2ND TRIENNIAL REPORT OF THE COMMITTEE ON MORBIDITY AND MORTALITY IN CHILDREN UNDER 5 YEARS (COMMIC): 2014

November 2014

CONTENTS

Contents i

List of abbreviations iii

List of Tables v

List of Figures vii

Definitions ix

Executive Summary xi

CHAPTERS

1. Introduction 1
2. Health Sector Determinants 5
3. Overview of Child Mortality in South Africa, 2011 13
4. Diarrhoea and Pneumonia 27
5. Malnutrition 35
6. HIV and TB 49
7. Non-natural deaths 61
8. Long term health conditions 69
9. Implementation of Recommendation of 1st Triennial Report 77
10. Recommendations 85
11. Provincial Profiles 97
    - Eastern Cape 98
    - Free State 107
    - Gauteng 118
    - KwaZulu-Natal 129
    - Limpopo 135
    - Mpumalanga 145
    - North West 149
    - Northern Cape 153
    - Western Cape 158

APPENDICES

1. Mortality Tables 167
2. Provincial Profiles 179
3. District Profiles 201
4. Committee Members 307

LIST OF ABBREVIATIONS

A&E	Accident and Emergency unit
ART / ARV	Antiretroviral Therapy
CARMMA	Campaign for the Accelerated Reduction of Maternal Mortality in Africa
CFR	Case Fatality Rate
Child PIP	Child Healthcare Problem Identification Programme
CoMMiC	Committee on Morbidity and Mortality in Children Under 5 Years
DCST	District Clinical Specialist Team
DHA	Department of Home Affairs
DHB	District Health Barometer
DHIS	District Health Information System
DNF	Death Notification Form
DRF	Death Report Form
DSD	Department of Social Development
ECD	Early Child Development
EDL	Essential Drug List
EID	Early Infant Diagnosis
EPI	Expanded Programme on Immunisation
EPOC	Essential Package of Care
FDC	Fixed Drug Combination
GAPPD	Global Action Plan for Prevention and Control of Pneumonia and Diarrhoea
GIT	Gastrointestinal Tract
HDACC	Health Data Advisory and Coordinating Committee
HIV	Human Immunodeficiency Virus
ICU	Intensive Care Unit
IHMR	In-Hospital Mortality Rate
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
IST	Integrated Support Team
IPT	INH Prophylactic Treatment
LTHC	Long Term Health Condition
MDG	Millennium Development Goals
MNCWH	Maternal, Newborn, Child and Women's Health
MDR TB	Multi Drug Resistant TB
NaPeMMCo	National Perinatal Morbidity and Mortality Committee

NDOH	National Department of Health
NFCS	National Food Consumption Survey
NHI	National Health Insurance
NHISSA	National Health Information Systems of South Africa
NHLS	National Health Laboratory Service
NIMART	Nurse Initiated Management of Antiretroviral Therapy
NN	Neonate
NNMR	Neonatal Mortality Rate
PCR	Polymerase Chain Reaction
PHC	Primary Health Care
PMTCT	Prevention of Mother-to-Child Transmission of HIV
PNN	Post neonate
RMS	Rapid Mortality Surveillance
RTHB	Road to Health Booklet
SAM	Severe Acute Malnutrition
SANHANES	The South African National Health And Nutrition Examination Survey
StatsSA	Statistics South Africa
STG	Standard Treatment Guidelines
TB	Tuberculosis
ToR	Terms of Reference
TST	Tuberculin Skin Test
U5MR	Under-5 Mortality Rate
Unicef	United Nations Children's Fund
WBOT	Ward Based Outreach Team
WHO	World Health Organisation

Provinces:

EC	Eastern Cape
FS	Free State
GP	Gauteng
KZN	KwaZulu-Natal
LP	Limpopo
MP	Mpumalanga
NC	Northern Cape
NW	North West Province
WC	Western Cape
RSA / SA	Republic of South Africa

LIST OF TABLES

1	Descriptive statistics for indicators sub-divided into the WHO framework for the building blocks of a health system.	7
2	Child mortality rates, RMS data, 2009 – 2012.	14
3	Number of child deaths and mortality rates reported through Vital Registration, 2011.	15
4	Provincial trends in Infant and Under-five mortality rates based on deaths reported through Vital Registration.	16
5	Number and proportion of deaths reported through Vital Registration by age category, 2011.	18
6	Number and proportion of deaths reported through Vital Registration that occurred in health facilities, 2011.	20
7	Under-one in-facility death rates, DHIS, 2010 – 2013.	21
8	Under-five in-facility death rates, DHIS, 2010 – 2013.	21
9	Number of newborn, infant and under-five deaths reported by different data sources, 2011.	22
10	Number of hospitals submitting Child PIP data, 2010 – 2013.	23
11	In-Hospital Mortality Rates (IHMR) for infants and under-fives, 2010 – 2013.	23
12	Leading causes of death in children, Child PIP data, 2010 - 2013	24
13	Percentage of children who died whose deaths were associated with HIV infection and with Severe Malnutrition, Child PIP data, 2010 – 2013.	24
14	Modifiable Factor Rates by responsible person and place of occurrence, Child PIP data, 2010 – 2013**.**	25
15	Most frequent modifiable factors, Child PIP data, 2013.	25
16	Under-5 Incidence and CFR for Diarrhoea and Pneumonia by province and year.	29
17	Percentage Incidence of severe malnutrition by province, 2009 – 2013.	42
18	Districts in which SAM was present in more than 40% of deaths in 2011.	46
19	New TB Notifications 2011 - total numbers.	53
20	New TB notifications 2011 - percentages.	53
21	TB is a leading cause of death amongst children in South Africa.	54
22	Number of non-natural deaths per age group, 2007 – 2011.	62
23	Proportion of deaths due to non-natural causes, 2007 – 2011.	62
24	Numbers of non-natural child death by cause and age, 2011.	63
25	Proportion of non-natural death by cause and age, 2011.	64
26	Cause of non-natural death as a proportion of all deaths by age group, 2011.	64
27	Age distribution for each cause of non-natural death, 2011.	65
28	Number of non-natural deaths by age and province, 2011.	68

29	Sentinel conditions schema for long term health conditions.	75
30	Dashboard of MCH indicators, 2014.	83
31	Key themes affecting child health in South Africa.	86
32	Demographics of Eastern Cape Province.	99
33	Causes of death in children – Eastern Cape.	100
34	Selected Health Care Indicators of the Eastern Cape.	101
35	Selected Health Care Indicators of the Free State.	101
36	DHIS District Stillbirth trends, 2009 – 2013.	109
37	DHIS District neonatal mortality rate trends, 2009 – 2013.	110
38	DHIS District IMR trends, 2009 – 2013.	111
39	DHIS District U5MR trends, 2009 – 2013.	112
40	TB cases in the Free State: 0 – 4 years, 2009 – 2013.	113
41	Select immunization coverage indicators, 2009 – 2013.	113
42	Select nutrition indicators, 2009 – 2013.	113
43	Under-5 year pneumonia incidence by health district.	114
44	Under-5 year diarrhoea with dehydration incidence by health district.	114
45	Number of paediatricians and beds per facility.	115
46	Selected Health Care Indicators of Gauteng Province.	120
47	Modifiable factors identified, 2013.	126
48	Selected Health Care Indicators of KwaZulu-Natal Province.	132
49	Selected Health Care Indicators of Limpopo Province.	137
50	Key data and indicators, Limpopo, 2009 – 2013.	138
51	Modifiable factors identified by Child PIIP.	140
52	Selected Health Care Indicators of Mpumalanga Province.	146
53	Selected Health Care Indicators of North West Province.	150
54	Selected Health Care Indicators of Northern Cape Province.	154
55	Population figures from last three national censuses.	159
56	Selected Health Care Indicators of Western Cape Province.	160
57	Child PIP commonest cause of death, 2010 – 2013.	163
58	Provincial Mortality Pattern, 2011.	168
59	Cause of Death, 2011.	169
60	Mortality Pattern by Province & District, 2011.	170
61	Trend in Provincial Mortality Rates, 2007 – 2011.	172
62	Morbidity & Mortality Pattern by District, 2011.	174
63	Trend in District Mortality Rates, 2007 – 2011.	175
64	District Ranking by 2011 Infant Mortality Rate.	176
65	District Ranking by 2011 Under-5 Mortality Rate.	177

LIST OF FIGURES

1	Infant mortality rates by province based on births and deaths recorded through vital registration, 2007 – 2011.	17
2	Under-5 mortality rates by province based on births and deaths recorded through vital registration, 2007 – 2011.	17
3	Cause of death of deaths in children under-5 years of age reported through Vital Registration, 2011.	19
4	Gender profile of children whose deaths were reported through Vital Registration, 2011	20
5	Annual incidence of diarrhoea by province, 2009 – 2013.	30
6	Under-5 diarrhoeal CFR by province and year, 2009 – 2013.	31
7	Annual incidence of penumonia by province, 2009 – 2013.	31
8	Under-5 pneumonia CFR by province and year, 2009 – 2013.	32
9	Incidence of underweight <2years in 2013	38
10	Incidence of underweight <5years.	38
11	Incidence of Severe Acute Malnutrition.	39
12	Morbidity (StatSA Census, 2011)	39
13	Case fatality rate for under-5 years.	40
14	Percentage death associated with severe malnutrition deaths (Child PIP).	41
15	Severe acute malnutrition contribution to deaths in 2013.	41
16	Incidence of Severe Acute Malnutrition, 2010 – 2013.	42
17	Case fatality rate per province in under-fives.	43
18	Severe acute malnutrition contribution to associated deaths by province 2013.	44
19	Percentage death associated with severe malnutrition by province (Child PIP).	44
20	Distribution of TB cases by age and province, 2011.	55
21	Trend in the proportion of deaths due to non-natural causes by age group: 2007 – 2011.	63
22	Provincial share of non-natural child deaths, 2011.	65
23	Distribution of non-natural deaths across age group by province.	64
24	Non-natural deaths as a proportion of total deaths per age group.	67
25	Relationship between mortality rate and non-natruarl deaths.	67
26	Tick sheet for health workers managing sickle cell anaemia patients.	74
27	Proportion of under-5 mortality due to infant mortality.	102
28	Eastern Cape facility case fatality rates: Diarrhoea, Pneumonia and Malnutrition.	103
29	District Stillbirth trends, 2009 – 2013.	109

30	District neonatal mortality rate trends, 2009 – 2013.	110
31	District IMR trends, 2009 – 2013.	111
32	District U5MR trends, 2009 – 2013.	112
33	Number of paediatric admissions in the Free State, 2009 – 2013.	115
34	Gauteng Average Length of Stay, 2009 – 2013.	121
35	Gauteng PHC utilization rate, 2009 – 2013.	121
36	Gauteng, Fully immunized at 1 year, 2009 – 2013.	122
37	Gauteng, PCR coverage, 2010 – 2013.	123
38	Gauteng, PCR positive at 2 months, 2010 – 2013.	124
39	IMR and U5MR in Gauteng, 2007 – 2011.	124
40	Gauteng, Child PIP severe malnutrition, 2010 – 2013.	125
41	Immunization coverage at 1 year, 2013 (DHIS).	156
42	Western Cape child mortality, 2011.	161
43	Trends in Infant Mortality Rates by district.	162
44	Diarrhoea and Pneumonia incidence per 100 000 under-fives 2009 -2013.	163
45	National Mortality Trends, 2007 – 2011.	168
46	Trend in Infant Mortality Rate, 2007-2011.	172
47	Trend in Under-5 Mortality Rate, 2007-2011.	173

DEFINITIONS[1, 2]

INFANT MORTALITY RATE (IMR)

The probability of dying between birth and exactly one year of age expressed per 1,000 live births, ie the number of deaths of infants aged less than one year per 1,000 live births.

UNDER-5 MORTALITY RATE (U5MR)

The probability of dying between birth and exactly five years of age expressed per 1,000 live births, ie the number of deaths of children aged less than five years per 1,000 live births.

CAUSE OF DEATH

Any condition, which leads to or contributes to death and is classifiable according to the International Classification of Diseases (ICD) system

UNDERLYING CAUSE OF DEATH

The disease or injury which initiated the train of morbid events leading directly to death or the circumstances of the accident or violence that produced the fatal injury (WHO).

INDIRECT CAUSE OF DEATH

Circumstance influencing the wellbeing of children, their access to or the quality of care received, that may have contributed towards the death.

NEONATE (NN)

Birth to 28 days of life

POST NEONATE (PNN)

One month to 1 year of age

UNDER 1 (U1)

The first year of life including both neonates and post neonates

---

[1] Unicef, The State of the World's Children.

[2] Burden of Disease Research Unit. Cause of death certification in South Africa: A Booklet for the guidance of Medical Practitioners in completing the Death Notification Form (DNF) – BI-1663. Medical Research Council.

UNDER 5 (U5)

The first 5 years of life including neonates, post-neonates and the one to four year age groups

EXECUTIVE SUMMARY

'Not everything that can be counted counts and not everything that counts can be measured'

Albert Einstein

The Committee on Morbidity and Mortality in Children under 5 years (CoMMiC) is one of three national ministerial committees continuously reviewing maternal, perinatal and childhood deaths in South Africa. CoMMiC's primary objective is the monitoring of mortality and morbidity data in children younger than five years in an effort to reduce deaths and improve the health of young children. The committee is also tasked with improving clinical governance and assisting in the development of appropriate standards of health care for South African children. This is the committee's second comprehensive report and covers the triennium 2011 to 2013.

This report is being presented recognising that there is just over a year left for countries to achieve the United Nations Millennium Development Goals (MDGs). Four of the MDGs are directly relevant to children, with MDG 4 specifically calling for a two-thirds reduction in the under-five mortality rate between 1990 and 2015. This report provides an opportunity to reflect on the country's past and recent child health related achievements and performance, and to deliberate on, and recommend, an appropriate post-2015 agenda.

In the three years since the first triennial report, changes in the social environment and health services in the country have positively affected the health status of children. Child and infant mortality rates have both strikingly diminished. This is mainly because of fewer HIV/AIDS deaths as a result of new regimens for the prevention of mother-to-child transmission (PMTCT) of HIV as well as more children being eligible for, and initiated on, antiretroviral treatment. The roll-out of rotavirus and pneumococcal conjugate vaccines have also contributed to fewer diarrhoeal and pneumonia deaths, respectively.

The committee (and this report) depends on data from a number of sources, including:

- Health Data Advisory and Co-ordination Committee (HDACC) reports that use a rapid mortality surveillance system (RMS) that depends on death notification data and offers national trend data.
- Vital registration data collated and published by Statistics South Africa on an annual basis provide provincial and district level data.
- The 2011 Census that collected data on household deaths during the preceding year.

- The District Health Information System which only captures in-facility events in the public sector.
- The Child Healthcare Problem Identification Programme (Child PIP) database which collects data on deaths at approximately half of the nation's public hospitals.

Discrepancy in the quality of data obtained from these different sources means that there remains uncertainty about the exact child mortality rate in South Africa. Under five and infant (under one year) mortality rates based on RMS data are shown below. Both rates have consistently declined from 2009 to 2012 in all provinces as well as in the country as a whole.

	2009	**2010**	**2011**	**2012**
Under 5 year mortality rate (per 1000 live births)	56	52	40	41
Infant mortality rate (per 1000 live births)	39	35	28	27

The number of under-five deaths has declined from approximately 60 000 in 2008 to 38 000 in 2012. Although this translates into about 60 fewer child deaths per day in 2012 than in 2008, it still means that more than 100 under-5 children died each day in 2012. Three-quarters (74%) of them were aged less than one year. In 2011, the Free State under-five mortality rate (71.2) was almost three times higher than that in the Western Cape (24.1). Lower than expected mortality rates in a number of rural provinces suggest that under-reporting remains pertinent, but its true extent is difficult to quantify.

The in-hospital mortality rate (IHMR) refers to the proportion of admitted children who died. The IHMR for children under-one declined from 5.8% in 2010 to 3.9% in 2013, whilst the IHMR for children under five years of age declined from 4.4% in 2010 to 2.8% in 2013. This decrease probably reflects reduced illness severity as a result of fewer HIV/AIDS related admissions rather than improvements in hospital health care delivery.

Cause of death data was obtained through the Vital Registration system (death certificates). In 2011, one-quarter of deaths were reported to be due to neonatal causes, whilst gastro-enteritis (15%) and acute respiratory infections (mostly pneumonia) (13%) were the next most important. Non-natural causes (6%), malnutrition (4%), congenital abnormalities (4%) and tuberculosis (2%) were other major contributors. Most non-natural deaths were ascribed to preventable causes such as drowning, burns and electrocution. Of concern is that the cause of death was classified as being ill-defined in 16% of instances, indicating that the quality of death certificate completion by health professionals remains a problem.

HIV/AIDS and malnutrition contributed as both primary and underlying causes of child mortality. Based on Child PIP data, about thirty percent of children who died between 2010 and 2013 were classified as being severely malnourished. The proportion of children who were HIV-infected or HIV-exposed (with unknown HIV-infection status) declined from almost half in 2010 to approximately one third in 2013. PMTCT interventions in South Africa have greatly reduced the need for antiretroviral treatment (ART). A United Nations report infers the number of South African children needing treatment dropping from nearly 60,000 to about 10,000 per annum over the past decade. DHIS data indicated a catch up in the provision of ART to children, although only 50-60% of eligible children were recipients.

A high proportion of child deaths are preventable. Audit of child deaths through the Child PIP system continues to reveal many modifiable and avoidable factors at home and at all levels of the health system. Approximately 30% of modifiable factors occurred at home, and included the failure by the caregiver to recognise a child's severity of illness, delays in seeking care for the child and inadequate nutrition. Among the remaining 70% of health system factors, most (80%) related to health personnel. A disproportionate number of modifiable factors continue to take place in the Accident and Emergency setting, considering the relatively short period that children spend there.

Access to health care for sick children remains a problem. More than half of all registered child deaths (55%) occurred outside the health service, despite many of these children having prior contact with the health service shortly before dying. Only 36% of deaths in the post-neonatal period (1 month to 5 years) occurred in health facilities. The distribution of paediatricians, which is as a proxy indicator for access to more specialised services, shows extreme geographic inequities. Notwithstanding inequities in access to health services, utilisation of primary healthcare services is reasonably good, with some of the poorest provinces having better attendance rates.

In compiling recommendations for this report, the Committee focussed on the word 'ACCESS'. Firstly, the word has powerful intrinsic worth in indicating *why* the country has not adequately dealt with preventable childhood killers *and* what might be done. Secondly, it serves as a useful acronym to point to actions required to improve life outcomes for children in South Africa. The recommendations section highlights seven key words that can 'open the door' to improved outcomes for children: **A-**ccountability, **C-**onnected, **C-**apacitated, **E-**ssential, **S-**upport and **S-**tandard. The required actions or activities associated with these key words is related to how they involve households, health workers and the health system. This is summarised below:

	Households	***Health workers***	***Health systems***
***A**ccountability*	By government to ensuring a safe living environment	To care–seekers through empowerment of health workers	To the community
***C**onnected*	With the health system	To the system where they work	To all sectors who ensure healthy children
***C**apacitated*	To provide a safe, caring and stimulating environment	To deliver appropriate health care	To meet the needs of children with emergency, acute and chronic conditions
***E**ssential*	Package of care that is available	Package of care understood and delivered	Package of care available and accessible
***S**upport*	For ECD activities	For training, health care delivery and personal health	To meet the demands of the community served
***S**tandard*	Package of care	Human resource (staffing) norms	Data sets for children

Priority interventions identified within the above framework to improve child health and reduce morbidity and mortality include:

A-ccountability for an adequate standard of living and a safe environment for all children:

- Ongoing health education through Mom-Connect and other media channels.
- WBOT support to households for health education, promotion and prevention activities.

C-onnected easily between households and the health system:

- Ensure lodger mother facilities in all hospitals and birthing units.

C-apacitated front line health care workers:

- Pre- and post-basic training on all flagship programmes, ECD and EPOC.
- Non-rotation of staff.

E-ssential Package of Care (EPOC):

- Finalise the development of the essential package of care including equitable access to all levels of care.
- Train health workers around the essential package of care.
- Progressive roll out of the essential package of care.

S-upport:

- Early child development and the first 1,000 days.
- Frontline health workers through outreach programmes.

S-tandard data sets and tools:

- Introduce standard data sets for children for monitoring, evaluation and feedback.
- Adopt the Road to Health Booklet as the standard record of a child's health care.

The global child health agenda is moving beyond survival to sustainable development with a particular focus on actions that in the first 1 000 days of life can alter the life course trajectory. While it is anticipated that reducing child mortality will continue to pre-occupy much of CoMMiC's attention in the next triennium, one would expect that securing for children the potential gains of introducing the National Health Insurance will be a key mandate for the new committee. This will demand new activity and actions that can open the "ACCESS" door.

CHAPTER 1: INTRODUCTION

On 2nd June 2011 Dr A Motsoaledi, Minister of Health of the Republic of South Africa, reappointed the members of the Committee on Morbidity and Mortality in Children Under 5 Years (CoMMiC) to a second three year term.

The Terms of Reference (ToR) for this second term have been expanded to include both a primary as well as a secondary objective.

The primary objective of the CoMMiC is to reduce f childhood morbidity and mortality through a process of death auditing. This process entails:

- The registration of all deaths and significant causes of morbidity in children under 5 years of age throughout the country.
- The identification of the causes of morbidity and mortality.
- The investigation of all deaths to establish both direct and indirect factors that may have contributed to these deaths.
- The development of recommendations to prevent further morbidity and mortality, based on the above findings.
- The development of proposals for the implementation of the above recommendations.

The secondary objective of the CoMMiC is to undertake an oversight function with respect to childhood morbidity, mortality and health care to ensure good clinical governance and an appropriate standard of health care for children in South Africa. This oversight role entails:

- Defining significant adverse events in child health care;
- The development of suitable indicators, tools and systems for the identification of these adverse events;
- The investigation of significant adverse events affecting childhood morbidity, mortality and child health services;
- The monitoring of the management of MNCWH programmes at the district, provincial and national levels.
- The monitoring of the implementation of CoMMiC recommendations

To fulfil these objectives CoMMiC is required to:

- Establish systems to enable the effective functioning of the committee
- Submit annual interim and comprehensive triennial reports to the National Minister of Health that:
    - Establish the infant (IMR) and under 5 (U5MR) mortality rates at district, provincial and national levels.
    - Describe the major causes of morbidity and mortality at district, provincial and national levels.
    - Identify indirect, modifiable factors contributing to childhood morbidity and mortality.
    - Make recommendations to reduce childhood morbidity and mortality.
    - Monitor the implementation of these recommendations.
    - Evaluate the status of child health and performance of health services for children.

In light of the expanded ToR the committee revised its structure and functioning to better address its mandate. Three working group were established with terms of reference, objectives for the triennium and activities for each year. These groups included:

Data Working Group

Terms of reference

The responsibility of the data working group was to ensure that CoMMiC has access to appropriate and accurate information in order to inform recommendations to the Minister on the reduction of childhood morbidity and mortality.

Objectives

1. To establish appropriate datasets to meet CoMMiC's primary objective by:
    a. Confirming which datasets are required to establish mortality rates for infants and children.
    b. Identifying indicators required to track childhood morbidity, including chronic diseases.
2. To strengthen existing datasets in order to improve the quality of available data by:
    a. Revising DHA Death Notification and Death Report forms.
    b. Supporting the DHIS through the introduction of ward registers and regular on-site review of data at each level in the health system.
    c. Promoting mortality audits in all facilities.

3. To promote improved collection and reporting of data through:
    a. On-site review and interpretation of datasets – Child Health Forums at facility, District and Provincial levels.
    b. Interaction with relevant parties outside the Department of Health – DHA, StatsSA, HDACC.
4. To undertake an analysis of data trends and prepare an annual report on morbidity and mortality data disaggregated to the Provincial and District level.
5. To prepare preliminary recommendations for consideration by the full membership of CoMMiC.

Implementation and Oversight Working Group

Terms of reference

This group had an oversight function with respect to childhood morbidity, mortality and health care to ensure good clinical governance.

Objectives

1. To monitor the implementation of approved CoMMiC recommendations.
2. To monitor the management of Maternal, Neonatal and Child Health programmes at district provincial and national levels.
3. To develop a process, indicators and tools for the identification of significant adverse events in child health within the health system.
4. To define child related adverse events that should be detected and monitored in the health system.
5. To conduct an investigation from time to time of significant child health adverse events, where the minister deems such investigation should not follow the normal processes of investigation.

Norms and Standards Working Group

Terms of reference

This group's role was to facilitate the development of a Package of Essential Health Care Services to address the main causes of morbidity and mortality in young children including a set of core norms and minimum standards to support each aspect of the package across all levels of care.

Objectives

1. To develop a framework in which to define the areas requiring a package of essential services and the standard content of such a package.
2. To identify and collate existing packages of care within South Africa and beyond that could serve as a basis for adaptation to local needs.
3. To set up links with parallel processes within the Department of Health such as the EDL, National Core Standard and National Health Insurance, MNCWH, HIV, District Services, HRD, Chronic Disease, Genetics, NaPeMMCo.
4. To set up links with partners in child health care beyond the Department of Health e.g. Higher Education Institutions, UNICEF

In the three years since the 1st Triennial Report changes in the social environment and health services in the country have had a positive effect on the health status of children. These include substantial changes in the management of HIV/AIDS with new regimens for the prevention of mother-to-child transmission (PMTCT) of HIV as well as new criteria for the initiation of antiretroviral treatment in children; the Tshwane Declaration and a renewed focus on breastfeeding; the introduction of human milk banks; the roll out of pneumococcal conjugate and rotavirus vaccines and the Re-engineering of Primary Health Care. Two components of the Re-engineering of Primary Health Care, Ward Based Outreach Teams (WBOTS) and District Clinical Specialist Teams (DCST), are significant vehicles for improving child survival and their roll out needs to be supported.

In this 2nd Triennial Report the committee will provide:

- A review of the impact of changes to the social determinants of health on child mortality in South Africa.
- An update on mortality data for the country for the period 2009 - 2011 as well as select morbidity data up to 2013 disaggregated to provincial and district level.
- A review of priority diseases contributing to child mortality.
- A progress report on the implementation of the recommendations in the first triennial report.
- New recommendations to the Minister to reduce child mortality based on current mortality and morbidity data and progress in the implementation of earlier recommendations.

CHAPTER 2: HEALTH SECTOR DETERMINANTS

SUMMARY

When reviewing mortality and morbidity in children, the reflection needs to extend beyond the biomedical causes and patterns of health and illness in children. It is increasingly recognized that the health care system plays an important role in the determination of health outcomes, including for children. The WHO framework of the components of the health care system is used to reflect on some of the available data of health care system functioning in relation to child health. Particularly in the context of significant stress of the larger health care system as well as competing priorities for policy development, an assessment regarding how well the health of children is addressed is critical. The paucity of information in this field is highlighted, in particular evidence linking health outcomes with the wider health care system functioning.

INTRODUCTION

Many of the determinants of health and disease lie outside of the scope of work – and even influence – of the health services of the country. A number of these so-called social determinants such as poverty and deprivation of communities are best addressed in a larger developmental framework where health care systems play a relatively small part.

Governments and international agencies are increasingly directing their funding to health system strengthening in preference to disease focused initiatives. There is mounting evidence that investments in a functioning, efficient and equitable health care system contributes to improving the health of a population, and is essential to achieving the Millennium Development Goals (MDGs). Therefore, it is critical to reflect on how the health care system and its functioning is contributing to the health of South African children.

A health system consists of all the organizations, institutions, resources and people whose primary purpose is to promote, restore, or maintain health.[3] Health system activities range from service provision through hospitals and clinics to community level health prevention and promotion strategies. The WHO has developed a framework composed of six building blocks of a health system:

1. Health service coverage;
2. Human health resources;

[3] WHO: World Health Report: Health Systems Improving Performance. Geneva, Switzerland; 2000.

3. Health information systems;
4. Medical products, vaccines and technology;
5. Health financing;
6. Leadership and governance.[4]

This framework will be used to review the contribution and effects of the health system on improving or adversely affecting child health in South Africa (SA).

DATA ON DETERMINANTS

Despite the importance of health system strengthening being recognized, there has been limited development globally of indicators to measure health system strength, particularly at the local (district) level, and even less use of these to improve health system strength and functioning in practice. It should not surprise that there is little data available in SA specifically addressing the determinants of child health.

The District Health Barometer (DHB) is a great example of a health system monitoring tool.[5] It provides an overview of the delivery of primary health care (PHC) in the public health sector across provinces and districts in South Africa. Data are extracted from a range of sources including the District Health Information System (DHIS), Statistics SA, the National Health Laboratory Service (NHLS), the Electronic TB Register (ETR.Net) and National Treasury.

Table 1 below presents available South African health system indicator data related to children, sub-divided into the WHO framework for the building blocks of a health system. Most information is for the 2013/14 financial year and emanates from the district health information system (DHIS). Other data is sourced from the DHB.

[4] WHO: World Health Report: Health Systems Improving Performance. Geneva, Switzerland; 2000.

[5] Massyn N, Day C, Dombo M, Barron P, English R, Padarath A, editors. District Health Barometer 2012/13. Durban: Health Systems Trust; October 2013.

Table 1. Descriptive statistics for indicators sub-divided into the WHO framework for the building blocks of a health system.

	SOUTH AFRICA		BEST PERFORMING PROVINCE		WORST PERFORMING PROVINCE	
	TARGET	ACTUAL	NAME	N^{o}	NAME	N^{o}
I. Human health resources						
Paediatricians in public sector (N^{o})		284	Gauteng	78	Mpumalanga	3
II. Health service coverage						
Early infant (< 8 week) HIV testing coverage (%)	100	74	Gauteng	87	North West	61
Infant exclusively breastfed at Hep B 3rd dose rate (%)	44	40	Free State	78	Gauteng	16
Vitamin A coverage 12 to 59 months	50	44	Limpopo	34	Free State	55
Coverage of Quintile 1 and 2 schools (%)	70	22	Free State	40	Mpumalanga	13
III. Medical products, vaccines and technology						
Immunisation coverage under 1 year (%)	90	84	Gauteng	109	Mpumalanga	71
Measles 2nd dose coverage (%)	90	75	Gauteng	85	North West	66
DTaP-IPV/Hib 3 - measles 1st dose drop-out rate (%)	10	6	Western Cape	-2	Limpopo	19
IV. Health financing						
Provincial and local government expenditure on District Health Services per capita (uninsured) (Rands)		1 327	(Lowest) Gauteng	1 199	(Highest) Limpopo	1 501
V. Leadership and governance						
PHC supervisor visit rate per month (fixed clinic/CHC/CDC) (%)	80	76	Limpopo	92	Northern Cape	29

Note: National coverage data is for 2013-14.

The validity of some data within the DHIS dataset is questionable. Nevertheless, it is still possible to make some conclusions from the data:

1. There is a paucity of health system data particularly related to child health. Only programme coverage data are available.
2. Few child health coverage targets have been achieved, even though some targets have been set at very modest levels (e.g. vitamin A coverage)

3. No single province demonstrates superior performance for all indicators, and the inter-provincial variance in coverage rates for different services reflects the prioritization, or lack thereof, of particular programmes.
4. Coverage rates worsen with increasing child age, with only young infant services achieving reasonable coverage rates. While school health services have recently received renewed attention, coverage rates are dismal.

Owing to the lack of data, the subsequent discussion will necessarily be more anecdotal and reflective and offer general observation and comment.

In 2009 the then minister of health, Ms Barbara Hogan, commissioned a team to explore the reasons for the perennial over-expenditure and poor performance within the Department of Health both at provincial and national levels. The Integrated Support Team's (IST) national and provincial reports painted a bleak picture of a health care system under stress and, in many instances, disarray. The reports serve as a useful point of departure to review progress made since.

Leadership, governance and financial management

Since 2009, at a macro level, a number of provincial departments of health have had major challenges of over-expenditure (particularly Gauteng, Limpopo, Eastern Cape) and in some instances have had interventions from provincial treasury or have been placed under administration (Eastern Cape, Free State and Limpopo).

Progress has been made, in particular with the establishment of an Office of Health Standards Compliance. In others areas progress has been slower such as in the development of adequate governance systems and processes of accountability within the provincial departments of health.

Human resources

The lack of access to health workers is arguably the greatest health system constraint to South Africa achieving health goals, including the MDGs. Deficiencies in human resources for health, including doctors, nurses and community health care workers are a major bottleneck in delivering prevention, treatment and support services for children.

The austerity measures introduced as part of managing overspending have in many instances led to increased staff shortages, particularly in scarce skills categories in geographical areas where recruitment is already difficult. The lack of staff for paediatric

services exacerbates access constraints for children in most settings. Yet even in areas of better geographic access, congestion of services and poor coordination of service provisioning in many instances pose just as serious barriers to care.

Community based health workers can contribute greatly to improving child health outcomes by undertaking various tasks, including case management of childhood illnesses (e.g., pneumonia and neonatal sepsis) and delivery of preventive interventions such as immunization, promotion of healthy behaviour, and mobilization of communities. Although the functioning and effectiveness of ward-based outreach team community health workers in South Africa has not been formally evaluated to date, it is evident that they face various challenges in terms of implementing community activities especially in their child health role.

Key recommendations:

- Achieve the recommended staffing norms of health facilities for specific critical skills (paediatricians, doctors, nurses, lab technicians, and pharmacists).
- Expand task shifting/sharing, training and accreditation of different cadres of facility and community based health workers to deliver the services required.
- Develop a comprehensive child health curriculum that can be integrated into pre-service training of nurses and doctors to build their capacity in child health.

Health service coverage

Noting the progress made particularly in areas such as the vertical transmission of HIV, decrease in malnutrition rates, and decrease in diarrhoeal deaths, it is evident that the despite the stressed health care system, a lot of effort is invested in improving the lives of the population as a whole and children specifically.

Much of the population-level data provided earlier (Table 1) does not reflect particular vulnerable populations – and even more specifically, the children within these populations. These include the children of immigrants or whose parents are migrants. Concerns regarding equity in access to specialist and super-specialist services remain – geography still determines access to many services such as dialysis or organ transplantation.

Transport availability and costs remain a key determinant of healthcare access for many South Africans. Although primary health care should be available at no cost to everyone, and uninsured children under the age of six years are exempted from hospital fees, out-of-pocket payments had to be made by 17 per cent of uninsured children attending public hospitals

and 8 per cent of children attending a PHC clinic. Further, unaffordable transport obstructed immediate care for 18 percent of children under the age of six years, but for only 1 per cent of insured persons.[6]

South Africa has increasingly adopted and developed guidelines on key child health conditions, such as HIV and severe malnutrition. However, the availability and subsequent implementation of such guidelines at a facility level is often poor. There is no data available on the proportion of hospitals that have standard guidelines for the assessment and management of ill children.

A critical policy development that has had a strong focus on the health of children is the re-engineering of primary health care (PHC) approach.

Medical products, vaccines and technology

Drug outages of essential medication has become common-place in many districts. The reasons for these are complex and are at times not easily solved. Similarly the variation in the availability of critical equipment in many clinics and hospitals is poorly recorded and difficult to assess. Provincial differences point to considerable inequity in the quality of health care services for children.

Health information systems

One of the critical issues that was raised in the IST reports was the quality of the data within the Department of Health. This has been an ongoing concern within the Committee of Mortality and Morbidity in Children (COMMIC) and also raised in a number of the provincial and programmatic reports. In many instances (such as human resources), the lack of consensus regarding indicators and norms are further challenges to accessing suitable data. The concerns around the availability and quality of the data extends beyond the routinely collected data and includes the lack of reliable survey data as well as the limited available data of community-level indicators and care.

International evidence

A 2011 study examining the link between health system strength and child mortality in 136 countries (including SA) identified higher physician density (absolute risk reduction [aRR] 0.80; 95% CI 0.70-0.92), higher sustainable access to water and sanitation (aRR 0.82, 95%

[6] Harris, B., Goudge, J., Ataguba, J. E., et al. Inequities in Access to Health Care in South Africa. *Journal of Public Health Policy*, 2011; 32: S102-S123.

CI 0.75-0.91), and having a less corrupt government (a-RR 0.58; 95% CI 0.40-0.84) as significant determinants of lower child mortality rates. Out-of-pocket expenditures on health (aRR 1.29; 95% CI 1.01, 1.65) was significantly associated with higher child mortality.[7] The re-focus on primary health care as a key initiative to improve the health care system is also supported by evidence.[8]

CONCLUSION

Health system strengthening offers an important and sustainable mechanism to improve key population level indicators of health. There is a clear need to develop and monitor indicators of health system strength and to implement practical interventions. The challenges of turning a dysfunctional health care system around toward a system that is capable of achieving universal coverage of health care services of a high standard remain considerable.

[7] Muldoon KA, Galway LP, Nakajima M, et al. Health system determinants of infant, child and maternal mortality: A cross-sectional study of UN member countries. Globalization and Health 2011, 7:42.

[8] WHO: World Health Report: Health Systems Improving Performance. Geneva, Switzerland; 2000.

CHAPTER 3: OVERVIEW OF CHILD MORTALITY IN SOUTH AFRICA: 2011

SUMMARY

Although considerable progress has been made with regard to the availability of data regarding child deaths and mortality rates, some uncertainty persists regarding the accuracy of reported rates.

Data from a number of sources suggest that child mortality rates declined substantially during the period under review (2009 – 2011). This decline occurred throughout the country with all provinces and districts reporting lower child mortality rates.

A small number of conditions continue to account for the majority of deaths. These conditions include neonatal conditions, diarrhoea, acute respiratory infections (mostly pneumonia), septicaemia and tuberculosis, with HIV infection and undernutrition contributing to many deaths. A high proportion of these deaths can be prevented.

Many hospitals routinely conduct audits of child deaths in their facilities. These audits continue to identify significant gaps in the health care which children receive, and to identify opportunities for improved care at household, Primary Health Care and hospital levels.

INTRODUCTION

This chapter provides an overview of data on child mortality in South Africa. Data from the following systems and sources are reviewed:

1. Rapid Mortality Surveillance (RMS).
2. Vital Registration System.
3. District Health Information System (DHIS).
4. Census 2011.
5. National Child Healthcare Problem Identification Programme (Child PIP) database.

Data from each source is presented, and the completeness and quality of the data assessed. It should be noted that the most recently available data from each source is used; thus although the report aims to cover the period 2010 – 2013, data for this period are not available from all of the sources.

Rapid Mortality Surveillance

The Health Data Advisory and Co-ordination Committee (HDACC), which is mandated to improve the quality and integrity of data on health outcomes and to advise on indicators, recommends that RMS data be used for monitoring child deaths.[9] RMS data are based on notification of deaths and provide limited data on each death within a shorter period of time as compared with vital registration data. The RMS data are adjusted for deaths that are registered, but are not on the national population register, as well as for deaths that have not been registered. The committee further recommended that adjusted DHIS data be used to calculate neonatal mortality, and that population estimates produced by the ASSA2008 AIDS and Demographic Model be used for calculating mortality-related indicators.[10]

Child mortality rates based on RMS data (as published in 2014) are shown in

Table 2.

Table 2: Child mortality rates, RMS data, 2009 – 2012.[11]

	2009	**2010**	**2011**	**2012**
U5MR	56 per 1 000	52 per 1 000	40 per 1 000	41 per 1 000
IMR	39 per 1 000	35 per 1 000	28 per 1 000	27 per 1 000
NNMR	14 per 1 000	14 per 1 000	13 per 1 000	12 per 1 000

Under-five and infant mortality rates declined rapidly between 2009 and 2011 and then stabilised in 2012. The neonatal mortality rate, which accounted for approximately one-third of the under-five deaths, declined more slowly over the period.

Vital Registration Data

Although RMS data is used to monitor trends on a national level, more detailed analysis at provincial and district level, relies on data from other sources. Vital registration data, which

[9] National Department of Health. Health Data Advisory and Coordination Committee report. Pretoria: National Department of Health; 2011.

[10] Actuarial Society of South Africa.ASSA2008 AIDS and Demographic Model [Internet]. 2011. Available from: www.actuarialsociety.org.za.

[11] Dorrington RE, Bradshaw D, Laubscher R (2014). Rapid mortalitysurveillance report 2012. Cape Town: South African Medical Research Council. ISBN: 978---1---920618---19---3.

are collated and published by Statistics South Africa on an annual basis, provide data regarding births and child deaths at provincial and district levels. Data are usually published approximately two years after the end of a calendar year – although this is in line with international norms, this lag limits the usefulness of the data for short and medium term planning.

Number of deaths and mortality rates

Provincial level data on the number of births and child deaths reported through the Vital Registration System for 2011 are shown in 3. On a national level, neonatal, infant and under-five mortality rates were 11.2, 28.4 and 38.5 deaths per 1 000 live births respectively.

Table 3: Number of child deaths and mortality rates reported through Vital Registration, 2011.

PROVINCE	BIRTHS	DEATHS					MORTALITY RATES (PER 1 000 LIVE BIRTHS)		
		NN	PNN	TOTAL < 1 YR	1-4 YRS	TOTAL < 5 YRS	NNMR	IMR	U5MR
EC	119 683	703	1 775	2 478	1 209	3 687	5.9	20.7	30.8
FS	52 735	1 061	1 902	2 963	791	3 754	20.1	56.2	71.2
GP	194 039	2 938	3 616	6 554	1 776	8 330	15.1	33.8	42.9
KZN	205 724	2 204	3 021	5 225	1 969	7 194	10.7	25.4	35.0
LP	125 580	933	1 794	2 727	1 477	4 204	7.4	21.7	33.5
MP	83 910	783	1 297	2 080	896	2 976	9.3	24.8	35.5
NW	77 000	1 085	1 835	2 920	910	3 830	14.1	37.9	49.7
NC	23 942	338	552	890	332	1 222	14.1	37.2	51.0
WC	102 270	880	1 078	1 958	504	2 462	8.6	19.1	24.1
RSA	**985 727**	**11 002**	**16 979**	**27 981**	**9 927**	**37 908**	**11.2**	**28.4**	**38.5**

The highest under-five mortality rate was reported in the Free State which reported a rate of 71.2, which is almost three times higher than the rate of 24.1 which was reported in the Western Cape. The Northern Cape (51.0), North West (49.7) and Gauteng (42.9) also reported under-five mortality rates above the national average, whilst Eastern Cape (30.8), Limpopo (33.5), KwaZulu-Natal (35.0) and Mpumalanga (35.5) reported rates below the national average.

A similar pattern was evident for neonatal mortality. Free State again reported the highest neonatal mortality rate (20.1 per 1 000 live births), with Gauteng (15.1), Northern Cape

(14.1) and North West (14.1) also reporting rates above the national average. It should be noted that whilst the high neonatal mortality rates in these provinces contributed to the high under-five mortality rates, they were not the only factor, with higher mortality rates outside of the newborn period also being reported.

The low mortality rates reported in a number of rural provinces suggest that under-reporting may play an important role. However levels of under-reporting are difficult to quantify.

Data showing provincial trends in infant and under-five mortality rates between 2007 and 2011 as reported through vital registration are shown in 4, and Figures 1 and 2. The infant and under-five mortality rates have declined consistently in all provinces as well as in South Africa as a whole.

Table 4: Provincial trends in Infant and Under-five mortality rates based on deaths reported through Vital Registration.

PROVINCE	INFANT MORTALITY RATE (DEATHS PER 1 000 LIVE BIRTHS)					U5MR (DEATHS PER 1 000 LIVE BIRTHS)				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
EC	28.7	28.4	23.3	26.5	20.7	40.2	41.2	34.7	40.2	30.8
FS	83.5	81.0	70.4	64.3	56.2	106.0	106.0	89.7	85.5	71.2
GP	52.7	49.8	48.4	40.3	33.8	65.7	62.9	60.9	51.8	42.9
KZN	42.2	39.3	35.4	32.1	25.4	56.3	52.3	47.3	43.4	35.0
LP	33.6	35.4	32.0	28.1	21.4	49.1	52.7	47.5	44.1	33.5
MP	49.1	41.1	35.0	32.0	24.8	67.9	57.1	48.3	47.6	35.5
NW	73.5	64.8	46.7	44.6	37.9	95.0	86.5	60.9	61.0	49.7
NC	51.5	52.5	46.9	42.6	37.2	65.8	70.9	62.1	58.8	51.0
WC	24.5	22.3	22.8	23.1	19.1	29.7	27.7	27.5	28.6	24.1
RSA	44.3	42.3	37.7	34.8	28.4	58.4	56.4	50.1	47.9	38.5

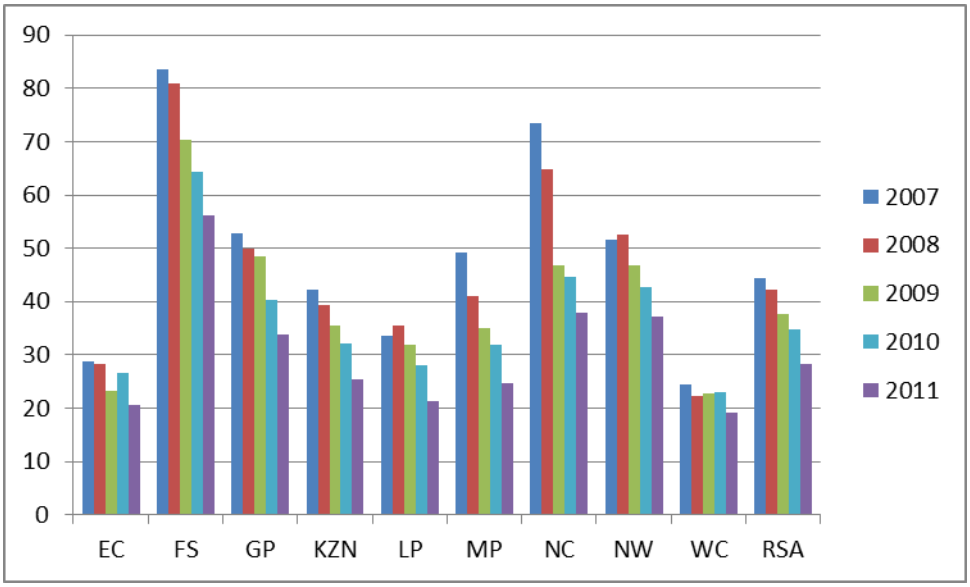


Figure 1: Infant mortality rates by province based on births and deaths recorded through vital registration, 2007 – 2011.

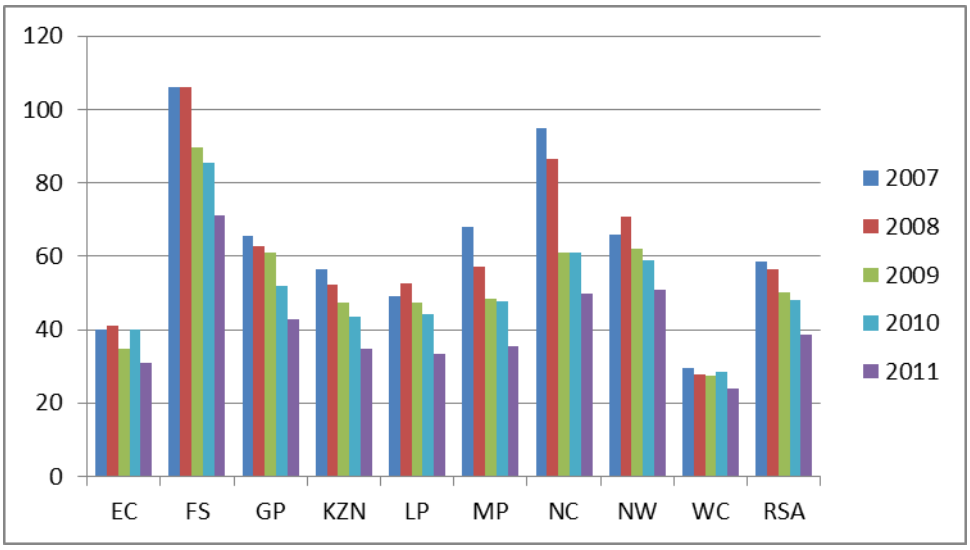


Figure 2: Under-5 mortality rates by province based on births and deaths recorded through vital registration, 2007 – 2011.

District level data on mortality rates and trends appear in Tables 62 and 63 in Appendix 1.

Age Categories

Twenty-nine percent of reported deaths in children under-five years occurred during the neonatal period, whilst just below three-quarters of all deaths occurred in infants (children under one year of age) (see Table 5).

Globally newborn deaths account for at least 40% of all under-five deaths. The lower proportion reported in South Africa is assumed to reflect comparatively good newborn outcomes, as well as a higher than expected number of child deaths in children aged 1 – 4 years (due predominantly to HIV infection). Underreporting of deaths in the newborn period (especially during the late newborn period) also plays a role – the low number of newborn deaths reported in provinces such as the Eastern Cape and Limpopo suggests that under-reporting of deaths may be a significant factor.

Table 5: Number and proportion of deaths reported through Vital Registration by age category, 2011.

	NEONATAL DEATHS		INFANT DEATHS		DEATHS 1-4 YRS		DEATH < 5YRS
	No.	%	No.	%	No.	%	
EC	703	19.1%	2 478	67.2%	1 209	32.8%	3 687
FS	1 061	28.3%	2 963	78.9%	791	21.1%	3 754
GP	2 938	35.3%	6 554	78.7%	1 776	21.3%	8 330
KZN	2 204	30.6%	5 225	72.6%	1 969	27.4%	7 194
LP	933	22.2%	2 727	64.9%	1 477	35.1%	4 204
MP	783	26.3%	2 080	69.9%	896	30.1%	2 976
NW	1 085	28.3%	2 920	76.2%	910	23.8%	3 830
NC	338	27.7%	890	72.8%	332	27.2%	1 222
WC	880	35.7%	1 958	79.5%	504	20.5%	2 462
RSA	**11 002**	**29.0%**	**27 981**	**73.8%**	**9 927**	**26.2%**	**37 908**

Data on infant and under-five mortality rates by district for the period 2007 to 2011 are shown in Table 63 in Appendix 1.

Cause of death

Data on cause of death data as reported through Vital Registration is shown in

Figure 3. A quarter of deaths were reported to be due to neonatal causes, whilst acute respiratory infections (mostly pneumonia) and gastro-enteritis were the most important causes of death in children outside of the newborn period. Non-natural causes (6%), malnutrition (4%), congenital abnormalities (4%) and tuberculosis (2%) were also important causes of death. It is of concern that the cause of death was classified as being ill-defined in 16% of all deaths. These data are collected from death certificates and this suggests that the quality of completion of death certificates remains a problem.

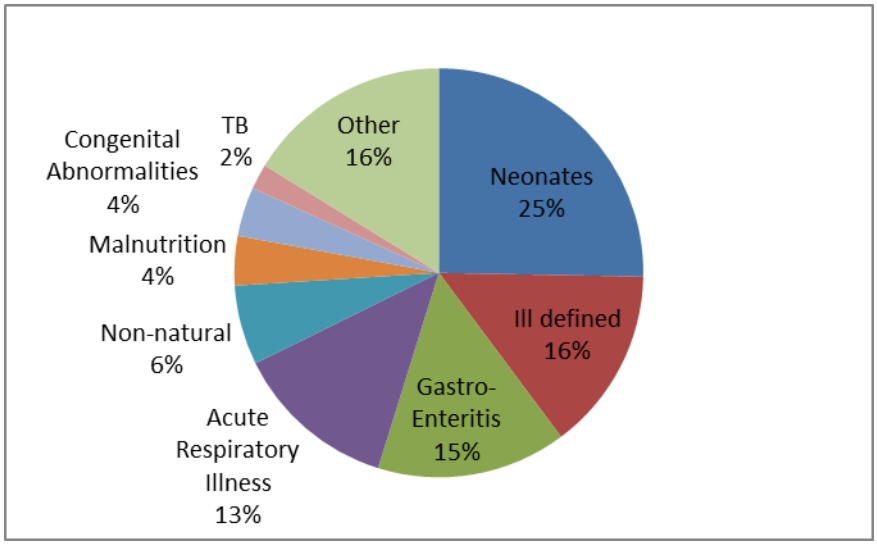


Figure 3: Cause of death of deaths in children under-5 years of age reported through Vital Registration, 2011.

More detailed information regarding the leading causes of death by age category are shown in Appendix 1. The figures highlight the need to focus on reducing deaths from common conditions, namely neonatal conditions, diarrhoea and pneumonia. The contribution of non-natural deaths appears to be increasing – and accounted for 14.8% of all deaths in children 1 – 4 years of age.

Place of death

Vital registration includes data on where the deaths occur. Data on the number and proportion of deaths which were recorded as taking place in health facilities are shown in Table 6.

Overall 45.5% of deaths which were registered occurred in health facilities. As would be expected this figure was higher during the neonatal period, with 67.5% of deaths occurring in health facilities. Only 37.1% of deaths in the post-neonatal period (1 month to 1 year) occurred in health facilities, whilst 35.6% of deaths in children 1 – 4 years of age occurred in health facilities. The figures were fairly consistent across all provinces although a higher proportion of deaths occurred in health facilities in KwaZulu-Natal when compared with other provinces.

Whilst the completeness and accuracy of reporting is difficult to assess, these data suggest that access to health facilities for sick children remains a problem.

Table 6: Number and proportion of deaths reported through Vital Registration that occurred in health facilities, 2011.

	NN DEATHS		PNN DEATHS		< 1 YR		1 – 4 YRS		< 5 YRS	
	No.	%	No.	%	No.	%	No.	%	No.	%
EC	460	65.4	695	39.2	1 155	46.6	404	33.4	1 559	42.3
FS	730	68.8	725	38.1	1 455	49.1	297	37.5	1 752	46.7
GP	1 823	62.0	1 190	32.9	3 013	46.0	648	36.5	3 661	43.9
KZN	1 691	76.7	1 488	49.3	3 179	60.8	786	39.9	3 965	55.1
LP	667	71.5	619	34.5	1 286	47.2	465	31.5	1 751	41.7
MP	550	70.2	498	38.4	1 048	50.4	294	32.8	1 342	45.1
NW	648	59.7	588	32.0	1 236	42.3	314	34.5	1 550	40.5
NC	200	59.2	150	27.2	350	39.3	142	42.8	492	40.3
WC	611	69.4	305	28.3	916	46.8	166	32.9	1 082	43.9
RSA	**7 424**	**67.5**	**6 291**	**37.1**	**13 715**	**49.0**	**3 533**	**35.6**	**17 248**	**45.5**

Gender

Data on the gender of children whose deaths were reported through vital registration is shown in

Figure 4. Girls accounted for 46.2% of deaths, and boys for 52.2% of deaths, whilst the gender of 1.4% of children who died was unspecified.

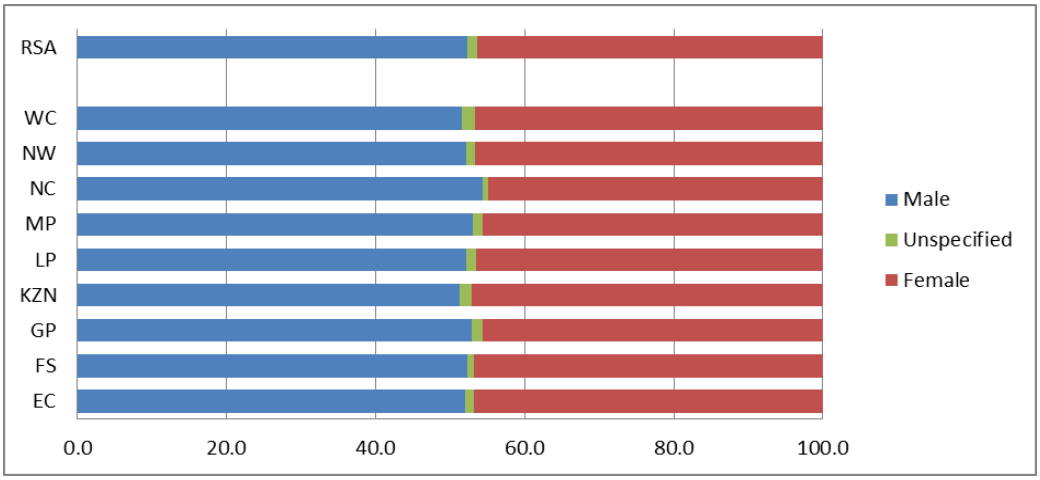


Figure 4: Gender profile of children whose deaths were reported through Vital Registration, 2011.

DISTRICT HEALTH INFORMATION SYSTEM DATA

Data on the number of newborn, under-one and under-five deaths as well as the number of deaths from diarrhoea, pneumonia and SAM in children under five years of age are collected

through the DHIS. These data only include deaths amongst inpatients, and are expressed as a proportion of admissions. Data for the period 2010 – 2013 are shown in Table7 and 8. These rates fell between 2010 and 2012 in the country as a whole as well as in most provinces, before rising in 2013. This increase experienced in 2013 is likely to reflect a change in definition whereby newborn deaths are now (correctly) included when these rates are calculated.

Table 7: Under-one in-facility death rates, DHIS, 2010 – 2013.

	2010		2011		2012		2013	
	N°	RATE	N°	RATE	N°	RATE	N°	RATE
EC	2 693	10.1	2 040	7.2	1 864	5.4	2 466	6.5
FS	1 305	9.1	1 169	10.2	915	7.5	843	8.5
GP	1 849	16.0	1 834	7.2	1 389	4.9	2 281	7.8
KZN	2 789	10.6	2 465	7.0	2 857	6.5	3 292	6.4
LP	1 782	12.0	1 648	10.9	1 858	10.9	2 233	12.4
MP	1 103	8.6	934	9.7	876	8.9	1 096	10.3
NW	777	6.0	798	8.4	743	8.5	743	8.5
NC	368	6.9	366	6.9	407	9.6	387	6.7
WC	1 009	2.9	1 034	2.8	1 056	2.7	1 020	2.1
RSA	**13 675**	**8.6**	**12 288**	**6.9**	**11 965**	**6.0**	**14 361**	**6.5**

Table 8: Under-five in-facility death rates, DHIS, 2010 – 2013.

	2010		2011		2012		2013	
	N°	RATE	N°	RATE	N°	RATE	N°	RATE
EC	2 358	7.3	1 706	5.8	1 599	5.0	2 733	6.2
FS	954	8.4	1 220	8.4	1 071	6.3	1 032	6.8
GP	1 750	5.5	1 046	2.5	1 552	3.4	2 412	5.1
KZN	2 912	8.7	2 920	5.2	3 636	5.3	4 130	5.3
LP	2 180	8.4	1 885	6.8	2 304	7.6	2 761	8.2
MP	1 207	6.4	1 056	6.3	1 106	5.8	1 357	7.1
NW	1 064	5.4	935	6.1	903	6.4	930	6.1
NC	515	5.5	461	5.3	464	5.9	464	4.8
WC	1 190	2.0	1 187	1.8	1 204	1.8	1 153	1.5
RSA	**14 130**	**5.8**	**12 416**	**4.5**	**13 839**	**4.6**	**16 972**	**5.0**

CENSUS DATA

Data on child deaths were collected during the Census undertaken by Statistics South Africa in 2011. Every household was asked whether any child in the household had died during the preceding year. Comparisons of the number of deaths reported through Vital Registration, the census and DHIS are shown in Table 9. The relatively low number of deaths reported through the DHIS is to be expected given that this only includes in-facility deaths. The discrepancy between the Vital Registration and the Census figures are more difficult to explain. It is likely that the census data includes double-counting of deaths (where children are counted as belonging to more than one household and are therefore counted more than once). Vital Registration on the other hand suffers from under-reporting of deaths – although reporting has improved significantly during recent years, the extent of under-reporting of child deaths is difficult to estimate. The discrepancy in figures means that there is still significant uncertainty regarding levels of child mortality in South Africa.

Table 9 Number of newborn, infant and under-five deaths reported by different data sources, 2011.

	StatsSA deaths				Census deaths			DHIS deaths	
	NN	U1	1-4	U5	U1	1-4	U5	U1	U5
EC	703	2 478	1 209	3 687	5 692	2 067	7 759	2 040	1 706
FS	1 061	2 963	791	3 754	3 061	954	4 015	1 169	1 220
GP	2 938	6 554	1 776	8 330	6 431	2 160	8 591	1 834	1 046
KZN	2 204	5 225	1 969	7194	11 179	3 663	14 842	2 465	2 920
LP	933	2 727	1 477	4 204	3 913	1 392	5 305	1 648	1 885
MP	783	2 080	896	2 976	3 853	1 370	5 223	934	1 056
NW	1 085	2 920	910	3 830	3 639	1 135	4 774	798	935
NC	338	890	332	1 222	919	320	1 239	366	461
WC	880	1 958	504	2 462	1 189	542	1 731	1 034	1 187
RSA	**11 002**	**27 981**	**9 927**	**37 908**	**40 697**	**13 553**	**54 250**	**12 288**	**12 416**

Child PIP Data

Data collected during mortality audits conducted at hospitals are collated into the national child PIP database. Demographic information about each child who dies, as well as information regarding the cause of death, and the child's nutritional and HIV status together with information regarding modifiable factors are collected. Child PIP data only records information about children who die in hospital, and can therefore not be used to calculate population-based mortality rates. The data are also not fully representative as not all hospitals submit data; however as shown in Table10 the number of submitting hospitals has continued to increase with approximately half of hospitals submitting data in 2013.

Table 10: Number of hospitals submitting Child PIP data, 2010 – 2013.

	2010	2011	2012	2013
EC	6	9	10	11
FS	5	14	28	28
GP	4	6	5	3
KZN	35	37	24	33
LP	7	7	11	17
MP	28	28	28	28
NW	11	8	7	12
NC	13	10	11	12
WC	24	34	35	37
RSA	**133**	**153**	**159**	**181**

Child PIP data for the period 2010 – 2013 are included. National and provincial data are presented here with more detailed data being provided in the provincial chapters.

The In-Hospital Mortality Rate (IHMR) refers to the proportion of children who were admitted who died during that admission. The IHMR for children under-one declined from 5.8% in 2010 to 3.9% in 2013, whilst the IHMR for children under five years of age declined from 4.4% in 2010 to 2.8% in 2013.

Table11: In-Hospital Mortality Rates (IHMR) for infants and under-fives, 2010 – 2013.

	2010		2011		2012		2013	
	< 1 YR	< 5 YRS	< 1 YR	< 5 YRS	< 1 YR	< 5 YRS	< 1 YR	< 5 YRS
EC	5.3	4.3	4.9	2.6	3.8	2.4	5.1	3.3
FS	7.3	5.6	7.5	5.2	6.2	4.3	4.8	3.5
GP	4.7	3.4	4.6	3.5	2.1	1.7	3.7	2.3
KZN	8.6	6.9	6.5	5.0	5.5	3.9	5.3	4.0
LP	8.0	6.1	5.5	3.7	5.4	3.4	5.4	3.2
MP	10.0	7.5	9.1	6.2	7.9	5.3	6.6	4.5
NW	7.3	4.6	7.2	4.8	7.1	5.0	7.0	5.2
NC	5.0	4.1	3.7	2.9	2.8	2.0	4.2	3.1
WC	1.4	1.1	1.1	0.8	1.0	0.7	0.8	0.6
RSA	**5.8**	**4.4**	**4.7**	**3.3**	**3.8**	**2.6**	**3.9**	**2.8**

A high proportion of all deaths are associated with a small number of conditions, namely diarrhoea, pneumonia, septicaemia and TB. As shown in Table 12 the causes of death remained stable over the period 2010 – 2013.

Table 12: Leading causes of death in children, Child PIP data, 2010 – 2013.

2010		2011		2012		2013	
Diarrhoea	2 002	Diarrhoea	1 594	Pneumonia	1314	Diarrhoea	1 685
Pneumonia	1 928	Pneumonia	1 591	Diarrhoea	1 235	Pneumonia	1 466
Septicaemia	1 469	Septicaemia	1 250	Septicaemia	976	Septicaemia	1260
TB (all)	916	TB (all)	692	Other Nutritional	475	Other Nutritional	569
PCP	533	Other Nutritional	490	TB (all)	410	TB (all)	466

Data on the HIV and nutritional status of all children who die is recorded. The proportion of children who were HIV-infected or HIV-exposed (with unknown HIV status) declined from almost half in 2010 to approximately one third in 2013. Approximately thirty percent of children who died between 2010 and 2013 were classified as being severely malnourished.

Table13: Percentage of children who died whose deaths were associated with HIV infection and with Severe Malnutrition, Child PIP data, 2010 – 2013.

	% DEATHS ASSOCIATED WITH HIV INFECTION				% DEATHS ASSOCIATED WITH SAM			
	2010	**2011**	**2012**	**2013**	**2010**	**2011**	**2012**	**2013**
EC	41.0	35.6	39.2	31.9	34.3	28.3	30.7	29.7
FS	54.4	39.5	41.2	37.3	50.4	39.8	31.3	35.1
GP	51.0	40.4	33.2	29.5	35.1	23.8	12.8	15.5
KZN	56.2	48.5	45.1	42.5	31.2	28.3	28.2	28.7
LP	48.2	40.8	31.7	41.2	41.0	44.1	42.0	39.2
MP	51.7	49.9	48.0	46.9	30.6	29.4	29.4	28.8
NW	48.5	43.8	46.0	40.8	47.4	55.3	35.4	43.5
NC	42.4	30.1	23.7	30.2	37.2	27.4	26.3	44.8
WC	25.6	18.5	18.2	20.7	19.5	22.7	14.1	14.0
RSA	**49.9**	**43.0**	**39.9**	**39.1**	**33.0**	**30.9**	**27.9**	**31.2**

Data on modifiable factor are shown in Tables 14 and 15. The number of modifiable factors per deaths remained constant over the period. Most modifiable factors related to clinical personnel, whilst approximately 30% of modifiable factors occurred at home, and 70% within the health system. A disproportionate number of modifiable factors continue to take place in the Accident and Emergency setting (given the relatively short period of time that children spend in this setting).

Table 14: Modifiable Factor Rates by responsible person and place of occurrence, Child PIP data, 2010 – 2013.

	2010	**2011**	**2012**	**2013**
Total MFR/death	3.8	4.1	3.7	3.7
Modifiable Factor Rate by responsible person				
Clinical Personnel	2.2	2.4	2.1	2.1
Administrator	0.5	0.6	0.5	0.4
Caregiver	1.1	1.2	1.1	1.1
Proportion of Modifiable Factors by place of occurrence				

Ward	26.5	26.8	26.3	26.3
Emergency Department	24.3	22.6	23.1	23.4
Referring Facility & Transit	3.1	4.5	4.7	5.2
Clinic/OPD	16.7	16.1	14.7	13.5
Home	29.5	30.0	31.1	31.6

Table 15: Most frequent modifiable factors, Child PIP data, 2013.

PLACE	**MOST FREQUENT MODIFIABLE FACTORS**
Wards	• Lack of High Care and/or ICU facilities for children in own and higher level facility • Insufficient notes on clinical care in ward (assess, manage, monitor) • Inadequate investigations in ward
Emergency Department	• Inadequate notes on clinical care (assessment, management, monitoring at A&E • Inadequate history taken at A&E • Inadequate investigations (blood, x-ray, other) at A&E
Referring Facility & Transit	• No or delayed referral to higher level • Severity of child`s condition incorrectly assessed at referring facility • Inadequate referral letter from referring facility
Clinic/OPD	• Child`s growth problem (severe malnutrition, not growing well) inadequately identified or classified • Inadequate assessment for HIV (IMCI not used) at clinic/OPD • Delayed referral for severe malnutrition, weight loss, or growth faltering from clinic/OPD
Home	• Caregiver delayed seeking care • Caregiver did not recognise danger signs/severity of illness • Child not provided with adequate (quality and/or quantity) food at home

CHAPTER 4: DIARRHOEA AND PNEUMONIA

SUMMARY

According to StatsSA, Pneumonia and Diarrhoea are the leading causes of death in children after the neonatal period. The incidence of pneumonia in children less than five years old dropped by 30% during the 2009 to 2013 period. All provinces showed declined in the incidence of diarrhoea except Northern Cape, North West, Mpumalanga and Free State provinces.

