291	25	78	125	0	88
Mambwe	244	41	82	45	80	64
Nyimba	431	62	135	12	0	9
Petauke	193	37	69	62	32	48
<b>Eastern</b>	<b>253</b>	<b>29</b>	<b>73</b>	<b>88</b>	<b>60</b>	<b>74</b>

*Source:* HMIS

There was no hospital in Chadiza.

Figure 2.4 presents trends of diarrhoea diseases (non-bloody) by district for the period 2005 to 2007. The figure shows that the incidence rate in the province fluctuated from 68 in 2005 to 81 in 2006 and to 73 in 2007. Among the districts, the incidence rate increased yearly only in Nyimba from 73 in 2005, 104 in 2006 and 135 in 2007.



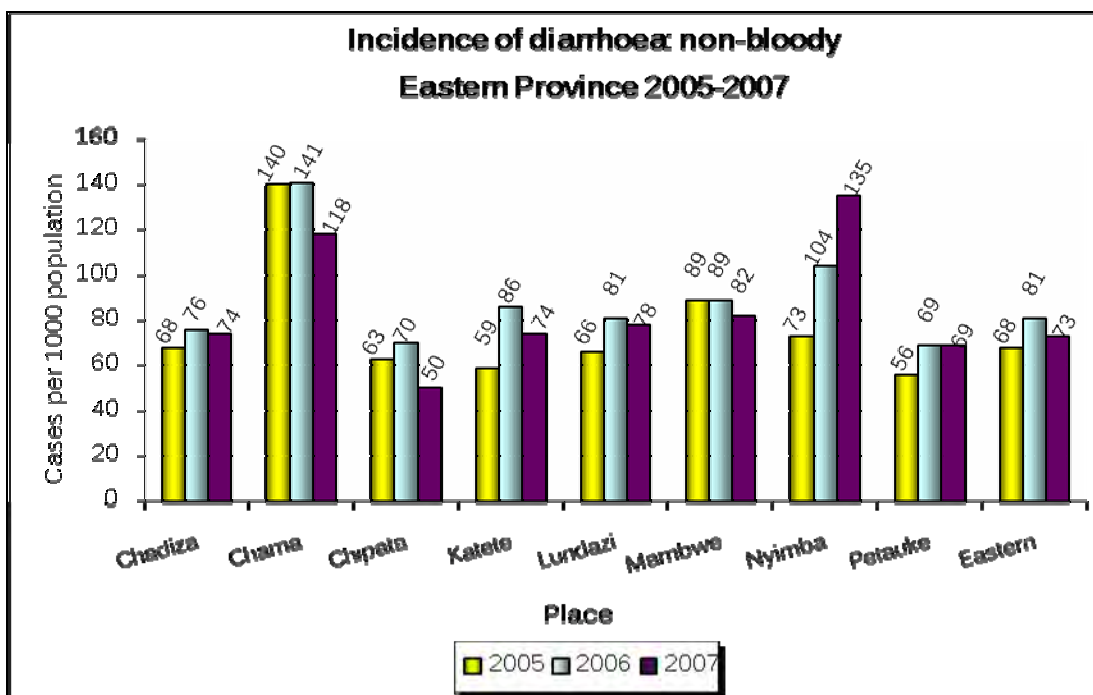


Figure 2.4: Incidence rate of diarrhoea: non-bloody

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

Trauma refers to injuries, wounds, broken bones or burns from accidents or self inflicted ones. Trauma was the fifth leading cause of morbidity in the province after malaria, respiratory infection (non-pneumonia) diarrhoea (non-bloody) and respiratory infection pneumonia.

As shown in Table.2.5 the incidence rate of trauma in the province in 2007 was higher among the under-fives (64) than among the older population (46). Among the districts the highest incidence rate was in Mambwe (75) and the lowest was in Chadiza (40). Data also shows that for every 1,000 admissions to hospitals in all the districts in 2007, 18 of them died. Among the districts, the highest case fatality was in Lundazi (31) followed by Nyimba (26). The lowest hospital case fatality rate of trauma (13 per 1000 admissions) in 2007 was recorded in Chama and Petauke. Overall, the case fatality rate for trauma was higher among the under-fives (31 per 1,000 admissions) than among the older population.

Table 2.5: Trauma (accidents, injuries, wounds, burns) incidence and case fatality rates by age group, 2007

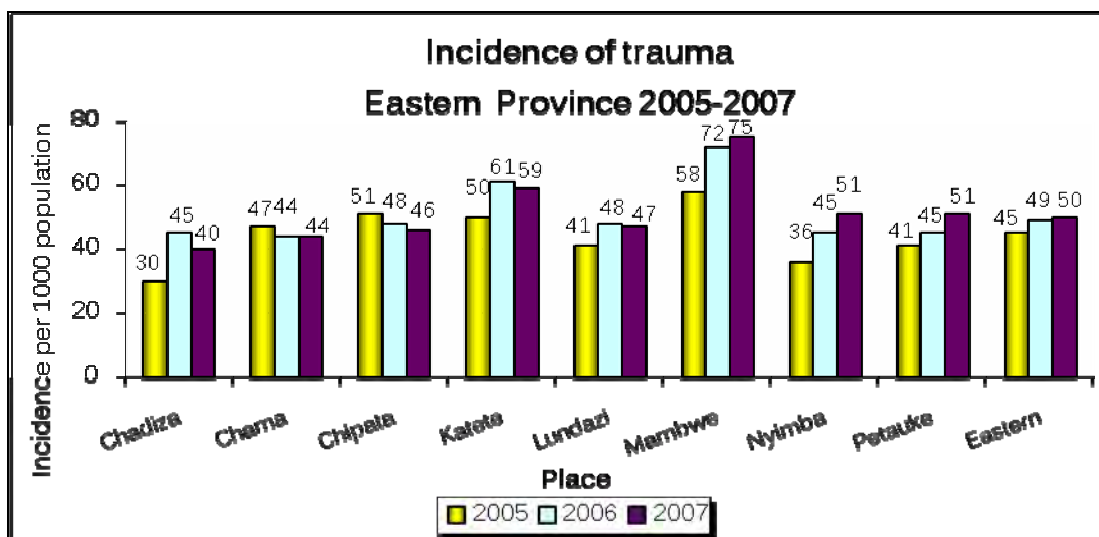
	Incidence rate per 1,000 population (All health facilities)		Case fatality rate per 1,000 admissions (Hospitals only)	
	5 years and		5 years and	

District	Under 5	above	Total	Under 5	above	Total
Chadiza	50	38	40	-	-	-
Chama	54	42	44	20	11	13
Chipata	62	42	46	49	16	21
Katete	70	56	59	47	9	15
Lundazi	64	42	47	9	39	31
Mambwe	93	71	75	0	0	0
Nyimba	61	48	51	-	29	26
Petauke	65	48	51	15	12	13
<b>Eastern</b>	<b>64</b>	<b>46</b>	<b>50</b>	<b>31</b>	<b>15</b>	<b>18</b>

*Source:* HMIS

*Note:* There is no district or any other hospital in Chadiza

Figure 2.5 shows that the incidence rate of trauma in the province per 1000 of the total population increased from 45 in 2005 to 49 in 2006 and to 50 in 2007. The incidence rate in Chipata and Chama reduced yearly during the period 2005 to 2007. It increased every year in Mambwe, Nyimba and Petauke.



*Figure 2.5: Incidence rate of trauma*

## 2.2 Selected notifiable diseases

Notifiable diseases are diseases that should be reported to the next levels immediately they are diagnosed because they can easily and/or quickly spread causing high morbidity and mortality. These diseases have been classified in the Integrated Disease Surveillance and Response (IDSR) strategy, to ensure that they are effectively prevented, managed and controlled when they occur.

In the HMIS, there are ten notifiable diseases namely; acute flaccid paralysis, measles, neonatal tetanus, dysentery, cholera, plague, rabies, typhoid fever, yellow fever and tuberculosis. Recently, human influenza was added to the list.

The province provided support for active surveillance of these diseases through monthly meetings and active surveillance. Districts which were silent about acute flaccid paralysis were visited more often for support and sensitisation.

### 2.2.1 Acute flaccid paralysis

This is a condition that affects those younger than 15 years. It presents with sudden onset of weakness of the limbs without a history of injury. The two main acute flaccid paralysis surveillance indicators are non polio acute flaccid paralysis rate measured per 100,000 children less than 15 years and stool adequacy rate. A non acute flaccid paralysis cases is determined by an investigation of 2 stools within 14 days of onset Table 2.6 shows acute flaccid paralysis surveillance performance indicators by all the districts within the province in 2007.

As shown in the Table 2.6, 16 cases were expected to be detected in 2007 in the province but 12 were. If no case is detected in a place then the situation is termed "silent". The data table shows that the situation was silent in Katete in 2007. Apart from Katete, suspected cases of acute flaccid paralysis were detected in all the districts.

District	Number of acute flaccid paralysis cases*		Annualised non-acute flaccid paralysis rate *	(Stool adequacy)*	
	Expected	Detected		Number	Percent
Chadiza	1	1	2.4	1	100
Chama	1	1	2.4	1	100
Chipata	4	1	0.5	1	100
Katete	2	0	0	0	0
Lundazi	3	4	7.3	4	100
Mambwe	1	2	7.3	2	100
Nyimba	1	1	2.4	1	100
Petauke	3	2	1.2	2	100
<b>Eastern</b>	<b>16</b>	<b>12</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)

### 2.2.2 Non-polio acute flaccid paralysis rate

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

### **2.2.3 Stool adequacy rate**

All detected acute flaccid paralysis cases should be adequately investigated by having two stool samples collected within 14 days after onset of paralysis. The stool should be transported under reverse cold chain within 72 hours of collection 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 threshold is 80 per cent but 100 per cent was attained in all the districts where data could be obtained.