The under-five case fatality rate (CFR) for diarrhoea was estimated by Stats SA as 7.3% and had showed a decline over the period from 2009 to 2013. Pneumonia CFR dropped by 24.8% over the same period.

Improved access to highly cost-effective child survival activities is required in order to reduce pneumonia and diarrhoea deaths in children.

INTRODUCTION

Beyond the neonatal period diarrhoea and pneumonia are the leading causes of death in children under the age of five years. WHO estimates that nearly two million children under the age of five years die from two eminently preventable diseases; diarrhoea and pneumonia.[12] The Lancet[13] estimated that in 2011 700,000 episodes of diarrhoea and 1.3 million of pneumonia contributed to under-five deaths, worldwide. The greater portion of these deaths occurred in the first two years of life. The epidemiology of diarrhoea and pneumonia overlap and are partly due to shared risk factors such as under nutrition, suboptimal breast feeding, zinc deficiency and environmental conditions.

Over the past two decades under-five deaths from diarrhoea and pneumonia have dropped worldwide. However, children from rural and underserved areas were more at risk of dying from these two conditions. Interventions to prevent or manage these conditions, such as exclusive breast feeding up to six months, vaccination, hand washing, clean drinking water and appropriate use of antibiotics for pneumonia, are well known and universally implemented. The endpoint for the MDGs, 2015, is imminent and many Asian and African

[12] WHO report: Ending preventable deaths from pneumonia and diarrhoea by 2025. Geneva 10 April 2013.

[13] Christa L, Fisher Walter, Igor Rudan et al. Global burden of childhood diarrhoea and pneumonia. Lancet, 2013; 381:1405-1419.

countries may not meet this goal. Hence, World Health Organisation, United Nations Children's Fund and other partners launched the integrated Global Action Plan for Prevention and Control of Pneumonia and Diarrhoea (GAPPD)[14] with the aim of ending preventable childhood deaths from these two diseases by the year 2025.

NATIONAL PICTURE

South Africa is on target to meet the MDG-4 target to reduce U5MR by two thirds but the same may not be true with respect to the IMR. Similar to the global picture, diarrhoea and pneumonia are the major causes of childhood deaths with 44 253 pneumonia cases and 35 828 cases of diarrhoea cases recorded in the country. In South Africa there was a 30% reduction of admissions for pneumonia between 2010 and 2013. Diarrhoeal episodes decreased from 38 400 in 2010, to 36 300 in 2011 and 35 800 in 2012. However nationally diarrhoeal cases rose by 17.6% to nearly 40 000 cases in 2013. Despite this increase South Africa still recorded a reduction of more than 45% in the case fatality rate for both pneumonia and diarrhoeal diseases.

Child PIP data reports that the main contributory factors to pneumonia and diarrhoeal deaths was the lack of access to high care and or ICU facilities at referral sites for children with severe conditions. The second challenge was in the paediatric wards and accident and emergency (A&E) units at hospitals where the assessment, investigation, management and monitoring of children was inadequate. From the referring primary health care (PHC) facilities, the major challenge was the failure to correctly assess the severity of the child's condition. At the community level caregivers delayed in seeking help mainly because many could not recognise danger signs or the severity of their child's illness.

Other contributory factors to the failure to register significant progress with preventable infections that cause diarrhoea and pneumonia are related to low immunization coverage at one year, increasing DPT -Measles dropout rates and low breast feeding rates at the HepB-3 visit.

Diarrhoea and pneumonia deaths were closely associated with HIV infection. Whilst the polymerase chain reaction (PCR) positivity rates have come down significantly over the past five years from 9.0 in 2009 to 2.2 in 2013, early infant diagnosis (EID) coverage is still at around 74% and not all eligible children are initiated on ART at the PHC level. StatsSA data

[14] WHO, UNICEF report: Ending preventable child deaths from pneumonia and diarrhoea by 2025. The integrated Global action plan for pneumonia and diarrhoea (GAPPD) Geneva, 2013.

shows a close association between high incidences of diarrhoeal diseases with provinces where there was little piped water or sanitation.

			2009	2010	2011	2012	2013
EC	Child under 5 years diarrhoea admitted (annualised)	per 1K	15.1	13.4	11.5	10.2	13.0
	Child under 5 years pneumonia incidence (annualised)	per 1K	68.2	57.1	54.5	51.5	44.8
	Child under 5 years diarrhoea case fatality rate	%	10.0	11.1	8.3	6.2	6.9
	Child under 5 years pneumonia case fatality rate	%	8.1	7.8	5.3	4.5	5.4
FS	Child under 5 years diarrhoea admitted (annualised)	per 1K	9.6	9.9	8.5	9.0	18.5
	Child under 5 years pneumonia incidence (annualised)	per 1K	111.0	119.0	111.1	96.6	80.5
	Child under 5 years diarrhoea case fatality rate	%	13.0	11.2	7.1	4.5	4.2
	Child under 5 years pneumonia case fatality rate	%	9.7	9.2	6.5	6.9	3.6
GP	Child under 5 years diarrhoea admitted (annualised)	per 1K	10.2	13.5	13.6	10.0	8.4
	Child under 5 years pneumonia incidence (annualised)	per 1K	60.1	56.1	56.0	49.0	38.1
	Child under 5 years diarrhoea case fatality rate	%	7.2	8.4	5.0	4.0	3.5
	Child under 5 years pneumonia case fatality rate	%	6.0	5.7	4.2	2.3	2.8
KZN	Child under 5 years diarrhoea admitted (annualised)	per 1K	44.4	27.6	21.5	15.4	14.1
	Child under 5 years pneumonia incidence (annualised)	per 1K	178.4	140.3	143.7	116.5	95.7
	Child under 5 years diarrhoea case fatality rate	%	7.0	7.2	5.0	4.3	3.6
	Child under 5 years pneumonia case fatality rate	%	4.8	6.9	4.2	3.0	2.9
LP	Child under 5 years diarrhoea admitted (annualised)	per 1K	16.7	13.1	14.5	11.2	13.5
	Child under 5 years pneumonia incidence (annualised)	per 1K	66.8	49.6	49.2	37.9	35.3
	Child under 5 years diarrhoea case fatality rate	%	9.5	8.5	8.9	7.7	5.7
	Child under 5 years pneumonia case fatality rate	%	10.4	8.0	5.7	5.2	4.7
MP	Child under 5 years diarrhoea admitted (annualised)	per 1K	11.3	10.7	8.1	7.3	11.3
	Child under 5 years pneumonia incidence (annualised)	per 1K	60.6	38.6	37.2	26.1	20.5
	Child under 5 years diarrhoea case fatality rate	%	12.3	11.9	9.9	7.2	6.1
	Child under 5 years pneumonia case fatality rate	%	10.1	8.1	8.3	6.2	5.9
NW	Child under 5 years diarrhoea admitted (annualised)	per 1K	12.5	11.7	9.9	6.2	11.4
	Child under 5 years pneumonia incidence (annualised)	per 1K	114.8	77.5	69.9	42.8	28.3
	Child under 5 years diarrhoea case fatality rate	%	8.2	6.3	4.8	5.5	5.4
	Child under 5 years pneumonia case fatality rate	%	7.5	7.5	5.1	4.9	5.1
NC	Child under 5 years diarrhoea admitted (annualised)	per 1K	16.1	12.8	11.5	11.6	16.1
	Child under 5 years pneumonia incidence (annualised)	per 1K	116.5	103.1	92.7	81.9	72.0
	Child under 5 years diarrhoea case fatality rate	%	6.3	4.8	3.7	2.0	3.2
	Child under 5 years pneumonia case fatality rate	%	4.5	4.2	3.0	3.2	3.8
WC	Child under 5 years diarrhoea admitted (annualised)	per 1K	34.0	21.5	16.0	16.1	16.1
	Child under 5 years pneumonia incidence (annualised)	per 1K	89.4	65.5	68.9	61.4	64.8
	Child under 5 years diarrhoea case fatality rate	%	0.5	0.4	0.2	0.2	0.1
	Child under 5 years pneumonia case fatality rate	%	0.3	0.7	0.4	0.5	0.4
RSA	Child under 5 years diarrhoea case fatality rate	%	7.4	7.0	5.2	4.2	4.0
	Child under 5 years pneumonia case fatality rate	%	6.7	6.3	4.3	4.1	3.7

Table 16: Under-5 Incidence and CFR for Diarrhoea and Pneumonia by province and year.

PROVINCIAL PICTURE

Diarrhoea

All provinces showed a decline in the incidence of diarrhoea over the past five years except the Northern Cape, North West, Mpumalanga and the Free State. In fact in the Free State there was a doubling of admissions of severe diarrhoeal cases from 9.0 to 18.5 per thousand over a one year period. However the diarrhoeal CFR for the Free State did not follow the same trend and instead remained almost unchanged from the previous year low CFR of 4.2%. The diarrhoeal CFR continued to follow a downward trend in most provinces except for the Eastern and Northern Cape where deaths from diarrhoea increased. The Western Cape had the lowest proportion of deaths (CFR 0.4%) notwithstanding having a similar or higher diarrhoea incidence to other provinces.

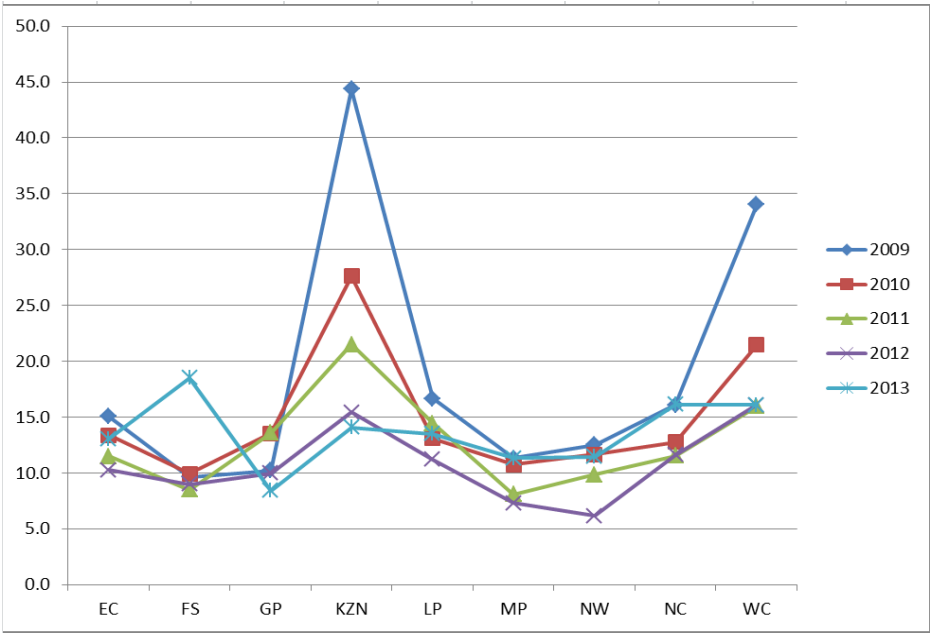


Figure 5: Annual incidence of diarrhoea by province, 2009 – 2013.

The worst performing districts in terms of diarrhoeal mortality were Alfred Nzo (13.2%), Amathole (13.2%), Oliver Tambo (13.2%) John Taelo Gaetsewe (11.9%) and Waterburg (9.3%) districts. Alfred Nzo and John Taolo Gaetsewe districts showed minimal progress in reducing diarrhoeal mortality over the five year period.

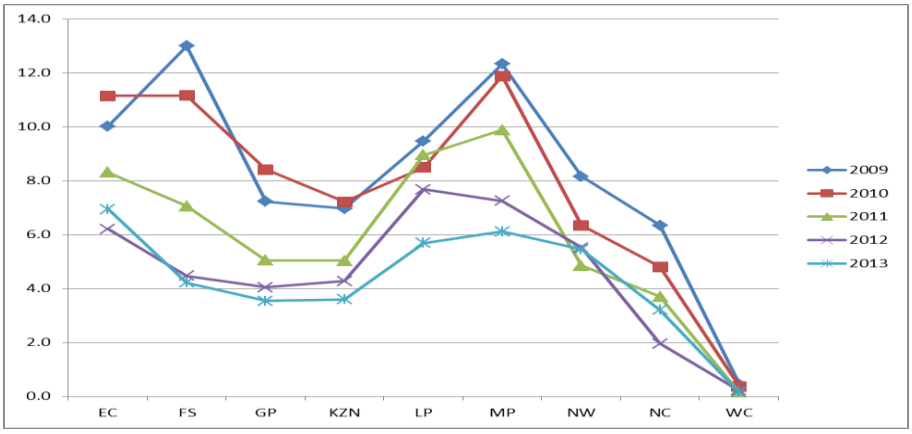


Figure 6: Under-5 diarrhoeal CFR by province and year, 2009 – 2013.

Pneumonia

The incidence of pneumonia followed a downward trend in all provinces of South Africa over the five year period covering 2009 to 2013 as shown below in Figure 7.

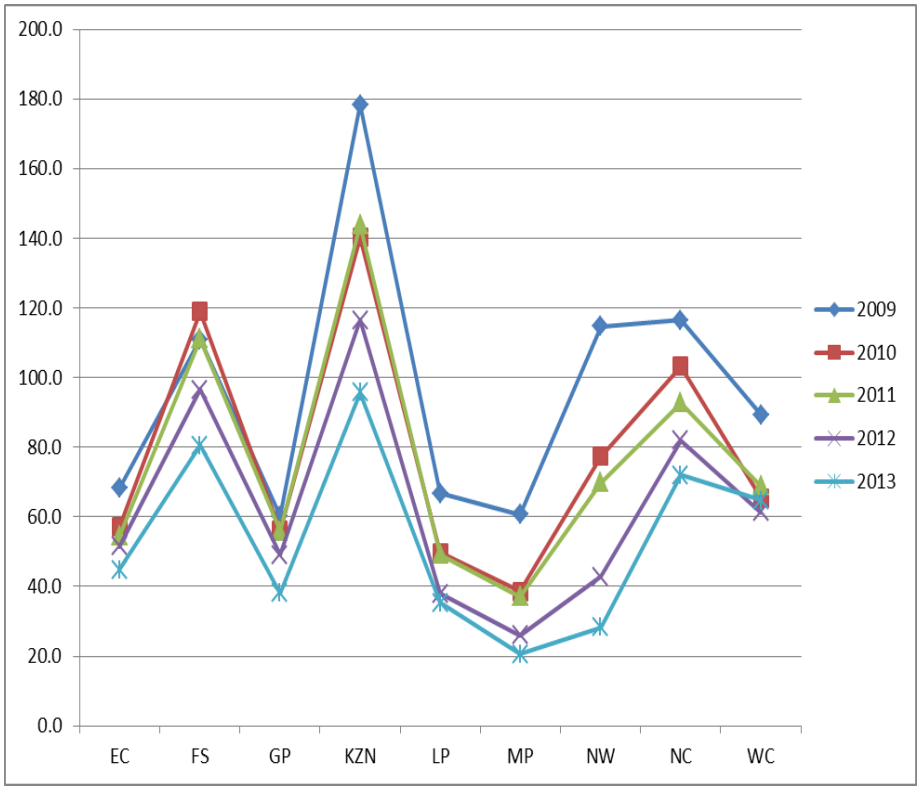


Figure 7: Annual incidence of penumonia by province, 2009 – 2013.

In the face of an overall declining incidence of pneumonia Gauteng and the Eastern Cape recorded reversals in death rates from pneumonia between 2012 and 2013. The Free State recorded the most improvement in CFR that placed the province from seventh to fourth best

performing province with regard to pneumonia deaths. Limpopo and Mpumalanga recorded the second highest reductions in pneumonia CFR. This is probably the consequence of having started from extremely high baselines in 2009.

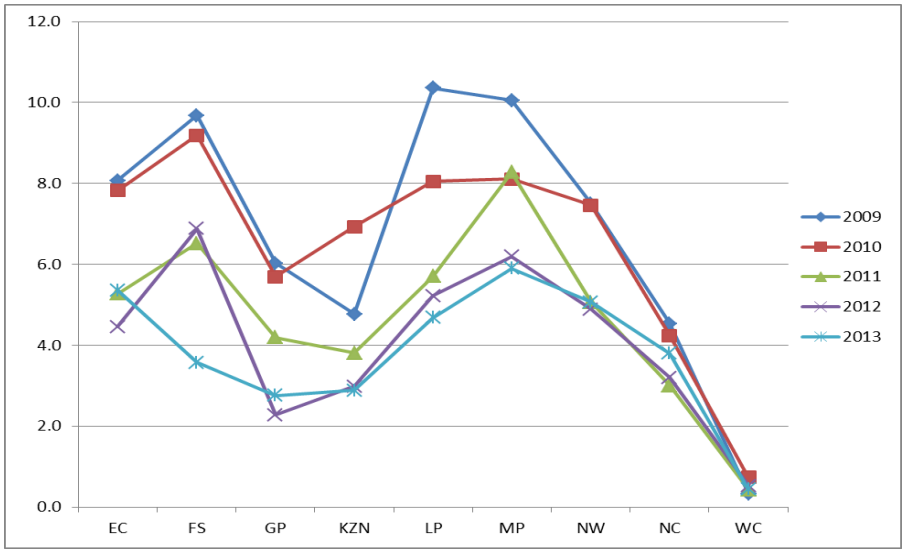


Figure 8: Under-5 pneumonia CFR by province and year, 2009 – 2013.

The overall performance of districts can be categorised into four groups based on two characteristics; the extent of the burden of disease and the pneumonia CFR. The national average incidence for pneumonia disease of 54.7 per thousand and the pneumonia CFR of 4.0% are used as points of reference to evaluate district performance.

The first group which is the worst performing category are characterised by a low incidence of pneumonia disease yet a pneumonia case fatality rate higher than the national average. Included in this category are Alfred Nzo (8.2%) in the Eastern Cape, half of the districts in Limpopo (Capricorn, Mopani and Waterberg); two out of three in Mpumalanga (Ehlanzeni and Gert Sibande) and Bojanala district in the North West.

The second category of under-performing districts is those with a high burden of disease coupled with a high pneumonia case fatality rate. John Taolo Gaetsewe district recorded the highest CFR (17.8%) of all the districts. Other districts in this second category included Francis Baard in the Northern Cape; Cacadu and Chris Hani in the Eastern Cape; and Fezile Dabi and Thabo Mafutsanyane in the Free State.

The third category is the moderately performing districts which are characterised by a high load of pneumonia cases but relatively fewer childhood deaths from pneumonia. These

include most of the districts in KwaZulu-Natal where the highest incidences of pneumonia were recorded in Ugu (120.5), uMgungundlovu (128.5) and Umkhanyakude (128.5) districts. Nevertheless, the pneumonia CFR in these districts was well below the national average of 4.0%. Also in this category were half of the six districts in the Western Cape including the Winelands, Cape Town Metro and Overberg districts which all recorded exceedingly high pneumonia case admissions but very low CFR. Three of the five districts in the Free State, Lejweleputswa, Motheo and Xhariep, also recorded a low CFR.

The fourth category of good performing districts with a high burden of disease and low case fatality rate includes most districts in Gauteng; the remaining half in the Western Cape; three of the four districts in the North West; Namakwa and Pixley ka Seme in the Northern Cape; Buffalo City Metro in the Eeastern Cape; Vhembe in Limpopo; and Nkangala in Mpumalanga.

CONCLUSION

The incidence of pneumonia has dropped over the five year review period. Whilst diarrhoea also dropped between 2009 and 2012 there was a marked increase recorded from 2012 to 2013. Both diarrhoea and pneumonia case fatality rates declined progressively over the five year period.

WHO & UNICEF advise that addressing childhood pneumonia and diarrhoea is not only the leading priority but also the greatest opportunity in global health today. Improving access to child survival activities that are highly cost-effective is key to reducing deaths from these preventable and treatable infections which are responsible for most of the childhood deaths in South Africa.

RECOMMENDATIONS:

1. To increase community awareness of danger sign so as to improve their health seeking behaviour through e-health and WBOT home visits.
2. Increase household and community level water treatment.
3. Double the rate of children exclusively breast feeding for six months.
4. Improve the skills of staff at PHC facilities to identify children with severe conditions and manage them appropriately using the IMCI approach.
5. Improve the assessment and management of children with severe conditions in A&E units and children's wards.

6. Ensure that there is a dedicated doctor in all children's wards including after hours and weekend cover.
7. Ensure every secondary referral facility has at least a paediatric high care/ICU bed.

CHAPTER 5: MALNUTRITION / UNDERNUTRITION

SUMMARY

Childhood undernutrition in general is known to be a cause and an underlying cause of death in less than five years in most developing countries. Children with severe acute malnutrition seem to be at a higher risk of death than most children with undernutrition. In South Africa, severe acute malnutrition has also been adopted as the major intervention to reduce child mortality. Children below 2years underweight have also become a priority because the period is seen to be an opportunistic time to reverse undernutrition. Data is collected in the District Health Information system to measure in the incidence of severe acute malnutrition, case fatality rate of severe acute malnutrition and incidence of underweight children below 2 years. Child PIP data that is collected by approximately half of hospitals with paediatric wards in South Africa also reflect that over the years, the death of children below 5 has not changed drastically and one third of child mortality is still associated with severe malnutrition.

Modifiable factors from the death reviews were identified that could reduce the child mortality if addressed for instance, caregiver delays seeking care, caregiver did not recognise danger signs or the severity of the illness; and child was not provided with adequate (quality and quantity) of food at home. At PHC clinic level over the past five years the following problems were identified that there was inadequate assessment for HIV (IMCI not used) at clinic and OPD; the child's growth problem (severe malnutrition, not growing well) were inadequately identified and classified and there was a delayed referral for severe malnutrition, weight loss or growth faltering from clinic to OPD.

INTRODUCTION

Childhood undernutrition is a major global health problem and is the underlying cause of 35% of deaths among children under five years of age in the developing world. It further contributes to childhood morbidity, mortality, impaired intellectual development, suboptimal adult work capacity and increased risk of diseases in adulthood. According to the 2008 *Lancet Series* on Maternal and Child Undernutrition[15], severe acute malnutrition (SAM) is one of the most important contributing causes of childhood mortality.

[15] Butta ZA, Ali S, Cousens S, Ali TM, Haider BA, Rizvi A, Okong P, Butta SZ and Black RE. 2008. Intervention to address maternal, newborn and child survival: What differences can primary health care strategies make. *Lancet,* 2008; 372e (9642):972-989.

Acute malnutrition is caused by a decrease in food consumption and/or illness resulting in bilateral pitting pedal oedema and/or a sudden weight loss. Anorexia or poor appetite and medical complications are clinical signs indicating or aggravating the severity of acute malnutrition.

There are two forms of acute malnutrition:

- Severe acute malnutrition (SAM) which is defined by the presence of bilateral pitting pedal oedema or severe wasting (very low weight for height/length [z-score <-3]). It is associated with other clinical signs such as a poor appetite. A child with SAM is highly vulnerable and at high risk of death.
- Moderate acute malnutrition (MAM) which is defined by moderate wasting (low weight for height/length [z-score between -2 and -3]).

It should be noted that the definition for severe acute malnutrition has been changed in the DHIS and aligned to a global definition using z-scores rather than percentiles. These changes, both in the definition and the classification method, are still not well understood by front line health care workers. Old methods of classification of severe malnutrition were still used in most facilities in South Africa over the past financial year. This may impact on the quality of routine data collected.

The second indicator of undernutrition collected as routine data in South Africa is underweight. All children who are under five years of age are regarded to be underweight when their weight is below -2 z score for their weight for age. If the weight is below -3 z-score the child will be regarded as severely underweight. In the past the indicator for underweight was collected for children under five years but in 2013 this was changed and is now only collected for children under two years of age.

The third form of undernutrition is chronic malnutrition depicted by stunting. Children below -2 z-score of length/height for age are regarded to be stunted and those below -3 z-score as severely stunted. This indicator is not collected routinely but rather captured in surveys such as SA-NHANES-1[16] and the National Food Consumption Survey (NFCS).[17]

[16] Shisana O, Labadarios D, Rehle T, Simbayi L, Zuma K, Dhansay A, Reddy P, Parker W, Hoosain E, Naidoo P, Hongoro C, Mchiza Z, Steyn NP, Dwane N, Makoae M, Maluleke T, Ramlagan S, Zungu N, Evans MG, Jacobs L, Faber M, & SANHANES-1 Team (2013) *South African National Health and Nutrition Examination Survey (SANHANES-1)*. Cape Town: HSRC Press.

[17] National Food Consumption Survey (NFCS) of 2005. *S Afr J Clinical Nutrition*, 21(3):

Incidence versus prevalence.

Incidence is a measure of the risk of developing some new condition within a specified period of time. Although sometimes loosely expressed as the number of new cases during a specified time period. The District Health Information System (DHIS) is used to measure incidence directly for particular reporting periods.

Incidence should not be confused with prevalence, which is the proportion of cases in the population at a given time rather than rate of occurrence of new cases. Thus incidence conveys information about the risk of contracting the disease whereas prevalence indicates how widespread the disease is. Prevalence is the proportion of the total number of cases to the total population and is more a measure of the burden of the disease on society with no regard to time at risk or when subjects may have been exposed to a possible risk factor. This data is also available via the once off surveys listed above.

NATIONAL PICTURE

Incidence of undernutrition (DHIS)

1. Underweight (according to z-scores).

   The incidence of underweight children below two years of age is a new indicator. In the past, the indicator that was collected was for children below five years. The new indicator is based on the 1 000 day theme. The 1 000 days between a babies conception and the child's second birthday offer a unique window of opportunity to shape healthier and more prosperous futures. Undernutrition has been proven to be reversible hence by focusing on improving nutrition for mothers and children in the 1 000 day window, we can help **to** ensure that a child can live a healthy and productive life**.** Nationally approximately 26 children per thousand under the age of two years at public health facilities have been reported to be underweight.

   The provinces with the highest number of underweight children below two years are the Northern Cape (50 per 1 000) and Limpopo (38). Those with the lowest number of underweight children at public health facilities in the past financial year were Gauteng (12) and Mpumalanga (13).

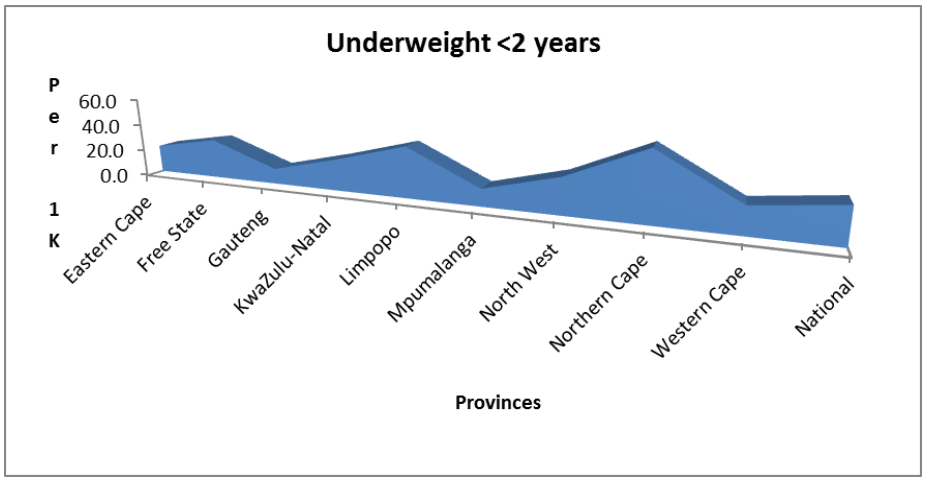


Figure 9: Incidence of underweight <2years in 2013.

The previous indicator, underweight children below five years, showed a reduction in incidence over the past four years from 22 to 16 per 1 000.

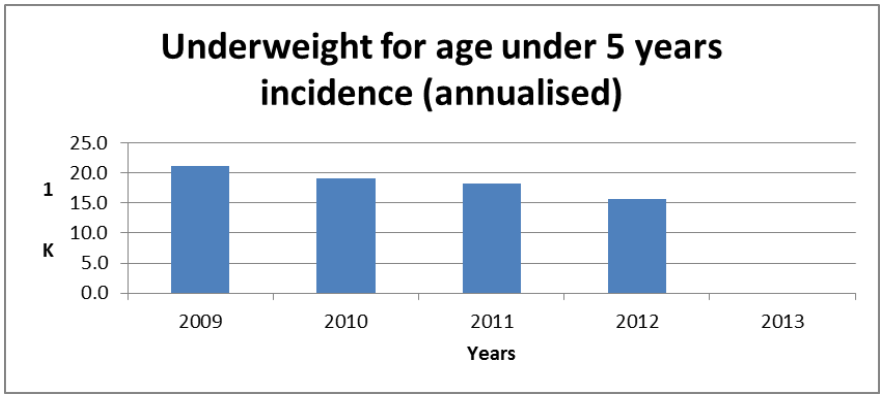


Figure 10: Incidence of underweight <5years.

2. Incidence of Severe (acute) malnutrition (using both definitions).

   Over the past four years the incidence of severe acute malnutrition in children has remained consistently in the range of 4 - 5 per thousand (Figure 11).

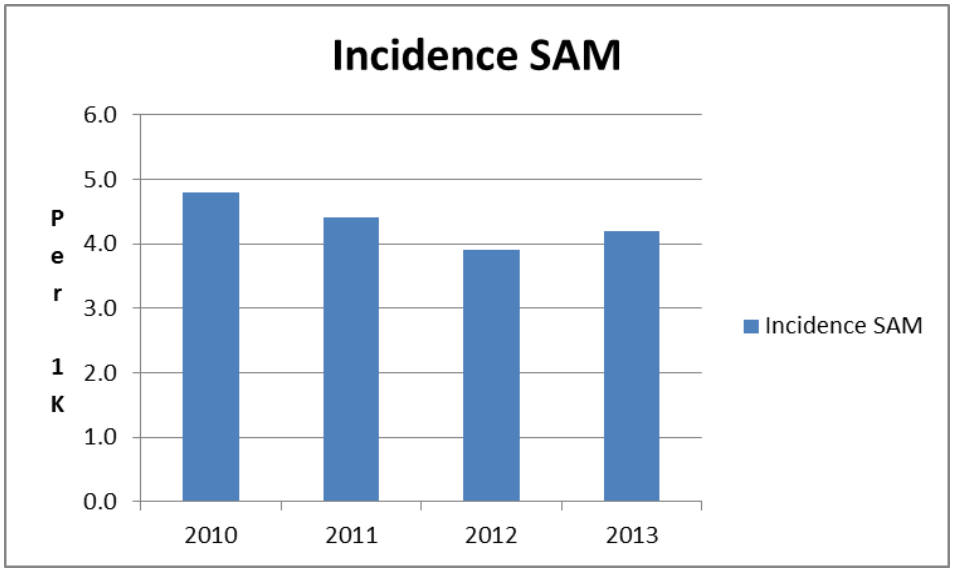


Figure 11: Incidence of Severe Acute Malnutrition.

3. Morbidity of undernutrition

The 2011 Census established the under-five age group to comprise about five million children. Approximately half of these children are at risk of stunting, 21% are moderately stunted and 6.25% severely stunted. Furthermore approximately 40% are underweight, 10% moderately underweight and 1% are severely underweight. Of these children, 4.4% have severe acute malnutrition.

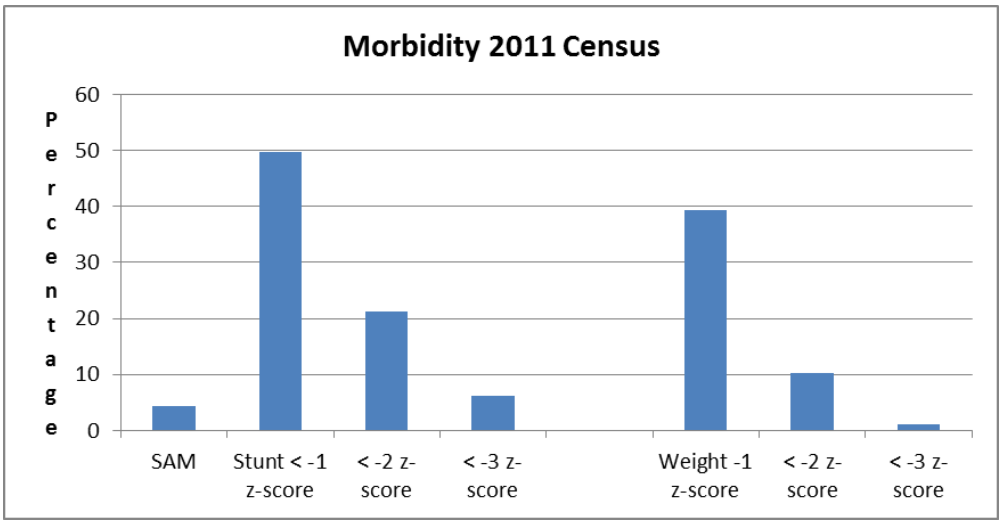


Figure 12: Morbidity (StatSA Census, 2011).

Prevalence of undernutrition

The SANHANES-1[18] results were calculated in order to compare with regional and global data hence the prevalence of stunting, wasting and underweight for children under five years are 21.6%, 2.5% and 5.5% compared to the 2005 NCFS[19]. There has been a slight increase in stunting but a clear decrease in wasting and underweight among children less than five years of age in South Africa. In the global context this prevalence level may be classified as medium severity for stunting and low for underweight and wasting (WHO, 2005).

Mortality rates associate with undernutrition (Acute, underweight status)

Case Fatality rates in hospitals

The DHIS data reflects the national case fatality rate of in-hospital severe acute malnutrition cases as lowest in 2013 at 11.7% compared to 2010 when it was 17.8%.

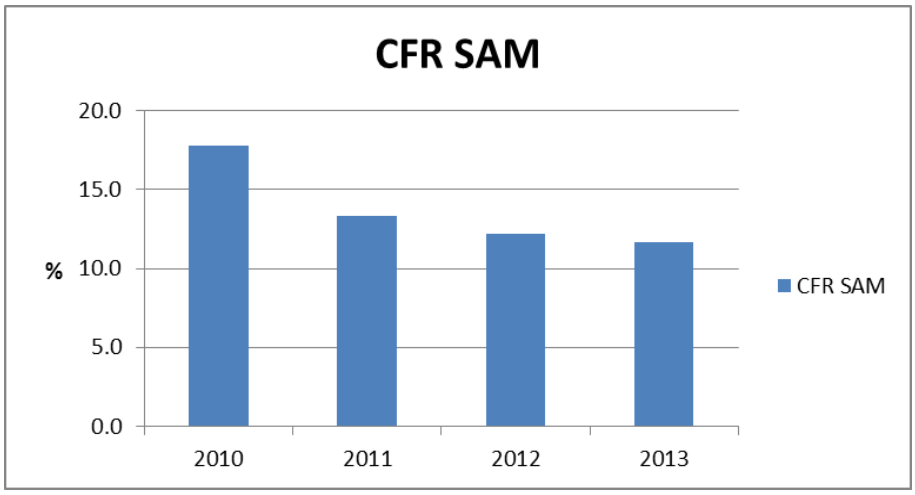


Figure 13: Case fatality rate for under-5 years.

CFR in hospitals using Child PIP

According to the Child PIP data, the death of children below five years shows a pattern that has not changed drastically and one third of child mortality is still associated with severe malnutrition. This is taking into consideration that not all hospital are implementing Child PIP.

[18] Shisana O, Labadarios D, Rehle T, Simbayi L, Zuma K, Dhansay A, Reddy P, Parker W, Hoosain E, Naidoo P, Hongoro C, Mchiza Z, Steyn NP, Dwane N, Makoae M, Maluleke T, Ramlagan S, Zungu N, Evans MG, Jacobs L, Faber M, & SANHANES-1 Team (2013) *South African National Health and Nutrition Examination Survey (SANHANES-1)*. Cape Town: HSRC Press.

[19] National Food Consumption Survey (NFCS) of 2005. *S Afr J Clinical Nutrition*, 21(3):

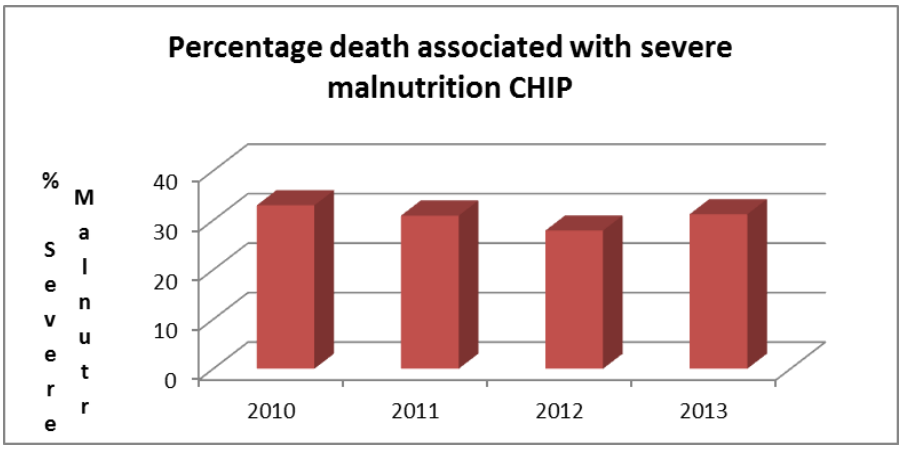


Figure 14: Percentage death associated with severe malnutrition deaths (Child PIP).

In 2013 severe acute malnutrition accounted for twice the number of deaths due to respiratory infections or diarrhoeal diseases in facilities implementing Child PIP.

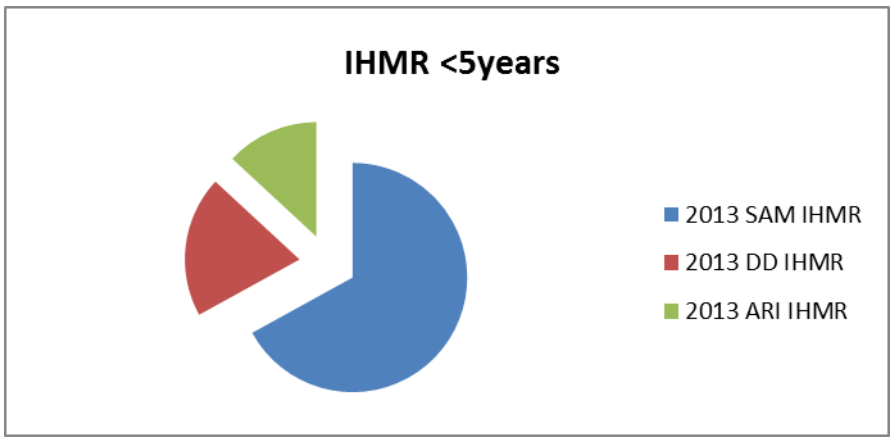


Figure 15: Severe acute malnutrition contribution to deaths in 2013.

PROVINCIAL PICTURE

Incidence

The national target for the incidence of severe malnutrition is one percent or ten per 1 000 children under five years.[20] As shown in the table below, all provinces show figures below this target.

[20] Statistics South Africa. www.statssa.gov.za: Incidence of severe malnutrition in children under 5 years.

Table 17: Percentage incidence of severe malnutrition by province, 2009 – 2013. DHIS (Department of Health)

	2009	2010	2011	2012	2013
EC	7.4	6.7	3.8	4.3	4.4
FS	3.9	3.4	3.5	3.7	10.7
GP	1.2	2.7	3.5	2.5	1.5
KZN	8.6	5.4	2.3	4.5	3.5
LP	3.2	3.0	3.2	2.8	3.1
MP	5.5	2.7	2.3	2.5	2.3
NW	8.4	2.4	2.6	2.4	2.7
NC	5.0	5.9	3.8	5.0	4.3
WC	5.0	4.1	2.9	2.8	2.8

From 2009 to 2013 all provinces, except the Free State (3.9% in 2009 to 10.7% in 2013), were able to reduce the incidence of severe malnutrition. Provinces that started off with very high figures in 2009, such as the Eastern Cape (7.4%), KwaZulu-Natal (8.6%) and the North West (8.4%) all showed a significant drop in the incidence of severe malnutrition over this five year period. According to the DHIS data, the average incidence of severe malnutrition in South Africa has been falling steadily from 12.7% in 2001 to 4.9% in 2010 and even further to 3.9% in 2013. In 2013 Gauteng (1.5%) was the closest to the national target of 1%, followed by Limpopo at 2.3%. In contrast the Free State, at 10.7% in 2013, was conspicuous by being the only province with a worsening trend in the incidence of severe malnutrition. This is surprising because in 2010 the Free State had an incidence of 3%.

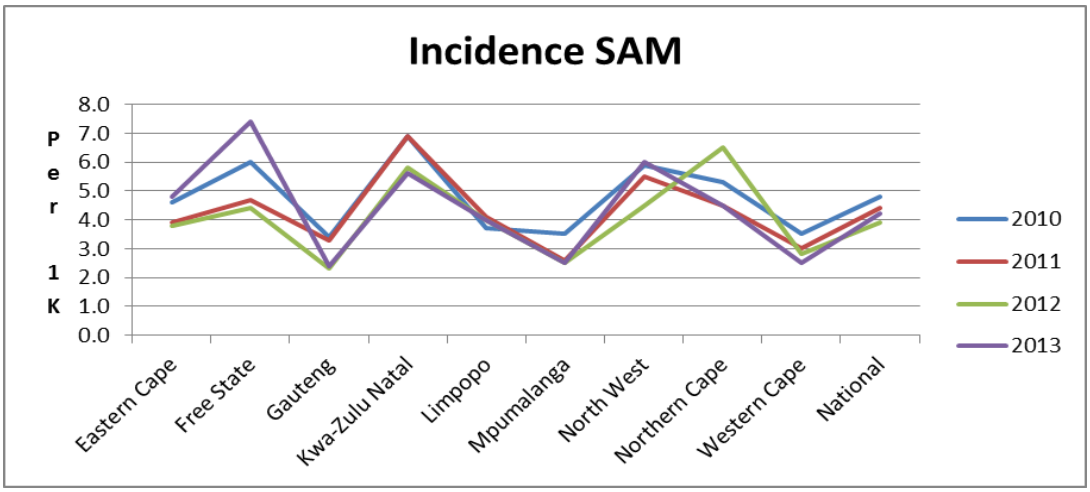


Figure 16: Incidence of Severe Acute Malnutrition, 2010 – 2013.

The incidence in the Free State is on the rise from four children per 1 000 in 2010 to seven in 2013 and the North West from 4.5 children in 2010 to 6 in 2013. This could indicate an increased incidence or that more children are being correctly classified as having severe acute malnutrition due to an improved awareness amongst health care workers. The incidence in both KwaZulu-Natal (6.9 to 5.6) and Mpumalanga (3.5 to 2.5) reduced between 2010 and 2013.

Case Fatality Rates (CFR)

The DHIS CFR indicates a malnutrition mortality rate in all hospitals while the In-hospital Mortality Rates (IHMR) from Child PIP only report on the mortality occurring in hospitals that perform Child PIP death auditing. In 2011 only 47% out of a total of 339 hospitals were doing Child PIP auditing.

As the Figure 17 shows, there were wide disparities in CFR between provinces in the period between 2009 and 2013.

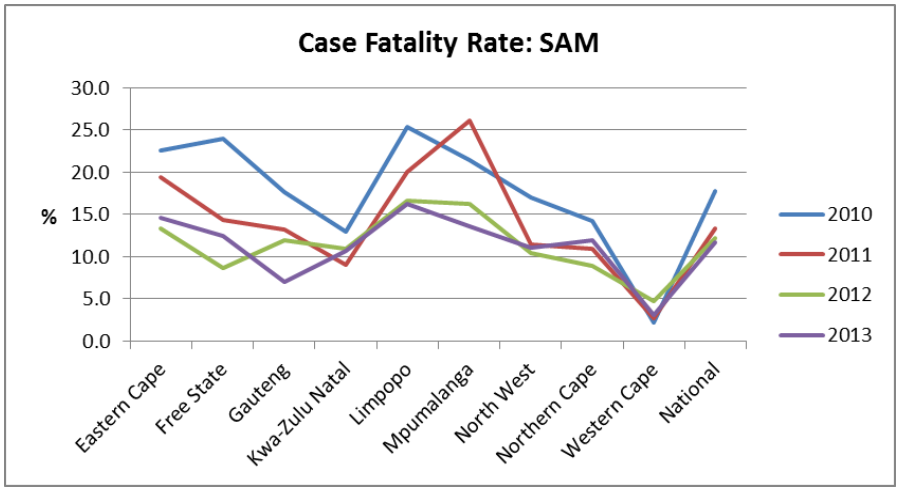


Figure 17: Case fatality rate per province in under-fives.

In 2013 Mpumalanga (16.3%), followed by the Eastern Cape (14.6%) and the Free State (12.6%), was the province with the highest deaths, with the least deaths occurring in the Western Cape (3.1%) and Gauteng (7%). There are provinces that did not collect data of the full year which will provide a misleading impression.

In-hospital Mortality Rate (IHMR) from Child PIP

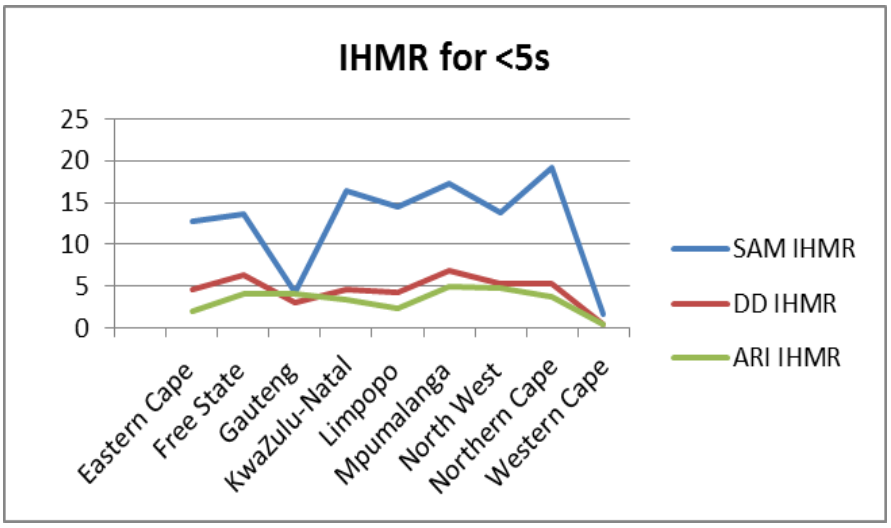


Figure 18: Severe acute malnutrition contribution to associated deaths by province, 2013.

The Northern Cape (19.2%) has the highest in hospital mortality rate for SAM in children below five years of age followed by Mpumalanga (17.3%) and KwaZulu-Natal (16.4%). The Western Cape (1.7%) and Gauteng (4.2%) have the lowest rates.

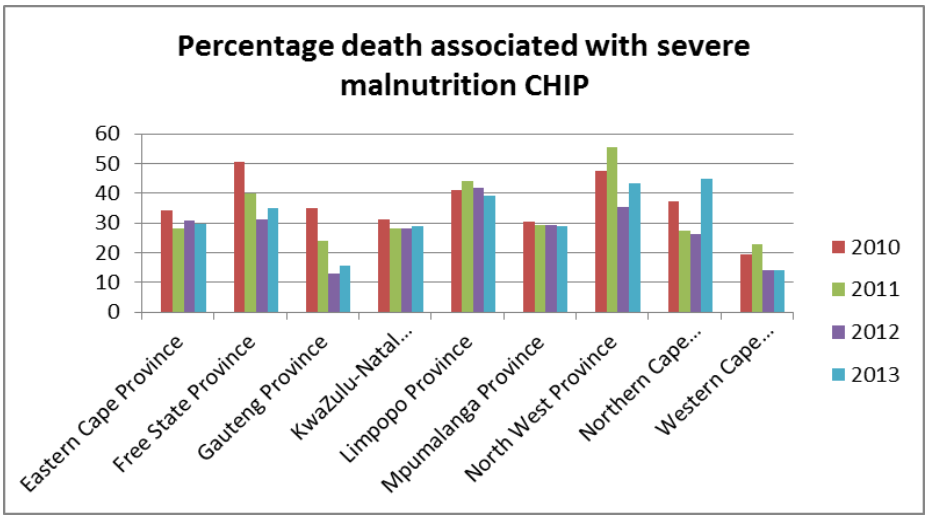


Figure 19: Percentage death associated with severe malnutrition, by province. (Child PIP).

The average Child PIP IHMR for severe malnutrition in 2013 was 14.6%. The Eastern Cape had the highest IHMR (29.5%) whilst, at 3.6%, the Western Cape had the lowest rate. KwaZulu-Natal (8.2%) was the only other province that had a rate below the national

average. Overall the IHMR figures indicate that health facilities in all provinces still face challenges regarding the implementation of the WHO Ten Steps for the Management of Severe Acute Malnutrition. Earlier reports from Child PIP indicated a slight drop in IHMR for severe malnutrition from 18.3% in 2009 to 15.7% in 2011.

DISTRICT PICTURE

The incidence of severe malnutrition at the district level shows wide variations between individual districts within the same province as well as throughout the country. A list of districts in which more than 40% of children that died were malnourished includes four from the Northern Cape. Both Gauteng and Mpumalanga were not represented in this high malnutrition bracket.

Before the introduction of the latest WHO guidelines for the management of SAM reviews of case management of severe malnutrition worldwide had revealed a median case fatality rate of around 25% rising to a level as high as 50%.

The 2011 CFR for districts also show wide variability with figures ranging from the lows of 1.4% for Tshwane (Gauteng) and 1.7% for Pixley ka Seme (Northern Cape) as well as highs of 26.1% for Zululand (KwaZulu-Natal) and 25.8% for Capricorn (Limpopo). Three provinces, Gauteng, the Eastern Cape and the Western Cape, each had three districts with CFR of less than 10%. The 2009 data shows that there were only nine districts with a CFR of less than 10% for SAM. This increased to 14 districts in 2011. In 2011 the last of the top ten best performing districts had a CFR of 6.8% compared to 2009 when this figure was greater than 12%. The worst performing district in 2009 (Fezile Dabi in the Free State) had a CFR of 51.6% while in 2011 the worst performing district (Zululand in KwaZulu-Natal had a CFR of only 26.1%. This indicates an overall ongoing improvement in the management of severe acute malnutrition.

Table 18: Districts in which SAM was present in more than 40% of deaths in 2011. DHIS (Department of Health)

RANK	DISTRICT	PROVINCE	% SAM
1	Namakwa	NC	42.1
2	Z F Mgcawu	NC	42.5
3	John Taolo Gaetsewe	NC	42.9
4	Harry Gwala	KZN	43.3
5	Ngaka Modiri	NW	43.5
6	ILembe	KZN	43.8
7	Xhariep	FS	46.2
8	Pixley ka Seme	NC	46.7
9	Cacadu	EC	47.6
10	Ugu	KZN	50.0
10	Overberg	WC	50.0
11	Waterberg	LP	58.5
12	Bojanala Platinum	NW	63.3

Contributory factors

Upstream factors / cascade

The 2012 SA-NHANES-1[21] report found that 54.4% households were food secure; 28.3% were at risk of hunger and 26% experienced hunger which is considered to be food insecure.

Child PIP modifiable factors

The top three modifiable factors from 2010 till 2013, in descending order of occurrence, are caregiver delays in seeking care, caregiver did not recognise danger signs or the severity of the illness and the child was not provided with adequate quality or quantity of food at home. This is in line with the SANHANES-1 findings reported above.

Consistent modifiable factors at the PHC clinic level over the past five years are dominated by those which have an impact on the malnutrition namely:

[21] Shisana O, Labadarios D, Rehle T, Simbayi L, Zuma K, Dhansay A, Reddy P, Parker W, Hoosain E, Naidoo P, Hongoro C, Mchiza Z, Steyn NP, Dwane N, Makoae M, Maluleke T, Ramlagan S, Zungu N, Evans MG, Jacobs L, Faber M, & SANHANES-1 Team (2013) *South African National Health and Nutrition Examination Survey (SANHANES-1)*. Cape Town: HSRC Press.

- Inadequate assessment for HIV (IMCI not used) at clinic and OPD.
- Child's growth problem (severe malnutrition, not growing well) inadequately identified and classified.
- Delayed referral for severe malnutrition, weight loss or growth faltering from clinic/ OPD.

CONCLUSION

There has been an overall downward trend in the incidence, the case fatality rates and in-hospital mortality rates of severe malnutrition. This is despite the fact that there are still some provinces and districts that are lagging behind in some of these indicators.

It is interesting to note that, even though it is drawn from fewer hospitals, the 2013 Child PIP IHMR (14.6%) is fairly close to the 2013 DHIS CFR (11.7%).

RECOMMENDATIONS

These should aim for the reduction of incidence of both acute and chronic malnutrition of children in communities as well as improving the quality of care of malnutrition cases in hospitals.

1. Promotion of breastfeeding.
2. Promote correct feeding practices including adequate intake of micronutrients.
3. Scale up prevention & intervention measures at the primary healthcare level:
    a. By strengthening nutrition screening (growth monitoring) at the clinic level;
    b. By deploying and supporting WBOTs and Community Healthcare Workers to identify and classify children at risk or acutely malnourished.
4. Engage and sensitize role players involved in poverty alleviation programmes such as Child Care Grants, School Feeding Schemes, Extended Public Works Programme, regarding the importance of good nutrition in children.
5. In line with the promotion of nutrition in the first 1 000 days concept, maternal health and nutrition needs to be promoted before, during and after pregnancy.

CHAPTER 6: HUMAN IMMUNE DEFICIENCY VIRUS INFECTION AND TUBERCULOSIS IN CHILDREN IN SOUTH AFRICA

SUMMARY

Together TB and HIV infection in children (along with neonatal conditions) present what is probably the largest underlying threat to child health and survival in South Africa.

The rapid and extensive catch up on Prevention of Mother-to-Child Transmission (PMTCT) of HIV in South Africa must rank as a major success story with transmission rates dropping from 30 to 40% prior to PMTCT, to around 3.5% in 2010 – saving tens of thousands of children from HIV infection annually.

The introduction of early anti-retroviral initiation in children for those who are infected in spite of PMTCT is also excellent and forward looking with strong regimens for treatment and effective monitoring with viral load levels.

Ensuring early ante natal assessment and PMTC is a big opportunity to further improve the PMTC outcomes further.

Tuberculosis (TB) management in children still presents a problem due to the difficulty in achieving a firm diagnoses however the introduction of the automated polymerase chain reaction (PCR) test for Mycobacterium tuberculosis, and the associated Rifampicin resistance assessment improve the diagnostic ability significantly.

A word of caution is however necessary concerning the development of resistance in both organisms, an issue that arises not only due to adherence failure in the child patient, but also in primary childhood infections from adults. The prevention and management of resistant infection in children will be the challenge for the future decades if we are to maintain the advances that have been achieved.

INTRODUCTION

Human Immune Deficiency Virus infection in South African children has proven to be the single greatest underlying driver of childhood mortality (and morbidity) outside the newborn period and some 39% of these deaths are HIV associated[22].

[22] Child PIP data supplied by DoH.

Tuberculosis has persistently been a leading cause of death in children and co-infection with HIV has made the diagnosis and treatment of both infections far more challenging.

Ensuring adherence of adults and children to treatment of both conditions is difficult, especially due to the high pill burden for children. Non adherence exposes children to increasing rates of resistance in both conditions.

Exposure to, and infection with both conditions is extremely high in South African children and together reflect one of the biggest challenges (along with neonatal care, acute diarrhoeal disease, acute respiratory illness and nutritional disease) to the survival of South African Children.

The high emphasis placed by the department of health on prevention of infection, early diagnosis and treatment is commendable, and immense strides have been achieved.

The complexity of the conditions and the size of the programs mean that much still needs to be done to ensure that we complete the tasks we have set ourselves, especially the prevention of secondary epidemics of resistant infections.

HUMAN IMMUNE DEFICIENCY VIRUS INFECTION IN CHILDREN

In South African children, up until the age of sexual activity, virtually all HIV infection is from mother to child. Very few numbers may be due to sexual abuse, exposure to non-maternal breast milk and similar exposures.

Recent antenatal surveys[23] indicate that just fewer than one in three pregnant women in South Africa are infected with HIV, this rate has plateaued since 2005 and in women between 15 and 29 years of age is decreasing. The rates in pregnant women vary between provinces. In 2011 they ranged between 17% in the Northern Cape to 37.4% in Kwa-Zulu Natal. In spite of this, exposure of the foetus and the newborn in South African remains extremely high.

Of mothers giving birth in South Africa in 2012 77.2%[24] gave birth in a public health facility, the rest are assumed to have given birth in a private facility or at home, taking into account

[23] The 2011 Ante Natal Sentinel HIV and Syphilis Prevalence Survey in South Africa.

[24] DHIS data supplied by DoH.

private medical aid coverage of 17.6% most babies appear to be delivered in medical facilities.

Antenatal attendance prior to delivery is reportedly greater than 100% implying double booking (as may occur when mothers wish to deliver in a more urban facility but live in a rural setting), however only 51.6% (2012) of pregnant women are seen in public health facilities before 20 weeks of pregnancy. This could rise to about 68% if medical aid patients are taken into account and had presented before 20 weeks. This represents a large lost opportunity of more than 30% for the early detection of HIV infection in pregnant women and their initiation on ART or confirmation that those already on treatment are well suppressed.

Against estimates of pregnant women who are likely to be HIV infected at birth, the DHIS data infer that most of these women are detected (~96% in 2012), but of those eligible to receive ART only 24.3% did so in 2012. The accuracy of the figures is hard to assess but reflects another significant opportunity to improve PMTCT provision.

Almost 100% of infants born in 2012 in the public health sector to mothers with HIV receive Nevirapine (NVP) within 72 hours of delivery. To achieve 100% of these infants receiving timeous NVP would require all to deliver in health facilities.

Testing of children around 6 weeks for HIV by use of the PCR has been extremely successful with a greater number than the number of children delivered in public hospitals to HIV infected mothers reflected as being tested.

The 2012 DHIS six week PCR positivity rate is 3.6% which is consistent with an MRC survey in June to December 2010. This reflects a massive gain in terms of children saved from HIV infection over the past four years.

Challenges remain with relation to the effective viral suppression of pregnant women, where failure to suppress may be due to non-adherence or viral resistance. Maternal non-adherence is commonly assumed to be associated with the development of EFV/NVP, and 3TC resistance, both infant PMTCT agents. The replacement of resistant virus by wild virus populations in women not taking treatment may ameliorate this effect and managing resistant maternal virus is likely to be an important program consideration in future.

Policy change to check viral suppression of women on treatment early in pregnancy should lead to ensuring the women are adequately suppressed although ensuring that this is done sufficiently early in pregnancy to allow effective intervention will remain a challenge.

Of note amongst primary infections in South Africa primary resistance is low but presents with overall rates of up to 5.9% in various published studies[25].

A study on PMTCT in South Africa[26] found the following in 230 newly diagnosed HIV-infected children under two years of age recruited in Johannesburg during 2011: In PMTCT-exposed infants 56.8% had non-nucleoside reverse transcriptase inhibitor (NNRTI), 14.8% nucleoside reverse transcriptase inhibitor (NRTI), and 1.3% protease inhibitor mutations. In infants with no reported or recorded PMTCT exposures resistance to NNRTI was detected in 24.0%, NRTI in 10.7%, and protease inhibitor in 1.3%.

PMTCT interventions in South Africa have greatly reduced the estimated number of children who need ART. A United Nations report infers a drop in the annual number of children needing ART from nearly 60,000 to about 10,000 per annum over the past 10 years. [27]

DHIS data indicate a catch up in the provision of ART to children.

Uncertainty due to the rapid and repeated changes in policy have led to some difficulty in health care workers establishing stable approaches to care.

TUBERCULOSIS

In 2011 the 60 872 notified cases of TB in South African patients less than 15 years of age represented 18.7% of all of the notified TB cases[28].

[25] http://hivdb.stanford.edu/surveillance/map/

[26] Drug resistance among newly diagnosed HIV-infected children in the era of more efficacious antiretroviral prophylaxis: L Kuhn et al.

[27] From: “Mid-term Review of Progress in achieving the 2011 UN General Assembly Political Declaration on HIV/AIDS targets and elimination commitments in South Africa” generated by “Spectrum 2013”.

[28] TB Directorate Presentation MCWH Quarterly Meeting: February 2013 L Mvusi.

Table 19: New TB Notifications 2011[29] - Total Numbers.

PROVINCE	TOTAL NEW TB PATIENTS	N° OF CHILDREN <5YRS	N° OF CHILDREN 5 - < 15YR	N° OF CHILDREN <15YRS	N° OF ADULTS > 15 YRS
EC	46 666	1 521	3 192	4 713	41 953
FS	19 453	1,541	2 525	4 066	15 387
GP	49 396	2 205	3 391	5 596	43 800
KZN	101 152	9 316	15 489	24 805	76 347
LP	19 981	1 199	2 149	3 348	16 633
MP	21 599	1 082	2 156	3 238	18 361
NW	23 956	829	4 173	5 002	18 954
NC	8 064	1 972	115	2 087	5 977
WC	35 054	3 320	4 697	8 017	27 037
RSA	**325 321**	**22 985**	**37 887**	**60 872**	**264 449**

Table 20: New TB notifications 2011[30] - as percentages.

PROVINCE	% ALL TB PATIENTS THAT ARE < 15 YRS	% ALL TB PATIENTS THAT ARE <5YRS	% ALL TB PATIENTS THAT ARE 5 TO <15YRS	TB PATIENTS < 5 YRS AS % OF ALL TB < 15 YRS
EC	10.1%	3.3%	6.8%	32.3%
FS	20.9%	7.9%	13.0%	37.9%
GP	11.3%	4.5%	6.9%	39.4%
KZN	24.5%	9.2%	15.3%	37.6%
LP	16.8%	6.0%	10.8%	35.8%
MP	15.0%	5.0%	10.0%	33.4%
NW	20.9%	3.5%	17.4%	16.6%
NC	25.9%	24.5%	1.4%	94.5%
WC	22.9%	9.5%	13.4%	41.4%
RSA	**18.7%**	**7.1%**	**11.6%**	**37.8%**

The mean age of notified childhood TB was 3.9 years, with a gender split of 51% males and 49% females.

The reason for the more than 3 fold greater notification rate in Kwazulu-Natal needs explanation.

[29] TB Directorate Presentation MCWH Quarterly Meeting: February 2013 L Mvusi.

Table 21: TB is a leading cause of death amongst children in South Africa.

1997, 2001, 2005	6th leading cause of death in children 1-5yrs of age
2007	5th leading cause of death in children 1-5yrs of age
2012	4th leading cause of death in children 1-5yrs of age

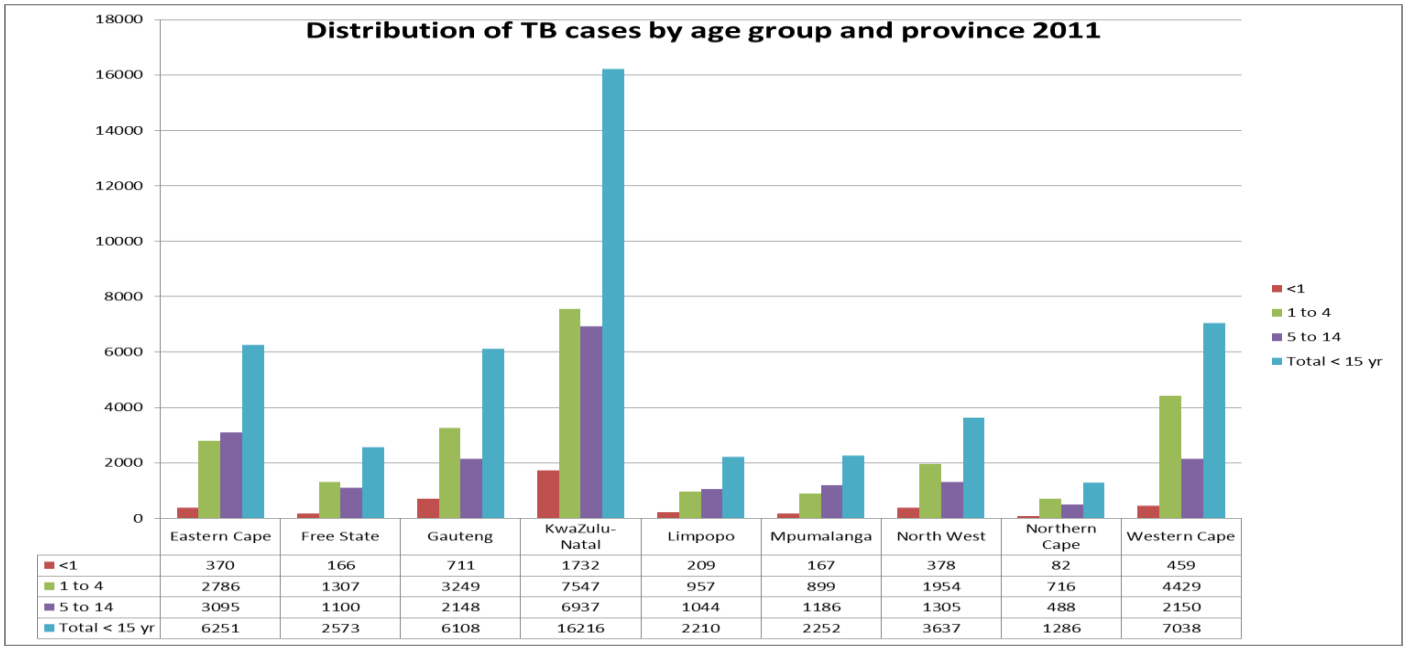
Childhood TB results from recent infection and reflects on-going TB transmission, usually from infected adults to the children. South Africa is said to have the third highest TB burden in the world with an estimated 80% of the South African population having been infected with the TB bacillus[30]. Fortunately most children infected with TB will not develop TB disease unless they have poor immunity as a result of young age or HIV infection, where progression from infection to disease is far more common but could often be prevented by prophylactic TB medication.

In 2013 DHIS data indicate that 62.7% of 48 253 children under five years of age regarded as asymptomatic contacts of adults with TB were started on INH prophylaxis. This does not take into account asymptomatic child contacts over five years of age with HIV who should also be started on IPT or how many of these contacts were Drug Resistant TB contacts. Based on the notified adult cases in South Africa in 2011, and assuming each adult had contact with at least one child less than five years of age, it would suggest that a minimum 264 449 contacts below five years of age would be expected to be eligible for INH prophylactic treatment. This suggests that only about one fifth of eligible TB contacts under five years of age are in fact identified and that of these only 60% receive prophylaxis. This represents a large opportunity to decrease TB disease inchildren.

The diagnosis of TB in children is difficult to confirm and specific challenges with respect to this include:

- The unreliability of scoring systems in diagnosis, although they may be useful for excluding active disease.
- Difficulty in obtaining bacteriologically useful specimens.
- The unreliability of chest x-ray interpretation with the recognition that pulmonary TB in children may present in a pattern more often interpreted as acute pneumonia and thus may be missed in clinical practice.

[30] Mid-term review of progress in achieving the 2011 UN General Assembly Political Declaration on HIV/AIDS targets and elimination commitments in South Africa – UNGASS South Africa Report.



	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
<1	370	166	711	1732	209	167	378	82	459
1 to 4	2786	1307	3249	7547	957	899	1954	716	4429
5 to 14	3095	1100	2148	6937	1044	1186	1305	488	2150
Total < 15 yr	6251	2573	6108	16216	2210	2252	3637	1286	7038

Figure 20: Distribution of TB cases by age and province, 2011.

On the positive side the availability of automated PCR tests for Mycobacterium tuberculosis testing of sputum and now of gastric aspirate, cerebrospinal fluid and purulent fluid, greatly improves the speed of proving TB infection and with it the rapid detection of Rifampicin resistance, even though the test remains relatively insensitive in children.