## Chapter 3: HIV/AIDS, tuberculosis, and sexually transmitted infections

The primary objective of the health sector for HIV, AIDS, tuberculosis and STIs is to provide prevention, care, and treatment and support intervention to people in need.

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

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

#### 3.1.1 Antenatal HIV testing

The target is to test all pregnant women on their first visit to the antenatal clinic during a pregnancy. Table 3.1 shows that 79 per cent of the pregnant women attending antenatal clinic on the first visit of a pregnancy were tested for HIV. This was 21 per cent short of the target. Among the districts, the highest percentages were attained in Chadiza (95 per cent), Lundazi (95 per cent) and Petauke (95 per cent). In Katete, only 51 per cent were tested.

**Table 3.1: Percentage of women starting antenatal clinic who took an HIV test by district, 2007.**

District	Antenatal first visits	Tested for HIV	Percentage tested
Chadiza	2,504	2,378	95
Chama	2,838	2,470	87
Chipata	18,149	13,021	72
Katete	1,794	906	51
Lundazi	6,055	5,723	95
Mambwe	1,210	808	67
Nyimba	4,204	2,485	59
Petauke	8,205	7,778	95
<b>Eastern</b>	<b>44,959</b>	<b>35,569</b>	<b>79</b>

*Source:* Zambia Voluntary and Counselling Testing Services

#### 3.1.2 HIV positive results for pregnant women tested during the first antenatal care visit

Table 3.2 shows that 27 per cent of pregnant women who took an HIV test on their first antenatal care visits in Eastern Province were found with HIV. Among the districts, only in Katete (36 per cent) and Mambwe (44 per cent) was the percentage above the

provincial average (37 per cent). The respective percentages were 36 and 44. The lowest prevalence among these women was 6 per cent in Lundazi.

**Table 3.2: Number of women tested for HIV and the percentage testing positive by district, 2007.**

District	Tested for HIV	Tested positive	Percentage tested positive
Chadiza	2,378	295	17
Chama	2,470	417	21
Chipata	13,021	4,343	26
Katete	906	1,149	36
Lundazi	5,723	343	6
Mambwe	808	501	44
Nyimba	2,485	421	27
Petauke	7,778	2,178	24
<b>Eastern</b>	<b>35,569</b>	<b>9,647</b>	<b>27</b>

*Source:* HMIS

### 3.1.3 Antiretroviral prophylaxis

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

Table 3.3 shows that in the districts where data was available, all the babies known to be exposed to HIV received antiretroviral prophylaxis in 2007 except in Mambwe and Petauke where 55 per cent and 29 per cent of the babies respectively were given the prophylaxis.

**Table 3.3: Proportion of infants exposed to HIV given antiretroviral prophylaxis by district, 2007**

District	Estimated number of births exposed to HIV	Number given prophylaxis	Percentage of babies exposed to HIV-given prophylaxis
Chadiza	26	26	100
Chama	26	26	100
Chipata	No data	No data	No data
Katete	No data	No data	No data
Lundazi	97	97	100
Mambwe	58	32	55
Nyimba	28	28	100
Petauke	780	228	29
<b>Eastern</b>	-	-	-

*Source:* Zambia Voluntary and Counselling Testing Services

Figure 3.1 shows that 2,355 mothers with HIV and 801 infants exposed to HIV were given antiretroviral prophylaxis in the province.

## 3.2 Antiretroviral therapy

### 3.2.1 Ever enrolled on anti-retroviral therapy

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

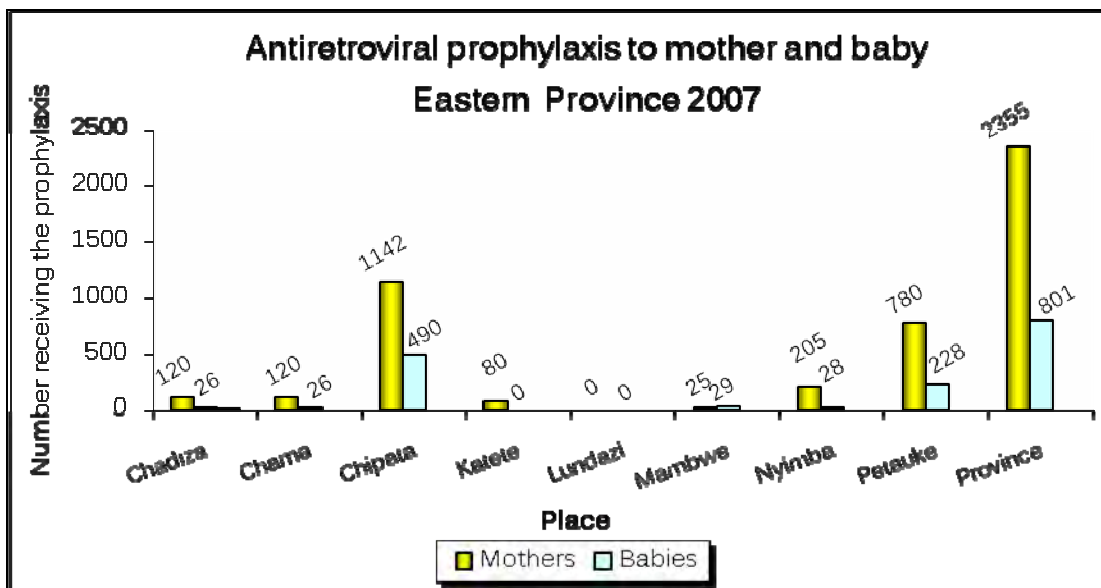


Figure 3.1: Antiretroviral prophylaxis for preventing HIV transmission from mother to child

More females than males were enrolled on antiretroviral therapy by 2006 and 2007 in the whole province and in all the districts. Almost all of those enrolled by 2007 were in Katete (2,178) and in Chipata (2,185). Out of 5,393 enrolled by the end of 2007 4,363 i.e. 80.9 per cent were Chipata and Petauke. There is clearly a need to ensure that enrolment is equitable among the districts.

Table 3.4: Cumulative number of patients ever enrolled on antiretroviral therapy by district, 2006-2007.

District	2006			2007		
	Males	Females	Total	Males	Females	Total
Chadiza	106	225	331	132	232	364
Chama	25	50	75	43	65	108
Chipata	625	1,034	1,659	844	1,341	2,185
Katete	0	0	0	763	1,415	2,178
Lundazi	0	0	0	0	0	0
Mambwe	89	107	196	82	98	180
Nyimba	0	0	0	149	229	378
Petauke	0	0	0	0	0	0



Eastern	845	1,416	2,261	2,013	3,380	5,393
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Source: HMIS

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

Table 3.7 shows that the target of clients ever enrolled on antiretroviral therapy in 2007 was attained in more districts than in 2006. Whereas in 2006, the target was not attained in Chadiza, Mambwe, Nyimba and Petauke, by 2007, the target had also been attained in Mambwe and Nyimba.

**Table 3.5: Proportion ever started on antiretroviral therapy against target by district and year.**

District	2006			2007		
	Target	On antiretroviral therapy	Percentage of target attained	Target	On antiretroviral therapy	Percentage of target attained
Chadiza	1539	747	48.5	1914	1772	91.3
Chama	No data	No data	No data	No data	No data	No data
Chipata	No data	No data	No data	No data	No data	No data
Katete	2343	3435	146.6	2864	7102	248.0
Lundazi	2040	2047	100.0	2491	2845	114.2
Mambwe	742	621	83.7	908	1509	166.2
Nyimba	1054	610	57.9	1286	2772	215.6
Petauke	893	491	55.0	1090	1024	93.9
<b>Eastern</b>	-	-	-	-	-	-

Source: HMIS

### 3.3 Tuberculosis

Tuberculosis is a disease that commonly affects the lungs, but also other organs. It is commonly transmitted by exposure to airborne bacilli produced by people with pulmonary or laryngeal tuberculosis during coughing and sneezing.

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

Cure refers to a patient whose sputum was positive at diagnosis and at the end of treatment, the sputum was negative. Treatment completion refers to patients whose sputum was positive at diagnosis and negative after two months of treatment but does not have the sputum examined at eight months.

Table 3.10 shows that a cure rate of 70 per cent was attained in the province in 2005, 73 per cent in 2006 and 70 per cent in 2007. Higher rates could not be attained due to inadequate diagnostic centres in some districts. The treatment success rate attained also fell short of the 85 per cent national target by 7 per cent in 2005, by 3 per cent in 2006 and by 6 per cent in 2007. As can be seen in the table these figures were difficult to obtain and they could be fraught with errors.

**Table 3.6: Tuberculosis cure rate 2005 to 2007**

District	Cure rate (percentage)			Completion rate (percentage)			Treatment success rate (percentage)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Chadiza	No data	39	67	No data	41	19	No data	80	86
Chama	85	82	78	5	8	No data	90	90	78
Chipata	89	No data	No data	No data	No data	No data	89	No data	No data
Katete	63	79	68	12	5	8	75	84	75

Lundazi	66	69	70	8	10	7	74	79	76
Mambwe	75	80	62	-	-	17	75	80	79
Nyimba	77	79	83	-	-	10	77	77	93
Petauke	76	77	70	7	7	10	82	83	80
<b>Eastern</b>	<b>81</b>	<b>79</b>	<b>83</b>	<b>2</b>	<b>1.6</b>	<b>2</b>	<b>83</b>	<b>81</b>	<b>85</b>

*Source:* Tuberculosis database

### 3.4 Sexually transmitted infections

These infections usually affect the reproductive organs of both males and females. Some present with ulcers such as genital ulcer syndrome, syphilis, chancroid, and herpes genitalis and others present with discharges such as genital discharge syndrome, gonorrhoea, chlamydia and trichomoniasis).

Table 3.11 presents the incidence of sexually transmitted infections in 2007 among the under-fives and the older population for the districts from which data could be obtained. The incidence rate was lower among the under-fives than among the older population in these districts. Among the under-fives, the incidence rate was the highest in Mambwe (3.3 per 1000 under-fives) followed by Nyimba (2.0 per 1000 under-fives). Among the older population, the incidence rate was the highest in Katete (29.1 per 1000 population) and lowest in Petauke (9.3 per 1000 population).

**Table 3.7: Sexually transmitted infection incidence, 2007**

District	Incidence rate per 1,000 population (All health facilities)		
	Under 5	5 years and above	Total
Chadiza	1.1	14.2	11.8
Chama	No data	No data	No data
Chipata	No data	No data	No data
Katete	0.9	29.1	25
Lundazi	0.6	9.8	8.2
Mambwe	3.3	15.5	18.2
Nyimba	2.0	23.2	19.4
Petauke	0.4	9.3	7.7
<b>Eastern</b>	-	-	-

*Source:* HMIS.

## Chapter 4: Human resources

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

### 4.1 Number of medical personnel by district

As shown in Table 4.1, most of the staff was in Chipata. Twelve out of the nineteen doctors were in Chipata. So were 310 out of 643 nurses and 93 out of 194 mid-wives. There were no doctors in Chadiza and Mambwe in 2007. Apart from Lundazi and Mambwe, there was at least one pharmacy technologist in all the districts.

Districts	Staff cadre								Total
	Medical Doctors	Clinical Officers	Nurses	Mid-wives	Environmental Health Officers/ Technicians	Pharmacists/ Pharmacy Technicians	Laboratory Technicians	Others	
Chadiza	0	6	23	5	8	1	1	75	119
Chama	1	7	14	5	9	1	1	93	130
Chipata	12	32	310	93	27	3	13	394	884
Katete*	0	4	31	15	14	1	2	86	150
Lundazi	1	10	69	23	18	0	4	188	313
Mambwe	0	7	25	11	6	0	1	57	107
Nyimba	1	16	27	9	8	1	1	90	153
Petauke	4	25	144	32	18	3	5	192	365
<b>Eastern</b>	<b>19</b>	<b>107</b>	<b>643</b>	<b>194</b>	<b>108</b>	<b>10</b>	<b>28</b>	<b>1,175</b>	<b>2,221</b>

Source: District Human Resource Register

\*Staff from Saint Francis hospital in Katete were not included

### 4.2 Health centre staff daily contacts

This is the average number of daily client contact for each specified health worker in an institution over a specified reporting period usually a quarter or year. The total number of contacts during that period is divided by the number of qualified staff days. Holidays and weekends are excluded and it is assumed that each qualified staff member works 8 hours a day. A high figure of staff daily contacts imply that staffing levels are low and that might affect the quality of health care offered.

Figure 4.1 shows that the contacts per day increased yearly in all the districts except in Lundazi and Petauke. The average number of contacts in Lundazi was 42 in 2005, 39 in 2006 and 30 in 2007. In Petauke, they were 27 in 2005, 36 in 2006 and 34 in 2007.

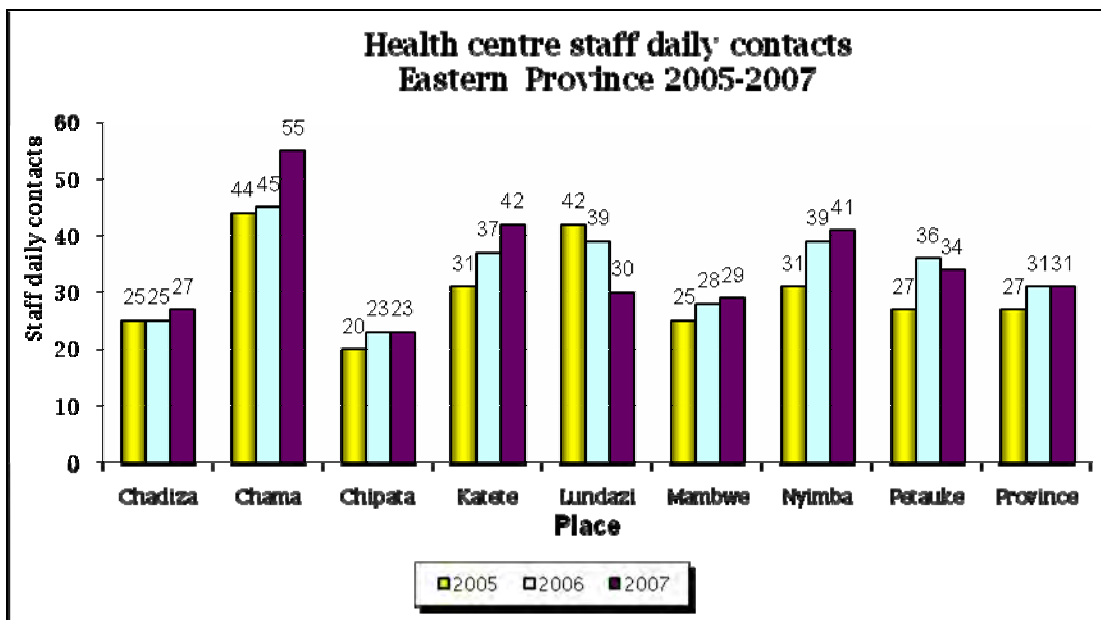


Figure 4.1: Number of health centre staff daily contacts

### 4.3 Community health volunteers

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

#### 4.3.1 Trained traditional birth attendants

Traditional Birth Attendants (tTBAs) are women chosen by the community members from within their communities. They provide safe motherhood services including performing uncomplicated deliveries after undergoing a six weeks basic training in reproductive health. Government policy requires that for every 1,000 inhabitants there should be one tTBA. The tTBAs are provided with basic delivery packs and other supplies on monthly basis by the health institution where they belong. They report to the nearest health centre.

Table 4.2 shows that the average number of deliveries done by tTBAs decreased from 26 in 2005 to 25 in 2006 and to 18 in 2007 in the province. The total number of deliveries done by the tTBAs also decreased from 18786 in 2005 to 17,105 in 2006 and 15,850 in 2007. The decrease in the number of deliveries by tTBAs could be attributed to: lack of supportive supervision by the facility staff; inadequate incentives such as clean delivery kits, transport and community support and non-availability of retraining package at both provincial and district levels.

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

District	2005			2006			2007		
	Active tTBAs	Deliveries		Active tTBAs	Deliveries		Active tTBAs	Deliveries	
		Actual	Average		Actual	Average		Actual	Average
Chadiza	87	1,726	20	95	1,497	16	83	1,317	16
Chama	15	401	27	15	660	44	23	787	34
Chipata	135	3,365	25	112	2,947	26	239	2,968	12
Katete	158	4,340	27	160	3,462	22	199	2,433	12
Lundazi	89	3,231	36	81	2,536	31	98	2,354	24
Mambwe	33	511	15	35	504	14	41	666	16
Nyimba	68	1,662	24	69	2,138	31	63	1,469	23
Petauke	138	3,550	26	132	3,361	25	134	3,856	29
<b>Eastern</b>	<b>720</b>	<b>18,786</b>	<b>26</b>	<b>698</b>	<b>17,105</b>	<b>25</b>	<b>879</b>	<b>15,850</b>	<b>18</b>

Source: HMIS

### 4.3.2 Community health workers

Community health workers are chosen from within the communities by members. They undergo a four weeks training in basic preventive and curative care of minor ailments. Government policy is that for every 500 inhabitants there should be one community health worker.

Table 4.3 shows that the number of patients seen by community health workers increased from 596,748 in 2005 to 643,584. However there was a drop by about 400,000 in 2007 to 244,569. The average number of patients seen by community health workers dropped from 892 in 2005 to 480 in 2007. All the districts recorded huge drops in the average number of patients seen by community health workers between 2005 and 2006. The biggest drop was recorded in Katete where the average number of patients seen was 1,060 in 2005 and 215 in 2007. Community health workers are now playing a lesser role in the treatment of patients due to various factors. Their number also consequently reduced from 998 in 2005 to 480 in 2007.

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

District	2005			2006			2007		
	Number of active community health workers	Number of patients		Number of active community health workers	Number of patients		Number of active community health workers	Number of patients	
		Total	Average		Total	Average		Total	Average
Chadiza	77	32,000	416	87	29,480	339	62	10,142	164
Chama	40	31,649	791	46	37,892	824	33	15,388	466
Chipata	161	91,033	565	127	88,302	695	88	41,976	477
Katete	77	98,911	1285	68	72,084	1,060	63	13,526	215
Lundazi	102	140,129	1374	122	182,766	1,498	122	92,858	761

Mambwe	34	20,398	600	21	19,580	932	16	6,961	435
Nyimba	66	56,694	859	54	48,648	901	16	7,967	498
Petauke	112	125,934	1124	122	164,832	1,351	111	55,751	502
<b>Eastern</b>	<b>669</b>	<b>596,748</b>	<b>892</b>	<b>645</b>	<b>643,584</b>	<b>998</b>	<b>510</b>	<b>244,569</b>	<b>480</b>

Source: MOH (HMIS) Eastern Province..

## Chapter 5: Availability of drugs

Drugs are an essential component of health service delivery. Drugs should always be available health facilities. A shortage of a drug in a month even a day could affect the quality of health service delivery. This indicator measures the number of months a drug has been in stock at health facilities in a particular period under review usually a quarter. This chapter discusses indicators collected from the HMIS on drugs availability and medical supplies by different districts.

### 5.1 Medical supplies in stock at health facilities

This is the measure of the proportion of months during a time period that a particular indicator drug or medical supply was in stock. At the end of the month, the health centre staff notes from the stock control cards whether there was any occasion in the previous month when the critical drug or supply was out of stock in the store, when the stock level reached zero. The indicator gives a rough measure of the proportion of time that critical supplies have been in stock.