The use of induced sputum methods in children has proved effective but is not universally used due to perceived risk by those required to carry out the procedure. However these are probably more perceived than real if due precautions are taken.

Interferon gamma release assays have not been shown to be superior to tuberculin skin tests in children with TB in low income countries, but in the presence of HIV infection it is possible that they may be more sensitive than TST's although still inadequately sensitive to rule out TB disease if negative – and as such are not recommended.

Current rates of baseline smear detection in children are less than 5% in children below five years of age, and less than 20% in children 5 - 14 years. The use of induced sputum and gastric aspirates, in small children, with the automated PCR test for Mycobacterial Tuberculosis may improve these significantly.

Children with TB are often co-infected with HIV with an estimated 20% of children below five years who have TB are known to be HIV infected and the HIV status of a further 20% is

unknown. Between five and fourteen years of age nearly 40% of children with TB are co-infected with HIV. This negatively influences the impact and progression of both diseases. In addition the treatment of both diseases is complicated by co-treatment interactions.

These interactions, beyond the obvious increased pill burden, increase the rate of resistance of HIV to protease inhibitors where Rifampicin was co-administered with Lopinavir/Ritonavir. Work in South Africa has demonstrated that Ritonavir boosting of Lopinavir/Ritonavir when co-administered with Rifampicin is the current best option, but in spite of this protease inhibitor resistance may be increasing in these children[31]. Consideration needs to be given, amongst others, to the use of other ART options (such as NNRTI based regimens) during the use of Rifampicin.

In 2011 4 274 children below one year, 23 844 between one and five years and 19 453 between five and fourteen years of age are recorded as starting TB treatment[32].

The outcome is more difficult to define in children than in adults due to the lack of firm diagnostic evidence and hence the frequent inability to demonstrate bacteriological clearance of sputum.

Of concern is that for the 2010 cohort just over 50% of children are reflected as completing therapy with a treatment success rate of below 60% although in 30% the outcome is not evaluated. This points to either significant programmatic challenges in treatment management or in the recording of outcomes. Three percent of notified cases of childhood TB are recorded as dying[33]. These figures indicate a need to review the child register or information system which is significantly less easy to terpretable for children than that for adults.

In 2012 only 44 child cases of multi-drug resistant (MDR) TB were reported. It is likely that this represents difficulty in obtaining adequate bacteriological specimens rather than the absence of resistant TB infection in children. In 2012 4.1% of adult TB patients had MDR TB and, as children with TB usually have a resistance pattern of their adult contacts, it is likely

[31] Verbal opinion from child HIV specialist physicians.

[32] Draft: South African Childhood TB Report 2012 (with 2011 Treatment Outcomes): Department of Health: TB Control and Management Cluster.

[33] Draft: South African Childhood TB Report 2012 (with 2011 Treatment Outcomes): Department of Health: TB Control and Management Cluster.

that a similar proportion of children will have resistant TB. In practice many children with diagnosed TB are treated as MDR contacts and hence with MDR type treatment even though they are never confirmed on resistance testing and thus probably not notified as such. It is expected that now with the use of automated PCR test for TB testing in children that at least Rifampicin resistance will be more readily identified.

In adults 6 494 cases of MDR TB were started on treatment in South Africa in 2012 while 14 161 cases were reported. This is an increase in reported cases of an additional 4 000 cases from 2011. This may reflect better detection with the introduction of the TB PCR automated technology rather than a dramatic increase in case numbers.

Childhood TB resistance patterns are generally considered to reflect that of their contacts, even though the development of resistance in children with TB is assumed to be less common due to their lower mycobacterial load.

The rate of resistance in South Africa is significant and under current review. A 2001 - 2002 MRC[34] survey showed drug resistance of any sort was detected in 7.8% cultures from new patients and in 15.5% cultures from retreatment cases. A 2010 review of drug susceptibility in Mpumulanga[35] showed some resistance in 30.2% of 692 MTB strains from cases of pulmonary TB. Resistance to a single drug ranged from 1.4% for Ethambutol to 17.7% for Rifampicin.

In another report a survey in South Africa estimates that 1.8% of new TB cases and 6.7% of retreatment TB cases are MDR-TB[36]

Successes and Advances in caring for children with HIV and/or Tuberculosis

1. Adoption of PMTCT Policy Plan B and now Plan B +.
2. The aggressive policy on ART initiation and maintenance for children.

[34] Survey of Tuberculosis Drug Resistance in South Africa 2001 – 2002: Final Report: K Weyer et al, Medical Research Council.

[35] Drug-susceptibility Patterns of Mycobacterium tuberculosis in Mpumalanga Province, South Africa: Possible Guiding Design of Retreatment Regimen: E. Green et al: J HEALTH POPUL NUTR 2010 Feb; 28(1):7-13

[36] WHO Report. Anti-tuberculosis Drug Resistance in the World. Report No. 4. Geneva: World Health Organization, 2008. http://www.who.int/tb/publications/mdr_surveillance/en/ index.html (accessed 24 April 2009).

3. Most women attend ANC and deliver in a health facility, most babies born to mothers with HIV start NVP within 72 hours of birth and most have a six week PCR test.
4. Despite of the massive scale of the PMTCT program, the MTCT transmission rate of HIV has dropped dramatically and is low.
5. That high numbers of children are on ART, probably the highest number in a national program.
6. There is a low rate of side effects from anti-retroviral treatments in children, with the exception of lipo-atrophy with prolonged Stavudine administration.
7. The availability of automated PCR MTB technology for sputum detection of Mycobacterium Tuberculosis and the early detection of Rifampicin resistance. The extension of automated PCR MTB technology to use in gastric washing, CSF and fluid pus with relatively good sensitivity.
8. The development of the technique of induced sputum.
9. The high rate BCG administration in neonates.
10. The good availability of first and second line TB and Anti-retroviral Therapy.
11. The availability of resistance testing and third line ART.

CHALLENGES

1. Many pregnant women do not attend ANC before 20 weeks.
2. Some pregnant women already on ART have non-suppressed Viral Loads. They may also have resistant viral mutations affecting the effectiveness of the current PMTCT agents and protocols.
3. Pregnant women eligible for ART not starting treatment during pregnancy.
4. PHC ART initiation (NIMART) in children does not yet appear fully effective.
5. Co-infection with TB and HIV leads to problems with PI resistance due to co-administration of Rifampicin and Lopinavir/Ritonavir.
6. Difficulty in making a firm diagnosis or exclusion of TB disease in children due to the non-sensitivity of bacteriological tests, and the non-specificity of radiological and clinical tests.
7. The suspicion that non-adherence and treatment failure rates may be higher than desirable.
8. Increasing exposure to drug resistant TB in families and community.
9. The difficulty of sustained availability of Ritonavir due to short shelf life and high cost.
10. The high pill / suspension burden for children.

RECOMMENDATIONS

1. The rapid release of PMTCT guidelines in preparation that would ensure mothers are virally suppressed as early in pregnancy as possible, and that where they are not suppressed the appropriate steps are in place to ensure the maximum prevention of MTCT under those circumstances.
2. Increasing the attendance of pregnant women before 20 weeks by a focused communication strategy.
3. Improving the effectiveness of NIMART by a focussed assessment of its current implementation and barriers to its effectiveness.
4. Review on the policies to protect children whose parents/ household members have MDR TB and who are not admitted to specialised units for care.
5. Consideration of primary viral resistance testing of children, and adults, at the initiation of treatment to predict the best regimens for each child, and to guide later treatment changes by reflecting likely resistance archiving.
6. Increased focus on the early initiation of ART in infants to minimise the need to co-treat TB and HIV in children with unsuppressed viral loads.
7. Consideration of non-Protease Inhibitor based regimens where TB co-treatment needed, for the duration of the co-treatment.
8. Encouraging the production of pharmacologically stable fixed drug combination treatments for TB and HIV in children.
9. Ensuring a stable supply of ritonavir is in place at all levels at which it is required.
10. Focus on **quality of care** in addition to quantities of persons on treatment for TB and HIV.

CONCLUSION

In the face of the overwhelming double challenge of HIV and TB in children with all its complexities South Africa has mounted a massive response in the last years with evidence of mounting success. Many challenges remain and the battle is far from over.

Resistance will become an increasing player in both infections unless adherence challenges in both children, and the adults from whom infections are generally caught, is effectively managed.

CHAPTER 7: NON-NATURAL DEATHS

SUMMARY

In 2011 2,370 children under-5 years of age died from non-natural causes continuing the downward trend in the number of non-natural deaths in this age group. However as infant and under-5 mortality rates have declined the proportion of deaths due to non-natural causes has increase. In 2011 these deaths accounted for 6.2% of all under-5 deaths although this masks a range from 3% of neonatal deaths to 14.8% of deaths in the one to four year age group.

Most non-natural deaths in children under-5 years are due to 'other external cause of accidental injury' in particular drowning, burns and electrocution. This is followed by "events of undetermined intent" and transport accidents in which infants die as passengers and young children as pedestrians.

Three provinces, Gauteng, KwaZulu-Natal and Limpopo, account for over half of all non-natural deaths in children under-5 years. The proportion of deaths due to non-natural cause may be inversely related to mortality rates and seems to be high in Western Cape which has a low mortality rate and low in the Free State and Northern Cape which have high mortality rates. In all provinces except the Eastern Cape most non-natural deaths occur in the one to four year age group. The causes of non-natural deaths are similar across the provinces.

INTRODUCTION

Over the past few decades childhood infectious disease have been the dominant cause of childhood mortality. Ongoing improvement in the prevention and management of these diseases has resulted in a decline in the IMR and U5MR which has highlighted the contribution of neonatal and non-natural causes to childhood mortality.

As non-natural causes are now the fifth commonest cause of under-five deaths and account for 14.8% of deaths in the one to four year age group they warrant further attention. This chapter has therefore been included in this report in order to begin to describe the pattern of non-natural childhood deaths in South Africa and to facilitate a response to reduce these.

NATIONAL PICTURE

Since 2007 there has been a persistent decline in the number of people dying from non-natural causes in South Africa. In 2011 this figure fell to 48,377 of which 4.9% or 2,370 were children below five years of age. The age distribution of these non-natural under-five deaths is presented in Table 22 which shows that 62% occurred amongst children aged one to four years, 31.3% in the post-neonatal age group and 6.7% in the newborn period.

Table 22: Number of non-natural deaths per age group, 2007 – 2011.

YEAR	TOTAL	U5	1-4	U1	PNN	NN
2007	54 495	2 839	1 608	1 231	1 068	163
2008	53 350	2 582	1 591	1 098	981	117
2009	50 283	2 582	1 559	1 023	883	140
2010	48 377	2 575	1 590	985	851	134
2011	45 990	2 370	1 470	900	742	158

Table 22 also portrays the declining trend in non-natural deaths over the past five years with a 15.6% decline for all ages and a 16.5% decline in the under-five age group. However this decline is unevenly distributed across early childhood where there has been a substantial decline of 30.5% in the post-neonatal period, dropping to 8.6% in the one to four year age group but a varied pattern in the neonatal period.

Whilst the decline in the number of non-natural deaths has occurred within an overall reduction in mortality in the country, non-natural deaths have consistently accounted for around 9% of all deaths. The proportion of under-five deaths due to non-natural causes is however lower at 6.2% but this figure has risen by 38.2% since 2007 when it was just 4.6%. This general contribution to under-five deaths hides a discrepancy between the newborn, infant and child groups as depicted in Table 23 and Figure 21 which reflect the trend in the proportion of deaths in each age group due to non-natural causes. The contribution to neonatal deaths has remain just above one percent whilst the post-neonatal and one to four year age groups have both shown a sustained increase of 37.5% and 35.7% respectively over the five year period.

Table 23: Proportion of deaths due to non-natural causes, 2007 – 2011.

YEAR	ADULTS	U5	1-4	U1	PNN	NN
2007	9.0	4.6	10.9	2.6	3.2	1.2
2008	9.0	4.4	10.4	2.4	3.1	0.9
2009	8.7	5.1	12.5	2.7	3.6	1.0
2010	8.9	5.4	12.2	2.9	3.8	1.1
2011	9.1	6.2	14.8	3.2	4.4	1.4

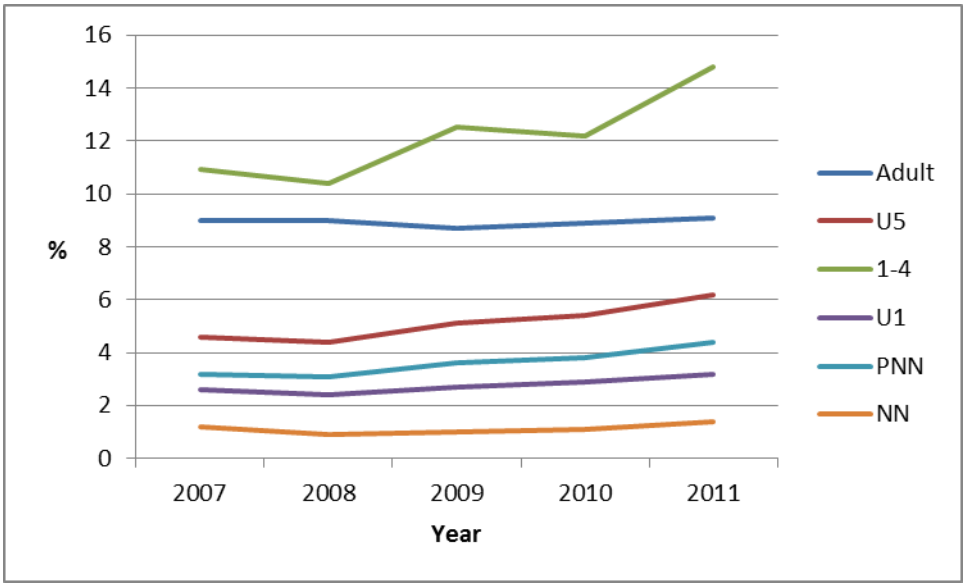


Figure 21: Trend in the proportion of deaths due to non-natural causes by age group: 2007 - 2011

Cause of death

The causes of non-natural deaths amongst children under-five years of age are presented in Tables 24 and 25. The majority of these deaths (78.6%) are due to “other external causes of accidental injury” which includes falls, burns, drowning and submersion, electrocution, poisoning and forces of nature.

Apart from complications of medical and surgical care, the frequency of each cause increases with age. However whilst the proportion of non-natural deaths due to transport accidents increases with age those due to “other external causes of accidental injury” and to assault decrease with age and events of undetermined intent show no age related pattern. The two incidents of self-harm are presumed to be errors of classification. The number of deaths due to assault is low across all ages.

Table 24: Numbers of non-natural child death by cause and age, 2011.

	NN	PNN	U1	1-4	U5
Transport	4	28	32	157	189
Other external cause of accidental injury	129	631	760	1103	1863
Assault	6	8	14	17	31
Event of undetermined intent	13	39	52	175	227
Complication of care	6	36	42	16	58
Intentional self-harm	0	0	0	2	2
Total	158	742	900	1470	2370

Table 25: Proportion of non-natural death by cause and age, 2011.

	NN	PNN	U1	1-4	U5	> 5
Transport	2.5	3.8	3.6	10.7	8.0	11.1
Other external cause of accidental injury	81.6	85.0	84.4	75.0	78.6	61.5
Assault	3.8	1.1	1.6	1.2	1.3	10.6
Event of undetermined intent	8.2	5.3	5.8	11.9	9.6	13.6
Complication of care	3.8	4.9	4.7	1.1	2.4	2.8
Intentional self-harm	0	0	0	0.1	0.1	0.8

The proportion of all deaths in each age group that are due to each category of non-natural deaths is presented in Table 26. “Other external causes of accidental injury” remains the most prevalent non-natural cause of death especially in the one to four year age group. The contribution of each cause to the age specific mortality increases with age for all causes except complications of medical and surgical care which is most prevalent in the post-neonatal age group.

Table 26: Cause of non-natural death as a proportion of all deaths by age group, 2011.

	NN	PNN	U1	1-4	U5	> 5
Transport	0.03	0.16	0.11	1.6	0.5	1.0
Other external cause of accidental injury	1.2	3.7	2.7	11.1	4.9	5.5
Assault	0.05	0.05	0.05	0.17	0.08	1.0
Event of undetermined intent	0.12	0.23	0.19	1.8	0.6	1.2
Complication of care	0.05	0.21	0.15	0.16	0.15	0.3
Intentional self-harm	0	0	0	0.02	0	0.1

Table 27 shows the proportional distribution of each cause of non-natural death across the under-five age groups. As expected for most causes the bulk of the deaths occur in the one to four year age group. The number and proportion of deaths due to assault is fairly equitably distributed across all age groups whilst the majority of deaths due to complications of medical and surgical care are in the post-neonatal age group and deaths due other external causes of accidental injury include a high number of infants in the post-neonatal age group.

Reports from the National Injury Mortality Surveillance System (NIMSS)[37] reveal that in Mpumalanga and Gauteng other external accidental injuries are the commonest causes of non-natural deaths in children below five years of age with burns and drowning as the major

[37] Anesh Sukhai. A profile of fatal injuries in Mpumalanga/Gauteng: 2011. Annual report from Mpumalanga based on the National Injury Mortality Surveillance System. MRC-Unisa Safety and Peace Promotion Research Unit, April 2013.

causes. This is followed by transport accidents where infants die as passengers but young children as pedestrians.

Table 27: Age distribution for each cause of non-natural death, 2011.

	NN	PNN	U1	1-4	U5
Transport	2.1	14.8	16.9	83.1	100
Other external cause of accidental injury	6.9	33.9	40.8	59.2	100
Assault	19.4	25.8	45.2	54.8	100
Event of undetermined intent	5.7	17.2	22.9	77.1	100
Complication of care	10.3	62.1	72.4	27.6	100
Intentional self-harm	0.0	0.0	0.0	100	100

Preliminary findings of an ongoing mortuary based death review study[38] report that in Cape Town drowning, child abuse and neglect and then burns are the top causes of non-natural deaths in children compared to Phoenix in KwaZulu-Natal where these are electrocution from illegal electrical connections and transport accidents.

PROVINCIAL PICTURE

Together Gauteng, KwaZulu-Natal and Limpopo, account for over half of the non-natural deaths amongst children under-five years of age. In all provinces except the Eastern Cape the bulk of these deaths occur between one and four years of age.

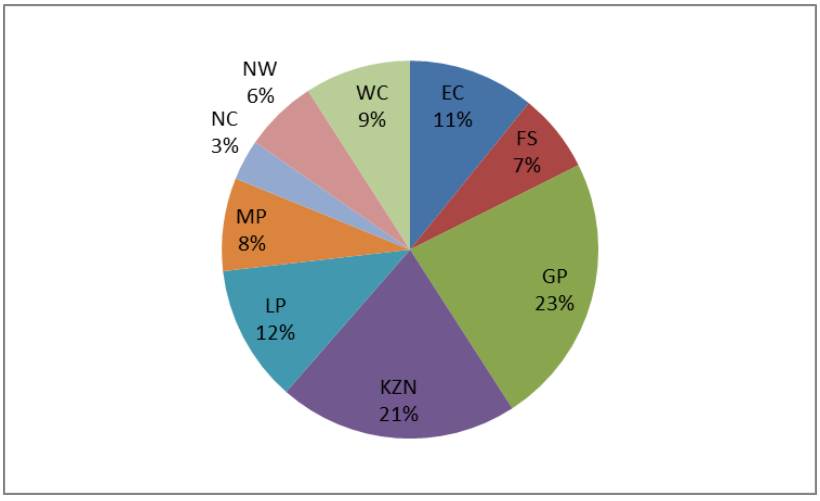


Figure 22: Provincial share of non-natural child deaths, 2011.

[38] Person communication – S Mathews, Principal Investigator, Pilot Study on Child Death Review Mechanisms.

Table 28: Number of non-natural deaths by age and province, 2011.

	U5	1-4	U1	PNN	NN
EC	255	70	85	72	13
FS	159	89	70	54	16
GP	546	352	194	155	39
KZN	483	284	199	172	27
LP	276	168	108	89	19
MP	187	117	70	60	10
NW	82	49	33	26	7
NC	147	87	60	51	9
WC	214	148	66	55	11
RSA	2 370	1 470	900	742	158

The age distribution of under-five non-natural deaths is similar across all provinces, Figure 23. Less than 10% occurr in the neonatal period, around 30% in the post-neonatal period and 55% - 70% in the one to four year age group.

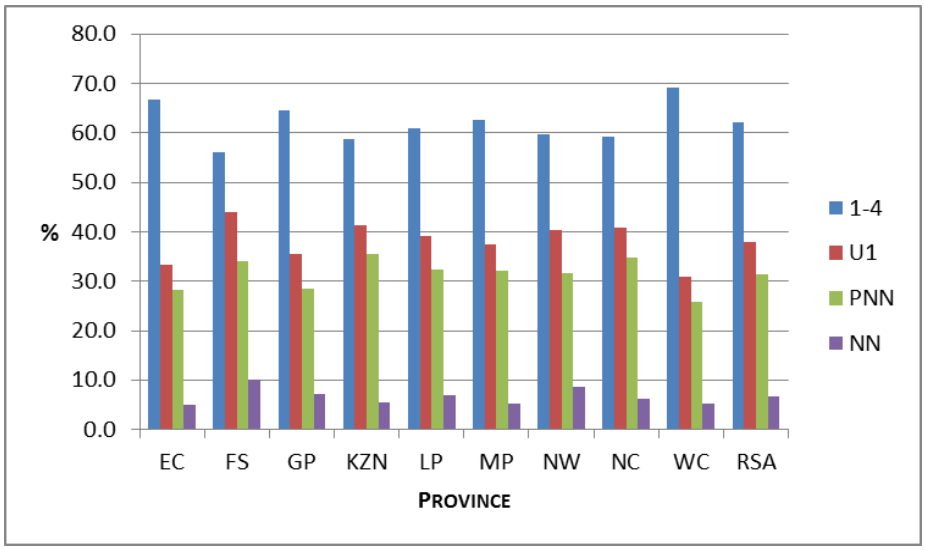


Figure 23: Distribution of non-natural deaths across age group by province.

The wide variation between provinces in the proportion of deaths due to non-natural causes across all age groups is shown in Figure 24 ranging from 2.1% in the North West to 12% in the Northern Cape. In the one to four year age group non-natural deaths account for 20% or more of deaths in the Western Cape, Northern Cape and Gauteng but less than 10% in the North West.

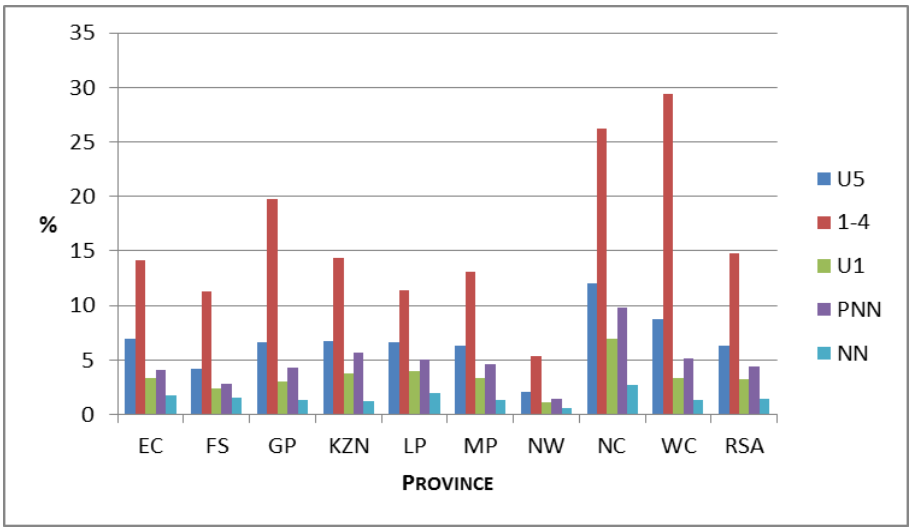


Figure 24: Non-natural deaths as a proportion of total deaths per age group

There appears to be some inverse relationship between the proportion of deaths due to non-natural causes and mortality rates with a high proportion of non-natural deaths and low mortality rates in the Western Cape, Mpumalanga and Limpopo and a high mortality rate and low proportion of non-natural deaths in the Free State and the North West.

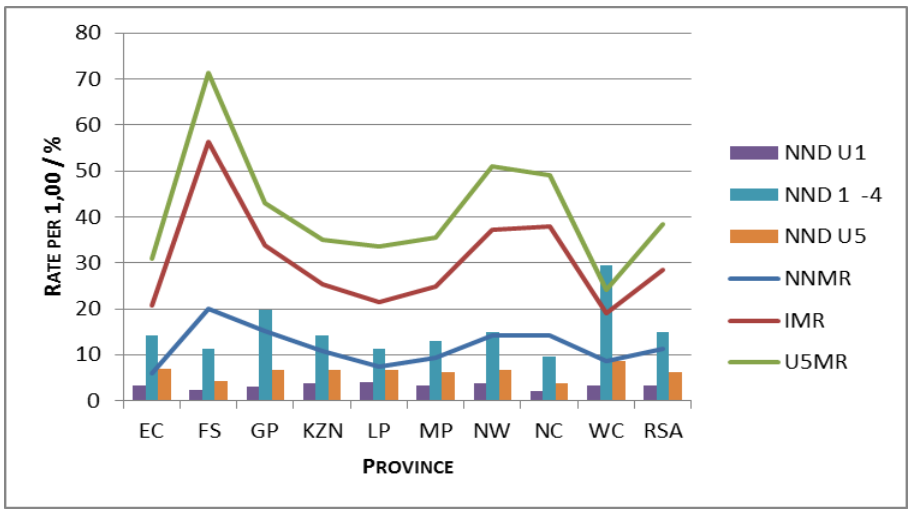


Figure 25: Relationship between mortality rate and non-natruarl deaths

The cause of non-natural death is similar in all provinces with the bulk of deaths due to other external cuse of accidental injry. Transport accidents are the next most likely cause of non-natural death in all proivnces expect Gauteng, KwaZulu-Nataland the North West where events of undertermined intent are more common.

Table 28: Cause of death by province, 2011.

	TRANSPORT	OTHER EXTERNAL CAUSE OF ACCIDENTAL INJURY	EVENT OF UNDETERMINED INTENT	ASSAULT	COMPLICATION OF CARE	INTENTIONAL SELF-HARM
EC	25	203	17	3	7	0
FS	21	118	8	5	7	0
GP	10	442	70	8	16	0
KZN	31	382	47	2	19	2
LP	45	195	30	3	3	0
MP	19	156	11	1	0	0
NC	3	72	3	4	0	0
NW	8	116	19	2	2	0
WC	27	161	19	3	4	0
RSA	189	1863	227	31	58	2

RECOMMENDATIONS

- Generate greater knowledge regarding the contribution of non-natural events to childhood morbidity and mortality across the country.
- Promote and support the reporting of all cases of child abuse.
- Reinforce existing key messages about safety in the home.
- Campaign for the effective enforcement of road safety legislation, regulations and practices.
- Use evolving knowledge and insight into non-natural deaths to advocate for new policies, programmes and legislation.

CHAPTER 8: LONG TERM HEALTH CONDITIONS

SUMMARY

Long term health conditions (LTHC) affect a significant proportion of South Africa's child population. Their needs were set out in the last triennial report along with recommendations on how these could be better met. Limited progress on these recommendations has been made, with no progress made on the most important: revision of the LTHC policy, and reviving the Modernisation of Tertiary Services process to address major inequities in specialised service provision in the country. Progress on the policy and addressing inequities is essential and now long overdue. There are opportunities contained within processes in health care provision that, if harnessed, will allow significant progress to be made in the provision of quality and equitable services for children with LTHCs, particularly in the PHC services. This relates to activities in adult chronic disease services, school health, NHI, and ARV services, among others. A 'sentinel conditions' approach to monitoring the outcomes of and services to children with LTHCs is proposed.

INTRODUCTION

Collectively LTHCs affect up to 20% of the childhood population in South Africa, with about 4% of children having a severe condition.[39] This collective term covers chronic diseases and disabling conditions some of which are genetic or congenital and some acquired. Importantly the term 'non-communicable' that is used in adult chronic disease does not apply in childhood as many conditions are the result of severe infections such as meningitis, infections at critical times in development such as congenital rubella and rheumatic heart disease, and chronic infections such as HIV. The 2011 triennial report of this Committee set out the epidemiology of LTHCs in South Africa including the wide range of conditions included within this term, reviewed aspects of service delivery to these children in South Africa, and made some recommendations.

This chapter reviews progress on implementing these recommendations, explores developments in this field, points to opportunities to improve the care of these children in South Africa and sets out a mechanism to monitor progress.

[39] T. Westwood, A Robertson. A child with a long-term health condition, in Child Health for All, 5th edition M Kibel, H Saloojee, T Westwood. Oxford University Press 2012

REVIEW OF PROGRESS ON IMPLEMENTATION OF RECOMMENDATIONS

The 2002 policy on Long Term Health Conditions (then inappropriately entitled Policy Framework for Non-communicable Chronic Conditions in Childhood) required updating and implementing, according to the 2011 triennial report. To the detriment of these children and the provision of capacitated and coordinated services for them, this has not occurred. One reason would appear to be insufficient human resources in the Child Health Directorate meaning insufficient time to take this task on at the same time as other, apparently more pressing priorities such as School Health, IMCI revision and roll out Human Papilloma virus immunisation. Links with the cluster Non-communicable Diseases have not been adequately forged to date. Dependence on volunteer paediatricians from provincial services has limited progress. Secondment or a fixed-time contract appointment would be required to achieve finality on what is a foundation stone for delivering standard LTHC care and services across the country. The status quo is not acceptable.

The Committee strongly recommends that in the next period the Department of Health produces a solid, resourced plan to redress this lack of progress.

The second recommendation was for a review of the Modernisation of Tertiary Service Plan that seemed to have run out of steam, leading to limited progress in addressing vast inequities of provisioning of services for children with complex LTHCs in the country. There is no evidence of progress on this recommendation. Recommendations for improving equity of access to specialised services for children are made in Chapter 7 of this report. A roadmap to equity of access to quality specialised paediatric services and care across South Africa is required.

An important component of this should be trans-regional highly specialised services such as surgery for congenital heart disease. The congenital heart disease group is the commonest of all congenital conditions. A significant proportion of children can lead normal lives if surgery is done timeously. Currently many provinces have no paediatric cardiac surgery services with limited to no access to services in other provinces.

Linked to the expansion of access to specialised care was the recommendation for a system of monitoring of provision of care for children with LTHCs including registers of need. No framework or system has been developed. Aspects of this will be addressed in this chapter to give guidance to the Department of Health and partners.

OPPORTUNITIES FOR IMPROVING THE CARE OF CHILDREN WITH LONG TERM HEALTH CONDITIONS

Opportunities to improve the care of children with LTHCs exist within current trends and activities in health services.

Activities within the Non-communicable Diseases Directorate

PHC management of non-communicable diseases

Much progress is being made in respect of adapting primary health care (PHC) services to include appropriate care for adults with non-communicable diseases. This chronic care model includes an algorithmic process of identifying adults with these conditions ("PHC101"), and streaming them into a care system which is set up for long term management ("Integrated Chronic Disease Management"). Partnership with patients is intrinsic to this care model. Most components of this are applicable to children in PHC, however most elements are currently missing. For example, IMCI, the programmatic mainstay of children's PHC, has limited capacity for identifying some common childhood conditions such as asthma and epilepsy. Most children are referred to hospitals for evaluation of non-IMCI symptoms, with limited capacity within PHC to confidently identify LTHCs in children and manage them well. This fundamentally prejudices access to appropriate care for large numbers of children.

The strengthening of such services for adults provides a platform from which equivalent services for children could be launched. Specifically a set of clinical paediatric algorithms, equivalent to PHC101 if developed for children would go a long way to boosting PHC's ability to identify and manage children with common LTHCs. For example, an algorithm for a child presenting with recurrent wheeze should identify the child with asthma, who can then be managed according to existing tiered management plans for the condition. Lessons learnt from the development of PHC101 can be brought to bear on a paediatric version which would need to be linked strongly with the IMCI strategy to be maximally effective. Pathways from this service to definitive LTHC care within PHC need to be developed where they do not exist.

Mainstreaming of Palliative care services

A second opportunity that is dawning with the Non-communicable Diseases Directorate is the effort supported by the WHO and the Hospice Association of South Africa to mainstream palliative care services in South Africa. Palliative care is a significant part of childhood LTHCs. A child arm should be included in this project with links to parallel developments in general LTHC policies and services.

National Health Insurance piloting

Aspects of these pilots have significant positive opportunities for service provision to children with LTHCs. Specifically, improved access to school health services, optometry, audiology and contracted general practitioner services in the pilot provinces should be analysed, optimised and then mainstreamed as soon as possible.

Ward-based outreach teams

This arm of the PHC re-engineering strategy has the potential to contribute to the identification of children with disabilities and other LTHCs in their homes, and subsequently linking them or strengthening their links with health and other services. Use of the Road to Health Booklet developmental screening tool should be incorporated into the activities of community care workers.

Mainstreaming of 'anti-retroviral' (ARV) services for children

Services for children infected with HIV and on long-term ARVs have largely developed in parallel with other paediatric services. A vertical programme with its own resources serving many thousands of children, it has had limited links with other services for children with LTHCs yet has much in common with them. The principles of HIV care are the same as for other LTHCs. At its best, HIV care is so much more than a delivery vehicle for ART. Within these services and the training programmes that bolster them, many of the principles of LTHC care such as psychosocial support and promoting adherence are emphasised. Even at the PHC level, there is limited integration of ARV services into broader children's service delivery. This wastes resources. An opportunity exists to:

1) Strengthen the services by bringing them within the conceptual fold of a LTHC policy, and
2) Take advantage of the size and resourcing of these services to strengthen LTHC care in general.
3) Link the increasing awareness of the need for neurodevelopmental services for children infected with HIV to general service provision for children with neurodevelopmental disabilities.

In practical terms how is this to be achieved? NIMART and other ARV service training resources should be reviewed to ensure that they utilise all principles of LTHC care. This training should be open to all staff who care for children with LTHCs, using HIV care as an example of a common PHC condition. Developing generic approaches at PHC and community level for providing services for children with neurodevelopmental disabilities who

represent a significant proportion of children with LTHCs is necessary. Mainstreaming of ARV training would promote mainstreaming of LTHC care, benefiting LTHC care in general by making better use of resources allocated to child health.

School health system

The Integrated School Health Policy and its implementation provide opportunities for identification of children with LTHCs through the screening programmes it mandates. There is a need however to set up referral pathways for children identified for further evaluation through these services. The nurses involved in provision of School Health services can provide support for the children with LTHCs in schools as well as support the educators who teach these children, providing a link between the health and education services.

Implementation of simple measures to improve LTHC care

There are a number of tools already used by individual services in the care of children with LTHCs that could be brought to scale relatively simply across the country.

One game-changing intervention for LTHC care is easy to implement: a patient-held continuing clinical record. This simple tool with its inbuilt Case Management Plan and continuity record strengthens care across the levels of care, improves patient and parent knowledge, adherence and self-efficacy, case coordination and communication. There is evidence that Case Management Plans promote better outcomes and adherence in children with LTHCs.[40] Already in use in Limpopo and the Western Cape provinces and a key element in the LTHC policy, the National Department of Health should coordinate the rapid development of this standard record and a guide for its use, it production and distribution. A simple audit and evaluation tool is recommended.

While this is being developed, promotion of the Road to Health Booklet as a vehicle of communication and empowerment would make significant inroads in addressing this need (See Recommendations Chapter – page 83)

Likewise a simple clinical record tool that encourages comprehensive care by alerting clinical health workers to the need to cover a standard set of issues that arise in LTHC care over time with the family and the child is a simple way to improve care and outcomes. An example is given in Figure 26.

[40] Lion KC, Mangione 0, Smith R, Britto MT. Individualised plans of care to improve outcomes among children and adults with chronic illness: a systematic review. Case Management Journal 2014: 15; 11-25

Sickle cell anaemia
(Tick whichever of the following were discussed)
Date: / /
Symptoms over last period
Management of feverish episode
Management of pain
Danger signs, emergency care
Prevention of infection
Continuous medications
Education
Genetic aspects
Family & finances
Reproduction
Nutrition
Travel

Figure 26: Tick sheet for health workers managing sickle cell anaemia patients.

MONITORING TOOLS FOR LTHCS

Non-communicable disorders services in South Africa include indicators of specific disorders such as Type II diabetes mellitus. These indicators measure numbers of patients and audit specific aspects of care. A similar process is required for children with LTHCs. A system of 'Sentinel conditions' should be used to monitor epidemiology and quality of care in childhood chronic disease. This should include a mix of common disorders and less common conditions to provide the Department with a picture of the situation across the country. The table gives an example of such a scheme, showing how different aspects of provision and care can be included to produce a comprehensive picture of outcomes and service provision for the broad range of childhood LTHCs. The joint task team of the directorates of Non-communicable Diseases and Child Health should be appointed to set up and monitor such an instrument. Reporting should be done along the standard Non-communicable Disease reporting for adult conditions.

Table 29: Sentinel conditions schema for long term health conditions.

CHARACTERISTIC OF CONDITION	DICHOTOMOUS OPTIONS	RELATED SERVICES
When should it be identified?	Prenatal / at birth vs. Later in childhood	Obstetric / perinatal Screening / 1º health School health
Is it easy to identify?	Basic clinical facilities vs. Sophisticated facilities	Screening Regional centres 1º health
How preventable is it?	Largely preventable vs. Difficult to prevent	Obstetric / perinatal Immunisation Genetic
How common is it?	Common vs. Uncommon	National programme Regional centres Referral/transport
Are the regional differences in prevalence?	Yes vs. Not usually	District health Provincial health
Does poverty play an important part in aetiology?	Yes vs. No	National programmes Intersectoral
Are there strong genetic factors in aetiology?	Yes vs. No	Genetic
What is its natural history?	Curable/controllable/improves vs. Permanent/difficult to control/lethal	Audit Terminal care Adolescent
Is prevention of secondary disability or death a major feature of care?	Yes for most children vs. No for most children	Rehabilitation Audit Chronic care
Is there usually significant disability in childhood?	Yes vs. No	Rehabilitation Education

As emphasised in the 2011 triennial report, there are vast inequities of access to and quality of care for many LTHCs among children. The sentinel condition system can also act as an equity gauge with respect to access to care for LTHCs.

SUMMARY AND CONCLUSIONS

Little policy and programmatic change has occurred since the 2011 triennial report of this committee. There are current opportunities that should be taken to improve access to services and quality of those services to children with LTHCs.

The 2002 National Policy must be updated urgently. A Road map to addressing existing inequities in service provision must be developed, including provision of trans-regional services. A joint LTHC group from the Child Health and Non-communicable Diseases Directorates must be set up to coordinate and monitor service provision to children with LTHCs, and develop actions related to the opportunities for positive change set out in this chapter as well as others that arise.

Recommendations in respect of LTHCs are set out among the overall recommendations of this report in Chapter 10.

CHAPTER 9: PROGRESS IN IMPLEMENTATION OF 1ST COMMIC REPORT RECOMMENDATIONS

The first Triennial Report of the Committee on Morbidity and Mortality in Children under-5 years included eight recommendations. This chapter provides a progress report on the implementation of these recommendations at the National, Provincial and District level throughout the country.

RECOMMENDATION 1

The development of a national child health strategy.

This has been achieved and is summarized in the "Strategic Plan for Maternal, Newborn, Child and Women's Health (MNCWH) and Nutrition in South Africa 2012 - 2016". It is further supported by the following policy documents:

1. National Strategic Plan on HIV, STI's and TB 2012-2016.
2. Infant and young child feeding policy.
3. National Service Delivery Agreement.
4. Integrated School Health Policy.
5. National Core Standards for Health Establishments in South Africa. National Department of Health 2011.
6. National Development Plan 2030.
7. South Africa's National Strategic Plan for a Campaign on Accelerated Reduction of Maternal and Child Mortality in Africa (CARMMA) 2012.
8. CoMMiC and NaPeMMCo Reports. The National Child Health Strategy developed in 2009 has been reconciled with the recommendations of the Ministerial Mortality Committee and was launched in May 2012.

RECOMMENDATION 2

Develop a Framework for the delivery of Essential Health Care Service:.

1. *Essential package of care.*
2. *Norms and Standards for Child Health Services*

This is being developed by the CoMMiC Norms and Standards Working Group in consultation with the Office of the Health Standards Compliance.

RECOMMENDATION 3

Strengthen community-based care services that impact on the health of children in their homes and communities, especially with respect to the five priority diseases.

The primary care re-engineering strategy (DCST's, Community Outreach, School Health system) is actively being implemented progressively in South Africa and when fully functional will address this recommendation. This process is based on three complementary components:

1. Ward-based PHC outreach teams. Approximately 25% of the 40,000 community health workers have been re-trained in the national approach to community-orientated PHC. So far 63,277 Community Care Givers have been appointed and 1,069 teams have been established.
2. School health services. The national policy focuses on the most disadvantaged schools, with mobile clinics to support preventive and health promotion services aims and reducing health barriers to learning, and facilitating access to other services.
3. District clinical specialist teams (DCST). These teams will focus on improving the health of mothers, new-borns and children. It is envisaged that every district will, in due course, have a senior obstetrician/gynaecologist, paediatrician, family physician, midwife, paediatric nurse and PHC nurse. To date 19 paediatricians and 39 paediatric nurses have been appointed to DCSTs across all nine provinces and 15 districts have both a paediatrician and a paediatric nurse.
4. Strengthen Community-based care services:
    a. Family booklet – no progress has been made with this recommendation.
    b. A range of maternal, newborn and child messages have been developed for an mHealth programme which was launched as the Mom-Connect project on 21 August 2014.
    c. Submissions have been made to the NDoH regarding access to and the use of the Road to Health Booklet as well as for a review of those aspects pertaining to HIV/AIDS.

RECOMMENDATION 4

Strengthen and complement existing priority programmes that seek to address the main contributors to under-5 mortality

Several programmes have been evaluated:

HIV:

1. New policy on provision of HAART to all under children under five years of age, and older children where the CD4 count is less than 350, has been developed and rolled out.
2. Nurse Initiated Management of Antiretroviral Therapy (NIMART) has been adopted to increase the capacity to roll out ART and make this more accessible to those who need treatment. The paediatric component s is being escalated in combination with the strengthening of IMCI.
3. Combination ART for pregnant mothers and lactating mothers who do not require treatment for low CD4 counts has been introduced.
4. FDC (Fixed Drug Combination) is available for all pregnant and lactating mothers.

Nutrition:

1. Mother–Baby Friendly Hospital Initiative external assessments are being conducted in all provinces; and an assessment of Compliance with the Code on Marketing of Breast Milk Substitutes has been commissioned by the Department of Health with the North-West University
2. Challenges are the lack of clear policies and guidelines on nutrition supplementation programmes for at-risk babies who cannot be breastfed. Further complicated by lack of coherent policies on nutrition for the entire paediatric population. South African guidelines regarding supplementary feeding for at risk malnourished children and adults are being developed.
3. Nutrition champions are being appointed in provinces to develop strategies to educate nursing staff on the principles of management of SAM.

TB:

1. Treatment guideline changes have been circulated including medication for resistant TB. GeneXpert test has been made progressively available and sensitivity testing has become usual for children in whom sputa was positive. Recent discussion between the EML (Paediatric Expert Group) has clarified the standardised treatment guidelines for TB in children, children who are exposed to TB contacts and the question of IPT.
2. For most of these decisions interim circulars have been issued and the new EDL STG for Paediatrics will consolidate these guidelines.
3. National Paediatric TB management protocol Has recently been released.

IMCI:

1. IMCI remains the primary child survival strategy at PHC level. The challenge of maintaining saturation of PHC facilities with IMCI trained and up to date practitioners who use the process actively is being attended to by the development of alternatives to the more expensive and time expensive traditional 10 - 11 day course have been developed in the form of a distance based learning course or the alternative of computer based learning platform (ICATT).
2. The central chart booklet with algorithms has undergone technical updates to ensure congruence with the other programmes such as HIV, TB and nutrition.
3. The challenge is that IMCI is still not being implemented consistently by trained staff.

EPI:

1. Maintaining high immunization coverage is critical in child health. The under one immunization coverage in SA is reported to be in excess of 90%, but shows some patchiness in geographic coverage which requires attention.
2. The schedule provides and very good array of vaccines.
3. Recent outbreaks of diarrheal disease do not negate the value of the rotavirus vaccine.

Newborn Care Plan:

1. A Global Newborn Care conference was hosted in South Africa in April 2013, to chart a national newborn care plan.
2. The Essential Newborn Care Package (SA ENC0 / SA INC) has become accepted for the basis of the newborn care plan for South Africa with the support of NaPeMMCo.

Hospital services:

1. Foster non-rotation of core staff. Circular Minute 1 of 2012 issued by the NDOH:
    a. 50% of staff in nurseries, as well as maternity and children's wards must be non-rotating staff.
    b. Daily ward rounds are also required in these units including weekends and public holidays.
2. Enhance the management of common emergencies:
   Work has started on a standardized curriculum for intern training in emergency paediatrics.

RECOMMENDATION 5:

Strengthen and focus pre-service, post-graduate and in-service training in child health and paediatrics on the essentials required to care for children in the health system.

1. A rapid appraisal of the inclusion of 7 priority initiatives in the training of nurses and doctors at undergraduate, and postgraduate level, (and interns for doctors), was carried out by CoMMiC. These were PMTCT, EPI, IMCI, BFHI, 10 Steps to Treat SAM, resuscitation and audit process with Child PIP / Perinatal PIP. The appraisal was neither exhaustive nor detailed but indicated that inclusion in nursing training was far from complete, while in medical doctor training it was included usually, but not globally.
2. A colloquium hosted by ELMA Philanthropies and UCT has initiated a review of training of the Child Health nurse.
3. Medical practitioner training – no co-ordinated action yet.
4. Paediatric training: A three year initiative by the College of Paediatricians and the South African Paediatric Association is in place to standardize the training of paediatricians and align this to the health needs of the South Africa. The curriculum is being piloted in Pretoria and Pietermaritzburg in 2014.
5. A submission was made to the Minister of Health regarding training needs in paediatrics and child health.
6. A submission was also made regarding training of nurses to develop a training curriculum and packages of material covering the core knowledge and skills required in the care of children in the South African Health Care System. Key curriculum content includes nutrition – the full spectrum from growth monitoring and promotion (MBFHI/ Breastfeeding); feeding (IYCFP) and malnutrition (IMAM/WHO 10 steps), IMCI, basic neonatal care as per SAINC, key community child health programmes (EPI, nutrition, development), basic care of common childhood illnesses & trauma, emergency care (ETAT & HBB or equivalent) and clinical governance and quality improvement. Recommendation also included issues around training sites, tutors and post basic training.

RECOMMENDATION 6:

Institute a system of geographically-defined, population-focused child health coordination and support by specially-trained paediatricians or child health workers.

The implementation of District Clinical Specialist Teams (including child medical and nursing specialists) is progressing but faces significant challenges in the recruitment of medical specialists.

This is a long term strategy which will require time to fully institute, and further effort to firmly embed it with strategies such as suitable career planning and the creation of appropriate specialty/sub-specialty recognised qualifications suitable to the career.

RECOMMENDATION 7:

Ensure that the data in essential data systems are entered with insight, accuracy, are reviewed and used appropriately and that the provision and delivery of health care for children are audited.

1. The Death Notification Form will be modified to emphasise the need to include comment on the HIV and nutritional status of children who have died. The Death Report Form will not be modified due to the concerns that lay persons, who will be responsible to complete the forms, will not be able to capture the required data adequately.
2. Standardised children's ward admission, deaths and discharges register have been developed. These are being evaluated in three sites before possible roll out acoss the country.
3. The Child Healthcare Problem Identification Programme (Child PIP) is being rolled out as the preferred tool for the audit of deaths in all hospitals. To date at least 181 hospitals are using Child PIP to audit their deaths.

RECOMMENDATION 8:

Identify key drivers to give and sustain the actions required to improve the health of children across the country as set out in this report.

1. The first step was the establishment of Provincial and District Child Health Forums. A generic terms of reference has been developed which can be adapted by each province.
2. The Maternal and Child Health dashboard currently used by the MNCWH Chief Directorate and the Department of Health is supported. Modifications can be occur once its use is firmly imbedded and its indicators validated. The indicators supported:

Table 30: Dashboard of MCH indicators, 2014.

MCH Dashboard (as current)	
Program	**Indicator**
EPI	Fully immunized at one year Drop-out rate (DaPT-Hib-IPV3 to Measles1)
Nutrition	Vitamin A coverage 1 - 5 years Severe Malnutrition Case Fatality Rate
Diarrhea	Incidence of diarrhea with dehydration Inpatient case fatality rate
Pneumonia	Incidence of pneumonia Inpatient case fatality rate
HIV	PCR coverage and positivity rate No. of infants initiated on ART (not currently available)
School Health	% of Grade R/1 learners in quintile 1 schools assessed by ISHP
Hospital care	Inpatient under-one case fatality rate Inpatient under-five case fatality rate
ANC	Early booking rate (<20 weeks)
Intrapartum care	Delivery rate in facility under supervision of trained personnel Stillbirth rate in facility
Newborn Care	Neonatal mortality rate Low Birth Weight rate % newborns assessed within 6 days
Women's Health	Couple year protection rate Cervical screening coverage rate

CONCLUSION

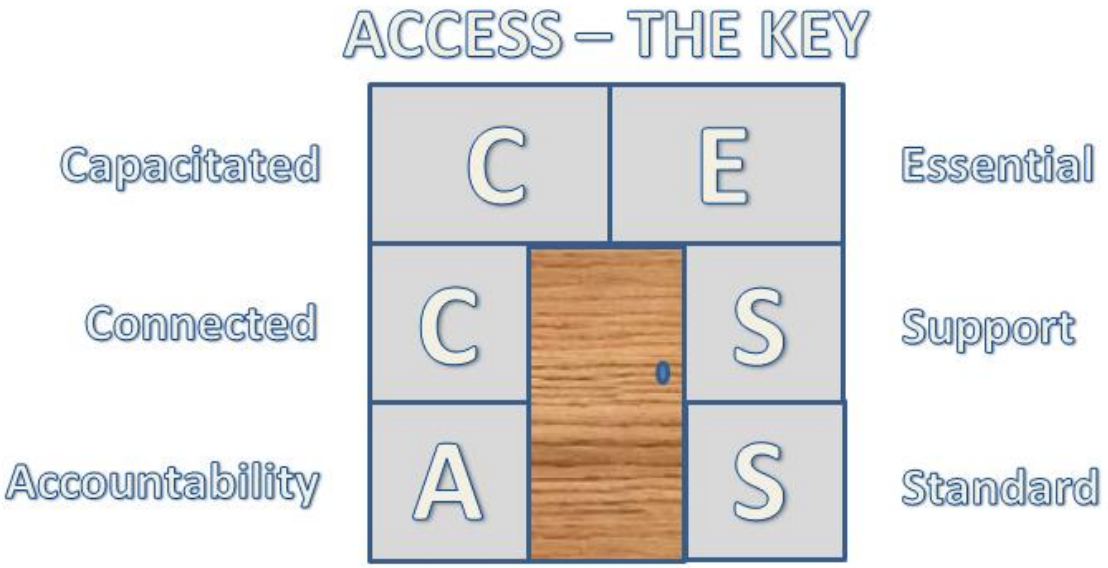
The Committee on Morbidity and Mortality in Children under 5 years has been fortunate that many of the recommendations in its first triennia report have taken seriously, and also coincided with the Ministerial vision for child health care in South Africa.

Although there are many that require further attention and development, the first priority concerns are being addressed.

CHAPTER 10: RECOMMENDATIONS

SUMMARY

The key message of this chapter is that, by concentrating on the issue of Access, South Africa can make considerable inroads into further reducing mortality and morbidity in young children. Barriers to health and quality health care still exist for many children in South Africa. Access can be improved by key changes involving children and families, health workers, and health systems. ***A****-ccountability,* ***C****-onnected,* ***C****-apacitated,* ***E****-ssential,* ***S****-upport and* ***S****-tandard – these are words that together, when applied to children and families, health workers, and health systems, provide the Recommendations framework for progress in access to health and to quality health care for children in South Africa. As an essential part of this, a renewed emphasis on the under-utilised power of the Road to Health Booklet is strongly recommended.*



Open the door.....

INTRODUCTION

The committee has identified some key themes that continue to contribute to morbidity and mortality among South Africa's children, either by leading to disease, or through failure to address its prevention or provide timeous, effective interventions. There are also themes that, drawn together, can synergistically contribute to the mitigation of childhood preventable diseases.

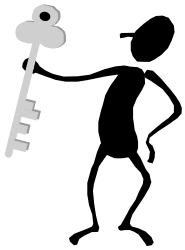
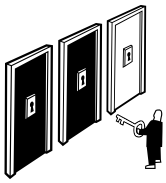


Table 31 links some of the threats with some opportunities contained in these key themes. For some threats, opportunities will need to be sought, or solutions found. Some potential solutions are addressed in these Recommendations.

Table 31: Key themes affecting child health in South Africa.

	CONTINUING THREATS	SOME IMPORTANT OPPORTUNITIES
Children and families	Child poverty	Taking advantage of 'The first 1 000 days' concept
	Child under-nutrition	
	Inappropriate nutrition	
	Unsafe environments	
	Vulnerable homes	
Health workers	Disempowered health workers	The possibilities offered by the Road to Health Booklet; Essential Package of Care; National Core Standards; National Health Insurance
	Inadequate implementation of flagship programmes in child health	
	Insufficient accountability to communities	
Health systems	Inequitable provision of health services for children	Essential package of Care; National Core Standards; National Health Insurance
	Poor access to care for many children with long term health conditions	
	Too much centralisation of power	
	Insufficient accountability to communities	
	Insufficient support for frontline workers	

ACCESS IS THE KEY



In compiling the recommendations for this report, the Committee has focussed on the word 'Access'. Firstly, the word has powerful intrinsic worth in indicating *why* we have not yet sufficiently dealt with preventable childhood killers *and* what might be done. Secondly, it provides a useful acronym to point to actions required to improve life outcomes for children in South Africa.

Open the door.....

For many communities, there is insufficient access to things essential to children's health and wellbeing such as safe environments and good food. Access to well run, comprehensive flagship health programmes is patchy. Access to comprehensive and specialised health services is vastly inequitable. Simultaneously, health and other essential services are not adequately penetrating the homes of these vulnerable children with proven interventions. Many vital opportunities for improving children's health are thus being lost through insufficient access.

Open the door..... Health workers are unable to access their own resourcefulness because of disempowering systems. Many do not have access to the essentials required to do their jobs. Lack of an essential package of care and defined norms and standards limits access to what should be standard care in health services. Health systems can play a vital role in enabling or inhibiting access to quality health care, directly promoting or preventing good child health outcomes.

Thus the final common pathway of the following ACCESS-derived recommendations is Access for children to health, health services and ultimately access to life, resilience and realisation of their full potential.

We highlight seven key words that can 'open the door' to improved outcomes for children: **A-**ccountability, **C-**onnected, **C-**apacitated, **E-**ssential, **S-**upport and **S-**tandard.

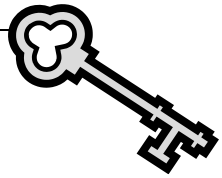
The outline of the recommendations associated with these key words is set out below for:

Households

Health workers, and

Health systems

RECOMMENDATIONS: SET 1



ACCESS: Households:

A-ccountability *for an Adequate standard of living and safe environments for All children.*

C-onnected *easily with health systems in proportion to need.*

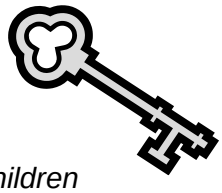
C-apacitated *parents, caregivers and families, able to provide a safe and stimulating environment.*

E-ssential *care must be comprehensive care wherever it is delivered to children.*

S-upport *for ECD activities and services for babies and young children - in homes, health services and communities.*

S-tandard *package of routine, as well as specialised, care close to their homes.*

RECOMMENDATIONS: SET 2



ACCESS: Health workers

A-ccountability *with empowerment.*

C-onnected *to the systems and communities in which they work and to the children they serve.*

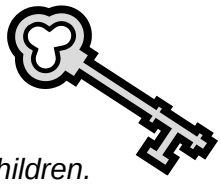
C-apacitated *for the job.*

E-ssential *Package of Care understood and delivered.*

S-upport *in all that they do.*

S-tandard*, Sufficient Staffing establishments.*

RECOMMENDATIONS: SET 3



ACCESS: Health Systems

A-ccountability *to the community.*

C-onnected *with all who carry responsibility for the health and wellbeing of children.*

C-apacitated *to ensure systems of Care for children with long term health conditions.*

E-ssential *Package of Care developed and delivered.*

S-upport *for frontline staff.*

S-tandard *data Sets for children.*

This outline is expanded into detailed recommendation covering the key themes that continue to contribute to mortality and morbidity among children in South Africa in the tables on the following pages.

PRIORITY INTERVENTIONS

A-ccountability for an adequate standard of living and a safe environment for all children:

- Ongoing health and nutrition education through Mom-Connect and other media channels.
- WBOT support to households for health education, promotion and prevention activities.

C-onnected easily between households and the health system:

- Ensure lodger mother facilities in all hospitals and birthing units.

C-apacitated front line health care workers:

- Pre- and post-basic training and continuing education on all flagship programmes, ECD and EPOC.
- Non-rotation of staff at all levels.

E-ssential Package of Care (EPOC):

- Finalise the development of the essential package of care including equitable access to all levels of care.
- Train health workers around the essential package of care.
- Progressive roll out of the essential package of care.

S-upport:

- Early child development and the first 1,000 days.
- Frontline health workers through outreach programmes.

S-tandard data sets and tools:

- Introduce standard data sets for children for monitoring, evaluation and feedback.
- Adopt the Road to Health Booklet as the standard record of a child's health care.

		HOUSEHOLDS	HEALTH WORKERS	HEALTH SYSTEMS
A	**ACCOUNTABILI TY**	**ACCOUNTABILITY FOR AN ADEQUATE STANDARD OF LIVING AND SAFE ENVIRONMENTS FOR ALL CHILDREN** <u>General</u> • Broad accountability on child poverty alleviation and the First 1 000 Days entrenched in activities of and reporting by ALL government departments • Accountability mechanisms from national to local levels, e.g. a Children's Ombudsman (national) and 'War rooms' (local) <u>Safe environments</u> • Focus on environmental mechanisms to prevent diarrhoea and pneumonia as set out in the Global Action Plan to combat Pneumonia and Diarrhoea (GAPPD) • Accident reduction programmes in at-risk communities and homes • Implement violence reduction strategies • Safe environments in ECD Centres • Deliver parenting programmes in vulnerable communities <u>Nutrition</u> • Multifaceted campaigns to promote quality early childhood nutrition in a similar model to the campaign to reduce dietary salt intake • Code of marketing for unhealthy foods and drinks for babies and children. • Strengthen breastfeeding initiatives	**ACCOUNTABILITY WITH EMPOWERMENT** • Accountability for accessing vulnerable children in the communities they serve through effective implementation of Ward-based Outreach teams and other mechanisms • Accountability for ensuring risk identification in homes • Accountability for the quality of the care that they deliver to children, especially in flagship health programmes • Accountability for reducing barriers to children's access to health services • Empowered by supportive health systems • Empowered by de-centralised health systems • Empowered through teamwork in the front line • Empowered by good clinical and facility leadership structures and function • Outreach systems	**ACCOUNTABILITY TO THE COMMUNITY** • Standard children's health reports in all Health Councils and Facility Boards • Department of Health as an active partner in all accountability mechanisms such as 'War Rooms' • Effective communication mechanisms from health services to communities, and *vice versa,* around children's health and wellbeing, and health services

C	**CONNECTED**	**CONNECTED EASILY WITH HEALTH SYSTEMS IN PROPORTION TO NEED** • All barriers to access must be identified and remedied • Outreach clinics for dispersed communities and farming areas • Transport systems that recognise the special requirements for children e.g. the presence of the caregiver. • Lodger mother facilities in all hospitals and birthing units • Ensure that systems deliver medicines to children with complex disorders close to their homes • Afternoon and Saturday morning clinics for school-going children	**CONNECTED TO THE SYSTEMS AND COMMUNITIES IN WHICH THEY WORK, AND TO THE CHILDREN THEY SERVE** • Programmes to promote good health worker interaction with families • Understanding the community in which they work • Servant attitudes • Respectful attitudes • Training and Recruitment strategies to increase the proportion of health workers who are linked to the communities they serve	**CONNECTED WITH ALL WHO CARRY RESPONSIBILITY FOR THE HEALTH AND WELLBEING OF CHILDREN** • Facilitatory relationships and partnerships • Community and its structures • Other government departments • Strategic International partners • Health NGOs • Social NGOs • Education NGOs • Office of Health Standards Compliance
C	**CAPACITATED**	**CAPACITATED PARENTS, CAREGIVERS AND FAMILIES, ABLE TO PROVIDE A SAFE AND STIMULATING ENVIRONMENT** • Develop community-based programmes around the First 1 000 Days concept • Develop a communication strategy around the First 1 000 Days concept • Develop a health promotion strategy around the First 1 000 Days concept • Parenting programmes • Early child development activities in all homes • Combat teenage pregnancy	**CAPACITATED FOR THE JOB** • Essential pre-service training curricula for all • Post-basic training on all flagship programmes and the Essential Package of Care • Tools for training of the District Clinical Specialist teams • Accreditation systems for sessional and locum staff who treat or nurse children • Able to provide comprehensive care to children as defined below • Outreach systems	**CAPACITATED TO ENSURE SYSTEMS OF CARE FOR CHILDREN WITH LONG TERM HEALTH CONDITIONS** • The 2002 National Policy must be updated urgently • A 'Road map' towards addressing existing inequities in service provision must be developed, including provision of trans-regional services for some services (e.g. cardiac surgery) • A joint LTHC group from the Child Health and Non-communicable Diseases Directorates must be set up to coordinate and monitor service provision to children with LTHCs. (see Chapter 8)

E	**ESSENTIAL**	**ESSENTIAL CARE MUST BE COMPREHENSIVE CARE WHEREVER IT IS DELIVERED TO CHILDREN** • Every interaction with the family and community needs to be appreciative, caring, supportive, preventive and promotive around the child's health and well-being • Account must be taken of risks and vulnerabilities in the family. • Equity of access to specialised paediatric and paediatric surgical care	**ESSENTIAL PACKAGE OF CARE UNDERSTOOD AND DELIVERED** • The EPOC should include all flagship programmes • Each element of the EPOC must have an appropriate accessible training module geared to the individual health worker • Packages designed for particular situations and types of health worker ('package of packages' model)	**ESSENTIAL PACKAGE OF CARE DEVELOPED AND DELIVERED** • Development of the package must be accelerated • Development of the package must be capacitated • The Package should provide the basis of the National Health Insurance (NHI) package of care for children and systems to facilitate the link with NHI must be set up • EPOC to include All aspects of IMCI NB Standard delivery of the Community IMCI package within WBOTs activities in all districts
S	**SUPPORT**	**SUPPORT FOR EARLY CHILDHOOD DEVELOPMENT ACTIVITIES AND SERVICES FOR BABIES AND YOUNG CHILDREN IN HOMES, HEALTH SERVICES AND COMMUNITIES** • Parenting programmes • DOH support for the DSD proposed ECD package • Incorporate the IMCI Care for Development module into IMCI-SA • ECD packages for families or home-stimulation programmes	**SUPPORT IN ALL THAT THEY DO** • Having what they need to do the job • Supply chain enablers for frontline staff • Regular feedback to frontline workers including data on the service and children's health • Outreach systems of support	**SUPPORT FOR FRONTLINE STAFF** • De-centralised management systems • Regular 'climate' meetings in facilities and teams • Foster teamwork • Electronic systems of support and feedback e.g. message system • Accountable leadership • Responsive clinical governance systems • Ensure outreach systems of support

S	**STANDARD**	**STANDARD PACKAGE OF ROUTINE AND SPECIALISED CARE, CLOSE TO THEIR HOMES** • Commission a situation analysis to update information on access to specialist and sub-specialist paediatric services in the nine provinces previously compiled as part of the modernisation of tertiary services processes. • Prioritisation given to improving access to essential services for the most marginalised communities and least-resourced provinces, especially with respect to specialised paediatric care (the 'diagonal' approach) • Transport and other systems that facilitate access to services	**STANDARD, SUFFICIENT STAFFING ESTABLISHMENTS** • Rapid development of norms and standards for staffing of children's services in association with National Core Standards (Office of Health Standards Compliance) • Attention must be given to recruitment of paediatric registrars who will want to work outside main centres and in general paediatrics • Staffing establishments and career paths that encourage career paediatric medical officers at all levels • Expanded training courses for paediatric and neonatal nurses • SANC accreditation for neonatal nursing courses to be fast-tracked • SANC recognition of post-basic neonatal nursing qualifications	**STANDARD DATA SETS FOR CHILDREN** • Develop and implement standard reporting tools for child health and children's health services that can be used reflectively by local health teams and frontline health workers • Engage with expert organisations on integrating such data analysis tools into routine systems

MAXIMIZING THE OPPORTUNITIES AFFORDED BY THE ROAD TO HEALTH BOOKLET

The Road to Health Booklet (RTHB) was introduced in 2010. It provides a more comprehensive set of records and resources than the previous card. Used optimally, the RTHB provides a health record for preventive, monitoring, risk recognition and curative health interactions and activities, health promotion information, parent empowerment opportunities, and a communication tool across health service and other sites.

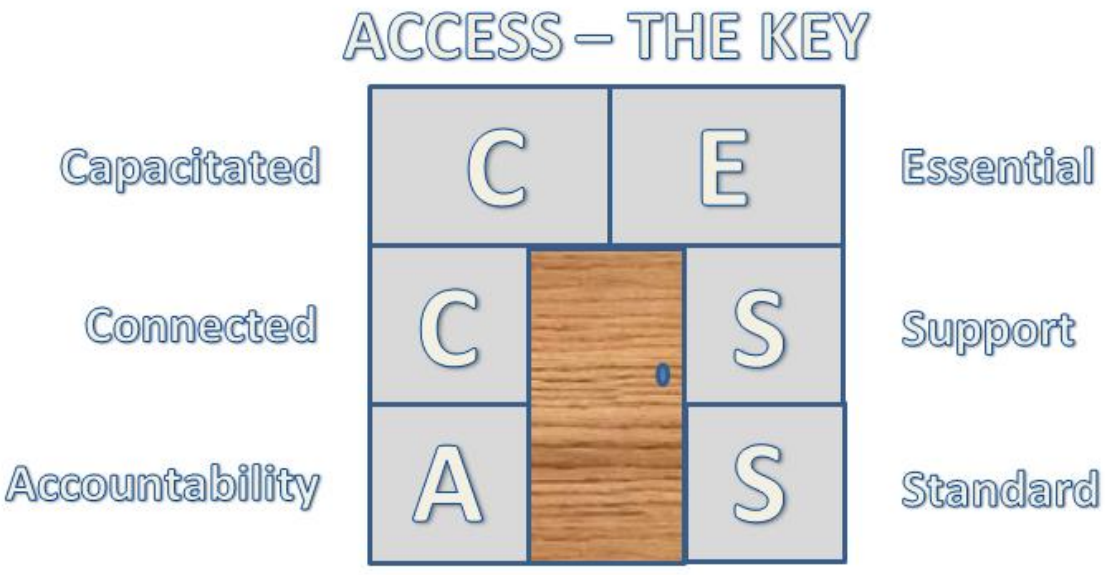
There are currently deficiencies in usage of the RTHB. The initial implementation and training was technically correct but non-empowering, largely failing to inspire health workers to 'catch the vision' of the opportunities being brought by the booklet. The booklet has often become just another chore for a hard-pressed frontline nurse and has to a significant extent passed by medical and other staff across the country. Opportunities for it to be the standard in private health services have not been taken up adequately. There have been mixed messages as to its purpose, most obviously demonstrated in its colloquial names 'clinic book' or 'passport to health'. Often punitive terms are used if parents do not bring it, rather than parents being encouraged to 'own' the book for their child's health. This approach reflects the non-client-centred health system/health worker culture addressed in some of the earlier recommendations in this chapter.