Stock outs of medical supplies in a particular month must be investigated as this can compromise the quality of health services being provided. Possible reasons that may lead to stock outs include: inadequate supplies from Medical Stores, pilferage, over prescribing by staff and disease trends.

As shown in Table 5.1, the percentage of months for which drugs were in stock was lower in health centres than in hospitals in all the years at the provincial level. This was also largely the case in the districts as well. The exceptions were Chipata, Nyimba and Petauke in 2006. The drugs situation continuously deteriorated in the province. The percentage of months at the provincial level in which drugs were in stock in health centres dropped from 74 per cent in 2005 to 73 per cent in 2006 and to 67 per cent in 2007. In hospitals at the provincial level, it dropped from 89 per cent in 2005 to 86 per cent in 2007. Summing the health centres and hospitals, the drop was from 75 per cent in 2005 to 74 per cent in 2006 and to 68 per cent in 2007.

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

District	Percentage of months if stock in health centres			Percentage of months if stock in hospitals			Percentage of months in stock in both health centres and hospitals		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Chadiza	77	79	78				77	79	78



Chama	48	55	51	99	98	98	50	57	53
Chipata	74	75	68	73	61	67	74	74	68
Katete	87	71	75	100	100	83	87	72	76
Lundazi	74	74	59	96	95	89	75	75	60
Mambwe	80	67	64	100	97	94	82	70	67
Nyimba	82	78	79	89	76	79	82	78	79
Petauke	77	82	69	86	76	93	78	81	71
<b>Eastern</b>	<b>74</b>	<b>73</b>	<b>67</b>	<b>89</b>	<b>82</b>	<b>86</b>	<b>75</b>	<b>74</b>	<b>68</b>

Source: MOH (HMIS) Eastern Province.

Whereas in 2005 and 2006, drugs did not run out in hospitals in Katete and Mambwe, stock outs were reported in the health facilities in all the other districts in 2007. The best stocked health facilities in 2007 were in Chadiza where stocks were available for 78 per cent of the months. Health centres in Chama were the most poorly stocked. Whereas drugs were in stock in Chama for 99 per cent of the months in 2005, 98 per cent in 2006 and 98 per cent in 2007, drugs in the health facilities in the districts were in stock for 48 per cent of the months in 2005, 55 per cent in 2006 and 51 per cent in 2007.

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

This indicator looks at the number of months in which tracer drugs were available. It measures the number of essential drug kits opened during the time period per 1000 curative contacts (first attendances and re-attendances, and admissions) during the same period. Tracer drugs include fansidar, amoxicillin, cotrimoxazole and antigens such as Diphtheria, Pertusis, Tetanus, Haemophilus Influenza and Hepatitis B, Oral Polio Vaccines and Measles just to mention a few.

Table 5.2 shows the percentage of months that tracer drugs were available in the health centres and hospitals in the districts of the province in 2007. As indicated in the table, Fansidar was the most available drug in the hospitals but the lowest in health centres. Among the districts, paracetamol was the most widely available drug in the health centres. For instance, in Katete, anti-malarial was available for 17 per cent of the months, paracetamol 81 per cent of the months and cotrimoxazole 92 per cent of the months. In Chipata anti-malarial was only available for 17 per cent of the months, paracetamol for 81 per cent of the months and cotrimoxazole for 86 per cent of the months. Among the hospitals, tracer drugs were the best stocked in Mambwe district. Fansidar, amoxicillin and benzyl penicillin were available throughout the year. These drugs were poorly stocked in Chipata followed by Chama. In Chipata fansidar was available for 17 per cent of the months, amoxicillin 26 per cent of the months and benzyl penicillin for 25 per cent of the months. Respective periods for the respective drugs in Chama were 48 per cent of the months, 50 per cent and 50 per cent.

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

District	Health centre			Hospital		
	Anti-malarial	Paracetamol	Cotrimoxazole	Fansidar	Amoxicillin	Benzyl Penicillin
Chadiza	40	81	78			
Chama	50	75	58	48	50	50
Chipata	17	81	86	17	26	25
Katete	55	88	92	42	42	42
Lundazi	47	58	59	92	100	92
Mambwe	37	58	54	100	100	100
Nyimba	No data	No data	No data	No data	No data	No data
Petauke	54	96	69	40	46	50
<b>Eastern</b>						

Source: HMIS

### 5.3 Drug kit utilisation at health centres

This indicator describes the number of drug kits opened per 1000 patients in health centres. It measures the number of drug kits utilised during the time period usually a month per 1000 number of curative contacts, first attendances, follow-up attendances and inpatients inclusive. The standard drug kit is intended to serve 1,000 patients. There is need for further investigation if more than 1.2 kits per 1,000 patients or less than 0.8 kits per 1,000 patients are opened.

Figure 5.1 is a graphical presentation of drug kit utilisation in health centres of Eastern Province from 2005-2007. The graph shows a decrease in the number of drug kits opened per 1000 from 2005 to 2007. The decrease was observed for the whole province from 1.2 to 0.8 per 1000 patients. Continuous annual decreases were also observed in Chadiza, Chama, Chipata, Lundazi, Mambwe and Petauke. There was excessive usage of the drug kit in Petauke in all the three years.

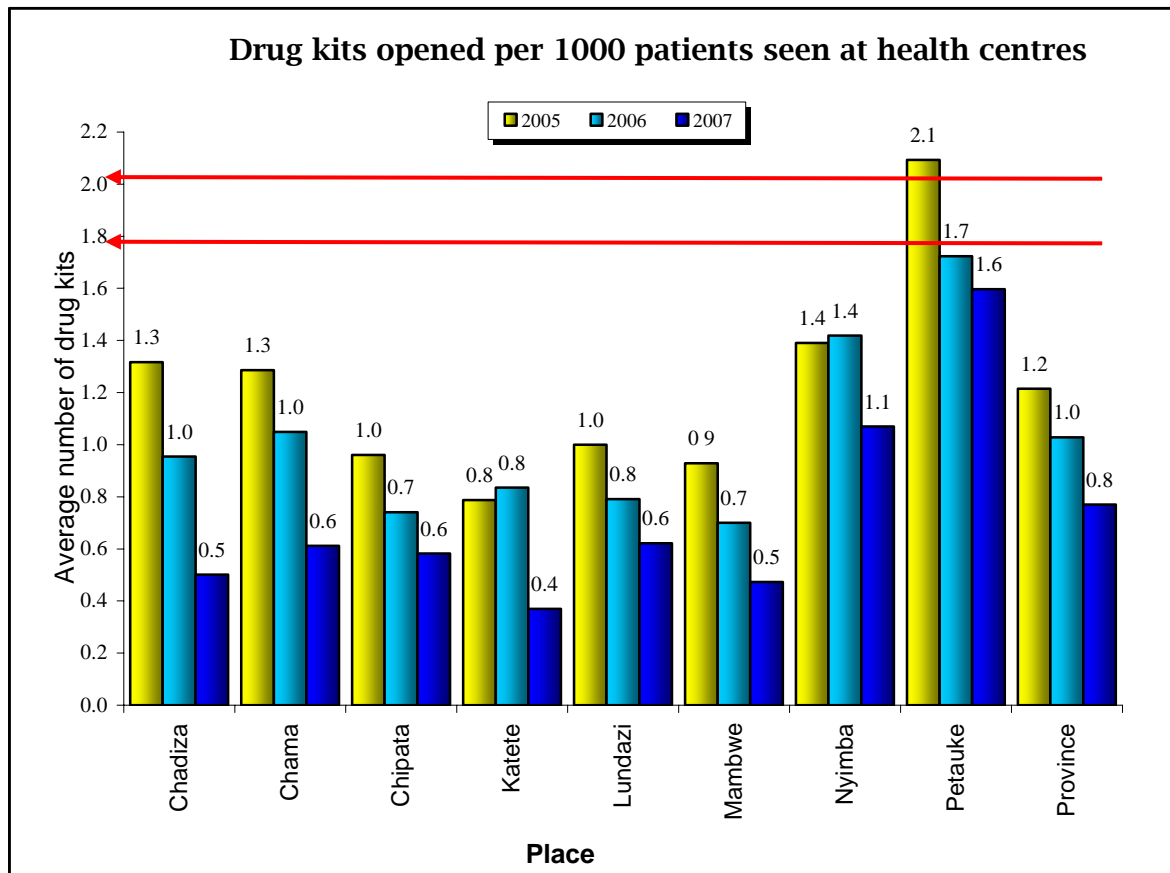


Figure 5.1: Number of drug kits opened per 1000 patients seen at health centres

## Chapter 6: Health services delivery indicators

This chapter highlights the key health facility utilisation indicators by district. After the abolition of user fees in 2005, there was a remarkable increase in utilisation rates for those aged 5 years and older as their usage of health facilities was more subjected to user fees.

### 6.1 Health facility utilisation

Table 6.1 shows that the only discernible trends of selected service delivery indicators for the whole province were the reduction in health centre bed occupancy rate and the increase in the hospital bed occupancy rate. The health centre bed occupancy rate reduced from 22 per cent in 2005 to 20 per cent in 2006 and to 18 per cent in 2007. The hospital bed occupancy rate increased from 46 per cent in 2005 to 53 per cent in 2006 and to 54 per cent in 2007.

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

Indicator	Year		
	2005	2006	2007
Health centre outpatient department utilisation	0.92	0.81	0.99
Health centre under 5 per capita attendance	3.17	3.15	3.08
Health centre over 5 per capita attendance	0.75	0.94	1.01
Health centre bed occupancy rate (percentage)	22	20	18
Hospital bed occupancy rate (percentage)	46	53	54
Hospital average length of stay	4.5	4.9	4.6

*Source:* HMIS

### 6.2 Outpatient department utilisation

This is measured by the average number of times the population in a catchment area of a health facility seeks health services from it. However, usage of this indicator can be precarious because the population in the catchment area can seek health services elsewhere and the population from other catchment areas may seek health services at it. As shown in Table 6.2, the outpatient department utilisation rate in the province gradually increased from 1.3 visits per person in 2005 to 1.5 in 2006 and to 1.7 in 2007. Annual increases also occurred in Chadiza, Katete, Nyimba and Petauke.