Further deficiencies include the problems noted with HIV information and maternal disclosure, and the lack of a tuberculosis risk record. The RTHB is only supplied at the time of birth, preventing links being made with breast feeding and HIV disclosure, and maternal agency with respect to her baby.

The recommendations in the table on the following page (once more using the ACCESS acronym) call for a re-appraisal and strengthening of the place of the RTHB in the country's approach to child health. This re-appraisal will increase the chances that the maximum potential of this impressive yet simple intervention being realised.

Recommendations for improved ACCESS to all the benefits offered by the RTHB.

A-wareness: Awareness-raising activities are required for the community and for health workers. These must imaginatively highlight all the functions of and opportunities afforded by the RTHB.
C-hange colloquial names for the booklet: 'Clinic card/book' is not acceptable. Formative research would be useful to identify culturally appropriate names for the booklet that emphasise its purposes.
C-hange key sections of the booklet: The HIV section requires updating. Introduce a section that records TB information starting with exposure status.
E-xtract health promotion sections: These need to be available as health promotion in all local languages at the point of care in PHC and at hospital levels.
S-tart introducing the booklet during ante-natal care: Incorporate RTHB-related awareness raising for pregnant women, with special emphasis on disclosure and feeding choices for HIV-positive pregnant women in PHC and at hospital levels.
S-tandard patient-held health record for children with long term health conditions to complement the RTHB needs to be developed: National roll out of a record adapted from those used in Limpopo and the Western Cape will promote improved case management for this group of vulnerable children who use health services more than most other children, especially when over the age of 5 years. This is discussed further in Chapter 8.



CHAPTER 11: PROVINCIAL PROFILES

The following sections are included to provide a more detailed picture of child morbidity and mortality at the provincial and district levels and to try to contextualise these within the local health service.

Data sources used in this chapter to portray this picture include:

- The 2011 Census.
- StatsSA reports on birth and death registrations for 2008 – 2011.
- The District Health Information System (DHIS) up to 2013.
- The Child Healthcare Problem Identification Program (Child PIP) up to 2013.

The varied sources of data creates some discrepancies in the indicators used and the quality of individual datasets is sometimes poor. However the committee has opted to use these data as they are presented here in order to make data available at the local level, to promote the practice of using local data for the monitoring and planning of services and to precipitate an improvement in the quality of data being collected.

We believe that we are now approaching a position where we can combine data from different sources in order to describe differences in child mortality and associated or contributing factors between the various districts in the country.

Additional data is presented in the provincial and district profiles in Appendices 2 and 3.

EASTERN CAPE PROVINCE

SUMMARY

- *Eastern Cape is the second largest province by area, with the third largest population.*
- *It has a large rural population and a significant metropolitan population with informal settlements where many children are subject to poverty, poor access to health care and developing health services.*
- *The 2011 mortality figures for the Eastern Cape estimated from StatsSA releases (U5MR 30.8 and IMR 20.7) appear unrealistically low. More likely estimates might be an U5MR around 50 and an IMR in the mid 30's – these may also be underestimates. It does appear however that child mortality rates have truly dropped, but the exact extent of this drop remains unclear.*
- *The major causes of childhood deaths remain diarrhoeal disease, lower respiratory infections, neonatal disorders, tuberculosis and malnutrition with HIV still having a major association and contribution to post neonatal deaths. Other less defined causes of death occupy a large proportion of deaths and point to a need for more defined data.*
- *Non-natural causes represent 4.9% of deaths of children indicating another area needing intervention.*
- *Programme coverage remains incomplete as indicated by the variable immunisation coverage; but the high estimated rate of PCR testing of HIV exposed children is pleasing.*
- *While an extensive network of health facilities are in place, the quality of care delivered to children in these facilities remains in need of constant attention.*

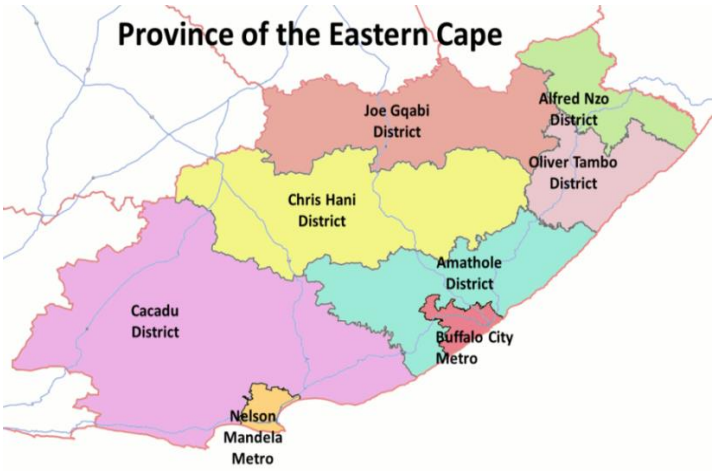


Table 32: Demographics of the Eastern Cape Province.

DEMOGRAPHICS	E CAPE PROVINCE	A NZO	OR TAMBO	JOE GQABI	C HANI	AMATHOLE	BUFFALO CITY: BUF	CACADU	N MANDELA BAY: NMA
Area km^2 [1]	168 966	10 731	12 096	25 663	36 144	21 595	2 536	58 243	1 959
Total Population 2011 census[1]	6 562 052	801 344	1 364 943	349 768	795 461	892 637	755 200	450 584	1 152 115
Population /km^2 2011[1]	38.8	74.8	111.9	13.1	21.4	46.3	314.3	7.6	587.1
U1 Population 2011 census[1]	145 067	21 699	35 942	7 722	16 596	18 211	15 104	9 020	20 773
U5 Population 2011 census[2]	726 386	111 740	141 103	40 968	94 665	104 031	77 503	45 970	110 406
Births registered for 2012[3]	110 244	11 618	29 908	4 914	12 268	12 481	14 704	6 099	18 252
U1 as proportion total population[4]	2.2%	2.7%	2.6%	2.2%	2.1%	2.0%	2.0%	2.0%	1.8%
U5 as proportion total population[4]	11.1%	13.9%	10.3%	11.7%	11.9%	11.7%	10.3%	10.2%	9.6%

The population of the Eastern Cape (EC) has a significant rural component with densities as low as 7.6 people per km^{2,} as well as large urbanised areas such as Port Elizabeth (Nelson Mandela Bay) and East London (Buffalo City) where a mixed formal and surrounding informal population is found with high population densities of over 300 people per km^2.

On average the communities have poor infrastructure (especially in informal and rural settings) with 22.1% of the population still having no access to piped water. The poverty level is high and only 11.4% of the population have access to medical aid (mostly in the metropolitan areas).

[1] District Health Barometer 2012/13 – indicator spreadsheet. (DHB_annual_district_6Sep2013.xlsx)

[2] Census 2011 Municipal report Eastern Cape – Report N0 03-01-50. Statistics South Africa

[3] Recorded live births 2012 – STATSSA Statistical release P0305

[4] Calculated from above

The province comprises 8 district / metropolitan areas with a health service composed of 64 districts, 4 (was 2) regional and 3 tertiary public hospitals (providing child health care) excluding specialised hospitals. There are also 710 Primary Health Care clinics and 53 Community Health Centres and 75 mobile clinics.

In 2012 the provincial per capita expenditure on primary health care was R764 pa (just below the average of R780 pa for South Africa), but with quite widely varying district expenditure – the highest expenditure being R1244.30 per capita to the lowest at R457.60 per capita.

Table 33: Causes of death in Children – Eastern Cape.

EASTERN CAPE TOP CAUSES OF DEATH IN CHILDREN 2011			
Child PiP – Top 5	**StatsSA – Leading causes of death in children 0-14yrs of age 2012**		
1. Diarrhoea	1. Intestinal infectious diseases	433	9,0%
2. Septicaemia	2. Influenza and pneumonia	290	6,0%
3. Pneumonia	3. Respiratory and cardiovascular disorders specific to the perinatal period	209	4,3%
4. Other Nutritional	4. Other disorders originating in the perinatal period	1861	3,9%
5. TB (all)	5. Malnutrition	55	3,2%
	6. Tuberculosis	132	2,7%
StatsSA – Top 5	7. Other acute lower respiratory infections	92	1,9%
summarised	8. Other viral diseases	82	1,7%
1. III defined	9. Infections specific to the perinatal period	74	1,5%
2. Neonatal	10. Other forms of heart disease	65	1,4%
3. GIT infection			
4. Pneumonia	Other natural causes	2383 705	49,6%
5. Non-natural	Non-natural causes		14,7%

What is clear from the above is that while Diarrhoea, Pneumonia, TB, Malnutrition and neonatal causes of death are leading – other natural causes cover nearly 50% of deaths and non-natural causes a further 14.7% of deaths of children under 15 years of age. In addition, HIV is associated with some 30-40% of childhood deaths outside the neonatal period. Any program to minimise child (including neonatal) deaths needs to take this whole picture into account.

Table 34: Selected Health Care Indicators of the Eastern Cape.

EASTERN CAPE **Some Selected indicators**	SOUTH AFRICA	EASTERN CAPE PROVINCE	ALFRED NZO	OLIVER TAMBO	JOE GQABI	CHRIS HANI	AMATHOLE	BUFFALO CITY METRO	CACADU	NELSON MANDELA METRO
Early NNMR – 2012[5]	11.2		15.3	20.3	10.0	10.2	10.7	14.0	5.0	27.7
Infant Mortality Rate – 2011[6]	28.4	23.9	18.7	12.4	38.2	26.4	31.3	24.3	28.3	11.9
Under 5 Mortality Rate – 2011[6]	38.5	31.5	28.1	23.6	51.2	15.9	49.0	32.2	37.5	14.4
% U5 deaths in U1 age group – calculated from above			66.5%	52.5%	74.6%	166.0%	63.9%	75.5%	75.5%	82.6%
% of child (< 5yr) deaths occurring within the health services – 2011[6]	45.5	50.5	30.5	41.3	36.8	113.8	39.9	48.3	35.1	58.2
% of child deaths where severe malnutrition was present 2011 or 2012[7]	31.2	n/a	n/a	44.8	n/a	20.8	n/a	24.8	40.0	47.6
% of child deaths where child was HIV positive or exposed 2011 or 2012[7]	39.1	n/a	33.3	27.6	n/a	50.0	n/a	39.5	30.0	33.3
In-hospital case fatality rate: Diarrhoeal disease - 2013[8]	4.0	6.8	13.2	13.2	6.2	2.0	13.2	2.5	2.0	2.3
Pneumonia – 2013[8]	3.7	6.9	8.8	9.9	9.2	2.1	8.8	1.6	10.5	3.9
Severe malnutrition – 2013[8]	12.0	12.3	19.5	22.6	11.7	2.1	19.5	12.7	2.1	8.2
PCR coverage[8]	100.6		105.4	78.3	98.9	92.8	124.9	71.4	96.8	90.5
N^{o} of children on ART under 1 year of age2013[8]		165	30	34	-	-	10	20	-	71
Immunization coverage at 1 year – 2013[8]	83.8	74.7	72.4	58.2	62.0	85.3	67.8	93.6	72.9	85.6
Medical Aid Coverage 2009 [9]	16.9	11.4	3.5	4.6	5.0	5.9	8.7	14.7	14.6	29.4
Hospitals doing Child PIP - 2013[7]	184	13	2	0	0	2	0	2	5	2

[5] District Health Barometer 2012_2013

[6] StatsSA from DoH

[7] Child Problem Identification Program – from DoH – 2012 or if not available 2011

[8] DHIS from DoH

[9] District Health Barometer 2012/13 – indicator spreadsheet. (DHB_annual_district_6Sep2013.xlsx)

Very low population figures usually indicate farmlands of old South Africa, in between figures tend to be rural areas of the old homelands of Ciskei and Transkei – a remaining legacy.

Dependency ratios vary from very high (88.9) in rural areas (high proportions of elderly and very young), to far lower figures (46) in metropolitan areas, a reflection of the work seeking situation for families in the Easter Cape.

In interpreting the mortality figures it is noted that the Oliver Tambo District (along with Alfred Nzo and NMBM) are reflected as having far lower infant and under 5 mortality rates than the rest of the province – approximating that of the Western Cape. However it is recognized that Oliver Tambo and Alfred Nzo represent very disadvantaged populations in largely very rural setting, and thus some doubt has been cast on their figures in particular. Nelson Mandela Municipal Metro has an urban setting far more like the Western Cape and their figures may reflect reality.

To further interrogate these figure it of some interest to look at the proportion of the under 5 year mortality represented by the under 1 year mortality (Figure 27).

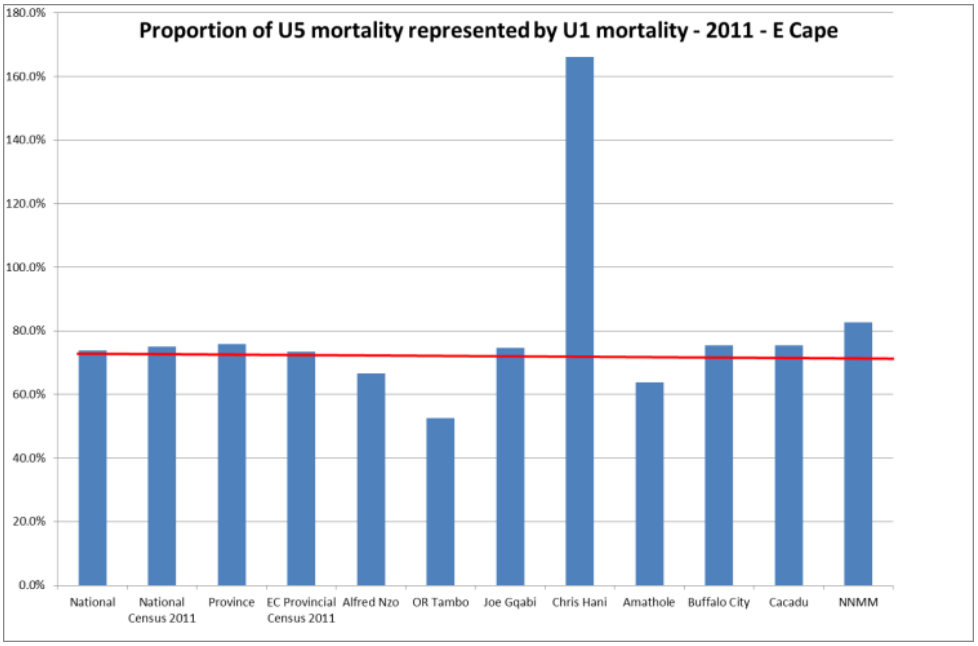
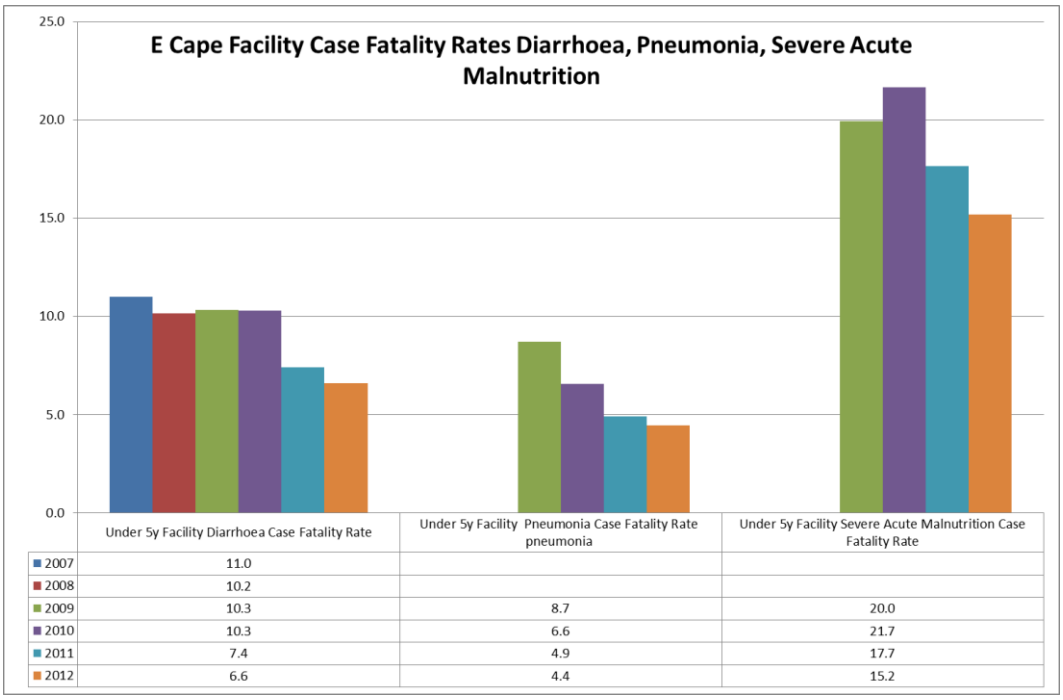


Figure 27: Proportion of Under-5 mortality due to Infant mortality.

It is immediately apparent that the more than 100% proportion in Chris Hani cannot be correct as the under-1 mortality represents a portion of the under-5 mortality– a data error must be present here. In previous years Chris Hani has had mortality rates that are more usual.

Less obvious is that the Oliver Tambo district in particular (but also the Alfred Nzo and Amathole districts), have a disproportionately low representation of infant deaths (or a disproportionately high number of deaths between 1 year and 5 years). It is suspected that some infant and child deaths in these areas are not reflected by the StatsSA process, either because they are not notified, or because they die in other areas. However this interpretation is speculative and best resolved by analysis of the mortality rates of census 2011 on a district by district basis – information not currently available.

Some Case Fatality and Program Representative Figures



	Under 5y Facility Diarrhoea Case Fatality Rate	Under 5y Facility Pneumonia Case Fatality Rate pneumonia	Under 5y Facility Severe Acute Malnutrition Case Fatality Rate
2007	11.0		
2008	10.2		
2009	10.3	8.7	20.0
2010	10.3	6.6	21.7
2011	7.4	4.9	17.7
2012	6.6	4.4	15.2

Figure 28: E Cape facility case fatality rates Diarrhoea, Pneumonia and Malnutrition.

The figure above created from DHIS data indicates a progressive drop in Case Fatality Rate in health institutions for three lead conditions over the last 3 - 5 years. Taken with the improving Infant Mortality Rate and U5 Mortality rate these are hopeful trends, but

must be interpreted at facility level as analysis at district level indicates quite variable trends with some areas still having figures 7 times higher than others.

The plateau of the HIV+ rate of pregnant women (29.3%), and the dramatic drop in PCR+ rates at six weeks (13.1% in 2007 to 3% in 2012) are extremely good signs, but these improvements need to be maintained and the problems of viral resistance prevented. More information on the 18 month positivity rate is needed. However, there is a strong impression of a marked decrease in HIV as an underlying cause of death in infants, although it remains a strong association in at least 30% of post neonatal child deaths and it is suspected that the 18 month positive rate may be less favourable than the six week rate.

Neonatal care remains a challenge especially in the district hospitals and MOU's which don't have specialist paediatric leadership. It is hoped the district specialist teams will begin to fill this gap with three specialist paediatrician in teams in the East, West and Central regions – five other posts remain to be filled.

The wide variation in early neonatal mortality rates (27.7 in Nelson Mandela Metro to 5 in Cacadu) is of concern and while partially due to referral patterns cannot be fully ascribed to this only.

CHILD HEALTH SPECIFIC PROGRAMS

Immunisation remains a key factor in sustaining child health. While generally improving, rates in some districts are as low as 55.7% coverage at one year and a maximum of 90% in others. The vitamin A coverage, 12 - 59 months, is also improving but substantially incomplete with rates from 33.8% to 51.8% leaving a large opportunity for improvement.

The incidence of dehydrating diarrhoea in primary health care facilities has shown a progressive decrease in most areas, but some areas have rates more than twice those of others. Interestingly, this does not always reflect the rural factor, nor the availability of piped water within 200m. Other factors such as rotavirus immunisation, community motivation and education and informal settlement infrastructure are suspected to confound this relationship and need attention.

Nutritional rates are extremely variable across the province with supplementation rates directly relating to these rates – what is surprising is that the two highest under-2 underweight rates are in two of the three districts with the highest per capita income, while the lowest rate is in the district with the 2nd lowest per capita income.

DISCUSSION

In summary the children of the Eastern Cape appear to have slowly improving health outcomes, but still they remain less than what they should be.

The following factors will inform the recommendations below:

1. Variation in supplied health care support provided between and within districts.
2. The importance of retaining the gains made in PMTCT in the face of challenges to ensure all mothers delivering babies have adequate virological suppression.
3. The variability in adequate staffing for child health in both numbers and skills amongst nurses and doctors at clinic, CHC and hospital levels.
4. The need for improved ability to identify and effectively manage failure to thrive / malnutrition in children, including the ability to confidently provide nutritional supplementation when needed.
5. Recognition that a large number of child deaths are due to other natural or non-natural causes and need prevention and care.
6. The need for accessible, safe and caring maternal delivery services /neonatal care services.

RECOMMENDATION

The current extensive health facility network of the E Cape needs to be made effective in providing a standard of care expected for our children in South Africa. The following recommendations are put forward.

1. Clear definition of standards of care must be published and adhered to with respect to:
    a. Child/Neonatal bed provision appropriate to population needs and norms (including equipping and maintenance).

b. Staff number provision according to service needs in terms of both staff to patient ratio for each type of patient, (WISN – "Workforce Indicate Service Needs – is an appropriate tool), particularly with respect to the cadres of nursing and doctors. Efficient and appropriate recruitment and retention processes need to be in place.
c. Staff skills support appropriate to the function of each staff member with trained staff retained in appropriate service settings with respect to their skills and training. Regional clustering and support of the District Specialist Teams should be key to achieve these goals.

2. Staff training needs to be coherent and related to the working skills required by a specific cadre in their specific setting – in Primary Health Care programs such as IMCI, NIMART, PMTCT, TB Care, EPI, Nutritional Support and the EDL-PHC should be provided. In district hospital programs such as ETAT, Helping Babies Breath, Essential Neonatal Care, HIV/ART care of children, TB care of children, management of Severe Acute Malnutrition and the basics provided by the Paediatric Hospital Level EDL should be in place. Some of this training might be by mentoring or in-reach to regional hospitals, district specialist teams and for others, training structures need to be developed.
3. Coherent and coordinated oversight of the provision of child health and child health care in the province is needed to create an integrated management strategy from community to tertiary care, and to facilitate the attainment of such a strategy. Such a person / body should work with the highest level of health care in the province to ensure answerability and effectiveness.
4. Appropriate media routes should be used to provide essential knowledge to the community concerning child health promotion, prevention, and recognition of childhood disease. The ward based outreach team function needs to be optimized.

The care of children and their outcomes seem to be slowly improving but significant space exists for further improvement of child health care. This would benefit from more coherent central guidance and standardisation.

FREE STATE PROVINCE

SUMMARY

- *Free State is the 4th largest province with a population density of 22/km^2 which has decreased even further to 21.1/km^2, which is making the cost of service delivery very high. The population is predominantly peri-urban/rural with high poverty levels.*
- *89.1% of households have access to piped water and 83.3% to improved sanitation.*
- *Mortality rates are still high – the IMR is 56.2 and the U5MR 71.2 according to Stats SA 2011.*
- *Utilization of services is good with a PHC U5 utilization rate of 3.8*
- *Immunization coverage is 95.5%.*
- *Diarrheal disease and pneumonia are the main 2 causes of death. HIV underlies half of these deaths and malnutrition 42% of all deaths. Stillbirths and neonatal deaths account for about a quarter of under-five deaths.*

The Free State has a surface area of 129,824 km^2, and a population of 2,7 million according to the Census 2011, a marked decrease from the previous population of 2,9 million (2006 Stats SA Community Profile).

This population is predominantly peri-urban/rural based with good access to municipal services such as piped water which is available on site to 89.1% of households. This decline in population is a reflection of out-migration and a drop in the birth rate since the last Census conducted in 2001. The cost of service delivery is very high in the Free State province, particularly in the more rural, hard-to-reach places of the province. The province comprises 4 districts and a single Metropolitan Council. The most densely populated districts are Thabo Mofutsanyana and Mangaung Metro. The poverty index remains high at 0.02 although much improved from 0.08 in 2001. There is a high unemployment rate in the Free State, contributing to the challenge of poor health indicators in the province

Only 17% of the Free State population is medically insured. The public health service is composed of 31 hospitals, 221 Primary Health Care clinics, 10 Community Health Centres and 75 Mobiles Clinics. On the other hand, there are 26 private hospitals serving the 17% insured population of the province. In 2013 the provincial Primary Health per capita expenditure was R388 but this has improved to R514. Although this represents an improvement for the province, it remains one of the lowest in the country.

Table 35: Selected Health Care Indicators for the Free State Province

FREE STATE **2013** **Selected indicators**	**SOUTH AFRICA**	**FREE STATE**	**FEZILE DABI**	**LEJWELEPUTSWA**	**MANGAUNG METRO**	**THABO MOFUTSANYANA**	**XHARIEP**
Top 5 causes of death		**Stats SA:** 1. Intestinal Infectious diseases 2. Acute Respiratory Infections 3. Neonatal Prematurity-related Conditions 4. Malnutrition 5. Neonatal sepsis				**Child PIP:** 1. Acute diarrhoea 2. Pneumonia, ARI 3. Septicaemia 4. Chronic diarrhoea 5. Other respiratory	
Neonatal Mortality Rate (PPIP)	11.2	14.1	14.6	16.6	13.9	11.5	19
Infant Mortality Rate (DHIS)	28.4	20.6	22.5	26.9	13.1	22.6	14.5
Under 5 Mortality Rate (DHIS)	38.5	26.3	25.9	32.3	18.7	30.4	15.7
% of child deaths occurring within the health services	45.5	46.7	43.8	41.6	53.5	47.8	40.5
% of child deaths where severe malnutrition was present (CHPIP)	31.2	35	30.4	37.3	35.4	33.5	50
% of child deaths where child was HIV positive or exposed (CHPIP)	39.1	38.4	37.7	35.4	30	49.8	42.8
In-hospital case fatality rate: (DHIS)							
Diarrhoeal disease	4.0	3.7	2.7	6.0	2.6	6.2	1.0
Pneumonia	3.7	5.5	5.2	4.1	2.0	6.0	1.1
Severe malnutrition	12.0	8.5	15.8	16.8	5.0	21.8	14.0
PCR Coverage %	100.6	107.0	92.2	109.4	100.6	109.3	306.2
N° of children on ART	148 342	8 519					
% Immunization coverage at 1year (DHIS)	89.5	82.3	70.9	91.8	79.9	90.3	78.4
N° of children per public hospital usable child bed	180.2	282	35	70	119	58	-
Children per paediatrician in public service	40 180	23 684	-	-	-	-	-
PHC per capital expenditure	R684	R514					
Hospitals doing Child PIP	184	29	5	6	5	10	3

HEALTH STATUS:

The Free State mortality indicators are as follows:

Perinatal Mortality Rate is 36.6/1000 live births due to a persistently high stillbirth rate of 24.4/1000. The high stillbirth rate is explained by a high spontaneous preterm labour prevalence, intrauterine death and antepartum haemorrhage (PPIP, 2013).

Neonatal Mortality Rate is 14.1/1000 with a relatively higher Early Neonatal Mortality due to Prematurity in the main; followed by intra-partum hypoxia and septicaemia. What is of concern is that this figure has remained stagnant over the past 5 year period. (PPIP, 2013).

Infant Mortality Rate is 20.6/1000 (in-hospital rate) which is a worrying increase from 19.1/1000 in 2012.

Under 5 Mortality Rate is 26.3/1000 (in-hospital rate); also a worrying upward trend from 22.2/1000 in 2012.

Of concern is that Child Health indicators like Immunisation coverage and Vit A supplementation coverage have worsened in the province from 94.2% in 2012 to 89.5% in 2013 (immunisation) and 67.5% in 2012 to 57.4% in 2013 (Vit A) respectively.

Causes of mortality:

The leading causes of mortality in the Free State under-5 population continues to show a similar pattern as in the 1st Triennium, despite the introduction of new vaccines to combat diseases like pneumonia and diarrhoeal disease.

PROVINCIAL AND DISTRICT PROFILES

Table 36: DHIS District stillbirth trend: 2009 – 2013.

	STILLBIRTH RATE (/1000)				
	2009	**2010**	**2011**	**2012**	**2013**
FREE STATE	28.5	30.6	29.4	24.8	27.6
FD	28.1	29.8	30.2	26.0	27.0
LEJWELEPUTSWA	31.7	30.0	32.8	27.1	27.3
MANGAUNG	22.0	30.4	30.6	24.9	25.9
TM	33.5	33.1	26.1	22.9	30.5
XHARIEP	21.5	15.8	16.7	18.0	20.1

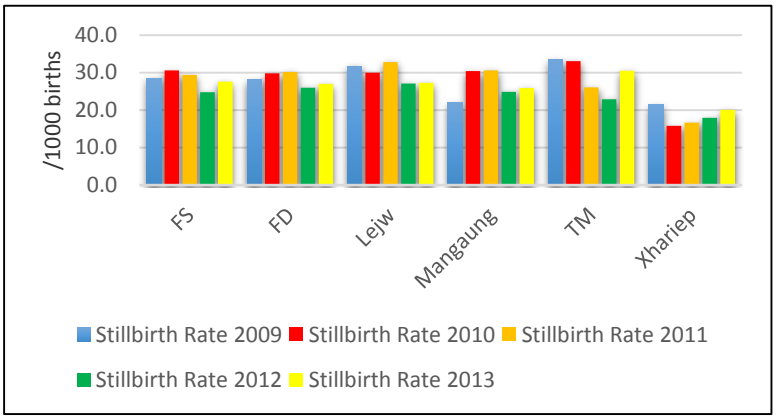


Figure 29: District stillbirth trend: 2009 -2013.

Persistently high stillbirth rates account for the perennial high perinatal mortality rates in the Free State. This is an index of poor antenatal care in the province.

Table 37: DHIS District mortality trend: 2009 – 2013.

	NNMR (/1000)				
	2009	**2010**	**2011**	**2012**	**2013**
FREE STATE	14.1	13.1	16.0	15.8	13.8
FD	11.8	15.7	13.5	17.5	15.1
LEJWELEPUTSWA	16.4	13.1	18.9	16.9	17.6
MANGAUNG	9.3	11.2	14.5	13.7	10.0
TM	17.7	14.5	17.5	16.3	13.8
XHARIEP	25.2	3.2	8.1	14.4	19.3

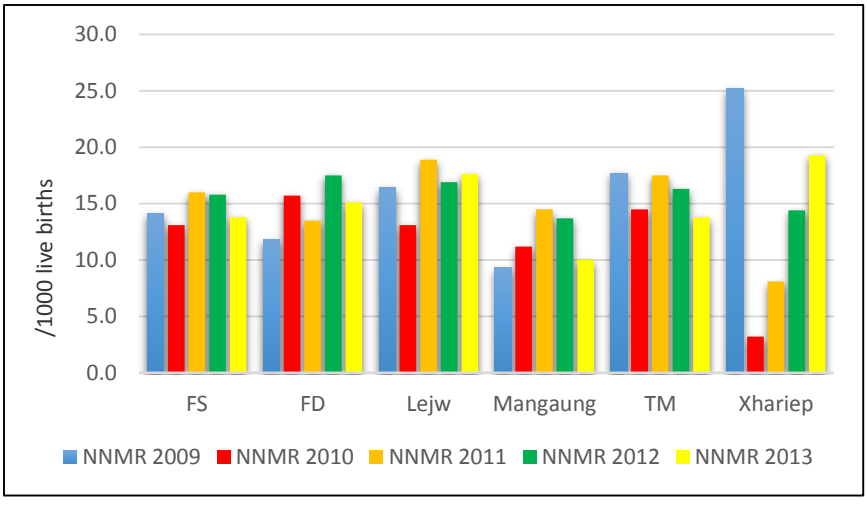


Figure 30: District NNMR trend: 2009 – 2013.

Neonatal mortality rates in the Free State have decreased, but only marginally. Over a five year period, there has been a drop of only 2%. Most of these deaths are early neonatal deaths accounted for by a high birth asphyxia rate and prematurity in the main.

Table 38: DHIS District IMR trend: 2009 – 2013.

	IMR (/1000)				
	2009	**2010**	**2011**	**2012**	**2013**
FREE STATE	29.1	27.3	24.8	19.1	20.6
FD	18.8	26.1	17.2	15.1	22.5
LEJWELEPUTSWA	38.5	38.2	35.3	24.7	26.9
MANGAUNG	26.7	20.8	19.9	18.3	13.1
TM	30.6	27.8	27.5	18.9	22.6
XHARIEP	26.7	20.1	12.5	11.6	14.5

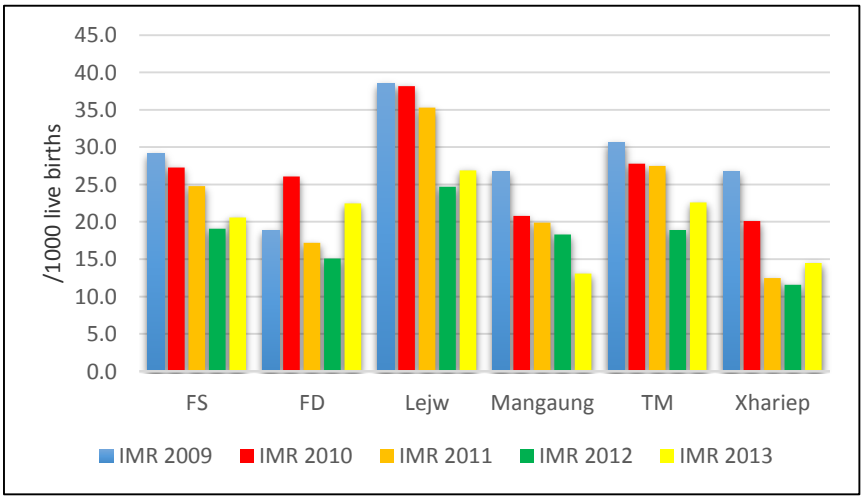


Figure 31: District IMR Trend: 2009-2013.

Under-1 mortality has seen the biggest drop in the Free State, due to improved quality of care in facilities over the past five years and improved immunisation coverage rates.

Table 39: DHIS District U5MR trend: 2009 – 2013.

U5MR(/1000)					
	2009	**2010**	**2011**	**2012**	**2013**
FREE STATE	34.6	30.7	28.4	22.2	26.3
FD	22.3	34.7	20.1	18.1	25.9
LEJWELEPUTSWA	40.3	42.7	40.5	28.3	32.3
MANGAUNG	32.6	22.6	22.6	17.8	18.7
TM	39.3	27.8	31.4	25.4	30.4
XHARIEP	36.2	27.3	14.3	11.6	15.7

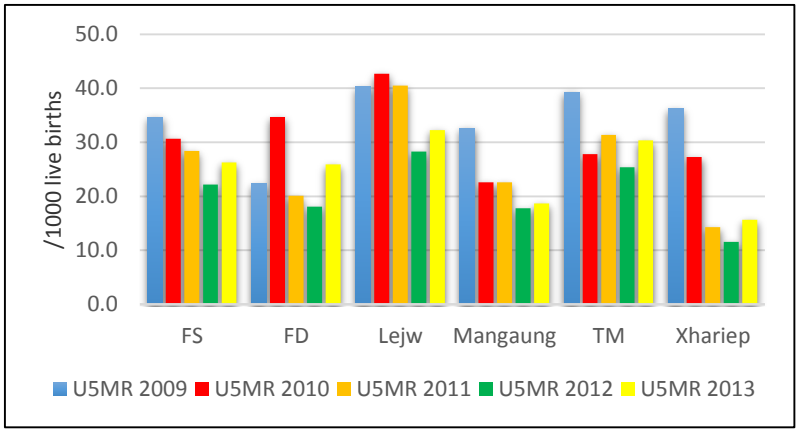


Figure 32: District U5MR Trend: 2009-2013.

Under-5 mortality rates had a steady decline in the Free State in the past four years with an increase again in 2013 due to an increased incidence of malnutrition, the persistent high stillbirth rate and small decline in neonatal mortality rate. The SAM case fatality rate in the Free State had a marginal increase from 8.5% in 2012 to 14.7% in 2013.

HEALTH PROGRAMMES

PMTCT coverage:

Infant PCR testing positive at 6 weeks is 0-1.3% overall, against a target of <2%. The challenge of not reaching total elimination are due to low rate of early antenatal booking before 20 weeks and therefore a low rate of initiation of ANC clients on ART.

Paediatric TB:

Table 40: TB cases in the Free State: 0-4 years, 2013.

ALL TB CASES FREE STATE 0 – 4 YEARS		
DISTRICTS	**N**	**%**
Fezile Dabi	143	4.5
Lejweleputswa	457	8.2
Mangaung Metro	491	8.3
Thabo Mofutsanyana	274	6.9
Xhariep	135	9.6
Total	1500	7.5

Paediatric ART:

Against a targeted 3330 children infected with HIV in the province, only 14% is being initiated with ART. This poor performance suggests serious challenges for the PICT strategy and in the NIMART programme.

EPI:

Two new vaccines (PCV & RV) were introduced into the EPI programme in 2009, target 70%. Initially PCV 7 was introduced and changed over to PCV 13 in 2012.

Table 41: Selected immunization coverage indicators, 2009 - 2013.

INDICATOR	2009/10	2010/11	2011/12	2012/13	2013/14
PCV 3rd dose	68.6%	70%	90.9%	95%	85.6%
RV 2nd dose	12.6%	79.2%	99.4%	102.3%	92.1%

Nutrition:

Table 42: Selected nutrition indicators, 2009 – 2013.

INDICATOR	2009/10	2010/11	2011/12	2012/13	2013/14
Excl breastfed at HepB 3rd dose rate	0	0	0.06%	0.03%	78%
UWFA <5 years incidence (/1000)	1.3	1.2	1.1	1.1	2.1
Vit. A dose 12 - 59 months	40.8%	40%	47.8%	49.9%	46.1%

IMCI:

Table 43: Under 5-year pneumonia incidence by health district.

	PROVINCIAL TARGET	2013/14 Q4	PROVINCIAL TARGET	2014/15 Q1
FEZILE DABI		39.1		54.5
LEJWELEPUTSWA		74.5		83.7
MANGAUNG METRO		67.4		128.7
THABO MOFUTSANYANA	75/1000	100.3	70/1000	129.1
XHARIEP		106.6		220
PROVINCE		74.1		110.5

Table 44: Under 5-year diarrhoea with dehydration incidence by health district.

	PROVINCIAL TARGET	2013/14 Q4	PROVINCIAL TARGET	2014/15 Q1
FEZILE DABI		33.9		15.9
LEJWELEPUTSWA		44.4		24.0
MANGAUNG METRO		36.9		17.5
THABO MOFUTSANYANA	6.4/1000	56.6	6/1000	18.0
XHARIEP		41.0		23.9
PROVINCE		43.0		18.8

Data:

- PPIP: This is now conducted in 37 facilities (30 hospitals and 7 CHCs) in the FS since 2012.
- CHPIP: This is now conducted in 29 facilities in the FS since 2012.
- DHIS: Access and reliability of this data source has been a problem for a while and corroboration and validation of data has also been a challenge in the province. The province is now on DHIS 2 in all facilities.
- Stats SA: Only available after every Census, 2yearly the report becomes available for use.

Clinical Governance:

Introduction of the District Clinical Specialists in the 5 districts of the Free State occurred in 2012. The teams are not complete in all 5 districts yet, but it is noteworthy that in the past year, these teams have visibly improved clinical governance and oversight, with all facilities in the province now conducting Morbidity and Mortality meetings, and Root Cause Analyses is done on all Maternal, Neonatal and Child deaths.

Table 45: Number of paediatricians and beds per facility.

DISTRICT	FACILITY	N° OF PAEDS	N° OF PAEDIATRIC BEDS							N° OF NN BED		
			GEN	ICU	ONC	CVS	NEURO SURG	SURGICAL	BURN	ICU	HC	KMC
MANGAUNG	Universitas	28	18	3	20	4	4	0	0	14	16	0
	Pelonomi		75	5	0	0	0	25	10	0	34	20
FEZILE DABI	Boitumelo	1	35	0	0	0	0	0	0	4	14	11
LEJWELEPUTSWA	Bongani	1	70	0	0	0	0	0	8	0	16	5
THABO MOFUTSANYANA	Dihlabeng	1	18	0	0	0	0	0	0	0	4	5
	Manapo	1	40	0	0	0	0	0	0	0	4	8
TOTAL		32	241	8	20	4	4	0	18	18	88	43

Private Paediatricians in the province:

Bethlehem:	Mediclinic Hoogland	4
Welkom:	Mediclinic	2
Bloemfontein:	Mediclinic	5
	Rosepark	3
	Netcare	1
Krooonstad:	Kroon Hospital	1

Hospital Admissions:

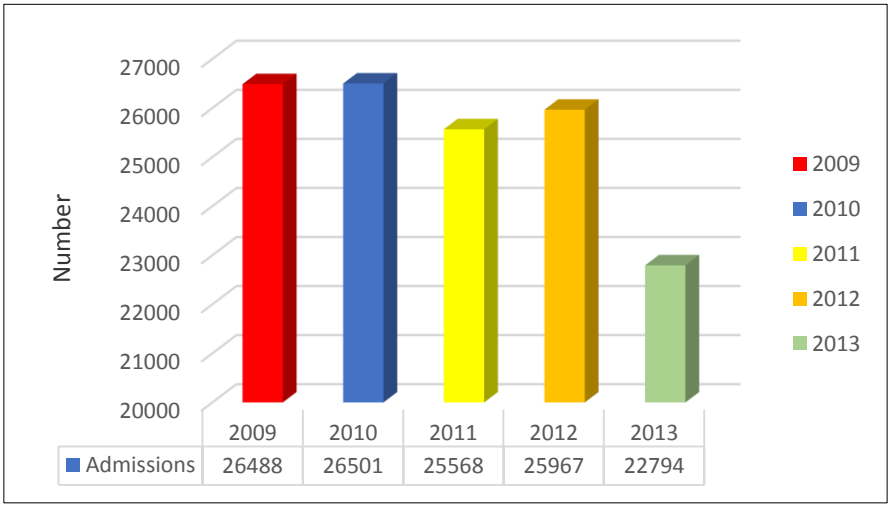


Figure 33: Number of paediatric admissions in the Free State, 2009-2013.

There has been a steady decline in the number of admissions in Free State health facilities over the past 5 years. This may be explained by the overall decline in population and possibly the poor access to facilities, leading to a higher proportion of cases not being seen within facilities. The cautiously optimistic interpretation of this figure is that preventive and promotive health is starting to bear results at the Primary Health Care level, leading to fewer admissions in hospitals.

RECOMMENDATIONS

1. Training:
    a. Newborn care training to be expanded in the Province
    b. WBOTs training on MNCWH&N programs
    c. Advanced Antenatal Care training for midwives and Primary Health Care personnel
2. Service Delivery Mechanisms:
    a. District and Ward Based Child Health
    b. Forums to be established and functional
    c. Door to Door Visits with NGOs to identify vulnerable children in households and intervene early
    d. Strengthening of PHC Clinics (Expedite the roll-out of the Ideal Clinic Model to all PHC facilities in the province)
    e. Strengthening transport systems especially inter-facility maternity and neonatal emergency transport
3. Norms and Standards:
    a. Establish national Neonatal/ Paediatric norms and standards for staffing, equipment and infrastructure
4. Essential Packages of Care:
    a. Ensure implementation of essential packages of care for all levels of care
5. Data management and research:
    a. Flow of data to be in line with DHMIS policy
    b. Data management to be a Key Performance area for all managers at all levels of care
    c. Incorporate data and outreach in research projects

6. Communication:
    a. Strengthen MomConnect strategy in the province
    b. Ensure proper vertical dissemination of information
    c. Establish comprehensive data base of all health care workers according to occupational category i.e. Midwives, Paediatric Nurses, Critical Care nurses, Primary Health Care Nurses etc.
7. Accountability:
    a. Lines of accountability to be specified at all levels of care
    b. District managers and CEOs to be accountable for the implementation of MNCWH&N programs
8. Monitoring and Evaluation:
    a. Enforce the use of data for decision making
    b. Use of dashboards to be internalized to track performance of programs
9. Funding:
    a. PHC expenditure per capita must be increased in line with national norms
    b. Funding to be in line with zero based budgeting at every level of service delivery
    c. Geographical and socio determinants should be considered when budget is allocated
    d. Backlog in infrastructure, staffing and equipment should be corrected.
10. De-centralization of authority:
    a. Some executive powers to be delegated to institutional/district level (e.g appointments, purchasing of equipment etc.)

GAUTENG PROVINCE

SUMMARY

- *Gauteng province is the smallest, most densely populated urban province in South Africa.*
- *The residents of the province have good access to piped water, safe sanitation and electricity supply. But there are interruptions and inequalities in the provision of these services.*
- *The primary health care utilization rate for under five year old children is well below the national target.*
- *The immunization rate for children under one year old is above targets, but this may be spurious.*
- *The PMTCT programme has performed well with all district reaching the national target of maternal to child transmission of HIV below 5% and three districts reaching the 2016 target of below 2%.*
- *The province has the highest number of registered under five year old deaths, with an IMR of 38.8 and U5MR of 42.9 per 1 000 which are both above the national average. The U5MR has been declining since 2007, but not at a rate fast enough to meet the 2015 MDG goals.*
- *More than half of under-five year olds die at home, a notable finding in a highly urbanised province.*
- *Only five hospitals use child PIP for mortality audit.*
- *Major causes of child death are neonatal, congenital abnormalities, non-natural, diarrhoea and lower respiratory tract infections.*

DEMOGRAPHIC AND SOCIAL PROFILE OF GAUTENG PROVINCE

Gauteng province is a densely populated urban area with 12.3 million people living in an area of 18 179km^2 and a population density of 680/km^2.[10] By 2014 the mid-year

[10] StatsSA. Census 2011.

Kibirige D, Wray C. Mar-2014-Gauteng-sized-population in South Africa. http://www.gcro.ac.za/maps-gis/map-of-the-month accesses 01 Oct 2014

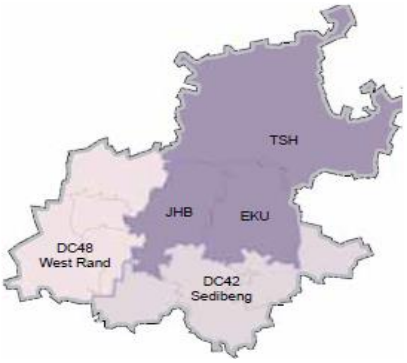
population estimate has grown to 12 728 438 people.[11] The Gauteng population contributes to 23.9% of the South African population, with 8% of the population under the age of one year and 23% under the age of five years.

In 2013, the adult literacy percentage was 97.8% with only 2% of population having no formal education. The percentage of individuals covered by a medical aid scheme has grown from 26.6% in 2010 to 29.3% in 2013. Just under a fifth (19.3%) of people live in informal dwellings, 83.6% are connected to electricity, 95.9% have access to piped water and 94.8% have access to safe sanitation. Some 17.3% of individuals are social grant beneficiaries.[12]

Almost half (45.5%) of the Gauteng population live under the upper bound poverty line of R620.00 p.m., a fifth (20.2%) survive under the food poverty line of R321p.m. (also referred to as extreme poverty).[13] In the second quarter of 2014 the unemployment rate in Gauteng was 25.5% with men at 23.8% and women higher at 27%.[14]

HEALTH SERVICES

Gauteng province had six districts until 2009, when Metsweding district was absorbed into City of Tshwane district, leaving Gauteng with five districts as shown below.



Tshwane is the largest district although Johannesburg metro has the highest number of people.

In 2013 there were a total of 362 clinics, 32 CHC, 13 district hospitals, 9 regional hospitals and 6 central or tertiary hospitals. The central hospitals are located in Tshwane and the Johannesburg district.

[11] StatsSA. 2014 mid year population estimates. www.statssa.gov.za Accessed 01 Oct 2014

[12] StatsSA. General household survey 2013.

[13] StatsSA. Poverty trends in South Africa. An examination of absolute poverty between 2006 and 2011. StatsSA 2013. www.statssa.gov.za Accessed 01 Oct 2014

[14] StatsSA. Quarterly labour force survey:Q2 2014

Table 46: Selected Health Care Indicators for the Gauteng Province, 2011.

GAUTENG 2011 SELECTED INDICATORS	SOUTH AFRICA	GAUTENG PROVINCE	JOHANNESBURG	TSHWANE	EKURHULENI	SEDIBENG	WEST RAND
Top 5 causes of death in children U5		1. Neonatal 2. Congenital abnormalities 3. Non- natural 4. GIT (Diarrhoea) 5. Influenza/ARI/LRTI					
NNMR	11.2	15.1	19.9	9.8	15.4	17.1	18.1
Infant Mortality Rate	24.4	33.8	32.3	23.6	35.6	39.7	39.5
Under 5 Mortality Rate	38.5	42.9	39.4	33.6	44.0	50.8	51.2
% of child deaths occurring within the health services	45.5	43.9	44.5	48.4	37.8	52.8	43.5
% of child deaths where severe malnutrition was present	31.2		27	17.6			41.2
% of child deaths where child was HIV positive or exposed	39.1		45.2	31.1			41.2
In-hospital case fatality rate:							
Diarrhoea	4.0	5.0	8.8	1.1	6.1	7.0	4.2
Pneumonia	3.7	5.7	3.3	2.5	6.2	12.0	0.8
Malnutrition	12.0	12.5	21.2	10.1	14.3	21.3	1.1
Death in <24 hrs	30.5	37.7	37	37.8			47.1
PCR coverage	100.6		105.9	89.3	84.9	86.9	81.1
N^{o} of children on ART	148 342						
Immunization coverage at 1year	83.8		109.9	99.8	102.4	123.3	121.9
Hospitals doing Child PIP	184		3	2			1

The majority of non-natural causes of death were due to other external causes or accidental injuries.

HOSPITAL SERVICES

Bed utilization rate (BUR) ranges from 71.2% at Tshwane district to 85.9% at Ekurhuleni in the year 2013. Tshwane district has the lowest BUR ranging from 68.4% to 71.2% in the period between 2009 and 2013. Ekurhuleni has the highest BUR ranging between 81% and 85.5% in the same period. The average length of stay (ALOS) in each district between 2009 and 2013 is shown in Figure 34.

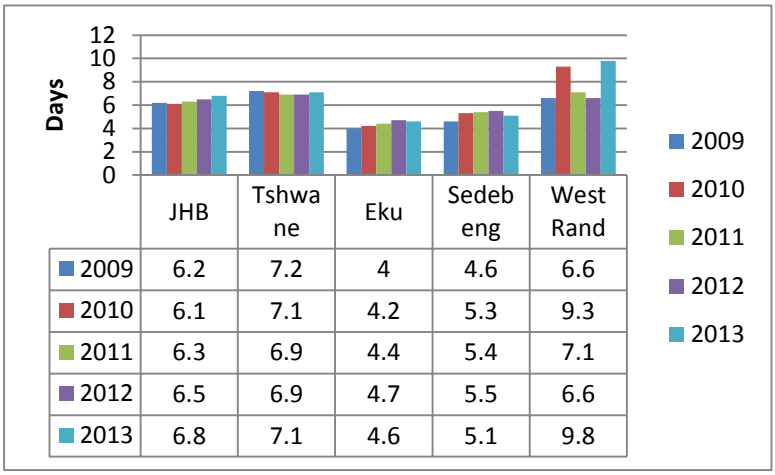


Figure 34: Gauteng, Average Length of Stay per district, 2009 - 2013.

The ALOS in the year 2013 varies between 4.6-9.8 days. West Rand district does not have tertiary or central hospital, but has the highest ALOS throughout the years 2009 to 2013. This may reflect poor quality of care or limited access to tertiary services.

PHC SERVICES

PHC utilization rate (PHCUR): The district PHCUR varies widely as shown in Figure 35. Ekurhuleni, Sedibeng and West Rand district show a rising trend from the year 2009 to 2013, with West Rand above the national target of 5.5 PHC utilization rate. Tshwane and Johannesburg district PHC utilization rate has remained below 4 in the period between 2010 and 2013.

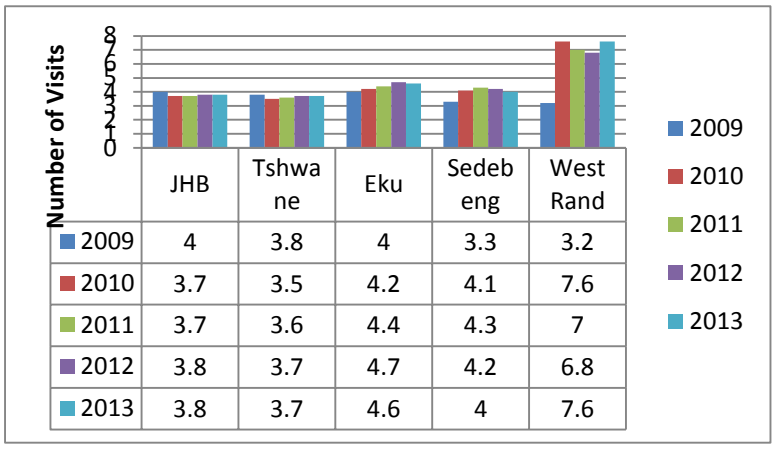


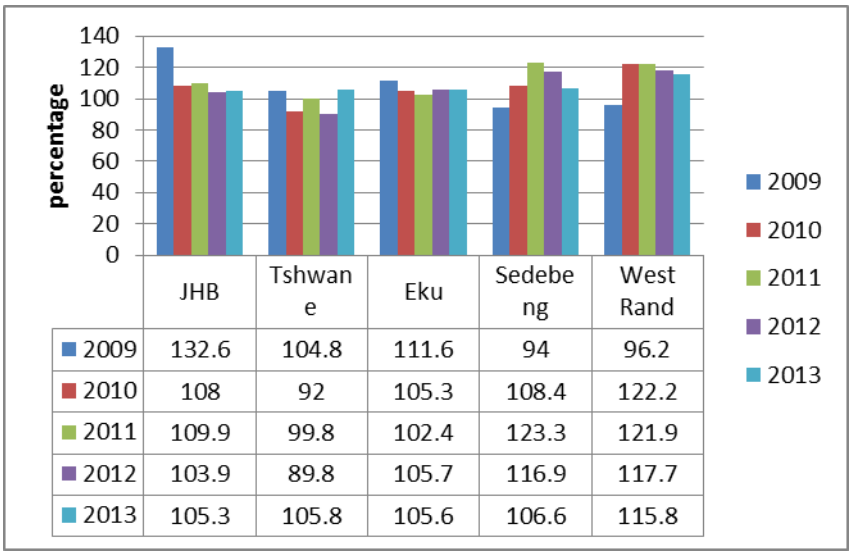
Figure 55: Gauteng, PHC utilization rate, 2009 - 2013.

Exclusive breast feeding: The percentage of babies who are EBF around 3 months ranges from 6.5% to 34% (Tshwane 6.5%, Ekurhuleni 7.8%, Johannesburg Metro 11.3%, West Rand 17.8% and Sedibeng 34%).

PROGRAMMES

Immunizations

Rotavirus and Pneumococcal vaccines were introduced in 2009 as part of the Expanded Programme on Immunization (EPI) schedule in South Africa. By 2013 the immunization coverage of the two vaccines was over 95% in all of Gauteng districts. Children who are fully immunized at one year has remained over 100% in the period between 2010 and 2013, in all districts in Gauteng except Tshwane District as shown in Figure 36. These high immunization rates are likely to be spurious and reflect population under-estimates (i.e. the denominators are too low). There is high in-migration to the province both from within and outside South Africa. The DPT-measles drop-out rate is acceptable at 3.5%.

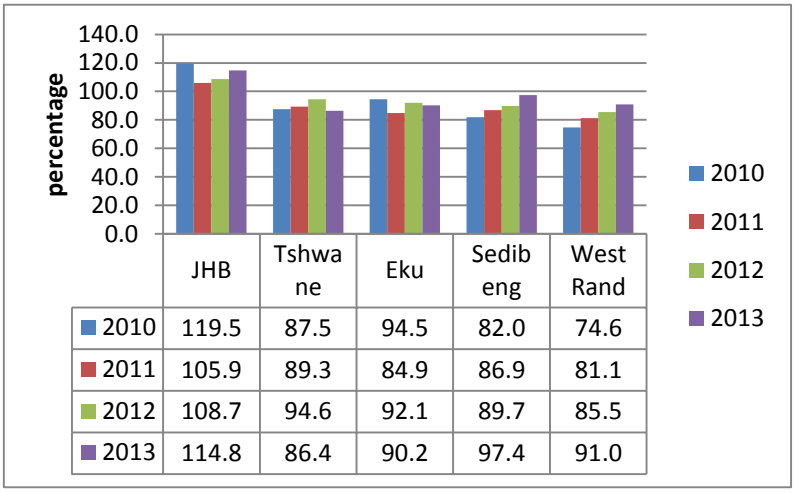


	JHB	Tshwane	Eku	Sedebeng	West Rand
2009	132.6	104.8	111.6	94	96.2
2010	108	92	105.3	108.4	122.2
2011	109.9	99.8	102.4	123.3	121.9
2012	103.9	89.8	105.7	116.9	117.7
2013	105.3	105.8	105.6	106.6	115.8

Figure 36: Gauteng, Fully immunized at 1 year, 2009 – 2013.

PMTCT programme

PCR coverage in the period between 2010 and 2013 has steadily increased in Sedibeng and West Rand district, while in the other three districts the coverage in 2013 is less than in 2010 as shown in Figure 37. In the year 2013 Tshwane district had the lowest PCR coverage at 86.4%.



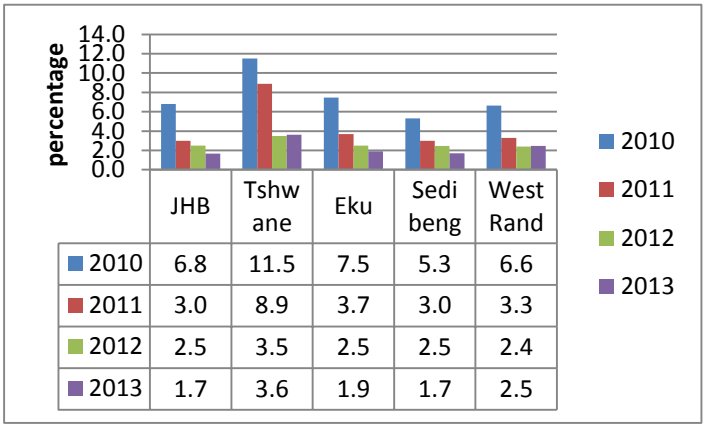
	JHB	Tshwane	Eku	Sedibeng	West Rand
2010	119.5	87.5	94.5	82.0	74.6
2011	105.9	89.3	84.9	86.9	81.1
2012	108.7	94.6	92.1	89.7	85.5
2013	114.8	86.4	90.2	97.4	91.0

Figure 37: Gauteng, PCR coverage, 2010 – 2013.

The percentage of children testing HIV positive at 2 months in the period between 2010 and 2013 has decreased in all districts, ranging between 1.7% and 3.6% (Figure 38). The decline concurs with the PMTCT impact study done in 2010.[15] The Johannesburg Metro has the highest percentage decrease from 2010 to 2013 at 75.4% followed by Ekurhuleni (74.8%), Tshwane (68%), Sedibeng (68%) and West Rand at 63%. All districts reached 2011 NSP target of MTCT of HIV of <5 %, while Sedibeng and Johannesburg metro district have already reached the NSP 2016 target of below 2%.[16]

[15] Goga AE, Dinh TH, Jackson DJ for the SAPMTCTE study group. Evaluation of the Effectiveness of the National Prevention of Mother-to-Child Transmission (PMTCT) Programme Measured at Six Weeks Postpartum in South Africa, 2010. South African Medical Research Council, National Department of Health of South Africa and PEPFAR/US Centers for Disease Control and Prevention. 2012.

[16] National Strategic plan for HIV and AIDS, STIs and TB, 2010-2016



	JHB	Tshwane	Eku	Sedibeng	West Rand
2010	6.8	11.5	7.5	5.3	6.6
2011	3.0	8.9	3.7	3.0	3.3
2012	2.5	3.5	2.5	2.5	2.4
2013	1.7	3.6	1.9	1.7	2.5

Figure 38: Gauteng, PCR positive at 2 months, 2010 – 2013.

MORTALITY

In 2011, a total of 8 330 under five children died in Gauteng as registered in vital statistics. Just over 52% of the registered deaths were male and more than half (56.1%) of deaths occurred outside the health facilities.

IMR and U5MR

The IMR and U5MR trend shows a decline from period of 2007 to 2011 (Figure 39).

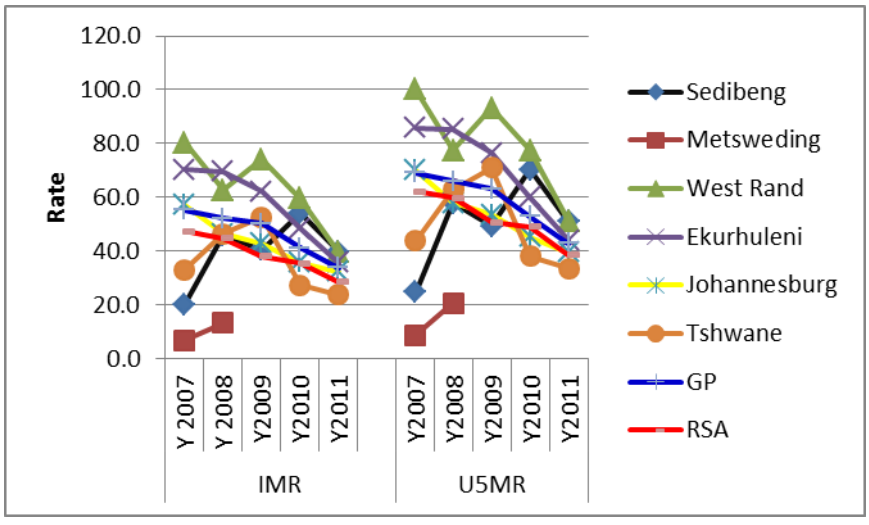
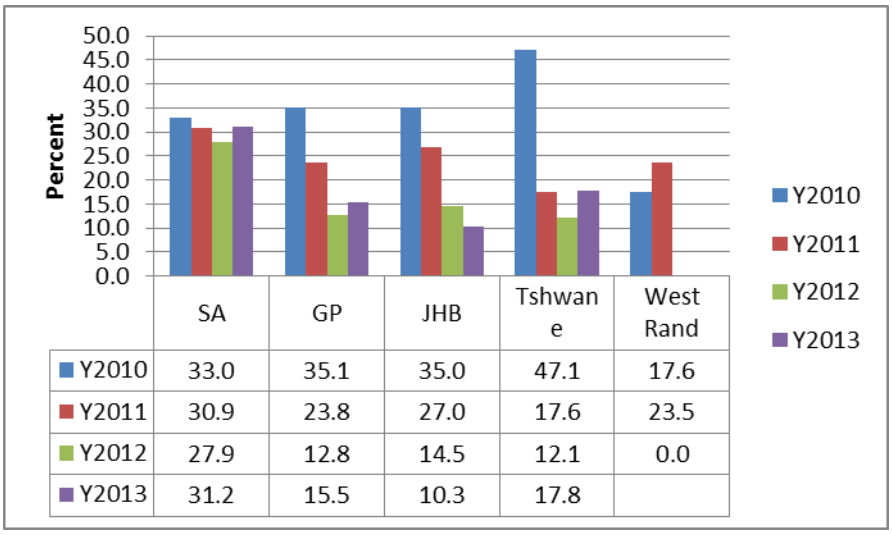


Figure 39: IMR and U5MR in Gauteng, 2007 - 2011.

Tshwane district is currently ranking number one in Gauteng for both the IMR and U5MR although the district ranks at 17 (IMR) and 19 (U5MR) nationally. This is a decline from a previous national ranking of 10 for both IMR and U5MR. In all districts, except Tshwane, IMR and U5MR are above the national average.

Child PIP

The child PIP data in Gauteng is not representative as only five hospitals submitted child PIP in 2011 and four in 2014. Child PIP data indicate that high numbers of children who die are severely malnourished (Figure 40). Severe malnutrition remains a significant underlying cause of death.



	SA	GP	JHB	Tshwane	West Rand
Y2010	33.0	35.1	35.0	47.1	17.6
Y2011	30.9	23.8	27.0	17.6	23.5
Y2012	27.9	12.8	14.5	12.1	0.0
Y2013	31.2	15.5	10.3	17.8	

Figure 40: Gauteng, Child PIP severe malnutrition, 2010 – 2013.

The percentage of deaths attributed to HIV in Gauteng has declined from 51% in 2010 to 29% in 2013. This decline is due to the gains achieved through the PMTCT and ART programmes. In Gauteng 29% of children died within 24 hours of admission in 2013.

The identified modifiable factors (MF) were mostly believed to exist in the ward and at home (Table 47). The overall modifiable factor rate per death in Gauteng has declined from 1.6 in 2010 to 0.6 in 2013.

Table 47: Modifiable factors identified, 2013.

LOCATION	MODIFIABLE FACTOR
Referral facilities, emergency department, ward	Inadequate assessment, monitoring of children with dehydration, shock and pneumonia Severity of child condition not recognized Priority and emergency signs not recognized Lack of ICU beds
Clinic/OPD	In adequate assessment of HIV Children not referred for ART
Caregiver	Caregiver did not recognize danger signs or severity of the illness Delayed seeking care

Causes of death

The major recognised causes of death in 2011 were neonatal conditions, congenital abnormalities, non-natural, diarrhoea and pneumonia (Table 46).

DISCUSSION

Social determinants of health are still major contributors to child mortality in Gauteng, despite its status as the wealthiest province in the country. Although access to piped water in Gauteng is good, 8.3% of households reported water interruption for more than 2 days at a time.[17] Persistently high poverty levels contribute malnutrition in children, as does the high HIV burden.

A major concern when interpreting any Gauteng data where the denominator involves population estimates is the reliability of the estimates. This includes mortality, immunisation and PMTCT statistics. It is likely that there is an undercount of children in the province resulting in overly optimistic coverage statistics, but also unduly negative (falsely higher) mortality rates.

During the period 2008-2014 some hospitals classification were changed to higher levels of care without allocated funding to meet the increased functional demands. This affected service delivery.

[17] StatsSA. General household survey 2013.

A fundamental building block of the health system is leadership and governance. Leadership in Gauteng has been unstable during the review period with frequent changes of both MECs and HODs. This has undoubtedly negatively influenced health system performance. The introduction of DCSTs has focussed attention on districts and MCH needs, but there is limited evidence of their effectiveness so far. Much of this is because of their limited powers to extract accountability, and their brief being reserved to the district level, rather than engaging with all levels of care.

One of the modifiable factors identified is the unavailability of paediatric ICU beds when needed. Although Gauteng bed utilization rate does not appear high, there are inadequate numbers of available ICU, high care and neonatal beds. Neonatal units exceed their capacity most of the time, while some district hospitals do not have neonatal beds.

More than half of children die at home and just below a third die within 24 hours of admission. This points to poor access to health care being a likely determinant, while failure by caregivers to recognise and respond to the severity of a child's illness and poor transport systems as additional factors. These require further study and response.