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

District	Outpatient department utilisation rate		
	2005	2006	2007
Chadiza	1.4	1.7	2.3
Chama	1.1	1.4	1.4
Chipata	1.2	1.2	1.1
Katete	1.5	1.9	2.1
Lundazi	1.2	1.2	1.2
Mambwe	2.0	1.9	1.9
Nyimba	1.1	1.6	1.7
Petauke	1.3	1.5	1.6
<b>Eastern</b>	<b>1.3</b>	<b>1.5</b>	<b>1.7</b>

*Source:* HMIS

### 6.3 Health centre per capita attendance

Health centre per capita attendance measures the population attending outpatient departments out of the total population for that age group. Outpatient department utilisation per capita attendance in rural areas should not be less than 1 per year and in urban areas, not be less than 3 per year. As shown in Table 6.3, the per capita attendance was slightly above 3 times higher among the under-fives than among the older age group in all the districts and years.

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

District	2005			2006			2007		
	Under 5 year	5 years and above	Total	Under 5 year	5 years and above	Total	Under 5 year	5 years and above	Total
Chadiza	3.8	0.8	1.4	3.9	1.1	1.7	5.1	1.5	2.3
Chama	2.9	0.6	1.1	3.7	0.9	1.4	3.1	1.0	1.4
Chipata	3.1	0.7	1.2	3.4	0.7	1.2	2.5	0.6	1.0
Katete	3.6	0.9	1.4	3.4	1.2	1.6	3.7	1.4	1.8
Lundazi	3.1	0.7	1.1	3.1	0.8	1.2	2.9	0.8	1.2
Mambwe	4.7	1.3	2.0	3.0	1.5	1.9	3.1	1.5	1.8
Nyimba	2.4	0.8	1.1	3.0	1.2	1.5	3.3	1.2	1.6
Petauke	2.9	0.8	1.2	2.9	1.0	1.4	2.9	1.2	1.5
<b>Eastern</b>	<b>3.2</b>	<b>0.7</b>	<b>1.2</b>	<b>3.2</b>	<b>0.9</b>	<b>1.4</b>	<b>3.1</b>	<b>1.0</b>	<b>1.4</b>

*Source:* HMIS

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

This indicator measures the percentage of available beds in health centres and hospitals occupied in a period (usually one year). The national target is that not be less than 80 per cent of the beds should be occupied in a health facility. This indicator is closely related to two other indicators: the bed turnover rate and the average length of

stay. The turnover rate reflects the average number of patients admitted per bed during a period.

The annual turnover rate should ideally be around 50 in district hospitals. The average length of stay shows how efficient hospital inpatient facilities are used. The average length of stay in a district hospital should be 6 days or less. The three indicators assess the efficiency of use of inpatient facilities. When the bed occupancy rate and turnover rate drop while the average length of stay remains stable, the inpatient facility may be underutilised, resulting in too much idle staff time.

As shown in Table 6.4, the bed occupancy rate in the province decreased in the health centres from 22 per cent in 2005 to 20 per cent in 2006 and to 18 per cent in 2007 while that in the hospitals increased from 46 per cent in 2005 to 53 per cent in 2006 and to 54 per cent in 2007. Among the districts, discernible reductions in the bed occupancy rate in health centres can be seen in Chama, Lundazi, Mambwe, Nyimba and Petauke. Clearly, beds in health centres in the districts are under- utilised. At no time was the bed occupancy rate in health centres even close to the national target of 80 per cent. Beds are also under utilised in the hospitals in the districts although not to the same extent as in health centres. Only in Chama was the bed occupancy rate above the 80 per cent target.

**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
Chadiza	17	20	15	No hospital			15	28	25
Chama	40	26	17	120	101	124	68	55	51
Chipata	17	17	15	46	46	40	31	34	29
Katete	23	19	22	58	75	73	50	56	59
Lundazi	26	22	21	69	74	66	35	33	30
Mambwe	23	20	13	46	56	49	34	36	27
Nyimba	23	22	20	43	40	46	31	30	32
Petauke	23	22	20	42	35	45	30	27	35
<b>Eastern</b>	<b>22</b>	<b>20</b>	<b>18</b>	<b>46</b>	<b>53</b>	<b>54</b>	<b>34</b>	<b>36</b>	<b>36</b>

Source: HMIS

## 6.5 Hospital outpatient department utilisation

Two indicators, hospital outpatient department by-pass first attendances and hospital outpatient department first referred percentage attendance are used to measure the utilisation of the hospital outpatient department. The hospital outpatient department first attendances should be less than one tenth of the average health centre attendances, as not more than 10 per cent of the health centre first attendances are referred to hospitals. As shown in Table 6.5, the utilisation rate for the hospitals outpatient departments in the province was 0.1 per cent in 2005, 2006 and in 2007.

**Table 6.5: Hospital outpatient department utilisation**

District	Outpatient department utilisation rate		
	2005	2006	2007
Chadiza	-	-	-
Chama	0.00	0.00	0.00
Chipata	0.1	0.1	0.1
Katete	0.2	0.2	0.3
Lundazi	0.00	0.00	0.00
Mambwe	0.00	0.0	0.1
Nyimba	0.00	0.00	0.00
Petauke	0.1	0.1	0.1
<b>Eastern</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>

*Source:* HMIS

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

This is the percentage of outpatient department first attendants in hospitals who by-passed health centres. When this percentage is high, there could be a problem at the health centres level or hospitals may also be performing health centre functions. This calls for managers to improve accessibility and services offered at health centres. As shown in Table 6.6, the outpatient department bypass rate in the province increased by 12 per cent between 2006 and 2007 among the under-fives. The rate in the older age group reduced from 21 per cent in 2005 to 16 per cent in 2006 and then back to 21 per cent in 2007. Among the districts, the rate in Lundazi increased continuously in both the under-fives and the older age group.

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

District	Under 5 years			5 years and above			Total by-pass attendance		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Chadiza	No hospital			No hospital			No hospital		
Chama	17	15	17	9	8	7	10	9	8
Chipata	24	29	10	33	13	18	30	17	15
Katete	12	17	12	18	20	19	17	20	18
Lundazi	3	12	33	6	11	33	5	11	33
Mambwe	7	46	24	20	58	24	17	57	41
Nyimba	41	23	26	38	15	35	40	18	30
Petauke	23	8	56	16	11	20	18	9	35
<b>Eastern</b>	<b>20</b>	<b>19</b>	<b>31</b>	<b>21</b>	<b>16</b>	<b>21</b>	<b>21</b>	<b>17</b>	<b>24</b>

*Source:* HMIS

## 6.7 In-patient turnover rate

In-patient turnover rate is the number of admissions per bed over a period such as a year. It is the average number of admissions during a period per bed in the health facility. The higher the turnover rate, the more active the facility is. The national target



for inpatient turnover for district hospitals is 50. That translates into patients being admitted on a bed for about 6 days.

Table 6.7 shows a continuous reduction in the turnover rate in the health centres from 7.7 per cent in 2005 to 7.2 per cent in 2006 and to 7.0 per cent in 2007 and a continuous increase in the rate in the hospitals from 2.7 per cent in 2005 to 9.8 per cent in 2006 and 10.7 per cent in 2007. All hospitals and health centres were way short of reaching the target turnover of 50 in any of the years. Given 365 days in year, that would imply that patients were admitted on average for more than 40 days on a bed. Clearly, there was something wrong with the compilation of this indicator or there is extreme inefficiency in the utilisation of beds in health facilities.

**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
Chadiza	8.2	10.4	10.2	No hospital		
Chama	7.5	8.6	5.8	21.6	20.6	27.3
Chipata	6.5	6.4	6.6	1.3	7.2	8.5
Katete	22.2	9.5	10.0	9.8	14.4	10.6
Lundazi	7.2	6.9	7.2	15.3	15.4	15.3
Mambwe	8.4	8.9	5.0	11.7	11.0	10.6
Nyimba	6.9	7.1	7.1	9.3	9.6	10.7
Petauke	5.9	5.5	5.2	7.8	6.9	9.9
<b>Eastern</b>	<b>7.7</b>	<b>7.2</b>	<b>7.0</b>	<b>2.7</b>	<b>9.8</b>	<b>10.7</b>

Source: HMIS

## 6.8 Average length of stay

This is the total number of patient bed days during a period over the total number of admissions during the same period. The recommended average length of stay in a district hospital is 6 days or lower. When the bed occupancy rate drops and the average length of stay remains stable, the in-patient staff workload reduces.

Table 6.8 shows the average length of stay in hospitals by districts for the period 2005 to 2007. The average length of stay in the hospitals was within the prescribed limit of 6 days or less for the whole province in all the three years. This was also the case among the districts except in Katete in 2007 when the average length of stay was 6.3 days. The average length of stay reduced in five of the eight districts between 2005 and 2007. The average length of stay in Chama in 2005 was 5.1 days and in 2007, it was 4.1 days. The reduction in Chipata was from 5.3 days in 2005 to 4.3 days in 2007, in Lundazi, from 4.1 days in 2005 to 3.9 days in 2007, in Nyimba from 4.2 days in 2005 to 3.9 days in 2007 and in Petauke, from 4.9 days in 2005 to 4.1 days in 2007.