RECOMMENDATIONS

Improve access to health services for children in Gauteng through:

- Research on why children continue to die at home.
- Improve the availability of emergency transport to hospital with short response time.
- Increase the available neonatal beds in the province by getting all district hospital to provide a basic neonatal care service.
- Increase paediatric and neonatal ICU beds
- Support and co-ordinate the WBOT programme, so that community health care workers are able to intervene when doing the home visits.

Improve quality of health care provided for children through:

- Death auditing using Child PIP. There has to be greater buy-in from all hospitals in the province.
- Supportive supervisor visits to the clinic

- Training of health care workers in IMCI and emergency care of child, with a requirement that these skills be applied on return to their service

Improve nutrition of children:

- Improving nutrition needs an integrated multi sectorial approach involving NGOs, and the department of social development and agriculture to name two.
- Support women to exclusively breastfeed through home visits by community health care workers.

Leadership and governance:

- Empower the DCST to work across all levels of care and not only at the district level.

KWAZULU-NATAL PROVINCE

SUMMARY

- KwaZulu-Natal is the second most populous province in the country with an estimated 10.1million people with approximately a third of the population under the age of 15 years of age.
- The province is characterized by a wide spectrum of social and economic status, with both some of the most deprived and affluent districts in the country.
- The utilization of health services has globally increased over the period of review, particularly PHC utilization.
- Despite a resource-constrained environment and a considerable burden of disease (particularly HIV), KZN province has made significant progress in reducing the morbidity and mortality in children.
- A major contributor to the improvement is the reduction of mother to child transmission of HIV.
- A number of systems indicators as well as socio-economic indicators point to considerable challenges that remain in improving the health of children.
- The pattern of the causes of mortality have not significantly shifted over the period, with gastroenteritis, pneumonia still causing the majority of deaths in children in KwaZulu-Natal.

DEMOGRAPHIC & SOCIAL PROFILE OF THE PROVINCE

The province of KwaZulu-Natal is situated on the eastern seaboard of the country, and shares boundaries with Mozambique and Swaziland in the north, Mpumalanga and Free State Provinces as well as Lesotho in the Northeast along the natural escarpment of the Drakensberg mountains and with the Eastern Cape Province in the South. KwaZulu-Natal has 9 district municipalities and one Metro.

KwaZulu-Natal is the second-most populous province in South Africa with an estimated 10.1million inhabitants. A large proportion of the population of KwaZulu-Natal are children, with more than 10% under 5 years of age and 32% of the population under 15 years of age. Over the period of the report, the under-5 and under-1 year populations in the districts have stabilized with little change over time.

The metropolitan area of Durban is the second largest economic hub in the country and has the busiest container terminal harbour in Africa. Ethekwini metro is considered to be

the 10th least deprived district in the country (out of 52 districts).[18] Yet, at the same time at the provincial level analysis, KwaZulu-Natal is the 4th most deprived province in the country and includes 4 of the 10 most deprived districts in the country, indicating a high degree of internal inequity.[18]

Household income & municipal services

Particularly in areas that were ex-homeland (KwaZulu) a high degree of reliance on migrant labour as well as grants is evident. It is also noted that in these areas there is a decreasing reliance on subsistence farming, posing challenges for food security and nutrition within households. At the same time, many of the more rural municipalities face significant challenges in service provisioning due to on the one hand historical issues of capacity and existing infrastructure, but also the challenge of providing services to dispersed populations. From the 2011 census data, eThekwini only had 6.4% of people without access to potable water within 200m, while Umkhanyakude and Harry Gwala districts both had approximately 50% of their populations without access to potable water within 200m.[19]

Educational levels

Education levels follow a similar pattern, where in eThekwini 14.7% of adults (18-65) have no secondary schooling, while in Umzinyathi district it is 40.3% for the same indicator. It is clear that the challenges of rural communities, specifically of dispersed and mobile populations, do not only affect the delivery of health care only, but also education.

[18] Noble M, Zembe W, Wright G, Avenell D. (2013). Multiple deprivation and income poverty at small area level in South Africa in 2011. *Cape Town: SASPRI*.

[19] StatsSA Census 2011.

HEALTH SERVICES

Private health care

An important indicator regarding the coverage of health care provisioning by the private sector is the level of coverage of the population with medical aid. The proportion of the population on medical aid in KwaZulu-Natal was 13.1%, ranging from 3.9% in the rural Umkhanyakude district to 20.5% in the eThekwini Metro. The rural-urban misdistribution is evident. It needs to be noted, however, that medical aid cover is a poor indicator of the actual utilization of private health care with many from uninsured populations making use of cash-practices throughout the geographic spectrum from rural to urban.[20]

Over the period of the report, the KZN Department of Health has also been under considerable financial strain, starting off with a massive deficit of roughly R2.5billion, but have managed to decrease this substantively. Balancing the challenge of adequate service delivery and improving services within a context of avoiding a financial catastrophe takes considerable planning and leadership. There are important lessons to be learnt regarding the process of improvement of services in the context of fiscal constraints that need to be explored further.

Number of facilities

The number of PHC clinics increased from 567 in 2009 to 654 in 2013 and the number of CHC's increased from 17 to 19 in the same period. The coverage of clinics has improved considerably, particularly in rural areas. The province has 40 district level hospitals, 13 regional hospitals and 3 tertiary and central hospitals. In Umzinyathi district, for instance, while it is ranked the most deprived district in the country, has high PHC utilization rates and good coverage of PHC services throughout the district.

[20] Gaede B, Versteeg M. (2011). The state of the right to health in rural South Africa. *South African Health Review, Durban: Health Systems Trust*

KwaZulu-Natal **2011** **Selected indicators**	**South Africa**	**KwaZulu Natal Province**	**Ugu**	**uMgungundlovu**	**Uthjukela**	**Umzinyathi**	**Amajuba**	**Zululand**	**Umkhanyakude**	**Uthungulu**	**iLembe**	**Harry Gwala**	**eThekwini**
Top 5 causes of death		1. Diarrhoea / GIT 2. Septicaemia 3. Pneumonia 4. 'other nutritional' 5. Non-natural causes (6.7% of deaths)											
NNMR	11.2	10.7	10.7	9.1	13.9	11.3	9.2	10.0	6.0	13.7	17.8	12.7	8.4
Infant Mortality Rate	28.4	25.4	29.6	22.4	31.1	29.2	24.8	32.0	16.2	27.1	39.1	28.1	17.2
Under 5 Mortality Rate	38.5	35.0	45.1	30.2	43.8	41.6	32.2	43.4	23.5	35.1	52.8	38.6	23.0
% of child deaths occurring within the health services	45.5	55.1	53.9	50.6	48.3	53.4	49.3	63.5	55.1	64.0	62.2	49.8	61.4
% of child deaths where severe malnutrition was present	31.2	28.7	50.0	29.4	30.8	33.3	22.4	12.7	15.4	21.3	43.8	43.3	24.2
% of child deaths where child was HIV positive or exposed	39.1	42.5	43.8	36.9	46.9	37.0	24.5	46.8	55.6	40.2	41.1	49.2	43.0
In-hospital case fatality rate:													
Diarrhoeal disease	4.0	3.6	4.5	4.5	8.4	4.0	4.7	11.0	2.6	11.3	7.8	5.7	2.8
Pneumonia	3.7	2.9	3.5	3.5	4.4	10.7	2.3	7.0	5.6	5.6	2.6	4.4	2.0
Severe malnutrition	12.0	10.8	22.1	22.1	21.7	18.3	12.7	17.2	5.8	8.7	10.9	16.9	3.5
PCR coverage	100.6	103.6%	106.8	101.5	128.9	119.8	122.9	110.1	123.8	77.6	116.0	110.8	93.8
N^{o} of children on ART	148 342	388	51	30	19	-	-	-	41	47	-	64	109
Immunization coverage at 1year	83.8	86.1%	70.9	70.1	82.7	87.8	69.3	79.3	77.9	78.8	77.3	84.9	108.8

Table 48: Selected Health Care Indicators for the Kwa-Zulu Natal Province.

DISCUSSION

The pattern of the causes of deaths of children has not changed significantly in KwaZulu-Natal over the reporting period and also reflects a similar pattern to that of the country as a whole. The population of children under 5 years and under 1 year of age has stabilized over the period under review. This is a positive development after many years of worsening mortality rates that decimated the population of children due to HIV, both in terms of directly being infected as well as the vulnerabilities and increased mortality among the mothers of the children. The success of the PMTCT program as well as the ARV roll out to adults (thereby significantly prolonging the life of parents) has had a dramatic effect. The vertical transmission of HIV has been drastically reduced in all districts and the largest drop of vertical transmission rates is noted in eThekwini where the positivity rate dropped from 12% to 1.8%. Umzinyathi district has the lowest rates at 1.4%, however in Ugu, iLembe and Umkhanyakude districts the transmission rates are still above 2%. Significantly, the decrease of vertical transmission was independent of demographic, socio-economic or geographical factors. The success story in KwaZulu-Natal of the implementation of the PMTCT program is particularly significant as KZN has achieved some of the lowest mother-to-child transmission rates in the country in the context of some of the highest antenatal HIV positivity rates in the country (and the world) of up to 39%.

However, the number of children initiated on antiretroviral therapy remains fairly low in all the districts and a concerted effort is required to keep the PCR positive children in care.

An area of particular concern regarding the service delivery in KwaZulu-Natal is the immunization coverage, which is below target in all the districts, except in the eThekwini Metro. The lack of improvement of coverage of immunization in most districts is of concern and particularly in the Umzinyathi district there has been a downward trend over the past 2 years. Not meeting the target for immunization is of concern also in the context of gastroenteritis and pneumonia which are still among the top 3 leading causes for mortality in children under 5 years of age.

Regarding malnutrition, in Ugu and Umkhanykude districts severe acute malnutrition (SAM) has increased over the years. However, the case fatality rate of SAM is increasing in Amajuba, Umkhanyakude, Zululand and uThungulu. The case fatality rate also remains high in Ungungundlovu and uThukela districts. The continued influence of malnutrition on the morbidity and mortality in children indicates the need for considerable work to be done in terms of prevention by addressing up-stream causes of malnutrition, such as poverty, deprivation and educational status of women and children, as well as the quality of care that

children received (from the community and PHC clinic level) in identifying children at risk, as well as appropriate referral and management of malnutrition and severe acute malnutrition.

The incidence of diarrhea has decreased significantly in all the districts during the reporting period. The combination of factors such as decreases in HIV prevalence in children, rotavirus immunization and improvements in sanitation and water supply have contributed to this success. The major success of increasing exclusive breastfeeding rates – it has more than doubled fold in majority of the districts, with the highest increase noted in Umzinyathi, where there is almost four-fold increase - will have contributed to the decrease of the incidence of diarrhea in infants. The CFR's due to diarrhea have improved in all the districts, with slow progress in Umgungundlovu district. In spite of an initial decline in Umkhanykude district, CFR has started to increase in the past two years. The implied improved management of diarrhea is noted, with localized areas of concern.

Projects to improve services

The considerable variability of health care indicators across districts, indicate varying levels of capacity to implement health care services for children. A wide range of processes and projects, both by the Department of Health as well as partner organizations, have focused on the improvement of health of children in the province and their efforts needs to be noted.

The quality of data has improved over the years, yet a number of areas are difficult to analyse due to unreliable data. Differences in data from different sources indicate incomplete and/or inaccurate data. Data could be improved by linking the data to both to clinical decision making processes as well as the management of services. The quality of data is still an ongoing concern, including the reliance on routinely collected data which in many instances is of poor quality.

RECOMMENDATIONS

- The importance of quality of data in managing and improving the services is central and remains a source of concern.
- Immunization, as a key preventative intervention, needs to be strengthened.
- A concerted effort is required to strengthen health systems and to improve clinical governance to prepare the province for the national health insurance, and for this to make a positive impact on children.

LIMPOPO PROVINCE

SUMMARY

- *Limpopo is a large mainly rural province*
- *Socio economic status has improved, most houses have electricity, however only half the houses have piped water on site, but 14% have no access to piped water at all, and 7% no sanitation at all.*
- *Primary health care utlisation is good with 5 – 6 visits a year, however the immunisation coverage is dropping, and the Vitamin A coverage for children 1 – 5 years is low.*
- *Health status has improved, HIV transmission at 6 weeks has declined to 2.5%, and more children are on ARV treatment.*
- *Mortality rates have declined significantly over the last 5 years, and the U5 MR as calculated by Stats SA for 2011 is 33,5 but using 2011 Census data is 42. This is the second lowest provincial U5MR in the country.*
- *Deaths from diarrhoea and pneumonia have declined, as a result neonatal deaths are now the leading cause of under five deaths, followed by diarrhoea, pneumonia and unnatural deaths*

DEMOGRAPHIC & SOCIAL PROFILE OF THE PROVINCE

According to the 2011 Census data Limpopo had 119 352 births, and 787 469 children under 5 making up 14.6% of the population and 1 835 012 children under 15 making up 34 % of the population.

Most of the population (89.8%) live in formal houses, 88.5% have a cellphone, and 70.9% have a television set in the house. Electric lighting is used in 87.3% of houses. Only 52.3% of households have piped water, this varies from 70.6% in Capricorn to 40.1%. In Sekhukhune 24.8% of households have no access to piped water at all. There is no sanitation in 7.2% of households, with Mopani district having the most households that lack sanitation at 12.5%. Although most of these indicators are worse than other provinces, there has been an improvement in all indicators.

The Average household income is R56,841 a year, and the average income per person is R15,362, this is highest in Waterberg at R20,691.71 and lowest in Sekhukhune at R11,494.25.

Women head 50.4% of households and in 1.4% there is a child headed household. The rate of unemployment is 39.5%, this is highest in Sekhukune at 51.6% and lowest in Waterberg at 28.8%. 81.1% of the 5-24 year old age group currently are in formal education.

HEALTH SERVICES

The majority of the population utilise the public health service, as only 8,2% of the population have medical aid coverage, compared to the average for the country of 16,4%.

The provincial government is responsible for health services. They coordinate services, and also support district health services that are run from the 5 district health offices, Vhembe, Mopani, Greater Sekhukhune, Capricorn and Waterberg. The districts are responsible for the 460 primary health care clinics and 27 community health centres and 30 district, and 5 regional hospitals.

There are 2 designated tertiary hospitals Pietersburg and Mankweng Hospital both in Capricorn where services are delivered as a single complex. Where tertiary and quaternary services are not available patients are referred to Gauteng. The required services are not always easily accessed.

The PHC utilisation rate for children under 5 is between 5 and 6 visits per year, in all districts except Waterberg where it is between 3 and 4 visits. The Paediatric bed utilisation rate is 60 – 75%, with the average length of stay in hospital being between 4 and 7, 5 days, varying quite significantly between districts. Capricorn has the highest ALOS possibly because of the tertiary services. Neonatal bed utilisation is not available, as the DHIS does not collect admission data for newborns.

DATA AND INDICATORS

Table 49 provides data for Limpopo including the 5 districts from a variety of sources, for the year 2011. The Stats SA data is currently available only up until 2011. This table allows comparisons between different data bases, as well as comparison between different districts.

Table 49: Selected Health Care Indicators for Limpopo Province

LIMPOPO 2011 Selected indicators	SOURCE	SOUTH AFRICA	LIMPOPO PROVINCE	CAPRIRCORN	GREATER SEKHUKHUNE	MOPANI	VHEMBE	WATERBERG
Top 5 causes of death	StatsSA	1. Neonatal 2. Diarrhoea 3. Ill defined 4. Pneumonia 5. Non-natural						
Population	StatsSA	51 579 603	5 388 122	1 245 378	1 076 936	1 092 270	1 290 419	683 119
U5 Population	StatsSA	5 280 054	616 598	146 468	115 860	115 735	154 331	84 204
U15 Population	StatsSA	1 742 961	179 9999	427 677	357 693	345 788	441 209	22 7632
Annual Births	StatsSA	985 727	125 585	3 3208	1 9231	2 6970	2 9665	1 6511
U1 Deaths	StatsSA	27981	2727	600	382	637	556	343
Hospital U1 deaths*	DHIS*		1648	544	369	275	331	149
U1 Deaths 2011	Census		3913					(1,43 X Stats SA data)
U5 Deaths	StatsSA	37908	4204	903	668	933	877	482
Hospital u5 deaths*	DHIS*		1885	597	354	319	407	208
U5 deaths 2011	Census		5305					(1,26 X Stats SA data)
Infant Mortality Rate	StatsSA	28,4	21,4	18,1	19,9	23,6	18,7	20,8
Under 5 Mortality Rate	StatsSA	38,5	33,5	27,2	34,7	34,6	29,6	29,2
Infant Mortality Rate 2011	Census		31					
Under 5 Mortality 2011	Census		42					
% of U5 child deaths occurring within the health services	StatsSA	45,5	41,7	41,3	32,9	43,3	52,1	38,2
% of child deaths with severe malnutrition	Child PIP	31.2	44,1	37,5	28,6	NA	55,9	44,7
% of child deaths who HIV positive or exposed	Child PIP	39.1	40,8	41,7	35,7	NA	40,7	42,1
DD deaths	DHIS		283	41	55	76	62	49
Diarrhoeal disease CFR	DHIS	4.0	9,5	13,5	6,9	10,9	7,8	8,6
Pneumonia deaths	DHIS		308	71	38	81	67	51
Pneumonia CFR	DHIS	3.7	10,4	11,1	8,4	11,5	11	12,2
SAM deaths	DHIS		285	46	33	67	72	67
Severe malnutrition CFR	DHIS	12.0	22,9	28,3	17,1	28,3	22,1	19,9
PCR coverage	DHIS		91,5	99,4	102,3	91,5	65	98,5
N° of children on ART	DHIS	148 342	10 329	2 013	1 805	2 831	2 130	1 550
Immunization coverage at 1year	DHIS	83.8	74,6	74,9	65,3	86,3	85,4	57,1
Vitamin A coverage@1yr	DHIS		93,8	91,5	81	108,3	96,9	87,1
Vitamin A coverage 1 – 5	DHIS		40,8	38,2	42,5	41,2	39,5	40,6
Paediatricians in public			9	8	0	0	0	1
Households electric lights	Census		87,3	85,4	86	88,7	87,2	86,7
Household Piped water site	Census		52,3	62,2	40,1	50,4	43,5	70,6
Households no piped water	Census		14	10,8	24,8.	15,8	11,7	5,7
Households no sanitation	Census		7,2	9,6	5,1	12,5	8,9	4

Table 50 provides comparative data for Limpopo for the years 2009 – 2013. The data is mainly sourced from the DHIS. This data shows the trends in the indicators for the last 5 years.

Table 50: Key data and indicators Limpopo 2009 – 2013.

	SOURCE	2009	2010	2011	2012	2013
Annual Births	Stats SA	115571	121 949	125 580		
Annual Births	DHIS	125 886	122 680	129 999	130 238	130 549
< 5 Population	Stats SA	623 325	606 965	616 598	629 124	635 780
< 15 Population	Stats SA	1 901 644	1 814 262	1 799 999	1 791 633	1 787 171
Immunisation coverage	DHIS	98,3	78,2	74,6	72,2	69
Paediatricians Public servic				8		12
DD Incidence	DHIS Ind		13,1	14,5	11,2	13,5
DD Cases	DHIS	9 694	7 956	8 917	7 036	8 595
DD Admission	DHIS	4 975	4 406	3 716	3 956	4 386
DD Deaths	DHIS	427	343	283	264	231
DD CFR	DHIS	8,6	7,8	7,5	6,7	5,3
Pneumonia Incidence	DHIS	70,7	49,6	49,2	37,9	35,3
Pneumonia Cases	DHIS raw	38 875	30 133	30 326	23 826	22 433
Pneumonia Adm	DHIS raw	5 055	4 518	5 027	5 060	5 891
Pneum Deaths	DHIS Raw	572	393	318	291	291
Pneumonia CFR	DHIS calc	11,3	8,7	6,3	5,7	4,9
SAM incidence	DHIS	6,2	3,7	4,1	4,0	4,0
SAM Cases	DHIS raw	2 184	2 256	2 539	2 508	2 550
SAM Admissions	DHIS raw	1 398	1 540	1 393	1 675	1 801
SAM Deaths	DHIS raw	320	393	285	287	300
SAM CFR	DHIS calc	22,9	25,5	20,5	17,1	16,6
% BF at 14 weeks		32.6				37,4
PCR	DHIS	100.6	68,1	83,9	88,1	97,1
PCR positive	DHIS		25,6	5,6	2,4	2,5
No newly initiated on ART	DHIS		1 638	3 053	2 705	2 991
Number of children on ART	DHIS	148 342	5 132	7 120	9 865	11 780
Neonatal Deaths	DHIS	1 466	1 393	1 568	1 667	1 647
< 1 Deaths	DHIS	3 570	1 782*	1 648*	1 858*	2 106
< 1 deaths	Stats SA	3 693	3 418	2727		
< 5 deaths	DHIS	4 130	3 573*	3 453*	3 971*	2 483
< 5 deaths	Stats SA	5 489	5 354	4204		
< 5 deaths Pn,D,Sam	DHIS	1 319	1 129	886	842	822

DISCUSSION AND TRENDS IN INCIDENCE AND CAUSE OF DEATH OVER THE LAST 5YEARS

The under-5 deaths and moratlity rates are declining. This is demonstrated in the Stats SA data with a decline from 5489 deaths in 2009 to 4204 deaths in 2011, and in the DHIS data that show a decline from 4130 deaths in 2009 to 2483 in 2013. Only 42% of under-5 deaths recorded by Stats SA occurred in a health facility, meaning that more than half of the deaths

occur outside the health facility, and probably at home. This varied from 37% in Sekhukhune to 52% in Capricorn.

The 2011 census data provide an opportunity to see what proportion of deaths is registered. The stats SA record of deaths under-1 are about 70% of the census number for children under-1 year and about 80% of the census data for children under-5. This suggests that there is 20 – 30% unreporting in the Stats SA data on deaths.

The IMR and Under-5 mortality rate calculated using Stats SA data in 2011 are 21.4 and 33.5 respectively. Using the census deaths the IMR and U5MR for 2011 is 31 and 42 respectively. This is the second lowest IMR and U5MR in the country.

The 5 main leading causes of death in children under five are neonatal causes, followed by diarrhoea, a category called ill defined, then pneumonia and non-natural causes. Neonatal deaths have overtaken pneumonia and diarrhoea as these have declined. The ill-defined group probably are probably represented by those who die at home. Non-natural deaths account for 6.4 % of deaths, and deserve more attention.

DHIS documents data from the health facilities. The data elements include neonatal deaths, deaths under-1 and deaths under-5, as well as the number of children under-5 dying of pneumonia, diarrhoea with dehydration and severe acute malnutrition (SAM). The number of deaths under-1 year and under-5 years are declining, but are not completely accurate due to confusion with definitions. These have been tightened up in the DHIS making the 2013 data more reliable.

There has been a decline in the incidence and deaths of under-5 year old children with pneumonia, and a decline in deaths due to diarrhoea, but no decline in either incidence or deaths from SAM. The decline in incidence and deaths from pneumonia and deaths from diarrhoea are probably a combined result of PMTCT, HIV care and treatment, IMCI and immunisation with pneumococcal vaccine.

The Diarrhoeal Disease incidence is higher in Limpopo than in other provinces and is probably related to the poor piped water supply with only 52.3% of households having piped ward on site and 14% of households have no access to piped water, and 7.2% having no sanitation.

The exclusive breastfeeding rate at 14 weeks is 37.4%. This number is still low but it is higher in some districts like Vhembe where it is 49.3%. The EBF rate for Sekhukune is 10%, this is perhaps inaccurate as the other districts have rates between 40 and 50%.

Child PIP audits were done in 7 hospitals in 2009 and in 21 hospitals in 2013. 440 deaths were audited in 2013. The leading cause of death in the 2013 Child PIP data was Pneumonia, Diarrhoea, Sepsis and Tuberculosis. There has been an increase in the percentage of children dying from tuberculosis. Of the children that died in 2013, 35.4% had SAM and 31.2% had Moderate Acute Malnutrition (MAM). 40% were HIV positive or exposed, however in 20% the HIV status was not known.

The leading modifiable factors found in the audited Child PIP deaths in 2013 in order of the frequency in which they were identified are as follows

Table 51: Modifiable factors identified by Child PIP.

DESCRIPTION	N°	CAUSES%
Caregiver delayed seeking care	164	10
Caregiver did not recognise danger signs/severity of illness	96	5.9
Child not provided with adequate (quality and/or quantity) food at home	91	5.6
`Traditional remedy` given from traditional healer, with negative effect on child	78	4.8
Lack of High Care and/or ICU facilities for children in own and higher level facility	68	4.2
Other administrator modifiable factor in ward	39	2.4
Inadequate history taken at A&E	27	1.6
Lack of experienced doctors at A&E	23	1.4
Inadequate rehydration plan at A&E	21	1.3
Inadequate revision of fluid management plan, despite child`s changing condition in ward	17	1
Inadequate hospital stock of essential consumables	17	1
Inadequate monitoring of respiratory rate and/or oxygen saturation in ward	17	1
Inadequate review of child with severe dehydration	16	1
Caregiver took child to clinic infrequently	16	1
Child`s growth problem (severe malnutrition, not growing well) inadequately identified or classified	16	1
Not classified as critcally ill despite presence of danger signs at A&E	15	0.9
Inadequate ward stock of essential consumables	15	0.9
Admission records incomplete or inappropriate	14	0.9
Danger signs missed due to inadequate monitoring in ward	14	0.9
Hydration not reviewed at A&E	14	0.9

The top 25% of modifiable factors are related to the care received at home. The perception of the health care worker is that there is a delay in care seeking, 164 cases, and in 78 cases a traditional remedy was given with a harmful effect on the child.

The care in casualty is also a problem as there are a high number of modifiable factors in casualty relating to the care of the child in casualty. These modifiable factors suggest that many of the deaths are avoidable.

Health programmes

The under-5 PHC utilisation rates are between 5 and 6 in all the districts except for Waterberg where it is between 4 and 5. Despite the high PHC utilisation rate the immunisation coverage has dropped from 98.3 % in 2009 to 69% in 2013. This may be due to large problems with stockouts of vaccines in the past 2 – 3 years.

The IMCI coverage in PHC is good with 78% of Professional nurses at PHC trained in IMCI and 93% of clinics having more than 60% of health workers trained.

The HIV programmes have been very successful with the PCR coverage increasing to 97% of HIV exposed children in 2013, and only 2.5% of exposed children testing positive at 6 weeks of age. The number of children on ART has increased and in 2013 there are 11,780 children on ART with 2,991 of them newly initiated in 2013. That means that 0.65% of all children under the age of 15 years are receiving antiretroviral treatment.

Health services

Bed utilisation for paediatric wards is 75%, which is adequate; however the situation for neonatal care is not adequate with generally insufficient beds and space for sick newborns and their mothers. As the DHIS does not count the number of newborns admitted and the number of neonatal beds, this is not documented through the DHIS.

There has been an increase in the number of Paediatricians in the province from 8 in 2009 to 19 in 2014. There are a number of Paediatricians in training in the province, so we anticipate that this number will continue to increase in the future.

The District Clinical specialist teams started working from the end of 2012. The teams have been incomplete but nevertheless it is hoped that their focus on clinical mentoring and ensuring implementation of key interventions in maternal and child health will result in improved care and a decline in the mortality in the district.

SUMMARY OF FINDINGS

From the data presented and the trends over the past 5 years, it can be seen that

1. More children under the age of 1 and 5 die outside the health facilities than in the health facilities.
2. Neonatal deaths are the leading cause of both hospital and total under-5 deaths.
3. In-hospital morality from Pneumonia and Diarrhoea has declined.
4. The incidence and deaths due to Severe Acute Malnutrition have not declined, and there is often inadequate action taken by the health workers when they find growth faltering.
5. Delayed care seeking and the use of traditional medication contribute to the death of many children.
6. There are many modifiable factors in the hospital care of children especially in the accident and emergency section.
7. Non natural deaths represent 6.5% of deaths and are now the 5th leading cause of death in children, as identified by Stats SA.

RECOMMENDATIONS

The following interventions are recommended:

1. Deaths outside the home:
    a. Engage with the key stake holders in the community in each ward to determine community perspectives on the health service, to identify the reason for delayed care seeking, and develop plans to address the challenges in the community and the health service.
    b. Set up a system to report all under-5 deaths occurring outside the home, and to conduct a verbal autopsy where feasible.
    c. Ensure that the ward based outreach teams cover all villages, visit in the first week after birth, and that they focus on the key priority interventions at household level, e.g. breastfeeding, hand washing, complementary feeding recognition of danger signs, home treatment and care seeking.
2. Neonatal deaths:
    a. Make parenteral steroids for use in premature labour available in each PHC facility and distribute a protocol for their administration all health workers.
    b. Improve intrapartum care through mentoring and support.
    c. Implement all aspects of Helping Babies Breathe including hand washing, preparedness, skin to skin, delayed cord clamping, bag and mask ventilation

within 1 minute and breast feeding within 30 minutes in all facilities delivering babies.

   d. Upgrade and improve regional neonatal facilities so they can take all the required transfers from district hospitals.
   e. Ensure that all regional and large district hospitals have and can administer nasal CPAP to preterm babies with respiratory distress.

3. Improve infant feeding, identification of growth faltering and management of MAM and SAM:
   a. Ensure that breastfeeding is initiated within 30 minutes of birth, by keeping babies skin to skin with their mothers from delivery.
   b. Continue to support exclusive breastfeeding and appropriate complementary feeding through strengthened engagement with all key role players in the community and health facilities.
   c. Ensure that enrolled and auxillary nurses are competent at growth monitoring and that children with growth faltering are all registered and referred to professional nurses and nutritionist for comprehensive facility and community interventions, and only discharged when they have achieved optimal growth i.e. at least -1Z score weight for height.
   d. Regulary update, support and mentor health workers in the management of severe acute malnutrition, including all sessional doctors doing after hour cover at district hospitals.
4. Diarrhoeal disease:
   a. Regularly update all health workers on the mangement and monitoring of children with dehydration, including EMS, sessional doctors and casualty staff.
   b. Ensure ongoing mentoring and support by the DCST.
   c. Ensure proper triage and treatment in all casualties.
   d. Ensure all facilities have functioning ORS Corners and that ZINC is available and used for all cases of diarrhoea.
   e. Engage with the municipalities and water affairs to improve sanitation and piped clean water to households.
5. Set up a system of immediate reporting of all neonatal and paediatric deaths to the districts within 24 hours, and reviewing all deaths within 48 - 72 hours at the health facilities, and ensuring a monthly comprehensive district response based on the priorities identified.
6. Engage on the leading causes of non-natural deaths and develop preventive strategies.

7. Continue to deliver and strengthen comprehensive primary health care services to children at clinic and ward level and start to focus not only on the ensuring health and good nutrition, but also good development.
8. Strengthen regional and tertiary care for children ensuring equitable access to care through the primary health care system.

MPUMALANGA PROVINCE

SUMMARY

- *Mpumalanga is located in the North Eastern part of South Africa and is bordered by Swaziland and Mozambique, shares common borders with Limpopo, KZN and Free State. It has a land surface area of 76 495km square which represents 6.3% of South Africa's total land area.*
- *Mpumalanga is ranked the third most rural province in the country with 66% of its total population living in rural areas.*
- *The population base exhibits low economic activity and the poverty rate is higher than the national average. It is estimated that approximately 23% of households have no regular source of income.*
- *There is still inequity in the provision of health care services as the majority of the population still relies on public health services compared to approximately 12% receiving services from private sector.*
- *Mpumalanga, like the rest of the country, is faced with a quadruple burden of diseases. Child under 5 in-hospital mortality rate increased from 5/1000 to 5.5/1000 in 2011/2012 and 2012/2013 respectively while infant mortality declined from 9.7/1000 to 8.3/1000.*
- *Children are dying from pneumonia, diarrhoea, septicaemia, other poisoning and anaemia.*

According to the 2011 Census, Mpumalanga is home to a population of 4 039 939 which makes it the sixth largest province constituting approximately 7.8% of the national population. 462 011(11.4%) of the population are children under 5 years of age. The province has a dependency of 56% and 31.9% of the population unemployed. There is fair access to municipal services with 71.7% having water on site (Ehlanzeni being the lowest at 57.8%), 7.9% have no refuse removal and 6.3% have no access to sanitation.

The province is comprised of 3 districts composed of 23 district hospitals, 3 regional hospitals, 2 tertiary hospitals, 5 specialised hospitals, 17 private hospitals, 277 clinics and 52 CHCs. There are only 6 paediatricians in the province, 2 of which are in the district clinical specialist teams for Ehlanzeni and Nkangala districts. The Gert Sibande district has failed to attract a paediatrician for the team so far. Only 13.3% of the population have access to medical aid. The cost of providing services at PHC level is low at R571.5 and PDE of R1744.2 and access to specialist service is limited.

Table 52: Select Health Care Indicators for Mpumalanga Province.

MPUMALANGA 2011 Selected indicators	**SOUTH AFRICA**	**MPUMALANGA PROVINCE**	**GERT SIBANDE**	**NKANGALA**	**EHLANZENI**
Top 5 causes of death		1. Diarrhoea 2. Pneumonia 3. Septicaemia 4. Other poisoning 5. Anaemia			
Infant Mortality Rate	28.4	36.5	44.2	25.1	15.1
Under 5 Mortality Rate	38.5	62.2	56.9	35.1	24.3
% of child deaths occurring within the health services	45.5	50.6	48.7	42.4	58.7
% of child deaths where severe malnutrition was present	31.2	29.8	25.3	26.2	33.0
% of child deaths where child was HIV positive or exposed	39.1	44.4	45.7	51.5	51.8
In-hospital case fatality rate:					
Diarrhoeal disease	4.0	12.3	16.0	4.5	16.0
Pneumonia	3.7	10.1	10.0	7.8	10.0
Severe malnutrition	12.0	16.6	29.3	25.3	29.3
PCR coverage	100.6	102.2	79.6	85.0	80.5
N° of children on ART	148 342	12 501	3 762	2 683	6 056
Immunization coverage at 1year	94	83	62.8	54.4	55.1
PHC per capital expenditure	R684	R571.5			
Hospitals doing Child PIP	184	28	9	8	11

DISCUSSION

All the public hospitals in the province conduct Child PIP and all deaths are audited. Data quality remains a challenge as various sources present varying information. The data on the DHIS varies from the Child PIP data, but the Child PIP data is more reliable as there is a provincial person who ensures the correctness of the data. The number of children dying in the facilities reported on the DHIS is not the same as the one reported by Child PIP. Infant and under 5 mortality rates vary amongst the districts with Gert Sibande being the highest at 44.2 and 56.9 respectively and Ehlanzeni being the lowest.

The causes of death in the province are almost the same in the 3 districts except for Ehlanzeni where TB is amongst the top 5 causes of death and Gert Sibande with other respiratory diseases instead of anaemia. In-hospital mortality rate was at 3.9% in 2013 according to Child PIP data. According to DHIS the IHMR for infants increased from 8.1 in 2010 to 9.3 in 2013, yet Child PIP reported a decline from 6.9 to 4.9. The under 5 IHMR was reported to have increased from 5.6 in 2010 to 8.4 in 2013, yet Child PIP reported a decline

from 6.0 to 3.5. IHMR for SAM showed a decline of up to 17.6 in 2013, acute respiratory tract infections up to 5.1 in 2013 and diarrheal diseases an increase of up to 7 in 2013.

According to StatsSA 60.4% of infants and 51.1% of under 5 year old children at Ehlanzeni died in hospital in 2011, Gert Sibande had 47.8% of infants and 44.9% of under 5 dying in hospitals while Nkangala had 42.4% infants and 37.8% under 5 dying in hospitals. The causes of death for those who died outside the hospitals are not known, nor whether they are the same as the in-facility ones. According to the Child PIP 2012-2013 report, 35.2% of the children died within 24 hours of admission to the hospital which might indicate inadequate assessment and management in casualty. DHIS reported PCR coverage of above 100% in all the 3 districts in 2013 but Child PIP data reported that 19% of the children that died had an unknown HIV status. PMTCT is working because the PCR positivity has declined in all the 3 districts from 2010 to 2013, with Gert Sibande from 22 to 2, Ehlanzeni from 7.2 to 2.7 and Nkangala from 9.3 to 2.0. According to the Child PIP 2012/2013 report a quarter of the children that died should have been on HAART but were never initiated. HIV infection still plays a major role in mortality of SAM because 48% of HIV infected deaths were having SAM. PHC utilization is below the national target of 5 in all the 3 districts.

In 2010 all the 3 districts' immunization coverage was below 70 and in 2013 the 2 districts improved to above 70 but still below the national target of 90, except for Gert Sibande which remained at 66.

RECOMMENDATIONS

1. Strengthen the implementation of IMCI at PHC facilities and OPD.
2. Involve the community health care workers in the administration of vitamin A supplements and provision of health education and advice on health promotion.
3. Train PHC staff on early identification and management of faltering growth and early referral of SAM children.
4. Implement the 50% non- rotation of core staff in the paediatric wards in hospitals.
5. Improve attendance of Child PIP and perinatal meetings by senior management and PHC staff.
6. Train health care workers on ETAT and WHO ten steps on management of SAM.
7. Monitor the use of zinc and the guidelines in the management of children with diarrhoea.
8. Strengthen data collection through DHIS by ensuring that data is verified at facility, sub-district and district levels before it is sent to the province.

9. Improve immunization coverage by ensuring that every day is immunization day and by involving the WBOT leaders and the school health teams in the immunization of those children in the early childhood development centres.
10. Provide paediatric friendly monitoring equipment to casualty e.g. pulse oximeters.
11. Train nurses on NIMART to improve initiation of children on HAART if indicated.

NORTH WEST PROVINCE

SUMMARY

- *North West is the platinum province of South Africa and occupies 8.7% of the surface area of South Africa.*
- *Population of 3.5 million of which about a third are children.*
- *Fairly high growth rate of 1.6 with high unemployment rates.*
- *92.6% of the population have access to portable water.*
- *Significant increased informal settlements contributed to the high disease burden.*
- *Medical aid coverage is not uniform throughout the province.*
- *The province has 318 fixed PHC facilities and Under 5 PHC utilization is similar to the national average.*
- *Diarrhoeal diseases and pneumonia with high associations of HIV and malnutrition are the major causes of deaths in under 5-year olds.*

The North West province of South Africa is the 4th smallest province in size, taking up 8.7% of the land area and is the highest single platinum production area. In the 2011 census the population of the province was 3.5 million of which over 1 million were children under the age of 15 years. A 2.4 growth rate for Bojanala district is amongst the highest outside Gauteng and Western Cape Provinces.

The life expectancy at birth is low compared to other provinces, an indication of the need to improve infant and child survival through effective MCWH&N services in the province. 8.4% of the population do not have access to portable water and unsafe water supplies contribute largely to childhood diarrhoeal diseases leading to an increased IMR and U5MR.

Although the number of households without toilet facilities has declined over the last 5 years, the overall level remains large at more than 425,000 households. With a fairly high growth rate of 1.6, the North West province has shown a significant increase in the percentage of shack dwellers from 12.3% in 2002 to 22.8% in 2011. Conditions in informal settlements contribute to high burden of malnutrition, diarrhoeal diseases and injury through burns and trauma.

The 4 districts within the North West province range from the less deprived socioeconomic quintile-4 (Dr Kenneth Kaunda district) to the more deprived socioeconomic quantile-2 rural districts of Ngaka Modiri Molema and Dr Ruth Segomotsi Mompati. Unemployment was

higher than the national average of 29.8%. 25% of households receive some form of government grant. However, 43% of people are living in households that have income less than the poverty income.

Table 53: Selected Health Care Indicators for North West Province.

NORTH WEST 2011 Selected indicators	SOUTH AFRICA	NORTH WEST	BOJANALA PLATINUM	NGAKA MODIRI MOLEMA	DR RUTH SEGOMOTSI MOMPATI	DR KENNETH KAUNDA
Top 5 causes of death		1. Diarrhoea 2. Pneumonia 3. Septicaemia 4. other Nutritional 5. TB (all)				
NNMR	11.2	14.1	9.0	34.3	9.3	17.9
Infant Mortality Rate	28.4	48.4	26.2	80.8	26.7	44.7
Under 5 Mortality Rate (StatsSA)	38.5	63.1	34	107.2	38.8	56.4
Under 5 Mortality (DHIS)			8.0	4.2	6.4	6.4
% of child deaths occurring within the health services (StatsSA)	45.5	39.7	36.7	30.9	45	50.8
% of child deaths where severe malnutrition was present	31.2	18.7	24.9	12.6	25.8	22.3
% of child deaths where child was HIV positive or exposed	39.1	49		51	40	31.1
In-hospital case fatality rate (DHIS)						
Diarrhoeal disease	4.0	5.4	7.1	4.5	3.6	4.5
Pneumonia	3.7	5.1	6.4	4.3	8.0	3
Severe malnutrition	12.0	11.1	14.6	10.2	10.2	12.4
PCR coverage	100.6	103	104	98.3	113.6	102.4
N° of children on ART	148 342	9 093	3 820	1 951	294	3 028
Immunization coverage at 1year	83.8	88.8	94.6	86.7	108.3	69.6
PHC per capital expenditure	R684	R	R 220	R 499	R 419	R 308
Hospitals doing Child PIP %	184		100	100	100	100

Medical aid coverage is not uniform within the districts in the North West Province. Dr K Kaunda district ranks amongst the districts nationally with the highest medical aid coverage (25.4%). Other districts in the province lie below the 16.9% national average.

There are 318 fixed PHC facilities and Under 5 PHC utilisation is below 5. Each of the districts has a regional (level 2) hospital. There is one level 3 hospital in the province. A large proportion (60.3%) of deaths in the province occurs at home.

DISCUSSION

The infant mortality rate of the North West (NW) was 48.4 and was higher than the national average of 38.1. Although, all districts in the NWP sustained a decline over the 5 year period, Ngaka Modiri Molema (NMM) district recorded an IMR of 80.8, twice as high as the national average. Comparatively, the in-hospital IMR for NMM was about a tenth of the StatsSA value.

U5MR for Bojanala, Dr Ruth Segomotsi Mompati (RSM) and Dr Kenneth Kaunda (Dr KK) districts were 34.0, 38.8 and 56.4 respectively, lower than the national average of 56.7. However, NMM district was 107.2 and this contributed to a high provincial average of 63.1.

The province recorded the 3rd highest incidence of severe malnutrition. The incidence of severe malnutrition remained unchanged over the past 5 years in NMM and Dr KK districts. However, mortality from severe malnutrition had consistently declined in these districts by 30%. The incidence of malnutrition in the other two districts of Bojanala and Dr RSM continued to decline over the past 5 years and mortality was reduced over this period by 50%. The ChIPP report for the NWP recorded deaths associated with malnutrition to be very high especially in the more rural districts of Dr Ruth Segomotsi Mompati (54.4%) and NMM districts (67.5%).

HIV as a cause of death did not appear in the NWP top 5 leading causes of childhood deaths. This is due to the fact that HIV was not been recorded as a primary cause of death. However, child mortality audits at hospitals in the province reported 49% of all Under5 deaths to be associated with HIV infection. With the introduction of FDC and increased ANC HIV screening almost all eligible ANC patients are now initiated on HAART. The NWP has the lowest EID coverage, 9093 children are on ART. Initiation of children is delayed by PHC facilities referring to hospitals.

NMM district recorded an increase in the incidence of diarrheal diseases over the 5 year period. However, all districts in the province recorded a decline in diarrhoea case fatality rates. As in most other provinces the incidence and deaths from acute respiratory infections showed progressive decline over the 5 years.

The province had the third lowest immunization coverage at age one year, with Dr KK district recording the lowest immunization coverage nationally (69.6%).

RECOMMENDATIONS

1. Increase the use of e-health to encourage caregivers at home to recognize danger signs, avoid harmful intervention such as herbal medication in children and act by seeking help early.
2. Increase access to SASA food grants for children identified at facilities to be underweight.
3. Improve IMCI case management and referrals at PHC facilities by on-site training and mentoring with formal periodic re-certification of all PHC practitioners.
4. Increase child ART initiation at PHC facilities.
5. Skill nurses at PHC in the pre-hospital management of severely ill children awaiting hospital transfer.
6. Train and monitor doctors on use of protocols for initial assessment, evaluation and care of severely ill children at the A&E units.
7. Hospital CEOs be accountable for the provision of adequate paediatric ward staffing levels and non-rotation of 60% of core paeds staff.
8. To allocate paediatric doctor in each ward and ensure there is dedicated paediatric doctor for weekends and all public holidays.
9. Establish at least one Paediatric High care / ICU ward in each regional /level 2 hospital.
10. Improve vaccine supply and management. Ensure that facilities have a patient recall system (WBOT programme) to catch-up on children turned away when vaccines were out of stock at facilities.
11. CEOs to attend CHIPP meetings and be responsible for monitoring its recommendations.
12. Strengthen quarterly MCWH&N forum meeting.

NORTHERN CAPE

SUMMARY

- *This province is home to an estimated 1.1 million people living at a density of 3.0 people/km^2.*
- *The population is predominantly rural based, with fair access to municipal services such as piped water which is available on site to 78% of households.*
- *This is the largest province with the smallest population and therefore presents a special challenge for ensuring access to health care. The cost of providing accessible health care is high and access to specialist services limited.*
- *In 2012, the provincial per capita expenditure on primary health care was R 399, which is the 3rd highest in the country, well above the national average of R 302.*
- *PCR coverage is 83.9% lower than the national average of 100.6.*
- *Immunisation coverage has decreased from 93.2% (2011) to 87.1% (2013).*
- *There was a gradual decrease of child mortality in the province with the IMR at 48.1% and the U5MR at 63.7%. These rates vary significantly from district to district.*
- *HIV/AIDS and malnutrition are both higher than the national average and underlie almost half of all under-5 deaths. The primary causes of deaths are neonatal factors, diarrhoeal diseases and acute respiratory infections.*
- *Early identification and management of children and case management of sick children in hospitals must be a priority.*

DEMOGRAPHIC AND SOCIAL PROFILE OF THE PROVINCE

Proportion of population who are children

Data from the 2011 Census show a gradual increase by 1.7% of the population in the province, from an estimated 1.1 million in 2008, to 1 14 million in 2011. 10.6% of this population are children under the age of 5 years, which has also shown an increase from an estimated 114,823 in 2010 to 121,920 in 2011.

Household income and municipal services

82% of the population lives in formal houses and 78% of the population have access to piped water with the highest percentage in Namakwa (95%) and the lowest in J T Gaetsewe (40.6%). This leads to a risk of increased diarrhoeal diseases and increased IMR and U5MR. The 2011 census further shows that only 8% of the household has no access to proper sanitation. The provincial average of households with the highest income is R86,158.00 per annum, he highest being Frances Baard at R94,708.00 followed by Z F

Mgcawu at R92,878.00. The provincial average of households with the lowest income is R23,285.95, with J T Gaetsewe at R20,273.06 followed by Pixley ka Seme at R20,334.32.

Health services

The province comprises 5 districts with a health service composed of 20 public hospitals caring for children, 4 private hospitals and 150 Primary Health Care clinics and Community Health Centres. In 2011, the provincial per capita expenditure on primary health care was R824 which is the highest of all provinces and well above the national average of R684.

Table 54: Selected Health Care indicators for the Northern Cape.

NORTHERN CAPE 2011 Select Indicators	SOUTH AFRICA	NORTHERN CAPE	FRANCIS BAARDT	J T GAETSEWE	NAMAKWA	PIXLEY KA SEME	Z F MCGCAWU
Top 5 causes of death		1. Neonatal causes 2. Diarrhoeal Disease 3. Acute Respiratory Infections 4. Non-natural causes 5.Malnutrition					
NNMR	11.2	14.1	7.5	13.2	17.8	25.6	7.5
Infant Mortality Rate	28.4	48.1	32.6	57.6	25.2	86.1	53.3
Under 5 Mortality Rate (StatsSA) 2011	38.5	63.7	45.4	74.4	31.3	107.5	72.8
Under 5 Mortality (DHIS) 2013	5.0	4.8	5.4	9.6	2.4	2.2	5.5
% of child deaths occurring within the health services (StatsSA)	45.5	49.1	44.0	44.4	51.0	53.7	55.7
% of child deaths where severe malnutrition was present	31.2	35.5	31.9	25.0	63.3	12.5	65.4
% of child deaths where child was HIV positive or exposed	39.1	41.0	41.6	17.3	42.3	25.0	42.3
In-hospital case fatality rate: DHIS							
Diarrhoeal disease	4.0	3.0	3.4	11.9	0.0	0.8	2.1
Pneumonia	3.7	3.8	2.9	17.8	2.3	0.0	2.2
Severe malnutrition	12.0	11.7	12.0	21.0	16.7	1.7	11.1
PCR coverage	100.6	94	109.8	85.5	83.6	99.5	74.3
N^{o} of children on ART	148 342	30 001	2 147	113	52	343	346
Immunization coverage at 1year	83.8	87.1	97.5	95.5	64.3	74.3	85.0
Hospitals doing Child PIP %	184	12	3	2	2	4	1

DISCUSSION

Child health data: quality

Overall, the collection of quality data remains a challenge. Seventeen hospitals are using CHIPP, while numbers provided from the five districts only add up to 12 facilities, which means the data of a further five hospitals are missing. The number of children on ART in the province is 30,001; this probably represent a typographic error as data from the five districts summate to 3001. The mortality data presented in the census are significantly different from the DHIS data.

Child health trends: mortality

The 2011 Census shows a notable improvement of the health of children in the Northern Cape. IMR has decreased from 48.1 in 2009 to 32.6 in 2011. U5MR has also decreased from 63.7, 2009 to 51.0 in 2011. These rates are higher than the national figures and are exceeded only by the Free State and North West Provinces.

Within the province there is wide variation between districts with relation to the U5MR, ranging from a low of 27.7 in Namakwa to 107 in Pixley ka Seme. Although the latter has reduced the 2009 rate, the figure remains higher than the provincial and national rate. This is of a grave concern as the NHI district, funded from this project should be improving its health outcomes. Half of these deaths (49.1%) occur within the health system and 38.1 occur during the first year of life.

The causes of death are what is to be expected in a developing community and is similar in all districts, although intentional and non-intentional injuries are higher in Namakwa. HIV (41.0%) and severe malnutrition (35.5%) are underlying factors in almost half of all deaths in the province. Namakwa, which has the lowest mortality rate, is the largest, least densely populated district with the highest non-hospital PHC expenditure and highest cost per PDE for District Hospitals. Mortality rates in Z F Mgcawu and Frances Baard Districts, which house the provincial regional and tertiary level institutions, are closer to the national average.

Case fatality rates for diarrhoeal diseases and acute respiratory illnesses are in line with the national figure. The case fatality rate for malnutrition is substantially higher (11.7), with higher rates in JT Gaetsewe (21.0) followed by Namakwa (16.7). Case fatality rates for all three diseases vary notably between districts without any obvious correlation with the U5MR, population density, health expenditure or service utilization.

The low life expectancy at birth calls for improved infant and child survival through effective MNCWH and N services in the province

Child health trends: coverage of services

District level services are evenly distributed throughout the province, though specialist services are limited to a single regional hospital and a developing tertiary hospital both in the eastern half of the province. At the beginning of 2008 there was only one paediatrician in the public sector in the province so access to specialist services is extremely restricted. Currently there are three full time paediatricians and one doing sessions.

The provision of services across a large sparsely populated region is costly as reflected in the non-hospital PHC expenditure and the cost per PDE of district hospital services. Despite this, service utilization appears good. The average number of PHC visits per annum is the second highest in the country.

The provincial immunisation coverage is 87.1%, lower than the national target of 90%. Namakwa, Pixley ka Seme (PKS) and Z F Mgcawu (ZFM) are below the target as illustrated in Figure 1 below. The immunisation catch-up drives are critical in these districts to improve these performances. Pneumococcal vaccine and PMTCT uptake has also improved.

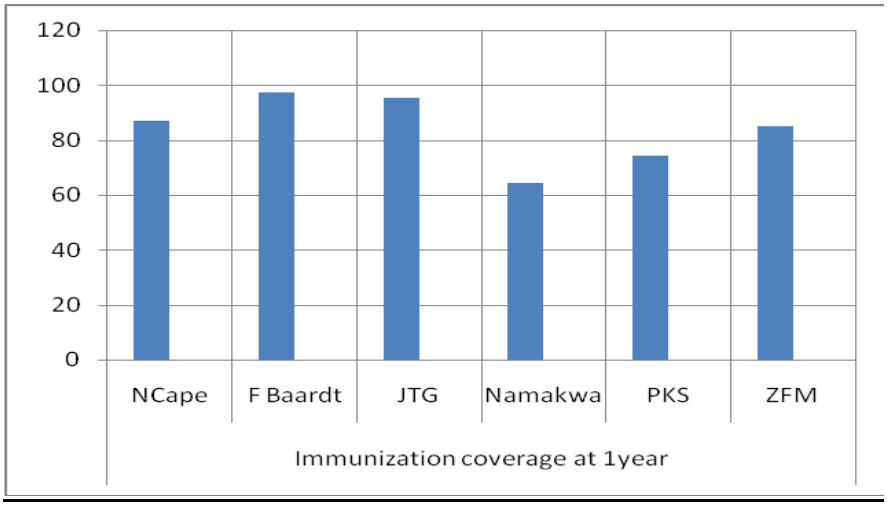


Figure 41: Immunisation coverage at 1 year: 2013 (DHIS).

RECOMMENDATIONS

1. **Neonatal care:** Develop a provincial implementation plan for Newborn Care. The implementation of existing interventions such as ESMOE should be rolled out to all facilities where deliveries are conducted. Facility based action plans for neonatal mortality should be developed and reviewed on a quarterly basis. This should include the expansion PPIP to all hospitals.
2. **Diarrhoea and Acute respiratory infections:** The provincial community worker programme should work closely with MCWH&N on matters of training to ensure avoidable factors such as disease prevention, early identification of a sick child, home management and health seeking behaviour, danger signs, health seeking behaviour are well covered during training.
3. **Mentoring** of trained health professional on all child health related training (IMCI, EPI, Nutrition etc.) will enhance and reinforce the application of skills acquired during training. Standardized guidelines in all paediatric wards on early identification, case management of a sick child will contribute largely to the reduction of deaths due to common childhood illness.
4. **Injury:** The province should collaborate with relevant sectors to develop a strategy on prevention and management of intentional and non-intentional injuries.
5. **Malnutrition:** Use of IMCI guidelines will attribute to the improvement of early identification of children with HIV and malnutrition at PHC facilities. Existing training on growth monitoring should be followed by constant mentoring and supervision. Food supplementation for children not growing well should also be provided by professional nurses as and when a need arises, to avoid severe acute malnutrition
6. **Immunisation:** Availability of stock (vaccine), making every day immunisation day would also contribute to the departmental efforts to increase fully immunised children.
7. **Child PIP:** Expand the Child PIP users in the province from 12 to 20 hospitals. Health professionals working in the paediatric wards/ general wards admitting sick children should be involved in child death audits.
8. **Staff shortage:** The province should address this matter at all levels of care, so as to improve the quality of care of sick children.
9. **Programme management and clinical governance:** The province should also address the shortage of child health programme managers in the districts. The DCSTs should be given the brief to focus on all clinical issues (MNCH) as delegation of this category to managerial activities/responsibilities has been seen to comprise the purpose of DCSTs.

WESTERN CAPE PROVINCE

SUMMARY

- *Home to nearly six million people, the Western Cape covers a large area with nearly two thirds of its population concentrated in its smallest district: Cape Metropole.*
- *Census data shows an increase of 46.5% in the under 5 population between 2001 and 2011; the equivalent figure for the increase of black African children, most of whom live in poverty, was 87%.*
- *In South African terms, the province has good per capita income and resources such as piped water and sanitation. Almost 40% of households are woman-headed.*
- *Access to PHC services and acute hospital services is generally good with the exception of certain far flung farms and settlements. Access to paediatric specialists is good in Cape Town and has improved in the rural districts with the appointment of an additional specialist per regional hospital to strengthen outreach and support to district services. Utilisation of paediatric PHC services is good with 4.5 visits per year for children in the first year, fair immunisation rates in the first year, and high bed occupancies.*
- *IMRs vary considerably in sub-districts largely predicated on poverty, HIV levels and social isolation. The provincial IMR, the lowest in South Africa, is now less than 20. Mortality and morbidity from HIV/AIDS are now very low, owing to good coverage of preventive and therapeutic programmes. In general IHMRs for common illnesses are low and have dropped further in recent years. Half of all facility deaths now take place in ICU.*
- *Diarrhoea and pneumonia are still leading causes of death in the province. Malnutrition is still a significant factor but HIV mortality rates have declined considerably.*
- *Improved district level care and population increase have brought about greater need for high care beds for children across the province as more survive the initial phases of critical illnesses.*
- *Preventing residual community deaths and those due to injury and congenital heart disease must become a focus.*

Census 2011 counted 5.8 million people living in the Western Cape, nearly two thirds of them in the Cape Metropole district. The rest of the population is quite thinly spread over rural and farming lands, except for the areas of George, Paarl and Worcester.

There has been a 47% increase in the provincial population over the last 15 years as shown in Table 1 (Source: STATSSA – Census 2011). All areas are similarly affected. Notably, among children, there has been a 46.5% increase in the under 5 population of Cape Town between 2001 and 2011; the equivalent figure for black African children, most of whom live in poverty, was 87%. One quarter of households are on Medical Aid, and 40% are headed by a single woman.

Table 55: Population figures from the last three national censuses.

POPULATION	1996 CENSUS	2001 CENSUS	2011 CENSUS
Western Cape	3 956 876	4 524 334	5 822 734
Cape Town	2 563 095	2 893 249	3 740 026

The province's population is predominantly urban with good access to municipal services such as piped water, which is available on site to over 90% of children. Likewise sanitation services are available to most children. The proportion of children living in poverty has dropped from 46% in 2003 to 25% in 2011 – still a significant figure in terms of health risks for young children, but the lowest figure in South Africa (Source – Children Count website www.childrencount.org.za, accessed 23rd August 2014). Increasing access to the Child Support Grant for older children over the period is likely to have contributed to the fall in absolute poverty levels.

The province comprises 6 districts with a health service composed of 41 public hospitals that have children's beds, 52 private hospitals and 333 Primary Health Care clinics and Community Health Centres. In 2011 the provincial per capita expenditure on primary health care was R 797. This is above the average for the country, but closer to the mean than at the time of the previous triennial report. Hospital expenditure per Patient Day Equivalent (PDE) at R1 647 is the lowest in the country, suggesting a very efficient system, despite the very large tertiary services housed in the province.

Two large Metro District Hospitals have been commissioned since the last report, taking a considerable patient load from Central Hospitals. At 84% average, and 86% in Cape Town, bed occupancy for neonates and children is high. There is acute pressure on secondary and

tertiary beds, with major access bottle necks for high care and ICU beds - for neonates perennially and for children during the summer and early winter Surge Season when large increases in dehydrating diarrhoea and lower respiratory tract infections caseloads occur.

Seven new general paediatrician posts have been created in the last three years. Five of these have been deployed at Regional level to bolster outreach and support to PHC services; two are deployed within the new District hospitals as leaders in the hospital paediatric services as well as support to the Family Physicians in the sub-districts served.

Table 56: Selected health indicators for the Western Cape Province

WESTERN CAPE 2011 SELECTED INDICATORS (2013 FIGURES ARE GIVEN WHERE AVAILABLE)	**SOUTH AFRICA**	**PROVINCE**	**WEST COAST**	**CAPE WINELANDS**	**OVERBERG**	**EDEN**	**CENTRAL KAROO**	**CAPE TOWN**
Top 5 causes of death (also see Figure below the table – MRC Rapid Surveillance 2012)		**1. Neonatal** **2. Pneumonia** **3. Gastroenteritis** **4. Injury** **5. Malnutrition**						
Infant Mortality Rate	28.4	19	22.3	20.7	30.4	19.7	34.4	17.1
Under 5 Mortality Rate	38.5	23.4	28.2	26.2	38.4	23.8	40.8	21.6
% of child deaths occurring within the health services	45.5	49.3	48.4	46.7	34.4	48.8	43.3	50.9
% of child deaths where severe malnutrition was present (2013)	31.2	16.6	20	23.6	100*	21.8	0	15.8
% of child deaths where child was HIV positive or exposed (2013)	39.1	20.7	13	22.5	0	30	18	20.4
In-hospital case fatality rate: **Diarrhoeal disease (2013)** **Pneumonia (2013)** **Severe malnutrition (2013)**	4.0 3.7 12.0	0.4 0.4 2	0.2 0.2 2.2	0.4 0.4 3.6	0.4 0 2.2	0.1 0.3 2.4	0.4 0 0	0.5 0.5 1.3
PCR coverage (W Cape 2014)	100.6	85	91	85	94	84	114	84
No of children on ART	148 342	7 449	222	842	248	617	83	5 437
Immunization coverage at 1 year	83.8	85.7	67.4	81.3	78.8	1.78	61.9	91.7
Exclusively breast fed at 14/52 immunisation (2013)	32.6	27.2	27	33.2	49.7	30	49.4	17.2
Children per paediatrician in public service		18 529	33 241	88 500		50 000		13 454 About 70 paediatr's
Hospitals doing Child PIP	184	34	7	6	4	4	4	9

* 1 patient

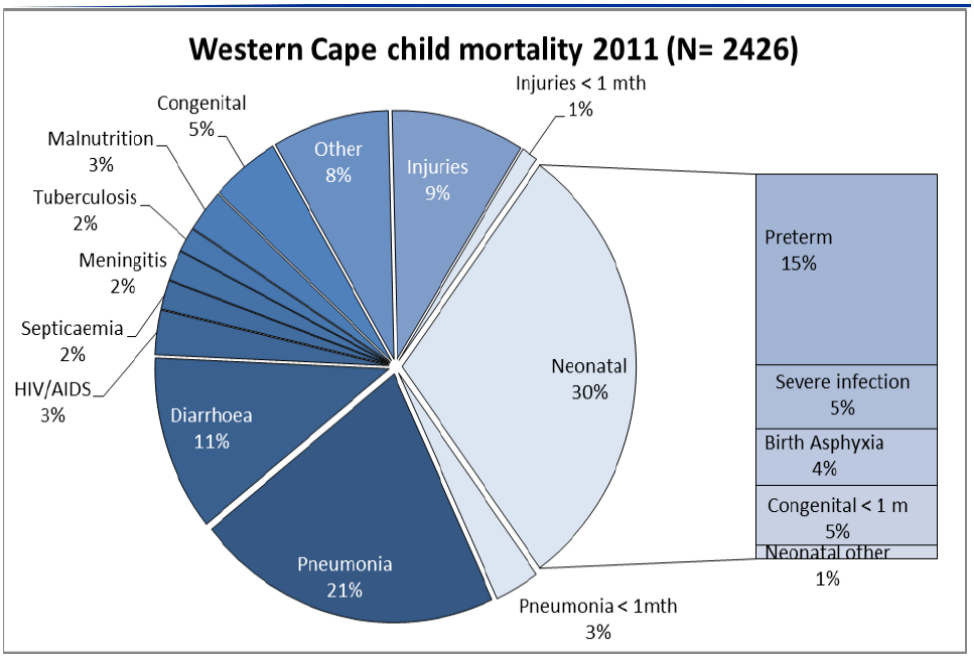


Figure 42: Western Cape child mortality 2011 (Rapid Mortality Survey 2012, MRC)

DISCUSSION

Child health data – Quality

In general, data reaching national databases from which most of the figures in the Indicator table are derived are robust. Diarrhoea and pneumonia admission numbers are too low when compared with the Child PIP data. HIV PCR coverage data was erroneously low. Data at provincial level shows the percentage PCR coverage of 85% for 2014. Owing to some alternative policy initiatives in infectious diseases, HIV and TB data does not entirely accord with national indicators. Thus the absence of IPT data arises from the fact that this policy has not been implemented fully yet in the Western Cape after local review. Paediatric ART initiations are largely undertaken at regional and tertiary hospitals in Cape Town where the bulk of infected children are identified, leading to a disproportionately large undercount in national figures compared with non-urban provinces.

Child PIP data, which now covers all hospitals but one, speaks more robustly to in-hospital mortality in paediatric wards than official statistics. Moves are taking place to use the Child PIP data champions to help the provincial processes to validate data before it is signed off at facility level. Child PIP is now being rolled out at CHC level in an effort to capture more deaths. In parallel, mortuary and other mortality data is being actively sought to improve the province's ability to tackle residual mortality hotspots and causation in infants.

Child health trends: mortality

The health of children in the Western Cape Province has improved over the period under review. Child mortality outside Cape Town has fallen by between 25% and 30%. The Central Karoo district still apparently lags behind the rest of the province but with only about one thousand births per year and 38 infant deaths, most of which are neonatal, a small change in deaths can alter rates significantly. Cape Town's overall IMR has dropped below 20 for the first time; some districts recorded IMRs of less than 15. The province's IMR is half the national figure. Figure 1 shows IMR trends by district for recent years.

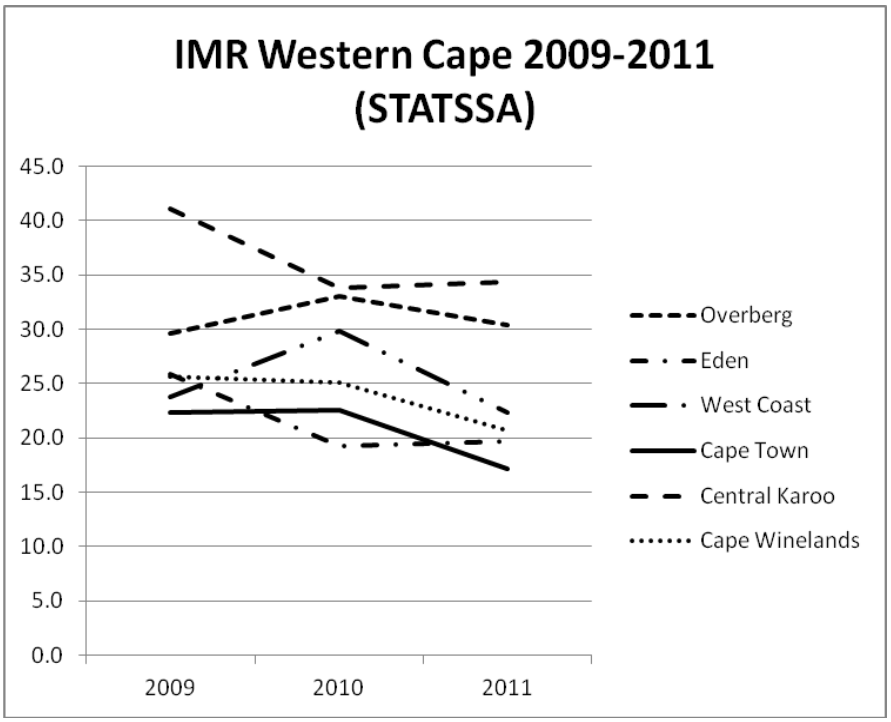


Figure 43: Trends in Infant Mortality Rate by district.

Neonatal mortality tops the list of causes, accounting for about 34% of deaths, most of them in the early neonatal period. Although gastroenteritis still tops the non-neonatal causes of death and is a seasonal scourge in the province, through active surveillance, it has been demonstrated that there have been large reductions in absolute numbers of diarrhoeal deaths in recent years. The seasonality of diarrhoea incidence is shown in Figure 2 derived from DHIS PHC data. Mortality is minimal when compared with incidence. However parts of the eastern Metro (Eastern and Khayelitsha sub-districts) have diarrhoea mortality rates that are higher than elsewhere in Cape Town.

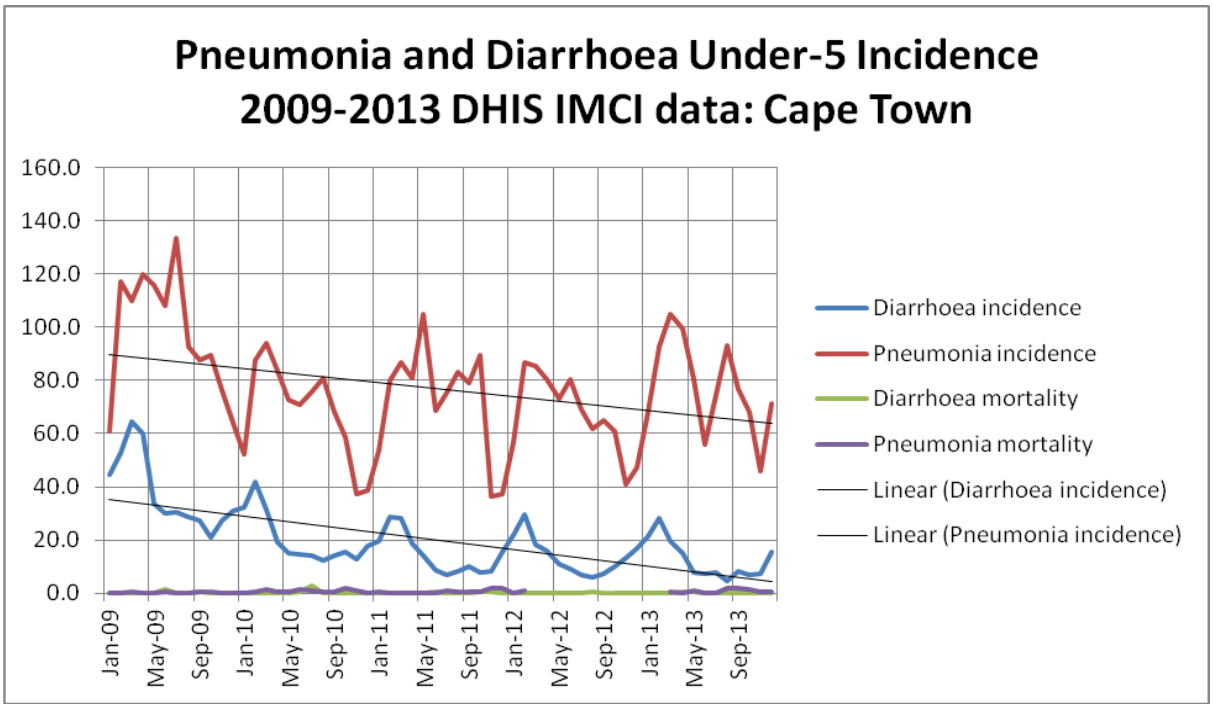


Figure 44: Diarrhoea and Pneumonia incidence per 100 000 under-fives, 2009 – 2013. (IMCI definitions).

Recent data suggests that pneumonia mortality is rising, concentrated in infants four months and under. Pneumonia is the leading cause of in-hospital mortality, and in half the cases there was underlying diseases such as prematurity leaving children vulnerable to severe disease. Child PIP data in Table 2 shows recent reductions in common childhood in-hospital mortality in the province. Diarrhoeal deaths have halved in four years. In the 2014 Surge Season in-hospital mortality rates for diarrhoea dropped to 2 per thousand admissions. This demonstrates continuing improvement in access to and emergency transport for sick children, as well as the quality of hospital services in the province. The remaining challenge is to understand the causation of deaths from diarrhoea and pneumonia in homes.

Table 57: Child PIP commonest causes of death, 2010 – 2013.

MAIN CAUSE OF DEATH	2010	2011	2012	2013	TOTAL
Pneumonia	147	75	98	84	404
Septicaemia	74	101	71	89	335
Acute diarrhoea, hypovolaemic shock	79	54	43	36	212

A large proportion of in-facility deaths now occur in ICUs. Half of the hospital deaths in the province in 2013 occurred in ICUs. This shows a system that can move critically ill children efficiently to the highest level of care. ICU mortality stands at 10% of admissions, an

excellent figure for a developing country service. Notably, fewer unexpected deaths are occurring in Western Cape hospitals, with deaths in medical wards dropping by 75% (231 to 66) in the five years from 2009 to 2013.

Injury mortality due to road traffic accidents, burns and gunshot injuries is now clearly a significant contributor to under-five mortality rate in the Western Cape. HIV-related mortality is now unusual in the province as a result of PMTCT, ART coverage and hospital-level vigilance in identifying PMTCT failures. Child PIP shows a halving (85 to 39 cases) of deaths where the child was infected with HIV between 2009 and 2013. HIV transmission rates are reported as less than 2%, using routine data, but as reported in the last Triennial report, owing to missed PCRs and infections late in pregnancy, actual rates are higher.

Absolute numbers of post-neonatal childhood deaths have dropped so low in parts of the Western Cape that focused attention on identifying at risk children (especially very young infants) in their homes will be necessary to make significant further inroads into overall mortality. These low figures also make it conceivable that an active case-based early childhood mortality surveillance programme could be considered in this province.

Child health trends: immunisation

Immunisation rates are fair, with recognised deficiencies in overall coverage still challenging areas in the province. Within Cape Town, overall apparent coverage is boosted by some areas (like the Western sub-district) in which the denominator child population is clearly too low, producing coverage rates in excess of 100%. Public health specialists are challenging the projections of STATSSA used by the Department of Health, that, for example, predict reducing numbers of births in Dunoon, one of the areas with the highest percentage increase in population in the recent census. Specifically the inadequate and low second rotavirus vaccine coverage in the Metro has come to prominence as the Diarrhoea Task Team focuses on ways to decrease the incidence of this annual scourge. Vitamin A coverage after one year is also inadequate, leaving many children more vulnerable than they need be to diarrhoea and pneumonia. Twenty nine percent of children were not immunised against measles at 18 months in 2013 in the province, compared with 21% in 2010. The drop-out rate of 36% at 18 months remains worrying, three years after the disease caught the province napping in 2010.

Child health trends: malnutrition

Malnutrition as a cause as well as contributor to child mortality remains significant and unacceptable. Yet, compared with the rest of the nation, in-hospital mortality rates for severe

acute malnutrition in the Western Cape are very low. Malnutrition should not be featuring in the top 10 causes of mortality in a province with the Western Cape's demographic and health service profile. Early detection and prevention strategies (especially breastfeeding – Cape Town's breast feeding rates are dismal) are being tackled through new training programmes and a formal 'breastfeeding restoration' process. The low figures given in the Indicator table in respect of breastfeeding rates must improve if the role of malnutrition (and infectious diseases) in the Western Cape mortality is to be minimised.

Child health trends: new horizons

The change in under 5 epidemiology in the province in the last 5 years has brought to the fore some areas of work that could not rise to prominence in an era of high mortality. The first of these is **congenital heart disease**, now the 4th highest cause of non-neonatal death in facilities in the province. Waiting lists for cardiac surgery have lengthened considerably over the last few years, despite a bolstering of the service 6 years ago. Demand has outstripped supply as migration has brought many new children to the province.

The care of children with **long term health conditions** and **disabilities** has also come into focus in the province. In particular efforts are required to optimise comprehensive and coordinated care across all levels of the health service.

RECOMMENDATIONS

1. **Immunisation**: Further understanding of why immunisation rates are sub-optimal in areas of the province is required so that this deficit can be dealt with
2. **Malnutrition**: The current initiatives to tackle malnutrition rates, morbidity and mortality through cross-sectoral actions (such as ECD training), breast feeding restoration (including programmatic post-natal care) and re-invigorated training in the prevention, identification and management of malnutrition through training malnutrition Task Teams at sub-district and facility levels are to be supported.
3. **Injury**: A detailed analysis of injury mortality and development of an intervention plan, in association with Child Safe is recommended. Specific data should be routinely collected from Emergency Centres and Emergency Medical Services on severe childhood injury.
4. **At-risk children and households**: Community-based interventions including post-natal care, identification and follow up of at-risk children and households, and multi-sectoral cooperation at community level need focus and scale up, and must not become simply part of the general CBS service. The Countdown to 2015 requires spearheading of MNCWH interventions ahead of other activities in CBS.

5. **Diarrhoea & Pneumonia**: The province should develop a plan to tackle and mop up diarrhoea and pneumonia mortality based on the WHO/UNICEF 'A Promised Renewed' and its own Surge Season interventions.
6. **PPIP & Child PIP**: The institutionalisation of PPIP and Child PIP as currently being planned will strengthen data systems as well as Quality improvement processes with respect to child mortality and morbidity at all levels. Consideration should be given to active surveillance child mortality systems in areas of higher child mortality.
7. **PHC MNCWH support**: The province's geographical clinical governance systems will be strengthened if aspects of the national PHC re-engineering are incorporated, especially those that strengthen child and newborn nursing support and supervision at facility level.

APPENDIX 1: CHILD MORTALITY DATA: 2011

DATA

The following data is presented to reflect the pattern of childhood mortality in South Africa as in 2009:

1. Provincial Mortality Pattern: 2011.
2. Cause of Death 2011.
3. Mortality Pattern by Province & District: 2011.
4. Provincial Mortality Trends 2009 – 2011.
5. Morbidity & Mortality Pattern by District: 2011.
6. District Mortality Trends 2009 – 2011.
7. District Ranking by 2011 IMR.
8. District Ranking by 2011 U5MR .

DATA SOURCES

The above data has been extracted from the following sources:

StatsSA	Number of births
	Number of deaths
	Place of death in hospital
	Cause of death

Infant and under-5 mortality rates were calculated using the StatsSA data.

Child PIP	Relationship of HIV and malnutrition with deaths
DHIS	In-hospital case fatality rates (CFR)
NHLS	Early Infant Diagnosis (EID) of HIV infection

Figure 45. National Mortality Trends, 2007 – 2011.

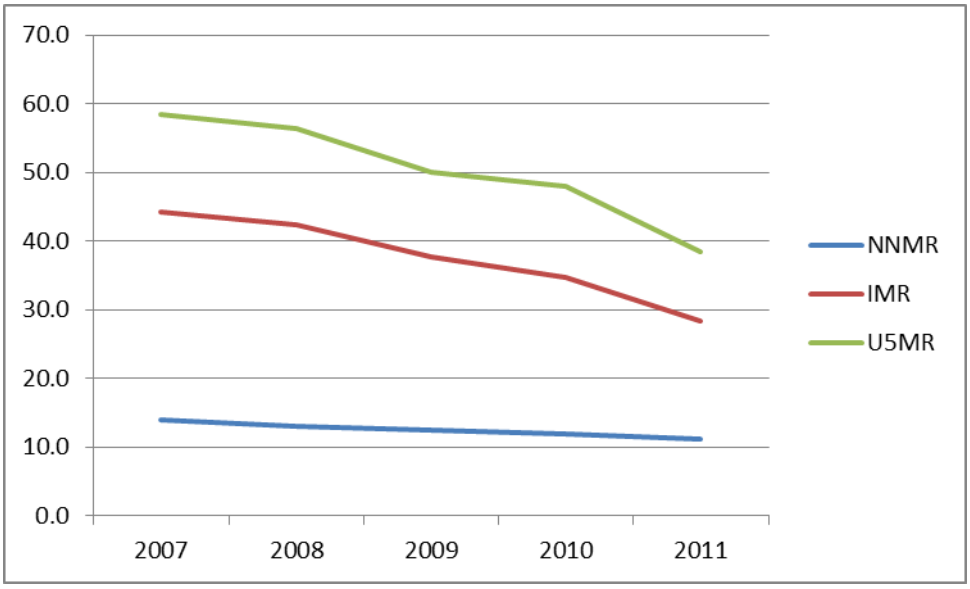


Table 58. Provincial Mortality Pattern, 2011.

	NNMR	IMR	U5MR	% in Hosp	% SAM	% HIV	CFR			EID cover	HIV+ 2/12
							GE	ARI	SAM		
EC	5.9	20.7	30.8	42.3	29.7	31.9	6.9	5.4	14.7	90.4	2.3
FS	20.1	56.2	71.2	46.7	35.1	37.3	4.2	3.6	11.2	107.0	3.1
GP	15.1	33.8	42.9	43.9	15.5	29.5	3.5	2.8	7.5	97.8	2.2
KZN	10.7	25.4	35.0	55.1	28.7	42.5	3.6	2.9	10.8	114.6	1.8
LP	7.4	21.4	33.5	41.7	39.2	41.2	5.7	4.7	16.7	97.1	2.5
MP	9.3	24.8	35.5	45.1	28.8	46.9	6.1	5.9	13.1	105.9	2.4
NW	14.1	37.9	49.1	40.5	43.5	40.8	5.4	5.1	11.1	107.9	2.5
NC	14.1	37.2	51.0	40.3	44.8	30.2	3.2	3.8	11.7	83.9	3.2
WC	8.6	19.1	24.1	43.9	14.0	20.7	0.1	0.4	3.4	50.7	1.8
RSA	11.2	28.4	38.5	45.5	31.2	39.1	4.0	3.7	12.0	100.6	2.2

Table 59. Cause of Death, 2011.

Neonates			
Cause		**N°**	**%**
Respiratory / CVS	P20-P29	4049	36.8
Length of gestation	P05-P08	1210	11.0
Other neonatal	P90-P96	1555	14.1
NN infection	P35-P39	1060	9.6
Maternal (HIE)	P00-P04	733	6.7
Haemorrhage	P50-P61	410	3.7
Congenital Abn	Q	763	6.9
Non-natural		158	1.4
GIT infection	A00-A09	268	2.4
All NN causes	**P & Q**	**10133**	**92.1**
Total		11002	

Post Neonate			
Cause		**N°**	**%**
Neonatal	P00-P90	235	1.4
Congenital Abn	Q00-Q90	571	3.4
Non-natural	V - Y	742	4.4
GIT	A00-A09	3686	21.7
Flu / ARI / LRTI	09-J22	3554	20.9
Ill defined	R95-R99	3562	21.0
Malnutrition	E40-E46	799	4.7
TB	A15-A19	316	1.9
HIV	B20-B24	244	1.4
Other Bacterial	A30-A49	475	2.8
Total		16979	

Under 1			
Cause		**N°**	**%**
Neonatal	P00-P90	9605	34.3
Congenital Abn	Q00-Q90	1334	4.8
Non-natural	V - Y	900	3.2
GIT	A00-A09	3954	14.1
Flu / ARI / LRTI	09-J22	3554	12.7
Ill defined	R95-R99	3562	12.7
Malnutrition	E40-E46	799	2.9
TB	A15-A19	316	1.1
HIV	B20-B24	244	0.9
Other Bacterial	A30-A49	475	1.7
Total		27981	

1 - 4 yrs			
Cause		**N°**	**%**
Neonatal	P00-P90	2	#DIV/0!
Congenital Abn	Q00-Q90	149	0.9
Non-natural	V - Y	1470	8.7
GIT	A00-A09	1748	10.3
Flu / ARI / LRTI	09-J22	1310	7.7
Ill defined	R95-R99	1888	11.1
Malnutrition	E40-E46	666	3.9
TB	A15-A19	450	2.7
HIV	B20-B24	137	0.8
Other Bacterial	A30-A49	147	0.9
Total		9927	58.5

Under 5			
Cause		**N°**	**%**
Neonatal	P00-P90	9608	25.3
Congenital Abn	Q00-Q90	1483	3.9
Non-natural	V - Y	2370	6.3
GIT	A00-A09	5702	15.0
Flu / ARI / LRTI	09-J22	4888	12.9
Ill defined	R95-R99	5511	14.5
Malnutrition	E40-E46	1468	3.9
TB	A15-A19	767	2.0
HIV	B20-B24	440	1.2
Other Bacterial	A30-A49	625	1.6
Total		37908	

Table 60. Mortality Pattern by Province & District, 2011.

Province	District	Births total	Death NN	Death <1	Death <5	NNMR	IMR	U5MR	Deaths in Health Service (%)		
									NN	< 1 yr	< 5 yrs
EC	Cacadu	6 612	56	187	248	8.5	28.3	37.5	51.8	36.4	35.1
	Amathole	12 871	103	403	631	8.0	31.3	49.0	60.2	45.7	39.9
	Buffalo City	15 448	95	375	497	6.1	24.3	32.2	74.7	51.7	48.3
	Chris Hani	13 651	122	360	517	8.9	26.4	37.9	77.9	52.8	47.8
	Ukhahlamba/Joe Qadi	5 467	43	209	280	7.9	38.2	51.2	60.5	35.4	36.8
	OR Tambo	32 814	65	407	774	2.0	12.4	23.6	75.4	49.1	41.3
	Alfred Nzo	13 287	83	249	374	6.2	18.7	28.1	36.1	30.9	30.5
	Nelson Mandela Bay Metro	19 533	122	233	282	6.2	11.9	14.4	73.0	62.2	58.2
	Total	119 683	703	2 478	3 687	5.9	20.7	30.8	65.4	46.6	42.3
FS	Xhariep	1 337	44	144	200	32.9	107.7	149.6	68.2	43.1	40.5
	Motheo / Mangaung	17 255	250	666	826	14.5	38.6	47.9	73.2	56.0	53.5
	Lejweleputswa	11 324	248	758	970	21.9	66.9	85.7	61.7	42.7	41.6
	Tabo Mafutsanyane	14 807	359	1 006	1252	24.2	67.9	84.6	71.3	51.0	47.8
	Fezile Dabi	8 012	144	357	466	18.0	44.6	58.2	66.0	45.7	43.8
	Total	52 735	1 061	2 963	3 754	20.1	56.2	71.2	68.8	49.1	46.7
GP	Sedibeng	16 796	287	666	853	17.1	39.7	50.8	77.4	54.4	52.8
	West Rand	15 005	271	593	768	18.1	39.5	51.2	61.3	45.4	43.5
	Ekurhuleni	56 388	870	2 008	2482	15.4	35.6	44.0	54.4	38.9	37.8
	Johannesburg	63 034	1005	2 038	2483	15.9	32.3	39.4	62.1	48.0	44.5
	Tshwane	42 816	418	1 010	1438	9.8	23.6	33.6	68.4	50.5	48.4
	Total	194 039	2 938	6 554	8 330	15.1	33.8	42.9	62.0	46.0	43.9
KZN	Ugu	14 023	150	415	633	10.7	29.6	45.1	73.3	59.3	53.9
	uMgungundlovu	17 210	156	385	520	9.1	22.4	30.2	74.4	56.1	50.6
	Uthukela	13 560	189	422	594	13.9	31.1	43.8	75.7	54.3	48.3
	Umzinyathi	10 946	124	320	455	11.3	29.2	41.6	70.2	62.5	53.4
	Amajuba	11 320	104	281	365	9.2	24.8	32.2	67.3	52.3	49.3
	Zululand	18 583	185	594	806	10.0	32.0	43.4	85.9	69.0	63.5
	Umkhanyakude	13 421	80	218	316	6.0	16.2	23.5	71.3	61.5	55.1
	Uthungula	21 322	293	577	748	13.7	27.1	35.1	82.6	70.5	64.0
	iLembe	8 468	151	331	447	17.8	39.1	52.8	78.1	68.0	62.2
	Harry Gwala	11 976	152	336	462	12.7	28.1	38.6	73.7	55.7	49.8
	eThekwini	64 895	544	1 114	1494	8.4	17.2	23.0	80.0	61.4	56.6
	Total	205 724	2 204	5 225	7 194	10.7	25.4	35.0	76.7	60.8	55.1
LP	Mopani	26 970	229	637	933	8.5	23.6	34.6	73.4	47.7	43.3
	Vhembe	29 665	197	556	877	6.6	18.7	29.6	82.7	60.1	52.1
	Capricorn	33 203	236	600	903	7.1	18.1	27.2	68.6	46.8	41.3
	Waterberg	16 511	112	343	482	6.8	20.8	29.2	74.1	42.0	38.2
	Greater Sekhukhune	19 231	90	382	668	4.7	19.9	34.7	61.1	37.7	32.9
	Total	125 580	933	2 727	4 204	7.4	21.7	33.5	71.5	47.2	41.7
MP	Gert Sibande	18 425	302	814	1049	16.4	44.2	56.9	66.9	47.8	44.9
	Nkangala	21 605	183	542	759	8.5	25.1	35.1	66.1	42.4	37.8
	Ehlanzeni	43 880	273	661	1068	6.2	15.1	24.3	76.9	60.4	51.0
	Total	83 910	783	2 080	2 976	9.3	24.8	35.5	70.2	50.4	45.1

Province	District	Births total	Death NN	Death <1	Death <5	NNMR	IMR	U5MR	Deaths in Health Service (%)		
									NN	< 1 yr	< 5 yrs
NW	Bojanala Platinum	35 541	319	930	1223	9.0	26.2	34.4	52.4	39.0	37.7
	Ngaka Modiri Molema	10 070	345	814	1080	34.3	80.8	107.2	55.4	39.3	38.5
	Ruth Segomotsi Mompati	17 675	164	507	685	9.3	28.7	38.8	64.0	42.2	39.0
	Kenneth Kaunda	13 714	245	616	774	17.9	44.9	56.4	72.7	52.1	50.0
	Total	77 000	1 085	2 920	3 830	14.1	37.9	49.7	59.7	42.3	40.5
NC	Namakwa	1 401	25	45	52	17.8	32.1	37.1	28.0	15.6	17.3
	Pixley ka Seme	3 706	95	217	286	25.6	58.6	77.2	64.2	45.2	41.6
	ZF Mgcawu	8 949	67	169	248	7.5	18.9	27.7	61.2	44.4	47.6
	Frances Baard	8 516	64	211	310	7.5	24.8	36.4	51.6	33.6	36.5
	John Taolo Gaetsewe	5 616	74	200	260	13.2	35.6	46.3	70.3	41.0	42.3
	Total	23 942	338	890	1 222	14.1	37.2	51.0	59.2	39.3	40.3
WC	West Coast	5 735	65	128	162	11.3	22.3	28.2	73.8	45.3	43.8
	Cape Winelands	13 208	102	274	346	7.7	20.7	26.2	71.6	48.5	45.4
	Overberg	2 763	27	84	106	9.8	30.4	38.4	59.3	29.8	28.3
	Eden	9 402	83	185	224	8.8	19.7	23.8	68.7	46.5	43.8
	Central Karoo	1 104	17	38	45	15.4	34.4	40.8	70.6	47.4	44.4
	City of Cape Town	70 058	567	1 198	1514	8.1	17.1	21.6	69.8	47.7	44.8
	Total	102 270	880	1 958	2 462	8.6	19.1	24.1	69.4	46.8	43.9
RSA		985 727	11 002	27 981	37 908	11.2	28.4	38.5	67.5	49.0	45.5

Table 61. Trend in Provincial Mortality Rates, 2007 – 2011.

Province	IMR					U5MR				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
EC	28.7	28.4	23.3	26.5	20.7	40.2	41.2	34.7	40.2	30.8
FS	83.5	81.0	70.4	64.3	56.2	106.0	106.0	89.7	85.5	71.2
GP	52.7	49.8	48.4	40.3	33.8	65.7	62.9	60.9	51.8	42.9
KZN	42.2	39.3	35.4	32.1	25.4	56.3	52.3	47.3	43.4	34.9
LP	33.6	35.4	32.0	28.1	21.4	49.1	52.7	47.5	44.1	33.5
MP	49.1	41.1	35.0	32.0	24.8	67.9	57.1	48.3	47.6	35.5
NW	73.5	64.8	46.7	44.6	37.9	95.0	86.5	60.9	61.0	49.7
NC	51.5	52.5	46.9	42.6	37.2	65.8	70.9	62.1	58.8	51.0
WC	24.5	22.3	22.8	23.1	19.1	29.7	27.7	27.5	28.6	24.1
RSA	44.3	42.3	37.7	34.8	28.4	58.4	56.4	50.1	47.9	38.5

Figure 46. Trend in Infant Mortality Rate, 2007-2011.

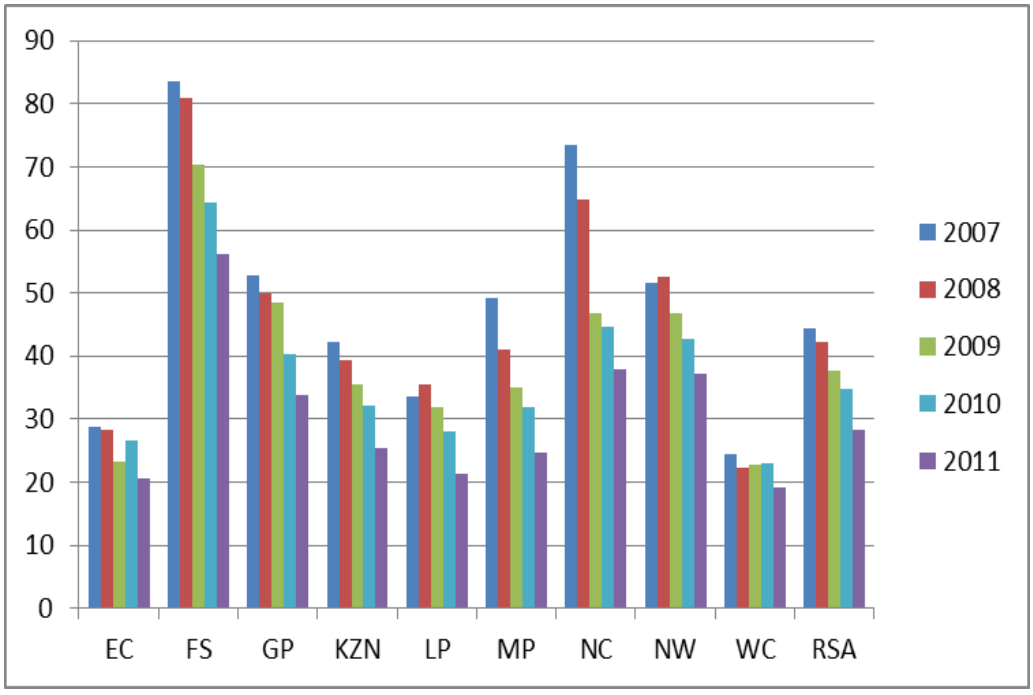


Figure 47.Trend in Under-5 Mortality Rate, 2007-2011.

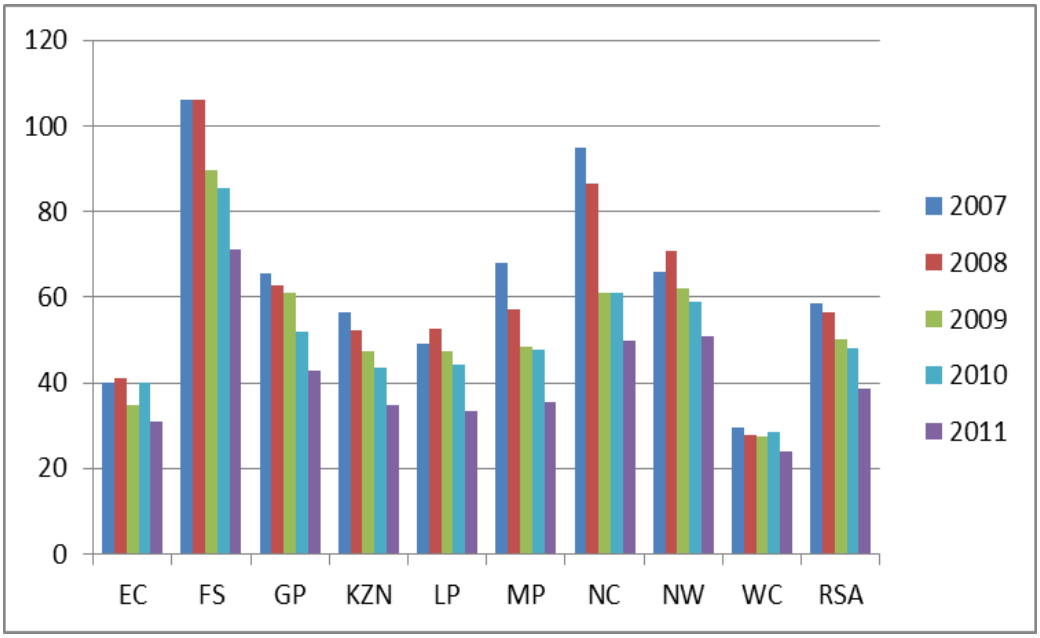


Table 62. Morbidity & Mortality Pattern by District, 2011.

Province	District	NMR	IMR	U5MR	% in Hosp	% SAM	% HIV	CFR			EID cover	HIV+ 2/12
								GE	ARI	SAM		
EC	Cacadu	8.5	28.3	37.5	35.1	47.6	33.3	2.0	10.5	2.1	96.8	3.3
	Amathole	8.0	31.3	49.0	39.9	25.5	30.9	13.2	8.8	9.5	124.9	2.5
	Buffalo City	6.1	24.3	32.2	48.3			2.5	1.6	12.7	71.4	1.8
	Chris Hani	8.9	26.4	15.9	47.8			2.0	2.1	2.1	92.8	1.7
	Ukhahlamba/Joe Qadi	7.9	38.2	51.2	36.8			6.2	9.2	11.7	98.9	1.1
	OR Tambo	2.0	12.4	23.6	41.3			13.2	9.9	22.6	78.3	2.0
	Alfred Nzo	6.2	18.7	28.1	30.5	31.0	32.8	13.2	8.8	19.5	105.4	2.9
	Nelson Mandela Bay Metro	6.2	11.9	14.4	58.2	25.0	33.3	2.3	3.9	8.2	90.5	3.0
FS	Xhariep	32.9	107.7	149.6	40.5	46.2	46.2	1.0	1.1	14.0	306.2	3.1
	Motheo / Manguang	14.5	38.6	47.9	53.5	35.5	29.7	2.6	2.0	5.0	100.6	3.0
	Lejweleputswa	21.9	66.9	85.7	41.6	37.4	35.4	6.0	4.1	16.8	109.4	2.4
	Tabo Mafutsanyane	24.2	67.9	54.6	47.8	33.0	47.8	6.2	6.0	21.8	109.3	2.8
	Fezile Dabi	18.0	44.6	58.2	43.8	32.3	37.1	2.7	5.2	15.8	92.2	5.1
GP	Sedibeng	17.1	39.7	50.8	52.8			5.3	6.3	10.6	97.4	1.7
	West Rand	18.1	39.5	51.2	43.5			3.5	2.8	3.3	91.0	2.5
	Ekurhuleni	15.4	35.6	44.0	37.8			4.3	3.0	12.9	90.2	1.9
	Johannesburg	15.9	32.3	39.4	44.5	10.3	47.1	5.1	2.0	1.4	114.8	4.4
	Tshwane	9.8	23.6	33.6	48.4	17.8	21.7	0.5	1.1	8.2	105.8	2.7
KZN	Ugu	10.7	29.6	45.1	53.9	50.0	43.8	4.2	2.5	14.1	112.1	2.5
	uMgungundlovu	9.1	22.4	30.2	50.6	29.4	36.9	3.4	2.4	10.0	100.5	1.6
	Uthukela	13.9	31.1	43.8	48.3	30.8	46.9	4.5	4.1	14.8	135.4	1.5
	Umzinyathi	11.3	29.2	41.6	53.4	33.3	37.0	5.6	2.3	13.6	141.7	1.1
	Amajuba	9.2	24.8	32.2	49.3	22.4	24.5	1.2	1.1	11.7	97.1	1.4
	Zululand	10.0	32.0	43.4	63.5	12.7	46.8	5.6	6.4	26.1	127.1	2.1
	Umkhanyakude	6.0	16.2	23.5	55.1	15.4	55.6	3.4	2.4	10.0	121.0	2.4
	Uthungula	13.7	27.1	35.1	64.0	21.3	40.2	3.5	4.8	17.2	103.9	1.7
	iLembe	17.8	39.1	52.8	62.2	43.8	41.1	2.8	1.5	6.8	127.4	2.5
	Harry Gwala	12.7	28.1	38.6	49.8	43.3	49.2	4.8	3.4	12.7	127.4	1.7
	eThekwini	8.4	17.2	23.0	56.6	24.2	43.0	2.4	2.6	4.4	109.9	1.5
LP	Mopani	8.5	23.6	34.6	43.3	27.3	45.5	4.8	5.8	16.3	94.2	2.3
	Vhembe	6.6	18.7	29.6	52.1	36.1	42.4	4.3	3.1	13.3	91.5	2.6
	Capricorn	7.1	18.1	27.2	41.3	28.6	28.6	7.1	6.7	25.8	99.9	2.5
	Waterberg	6.8	20.8	29.2	38.2	58.5	47.2	9.3	5.9	15.3	103.5	3.0
	Greater Sekhukhune	4.7	19.9	34.7	32.9			5.3	4.8	16.6	97.0	2.5
MP	Gert Sibande	16.4	44.2	56.9	44.9	26.8	47.0	5.5	6.3	13.9	111.3	2.2
	Nkangala	8.5	25.1	35.1	37.8	27.9	47.3	5.4	3.4	10.5	108.0	2.0
	Ehlanzeni	6.2	15.1	24.3	51.0	30.5	46.7	7.3	7.4	13.9	102.5	2.6
NW	Bojanala Platinum	9.0	26.2	34.4	37.7	63.3	48.8	6.9	6.8	18.4	119.1	2.6
	Ngaka Modiri Molema	34.3	80.8	107.2	38.5	43.5	38.7	4.7	4.3	10.3	99.8	2.7
	Ruth Segomotsi Mompati	9.3	28.7	38.8	39.0	6.3	37.4	4.2	4.7	10.2	116.6	2.5
	Kenneth Kaunda	17.9	44.9	56.4	50.0	25.0	37.9	6.0	4.6	6.9	91.5	2.3
NC	Namakwa	17.8	32.1	37.1	17.3	42.1	0.0	2.3	0.0	16.7	10.9	5.7
	Pixley ka Seme	25.6	58.6	77.2	41.6	46.7	25.0	0.8	0.0	1.7	99.0	2.8
	ZF Mgcawu	7.5	18.9	27.7	47.6	42.5	16.1	2.1	2.2	11.1	75.1	3.4
	Frances Baard	7.5	24.8	36.4	36.5	39.6	29.5	3.4	2.9	12.0	84.4	2.6
	John Taolo Gaetsewe	13.2	35.6	46.3	42.3	42.9	50.0	11.9	17.8	21.0	83.3	3.9
WC	West Coast	11.3	22.3	28.2	43.8	14.3	14.3	0.1	0.0	6.3	52.2	4.7
	Cape Winelands	7.7	20.7	26.2	45.4	25.0	22.5	0.3	0.3	2.8	49.6	1.4
	Overberg	9.8	30.4	38.4	28.3	50.0	0.0	0.0	0.0	0.0	57.9	2.1
	Eden	8.8	19.7	23.8	43.8	25.0	30.0	0.5	0.0	6.1	52.9	1.6
	Central Karoo	15.4	34.4	40.8	44.4	0.0	18.2	0.0	0.0	0.0	42.3	0.0
	City of Cape Town	8.1	17.1	21.6	44.8	12.2	20.4	0.1	0.8	2.9	50.3	1.7

Table 63. Trend in District Mortality Rates, 2007 – 2011.

Province	District	IMR					U5MR				
		2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
EC	Cacadu	55.1	49.7	42.4	41.9	28.3	69.1	65.3	53.6	54.4	37.5
	Amathole	38.2	29.3	13.4	32.5	31.3	54.3	41.7	20.4	58.1	53.7
	Buffalo city				29.2	24.3				39.8	32.2
	Chris Hani	29.2	27.1	23.5	30.2	26.4	39.1	38.2	34.0	43.0	37.9
	Joe Qadi	43.1	46.9	36.9	41.9	38.2	62.8	67.8	54.1	63.8	51.2
	OR Tambo	19.4	18.6	9.6	15.1	12.4	33.1	33.3	18.4	28.8	23.6
	Alfred Nzo	16.1	14.2	23.6	5.0	18.7	23.8	22.4	42.3	38.3	28.1
	Nelson Mandela Bay Metro	44.0	38.5	29.3	28.0	11.4	55.5	50.0	39.3	35.5	13.9
FS	Xhariep	66.3	84.6	119.2	189.0	107.7	85.9	113.0	147.6	256.7	149.6
	Mangaung	65.0	67.1	49.4	36.1	38.6	81.6	89.6	62.5	48.5	47.9
	Lejweleputswa	100.9	97.4	88.6	80.9	66.9	131.3	127.6	113.8	108.0	85.7
	Tabo Mafutsanyane	91.5	81.9	76.8	74.3	67.9	114.9	106.5	97.9	100.2	84.6
	Fezile Dube	86.0	85.0	69.5	60.5	44.6	108.4	108.1	89.6	76.5	58.2
GP	Sedibeng	60.6	44.5	39.4	53.3	39.7	74.5	56.0	48.1	69.1	50.8
	West Rand	74.6	58.7	71.1	58.2	39.5	93.1	72.6	89.3	75.7	51.2
	Ekurhuleni	66.4	66.0	59.8	45.8	35.6	81.3	80.8	73.6	57.0	44.0
	Johannesburg	43.3	44.5	41.2	35.0	32.3	53.1	55.3	51.6	44.4	39.4
	Tshwane	42.7	44.0	50.3	26.6	23.6	56.5	59.8	67.8	37.3	33.6
KZN	Ugu	44.8	35.4	34.6	43.6	29.6	61.6	48.3	48.2	66.2	45.1
	uMgungundlovu	36.4	31.4	28.0	26.2	22.4	51.3	44.2	37.5	35.2	30.2
	Uthukela	60.1	56.6	40.5	42.4	31.1	79.3	74.4	54.1	54.4	43.8
	Umzinyathi	94.1	71.1	53.2	41.1	29.2	119.8	90.3	71.2	53.6	41.6
	Amajuba	67.5	49.0	36.5	35.2	24.8	83.7	60.5	48.1	45.8	32.2
	Zululand	49.9	41.7	39.9	39.1	32.0	66.5	56.1	52.7	54.1	43.4
	Umkhanyakude	25.5	31.9	28.1	26.3	16.2	38.4	48.4	40.4	37.6	23.5
	Uthungula	39.8	37.7	41.4	30.5	27.1	52.6	49.4	52.1	39.6	35.1
	iLembe	43.0	34.9	32.9	43.2	40.0	57.8	46.8	45.2	56.1	53.7
	Harry Gwala	34.3	49.4	35.3	42.6	28.1	42.9	69.3	48.7	56.7	38.6
	eThekwini	37.9	33.6	30.0	22.8	17.2	50.2	44.7	40.1	31.3	23.0
LP	Mopani	40.0	41.9	44.4	31.8	23.6	62.5	65.8	68.2	48.9	34.6
	Vhembe	25.4	22.8	19.4	26.5	18.7	39.1	31.4	29.6	41.6	29.6
	Capricorn	41.6	39.2	34.8	27.4	18.1	57.8	56.8	50.3	42.4	27.2
	Waterberg	34.9	35.8	28.1	25.5	20.8	47.1	53.9	38.3	37.7	29.2
	Greater Sekhukhune	30.6	48.8	42.0	27.6	19.9	48.6	77.1	64.5	46.4	34.7
MP	Gert Sibande	98.2	77.1	70.1	60.3	44.2	124.4	98.1	87.8	78.4	56.9
	Nkangala	49.3	38.7	31.9	33.0	25.1	67.8	54.1	43.4	48.1	35.1
	Ehlanzeni	31.9	27.1	21.7	18.7	15.1	49.2	41.1	34.1	33.2	24.3
NW	Bojanala Platinum	66.0	57.0	32.9	35.5	26.2	86.9	76.0	43.5	48.5	34.4
	Ngaka Modiri Molema	115.7	114.5	100.7	85.7	80.8	150.9	151.7	131.2	118.9	107.2
	Ruth Segomotsi Mompati	55.5	42.0	37.6	34.5	28.7	72.5	58.2	51.9	48.6	38.8
	Kenneth Kaunda	119.3	76.2	52.6	50.1	44.9	149.3	98.2	64.1	65.5	56.4
NC	Namakwa	32.1	32.1	24.4	30.6	32.1	39.7	35.2	30.3	39.3	37.1
	Pixley ka Seme	73.0	75.6	82.4	60.0	58.6	92.9	100.8	102.4	82.7	77.2
	ZF Mgcawu	48.9	43.8	52.0	36.6	18.9	60.6	60.1	71.1	49.7	27.7
	Frances Baard	41.7	45.7	31.9	27.8	24.2	54.9	61.3	44.5	39.4	35.6
	John Taolo Gaetsewe	64.8	66.1	56.4	59.9	35.6	82.2	92.2	72.8	82.3	46.3
WC	West Coast	37.3	28.2	23.2	29.9	22.3	43.6	33.8	26.6	35.1	28.2
	Cape Winelands	28.6	22.7	25.1	25.1	20.7	34.0	29.9	31.0	31.3	26.2
	Overberg	36.9	27.9	28.5	32.4	30.4	45.7	34.9	33.5	45.5	38.4
	Eden	31.5	23.2	23.6	18.9	19.7	38.1	29.1	28.2	23.5	23.8
	Central Karoo	50.6	44.0	40.5	30.7	34.4	67.5	58.4	51.5	40.0	40.8
	City of Cape Town	21.3	21.0	21.7	22.2	17.1	25.9	25.9	26.2	27.4	21.6

Table 64. District Ranking by 2011 Infant Mortality Rate.

Rank	District	Province	IMR					U5MR				
			2011	2010	2009	2008	2007	2011	2010	2009	2008	2007
1	Nelson Mandela Bay Metro	EC	11.4	28.0	29.3	38.5	44.0	13.9	35.5	39.3	50.0	55.5
2	OR Tambo	EC	12.4	15.1	9.6	18.6	19.4	23.6	28.8	18.4	33.3	33.1
3	Ehlanzeni	MP	15.1	18.7	21.7	27.1	31.9	24.3	33.2	34.1	41.1	49.2
4	Umkhanyakude	KZN	16.2	26.3	28.1	31.9	25.5	23.5	37.6	40.4	48.4	38.4
5	City of Cape Town	WC	17.1	22.2	21.7	21.0	21.3	21.6	27.4	26.2	25.9	25.9
6	eThekwini	KZN	17.2	22.8	30.0	33.6	37.9	23.0	31.3	40.1	44.7	50.2
7	Capricorn	LP	18.1	27.4	34.8	39.2	41.6	27.2	42.4	50.3	56.8	57.8
8	Alfred Nzo	EC	18.7	5.0	23.6	14.2	16.1	28.1	38.3	42.3	22.4	23.8
9	Vhembe	LP	18.7	26.5	19.4	22.8	25.4	29.6	41.6	29.6	31.4	39.1
10	ZF Mgcawu	NC	18.9	36.6	52.0	43.8	48.9	27.7	49.7	71.1	60.1	60.6
11	Eden	WC	19.7	18.9	23.6	23.2	31.5	23.8	23.5	28.2	29.1	38.1
12	Greater Sekhukhune	LP	19.9	27.6	42.0	48.8	30.6	34.7	46.4	64.5	77.1	48.6
13	Cape Winelands	WC	20.7	25.1	25.1	22.7	28.6	26.2	31.3	31.0	29.9	34.0
14	Waterberg	LP	20.8	25.5	28.1	35.8	34.9	29.2	37.7	38.3	53.9	47.1
15	West Coast	WC	22.3	29.9	23.2	28.2	37.3	28.2	35.1	26.6	33.8	43.6
16	uMgungundlovu	KZN	22.4	26.2	28.0	31.4	36.4	30.2	35.2	37.5	44.2	51.3
17	Tshwane	GP	23.6	26.6	50.3	44.0	42.7	33.6	37.3	67.8	59.8	56.5
18	Mopani	LP	23.6	31.8	44.4	41.9	40.0	34.6	48.9	68.2	65.8	62.5
19	Frances Baard	NC	24.2	27.8	31.9	45.7	41.7	35.6	39.4	44.5	61.3	54.9
20	Buffalo city	EC	24.3	29.2				32.2	39.8			
21	Amajuba	KZN	24.8	35.2	36.5	49.0	67.5	32.2	45.8	48.1	60.5	83.7
22	Nkangala	MP	25.1	33.0	31.9	38.7	49.3	35.1	48.1	43.4	54.1	67.8
23	Bojanala Platinum	NW	26.2	35.5	32.9	57.0	66.0	34.4	48.5	43.5	76.0	86.9
24	Chris Hani	EC	26.4	30.2	23.5	27.1	29.2	37.9	43.0	34.0	38.2	39.1
25	Uthungula	KZN	27.1	30.5	41.4	37.7	39.8	35.1	39.6	52.1	49.4	52.6
26	Harry Gwala	KZN	28.1	42.6	35.3	49.4	34.3	38.6	56.7	48.7	69.3	42.9
27	Cacadu	EC	28.3	41.9	42.4	49.7	55.1	37.5	54.4	53.6	65.3	69.1
28	Ruth Segomotsi Mompati	NW	28.7	34.5	37.6	42.0	55.5	38.8	48.6	51.9	58.2	72.5
29	Umzinyathi	KZN	29.2	41.1	53.2	71.1	94.1	41.6	53.6	71.2	90.3	119.8
30	Ugu	KZN	29.6	43.6	34.6	35.4	44.8	45.1	66.2	48.2	48.3	61.6
31	Overberg	WC	30.4	32.4	28.5	27.9	36.9	38.4	45.5	33.5	34.9	45.7
32	Uthukela	KZN	31.1	42.4	40.5	56.6	60.1	43.8	54.4	54.1	74.4	79.3
33	Amathole	EC	31.3	32.5	13.4	29.3	38.2	53.7	58.1	20.4	41.7	54.3
34	Zululand	KZN	32.0	39.1	39.9	41.7	49.9	43.4	54.1	52.7	56.1	66.5
35	Namakwa	NC	32.1	30.6	24.4	32.1	32.1	37.1	39.3	30.3	35.2	39.7
36	Johannesburg	GP	32.3	35.0	41.2	44.5	43.3	39.4	44.4	51.6	55.3	53.1
37	Central Karoo	WC	34.4	30.7	40.5	44.0	50.6	40.8	40.0	51.5	58.4	67.5
38	Ekurhuleni	GP	35.6	45.8	59.8	66.0	66.4	44.0	57.0	73.6	80.8	81.3
39	John Taolo Gaetsewe	NC	35.6	59.9	56.4	66.1	64.8	46.3	82.3	72.8	92.2	82.2
40	Joe Qadi	EC	38.2	41.9	36.9	46.9	43.1	51.2	63.8	54.1	67.8	62.8
41	Mangaung	FS	38.6	36.1	49.4	67.1	65.0	47.9	48.5	62.5	89.6	81.6
42	West Rand	GP	39.5	58.2	71.1	58.7	74.6	51.2	75.7	89.3	72.6	93.1
43	Sedibeng	GP	39.7	53.3	39.4	44.5	60.6	50.8	69.1	48.1	56.0	74.5
44	iLembe	KZN	40.0	43.2	32.9	34.9	43.0	53.7	56.1	45.2	46.8	57.8
45	Gert Sibande	MP	44.2	60.3	70.1	77.1	98.2	56.9	78.4	87.8	98.1	124.4
46	Fezile Dube	FS	44.6	60.5	69.5	85.0	86.0	58.2	76.5	89.6	108.1	108.4
47	Kenneth Kaunda	NW	44.9	50.1	52.6	76.2	119.3	56.4	65.5	64.1	98.2	149.3
48	Pixley ka Seme	NC	58.6	60.0	82.4	75.6	73.0	77.2	82.7	102.4	100.8	92.9
49	Lejweleputswa	FS	66.9	80.9	88.6	97.4	100.9	85.7	108.0	113.8	127.6	131.3
50	Tabo Mafutsanyane	FS	67.9	74.3	76.8	81.9	91.5	84.6	100.2	97.9	106.5	114.9
51	Ngaka Modiri Molema	NW	80.8	85.7	100.7	114.5	115.7	107.2	118.9	131.2	151.7	150.9
52	Xhariep	FS	107.7	189.0	119.2	84.6	66.3	149.6	256.7	147.6	113.0	85.9

Table 65. District Ranking by 2011 Under-5 Mortality Rate.

Rank	District	Province	U5MR					IMR				
			2011	2010	2009	2008	2007	2011	2010	2009	2008	2007
1	Nelson Mandela Bay Metro	EC	13.9	35.5	39.3	50.0	55.5	11.4	28.0	29.3	38.5	44.0
2	City of Cape Town	WC	21.6	27.4	26.2	25.9	25.9	17.1	22.2	21.7	21.0	21.3
3	eThekwini	KZN	23.0	31.3	40.1	44.7	50.2	17.2	22.8	30.0	33.6	37.9
4	Umkhanyakude	KZN	23.5	37.6	40.4	48.4	38.4	16.2	26.3	28.1	31.9	25.5
5	OR Tambo	EC	23.6	28.8	18.4	33.3	33.1	12.4	15.1	9.6	18.6	19.4
6	Eden	WC	23.8	23.5	28.2	29.1	38.1	19.7	18.9	23.6	23.2	31.5
7	Ehlanzeni	MP	24.3	33.2	34.1	41.1	49.2	15.1	18.7	21.7	27.1	31.9
8	Cape Winelands	WC	26.2	31.3	31.0	29.9	34.0	20.7	25.1	25.1	22.7	28.6
9	Capricorn	LP	27.2	42.4	50.3	56.8	57.8	18.1	27.4	34.8	39.2	41.6
10	ZF Mgcawu	NC	27.7	49.7	71.1	60.1	60.6	18.9	36.6	52.0	43.8	48.9
11	Alfred Nzo	EC	28.1	38.3	42.3	22.4	23.8	18.7	5.0	23.6	14.2	16.1
12	West Coast	WC	28.2	35.1	26.6	33.8	43.6	22.3	29.9	23.2	28.2	37.3
13	Waterberg	LP	29.2	37.7	38.3	53.9	47.1	20.8	25.5	28.1	35.8	34.9
14	Vhembe	LP	29.6	41.6	29.6	31.4	39.1	18.7	26.5	19.4	22.8	25.4
15	uMgungundlovu	KZN	30.2	35.2	37.5	44.2	51.3	22.4	26.2	28.0	31.4	36.4
16	Buffalo city	EC	32.2	39.8				24.3	29.2			
17	Amajuba	KZN	32.2	45.8	48.1	60.5	83.7	24.8	35.2	36.5	49.0	67.5
18	Tshwane	GP	33.6	37.3	67.8	59.8	56.5	23.6	26.6	50.3	44.0	42.7
19	Bojanala Platinum	NW	34.4	48.5	43.5	76.0	86.9	26.2	35.5	32.9	57.0	66.0
20	Mopani	LP	34.6	48.9	68.2	65.8	62.5	23.6	31.8	44.4	41.9	40.0
21	Greater Sekhukhune	LP	34.7	46.4	64.5	77.1	48.6	19.9	27.6	42.0	48.8	30.6
22	Uthungula	KZN	35.1	39.6	52.1	49.4	52.6	27.1	30.5	41.4	37.7	39.8
23	Nkangala	MP	35.1	48.1	43.4	54.1	67.8	25.1	33.0	31.9	38.7	49.3
24	Frances Baard	NC	35.6	39.4	44.5	61.3	54.9	24.2	27.8	31.9	45.7	41.7
25	Namakwa	NC	37.1	39.3	30.3	35.2	39.7	32.1	30.6	24.4	32.1	32.1
26	Cacadu	EC	37.5	54.4	53.6	65.3	69.1	28.3	41.9	42.4	49.7	55.1
27	Chris Hani	EC	37.9	43.0	34.0	38.2	39.1	26.4	30.2	23.5	27.1	29.2
28	Overberg	WC	38.4	45.5	33.5	34.9	45.7	30.4	32.4	28.5	27.9	36.9
29	Harry Gwala	KZN	38.6	56.7	48.7	69.3	42.9	28.1	42.6	35.3	49.4	34.3
30	Ruth Segomotsi Mompati	NW	38.8	48.6	51.9	58.2	72.5	28.7	34.5	37.6	42.0	55.5
31	Johannesburg	GP	39.4	44.4	51.6	55.3	53.1	32.3	35.0	41.2	44.5	43.3
32	Central Karoo	WC	40.8	40.0	51.5	58.4	67.5	34.4	30.7	40.5	44.0	50.6
33	Umzinyathi	KZN	41.6	53.6	71.2	90.3	119.8	29.2	41.1	53.2	71.1	94.1
34	Zululand	KZN	43.4	54.1	52.7	56.1	66.5	32.0	39.1	39.9	41.7	49.9
35	Uthukela	KZN	43.8	54.4	54.1	74.4	79.3	31.1	42.4	40.5	56.6	60.1
36	Ekurhuleni	GP	44.0	57.0	73.6	80.8	81.3	35.6	45.8	59.8	66.0	66.4
37	Ugu	KZN	45.1	66.2	48.2	48.3	61.6	29.6	43.6	34.6	35.4	44.8
38	John Taolo Gaetsewe	NC	46.3	82.3	72.8	92.2	82.2	35.6	59.9	56.4	66.1	64.8
39	Mangaung	FS	47.9	48.5	62.5	89.6	81.6	38.6	36.1	49.4	67.1	65.0
40	Sedibeng	GP	50.8	69.1	48.1	56.0	74.5	39.7	53.3	39.4	44.5	60.6
41	Joe Qadi	EC	51.2	63.8	54.1	67.8	62.8	38.2	41.9	36.9	46.9	43.1
42	West Rand	GP	51.2	75.7	89.3	72.6	93.1	39.5	58.2	71.1	58.7	74.6
43	Amathole	EC	53.7	58.1	20.4	41.7	54.3	31.3	32.5	13.4	29.3	38.2
44	iLembe	KZN	53.7	56.1	45.2	46.8	57.8	40.0	43.2	32.9	34.9	43.0
45	Kenneth Kaunda	NW	56.4	65.5	64.1	98.2	149.3	44.9	50.1	52.6	76.2	119.3
46	Gert Sibande	MP	56.9	78.4	87.8	98.1	124.4	44.2	60.3	70.1	77.1	98.2
47	Fezile Dube	FS	58.2	76.5	89.6	108.1	108.4	44.6	60.5	69.5	85.0	86.0
48	Pixley ka Seme	NC	77.2	82.7	102.4	100.8	92.9	58.6	60.0	82.4	75.6	73.0
49	Tabo Mafutsanyane	FS	84.6	100.2	97.9	106.5	114.9	67.9	74.3	76.8	81.9	91.5
50	Lejweleputswa	FS	85.7	108.0	113.8	127.6	131.3	66.9	80.9	88.6	97.4	100.9
51	Ngaka Modiri Molema	NW	107.2	118.9	131.2	151.7	150.9	80.8	85.7	100.7	114.5	115.7
52	Xhariep	FS	149.6	256.7	147.6	113.0	85.9	107.7	189.0	119.2	84.6	66.3

APPENDIX 2: PROVINCIAL PROFILES

The following tables provide an overview of each province with their respective districts with respect to the:

- Demographic profile
- Health system
- Service utilization
- Child health indicators
- Mortality profile

Whilst it is acknowledged that much of the data is imperfect it is presented with an intention to engage with available data, to facilitate its use in managing and monitoring child health services and to precipitate an improvement in the quality and completeness of the data being collected.

- DHIS data for hospitals is incomplete and inaccurate.
- Child PIP data is not representative as it is collected from select sites only.

Data sources:

Stats SA	Sources	Mid-year population estimates
		Mortality and causes of death in South Africa, 2007 - 2011: findings from death notification
	Data	Demograpnic profile
		Mortality profile
DHIS	Source	District Health Information System, NDoH, 2009 – 2013
	Data	Health Systems Profile
		Mortality profile including In-hospital & Case Fatality Rates
Child PIP	Source	Child Healthcare Problem Identification Programme
	Data	Mortality Profile
		Modifiable Factors

SOUTH AFRICA – NATIONAL PICTURE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size					
	Population	1 220 813	50 895 701	51 579 603	52 274 952	52 981 992
	U5 Population	48 272 360	5 244 951	5 280 054	5 295 285	5 292 505
	U15 Population	5 098 832	17 422 977	17 429 561	17 436 214	17 448 377
	Annual births	1 007 501	990 775	985 727	-	-
	Deaths U1	375 974	34 431	27 981	-	-
	Deaths U5	50 471	47 418	37 908	-	-
	Poverty Index				-	-
Health system profile						
	N° PHC clinics	3174	-	-	-	3490
	N° CHCs	296	-	-	-	271
	N° 1° hospitals	256	-	-	-	256
	N° 2° hospitals	53	-	-	-	51
	N° 3°/4° hospitals	14	-	-	-	292
	N° Specialised hospitals	85	-	-	-	4512
	N° private hospitals	212	-	-	-	241
	Medical aid coverage	16.9	-	-	16.4	-
Health indicator						
EPI	Fully immunized @ 1 year	89.5	79.9	82.9	84.0	83.8
	DPT - Measles drop out	-687.4	-34.9	-1.8	-7.6	3.7
	Exclusively breastfed @ HepB 3	-	-	5.2	11.8	32.6
HIV / TB	PCR coverage	-	87.3	93.1	100.3	100.6
	PCR +ve @ 2 months	-	9.0	4.3	2.7	2.2
	Children U1 initiated on HAART	-	-	-	-	-
	TB contact U5 initiated on IPT	-	-	-	-	-
	TB notification U5	-	-	-	-	62.7
SAM	SAM incidence	-	4.8	4.4	3.9	4.2
	SAM CFR (DHIS)	18.9	18.2	13.5	12.2	12.0
	SAM IHMR (Child PIP)	18.3	18.8	15.2	13.6	13.8
GE	Diarrhoeal disease incidence	-	16.9	14.4	11.5	12.8
	Diarrhoeal disease CFR (DHIS)	7.4	7.0	5.2	4.2	4.0
	Diarrhoeal disease IHMR (Child PIP)	5.6	5.7	4.3	3.6	4.1
ARI	ARI admitted	-	79.5	78.7	64.9	54.7
	ARI CFR (DHIS)	6.7	6.3	4.3	4.1	3.7
	ARI IHMR (Child PIP)	6.3	5.2	3.6	2.9	2.7

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - StatsSA	Neonatal				
	Cause of death 2 - StatsSA	GIT infection				
	Cause of death 3 - StatsSA	Ill defined causes				
	Cause of death 4 - StatsSA	Pneumonia				
	Cause of death 5 - StatsSA	Non-natural				
	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Septicaemia				
	Cause of death 4 - Child PIP	Other Nutritional				
	Cause of death 5 - Child PIP	TB (all)				
	Non-natural deaths (%)	5.1	5.4	6.3	-	-
IMR	Registered deaths (StatsSA)	37 974	34 431	27 981	-	-
	Census deaths	-	-	40 697	-	-
	Hospital deaths (DHIS)	13 464	13 675	12 288	11 965	14 361
	Child PIP deaths in hospital - N^{o}.	3 731	3 695	3 121	2 625	3 071
	IMR (StatsSA)	38.1	35.5	28.4	-	-
	IHMR (DHIS)	10.7	8.6	6.9	6.0	6.5
	IHMR - Child PIP	6.4	5.8	4.7	3.8	3.9
	% deaths in hospital	52.9	52.2	49.0	-	-
U5MR	Registered deaths (StatsSA)	50 471	47 418	37 908	-	-
	Census deaths	-	-	54 250	-	-
	Hospital deaths (DHIS)	12 741	14 130	12 416	13 839	16 972
	Child PIP deaths in hospital - N^{o}.	5 208	5 401	4 505	3 788	4 547
	U5MR (StatsSA)	50.7	48.9	38.5	-	-
	IHMR (DHIS)	6.7	5.8	4.5	4.6	5.0
	IHMR - Child PIP	4.7	4.4	3.3	2.6	2.8
	% deaths in hospital	50.0	49.5	45.5	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	93	133	153	159	184
	% severe malnutrition	33.2	33.0	30.9	27.9	31.2
	% HIV Infected or Exposed	48.3	49.9	43.0	39.9	39.1
	% Deaths within 24 hrs	32.2	33.0	30.9	27.9	31.2
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quantity) food				
	Top modifiable factors - Clinic/OPD - 1	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 2	Inadequate assesment for HIV (IMCI not used)				
	Top modifiable factors - Clinic/OPD - 3	Delayed referral for severe malnutrition, wt loss, or growth faltering				
	Top modifiable factors - A&E - 1	Inadequate notes on clinical care				
	Top modifiable factors - A&E - 2	Inadequate history taken				
	Top modifiable factors - A&E - 3	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 3	Inadequate referral letter				
	Top modifiable factors - Ward - 1	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 2	Insufficient notes on clinical care				
	Top modifiable factors - Ward - 3	Inadequate investigations				

EASTERN CAPE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	168966	168966	168966	168966	168966
	Population	7 092 201	6 521 856	6 553 892	6 586 308	6 620 136
	U5 Population	766 947	769 889	759 919	753 862	745 871
	U15 Population	2 336 307	2 217 233	2 198 058	2 181 454	2 173 691
	Annual births	107 807	119 627	119 683	110 244	-
	Deaths U1	2 911	3 166	2 478	-	-
	Deaths U5	4334	4811	3687	-	-
Health system profile						
	N° PHC clinics	711	-	-	-	772
	N° CHCs	33	-	-	-	41
	N° 1° hospitals	61	-	-	-	65
	N° 2° hospitals	2	-	-	-	2
	N° 3°/4° hospitals	7	-	-	-	15
	N° Specialised hospitals	20	-	-	-	935
	N° private hospitals	14	-	-	-	13
	Medical aid coverage	11.4	-	-	10.7	-
Health indicator						
EPI	Fully immunized @ 1 year	88.3	70.4	69.4	73.6	71.8
	DPT - Measles drop out	-	-123.3	-19.7	-8.7	-3.6
	Exclusively breastfed @ HepB 3	-	-	-	-	30.2
HIV / TB	PCR coverage	-	70.1	80.5	83.1	90.4
	PCR +ve @ 2 months	-	7.5	4.7	3.1	2.3
	Children U1 initiated on HAART	189	271	363	390	253
	TB contact U5 initiated on IPT	-	-	-	-	64.8
SAM	SAM incidence	4.9	4.6	3.9	3.8	4.8
	SAM CFR (DHIS)	20.5	23.6	19.8	13.7	14.7
	SAM IHMR (Child PIP)	-	-	-	-	12.8
GE	Diarrhoeal disease incidence	108.0	13.4	11.5	10.2	13.0
	Diarrhoeal disease CFR (DHIS)	10.0	11.1	8.3	6.2	6.9
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	4.6
ARI	ARI incidence	-	57.1	54.5	51.5	44.8
	ARI CFR (DHIS)	8.1	7.8	5.3	4.5	5.4
	ARI IHMR (Child PIP)	-	-	-	-	1.9

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - StatsSA	III defined				
	Cause of death 2 - StatsSA	Neonatal				
	Cause of death 3 - StatsSA	GIT infection				
	Cause of death 4 - StatsSA	Pneumonia				
	Cause of death 5 - StatsSA	Non-natural				
	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Septicaemia				
	Cause of death 3 - Child PIP	Pneumonia				
	Cause of death 4 - Child PIP	Other Nutritional				
	Cause of death 5 - Child PIP	TB (all)				
	Non-natural deaths (%)	-	-	6.9	-	-
IMR	Registered deaths (StatsSA)	2 911	3 166	2478	-	-
	Census deaths	-	-	5692	-	-
	Hospital deaths (DHIS)	3 879	2 693	2040	1864	2466
	Child PIP deaths in hospital - N^{o}.	235	173	129	126	110
	IMR (StatsSA)	24	29	20.7	-	-
	IHMR (DHIS)	-	10.1	7.2	5.4	6.5
	IHMR - Child PIP	7.5	5.3	4.9	3.8	5.1
	% deaths in hospital	48.0	-	-	46.6	-
U5MR	Registered deaths (StatsSA)	4 334	4 811	3687	-	-
	Census deaths	-	-	7759	-	-
	Hospital deaths (DHIS)	3 927	2 358	1706	1599	2733
	Child PIP deaths in hospital - N^{o}.	5	249	165	171	157
	U5MR (StatsSA)	36.3	43.6	30.8	-	-
	IHMR (DHIS)	-	7.3	5.8	5.0	6.2
	IHMR - Child PIP	303	4.3	2.6	2.4	3.3
	% deaths in hospital	46.1	-	42.3	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	6	6	9	10	11
	% severe malnutrition	24.5	34.3	28.3	30.7	29.7
	% HIV Infected or Exposed	40.7	41.0	35.6	39.2	31.9
	% Deaths within 24 hrs	31.1	28.6	26.3	29.6	37.5
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Traditional remedy from traditional healer, -ve effect on child				
	Top modifiable factors - Clinic/OPD - 1	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 2	Inadequate response to danger signs				
	Top modifiable factors - Clinic/OPD - 3	IMCI not used for case management				
	Top modifiable factors - A&E - 1	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 2	Emergency signs not recognised				
	Top modifiable factors - A&E - 3	Not classified as critcally ill despite presence of danger signs				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	Emergency or priority care not provided				
	Top modifiable factors - REF FAC - 3	No or delayed referral to higher level				
	Top modifiable factors - Ward - 1	New danger signs inadequately identified				
	Top modifiable factors - Ward - 2	Inadequate investigations				
	Top modifiable factors - Ward - 3	Lack of access to Intensive and High Care beds				

FREE STATE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	129825	129825	129825	129825	129825
	Population	2 975 266	2 740 459	2 744 118	2 748 507	2 753 141
	U5 Population	284 317	248 043	249 796	250 052	248 026
	U15 Population	874 600	2 740 459	2 744 118	2 748 507	2 753 141
	Annual births	49 566	54 120	52 735	50 950	-
	Deaths U1	3 800	3 479	2 963	-	-
	Deaths U5	4 846	4 626	3 754	-	-
Health system profile						
	N° PHC clinics	236	-	-	-	242
	N° CHCs	13	-	-	-	11
	N° 1° hospitals	25	-	-	-	25
	N° 2° hospitals	5	-	-	-	4
	N° 3°/4° hospitals	0	-	-	-	19
	N° Specialised hospitals	3	-	-	-	307
	N° private hospitals	14	-	-	-	15
	Medical aid coverage	18.0	-	-	14.8	-
Health indicator						
EPI	Fully immunized @ 1 year	87.1	94.3	96.7	96.1	83.8
	DPT - Measles drop out	-	-16.0	4.2	6.6	4.4
	Exclusively breastfed @ HepB 3	-	-	-	-	55.3
HIV / TB	PCR coverage	-	98.2	99.7	103.2	107.0
	PCR +ve @ 2 months	-	6.8	3.6	2.5	3.1
	Children U1 initiated on HAART	44	76	102	151	146
	TB contact U5 initiated on IPT	-	-	-	-	58.2
SAM	SAM incidence	6.2	6.0	4.7	4.4	7.8
	SAM CFR (DHIS)	26.0	24.1	14.0	9.0	11.2
	SAM IHMR (Child PIP)	-	-	-	-	13.7
GE	Diarrhoeal disease incidence	69.6	9.9	8.5	9.0	18.5
	Diarrhoeal disease CFR (DHIS)	14.0	11.2	7.1	4.5	4.2
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	6.4
ARI	ARI incidence	-	119.0	111.1	96.6	80.5
	ARI CFR (DHIS)	14.0	9.2	6.5	6.9	3.6
	ARI IHMR (Child PIP)	-	-	-	-	4.0