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

District	Hospital average length of stay		
	2005	2006	2007
Chadiza	No hospital		
Chama	5.1	4.4	4.1
Chipata	5.3	5.8	4.3
Katete	5.4	4.8	6.3
Lundazi	4.1	4.4	3.9
Mambwe	3.6	4.6	4.2
Nyimba	4.2	3.8	3.9
Petauke	4.9	4.6	4.1
<b>Eastern</b>	<b>4.5</b>	<b>4.9</b>	<b>4.6</b>

*Source:* HMIS

## 6.9 Maternal health and family planning

This section looks at some aspects of integrated reproductive health services: antenatal care, supervised deliveries, postnatal care and family planning. Maternal health issues are some of the major public health concerns and they provide the foundation for subsequent success to child health. The risks in pregnancy both to the mother and unborn child need to be identified early so that effective interventions are put in place.

### 6.9.1 Summary of maternal health indicators

The main causes of loss of productive life among women are factors related to pregnancy. A major part of this loss can be prevented through child spacing, including regular access to quality family planning services, and proper care during pregnancy, delivery, and the postnatal period and after spontaneous or induced abortion.

Maternal health indicators measure the quality of maternal health and family planning services provided to the community Table 6.9 shows that the target of 3 average antenatal visits was only achieved in 2005 but this was also almost achieved in 2006. It should be a concern that the average number of antenatal visits per pregnancy reduced from 3.1 in 2005 to 2.9 in 2006 and to 2.6 in 2007. On institutional deliveries, the set target of 60 per cent was not reached between 2005 and 2007. The achievement of this target fell short by 23 per cent in 2005, 25 per cent in 2006 and 21 per cent in 2007. However; there was some improvement in the percentage of mothers returning for the first postnatal consultation from 39 per cent in 2005 and 2006 to 43 per cent in 2007. The target is to have at least 40 per cent of the mothers in rural areas come for the first postnatal consultation in rural areas. Since areas in Eastern province are largely rural, this target was about achieved in the three years.

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

Indicator	Period in years			Average
	2005	2006	2007	2005-2007
First antenatal coverage (percentage)	91	95	96	94
Average antenatal visits	3.1	2.9	2.6	2.9
Institutional deliveries (percentage)	37	35	39	37
Trained Traditional Birth Attendants (percentage)	21	23	19	21
Supervised deliveries (percentage)	61	56	58	58
First postnatal attendance (percentage)	39	39	43	40

**Source:** HMIS

## 6.9.2 Antenatal care

Pregnant women should have antenatal care up to the time of labour. This section presents data on first antenatal coverage. The target in Zambia is that 90 per cent of expected pregnancies in a catchment population in a given period should attend antenatal clinic at least once during a pregnancy.

Fertility levels do not change rapidly. Therefore, as the population grows over a short period, the number of pregnancies would increase every year. Table 6.10 shows the target number to be attended to at antenatal clinics on a first visit as well as the number that made the visits. The number of pregnant women in the province who were attended to on their first visit for the pregnancy at the antenatal clinic in 2005 was 76692, in 2006 81,701 and in 2007 85,076. This gives credence to the data captured in the antenatal clinics in the province. Over the three years, there was an increase in the percentage of pregnant women visiting the antenatal clinic at least once from 91 per cent in 2005 to 95 per cent in 2006 and to 96 per cent in 2007. In all the three years, the target was not attained only in Lundazi. In Katete district the higher antenatal coverage is due to the influx of women from neighbouring districts such as, Chadiza, Chipata, Mambwe and Petauke and also from the neighbouring country of Mozambique. The increasing coverage in Nyimba might also include women from Mozambique.

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

District	2005			2006			2007		
	Contacts	Target	Percentage of target achieved	Contacts	Target	Percentage of target achieved	Contacts	Target	Percentage of target achieved
Chadiza	5,626	5,833	96	5,732	6,036	95	6,138	6,251	98
Chama	4,150	5,070	82	5,237	5,219	100	5,103	5,339	95
Chipata	20,893	23,248	90	21,072	23,989	88	22,588	24,613	92
Katete	10,845	10,202	106	12,441	10,521	118	13,059	10,838	120
Lundazi	13,544	16,060	84	14,609	16,509	88	14,608	16,973	86
Mambwe	2,944	3,014	98	2,921	3,118	94	3,096	3,231	96
Nyimba	3,582	4,681	77	4,385	4,061	108	4,254	4,205	101

Petauke	15,108	16,341	92	151,304	16,690	92	16,230	17,055	95
<b>Eastern</b>	<b>76,692</b>	<b>84,449</b>	<b>91</b>	<b>81,701</b>	<b>86,143</b>	<b>95</b>	<b>85,076</b>	<b>88,525</b>	<b>96</b>

Source: HMIS

### 6.9.3 Supervised deliveries

This is an indicator that measures the proportion of estimated deliveries in the population of women who deliver at health facilities assisted by trained or skilled health personnel or are assisted by tTBAs at home or health facility. The target for supervised deliveries by a trained provider in the formal or informal system in Zambia is 50 per cent in rural areas and 80 per cent in urban areas. If the proportion falls below 40 per cent in rural areas and 70 per cent in urban areas the delivery of this service should be investigated. The goal of this indicator is to improve the health and well being of women and neonates.

Table 6.11 shows that target on institutional deliveries of 50 per cent was not achieved in the province from 2005 to 2007. In 2005, the percentage of supervised deliveries in health facilities in the province was 24. It was 22 in 2006 and 25 in 2007. However, the target was achieved in Katete and Chipata where respectively 76 per cent and 53 per cent of all deliveries were supervised. The lowest percentage of supervised deliveries in all the three years (22 per cent in 2005, 32 per cent in 2006 and 25 per cent in 2007) was in Chama and the highest in Katete where the respective percentages were 67, 66 and 76.

Inadequate and inappropriate delivery infrastructure in most health facilities also contributes to the low coverage in supervised deliveries. Lack of transport and finances for mothers hinder them from travelling to health facilities especially at night.

**Table 6.11: Percentage of supervised deliveries by place of delivery and district, 2005-2007**

District	Deliveries in health facilities			Deliveries by trained Traditional Birth Attendants			All supervised deliveries		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Chadiza	17	19	23	31	26	22	48	45	45
Chama	14	19	20	8	13	15	22	32	25
Chipata	43	40	40	15	13	13	58	53	53
Katete	23	32	52	44	34	23	67	66	76
Lundazi	26	20	19	21	16	14	47	36	33
Mambwe	27	21	29	18	17	21	45	38	50
Nyimba	15	7	7	37	54	36	52	61	43
Petauke	26	19	19	23	21	23	48	40	43
<b>Eastern</b>	<b>24</b>	<b>22</b>	<b>25</b>	<b>23</b>	<b>21</b>	<b>19</b>	<b>47</b>	<b>42</b>	<b>43</b>

Source: HMIS

## 6.9.4 Complicated deliveries

Complicated deliveries are usually delivered by other means rather than spontaneous vertex delivery. The percentage of complicated deliveries is an indicator that measures the proportion of supervised deliveries with complications at the health centre and the hospital, and the proportion of supervised deliveries done by caesarean section at the hospital. According to WHO standards, 15 per cent of all deliveries must be delivered by caesarean section. The aim is to minimise complications during delivery.

As shown in Table 6.13, more deliveries were done in health centres (21051) than in hospitals (12565) in the province in 2007. The percentage of the deliveries which were complicated was higher in hospitals (19 per cent) than in health centres (3 per cent). This could be due to the fact that health centres refer most of the anticipated complicated deliveries to the hospitals. The percentage of caesarean births in the province was 12 per cent.

At health centre level, the percentage of complicated deliveries was the lowest at 2 per cent in Chadiza, Chipata, Mambwe, and Petauke. It was the highest in Nyimba at 5 per cent. The highest percentage of caesarean section births was recorded in Katete (19 per cent) and the lowest in Mambwe (1 per cent).

At hospital level, the percentage of complicated deliveries in 2007 in Katete (27 per cent) was the highest among the districts. It was followed by Lundazi (20 per cent), Chipata (19 per cent) and Mambwe (16 per cent). The percentage of caesarean births was also close to this order with 19 per cent in Katete, 14 per cent in Lundazi and 12 per cent in Chipata.

**Table 6.12: Percentage of complicated deliveries in health centres and hospitals by district, 2007**

District	Health centre		Hospital		
	All deliveries	Percentage of deliveries which were complicated	All deliveries	Percentage of deliveries which were complicated	Percentage caesarean
Chadiza	1,397	2	-		
Chama	1,043	3	700	8	6
Chipata	5,758	2	3,719	19	12
Katete	5,448	4	2,941	27	19
Lundazi	3,095	4	1,441	20	14
Mambwe	904	2	495	16	1
Nyimba	265	5	568	9	0
Petauke	3,141	2	2,701	16	9
<b>Eastern</b>	<b>21,051</b>	<b>3</b>	<b>12,565</b>	<b>19</b>	<b>12</b>

Source: HMIS

## 6.9.5 Prevalence of still births

A still birth is a delivery of a dead foetus after 28 weeks of gestation. The foetus may be fresh or macerated.

Table 6.13 shows fluctuating trends in the percentage of still births for the province in the period under review (8 per cent in 2005, 5 per cent in 2006 and 7 per cent in 2007). In 2005, the highest proportion of still births was in Lundazi (15 per cent), the second highest was in Chipata with 9 per cent and the lowest was in Chadiza at 1 per cent. In 2006, the highest was in Chipata at 10 per cent followed by Petauke, Nyimba, Lundazi and Chama at 4 per cent while the lowest were in Chadiza and Mambwe at 2 per cent. In 2007, the highest was in Chipata at 12 per cent followed by Lundazi (10 per cent) and the lowest was in Chadiza at 2 per cent.