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - StatsSA	Neonatal				
	Cause of death 2 - StatsSA	Pneumonia				
	Cause of death 3 - StatsSA	GIT infection				
	Cause of death 4 - StatsSA	Ill defined				
	Cause of death 5 - StatsSA	Malnutrition				
	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Other Nutritional				
	Cause of death 4 - Child PIP	Septicaemia				
	Cause of death 5 - Child PIP	Other Respiratory System				
	Non-natural deaths (%)	-	-	4.2	-	-
IMR	Registered deaths (StatsSA)	3800	3479	2693	-	-
	Census deaths	-	-	3061	-	-
	Hospital deaths (DHIS)	1210	1305	1169	915	843
	Child PIP deaths in hospital - N^{o}.	58.0	132	214	352	390
	IMR (StatsSA)	72.4	68.8	56.2	-	-
	IHMR (DHIS)		9.1	10.2	7.5	8.5
	IHMR - Child PIP	7.5	7.30	7.5	6.2	4.8
	% deaths in hospital	49.9	48.2	49.1	-	-
U5MR	Registered deaths (StatsSA)	4846	4626	3754	-	-
	Census deaths	-	-	4015	-	-
	Hospital deaths (DHIS)	1666	954	1220	1071	1032
	Child PIP deaths in hospital - N^{o}.	85.0	203	298	504	603
	U5MR (StatsSA)	92.4	91.5	71.2	-	-
	IHMR (DHIS)	-	8.4	8.4	6.3	6.8
	IHMR - Child PIP	6.0	5.60	5.2	4.3	3.5
	% deaths in hospital	47.9	46.6	46.7	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	1	5	14	28	28
	% severe malnutrition	56.9	50.4	39.8	31.3	35.1
	% HIV Infected or Exposed	49.0	54.4	39.5	41.2	37.3
	% Deaths within 24 hrs	29.9	32.7	34.4	37.6	38.8
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Insufficient notes on home circumstances or child`s health history				
	Top modifiable factors - Clinic/OPD - 1	Inadequate notes on clinical care				
	Top modifiable factors - Clinic/OPD - 2	Inadequate assessment for ARI at clinic/OPD				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to danger signs				
	Top modifiable factors - A&E - 1	Inadequate notes on administrator problems				
	Top modifiable factors - A&E - 2	Inadequate record keeping system				
	Top modifiable factors - A&E - 3	Inadequate assessment of dehydration				
	Top modifiable factors - REF FAC - 1	Inadequate notes on transit care				
	Top modifiable factors - REF FAC - 2	Inadequate record keeping system for proper transit care				
	Top modifiable factors - REF FAC - 3	No or delayed referral to higher level				
	Top modifiable factors - Ward - 1	Inadequate number of nurses assigned to children`s ward				
	Top modifiable factors - Ward - 2	RTHC information not present in child`s folder				
	Top modifiable factors - Ward - 3	Inadequate history taken				

GAUTENG

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	16548	16548	16548	16548	16548
	Population	9 698 894	11 946 064	12 202 306	12 463 888	12 728 438
	U5 Population	923 302	991 524	1 013 711	1 020 370	1 025 335
	U15 Population	2 570 639	2 929 223	2 961 467	2 991 357	3 011 069
	Annual births	172 237	195 347	194 039	186 457	-
	Deaths U1	9 347	7 866	6 554	-	-
	Deaths U5	11 776	10 120	8 330	-	-
Health system profile						
	N° PHC clinics	326	-	-	-	362
	N° CHCs	30	-	-	-	31
	N° 1° hospitals	9	-	-	-	11
	N° 2° hospitals	12	-	-	-	9
	N° 3°/4° hospitals	0	-	-	-	92
	N° Specialised hospitals	10	-	-	-	531
	N° private hospitals	82	-	-	-	83
	Medical aid coverage	27.0	-	-	23.8	-
Health indicator						
EPI	Fully immunized @ 1 year	115.9	104.2	107.2	102.7	106.3
	DPT - Measles drop out	-	-16.5	-4.8	-4.3	5.2
	Exclusively breastfed @ HepB 3	-	-	-	-	11.4
HIV / TB	PCR coverage	-	97.5	92.4	97.1	97.8
	PCR +ve @ 2 months	-	7.7	4.3	2.7	2.2
	Children U1 initiated on HAART	33	64	87	166	173
	TB contact U5 initiated on IPT	-	-	-	-	91.0
SAM	SAM incidence	3.3	3.4	3.3	2.3	2.4
	SAM CFR (DHIS)	19.5	17.2	12.5	12.0	7.5
	SAM IHMR (Child PIP)	-	-	-	-	4.2
GE	Diarrhoeal disease incidence	60.0	13.5	13.6	10.0	8.4
	Diarrhoeal disease CFR (DHIS)	7.2	8.4	5.0	4.0	3.5
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	3.1
ARI	ARI incidence	-	56.1	56.0	49.0	38.1
	ARI CFR (DHIS)	6.0	5.7	4.2	2.3	2.8
	ARI IHMR (Child PIP)	-	-	-	-	4.0

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - StatsSA	Neonatal				
	Cause of death 2 - StatsSA	Ill defined				
	Cause of death 3 - StatsSA	GIT infection				
	Cause of death 4 - StatsSA	Pneumonia				
	Cause of death 5 - StatsSA	Non-natural				
	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Other diagnosis				
	Cause of death 4 - Child PIP	Diarrhoea				
	Cause of death 5 - Child PIP	Other Respiratory System				
	Non-natural deaths (%)	-	-	6.6	-	-
IMR	Registered deaths (StatsSA)	9 347	7 866	6 554	-	-
	Census deaths	-	-	6431	-	-
	Hospital deaths (DHIS)	1 132	1 849	1 834	1 389	2 281
	Child PIP deaths in hospital - N^{o}.	150	187	228	118	137
	IMR (StatsSA)	50.1	41.1	33.8		-
	IHMR (DHIS)		16.0	7.2	4.9	7.8
	IHMR - Child PIP	4.9	4.7	4.6	2.1	3.7
	% deaths in hospital	50.0	49.4	46.0	-	-
U5MR	Registered deaths (StatsSA)	11 776	10 120	8 330	-	-
	Census deaths	-	-	8 591	-	-
	Hospital deaths (DHIS)	1 532	1 750	1 046	1 552	2 412
	Child PIP deaths in hospital - N^{o}.	213	273	315	163	185
	IHMR (DHIS)	-	5.5	2.5	3.4	5.1
	U5MR (StatsSA)	63.2	52.8	42.9		-
	IHMR - Child PIP	4.6	3.4	3.5	1.7	2.3
	% deaths in hospital	48.5	47.9	43.9	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	2	4	6	5	3
	% severe malnutrition	30.8	35.1	23.8	12.8	15.5
	% HIV Infected or Exposed	51.2	51.0	40.4	33.2	29.5
	% Deaths within 24 hrs	29.4	32.8	37.7	27.6	28.8
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Other caregiver modifiable factor				
	Top modifiable factors - Home - 3	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Clinic/OPD - 1	Inadequate assesment for HIV (IMCI not used)				
	Top modifiable factors - Clinic/OPD - 2	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 3	Inadequate fluid management for diarrhoeal disease with dehydration				
	Top modifiable factors - A&E - 1	Lack of Intensive and High Care beds				
	Top modifiable factors - A&E - 2	Priority signs not recognised				
	Top modifiable factors - A&E - 3	Inadequate treatment fof shock				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 3	Emergency or priority care not provided				
	Top modifiable factors - Ward - 1	Other clinical personnel modifiable factor				
	Top modifiable factors - Ward - 2	New danger signs inadequately identified				
	Top modifiable factors - Ward - 3	Essential treatment not prescribed				

KWAZULU-NATAL

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	94361	94361	94361	94361	94361
	Population	9 965 401	10 129 146	10 236 872	10 345 537	10 456 909
	U5 Population	1 085 536	1 179 107	1 177 282	1 175 182	1 171 910
	U15 Population	3 266 560	3 434 703	3 427 562	3 420 598	3 419 358
	Annual births	183 130	211 800	205 724	185 764	-
	Deaths U1	7 731	6 793	5 225	-	-
	Deaths U5	10 327	9 198	7 194	-	-
Health system profile						
	N° PHC clinics	567	-	-	-	654
	N° CHCs	17	-	-	-	19
	N° 1° hospitals	39	-	-	-	40
	N° 2° hospitals	12	-	-	-	13
	N° 3°/4° hospitals	3	-	-	-	47
	N° Specialised hospitals	20	-	-	-	806
	N° private hospitals	32	-	-	-	34
	Medical aid coverage	13.0	-	-	13.1	-
Health indicator						
EPI	Fully immunized @ 1 year	85.9	73.1	86.1	88.6	87.1
	DPT - Measles drop out	-	-86.7	4.9	6.6	7.7
	Exclusively breastfed @ HepB 3	-	-	23.5	49.5	53.7
HIV / TB	PCR coverage	-	95.8	103.6	114.3	114.6
	PCR +ve @ 2 months	-	8.2	4.1	2.6	1.8
	Children U1 initiated on HAART	188	331	388	562	453
	TB contact U5 initiated on IPT	-	-	-	-	49.9
SAM	SAM incidence	6.2	6.9	6.9	5.9	5.6
	SAM CFR (DHIS)	15.2	12.9	9.0	10.7	10.8
	SAM IHMR (Child PIP)	-	-	-	-	16.4
GE	Diarrhoeal disease incidence	69.6	27.6	21.5	15.4	14.1
	Diarrhoeal disease CFR (DHIS)	6.8	7.2	5.0	4.3	3.6
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	4.5
ARI	ARI incidence		140.3	143.7	116.5	95.7
	ARI CFR (DHIS)	4.8	6.9	3.8	3.0	2.9
	ARI IHMR (Child PIP)	-	-	-	-	3.3

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - StatsSA	Neonatal				
	Cause of death 2 - StatsSA	GIT infection				
	Cause of death 3 - StatsSA	Ill defined				
	Cause of death 4 - StatsSA	Pneumonia				
	Cause of death 5 - StatsSA	Non-natural				
	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Septicaemia				
	Cause of death 3 - Child PIP	Pneumonia				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Other Nutritional				
	Non-natural deaths (%)	-	-	6.7	-	-
IMR	Registered deaths (StatsSA)	7 731	6 793	5 225	-	-
	Census deaths	-	-	11179	-	-
	Hospital deaths (DHIS)	3 705	2 789	2 465	2 857	3 292
	Child PIP deaths in hospital - N^{o}.	1 219	1 308	1 011	643	856
	IMR (StatsSA)	-	-	25	-	-
	IHMR (DHIS)		10.6	7.0	6.5	6.4
	IHMR - Child PIP	8.2	8.6	6.5	5.5	5.3
	% deaths in hospital	66.1	65.8	60.8	-	-
U5MR	Registered deaths (StatsSA)	10 327	9 198	7 194	-	-
	Census deaths	-	-	14 842	-	-
	Hospital deaths (DHIS)	4 579	2 912	2 920	3 636	4 130
	Child PIP deaths in hospital - N^{o}.	1 793	1 868	1 478	933	1 240
	U5MR (StatsSA)	49.7	44.6	35.0	-	-
	IHMR (DHIS)	-	8.7	5.2	5.3	5.3
	IHMR - Child PIP	6.6	6.9	5.0	3.9	4.0
	% deaths in hospital	62.0	61.3	55.1	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	29	35	37	24	33
	% severe malnutrition	34.0	31.2	28.3	28.2	28.7
	% HIV Infected or Exposed	54.4	56.2	48.5	45.1	42.5
	% Deaths within 24 hrs	29.0	27.0	27.1	29.7	30.5
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 2	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 3	Delayed referral for severe malnutrition, weight loss, or growth faltering				
	Top modifiable factors - A&E - 1	Emergency signs not recognised				
	Top modifiable factors - A&E - 2	Inadequate investigations				
	Top modifiable factors - A&E - 3	Admission records incomplete or inappropriate				
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 3	Inadequate referral letter				
	Top modifiable factors - Ward - 1	Other clinical personnel modifiable factor				
	Top modifiable factors - Ward - 2	Lack of access to Intensive and High Care beds				
	Top modifiable factors - Ward - 3	New danger signs inadequately identified				

LIMPOPO

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	125 755	125 755	125 755	125 755	125 755
	Population	5 390 041	5 324 555	5 388 122	5 452 205	5 517 967
	U5 Population	623 325	606 965	616 598	629 124	635 780
	U15 Population	1 901 644	1 814 262	1 799 999	1 791 633	1 787 171
	Annual births	136 632	121 499	2 966	118 439	-
	Deaths U1	3 693	3 418	2 727	-	-
	Deaths U5	5 489	5 354	2 147	-	-
Health system profile						
	N° PHC clinics	425	-	-	-	460
	N° CHCs	28	-	-	-	27
	N° 1° hospitals	32	-	-	-	32
	N° 2° hospitals	5	-	-	-	5
	N° 3°/4° hospitals	2	-	-	-	12
	N° Specialised hospitals	4	-	-	-	541
	N° private hospitals	7	-	-	-	7
	Medical aid coverage	8.7	-	-	8.2	-
Health indicator						
EPI	Fully immunized @ 1 year	98.3	78.2	74.6	72.2	69.0
	DPT - Measles drop out	-	-11.5	1.3	-9.8	19.3
	Exclusively breastfed @ HepB 3	-	-	-	-	37.4
HIV / TB	PCR coverage	-	68.1	83.9	88.1	97.1
	PCR +ve @ 2 months	-	25.6	5.6	2.4	2.5
	Children U1 initiated on HAART	95	178	213	222	151
	TB contact U5 initiated on IPT	-	-	-	-	32.2
SAM	SAM incidence	6.2	3.7	4.1	4.0	4.0
	SAM CFR (DHIS)	15.2	25.5	20.5	17.1	16.7
	SAM IHMR (Child PIP)	-	-	-	-	14.4
GE	Diarrhoeal disease incidence	69.6	13.1	14.5	11.2	13.5
	Diarrhoeal disease CFR (DHIS)	6.8	8.5	8.9	7.7	5.7
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	4.2
ARI	ARI incidence	70.7	49.6	49.2	37.9	35.3
	ARI CFR (DHIS)	4.8	8.0	5.7	5.2	4.7
	ARI IHMR (Child PIP)	-	-	-	-	2.4

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - StatsSA	Neonatal				
	Cause of death 2 - StatsSA	GIT infection				
	Cause of death 3 - StatsSA	Ill defined				
	Cause of death 4 - StatsSA	Pneumonia				
	Cause of death 5 - StatsSA	Non-natural				
	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Septicaemia				
	Cause of death 4 - Child PIP	Other Nutritional				
	Cause of death 5 - Child PIP	TB (all)				
	Non-natural deaths (%)	-	-	6.6	-	-
IMR	Registered deaths (StatsSA)	3 693	3 418	2 727	-	-
	Census deaths	-	-	3 913	-	-
	Hospital deaths (DHIS)	3 570	1 782	1 648	1 858	2 233
	Child PIP deaths in hospital - N^{o}.	11	168	117	138	143
	IMR (StatsSA)	32.9	28.6	21.4	-	-
	IHMR (DHIS)		12.0	10.9	10.9	12.4
	IHMR - Child PIP	98.0	8.0	5.5	5.4	5.4
	% deaths in hospital	50.4	51.6	-	47.2	-
U5MR	Registered deaths (StatsSA)	5 489	5 354	4 204	-	-
	Census deaths	-	-	5 305	-	-
	Hospital deaths (DHIS)	4 103	2 180	1 885	2 304	2 761
	Child PIP deaths in hospital - N^{o}.	125	275	183	221	229
	U5MR (StatsSA)	48.9	44.9	33.5	-	-
	IHMR (DHIS)		8.4	6.8	7.6	8.2
	IHMR - Child PIP	6.2	6.1	3.7	3.4	3.2
	% deaths in hospital	45.8	46.3	41.7	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	5	7	7	11	17
	% severe malnutrition	38.2	41.0	44.1	42.0	39.2
	% HIV Infected or Exposed	44.5	48.2	40.8	31.7	41.2
	% Deaths within 24 hrs	28.6	33.4	29.9	38.9	31.0
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 2	Inadequate notes on clinical care				
	Top modifiable factors - Clinic/OPD - 3	Danger signs missed				
	Top modifiable factors - A&E - 1	Inadequate history taken				
	Top modifiable factors - A&E - 2	Lack of experienced doctors				
	Top modifiable factors - A&E - 3	Inadequate rehydration plan				
	Top modifiable factors - REF FAC - 1	Inadequate notes on transit care				
	Top modifiable factors - REF FAC - 2	Inadequate referral letter				
	Top modifiable factors - REF FAC - 3	Emergency or priority care not provided				
	Top modifiable factors - Ward - 1	Lack of access to Intensive and High Care beds				
	Top modifiable factors - Ward - 2	Other administrator modifiable factor				
	Top modifiable factors - Ward - 3	RTHC information not present in child`s folder				

MPUMALANGA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	76 495	76 495	76 495	76 495	76 495
	Population	3 670 646	3 969 605	4 022 088	4 074 765	4 127 971
	U5 Population	410 246	430 827	437 846	442 943	444 584
	U15 Population	1 241 780	1 313 541	1 309 689	1 304 329	1 298 150
	Annual births	74 666	81 551	83 910	79 403	-
	Deaths U1	3 073	2 611	2 080	-	-
	Deaths U5	4 244	3 883	2 976	-	-
Health system profile						
	N° PHC clinics	236	-	-	-	277
	N° CHCs	44	-	-	-	52
	N° 1° hospitals	23	-	-	-	23
	N° 2° hospitals	3	-	-	-	3
	N° 3°/4° hospitals	2	-	-	-	19
	N° Specialised hospitals	5	-	-	-	383
	N° private hospitals	8	-	-	-	16
	Medical aid coverage	13.3	-	-	15.1	-
Health indicator						
EPI	Fully immunized @ 1 year	90.8	60.6	56.8	65.8	70.7
	DPT - Measles drop out	-	-20.8	-0.6	12.6	8.7
	Exclusively breastfed @ HepB 3	-	-	-	-	23.8
HIV / TB	PCR coverage	-	64.3	81.3	100.8	105.9
	PCR +ve @ 2 months	-	10.1	4.9	3.2	2.4
	Children U1 initiated on HAART	54	120	129	173	137
	TB contact U5 initiated on IPT	-	-	-	-	107.1
SAM	SAM incidence	5.3	3.5	2.6	2.5	2.5
	SAM CFR (DHIS)	16.7	19.8	25.2	15.7	13.1
	SAM IHMR (Child PIP)	-	-	-	-	17.3
GE	Diarrhoeal disease incidence	82.5	10.7	8.1	7.3	11.3
	Diarrhoeal disease CFR (DHIS)	12.3	11.9	9.9	7.2	6.1
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	6.9
ARI	**ARI incidence**	-	38.6	37.2	26.1	20.5
	ARI CFR (DHIS)	10.1	8.1	8.3	6.2	5.9
	ARI IHMR (Child PIP)	-	-	-	-	5.0

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - StatsSA	Neonatal				
	Cause of death 2 - StatsSA	GIT infection				
	Cause of death 3 - StatsSA	Pneumonia				
	Cause of death 4 - StatsSA	Ill defined				
	Cause of death 5 - StatsSA	Non-natural				
	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Septicaemia				
	Cause of death 4 - Child PIP	Other Poisoning				
	Cause of death 5 - Child PIP	Anaemia				
	Non-natural deaths (%)	-	-	6.3	-	-
IMR	Registered deaths (StatsSA)	3 073	2 611	2 080	-	-
	Census deaths	-	-	3 853	-	-
	Hospital deaths (DHIS)	2 176	1 103	934	876	1 096
	Child PIP deaths in hospital - N°.	10	1 012	853	738	664
	IMR (StatsSA)	36.5	32.9	24.8	-	-
	IHMR (DHIS)		8.6	9.7	8.9	10.3
	IHMR - Child PIP	1094.0	10.0	9.1	7.9	6.6
	% deaths in hospital	55.5	53.1	50.4	-	-
U5MR	Registered deaths (StatsSA)	4 244	3 833	2 976	-	-
	Census deaths	-	-	5 223	-	-
	Hospital deaths (DHIS)	2 203	1 207	1 056	1 106	1 357
	Child PIP deaths in hospital - N°.	1 461	1 447	1 167	1 028	914
	U5MR (StatsSA)	62.2	48.9	35.5	-	-
	IHMR (DHIS)		6.4	6.3	5.8	7.1
	IHMR - Child PIP	7.4	7.5	6.2	5.3	4.5
	% deaths in hospital	50.6	47.9	45.1	-	-
Modifiable factors	Child PIP Hospitals N°.	26	28	28	28	28
	% severe malnutrition	29.7	30.6	29.4	29.4	28.8
	% HIV Infected or Exposed	50.0	51.7	49.9	48.0	46.9
	% Deaths within 24 hrs	36.6	33.2	34.3	39.1	35.5
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Inadequate assesment for HIV (IMCI not used)				
	Top modifiable factors - Clinic/OPD - 2	Child`s growth problemn inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 3	Delayed referral for severe malnutrition, weight loss, or growth faltering				
	Top modifiable factors - A&E - 1	Inadequate notes on clinical care (assessment, mangement, monitoring				
	Top modifiable factors - A&E - 2	Inadequate history taken				
	Top modifiable factors - A&E - 3	Inadequate investigations				
	Top modifiable factors - REF FAC - 1	Inadequate notes on transit care				
	Top modifiable factors - REF FAC - 2	Inadequate referral letter				
	Top modifiable factors - REF FAC - 3	Emergency or priority care not provided				
	Top modifiable factors - Ward - 1	Lack of access to Intensive and High Care beds				
	Top modifiable factors - Ward - 2	Inadequate history taken				
	Top modifiable factors - Ward - 3	Insufficient notes on clinical care				

NORTH WEST

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	106512	106512	106512	106512	106512
	Population	3 171 957	3 448 436	3 496 855	3 546 632	359 789
	U5 Population	416 337	371 469	373 358	373 254	372 343
	U15 Population	1 222 159	1 065 231	1 069 800	1 072 851	1 075 900
	Annual births	70 369	77 933	77 000	72 615	-
	Deaths U1	3 802	3 477	2 920	-	-
	Deaths U5	4 958	4 754	3 830	-	-
Health system profile						
	N° PHC clinics	287	-	-	-	274
	N° CHCs	51	-	-	-	45
	N° 1° hospitals	17	-	-	-	15
	N° 2° hospitals	4	-	-	-	6
	N° 3°/4° hospitals	0	-	-	-	21
	N° Specialised hospitals	3	-	-	-	359
	N° private hospitals	17	-	-	-	15
	Medical aid coverage	13.7	-	-	14.8	
Health indicator						
EPI	Fully immunized @ 1 year	86.0	64.8	66.8	72.5	72.9
	DPT - Measles drop out	-	-19.0	-4.1	5.0	6.6
	Exclusively breastfed @ HepB 3	-	-	-	-	33.9
HIV / TB	PCR coverage	-	95.6	103.4	101.9	107.9
	PCR +ve @ 2 months	-	7.7	4.4	2.7	2.5
	Children U1 initiated on HAART	-	1	1	13	1
	TB contact U5 initiated on IPT	-	-	-	-	110.4
SAM	SAM incidence	8.0	5.9	5.5	4.5	6.0
	SAM CFR (DHIS)	19.0	16.9	11.5	10.4	11.1
	SAM IHMR (Child PIP)	-	-	-	-	13.8
GE	Diarrhoeal disease incidence	111.2	11.7	9.9	6.2	11.4
	Diarrhoeal disease CFR (DHIS)	8.5	6.3	4.8	5.5	5.4
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	5.2
ARI	**ARI incidence**	-	77.5	69.9	42.8	28.3
	ARI CFR (DHIS)	8.5	7.5	5.1	4.9	5.1
	ARI IHMR (Child PIP)	-	-	-	-	4.8

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - StatsSA	Neonatal				
	Cause of death 2 - StatsSA	GIT infection				
	Cause of death 3 - StatsSA	Pneumonia				
	Cause of death 4 - StatsSA	Ill defined				
	Cause of death 5 - StatsSA	Malnutrition				
	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Septicaemia				
	Cause of death 4 - Child PIP	Other Nutritional				
	Cause of death 5 - Child PIP	TB (all)				
	Non-natural deaths (%)	-	-	3.8	-	-
IMR	Registered deaths (StatsSA)	3 802	3 477	2 920	-	-
	Census deaths	-	-	3 639	-	-
	Hospital deaths (DHIS)	1 445	777	798	743	743
	Child PIP deaths in hospital - N^{o}.	207	273	201	138	396
	IMR (StatsSA)	48.4	45.6	37.9	-	-
	IHMR (DHIS)		6.0	8.4	8.5	8.5
	IHMR - Child PIP	7.8	7.3	7.2	7.1	7.0
	% deaths in hospital	41.8	41.3	42.3	-	-
U5MR	Registered deaths (StatsSA)	4 958	4 754	3 830	-	-
	Census deaths	-	-	4 774	-	-
	Hospital deaths (DHIS)	1 659	1 064	935	903	930
	Child PIP deaths in hospital - N^{o}.	306	412	309	195	616
	U5MR (StatsSA)	63.1	62.4	49.1	-	-
	IHMR (DHIS)	-	5.4	6.1	6.4	6.1
	IHMR - Child PIP	5.4	4.6	4.8	5.0	5.2
	% deaths in hospital	39.7	39.7	40.5	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	7	11	8	7	12
	% severe malnutrition	60.5	47	55	35.4	43.5
	% HIV Infected or Exposed	50.0	49	44	46.0	40.8
	% Deaths within 24 hrs	36.1	32	27	34.1	33.2
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Home - 3	Traditional remedy from traditional healer, -ve effect on child				
	Top modifiable factors - Clinic/OPD - 1	IMCI not used for case management				
	Top modifiable factors - Clinic/OPD - 2	IMCI not used for patient assessment				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to growth faltering or failure				
	Top modifiable factors - A&E - 1	Inadequate investigations				
	Top modifiable factors - A&E - 2	Inadequate notes on clinical care				
	Top modifiable factors - A&E - 3	Inadequate history taken				
	Top modifiable factors - REF FAC - 1	Inadequate referral letter				
	Top modifiable factors - REF FAC - 2	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 3	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - Ward - 1	Inadequate investigations				
	Top modifiable factors - Ward - 2	Inadequate `septic workup`				
	Top modifiable factors - Ward - 3	WHO `10 Steps` not followed for child with severe malnutrition				

NORTHERN CAPE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	372889	372889	372889	372889	372889
	Population	925 989	1 133 583	1 143 253	1 153 093	1 162 916
	U5 Population	91 414	114 991	115 823	116 406	116 558
	U15 Population	279 678	353 525	352 458	350 460	348 210
	Annual births	20 982	24 025	23 942	23 819	-
	Deaths U1	1 080	1 024	890	-	-
	Deaths U5	1 429	1 412	1 222	-	-
Health system profile						
	N° PHC clinics	126	-	-	-	137
	N° CHCs	24	-	-	-	33
	N° 1° hospitals	18	-	-	-	11
	N° 2° hospitals	2	-	-	-	1
	N° 3°/4° hospitals	0	-	-	-	7
	N° Specialised hospitals	3	-	-	-	201
	N° private hospitals	4	-	-	-	6
	Medical aid coverage	15.4	-	-	17.1	-
Health indicator						
EPI	Fully immunized @ 1 year	96.1	81.9	87.3	87.5	87.1
	DPT - Measles drop out	-	2.4	6.1	8.6	0.8
	Exclusively breastfed @ HepB 3	-	-	-	-	47.0
HIV / TB	PCR coverage	-	84.1	88.3	98.4	83.9
	PCR +ve @ 2 months	-	7.6	5.5	3.2	3.2
	Children U1 initiated on HAART	4	4	11	10	9
	TB contact U5 initiated on IPT	-	-	-	-	73.6
SAM	SAM incidence	5.5	5.3	4.5	6.5	4.4
	SAM CFR (DHIS)	22.2	14.5	10.7	8.6	11.7
	SAM IHMR (Child PIP)	-	-	-	-	19.2
GE	Diarrhoeal disease incidence	152.1	12.8	11.5	11.6	16.1
	Diarrhoeal disease CFR (DHIS)	6.4	4.8	3.7	2.0	3.0
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	5.3
ARI	ARI incidence		103.1	92.7	81.9	72.0
	ARI CFR (DHIS)	5.7	4.2	3.0	3.2	3.8
	ARI IHMR (Child PIP)	-	-	-	-	3.7

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - StatsSA	Neonatal				
	Cause of death 2 - StatsSA	Ill defined				
	Cause of death 3 - StatsSA	GIT infection				
	Cause of death 4 - StatsSA	Pneumonia				
	Cause of death 5 - StatsSA	Non-natural				
	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Septicaemia				
	Cause of death 3 - Child PIP	Pneumonia				
	Cause of death 4 - Child PIP	Other Nutritional				
	Cause of death 5 - Child PIP	TB (all)				
	Non-natural deaths (%)	-	-	6.7	-	-
IMR	Registered deaths (StatsSA)	1 080	1 024	890	-	-
	Census deaths	-	-	919	-	-
	Hospital deaths (DHIS)	562	368	366	407	387
	Child PIP deaths in hospital - N^{o}.	111	116	110	96	149
	IMR (StatsSA)	48.1	44.9	37	-	-
	IHMR (DHIS)		6.9	6.9	9.6	6.7
	IHMR - Child PIP	4.9	5.0	3.7	2.8	4.2
	% deaths in hospital	50.2	50.3	-	39.3	-
U5MR	Registered deaths (StatsSA)	1 429	1 421	1 222	-	-
	Census deaths	-	-	1 239	-	-
	Hospital deaths (DHIS)	606	515	461	464	464
	Child PIP deaths in hospital - N^{o}.	175	200	190	158	259
	U5MR (StatsSA)	63.7	61.9	51.0	-	-
	IHMR (DHIS)	-	5.5	5.3	5.9	4.8
	IHMR - Child PIP	3.5	4.1	2.9	2.0	3.1
	% deaths in hospital	45.8	49.6	40.3	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	3	13	10	11	17
	% severe malnutrition	35.5	37.2	27.4	26.3	44.8
	% HIV Infected or Exposed	41.0	42.4	30.1	23.7	30.2
	% Deaths within 24 hrs	28.5	25.5	22.8	26.3	31.6
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Home - 3	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Clinic/OPD - 1	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 2	Delayed referral for severe malnutrition, weight loss, or growth faltering				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to growth faltering or failure				
	Top modifiable factors - A&E - 1	Inadequate assessment of shock				
	Top modifiable factors - A&E - 2	Inadequate treatment for shock				
	Top modifiable factors - A&E - 3	Inadequate assessment of dehydration				
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 3	Inadequate referral letter				
	Top modifiable factors - Ward - 1	No functioning pulse oxymeter				
	Top modifiable factors - Ward - 2	WHO `10 Steps` not followed for child with severe malnutrition				
	Top modifiable factors - Ward - 3	RTHC information not present in child`s folder				

WESTERN CAPE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	129 462	129 462	129 462	129 462	129 462
	Population	5 039 498	5 681 997	5 792 097	5 904 017	6 016 925
	U5 Population	463 470	532 136	535 721	534 092	532 098
	U15 Population	1 378 202	1 554 800	1 566 410	1 575 025	1 581 687
	Annual births	113 582	104 102	102 270	98 401	-
	Deaths U1	2 431	2 404	1 958	-	-
	Deaths U5	2 935	2 981	2 462	-	-
Health system profile						
	N° PHC clinics	260	-	-	-	312
	N° CHCs	56	-	-	-	11
	N° 1° hospitals	32	-	-	-	34
	N° 2° hospitals	8	-	-	-	8
	N° 3°/4° hospitals	0	-	-	-	60
	N° Specialised hospitals	17	-	-	-	448
	N° private hospitals	34	-	-	-	52
	Medical aid coverage	26.0	-	-	22.4	-
Health indicator						
EPI	Fully immunized @ 1 year	104.9	86.8	84.7	88.6	85.7
	DPT - Measles drop out	-568.7	-15.8	0.2	-297.3	-42.7
	Exclusively breastfed @ HepB 3	-	-	-	-	19.8
HIV / TB	PCR coverage	-	97.5	89.7	98.4	50.7
	PCR +ve @ 2 months	-	3.0	2.0	1.6	1.8
	Children U1 initiated on HAART	260	262	246	255	193
	TB contact U5 initiated on IPT	-	-	-	-	-
SAM	SAM incidence	5.6	3.5	3.0	2.8	2.5
	SAM CFR (DHIS)	4.8	2.2	2.6	4.7	3.4
	SAM IHMR (Child PIP)	-	-	-	-	1.7
GE	Diarrhoeal disease incidence	140.1	21.5	16.0	16.1	16.1
	Diarrhoeal disease CFR (DHIS)	0.5	0.4	0.2	0.2	0.1
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	0.4
ARI	ARI incidence	-	65.5	68.9	61.4	64.8
	ARI CFR (DHIS)	0.3	0.7	0.4	0.5	0.4
	ARI IHMR (Child PIP)	-	-	-	-	0.4

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - StatsSA	Neonatal				
	Cause of death 2 - StatsSA	III defined				
	Cause of death 3 - StatsSA	Cong abnormality				
	Cause of death 4 - StatsSA	Non-natural				
	Cause of death 5 - StatsSA	Pneumonia				
	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	Other Nervous System				
	Cause of death 5 - Child PIP	Other diagnosis				
	Non-natural deaths (%)	-	-	8.7	-	-
IMR	Registered deaths (StatsSA)	2 431	2 404	1 958	-	-
	Census deaths	-	-	1 189	-	-
	Hospital deaths (DHIS)	1 421	1 009	1 034	1 056	1 020
	Child PIP deaths in hospital - N^{o}.	26	326	258	276	226
	IMR (StatsSA)	23.4	23.4	19.1	-	-
	IHMR (DHIS)		2.9	2.8	2.7	2.1
	IHMR - Child PIP	0.8	1.4	1.1	1.0	0.8
	% deaths in hospital	51.2	51.8	-	46.8	-
U5MR	Registered deaths (StatsSA)	2 935	2 981	2 462	-	-
	Census deaths	-	-	1 731	-	-
	Hospital deaths (DHIS)	1 495	1 190	1 187	1 204	1 153
	Child PIP deaths in hospital - N^{o}.	35	474	400	415	344
	U5MR (StatsSA)	28.2	29.1	24.1	-	-
	IHMR (DHIS)	-	2.0	1.8	1.8	1.5
	IHMR - Child PIP	0.6	1.1	0.8	0.7	0.6
	% deaths in hospital	49.3	50.7	43.9	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	14	24	34	35	37
	% severe malnutrition	27.0	19.5	22.7	14.1	14.0
	% HIV Infected or Exposed	26.0	25.6	18.5	18.2	20.7
	% Deaths within 24 hrs	34.3	27.4	31.2	33.4	35.4
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 2	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to growth faltering or failure				
	Top modifiable factors - A&E - 1	Lack of experienced doctors				
	Top modifiable factors - A&E - 2	Emergency signs not recognised				
	Top modifiable factors - A&E - 3	Inadequate history taken				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	Child not managed correctly in ambulance				
	Top modifiable factors - REF FAC - 3	No or delayed referral to higher level				
	Top modifiable factors - Ward - 1	Lack of access tp High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 2	New danger signs inadequately identified				
	Top modifiable factors - Ward - 3	Inadequate response to new danger signs				

APPENDIX 3: DISTRICT PROFILES

The following tables provide an overview of each province with their respective districts with respect to the:

- Demographic profile
- Health system
- Service utilization
- Child health indicators
- Mortality profile

Whilst it is acknowledged that much of the data is imperfect it is presented with an intention to engage with available data, to facilitate its use in managing and monitoring child health services and to precipitate an improvement in the quality and completeness of the data being collected.

- DHIS data for hospitals is incomplete and inaccurate.
- Child PIP data is not representative as it is collected from select sites only.

Data sources:

Stats SA	Sources	Mid-year population estimates
		Mortality and causes of death in South Africa, 2007 - 2011: findings from death notification
	Data	Demograpnic profile
		Mortality profile
DHIS	Source	District Health Information System, NDoH, 2009 – 2013
	Data	Health Systems Profile
		Mortality profile including In-hospital & Case Fatality Rates
Child PIP	Source	Child Healthcare Problem Identification Programme
	Data	Mortality Profile
		Modifiable Factors

EASTERN CAPE

DC10: CACADU

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	58 243	58 243	58 243	58 243	58 243
	Population	419 337	442 272	447 152	452 056	456 997
	U5 Population	42 809	54 693	45 519	45 075	44 520
	U15 Population	123 071	127 886	128 607	128 948	129 400
	Annual births	6 394	6 399	6 612	6 099	-
	Deaths U1	271	268	187	-	-
	Deaths U5	343	348	248	-	-
Health system profile						
	N° PHC clinics	59	-	-	-	79
	N° CHCs	1	-	-	-	3
	N° 1° hospitals	10	-	-	-	10
	N° 2° hospitals	0	-	-	-	0
	N° 3°/4° hospitals	0	-	-	-	0
	N° Specialised hospitals	5	-	-	-	5
	N° private hospitals	0	-	-	-	0
Service utilization						
	PHC U5 utilization rate	4.6	4.1	4.2	4.5	4.5
	ALOS	8.6	8.6	8.5	8.2	7.7
	Bed utilization rate	47.5	52.1	72.7	72.6	67.0
Health indicator						
EPI	Fully immunized @ 1 year	87.5	71.9	72.4	77.6	72.9
	DPT - Measles drop out	-785.7	-8.8	9.8	0.7	4.3
	Exclusively breastfed @ HepB 3	-	-	-	-	43.5
HIV / TB	PCR coverage	-	95.3	89.4	91.3	96.8
	PCR +ve @ 2 months	-	5.6	3.9	4.5	3.3
	Children U1 initiated on HAART	-	-	-	-	-
	TB contact U5 initiated on IPT	-	-	-	-	82.4
SAM	SAM incidence	4.5	3.9	6.3	7.7	10.5
	SAM CFR (DHIS)	9.2	8.1	7.5	4.1	2.1
	SAM IHMR (Child PIP)	6.1	3.6	3.8	2.7	
GE	Diarrhoeal disease incidence	9.8	9.8	9.8	7.1	18.0
	Diarrhoeal disease CFR (DHIS)	3.5	1.7	4.2	2.0	2.0
	Diarrhoeal disease IHMR (Child PIP)	1.2	0.6	0.7	0.4	
ARI	ARI incidence	42.0	37.8	46.7	59.0	65.4
	ARI CFR (DHIS)	2.6	3.9	6.3	7.7	10.5
	ARI IHMR (Child PIP)	1.8	1.1	0.8	0.4	

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Other possible serious infection				
	Non-natural deaths (%)	-	-	-	-	-
IMR	Registered deaths (StatsSA)	271	268	187	-	-
	Hospital deaths (DHIS)	4	7	36	25	45
	Child PIP deaths in hospital - N^{o}.	9	4	15	10	12
	IMR (StatsSA)	42.4	41.9	28.3		
	IHMR (DHIS)	0.7	1.2	2.9	1.8	3.4
	IHMR - Child PIP	2.3	0.9	1.3	5.7	1.5
	% deaths in hospital	40.6	-	36.4	-	-
U5MR	Registered deaths (StatsSA)	343	348	248	-	-
	Hospital deaths (DHIS)	1	4	27	18	63
	Child PIP deaths in hospital - N^{o}.	13	11	33	25	19
	U5MR (StatsSA)	53.6	54.4	37.5	-	-
	IHMR (DHIS)	0.2	0.5	1.2	0.7	2.2
	IHMR - Child PIP	1.3	0.8	0.6	4.0	1.0
	% deaths in hospital	40.2	-	35.1	-	-
Modifiable	Child PIP Hospitals N$^{o.}$	2	2	4	4	5
factors	% severe malnutrition	25.0	56.2	40.0	33.3	47.6
	% HIV Infected or Exposed	33.3	46.2	30.0	27.8	33.3
	% Deaths within 24 hrs	30.8	46.2	40.0	61.1	57.1
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Insufficient notes on home circumstances or health status				
	Top modifiable factors - Clinic/OPD - 1	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 2	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to growth faltering or failure, at clinic/OPD				
	Top modifiable factors - A&E - 1	Not classified as critcally ill despite presence of danger signs				
	Top modifiable factors - A&E - 2	Emergency signs not recognised				
	Top modifiable factors - A&E - 3	Priority signs not recognised				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	No high care bed in referring facility for pre-transfer care				
	Top modifiable factors - REF FAC - 3	No known/available policy on child transfers in ambulance service				
	Top modifiable factors - Ward - 1	Lack of experienced doctors, for children`s ward				
	Top modifiable factors - Ward - 2	New danger signs inadequately identified				
	Top modifiable factors - Ward - 3	Inadequate `septic workup`				

DC11: AMATHOLE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	23 579	23 579	23 579	23 579	23 579
	Population	1 856 382	908 662	904 815	901 602	898 950
	U5 Population	190 532	93 048	95 931	99 192	100 013
	U15 Population	565 757	292 112	285 871	280 675	276 327
	Annual births	35 835	12 469	12 871	12 481	-
	Deaths U1	479	405	403	-	-
	Deaths U5	732	725	691	-	-
Health system profile						
	N° PHC clinics	221	-	-	-	158
	N° CHCs	8	-	-	-	5
	N° 1° hospitals	14	-	-	-	12
	N° 2° hospitals	0	-	-	-	0
	N° 3°/4° hospitals	2	-	-	-	0
	N° Specialised hospitals	5	-	-	-	2
	N° private hospitals	5	-	-	-	0
Service utilization						
	PHC U5 utilization rate	4.1	4.2	4.4	4.1	3.9
	ALOS	10.0	9.9	10.3	9.9	8.7
	Bed utilization rate	79.7	74.7	72.8	67.7	62.3
Health indicator						
EPI	Fully immunized @ 1 year	82.9	74.2	70.4	66.9	67.8
	DPT - Measles drop out	-2737.8	-186.4	-26.1	-17.5	-13.1
	Exclusively breastfed @ HepB 3	-	-	-	-	28.6
HIV / TB	PCR coverage	-	116.8	129.8	123.5	124.9
	PCR +ve @ 2 months	-	7.4	4.5	3.4	2.5
	Children U1 initiated on HAART	11	22	28	19	10
	TB contact U5 initiated on IPT	-	-	-	-	-
SAM	SAM incidence	3	3.0	2.0	2.5	2.7
	SAM CFR (DHIS)	25.6	20.7	22.8	17.0	19.5
	SAM IHMR (Child PIP)	100.0	13.2	16.6	18.6	16.0
GE	Diarrhoeal disease incidence	9.6	8.6	7.0	7.1	10.6
	Diarrhoeal disease CFR (DHIS)	9.9	20.9	15.5	9.7	13.2
	Diarrhoeal disease IHMR (Child PIP)	3.1	5.6	5.2	4.8	6.6
ARI	ARI incidence	34.8	38.3	49.5	43.8	40.7
	ARI CFR (DHIS)	9	11.2	8.4	6.6	8.8
	ARI IHMR (Child PIP)	3.4	4.8	3.0	3.4	3.2

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Diarrhoea				
	Cause of death 3 - Child PIP	Pneumonia				
	Cause of death 4 - Child PIP	Other Nutritional				
	Cause of death 5 - Child PIP	TB (all)				
IMR	Registered deaths (StatsSA)	479	405	403	-	-
	Hospital deaths (DHIS)	232	253	149	93	180
	Child PIP deaths in hospital - N^{o}.	88	112	79	65	51
	IMR (StatsSA)	13.4	32.5	31.3	-	-
	IHMR (DHIS)	13.1	13.2	9.1	6.1	9.9
	IHMR - Child PIP	8.0	7.7	6.3	4.3	6.5
	% deaths in hospital	51	-	45.7	-	-
U5MR	Registered deaths (StatsSA)	732	725	691	-	-
	Hospital deaths (DHIS)	222	198	68	76	227
	Child PIP deaths in hospital - N^{o}.	111	149	178	158	76
	U5MR (StatsSA)	20.4	58.1	53.7	-	-
	IHMR (DHIS)	7.8	7.1	2.5	2.9	6.4
	IHMR - Child PIP	5.1	5.6	3.8	2.4	4.9
	% deaths in hospital	48.0	-	39.9	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	2	2	2	2	2
	% severe malnutrition	28	27.5	24.8	26.3	25.5
	% HIV Infected or Exposed	51.5	40.9	39.5	39.5	30.9
	% Deaths within 24 hrs	28	27.5	24.0	18.4	31.9
	Top modifiable factors - Home - 1	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Traditional remedy from traditional healer, -ve effect on child				
	Top modifiable factors - Clinic/OPD - 1	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 2	Inadequate response to danger signs				
	Top modifiable factors - Clinic/OPD - 3	IMCI not used for case management				
	Top modifiable factors - A&E - 1	Lack of access to Intensive and High Care beds				
	Top modifiable factors - A&E - 2	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 3	Emergency signs not recognised				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	Emergency or priority care not provided				
	Top modifiable factors - REF FAC - 3	No or delayed referral to higher level				
	Top modifiable factors - Ward - 1	Other clinical personnel modifiable factor				
	Top modifiable factors - Ward - 2	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 3	Inadequate number of nurses assigned to children`s ward				

DC13: CHRIS HANI

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	23 579	23 579	23 579	23 579	23 579
	Population	1 856 382	798 369	800 161	801 643	803 143
	U5 Population	190 532	104 504	98 775	94 389	91 323
	U15 Population	565 757	290 650	286 977	283 796	282 820
	Annual births	14 873	13 894	13 651	12 268	-
	Deaths U1	350	419	360	-	-
	Deaths U5	505	598	517	-	-
Health system profile						
	N° PHC clinics	142	-	-	-	149
	N° CHCs	3	-	-	-	7
	N° 1° hospitals	14	-	-	-	14
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	0	-	-	-	
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	4.9	4.0	4.4	4.5	4.4
	ALOS	7.4	7.8	7.8	8.0	5.2
	Bed utilization rate	68.0	67.1	65.6	65.4	55.7
Health indicator						
EPI	Fully immunized @ 1 year	88.6	72.0	86.1	89.2	85.3
	DPT - Measles drop out	-1896.7	-113.6	-19.0	-14.5	-11.6
	Exclusively breastfed @ HepB 3	-	-	-	-	32.5
HIV / TB	PCR coverage	-	81.4	88.9	87.5	92.8
	PCR +ve @ 2 months	-	6.2	4.4	2.9	1.7
	Children U1 initiated on HAART	-	-	-	-	-
	TB contact U5 initiated on IPT	-	-	-	-	82.4
SAM	SAM incidence	3.7	3.9	6.3	7.7	10.5
	SAM CFR (DHIS)	21.1	8.1	7.5	4.1	2.1
	SAM IHMR (Child PIP)	-	-	0.0	0.0	-
GE	Diarrhoeal disease incidence	16.4	9.8	9.8	7.1	18.0
	Diarrhoeal disease CFR (DHIS)	8.9	1.7	4.2	2.0	2.0
	Diarrhoeal disease IHMR (Child PIP)	-	-	7.2	10.0	-
ARI	ARI incidence	91.5	37.8	46.7	59.0	65.4
	ARI CFR (DHIS)	8.2	0.7	1.3	1.1	2.1
	ARI IHMR (Child PIP)	-	-	-	-	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	NO DATA				
	Cause of death 2 - Child PIP					
	Cause of death 3 - Child PIP					
	Cause of death 4 - Child PIP					
	Cause of death 5 - Child PIP					
IMR	Registered deaths (StatsSA)	350	419	360	-	-
	Hospital deaths (DHIS)		380	241	214	291
	Child PIP deaths in hospital - N°.	-	-	1	19	-
	IMR (StatsSA)	23.5	30.2	26.4	-	-
	IHMR (DHIS)	-	11.9	7.9	7.8	10.0
	IHMR - Child PIP	-	-	14.2	12.8	-
	% deaths in hospital	52.6	-	52.8	-	-
U5MR	Registered deaths (StatsSA)	505	598	517	-	-
	Hospital deaths (DHIS)	-	375	288	228	346
	Child PIP deaths in hospital - N°.	-		2	41	-
	U5MR (StatsSA)	34.0	43.0	37.9	-	-
	IHMR (DHIS)	-	7.9	5.5	5.0	6.5
	IHMR - Child PIP	-	-	8.7	7.8	-
	% deaths in hospital	50.5	-	47.8	-	-
Modifiable factors	Child PIP Hospitals N°.	-	-	-	1	2
	% severe malnutrition		-	-	20.8	-
	% HIV Infected or Exposed		-	-	50.0	-
	% Deaths within 24 hrs	-	-	-	45.8	-
	Top modifiable factors - Home - 1	NO DATA				
	Top modifiable factors - Home - 2					
	Top modifiable factors - Home - 3					
	Top modifiable factors - Clinic/OPD - 1					
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1					
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1					
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1					
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

DC14: JOE GQABI

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	25 663	25 663	25 663	25 663	25 663
	Population	337 231	348 079	349 623	351 226	352 957
	U5 Population	38 896	42 731	42 713	42 745	42 397
	U15 Population	116 118	122 690	1 221 825	121 132	120 830
	Annual births	6 157	5 582	5 467	4 914	-
	Deaths U1	227	234	209	-	-
	Deaths U5	333	356	280	-	-
Health system profile						
	N° PHC clinics	46	-	-	-	53
	N° CHCs	1	-	-	-	-
	N° 1° hospitals	8	-	-	-	11
	N° 2° hospitals	0	-	-	-	-
	N° 3°/4° hospitals	0	-	-	-	-
	N° Specialised hospitals	2	-	-	-	-
	N° private hospitals	0	-	-	-	-
Service utilization						
	PHC U5 utilization rate	-	4.1	4.1	3.8	3.8
	ALOS	-	5.9	6.1	5.8	5.7
	Bed utilization rate	-	82.5	75.3	70.7	71.4
Health indicator						
EPI	Fully immunized @ 1 year	75.0	63.1	66.7	69.4	62.0
	DPT - Measles drop out	-705200.0	-92.5	-2.7	-4.9	-4.4
	Exclusively breastfed @ HepB 3	-	-	-	-	49.3
HIV / TB	PCR coverage	-	97.3	92.6	99.4	98.9
	PCR +ve @ 2 months	-	8.1	3.7	1.7	1.1
	Children U1 initiated on HAART	-	-	-	-	-
	TB contact U5 initiated on IPT	-	-	-	-	78
SAM	SAM incidence	4.6	4.3	4.6	4.1	5.0
	SAM CFR (DHIS)	30.6	24.5	24.6	14.3	11.7
	SAM IHMR (Child PIP)					-
GE	Diarrhoeal disease incidence	13.5	13.6	10.8	8.5	12.5
	Diarrhoeal disease CFR (DHIS)	8.3	11.8	8.7	6.5	6.2
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	-
ARI	ARI incidence	73	60.6	49.3	45.4	45.2
	ARI CFR (DHIS)	10	11.4	9.2	8.0	9.2
	ARI IHMR (Child PIP)	-	-	-	-	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	No data				
	Cause of death 2 - Child PIP					
	Cause of death 3 - Child PIP					
	Cause of death 4 - Child PIP					
	Cause of death 5 - Child PIP					
IMR	Registered deaths (StatsSA)	227	234	209	-	-
	Hospital deaths (DHIS)	143	166	115	95	122
	Child PIP deaths in hospital - N°.	-	-	-	-	-
	IMR (StatsSA)	36.9	41.9	38.2		
	IHMR (DHIS)	11.8	14.6	13.6	12.3	10.1
	IHMR - Child PIP	-	-	-	-	-
	% deaths in hospital	47.1	-	35.4	-	-
U5MR	Registered deaths (StatsSA)	330	356	280	-	-
	Hospital deaths (DHIS)	116	156	128	101	132
	Child PIP deaths in hospital - N°.	-	-	-	-	-
	U5MR (StatsSA)	54.1	63.8	51.2		
	IHMR (DHIS)	7.8	10.5	9.2	7.6	7.1
	IHMR - Child PIP	-	-	-	-	-
	% deaths in hospital	44.7	-	36.8	-	-
Modifiable factors	Child PIP Hospitals N°.	-	-	-	-	-
	% severe malnutrition	-	-	-	-	-
	% HIV Infected or Exposed	-	-	-	-	-
	% Deaths within 24 hrs	-	-	-	-	-
	Top modifiable factors - Home - 1	NO DATA				
	Top modifiable factors - Home - 2					
	Top modifiable factors - Home - 3					
	Top modifiable factors - Clinic/OPD - 1					
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1					
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1					
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1					
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

DC15: OLIVER TAMBO

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	15 968	15 968	15 968	15 968	15 968
	Population	1 833 964	1 339 681	1 345 799	1 352 098	1 358 916
	U5 Population	218 846	172 089	173 899	177 406	179 036
	U15 Population	695 382	522 102	513 920	507 649	503 370
	Annual births	27 662	32 202	32 814	29 908	-
	Deaths U1	265	485	407	-	-
	Deaths U5	509	928	774	-	-
Health system profile						
	N° PHC clinics	153	-	-	-	139
	N° CHCs	10	-	-	-	10
	N° 1° hospitals	10	-	-	-	9
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	2	-	-	-	2
	N° Specialised hospitals	2	-	-	-	2
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	5.2	4.4	4.4	4.2	4.0
	ALOS	7.3	7.0	7.0	7.0	7.3
	Bed utilization rate	71.2	64.4	65.3	66.2	65.8
Health indicator						
EPI	Fully immunized @ 1 year	90.5	65.4	64.6	61.7	58.2
	DPT - Measles drop out	-2089.2	-218.9	-57.9	-24.9	-5.9
	Exclusively breastfed @ HepB 3	0.0	0.0	0.0	0.0	17.9
HIV / TB	PCR coverage	-	52.1	61.4	63.6	78.3
	PCR +ve @ 2 months	-	8.2	6.3	3.8	2.0
	Children U1 initiated on HAART	17	22	46	47	34
	TB contact U5 initiated on IPT	-	-	-	-	47.9
SAM	SAM incidence	7.2	14.3	12.6	11.0	13.7
	SAM CFR (DHIS)	23.7	29.9	25.8	19.1	22.6
	SAM IHMR (Child PIP)	17	31	18	18.0	-
GE	Diarrhoeal disease incidence	20.4	5.5	5.0	3.6	5.2
	Diarrhoeal disease CFR (DHIS)	22.0	22.6	18.4	16.0	13.2
	Diarrhoeal disease IHMR (Child PIP)	16.4	17.3	9.3	3.4	-
ARI	ARI incidence	56.1	43.4	38.6	38.2	26.3
	ARI CFR (DHIS)	18.0	15.9	10.0	8.9	9.9
	ARI IHMR (Child PIP)	14.3	2.8	1.6	1.4	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	NO DATA				
	Cause of death 2 - Child PIP					
	Cause of death 3 - Child PIP					
	Cause of death 4 - Child PIP					
	Cause of death 5 - Child PIP					
IMR	Registered deaths (StatsSA)	265	485	407	-	-
	Hospital deaths (DHIS)	896	837	475	490	748
	Child PIP deaths in hospital - N^{o}.	89	40	21	13	-
	IMR (StatsSA)	9.6	15.1	12.4	-	-
	IHMR (DHIS)	27.9	26.3	17.7	13.0	18.6
	IHMR - Child PIP	14.9	8.9	6.0	0.5	-
	% deaths in hospital	48	-	49.1	-	-
U5MR	Registered deaths (StatsSA)	509	928	774	-	-
	Hospital deaths (DHIS)	946	727	404	427	847
	Child PIP deaths in hospital - N^{o}.	110	49	33	-	-
	U5MR (StatsSA)	18.4	28.8	23.6	-	-
	IHMR (DHIS)	23.1	22.7	13.9	9.6	14.6
	IHMR - Child PIP	10.5	7.3	4.3	0.4	-
	% deaths in hospital	45.6	-	41.3	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	2	-	1	1	-
	% severe malnutrition	19	48.4	44.8	60	-
	% HIV Infected or Exposed	32.0	34.4	27.6	30.0	-
	% Deaths within 24 hrs	35	25.0	17.2	30.0	-
	Top modifiable factors - Home - 1	NO DATA				
	Top modifiable factors - Home - 2					
	Top modifiable factors - Home - 3					
	Top modifiable factors - Clinic/OPD - 1					
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1					
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1					
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1					
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

DC44: ALFRED NZO

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	6 859	6 859	6 859	6 859	6 859
	Population	638 100	802 232	808 639	815 057	821 756
	U5 Population	79 774	103 484	103 553	104 703	105 298
	U15 Population	241 685	312 394	308 408	305 259	303 362
	Annual births	125 053	119 627	119 683	110 244	-
	Deaths U1	2 911	3 166	2 478	-	-
	Deaths U5	4 334	4 811	3 687	-	-
Health system profile						
	N° PHC clinics	47	-	-	-	73
	N° CHCs	2	-	-	-	2
	N° 1° hospitals	4	-	-	-	6
	N° 2° hospitals	0	-	-	-	0
	N° 3°/4° hospitals	0	-	-	-	0
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	0	-	-	-	0
Service utilization						
	PHC U5 utilization rate	4.1	4.3	4.2	4.3	4.2
	ALOS	6.6	6.9	6.8	6.3	6.0
	Bed utilization rate	62.7	67.4	64.7	63.2	57.9
Health indicator						
EPI	Fully immunized @ 1 year	74	61.6	48.8	66.7	72.4
	DPT - Measles drop out	-1322.8	-205.5	-47.3	-9.3	-6.9
	Exclusively breastfed @ HepB 3	-	-	-	-	34.3
HIV / TB	PCR coverage	-	96.5	97.2	108.0	105.4
	PCR +ve @ 2 months	-	5.6	4.7	3.6	2.9
	Children U1 initiated on HAART	1	5	25	41	30
	TB contact U5 initiated on IPT	-	-	-	-	50.1
SAM	SAM incidence	7.4	6.7	3.8	4.3	4.4
	SAM CFR (DHIS)	19.9	20.7	22.8	17.0	19.5
	SAM IHMR (Child PIP)	-	-	-	13.3	29.5
GE	Diarrhoeal disease incidence	14.3	12.9	10.6	11.1	10.4
	Diarrhoeal disease CFR (DHIS)	18.2	20.9	15.5	9.7	13.2
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	2.7	18.5
ARI	ARI incidence	76.8	70.8	62.2	48.7	34.7
	ARI CFR (DHIS)	11.8	11.2	8.4	6.6	8.8
	ARI IHMR (Child PIP)	-	-	-	4.8	7.5

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Other Respiratory System (specify)				
	Cause of death 3 - Child PIP	Other Nutritional				
	Cause of death 4 - Child PIP	Other diagnosis				
	Cause of death 5 - Child PIP	Pneumonia				
IMR	Registered deaths (StatsSA)	272	341	249	-	-
	Hospital deaths (DHIS)	264	301	204	186	236
	Child PIP deaths in hospital - N^{o}.	-	-	-	2	41
	IMR (StatsSA)	23.6	25.0	18.7		
	IHMR (DHIS)	13.9	17.9	13.6	10.7	16.8
	IHMR - Child PIP	-	-	-	5.8	19.7
	% deaths in hospital	33.8	-	30.9	-	-
U5MR	Registered deaths (StatsSA)	487	523	374	-	-
	Hospital deaths (DHIS)	278	257	230	189	285
	Child PIP deaths in hospital - N^{o}.	-	-	-	5	52
	U5MR (StatsSA)	42.3	38.3	28.1		
	IHMR (DHIS)	11.9	12.3	11.6	8.8	12.4
	IHMR - Child PIP	-	-	-	6	12.9
	% deaths in hospital	33.3	-	30.5	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	0	-	-	1	2
	% severe malnutrition	-	-	-	0	31
	% HIV Infected or Exposed	-	-	-	33.3	32.8
	% Deaths within 24 hrs	-	-	-	0.0	44.8
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Traditional remedy from traditional healer, with -ve effect on child				
	Top modifiable factors - Home - 3	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Clinic/OPD - 1	IMCI not used for patient assessment				
	Top modifiable factors - Clinic/OPD - 2	Child with danger signs not monitored				
	Top modifiable factors - Clinic/OPD - 3	Delayed referral of child with danger signs				
	Top modifiable factors - A&E - 1	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 2	Emergency signs not recognised				
	Top modifiable factors - A&E - 3	Not classified as critcally ill despite presence of danger signs				
	Top modifiable factors - REF FAC - 1	No plan for transporting caregiver to receiving facility				
	Top modifiable factors - REF FAC - 2	Inadequate notes on transit care				
	Top modifiable factors - REF FAC - 3	Child not assessed properly by ambulance crew on entry to ambulance				
	Top modifiable factors - Ward - 1	Inadequate investigations				
	Top modifiable factors - Ward - 2	Inadequate daily `Care Plan`				
	Top modifiable factors - Ward - 3	WHO `10 Steps` not followed for child with severe malnutrition				

BUFFALO CITY METRO

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	25 663	25 663	25 663	25 663	25 663
	Population	337 231	741 948	745 600	749 350	753 213
	U5 Population	38 896	84 625	81 114	77 636	74 963
	U15 Population	116 118	222 956	223 811	224 170	225 538
	Annual births	1 362	15 518	15 448	14 704	-
	Deaths U1	422	453	375	-	-
	Deaths U5	587	618	497	-	-
Health system profile						
	N° PHC clinics	46	-	-	-	75
	N° CHCs	1	-	-	-	5
	N° 1° hospitals	8	-	-	-	2
	N° 2° hospitals	0	-	-	-	0
	N° 3°/4° hospitals	0	-	-	-	2
	N° Specialised hospitals	2	-	-	-	3
	N° private hospitals	0	-	-	-	5
Service utilization						
	PHC U5 utilization rate	5.0	4.3	4.2	4.3	4.2
	ALOS	6.7	6.9	6.8	6.3	6.0
	Bed utilization rate	75.3	67.4	64.7	63.2	57.9
Health indicator						
EPI	Fully immunized @ 1 year	87.2	73.3	85.0	99.2	93.6
	DPT - Measles drop out	-5833.9	-67.3	11.3	15.0	9.6
	Exclusively breastfed @ HepB 3	-	-	-	-	35.3
HIV / TB	PCR coverage	-	54.4	68.9	72.9	71.4
	PCR +ve @ 2 months	-	10.6	5.0	2.3	1.8
	Children U1 initiated on HAART	17	23	28	16	20
	TB contact U5 initiated on IPT	-	-	-	-	-
SAM	SAM incidence	5.0	6.5	5.1	4.1	2.3
	SAM CFR (DHIS)	16.2	41.0	10.2	8.7	12.7
	SAM IHMR (Child PIP)	-	-	-	-	-
GE	Diarrhoeal disease incidence	16.9	15.1	13.4	12.5	14.9
	Diarrhoeal disease CFR (DHIS)	6.4	8.2	4.2	2.7	2.5
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	-
ARI	ARI incidence	80.3	57.0	64.1	67.1	53.8
	ARI CFR (DHIS)	6.2	5.8	3.2	1.8	1.6
	ARI IHMR (Child PIP)	-	-	-	-	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	No data				
	Cause of death 2 - Child PIP					
	Cause of death 3 - Child PIP					
	Cause of death 4 - Child PIP					
	Cause of death 5 - Child PIP					
IMR	Registered deaths (StatsSA)	422	453	375	-	-
	Hospital deaths (DHIS)	164	336	365	357	275
	Child PIP deaths in hospital - N^{o}.	0	0	0	0	0
	IMR (StatsSA)	309.8	29.2	24.3		
	IHMR (DHIS)	28.0	5.2	4.0	2.6	2.0
	IHMR - Child PIP	-	-	-	-	-
	% deaths in hospital	51.2	-	51.7	-	-
U5MR	Registered deaths (StatsSA)	587	618	497	-	-
	Hospital deaths (DHIS)	151	200	70	93	238
	Child PIP deaths in hospital - N^{o}.	-	-	-	-	-
	U5MR (StatsSA)	431.0	39.7	32.2		
	IHMR (DHIS)	16.4	4.4	1.7	2.4	3.0
	IHMR - Child PIP	-	-	-	-	-
	% deaths in hospital	48.0	-	48.3	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	-	-	-	-	-
	% severe malnutrition	-	-	-	-	-
	% HIV Infected or Exposed	-	-	-	-	-
	% Deaths within 24 hrs	-	-	-	-	-
	Top modifiable factors - Home - 1	NO DATA				
	Top modifiable factors - Home - 2					
	Top modifiable factors - Home - 3					
	Top modifiable factors - Clinic/OPD - 1					
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1					
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1					
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1					
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

NELSON MANDELA BAY METRO

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	1 959	1 959	1 959	1 959	1 959
	Population	1 140 712	1 140 613	1 152 103	1 163 276	1 174 204
	U5 Population	101 645	123 715	118 415	112 716	108 321
	U15 Population	303 338	326 443	328 639	329 825	332 044
	Annual births	21 268	19 899	19 533	18 252	-
	Deaths U1	624	558	223	-	-
	Deaths U5	835	707	272	-	-
Health system profile						
	N° PHC clinics	43	-	-	-	46
	N° CHCs	8	-	-	-	9
	N° 1° hospitals	1	-	-	-	1
	N° 2° hospitals	0	-	-	-	-
	N° 3°/4° hospitals	3	-	-	-	3
	N° Specialised hospitals	4	-	-	-	4
	N° private hospitals	7	-	-	-	6
Service utilization						
	PHC U5 utilization rate	4.0	3.4	3.5	3.6	3.5
	ALOS	8.6	8.7	8.2	9.1	8.8
	Bed utilization rate	81.4	82.0	77.6	77.9	74.0
Health indicator						
EPI	Fully immunized @ 1 year	93.5	81.9	74.3	85.6	85.6
	DPT - Measles drop out	-7251.7	-82.4	5.5	2.1	4.9
	Exclusively breastfed @ HepB 3	-	-	-	-	29.9
HIV / TB	PCR coverage	-	56.4	73.3	78.3	90.5
	PCR +ve @ 2 months	-	7.3	3.1	2.4	3.0
	Children U1 initiated on HAART	91	87	107	101	71
	TB contact U5 initiated on IPT	-	-	-	-	67.9
SAM	SAM incidence	2.9	3.0	2.3	3.8	5.3
	SAM CFR (DHIS)	14.7	19.9	14.8	5.2	8.2
	SAM IHMR (Child PIP)	9.4	8.7	9.1	5.1	12.5
GE	Diarrhoeal disease incidence	14.5	16.6	13.3	11.5	11.0
	Diarrhoeal disease CFR (DHIS)	5.9	3.2	2.5	3.5	2.3
	Diarrhoeal disease IHMR (Child PIP)	1.4	0.9	0.5	0.0	2.7
ARI	ARI incidence	89.8	78.6	63.2	63.7	59.9
	ARI CFR (DHIS)	4.5	3.6	3.8	3.7	3.9
	ARI IHMR (Child PIP)	1.0	1.0	1.1	0.4	1.4

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Pneumonia				
	Cause of death 2 - Child PIP	TB (all)				
	Cause of death 3 - Child PIP	Septicaemia				
	Cause of death 4 - Child PIP	Diarrhoea				
	Cause of death 5 - Child PIP	Congenital Heart Disease				
IMR	Registered deaths (StatsSA)	624	558	233	-	-
	Hospital deaths (DHIS)	414	413	455	404	569
	Child PIP deaths in hospital - N^{o}.	32	17	13	17	6
	IMR (StatsSA)	28.0	11.4	-	-	-
	IHMR (DHIS)	12.1	4.9	5.4	4.5	4.8
	IHMR - Child PIP	3.1	2.7	2.9	1.2	2.8
	% deaths in hospital	50.5	-	62.2	-	-
U5MR	Registered deaths (StatsSA)	835	707	272	-	-
	Hospital deaths (DHIS)	481	441	491	467	595
	Child PIP deaths in hospital - N^{o}.	49	30	31	32	10
	U5MR (StatsSA)	35	14	-	-	-
	IHMR (DHIS)	6.8	3.5	5.7	4.3	4.1
	IHMR - Child PIP	1.8	1.7	1.2	0.7	2.2
	% deaths in hospital	51.0	-	58.2	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	1	1	1	1	2
	% severe malnutrition	28.8	37.1	19.2	40.0	25.0
	% HIV Infected or Exposed	39.0	51.4	30.8	45.0	33.3
	% Deaths within 24 hrs	28.8	34.3	38.5	50.0	9.1
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	NONE				
	Top modifiable factors - Clinic/OPD - 1	NONE				
	Top modifiable factors - Clinic/OPD - 2	NONE				
	Top modifiable factors - Clinic/OPD - 3	NONE				
	Top modifiable factors - A&E - 1	Oxygen saturation not monitored				
	Top modifiable factors - A&E - 2	No mechanical intravenous flow controller available				
	Top modifiable factors - A&E - 3	NONE				
	Top modifiable factors - REF FAC - 1	Inadequate in-transit consumables in ambulance				
	Top modifiable factors - REF FAC - 2	Inadequate monitoring of critical care equipment				
	Top modifiable factors - REF FAC - 3	Delayed arrival of ambulance				
	Top modifiable factors - Ward - 1	New danger signs inadequately identified				
	Top modifiable factors - Ward - 2	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 3	NONE				