Table 6.13: Percentage of total births that were still borne by district, 2005-2007

District	2005			2006			2007		
	Still births	Total births	Percentage of total births still borne	Still births	Total births	Percentage of total births still borne	Still births	Total births	Percentage of total births still borne
Chadiza	21	960	1	24	1,110	2	24	1,399	2
Chama	57	1,340	4	67	1,620	4	69	1,787	4
Chipata	934	9,915	9	898	9,378	10	1159	9,850	12
Katete	217	5,092	4	208	6,081	3	329	8,639	4
Lundazi	816	5,549	15	173	4,608	4	495	4,893	10
Mambwe	23	1,342	2	28	1,133	2	36	1,420	3
Nyimba	29	1,125	3	30	724	4	35	845	4
Petauke	448	6,158	7	212	5,228	4	276	5,962	5
<b>Eastern</b>	<b>2,545</b>	<b>31,581</b>	<b>8</b>	<b>1,640</b>	<b>29,882</b>	<b>5</b>	<b>2426</b>	<b>34,795</b>	<b>7</b>

Source: HMIS

## 6.9.6 First postnatal attendance

This refers to mother attending postnatal care for the first time within 6 days and 6 weeks of delivery. Due to the circumstances, the target for this indicator was higher in urban than in rural areas, 80 per cent and 40 per cent respectively.

Table 6.14 shows that slightly above half of the women that delivered made at least one postnatal visit. In 2005, 39 per cent did, 39 per cent again in 2006 and 44 per cent in 2007. Among the districts, the highest coverage in all the years was achieved in Katete (69 per cent) in 2007. The lowest was in Lundazi (18 per cent) in 2005 and 19 per cent in 2007.

**Table 6.14: First postnatal coverage, 2005-2007**

District	2005			2006			2007		
	Contacts	Target	Coverage percentage achieved	Contacts	Target	Coverage percentage achieved	Contacts	Target	Coverage percentage achieved
Chadiza	2,596	5,619	46	2,525	5,814	43	2731	6,021	45
Chama	758	4,882	16	1,059	5,022	21	1336	5,159	26
Chipata	9,883	22,384	44	10,816	23,101	47	11691	23,701	49
Katete	4,303	9,810	44	5,512	10,115	54	7220	10,418	69
Lundazi	2,769	15,464	18	3,320	15,899	21	3042	16,343	19
Mambwe	1,763	2,900	61	1,749	3,003	58	1803	3,110	58
Nyimba	1,827	45,133	40	1,451	3,980	36	1390	4,053	34
Petauke	7,759	15,734	49	6,281	16,070	39	7939	16,423	48
<b>Eastern</b>	<b>31,658</b>	<b>81,306</b>	<b>39</b>	<b>32,713</b>	<b>83,004</b>	<b>39</b>	<b>37152</b>	<b>85,228</b>	<b>44</b>

Source: HMIS

### 6.9.7 Maternal mortality

Maternal mortality is the death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. Maternal mortality ratio is the number of maternal deaths in a period per 100,000 women of reproductive age.

Table 6.15 shows the maternal mortality ratio trends in health facilities in Eastern Province from 2005 to 2007. The ratio in the province fluctuated from 84 in 2005 to 93 in 2006 and to 87 in 2007. The ratio in the districts also fluctuated. In 2005, the highest ratio was in Lundazi with 136, followed by Chipata (116). The lowest was in Petauke with 32. No maternal death was recorded in health facilities in Nyimba in 2005.

**Table 6.15 Trends of maternal mortality ratio per 100000 deliveries in health facilities 2005-2007**

District	2005			2006			2007		
	Deaths	Deliveries	Ratio	Deaths	Deliveries	Ratio	Deaths	Deliveries	Ratio
Chadiza	2	958	36	2	1,109	34	3	1,397	50
Chama	5	1,252	102	5	1,599	100	6	1,743	116
Chipata	26	9,648	116	22	9,282	156	23	9,477	97
Katete	7	4,955	71	12	5,912	119	14	8,389	134
Lundazi	21	5,398	136	21	4,568	132	17	4,536	104
Mambwe	2	1,338	69	4	1,130	133	1	1,399	32
Nyimba	0	1,120	0	1	717	25	2	833	49
Petauke	5	5,896	32	10	4,990	62	8	5,842	49
<b>Eastern</b>	<b>68</b>	<b>30,565</b>	<b>84</b>	<b>77</b>	<b>29,307</b>	<b>93</b>	<b>74</b>	<b>33,616</b>	<b>87</b>

Source: HMIS

## 6.10 Child health indicators

Zambia is committed to attaining the Millenium Development Goal number 4 on reducing under-five mortality by two thirds between 1990 and 2015. Strategies include universal immunisation, growth monitoring and nutrition promotion.

Child health indicators measure the provision of quality health care to under-fives. A little more than half of all the early childhood deaths take place during the first year of life. Most of these deaths can be prevented through vaccinations and health education. This section looks at three indicators of child health namely: *pregnancy protected against tetanus, fully immunised children and underweight prevalence*.

As shown in Table 6.16, the target of fully immunising 80 per cent of the children less than one year was achieved in the province only in 2005 when 85 per cent of the children less than .1 year old were fully immunised. The target of less than 10 per cent BCG-Measles dropout rate was not achieved in 2006 and 2007. The rate was 8 per cent in 2005, 21 per cent in 2006 and 21 per cent in 2007.

The target of protecting 80 per cent of the pregnancies with tetanus toxoid was not achieved throughout the years from 2005 to 2007. The percentage also decreased from 79 in 2005 and 2006 to 61 in 2007.

The expected below 10 per cent underweight prevalence was not attained in any of the years although the prevalence reduced yearly over the three years. The percentage of under-weight children was almost twice the minimum level of 10 per cent at 19 per cent in 2005. It was 16 per cent in 2006 and 12 per cent in 2007.

**Table 6.16: Child health indicators, 2005-2007**

Indicator	Period in years			Average
	2005	2006	2007	2005-2007
Fully Immunised under 1 year (percentage)	79	85	78	87
BCG-Measles dropout rate (percentage)	8	21	21	17
Pregnancies with tetanus toxoid protection (percentage)	79	79	61	73
Under weight prevalence (percentage)	19	16	12	16

*Source:* HMIS

### 6.10.1 Fully immunisation coverage

Fully immunisation coverage refers to the number of children under the age of one who completed the recommended series of immunisations. 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.

Table 6.17 shows data on the trends of immunisation coverage by district in 2005, 2006 and 2007. Provincial immunisation coverage fluctuated in the three years. Coverage was 79 per cent in 2005, 85 per cent in 2006 and 78 per cent in 2007.

**Table 6.17: Fully immunised children under 1 year by district, 2005-2007**

District	2005			2006			2007		
	Immunised	Target	Percentage	Immunised	Target	Percentage	Immunised	Target	Percentage
Chadiza	3,053	4,322	71	4,061	4,471	91	3,192	4,632	69
Chama	2,616	3,755	70	2,800	3,865	72	2,670	3,969	67
Chipata	14,966	17,220	87	15,188	17,771	85	15,955	18,228	88
Katete	6,744	8,558	79	6,322	8,822	72	5,622	9,087	62
Lundazi	7,333	11,897	62	9,621	12,229	79	8,651	12,574	69
Mambwe	1,912	2,232	86	2,326	2,311	101	1,832	2,391	77
Nyimba	2,821	3,894	72	3,220	3,428	94	2,475	3,548	70
Petauke	11,346	12,104	94	11,908	12,361	96	11,907	12,634	94
<b>Province</b>	<b>50,791</b>	<b>63,982</b>	<b>79</b>	<b>55,446</b>	<b>65,258</b>	<b>85</b>	<b>52,304</b>	<b>67,063</b>	<b>78</b>

Source: HMIS

Among the districts, the best performance was in Petauke where the target coverage of 80 per cent was exceeded by 14 per cent in 2005 and 2007 and 16 per cent in 2006. Next was Chipata where the target was exceeded by 7 per cent in 2005, 5 per cent in 2006 and 8 per cent in 2007. The target was not attained in all the three years in the other districts.

### 6.10.2 BCG-measles dropout rate

BCG–Measles dropout rate refers to the number of children who are enrolled on the expanded programme on immunisation who fail to complete all the recommended vaccinations from BCG to Measles before they reach their first birthday.

Table 6.18 shows that from 2005 to 2007, the target dropout rate was only achieved in the province in 2005 when the rate was 8 per cent. The rate was 21 per cent in 2006 and in 2007. Among the districts, the target dropout rate was achieved in Chadiza (0.37 per cent in 2005 and 7 per cent in 2007), Chama (4 per cent in 2005), Chipata (0.7 per cent in 2005), Katete (8 per cent in 2005), Nyimba (6 per cent in 2005) and in Mambwe (0.2 per cent in 2006).

**Table 6.18: 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	
Chadiza	3,375	4,621	0.4	6,721	5,153	23	4,871	4,540	7
Chama	3,211	3,077	4	5,688	3,612	36	4,755	3,549	25
Chipata	16,603	17,793	0.7	20,838	16,826	19	19,659	16,913	14
Katete	9,557	8,784	8	11,781	8,559	27	10,258	8,260	19
Lundazi	13,671	10,899	20	16,563	11,674	30	14,830	10,183	31
Mambwe	2,818	1,999	29	2,501	2,545	.2	2,658	2,164	19
Nyimba	3,885	3,635	6	4,221	3,744	11	4,257	2,821	34
Petauke	15,869	13,004	18	14,320	12,938	10	16,556	12,824	23
<b>Eastern</b>	<b>68,989</b>	<b>63,812</b>	<b>8</b>	<b>82,633</b>	<b>65,050</b>	<b>21</b>	<b>77,844</b>	<b>61,254</b>	<b>21</b>

Source: HMIS

### 6.10.3 Pregnancies protected against tetanus

Protection of a pregnancy against tetanus is important because it reduces the chances of neo-natal tetanus. The national target is that 80 per cent of all pregnancies should be protected against tetanus by receiving two or more doses of tetanus toxoid.

Table 6.19 shows that the target was not achieved in the province from 2005 to 2007. The coverage in the province in 2005 and 2006 was 79 per cent. It reduced to 61 per cent in 2007. Among the districts, the target was also not achieved in any of the years in Chama and Lundazi. The targets achieved in Chama were 69 per cent in 2005, 62 per cent in 2006 and 70 per cent in 2007. In Lundazi, the coverage was 67 per cent in 2005, 62 per cent in 2006 and 41 per cent in 2007. The target was exceeded in all the years in Katete and Mambwe in all the three years. In Katete, the coverage was 83 per cent in 2005, 83 per cent again in 2006 and 93 per cent in 2007. In Mambwe, the coverage was 88 per cent in 2005, 91 per cent in 2006 and 87 per cent in 2007.

**Table 6.19: Pregnancies with tetanus toxoid protection, 2005-2007**

District	2005			2006			2007		
	Immunised	Target	Percentage of target immunised	Immunised	Target	Percentage of target immunised	Immunised	Target	Percentage of target immunised
Chadiza	4,755	5,833	82	4,583	6,036	76	4,424	6,251	71
Chama	3,511	5,070	69	3,213	5,219	62	3,755	5,359	70
Chipata	19,717	23,248	85	20,671	23,989	86	14,031	24,613	57
Katete	8,503	10,202	83	8,785	10,521	83	10,030	10,838	93
Lundazi	10,703	16,060	67	10,176	16,509	62	6,950	16,973	41
Mambwe	2,660	3,014	88	2,830	3,118	91	2,807	3,231	87
Nyimba	3,175	4,681	68	3,788	4,061	93	1,304	4,205	31
Petauke	14,053	16,341	86	13,831	16,690	83	10,864	17,055	64
<b>Eastern</b>	<b>67,077</b>	<b>84,449</b>	<b>79</b>	<b>67,877</b>	<b>86,143</b>	<b>79</b>	<b>54,165</b>	<b>8,825</b>	<b>61</b>

Source: HMIS

#### 6.10.4 Underweight prevalence

Underweight prevalence is the total percentage under-five children whose weight is low for their age. The weight for these children is below the lower line on the child health card. The indicator can be used to assess food security, economic status and also nutrition value knowledge in homes. It can also signal the children at risk of severe protein energy malnutrition.

As shown in Table 6.20, the underweight prevalence was 10 per cent in 2005. It reduced to 8 per cent in 2006 and to 5 per cent in 2007. There was also an annual reduction in all the districts. Since the guidelines state that if the underweight prevalence reduces or increases by 5 per cent from the earlier time it should be followed by investigation and action the reduction in underweight prevalence in Nyimba from 18 per cent in 2005 to 12 per cent in 2006 and in Petauke from 16 per cent in 2006 to 9 per cent in 2007 should be investigated.

**Table 6.20: Percentage of underweight under-five children by district, 2005-2007**

District	2005	2006	2007
Chadiza	8	5	3
Chama	6	4	3
Chipata	6	5	3
Katete	6	5	4
Lundazi	7	6	4
Mambwe	13	10	6
Nyimba	18	12	9
Petauke	18	16	9
<b>Eastern</b>	<b>10</b>	<b>8</b>	<b>5</b>

Source: HMIS

## Chapter 7: Environmental and public health

Environmental health is a subset of public health. It involves assessing, correcting, controlling and preventing those factors in the environment that can potentially adversely affect 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

#### 7.1.1 Insecticide treated nets

There is a national programme to control malaria through a focus on prevention programmes to reduce the incidence rate of malaria. The programme involves creating community awareness about malaria and prevention by providing interventions such as insecticide treated bed nets, indoor residual spray and community health education programmes.

Insecticide treated bed nets are one of the most cost effective malaria control interventions for reducing malaria incidence and mortality in under-fives and pregnant women. The target is to have 80 per cent of the pregnant women and children under-five have these nets. Table 7.1 shows that the 75 per cent of pregnant women and under-fives (484623) were given the nets. This was below the 80 per cent target. Among the districts, only in Petauke was the target attained. The coverage in Petauke in 2007 was 88 per cent. The lowest coverage was in Nyimba (67 per cent) followed by Mambwe (69 per cent).

**Table 7.1: Distribution of insecticide treated mosquito nets to pregnant women and children under 5**

District	Target Group**	Number of ITNs		Percentage of target group given ITNs	Source of ITNs
	(a)	Received (b)	Distributed (c)	(c/a)*100	
Chadiza	46,741	35,523	35,523	76	NMCC/CHAZ
Chama	45,064	35,150	35,150	78	NMCC/CHAZ
Chipata	155,405	115,000	115,000	74	NMCC/CHAZ
Katete	95,333	71,500	71,500	75	NMCC/CHAZ/SFH
Lundazi	126,429	97,350	97,350	77	NMCC/CHAZ
Mambwe	28,865	20,000	20,000	69	NMCC/CHAZ
Nyimba	56,409	30,100	30,100	67	NMCC/CHAZ

Petauke	90,909	80,000	80,000	88	NMCC/CHAZ
<b>Eastern</b>	<b>645,155</b>	<b>484,623</b>	<b>484,623</b>	<b>75</b>	

*Source: Environmental Health Reports*

*\*\* Estimated pregnancies and Under-fives*

## 7.2 Water and sanitation

### 7.2.1 Water quality monitoring

Access to clean and safe drinking water prevents infection with water borne diseases. Monitoring of water quality through water sampling is one way of making sure that portable water is safe. The national target is for all households to have access to safe drinking water.

Table 7.2 shows the number of water samples that were collected by each district. There were 1,538 water samples which were collected and sent for laboratory analysis but the results of the analysis were not obtained. In addition, the HMIS data base doesn't capture data about water quality monitoring satisfactorily.

District	Number of water samples collected	Number of water samples with satisfactory results	Percentage satisfactory
Chadiza	168	No Data	
Chama	0	0	
Chipata	148	No Data	
Katete	686	No Data	
Lundazi	27	No Data	
Mambwe	15	No Data	
Nyimba	149	No Data	
Petauke	345	No Data	
<b>Eastern</b>	<b>1,538</b>	<b>No Data</b>	

*Source: Environmental Health Reports*

## 7.3 Medical waste management

Medical waste generated from the health facilities is hazardous. The safest way to dispose it is by incineration. Each health facility is required to have an incinerator for the safe disposal of medical waste.

Table 7.3 shows the number of incinerators in each district in the province. There were 44 incinerators in the province out of which 41 were operational. Ideally each health facility should have a suitable incinerator.

**Table 7.3: Inventory of incinerators in each district, 2007**

District	Total incinerators	Number operational	Number not operational	Remarks
Chadiza	9	8	1	One for Sindemisale is not working.
Chama	1	1	0	
Chipata	6	5	1	One is defective
Katete	6	6	0	
Lundazi	3	2	1	One is under construction
Mambwe	6	6	0	
Nyimba	5	5	0	One is electrical
Petauke	8	8	0	
<b>Eastern</b>	<b>44</b>	<b>41</b>	<b>3</b>	

*Source: Environmental Health Reports*

#### 7.4 Public health inspections

A lot of the public premises in the districts did not meet the public health standard. As shown in Table 7.4, the proportion of public premises that were compliant in the whole province was 63 per cent in 2005 and 2006. The proportion increased by 5 per cent to 68 per cent in 2007.

Among the districts there was an increase in the proportion compliant in Chipata from 66 per cent in 2005 to 77 per cent in 2006 and to 85 per cent in 2007. The percentage compliant reduced drastically in Nyimba and Petauke. In Nyimba the proportion compliant reduced from 78 per cent in 2005 to 66 per cent in 2006 and to 31 per cent in 2007. In Petauke, the percentage compliant reduced from 62 per cent in 2005 to 47 per cent in 2006 and to 45 per cent in 2007.

**Table 7.4: Public health inspections 2005-2007**

District	2005		2006		2007	
	Number of premises		Number of premises		Number of premises	
	Inspected	Percentage compliant	Compliant	Percentage compliant	Inspected	Percentage compliant
Chadiza	122	65	177	45	307	49
Chama	215	48	234	43	298	51
Chipata	677	66	1,276	77	1,294	85
Katete	417	57	621	46	505	53
Lundazi	508	61	715	79	1,328	78
Mambwe	131	60	250	66	267	64
Nyimba	289	78	77	66	225	31
Petauke	506	62	793	47	354	45
<b>Eastern</b>	<b>2,865</b>	<b>63</b>	<b>4,143</b>	<b>63</b>	<b>4,578</b>	<b>68</b>

*Source: Environmental Health Reports*

## 7.5 Food inspections

The Public Health Act mandates the environmental health staff to seize unwholesome foods.

As shown in Table 7.5, out of the total food inspections carried out in 2005, 2006 and 2007, only 9 per cent, 7 per cent and 11 per cent ended up with seizures.

Among the districts, there was an increase in seizures in Chadiza from 13 per cent in 2005 to 20 per cent in 2006 and to 21 per cent in 2007. There was also an increase in Mambwe from 14 per cent in 2005 and 2006 to 20 per cent in 2007. In Petauke, there was a decrease in seizures from 37 per cent in 2005 to 26 per cent in 2006 and to 7 per cent in 2007.

**Table 7.5: Food inspections 2005-2007**

District	2005		2006		2007	
	Number of food inspections		Number of food inspections		Number of food inspections	
	Inspected	Percentage of seizures	Inspected	Percentage of seizures	Inspected	Percentage of seizures
Chadiza	104	13	210	20	276	21
Chama	89	9	159	35	193	21
Chipata	379	7	741	6	584	11
Katete	1430	3	1991	1	1361	5
Lundazi	289	27	356	17	535	24
Mambwe	72	14	85	14	111	20
Nyimba	321	2	1127	3	386	3
Petauke	213	37	346	26	242	7
<b>Eastern</b>	<b>2897</b>	<b>9</b>	<b>5015</b>	<b>7</b>	<b>3688</b>	<b>11</b>

*Source: Environmental Health Reports*



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