FREE STATE

DC16: XHARIEP

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	34 250	34 250	34 250	34 250	34 250
	Population	134 506	148 984	146 564	144 219	141 892
	U5 Population	12 692	9 928	10 440	10 906	11 005
	U15 Population	40 065	40 488	38 709	36 873	34 966
	Annual births	1 409	1 492	1 337	1 153	-
	Deaths U1	168	282	144	-	-
	Deaths U5	208	473	200	-	-
Health system profile						
	N° PHC clinics	18	-	-	-	20
	N° CHCs	1	-	-	-	1
	N° 1° hospitals	4	-	-	-	4
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	-	-	-	-	-
Service utilization						
	PHC U5 utilization rate	4.4	7.9	8.0	7.6	6.4
	ALOS	2.7	2.7	2.6	2.9	2.9
	Bed utilization rate	64.8	61.5	58.6	65.1	96.2
Health indicator						
EPI	Fully immunized @ 1 year	84.1	123.0	111.8	91.1	78.4
	DPT - Measles drop out	-1254.8	-19.8	-2.8	-0.7	-2.3
	Exclusively breastfed @ HepB 3	-	-	-	-	53.8
HIV / TB	PCR coverage	-	209.8	212.2	232.5	306.2
	PCR +ve @ 2 months	-	7.3	4.4	3.6	3.1
	Children U1 initiated on HAART	10	19	13	21	19
	TB contact U5 initiated on IPT	-	-	-	-	38.5
SAM	SAM incidence	5.7	8.5	7.9	9.8	9.6
	SAM CFR (DHIS)	36.4	20.5	16.7	-	14.0
	SAM IHMR (Child PIP)	-	-	100.0	6.0	9.8
GE	Diarrhoeal disease incidence	8.6	13.3	10.7	14.9	18.3
	Diarrhoeal disease CFR (DHIS)	21.6	10.4	3.6	5.9	1.0
	Diarrhoeal disease IHMR (Child PIP)	-	-	100.0	2.5	4.8
ARI	ARI incidence	149.5	247.6	181.6	160.5	147.8
	ARI CFR (DHIS)	12	6.7	-	4.9	1.1
	ARI IHMR (Child PIP)	-	-	0.0	4.4	2.1

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Other Respiratory System				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Other Nutritional				
IMR	Registered deaths (StatsSA)	168	282	144	-	-
	Hospital deaths (DHIS)	34	25	14	12	12
	Child PIP deaths in hospital - N^{o}.	-	-	2	9	6
	IMR (StatsSA)	119.2	189.0	107.7	-	-
	IHMR (DHIS)	10.6	9.0	6.0	5.2	4.4
	IHMR - Child PIP	-	-	2.6	2.1	2.8
	% deaths in hospital	35.1	-	43.1	-	-
U5MR	Registered deaths (StatsSA)	208	473	200	-	-
	Hospital deaths (DHIS)	-	7	16	7	13
	Child PIP deaths in hospital - N^{o}.	-	-	6	20	13
	U5MR (StatsSA)	147.6	317.0	149.6	-	-
	IHMR (DHIS)	-	4.8	5.4	1.9	3.0
	IHMR - Child PIP	36.5	-	1.9	1.8	2.5
Modifiable factors	Child PIP Hospitals N$^{o.}$	-	-	1	3	3
	% severe malnutrition	-	-	-	23.1	46.2
	% HIV Infected or Exposed	-	-	25.0	23.1	46.2
	% Deaths within 24 hrs	-	-	75.0	61.5	38.5
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Home - 3	Caregiver took child to clinic infrequently				
	Top modifiable factors - Clinic/OPD - 1	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 2	No documentation of mother`s antenatal HIV status				
	Top modifiable factors - Clinic/OPD - 3	RTHC inadequately documents child`s health history				
	Top modifiable factors - A&E - 1	Inadequate rehydration plan				
	Top modifiable factors - A&E - 2	NONE				
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	NONE				
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1	No hand-over of critically ill child				
	Top modifiable factors - Ward - 2	Inadequate review of severe ARI				
	Top modifiable factors - Ward - 3	Inadequate review of child with severe dehydration				

DC17: MANGAUNG

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	13 999	13 999	13 999	13 999	13 999
	Population	796 792	735 330	747 538	759 635	771 645
	U5 Population	75 824	83 227	81 058	78 595	76 832
	U15 Population	228 613	223 607	225 888	227 997	230 405
	Annual births	17 716	17 625	17 255	16 878	-
	Deaths U1	875	636	666	-	-
	Deaths U5	1 107	855	826	-	-
Health system profile						
	N° PHC clinics	-	-	-	-	58
	N° CHCs	-	-	-	-	2
	N° 1° hospitals	-	-	-	-	3
	N° 2° hospitals	-	-	-	-	0
	N° 3°/4° hospitals	-	-	-	-	2
	N° Specialised hospitals	-	-	-	-	3
	N° private hospitals	-	-	-	-	6
Service utilization						
	PHC U5 utilization rate	3.5	2.9	3.1	3.4	3.2
	ALOS	8.8	8.6	9.3	8.8	9.3
	Bed utilization rate	76.5	74.0	76.7	80.0	83.3
Health indicator						
EPI	Fully immunized @ 1 year	78.4	62.9	81.4	90.3	79.9
	DPT - Measles drop out	-910.2	-3.3	5.1	10.8	9.2
	Exclusively breastfed @ HepB 3	-	-	-	-	53.4
HIV / TB	PCR coverage	-	82.6	87.1	89.0	100.6
	PCR +ve @ 2 months	-	8.1	3.8	2.5	3.0
	Children U1 initiated on HAART	4	12	19	20	12
	TB contact U5 initiated on IPT	-	-	-	-	46.9
SAM	SAM incidence	14.3	5.9	5.1	4.4	7.9
	SAM CFR (DHIS)	14.6	22.9	7.3	5.6	5.0
	SAM IHMR (Child PIP)	12.7	9.7	8.2	12.8	8.6
GE	Diarrhoeal disease incidence	15.4	9.9	8.0	9.3	17.8
	Diarrhoeal disease CFR (DHIS)	7.9	11.2	5.7	3.0	2.6
	Diarrhoeal disease IHMR (Child PIP)	10.6	10.5	6.2	5.9	3.6
ARI	ARI incidence	124.1	97.5	95.4	86.6	81.5
	ARI CFR (DHIS)	6.1	8.7	4.1	8.5	2.0
	ARI IHMR (Child PIP)	3.8	6.1	4.7	4.7	3.5

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	Other Nutritional				
	Cause of death 5 - Child PIP	Other diagnosis				
IMR	Registered deaths (StatsSA)	875	636	666	-	-
	Hospital deaths (DHIS)	301	283	268	156	
	Child PIP deaths in hospital - N°.	119.0	96	107	107	125
	IMR (StatsSA)	49.4	36.1	38.6	-	-
	IHMR (DHIS)	7.2	5.4	6.7	4.9	3.9
	IHMR - Child PIP	6.8	6.8	6.5	10.2	3.0
	% deaths in hospital	59.8	-	42.7	-	-
U5MR	Registered deaths (StatsSA)	162	855	826	-	-
	Hospital deaths (DHIS)	-	150	202	266	177
	Child PIP deaths in hospital - N°.	85.0	153	259	256	202
	U5MR (StatsSA)	62.5	48.5	47.9	-	-
	IHMR (DHIS)	-	5.7	6.1	4.8	3.4
	IHMR - Child PIP	5.9	6.2	5.2	6.1	2.3
	% deaths in hospital	57.2	-	41.6	-	-
Modifiable factors	Child PIP Hospitals N°.	3	3	4	6	6
	% severe malnutrition	60.0	59.4	45.8	36.6	35.5
	% HIV Infected or Exposed	53.3	55.7	42.5	33.0	29.7
	% Deaths within 24 hrs	29.4	30.2	34.6	34.6	32.2
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 2	Delayed referral of child with danger signs				
	Top modifiable factors - Clinic/OPD - 3	Delayed referral - severe malnutrition, wt loss, or growth faltering				
	Top modifiable factors - A&E - 1	Appropriate antibiotics not prescribed				
	Top modifiable factors - A&E - 2	Inadequate notes on clinical care				
	Top modifiable factors - A&E - 3	Inadequate physical examination				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 3	Emergency or priority care not provided				
	Top modifiable factors - Ward - 1	Inadequate number of nurses assigned to children`s ward				
	Top modifiable factors - Ward - 2	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 3	New danger signs inadequately identified				

DC18: LEJWELEPUTSWA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	31 930	31 930	31 930	31 930	31 930
	Population	751 253	630 947	623 968	617 123	610 190
	U5 Population	64 417	44 552	46 357	47 368	47 052
	U15 Population	211 557	169 802	164 225	158 268	151 447
	Annual births	11 410	240	11 324	10 951	-
	Deaths U1	1 011	936	758	-	-
	Deaths U5	1 298	1 249	970	-	-
Health system profile						
	N° PHC clinics	69	-	-	-	45
	N° CHCs	5	-	-	-	2
	N° 1° hospitals	4	-	-	-	5
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	0
	N° Specialised hospitals	3	-	-	-	1
	N° private hospitals	8	-	-	-	5
Service utilization						
	PHC U5 utilization rate	3.0	4.5	4.4	4.7	4.3
	ALOS	4.3	4.5	4.7	4.8	4.3
	Bed utilization rate	58.6	63.8	67.0	66.7	61.3
Health indicator						
EPI	Fully immunized @ 1 year	93.7	123.3	102.4	98.3	91.8
	DPT - Measles drop out	-986.3	-27.4	4.4	7.7	2.0
	Exclusively breastfed @ HepB 3	-	-	-	-	53.0
HIV / TB	PCR coverage	-	105.1	103.9	99.7	109.4
	PCR +ve @ 2 months	-	8.4	3.6	1.9	2.4
	Children U1 initiated on HAART	2	7	12	23	30
	TB contact U5 initiated on IPT	-	-	-	-	91.0
SAM	SAM incidence	3.7	6.3	4.5	4.1	7.1
	SAM CFR (DHIS)	26.3	20.8	17.9	12.4	16.8
	SAM IHMR (Child PIP)	-	-	21.6	19.8	20.8
GE	Diarrhoeal disease incidence	8.4	9.7	7.7	6.0	17.7
	Diarrhoeal disease CFR (DHIS)	12.8	12.8	6.6	5.9	6.0
	Diarrhoeal disease IHMR (Child PIP)	-	-	8.0	8.9	9.3
ARI	ARI incidence	94.6	125.7	109.2	88.3	71.6
	ARI CFR (DHIS)	19.4	11.0	7.4	4.6	4.1
	ARI IHMR (Child PIP)	-	-	7.7	5.2	5.7

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Other Nutritional				
	Cause of death 4 - Child PIP	Septicaemia				
	Cause of death 5 - Child PIP	Anaemia				
IMR	Registered deaths (StatsSA)	1011	936	758	-	-
	Hospital deaths (DHIS)	419	383	360	252	234
	Child PIP deaths in hospital - N^{o}.	-	-	52	84	92
	IMR (StatsSA)	88.6	3900.0	66.9	-	-
	IHMR (DHIS)	13.7	12.9	18.5	13.0	13.5
	IHMR - Child PIP	-	-	10.1	2.1	6.7
	% deaths in hospital	42.8	-	42.7	-	-
U5MR	Registered deaths (StatsSA)	1298	1249	970	-	-
	Hospital deaths (DHIS)	-	297	414	301	281
	Child PIP deaths in hospital - N^{o}.	-	-	116	193	143
	U5MR (StatsSA)	113.8	5204.2	85.7	-	-
	IHMR (DHIS)	-	11.4	12.4	8.8	9.8
	IHMR - Child PIP	-	-	7.0	1.0	5.6
	% deaths in hospital	40.8	-	41.6	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	-	-	2	6	6.0
	% severe malnutrition	-	-	42.4	37.4	37.4
	% HIV Infected or Exposed	-	-	43.9	50.4	35.4
	% Deaths within 24 hrs	-	-	21.2	36.5	45.5
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 2	No follow up for child`s nutrtional problem				
	Top modifiable factors - Clinic/OPD - 3	RTHC inadequately documents child`s health history				
	Top modifiable factors - A&E - 1	Inadequate history taken				
	Top modifiable factors - A&E - 2	Caregiver did not bring RTHC and/or referral letter				
	Top modifiable factors - A&E - 3	Inadequate notes on clinical care				
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	Inadequate record keeping system for proper transit care				
	Top modifiable factors - REF FAC - 3	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - Ward - 1	RTHC information not present in child`s folder				
	Top modifiable factors - Ward - 2	Inadequate history taken				
	Top modifiable factors - Ward - 3	Insufficient notes on clinical care				

DC19: TABO MAFUTSANYANE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	28 346	28 346	28 346	28 346	28 346
	Population	770 393	739 221	733 547	728 292	723 305
	U5 Population	81 028	65 901	66 789	67 572	67 338
	U15 Population	243 168	225 901	219 907	213 761	207 630
	Annual births	15 439	14 903	14 807	14 285	-
	Deaths U1	1 186	1 107	1 006	-	-
	Deaths U5	1 511	1 493	1 252	-	-
Health system profile						
	N° PHC clinics	49	-	-	-	83
	N° CHCs	1	-	-	-	1
	N° 1° hospitals	5	-	-	-	9
	N° 2° hospitals	1	-	-	-	2
	N° 3°/4° hospitals	-	-	-	-	0
	N° Specialised hospitals	-	-	-	-	0
	N° private hospitals	3	-	-	-	1
Service utilization						
	PHC U5 utilization rate	4.5	5.6	5.4	5.6	5.0
	ALOS	3.6	3.6	3.8	3.9	4.1
	Bed utilization rate	58.0	56.4	59.9	63.1	72.5
Health indicator						
EPI	Fully immunized @ 1 year	84.9	110.7	107.5	109.2	90.3
	DPT - Measles drop out	-	-17.4	2.8	3.9	1.8
	Exclusively breastfed @ HepB 3	-	-	-	-	59.1
HIV / TB	PCR coverage	-	104.8	104.1	116.5	109.3
	PCR +ve @ 2 months	-	4.9	3.5	2.3	2.8
	Children U1 initiated on HAART	24	26	43	63	59
	TB contact U5 initiated on IPT	-	-	-	-	51.4
SAM	SAM incidence	2.4	7.5	4.6	4.0	5.9
	SAM CFR (DHIS)	25.8	32.5	32.6	19.5	21.8
	SAM IHMR (Child PIP)	-	17.2	18.6	20.4	22.7
GE	Diarrhoeal disease incidence	6.2	9.1	10.7	12.2	22.8
	Diarrhoeal disease CFR (DHIS)	19.9	12.4	10.5	6.8	6.2
	Diarrhoeal disease IHMR (Child PIP)	-	20.5	8.4	7.3	8.4
ARI	ARI incidence	118.6	149.2	139.7	115.4	98.3
	ARI CFR (DHIS)	13.1	10.9	11.3	7.1	6.0
	ARI IHMR (Child PIP)	-	13.2	8.0	7.1	7.5

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Other Nutritional				
	Cause of death 4 - Child PIP	PCP				
	Cause of death 5 - Child PIP	Other diagnosis				
IMR	Registered deaths (StatsSA)	1186	1107	666	-	-
	Hospital deaths (DHIS)	430	379	378	262	274
	Child PIP deaths in hospital - N^{o}.	13	19	39	126	129
	IMR (StatsSA)	76.8	74.3	67.9	-	-
	IHMR (DHIS)	11.7	11.8	12.2	8.1	10.5
	IHMR - Child PIP	-	8.1	9.8	1.2	7.7
	% deaths in hospital	50.7	-	56.0	-	-
U5MR	Registered deaths (StatsSA)	1511	1493	1252	-	-
	Hospital deaths (DHIS)	-	379	431	352	369
	Child PIP deaths in hospital - N^{o}.	20	29	92	316	186
	U5MR (StatsSA)	97.9	100.2	84.6	-	-
	IHMR (DHIS)	-	9.1	8.7	6.4	8.4
	IHMR - Child PIP	-	6.0	4.8	0.9	5.1
	% deaths in hospital	47.7	-	53.5	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	1	1	4	9	9.0
	% severe malnutrition	28.6	30.3	31.1	25.8	33.0
	% HIV Infected or Exposed	28.6	39.4	27.9	42.9	47.8
	% Deaths within 24 hrs	33	36.4	50.8	35.0	41.5
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Home - 3	Traditional remedy from traditional healer, -ive effect on child				
	Top modifiable factors - Clinic/OPD - 1	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 2	No documentation of mother`s antenatal HIV status				
	Top modifiable factors - Clinic/OPD - 3	Inadequate assesment for HIV (IMCI not used)				
	Top modifiable factors - A&E - 1	Inadequate problem list compiled				
	Top modifiable factors - A&E - 2	Not classified as critcally ill despite presence of danger signs				
	Top modifiable factors - A&E - 3	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	Inappropriate care or late referral from private sector/GP				
	Top modifiable factors - REF FAC - 3	Delayed arrival of ambulance at referring facility				
	Top modifiable factors - Ward - 1	New danger signs inadequately identified				
	Top modifiable factors - Ward - 2	Inadequate history taken				
	Top modifiable factors - Ward - 3	Inadequate response to new danger signs				

DC20: FEZILE DABI

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	21 301	21 301	21 301	21 301	21 301
	Population	522 323	485 977	492 501	499 238	506 109
	U5 Population	50 356	44 435	45 152	45 611	45 799
	U15 Population	151 197	137 140	137 412	137 429	137 247
	Annual births	8 034	8 531	8 012	7 683	-
	Deaths U1	558	516	357	-	-
	Deaths U5	720	653	466	-	-
Health system profile						
	N° PHC clinics	67	-	-	-	36
	N° CHCs	1	-	-	-	5
	N° 1° hospitals	8	-	-	-	4
	N° 2° hospitals	2	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	1	-	-	-	3
Service utilization						
	PHC U5 utilization rate	3.6	3.9	3.9	3.6	3.4
	ALOS	4.1	4.2	4.0	4.1	4.1
	Bed utilization rate	75.0	76.5	72.1	71.3	74.7
Health indicator						
EPI	Fully immunized @ 1 year	96.6	88.7	92.4	81.9	70.9
	DPT - Measles drop out	-795.7	-17.7	7.2	6.0	7.5
	Exclusively breastfed @ HepB 3	0.0	0.0	0.0	0.0	54.7
HIV / TB	PCR coverage	-	87.2	92.9	93.6	92.2
	PCR +ve @ 2 months	-	5.8	3.5	3.5	5.1
	Children U1 initiated on HAART	4	12	15	24	26
	TB contact U5 initiated on IPT	-	-	-	-	59.7
SAM	SAM incidence	3.9	3.4	3.5	3.7	10.7
	SAM CFR (DHIS)	84.4	21.2	6.9	4.9	15.8
	SAM IHMR (Child PIP)	26.7	20.0	33.3	10.6	11.9
GE	Diarrhoeal disease incidence	9.4	10.6	6.5	5.4	14.2
	Diarrhoeal disease CFR (DHIS)	11.0	7.4	7.3	0.8	2.7
	Diarrhoeal disease IHMR (Child PIP)	5.3	6.3	3.2	3.4	4.0
ARI	ARI incidence	84.4	79.0	82.7	79.3	45.5
	ARI CFR (DHIS)	6.7	6.7	5.9	2.4	5.2
	ARI IHMR (Child PIP)	5.8	4.6	7.0	3.4	2.5

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Other Nutritional				
	Cause of death 3 - Child PIP	Other Respiratory System				
	Cause of death 4 - Child PIP	Pneumonia				
	Cause of death 5 - Child PIP	Septicaemia				
IMR	Registered deaths (StatsSA)	558	516	357	-	-
	Hospital deaths (DHIS)	158	217	134	121	167
	Child PIP deaths in hospital - N^{o}.	-	17	14	26	38
	IMR (StatsSA)	69.5	60.5	44.6	-	-
	IHMR (DHIS)	3.0	9.2	6.6	9.3	12.8
	IHMR - Child PIP	7.5	8.7	6.6	2.5	4.8
	% deaths in hospital	50.4	-	45.7	-	-
U5MR	Registered deaths (StatsSA)	720	653	466	-	-
	Hospital deaths (DHIS)	-	121	157	145	192
	Child PIP deaths in hospital - N^{o}.	-	21	35	65	59
	U5MR (StatsSA)	89.6	76.5	58.2	-	-
	IHMR (DHIS)	-	6.8	5.8	6.4	8.4
	IHMR - Child PIP	5.7	6.0	4.6	2.2	3.0
	% deaths in hospital	50.1	-	43.8	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	1.0	1	3	4	4
	% severe malnutrition	-	4.3	16.7	22.4	32.3
	% HIV Infected or Exposed	-	65.2	37.5	49.0	37.1
	% Deaths within 24 hrs	-	47.8	20.8	57.1	39.3
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Insufficient notes on home circumstances or health status				
	Top modifiable factors - Clinic/OPD - 1	Inadequate notes on clinical care				
	Top modifiable factors - Clinic/OPD - 2	Inadequate assessment for ARI				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to danger signs				
	Top modifiable factors - A&E - 1	Inadequate notes on administrator problems				
	Top modifiable factors - A&E - 2	Inadequate record keeping system				
	Top modifiable factors - A&E - 3	Inadequate assessment of dehydration				
	Top modifiable factors - REF FAC - 1	Inadequate notes on administrator problems				
	Top modifiable factors - REF FAC - 2	Inadequate record keeping system				
	Top modifiable factors - REF FAC - 3	Inadequate assessment of dehydration				
	Top modifiable factors - Ward - 1	Inadequate record keeping system for children				
	Top modifiable factors - Ward - 2	Inadequate monitoring of blood glucose				
	Top modifiable factors - Ward - 3	Danger signs missed due to inadequate monitoring				

GAUTENG

DC42: SEDIBENG

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	4 177	4 177	4 177	4 177	4 177
	Population	933 213	895 634	902 035	908 680	915 337
	U5 Population	80 317	72 227	72 464	71 849	71 122
	U15 Population	241 243	222 921	220 998	219 378	217 382
	Annual births	22 590	17 450	16 796	16 102	-
	Deaths U1	891	930	666	-	-
	Deaths U5	1 087	1 205	853	-	-
Health system profile						
	N° PHC clinics	34	-	-	-	39
	N° CHCs	5	-	-	-	4
	N° 1° hospitals	2	-	-	-	2
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	7	-	-	-	7
Service utilization						
	PHC U5 utilization rate	3.3	4.1	4.3	4.2	4.0
	ALOS	4.6	5.3	5.4	5.5	5.1
	Bed utilization rate	71.4	74.8	71.5	73.0	74.4
Health indicator						
EPI	Fully immunized @ 1 year	94.0	108.4	123.3	116.9	106.6
	DPT - Measles drop out	-3734.4	-2.1	-13.0	1.6	3.5
	Exclusively breastfed @ HepB 3	-	-	-	-	34.0
HIV / TB	PCR coverage	-	82.0	86.9	89.7	97.4
	PCR +ve @ 2 months	-	5.3	3.0	2.5	1.7
	Children U1 initiated on HAART	18	36	49	67	39
	TB contact U5 initiated on IPT	-	-	-	-	86.2
SAM	SAM incidence	0.9	1.1	2.1	1.2	1.8
	SAM CFR (DHIS)	28.7	29.5	21.3	17.1	10.6
	SAM IHMR (Child PIP)	-	-	-	-	-
GE	Diarrhoeal disease incidence	4.2	4.7	6.0	7.9	3.9
	Diarrhoeal disease CFR (DHIS)	12.4	15.0	7.0	7.0	5.3
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	-
ARI	ARI incidence	46.8	45.3	33.2	30.8	23.3
	ARI CFR (DHIS)	7.0	14.1	12.0	6.2	6.3
	ARI IHMR (Child PIP)	-	-	-	-	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	NO DATA				
	Cause of death 2 - Child PIP					
	Cause of death 3 - Child PIP					
	Cause of death 4 - Child PIP					
	Cause of death 5 - Child PIP					
IMR	Registered deaths (StatsSA)	891	930	666	-	-
	Hospital deaths (DHIS)	108	116	121	69	127
	Child PIP deaths in hospital - N°.	-	-	-	-	-
	IMR (StatsSA)	39	53	39.7	-	-
	IHMR (DHIS)	10.5	10.0	8.6	5.5	8.7
	IHMR - Child PIP	-	-	-	-	-
	% deaths in hospital	56.9	-	54.4	-	-
U5MR	Registered deaths (StatsSA)	1087	1205	853	-	-
	Hospital deaths (DHIS)	72	89	81	120	137
	Child PIP deaths in hospital - N°.	-	-	-	-	-
	U5MR (StatsSA)	48.1	69.1	50.8	-	-
	IHMR (DHIS)	5.9	6	4.1	6.6	5.3
	IHMR - Child PIP	-	-	-	-	-
	% deaths in hospital	55.1	-	52.8	-	-
Modifiable	Child PIP Hospitals N°.	-	-	-	-	-
	% severe malnutrition	-	-	-	-	-
	% HIV Infected or Exposed	-	-	-	-	-
	% Deaths within 24 hrs	-	-	-	-	-
	Top modifiable factors - Home - 1	NO DATA				
	Top modifiable factors - Home - 2					
	Top modifiable factors - Home - 3					
	Top modifiable factors - Clinic/OPD - 1					
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1					
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1					
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1					
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

DC48: WEST RAND

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	2 457	2 457	2 457	2 457	2 457
	Population	828 769	818 079	828 082	838 636	849 478
	U5 Population	74 533	60 739	62 491	63 418	63 920
	U15 Population	210 957	198 900	198 537	197 848	196 107
	Annual births	12 648	14 497	15 005	14 336	-
	Deaths U1	899	844	593	-	-
	Deaths U5	1 130	1 098	768	-	-
Health system profile						
	N° PHC clinics	29	-	-	-	44
	N° CHCs	2	-	-	-	3
	N° 1° hospitals	1	-	-	-	2
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	1	-	-	-	4
	N° private hospitals	4	-	-	-	6
Service utilization						
	PHC U5 utilization rate	3.2	7.6	7.0	6.8	7.6
	ALOS	6.6	77.1	74.2	77.4	79.4
	Bed utilization rate	71.2	9.3	7.1	6.6	9.8
Health indicator						
EPI	Fully immunized @ 1 year	96.2	122.2	121.9	117.7	115.8
	DPT - Measles drop out	-417.1	-9.6	-10.3	-6.9	-2.6
	Exclusively breastfed @ HepB 3	-	-	-	-	17.8
HIV / TB	PCR coverage	-	74.6	81.1	85.5	91.0
	PCR +ve @ 2 months	-	6.6	3.3	2.4	2.5
	Children U1 initiated on HAART	6	7	3	8	1
	TB contact U5 initiated on IPT	-	-	-	-	76.4
SAM	SAM incidence	4.7	8.1	6.7	4.4	8.3
	SAM CFR (DHIS)	13.1	5.0	1.1	1.3	3.3
	SAM IHMR (Child PIP)	-	-	12.1	0.0	-
GE	Diarrhoeal disease incidence	13.7	16.8	16.8	14.9	11.5
	Diarrhoeal disease CFR (DHIS)	7.4	6.1	4.2	0.5	3.5
	Diarrhoeal disease IHMR (Child PIP)	-	-	2.4	1.4	-
ARI	ARI incidence	60.6	54.5	46.9	43.6	42.2
	ARI CFR (DHIS)	4.9	2.3	0.8	0.8	2.8
	ARI IHMR (Child PIP)	-	-	1.6	2.1	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	NO DATA				
	Cause of death 2 - Child PIP					
	Cause of death 3 - Child PIP					
	Cause of death 4 - Child PIP					
	Cause of death 5 - Child PIP					
IMR	Registered deaths (StatsSA)	899	844	593	-	-
	Hospital deaths (DHIS)	334	313	241	241	237
	Child PIP deaths in hospital - N°.	-	19	9	6	-
	IMR (StatsSA)	71.1	58.2	39.5	-	-
	IHMR (DHIS)	9.2	9.3	7.1	6.6	9.8
	IHMR - Child PIP		-	2.0	0.4	-
	% deaths in hospital	43.7	-	45.4	-	-
U5MR	Registered deaths (StatsSA)	1 130	1 098	768	-	-
	Hospital deaths (DHIS)	392	368	259	229	265
	Child PIP deaths in hospital - N°.	-	29	21	10	-
	U5MR (StatsSA)	89.3	75.7	51.2	-	-
	IHMR (DHIS)	7.1	6.4	4.7	4.0	5.5
	IHMR - Child PIP	-	-	1.4	0.3	-
	% deaths in hospital	41.9	-	43.5	-	-
Modifiable	Child PIP Hospitals N°.	-	1	1	1	-
	% severe malnutrition	-	17.6	23.5	0.0	-
	% HIV Infected or Exposed	-	29.4	41.2	16.7	-
	% Deaths within 24 hrs	-	41.2	47.1	66.7	-
	Top modifiable factors - Home - 1	NO DATA				
	Top modifiable factors - Home - 2					
	Top modifiable factors - Home - 3					
	Top modifiable factors - Clinic/OPD - 1					
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1					
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1					
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1					
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

EKURHULENI

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	1 924	1 924	1 924	1 924	1 924
	Population	2 666 334	3 074 354	3 125 733	3 178 235	3 231 179
	U5 Population	256 032	234 147	242 622	246 871	249 085
	U15 Population	721 162	741 549	743 060	743 974	741 130
	Annual births	51 217	58 039	56 388	53 469	-
	Deaths U1	3 065	2 659	2 008	-	-
	Deaths U5	3 769	3 306	2 482	-	-
Health system profile						
	N° PHC clinics	83	-	-	-	84
	N° CHCs	8	-	-	-	7
	N° 1° hospitals	1	-	-	-	1
	N° 2° hospitals	5	-	-	-	4
	N° 3°/4° hospitals	-	-	-	-	1
	N° Specialised hospitals	1	-	-	-	2
	N° private hospitals	16	-	-	-	14
Service utilization						
	PHC U5 utilization rate	4.0	4.2	4.4	4.7	4.6
	ALOS	4.8	4.8	4.9	5.0	5.0
	Bed utilization rate	84.4	81.0	82.1	81.8	85.9
Health indicator						
EPI	Fully immunized @ 1 year	111.6	105.3	102.4	105.7	105.6
	DPT - Measles drop out	-983.7	-18.4	-5.9	-25.0	10.5
	Exclusively breastfed @ HepB 3	0.0	0.0	0.0	0.0	7.8
HIV / TB	PCR coverage	-	94.5	84.9	92.1	90.2
	PCR +ve @ 2 months	-	7.5	3.7	2.5	1.9
	Children U1 initiated on HAART	0	3	19	58	66
	TB contact U5 initiated on IPT	-	-	-	-	88.3
SAM	SAM incidence	5.2	5.0	3.6	2.7	2.8
	SAM CFR (DHIS)	21.8	21.9	14.3	14.1	12.9
	SAM IHMR (Child PIP)	-	-	-	-	-
GE	Diarrhoeal disease incidence	11.6	15.3	11.6	8.7	8.2
	Diarrhoeal disease CFR (DHIS)	7.2	9.3	6.1	3.3	4.3
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	-
ARI	ARI incidence	65.8	65.1	49.3	39.7	33.3
	ARI CFR (DHIS)	7.2	6.1	6.2	2.5	3.0
	ARI IHMR (Child PIP)	-	-	-	-	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	NO DATA				
	Cause of death 2 - Child PIP					
	Cause of death 3 - Child PIP					
	Cause of death 4 - Child PIP					
	Cause of death 5 - Child PIP					
IMR	Registered deaths (StatsSA)	3 065	2 659	2 008		
	Hospital deaths (DHIS)	433	705	738	401	712
	Child PIP deaths in hospital - N^{o}.	-	-	-	-	-
	IMR (StatsSA)	59.8	45.8	35.6	-	-
	IHMR (DHIS)	33.5	18.3	13.0	5.3	7.7
	IHMR - Child PIP	-	-	-	4.9	-
	% deaths in hospital	46.7	-	38.9	-	-
U5MR	Registered deaths (StatsSA)	3 769	3 306	2 482	-	-
	Hospital deaths (DHIS)	334	762	350	338	713
	Child PIP deaths in hospital - N^{o}.	-	-	-	-	-
	U5MR (StatsSA)	73.6	57.0	44.0	-	-
	IHMR (DHIS)	2.2	3.9	1.8	2.3	5.4
	IHMR - Child PIP	-	-	-	3.9	-
	% deaths in hospital	45.2	-	37.8	-	-
Modifiable	Child PIP Hospitals N$^{o.}$	-	-	-	-	-
	% severe malnutrition	-	-	-	-	-
	% HIV Infected or Exposed	-	-	-	-	-
	% Deaths within 24 hrs	-	-	-	-	-
	Top modifiable factors - Home - 1	NO DATA				
	Top modifiable factors - Home - 2					
	Top modifiable factors - Home - 3					
	Top modifiable factors - Clinic/OPD - 1					
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1					
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1					
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1					
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

JOHANNESBURG

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	1 645	1 645	1 645	1 645	1 645
	Population	3 384 137	4 290 141	4 406 422	4 524 247	4 643 130
	U5 Population	339 325	379 014	384 604	383 921	384 620
	U15 Population	911 385	1 067 896	1 090 397	1 109 925	1 125 768
	Annual births	65 684	64 113	63 034	60 875	-
	Deaths U1	2 709	2 243	2 038	-	-
	Deaths U5	3 390	2 844	2 483	-	-
Health system profile						
	N° PHC clinics	111	-	-	-	128
	N° CHCs	9	-	-	-	10
	N° 1° hospitals	2	-	-	-	2
	N° 2° hospitals	3	-	-	-	2
	N° 3°/4° hospitals	-	-	-	-	3
	N° Specialised hospitals	4	-	-	-	4
	N° private hospitals	29	-	-	-	26
Service utilization						
	PHC U5 utilization rate	4.0	3.7	3.7	3.8	3.8
	ALOS	6.2	6.1	6.3	6.5	6.8
	Bed utilization rate	79.6	77.0	75.8	77.1	79.1
Health indicator						
EPI	Fully immunized @ 1 year	132.6	108.0	109.9	103.9	105.3
	DPT - Measles drop out	-370.6	-13.6	-2.8	1.3	4.4
	Exclusively breastfed @ HepB 3	-	-	-	-	11.3
HIV / TB	PCR coverage	-	119.5	105.9	108.7	114.8
	PCR +ve @ 2 months	-	6.8	3.0	2.5	1.7
	Children U1 initiated on HAART	7	10	7	17	51
	TB contact U5 initiated on IPT	-	-	-	-	100.2
SAM	SAM incidence	1.2	2.7	3.5	2.5	1.5
	SAM CFR (DHIS)	-	-	21.2	14.8	1.4
	SAM IHMR (Child PIP)	13.3	14.2	14.0	7.8	-
GE	Diarrhoeal disease incidence	9.0	16.1	18.3	12.1	9.2
	Diarrhoeal disease CFR (DHIS)	-	0.0	8.8	1.7	5.1
	Diarrhoeal disease IHMR (Child PIP)	5.2	5.8	3.1	2.8	-
ARI	ARI incidence	56.3	51.8	57.9	49.1	31.6
	ARI CFR (DHIS)	-	-	3.3	1.7	2.0
	ARI IHMR (Child PIP)	5.5	5.3	4.1	2.6	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Other diagnosis				
	Cause of death 2 - Child PIP	Other Respiratory System				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	Pneumonia				
	Cause of death 5 - Child PIP	Other possible serious infection				
IMR	Registered deaths (StatsSA)	2 709	2 243	2 038	-	-
	Hospital deaths (DHIS)	467	468	573	537	829
	Child PIP deaths in hospital - N°.	167	138	162	54	55
	IMR (StatsSA)	41.2	35.0	32.3	-	-
	IHMR (DHIS)	24.2	17.2	5.8	4.5	6.4
	IHMR - Child PIP	4.9	5.3	5.1	-	6.5
	% deaths in hospital	49.1	-	48.0	-	-
	Registered deaths (StatsSA)	3 390	2 844	2 483	-	-
	Hospital deaths (DHIS)	496	376	188	706	920
	Child PIP deaths in hospital - N°.	235	198	339	113	64
	U5MR (StatsSA)	51.6	44.4	39.4	-	-
	IHMR (DHIS)	9.5	8.2	1.7	3.6	4.2
	IHMR - Child PIP	4.6	5.0	4.0	-	4
	% deaths in hospital	47.0	-	44.5	-	-
Modifiable factors U5MR	Child PIP Hospitals N°.	2	2	3	3	1
	% severe malnutrition	30.7	35.0	27.0	14.5	10.3
	% HIV Infected or Exposed	51.0	53.8	45.2	43.4	47.1
	% Deaths within 24 hrs	31	31.4	37.0	34.9	34.3
	Top modifiable factors - Home - 1	Other administrator modifiable factor				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Other caregiver modifiable facto at home/in community				
	Top modifiable factors - Clinic/OPD - 1	NONE				
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1	NONE				
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1	NONE				
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1	New danger signs inadequately identified				
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

TSHWANE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	2 175	2 175	2 175	2 175	2 175
	Population	2 221 633	2 867 856	2 940 034	3 014 090	3 089 314
	U5 Population	159 504	245 757	251 530	254 311	256 588
	U15 Population	440 475	697 957	708 475	720 232	730 681
	Annual births	35 353	43 248	42 816	41 675	-
	Deaths U1	1 779	1 151	1 010	-	-
	Deaths U5	2 396	1 612	1 438	-	-
Health system profile						
	N° PHC clinics	59	-	-	-	67
	N° CHCs	6	-	-	-	8
	N° 1° hospitals	5	-	-	-	4
	N° 2° hospitals	2	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	3
	N° Specialised hospitals	3	-	-	-	4
	N° private hospitals	25	-	-	-	30
Service utilization						
	PHC U5 utilization rate	3.8	3.5	3.6	3.7	3.7
	ALOS	7.2	7.1	6.9	6.9	7.1
	Bed utilization rate	68.4	65.0	67.7	70.7	71.2
Health indicator						
EPI	Fully immunized @ 1 year	104.8	92.0	99.8	89.8	105.8
	DPT - Measles drop out	-1599.7	-29.7	-2.5	5.0	2.7
	Exclusively breastfed @ HepB 3	-	-	-	-	6.5
HIV / TB	PCR coverage	-	87.5	89.3	94.6	86.4
	PCR +ve @ 2 months	-	11.5	8.9	3.5	3.6
	Children U1 initiated on HAART	2	8	9	16	16
	TB contact U5 initiated on IPT	-	-	-	-	86.7
SAM	SAM incidence	4.5	2.6	2.2	1.5	2.1
	SAM CFR (DHIS)	-	-	10.1	14.3	8.2
	SAM IHMR (Child PIP)	14.1	11.5	-	-	
GE	Diarrhoeal disease incidence	11.2	9.8	9.6	7.3	7.9
	Diarrhoeal disease CFR (DHIS)	1.2	0.9	1.1	8.5	0.5
	Diarrhoeal disease IHMR (Child PIP)	2.1	1.7	-	-	-
ARI	ARI incidence	63.9	57.8	68.4	64.4	55.6
	ARI CFR (DHIS)	0.4	0.0	2.5	2.2	1.1
	ARI IHMR (Child PIP)	3.8	1.5	-	-	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Congenital Heart Disease				
	Cause of death 4 - Child PIP	Diarrhoea				
	Cause of death 5 - Child PIP	Other diagnosis				
IMR	Registered deaths (StatsSA)	1 779	1 151	1 010	-	-
	Hospital deaths (DHIS)	240	247	161	141	376
	Child PIP deaths in hospital - N^{o}.	53	30	57	58	82
	IMR (StatsSA)	50.3	26.6	23.6	-	-
	IHMR (DHIS)	54.9	51.5	3.3	3.8	13.0
	IHMR - Child PIP	4.9	2.8	-	6.0	0.9
	% deaths in hospital	57.1	-	50.5	-	-
U5MR	Registered deaths (StatsSA)	2 396	1 612	1 438	-	-
	Hospital deaths (DHIS)	146	155	168	159	377
	Child PIP deaths in hospital - N^{o}.	77	46	155	134	121.0
	U5MR (StatsSA)	67.8	37.3	33.6	-	-
	IHMR (DHIS)	30.2	34.8	4.0	3.5	7.8
	IHMR - Child PIP	3.8	2.1	-	4.4	0.8
	% deaths in hospital	56.1	-	48.4	-	-
Modifiable	Child PIP Hospitals N$^{o.}$	1	1	2	1	2
	% severe malnutrition	37.3	47.1	17.6	12.1	17.8
	% HIV Infected or Exposed	51.8	52.9	31.1	26.2	21.7
	% Deaths within 24 hrs	25.3	33.3	37.8	19.6	26.4
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Other caregiver modifiable factor at home/in community				
	Top modifiable factors - Home - 3	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Clinic/OPD - 1	Inadequate assesment for HIV (IMCI not used)				
	Top modifiable factors - Clinic/OPD - 2	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 3	Inadequate fluid management for diarrhoeal disease				
	Top modifiable factors - A&E - 1	Lack ofaccess to Intensive and High Care beds				
	Top modifiable factors - A&E - 2	Priority signs not recognised				
	Top modifiable factors - A&E - 3	Inadequate treatment fof shock				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 3	Emergency or priority care not provided				
	Top modifiable factors - Ward - 1	Other clinical personnel modifiable factor				
	Top modifiable factors - Ward - 2	Essential treatment not prescribed				
	Top modifiable factors - Ward - 3	New danger signs inadequately identified				

KWAZULU-NATAL

DC21: UGU

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	5 047	5 047	5 047	5 047	5 047
	Population	715 756	710 463	717 831	725 340	733 228
	U5 Population	80 679	93 090	93 134	93 291	92 994
	U15 Population	242 089	257 690	257 974	258 775	260 312
	Annual births	19 185	14 899	14 023	13 082	-
	Deaths U1	663	650	415	-	-
	Deaths U5	925	986	633	-	-
Health system profile						
	N° PHC clinics	57	-	-	-	55
	N° CHCs	-	-	-	-	2
	N° 1° hospitals	3	-	-	-	3
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	0
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	2	-	-	-	2
Service utilization						
	PHC U5 utilization rate	4.0	3.7	3.7	4.0	4.3
	ALOS	6.7	6.8	6.8	6.2	6.1
	Bed utilization rate	69.0	71.7	72.3	70.8	68.4
Health indicator						
EPI	Fully immunized @ 1 year	77.3	63.7	70.9	74.1	75.3
	DPT - Measles drop out	-	-24.6	6.0	4.0	4.4
	Exclusively breastfed @ HepB 3	-	-	23.6	39.9	46.9
HIV / TB	PCR coverage	-	101.9	106.8	117.1	112.1
	PCR +ve @ 2 months	-	5.8	3.5	2.7	2.5
	Children U1 initiated on HAART	24	47	51	60	77
	TB contact U5 initiated on IPT	-	-	-	-	60.4
SAM	SAM incidence	5.5	6.1	5.4	5.6	7.3
	SAM CFR (DHIS)	12.0	30.1	22.1	10.1	14.1
	SAM IHMR (Child PIP)	25.4	40.3	24.8	18.9	21.1
GE	Diarrhoeal disease incidence	26.3	14.1	12.5	13.4	15.9
	Diarrhoeal disease CFR (DHIS)	5.4	9.4	4.5	4.5	4.2
	Diarrhoeal disease IHMR (Child PIP)	10.2	13.2	5.9	5.0	9.1
ARI	ARI incidence	273.1	187.0	176.6	152.1	120.5
	ARI CFR (DHIS)	5.1	5.3	3.5	2.2	2.5
	ARI IHMR (Child PIP)	6.4	7.2	7.0	2.4	2.3

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Septicaemia				
	Cause of death 3 - Child PIP	TB (all)				
	Cause of death 4 - Child PIP	Pneumonia				
	Cause of death 5 - Child PIP	PCP				
IMR	Registered deaths (StatsSA)	663	650	415	-	-
	Hospital deaths (DHIS)	286	259	217	272	279
	Child PIP deaths in hospital - N°.	220	99	61	27	24
	IMR (StatsSA)	34.6	43.6	29.6	-	-
	IHMR (DHIS)	26.8	11.8	7.2	8.1	8.0
	IHMR - Child PIP	9.9	10.7	6.5	2.9	5.5
	% deaths in hospital	74.2	-	59.3	-	-
U5MR	Registered deaths (StatsSA)	925	986	633	-	-
	Hospital deaths (DHIS)	269	303	286	296	348
	Child PIP deaths in hospital - N°.	320	163	154	61	40
	U5MR (StatsSA)	48.2	66.2	45.1	-	-
	IHMR (DHIS)	20.1	9.6	5.8	5.4	6.0
	IHMR - Child PIP	8.5	9.7	5.3	2.3	4.2
	% deaths in hospital	69.1	-	53.9	-	-
Modifiable factors	Child PIP Hospitals N°.	4	4	2	1	1
	% severe malnutrition	43.0	43.7	33.9	38.5	50.0
	% HIV Infected or Exposed	54.5	63.5	48.6	53.8	43.8
	% Deaths within 24 hrs	26.4	27.4	28.4	30.8	39.6
	Top modifiable factors - Home - 1	Inappropriate treatment given at home with -ve effect on the child				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Clinic/OPD - 1	Other clinical personnel modifiable factor				
	Top modifiable factors - Clinic/OPD - 2	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 3	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - A&E - 1	Emergency signs not recognised				
	Top modifiable factors - A&E - 2	Lack of experienced doctors				
	Top modifiable factors - A&E - 3	Priority signs not recognised				
	Top modifiable factors - REF FAC - 1	Delayed arrival of ambulance				
	Top modifiable factors - REF FAC - 2	NONE				
	Top modifiable factors - REF FAC - 3	NONE				
	Top modifiable factors - Ward - 1	Other clinical personnel modifiable factor				
	Top modifiable factors - Ward - 2	Doctor at peripheral hospital did not call referral hospital				
	Top modifiable factors - Ward - 3	Doctor called, but did not respond and/or did not come				

DC 22: uMGUNGUNDLOVU

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	8 934				
	Population	1 007 576	1 005 073	1 020 581	1 036 400	1 052 730
	U5 Population	92 473	109 155	108 444	107 814	107 556
	U15 Population	291 825	311 589	312 692	314 061	316 172
	Annual births	18 728	17 317	17 210	16 091	-
	Deaths U1	524	454	385	-	-
	Deaths U5	703	610	520	-	-
Health system profile						
	N° PHC clinics	50	-	-	-	67
	N° CHCs	4	-	-	-	3
	N° 1° hospitals	2	-	-	-	2
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	1	-	-	-	1
	N° Specialised hospitals	5	-	-	-	5
	N° private hospitals	5	-	-	-	5
Service utilization						
	PHC U5 utilization rate	3.7	4.2	4.0	4.0	4.0
	ALOS	9.9	10.7	10.4	10.8	10.9
	Bed utilization rate	71.5	71.4	77.7	72.1	71.8
Health indicator						
EPI	Fully immunized @ 1 year	64.5	64.5	70.1	78.2	101.9
	DPT - Measles drop out	-	-39.6	3.9	4.6	4.8
	Exclusively breastfed @ HepB 3	-	-	26.3	57.6	55.5
HIV / TB	PCR coverage	-	101.7	101.5	108.4	100.5
	PCR +ve @ 2 months	-	6.7	3.2	2.9	1.6
	Children U1 initiated on HAART	22	12	30	46	17
	TB contact U5 initiated on IPT	-	-	-	-	78.9
SAM	SAM incidence	12.7	6.1	5.4	5.6	7.3
	SAM CFR (DHIS)	4.1	30.1	22.1	10.1	10.0
	SAM IHMR (Child PIP)	14.4	21.6	14.6	10.6	14.0
GE	Diarrhoeal disease incidence	50.6	14.1	12.5	13.4	15.9
	Diarrhoeal disease CFR (DHIS)	5.4	9.4	4.5	4.5	3.4
	Diarrhoeal disease IHMR (Child PIP)	3.4	3.4	3.9	2.1	2.8
ARI	ARI incidence	299.6	187.0	176.6	152.1	120.5
	ARI CFR (DHIS)	2.8	5.3	3.5	2.2	2.4
	ARI IHMR (Child PIP)	6.2	4.2	3.6	2.5	2.8

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Other Nutritional				
IMR	Registered deaths (StatsSA)	524	454	385	-	-
	Hospital deaths (DHIS)	114	242	56	300	406
	Child PIP deaths in hospital - N^{o}.	157	122	143	120	116
	IMR (StatsSA)	28.0	26.2	22.4	-	-
	IHMR (DHIS)	24.4	15.2	9.8	9.1	10.9
	IHMR - Child PIP	7.1	6.4	4.9	9.2	3.9
	% deaths in hospital	51.7	-	56.1	-	-
U5MR	Registered deaths (StatsSA)	703	610	520	-	-
	Hospital deaths (DHIS)	85	356	390	442	531
	Child PIP deaths in hospital - N^{o}.	240	183	354	307	184
	U5MR (StatsSA)	37.5	35.2	30.2	-	-
	IHMR (DHIS)	15.3	12.9	6.9	7.2	8.1
	IHMR - Child PIP	5.4	5.0	3.6	5.8	2.8
	% deaths in hospital	50.8	-	50.6	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	4.0	4	4	4	4
	% severe malnutrition	32.3	40.2	28.4	25.7	29.4
	% HIV Infected or Exposed	57.0	63.4	45.6	42.6	36.9
	% Deaths within 24 hrs	27.0	16.7	25.6	26.2	26.2
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity)				
	Top modifiable factors - Clinic/OPD - 1	Inadequate assesment for HIV (IMCI not used)				
	Top modifiable factors - Clinic/OPD - 2	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 3	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - A&E - 1	Inadequate history				
	Top modifiable factors - A&E - 2	Child not triaged (spent time in a queue)				
	Top modifiable factors - A&E - 3	Admission records incomplete or inappropriate				
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 3	Inadequate referral letter				
	Top modifiable factors - Ward - 1	Other clinical personnel modifiable factor				
	Top modifiable factors - Ward - 2	Inadequate response to new danger signs				
	Top modifiable factors - Ward - 3	Inadequate antibiotics prescribed				

DC23: UTHUKELA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	11 326	11 326	11 326	11 326	11 326
	Population	641 135	665 238	670 914	676 723	682 798
	U5 Population	75 995	80 812	81 750	82 748	83 279
	U15 Population	230 910	246 166	244 730	243 210	242 021
	Annual births	14 603	13 995	13 560	12 277	-
	Deaths U1	592	593	422	-	-
	Deaths U5	790	761	595	-	-
Health system profile						
	N° PHC clinics	38	-	-	-	44
	N° CHCs	-	-	-	-	1
	N° 1° hospitals	2	-	-	-	2
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	3.8	3.6	3.7	4.0	4.1
	ALOS	4.9	4.8	5.2	5.2	5.2
	Bed utilization rate	65.6	56.2	65.6	64.9	67.2
Health indicator						
EPI	Fully immunized @ 1 year	77.9	70.7	82.7	82.5	78.9
	DPT - Measles drop out	-	-19.1	-2.4	2.0	1.3
	Exclusively breastfed @ HepB 3	-	-	24.8	48.5	69.2
HIV / TB	PCR coverage	-	125.8	128.9	142.2	135.4
	PCR +ve @ 2 months	-	8.1	2.9	2.5	1.5
	Children U1 initiated on HAART	18	21	19	34	43
	TB contact U5 initiated on IPT	-	-	-	-	69.2
SAM	SAM incidence	8.7	7.0	9.3	4.5	5.0
	SAM CFR (DHIS)	17.2	20.7	21.7	38.1	14.8
	SAM IHMR (Child PIP)	29.0	20.6	19.2	14.3	17.9
GE	Diarrhoeal disease incidence	23.9	14.5	11.2	5.9	7.8
	Diarrhoeal disease CFR (DHIS)	3.3	5.3	8.4	4.4	4.5
	Diarrhoeal disease IHMR (Child PIP)	6.6	7.0	3.5	6.0	4.4
ARI	ARI incidence	128.9	85.9	91.2	71.2	56.6
	ARI CFR (DHIS)	3.6	7.5	4.4	4.9	4.1
	ARI IHMR (Child PIP)	4.5	6.8	5.4	2.7	2.3

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	TB (all)				
	Cause of death 4 - Child PIP	Septicaemia				
	Cause of death 5 - Child PIP	Anaemia				
IMR	Registered deaths (StatsSA)	592	593	422	-	-
	Hospital deaths (DHIS)	306	283	263	279	214
	Child PIP deaths in hospital - N°.	29	87	43	29	73
	IMR (StatsSA)	40.5	42.4	31.1	-	-
	IHMR (DHIS)	10.0	10.1	8.8	7.8	5.8
	IHMR - Child PIP	5.5	7.4	4.4	8.2	4.3
	% deaths in hospital	60.8	-	54.3	-	-
U5MR	Registered deaths (StatsSA)	790	761	594	-	-
	Hospital deaths (DHIS)	347	326	307	334	253
	Child PIP deaths in hospital - N°.	42	125	122	65	108
	U5MR (StatsSA)	54.1	54.4	43.8	-	-
	IHMR (DHIS)	8.9	8.6	7.3	6.5	4.5
	IHMR - Child PIP	5.3	6.0	4.4	5.7	3.2
	% deaths in hospital	54.6	-	48.3	-	-
Modifiable factors	Child PIP Hospitals N°.	1	2	2	1	3
	% severe malnutrition	37.0	24.8	40.2	44.0	33.0
	% HIV Infected or Exposed	50.0	48.3	47.0	33.0	37.0
	% Deaths within 24 hrs	26.1	32.4	29.7	31.8	41.4
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Insufficient assessment for chronic illness				
	Top modifiable factors - Clinic/OPD - 2	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 3	Delayed referral of child with danger signs				
	Top modifiable factors - A&E - 1	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 2	Emergency signs not recognised				
	Top modifiable factors - A&E - 3	Inadequate emergency care plan				
	Top modifiable factors - REF FAC - 1	Child not assessed properly by ambulance crew on entry to ambulance				
	Top modifiable factors - REF FAC - 2	Inappropriate care or late referral from private sector/GP				
	Top modifiable factors - REF FAC - 3	No or delayed referral to higher level				
	Top modifiable factors - Ward - 1	Other clinical personnel modifiable factor				
	Top modifiable factors - Ward - 2	Danger signs missed due to inadequate monitoring				
	Top modifiable factors - Ward - 3	Inadequate response to new danger signs				

DC24: UMZINYATHI

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	8 589	8 589	8 589	8 589	8 589
	Population	476 414	502 799	506 446	510 219	514 217
	U5 Population	63 187	62 541	64 620	66 652	67 565
	U15 Population	186 921	195 068	192 994	191 218	189 529
	Annual births	8 177	10 204	10 946	10 356	-
	Deaths U1	435	422	320	-	-
	Deaths U5	582	547	455	-	-
Health system profile						
	N° PHC clinics	45	-	-	-	56
	N° CHCs	-	-	-	-	-
	N° 1° hospitals	4	-	-	-	4
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	-	-	-	-	1
Service utilization						
	PHC U5 utilization rate	5.0	5.0	5.3	4.9	4.6
	ALOS	6.1	6.1	5.9	6.1	6.4
	Bed utilization rate	62.1	55.2	56.3	57.8	62.8
Health indicator						
EPI	Fully immunized @ 1 year	86.7	85.0	87.8	81.2	76.9
	DPT - Measles drop out	-	-61.7	3.1	5.3	0.9
	Exclusively breastfed @ HepB 3	-	-	24.0	75.3	78.9
HIV / TB	PCR coverage	-	106.1	119.8	120.7	141.7
	PCR +ve @ 2 months	-	5.6	3.6	2.4	1.1
	Children U1 initiated on HAART	-	-	-	1	2
	TB contact U5 initiated on IPT	-	-	-	-	41.8
SAM	SAM incidence	7.2	11.2	10.7	9.2	5.6
	SAM CFR (DHIS)	25.8	23.3	18.3	11.4	13.6
	SAM IHMR (Child PIP)	36.1	20.6	16.7	22.2	23.3
GE	Diarrhoeal disease incidence	16.2	24.0	18.7	17.3	7.1
	Diarrhoeal disease CFR (DHIS)	7.6	16.7	10.7	6.7	5.6
	Diarrhoeal disease IHMR (Child PIP)	7.7	5.1	4.5	6.4	5.5
ARI	ARI incidence	107.6	117.5	128.6	111.9	105.1
	ARI CFR (DHIS)	4.9	6.7	4.0	4.3	2.3
	ARI IHMR (Child PIP)	3.4	6.1	5.2	8.2	5.7

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Septicaemia				
	Cause of death 4 - Child PIP	Other Nutritional				
	Cause of death 5 - Child PIP	Other diagnosis				
IMR	Registered deaths (StatsSA)	435	422	320	-	-
	Hospital deaths (DHIS)	265	266	251	222	163
	Child PIP deaths in hospital - N°.	58	95	91	52	84
	IMR (StatsSA)	53.2	41.4	29.2	-	-
	IHMR (DHIS)	10.4	9.3	9.2	7.5	6.1
	IHMR - Child PIP	6.8	9.5	8.1	-	7.3
	% deaths in hospital	71.5	-	62.5	-	-
U5MR	Registered deaths (StatsSA)	582	547	455	-	-
	Hospital deaths (DHIS)	299	310	282	267	204
	Child PIP deaths in hospital - N°.	85	124	208	134	131
	U5MR (StatsSA)	41.6	53.6	71.2	-	-
	IHMR (DHIS)	8.0	9.9	7.8	6.3	4.5
	IHMR - Child PIP	6.6	6.5	8.1	-	5.4
	% deaths in hospital	67.2	-	53.4	-	-
Modifiable factors	Child PIP Hospitals N°.	2	3	3	2	-
	% severe malnutrition	14.8	24.8	40.2	44.0	33.3
	% HIV Infected or Exposed	45.5	55.7	47.4	49.4	55.6
	% Deaths within 24 hrs	37.5	40.0	31.8	29.7	37.3
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Lack of standardised case managemnt protocols				
	Top modifiable factors - Clinic/OPD - 2	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 3	Inadequate IMCI classification				
	Top modifiable factors - A&E - 1	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 2	Blood glucose not monitored in child with danger signs				
	Top modifiable factors - A&E - 3	Inadequate history taken				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 3	Inappropriate care or late referral from private sector/GP				
	Top modifiable factors - Ward - 1	Inadequate number of doctors assigned to children`s ward				
	Top modifiable factors - Ward - 2	WHO `10 Steps` not followed for child with severe malnutrition				
	Top modifiable factors - Ward - 3	Lack of access to High Care and/or ICU facilities for children				

DC25: AMAJUBA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	6 911	6 911	6 911	6 911	6 911
	Population	596 038	486 102	493 052	500 156	507 468
	U5 Population	65 191	57 531	56 790	56 625	57 047
	U15 Population	201 334	171 693	171 427	171 524	172 217
	Annual births	12 131	11 879	11 320	10 594	-
	Deaths U1	443	418	281	-	-
	Deaths U5	583	544	365	-	-
Health system profile						
	N° PHC clinics	24	-	-	-	26
	N° CHCs	-	-	-	-	-
	N° 1° hospitals	1	-	-	-	1
	N° 2° hospitals	2	-	-	-	2
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	4.3	3.8	3.7	3.7	3.4
	ALOS	6.1	6.4	6.4	7.4	7.9
	Bed utilization rate	49.5	50.4	58.0	70.9	66.2
Health indicator						
EPI	Fully immunized @ 1 year	74.9	61.6	69.3	72.3	70.1
	DPT - Measles drop out	-	-30.3	5.2	10.5	12.6
	Exclusively breastfed @ HepB 3	-	-	50.9	65.3	56.9
HIV / TB	PCR coverage	-	104.7	122.9	124.0	97.1
	PCR +ve @ 2 months	-	4.5	2.1	1.5	1.4
	Children U1 initiated on HAART	-	1	-	5	9
	TB contact U5 initiated on IPT	-	-	-	-	56.4
SAM	SAM incidence	8.6	5.4	2.3	4.5	3.5
	SAM CFR (DHIS)	8.8	12.8	12.7	11.5	11.7
	SAM IHMR (Child PIP)	12.4	7.8	3.4	14.0	8.2
GE	Diarrhoeal disease incidence	48.3	25.1	13.5	9.8	16.7
	Diarrhoeal disease CFR (DHIS)	4.4	9.0	4.7	1.3	1.2
	Diarrhoeal disease IHMR (Child PIP)	8.5	1.5	0.5	2.2	1.5
ARI	ARI incidence	134.2	110.0	131.3	103.4	74.0
	ARI CFR (DHIS)	4.6	5.6	2.3	3.3	1.1
	ARI IHMR (Child PIP)	7.5	4.6	2.3	3.9	1.9

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	Other Nervous System				
	Cause of death 5 - Child PIP	Other Nutritional				
IMR	Registered deaths (StatsSA)	443	418	281	-	-
	Hospital deaths (DHIS)	128	77	131	119	137
	Child PIP deaths in hospital - N^{o}.	105	12	13	5	29
	IMR (StatsSA)	36.5	35.2	24.8	-	-
	IHMR (DHIS)	16.4	4.2	4.4	4.8	6.9
	IHMR - Child PIP	6.4	3.3	2.3	8.4	2.6
	% deaths in hospital	64.3	-	52	-	-
U5MR	Registered deaths (StatsSA)	583	544	365	-	-
	Hospital deaths (DHIS)	174	128	122	131	154
	Child PIP deaths in hospital - N^{o}.	154	16	31	11	45
	U5MR (StatsSA)	48.1	45.8	32.2	-	-
	IHMR (DHIS)	15.5	5.7	3.5	4.1	4.8
	IHMR - Child PIP	4.50	2.3	1.6	5.7	1.8
	% deaths in hospital	61.1	-	49.3	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	3	1	1	1	1
	% severe malnutrition	41.2	43.5	15.0	14.3	22.4
	% HIV Infected or Exposed	50.5	52.5	25.0	42.9	24.5
	% Deaths within 24 hrs	25.8	27.1	40.0	28.6	28.9
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Inappropriate treatment given at home with -ve effect on the child				
	Top modifiable factors - Clinic/OPD - 1	Insufficient investigations done				
	Top modifiable factors - Clinic/OPD - 2	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to danger signs				
	Top modifiable factors - A&E - 1	Admission records incomplete or inappropriate				
	Top modifiable factors - A&E - 2	Inadequate physical examination				
	Top modifiable factors - A&E - 3	Inadequate notes on clinical care				
	Top modifiable factors - REF FAC - 1	NONE				
	Top modifiable factors - REF FAC - 2	NONE				
	Top modifiable factors - REF FAC - 3	NONE				
	Top modifiable factors - Ward - 1	Lack access of High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 2	Inadequate review of child with severe dehydration				
	Top modifiable factors - Ward - 3	Doctors in children`s ward inadequately supervised				

DC26: ZULULAND

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	14 799	14 799	14 799	14 799	14 799
	Population	847 932	794 643	804 389	814 128	824 091
	U5 Population	107 636	101 849	101 763	102 098	102 426
	U15 Population	322 642	306 324	304 292	302 793	301 949
	Annual births	19 870	19 347	18 583	15 647	-
	Deaths U1	792	757	594	-	-
	Deaths U5	1 048	1 047	806	-	-
Health system profile						
	N° PHC clinics	60	-	-	-	76
	N° CHCs	1	-	-	-	1
	N° 1° hospitals	5	-	-	-	6
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	3	-	-	-	4
	N° private hospitals	2	-	-	-	1
Service utilization						
	PHC U5 utilization rate	3.9	3.7	3.6	3.7	3.7
	ALOS	6.9	7.2	7.3	6.8	6.7
	Bed utilization rate	56.1	58.4	61.8	59.4	60.0
Health indicator						
EPI	Fully immunized @ 1 year	80.0	74.3	79.3	80.1	78.3
	DPT - Measles drop out	-	-105.3	0.2	5.3	6.7
	Exclusively breastfed @ HepB 3	-	-	14.6	45.0	40.8
HIV / TB	PCR coverage	-	90.0	110.1	113.7	127.1
	PCR +ve @ 2 months	-	5.4	4.1	2.6	2.1
	Children U1 initiated on HAART	-	-	-	11	10
	TB contact U5 initiated on IPT	-	-	-	-	65.5
SAM	SAM incidence	8.6	9.4	5.7	5.2	4.2
	SAM CFR (DHIS)	29.5	17.4	17.2	16.1	26.1
	SAM IHMR (Child PIP)	-	31.1	26.8	13.5	28.9
GE	Diarrhoeal disease incidence	39.1	22.0	19.4	11.9	12.1
	Diarrhoeal disease CFR (DHIS)	13.9	8.5	11.0	4.3	5.6
	Diarrhoeal disease IHMR (Child PIP)	-	10.2	10.0	3.4	6.3
ARI	ARI incidence	125.9	103.5	100.7	72.9	55.3
	ARI CFR (DHIS)	7.4	8.9	7.0	5.3	6.4
	ARI IHMR (Child PIP)	-	10.3	10.6	10.7	10.9

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Other Nutritional				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	Other Respiratory System				
	Cause of death 5 - Child PIP	Anaemia				
IMR	Registered deaths (StatsSA)	792	757	594	-	-
	Hospital deaths (DHIS)	318	220	324	366	386
	Child PIP deaths in hospital - N^{o}.	31	164	133	34	55
	IMR (StatsSA)	39.9	39.1	32.0	-	-
	IHMR (DHIS)	30.2	13.5	9.1	10.0	12.6
	IHMR - Child PIP	-	9.8	9.4	-	7.9
	% deaths in hospital	54.0	-	69.0	-	-
U5MR	Registered deaths (StatsSA)	1048	1047	806	-	-
	Hospital deaths (DHIS)	203	41	38	47	36
	Child PIP deaths in hospital - N^{o}.	42	223	310	84	71
	U5MR (StatsSA)	52.7	54.1	43.4		
	IHMR (DHIS)	16.5	8.1	7.8	9.3	9.7
	IHMR - Child PIP	-	8.7	7.8	-	6.4
	% deaths in hospital	51.6	-	63.5	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	1	4	5	1	2
	% severe malnutrition	29	10.9	13.6	12.5	12.7
	% HIV Infected or Exposed	61.9	58.9	55.3	44.6	46.8
	% Deaths within 24 hrs	26.2	23.4	26.1	21.4	31.2
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Traditional remedy from traditional healer, with -ve effect on child				
	Top modifiable factors - Clinic/OPD - 1	IMCI not used for patient assessment				
	Top modifiable factors - Clinic/OPD - 2	Incorrect IMCI assesment				
	Top modifiable factors - Clinic/OPD - 3	IMCI not used for case management				
	Top modifiable factors - A&E - 1	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 2	Oxygen saturation not monitored				
	Top modifiable factors - A&E - 3	Blood glucose not monitored in child with danger signs				
	Top modifiable factors - REF FAC - 1	Child not managed correctly in ambulance				
	Top modifiable factors - REF FAC - 2	Major complications in ambulance not identified				
	Top modifiable factors - REF FAC - 3	No or delayed referral to higher level				
	Top modifiable factors - Ward - 1	Inadequate intake-output charting				
	Top modifiable factors - Ward - 2	Inadequate monitoring of respiratory rate and/or oxygen saturation				
	Top modifiable factors - Ward - 3	Other clinical personnel modifiable factor				

DC27: UMKHANYAKUDE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	13 855	13 855	13 855	13 855	13 855
	Population	607 913	621 462	626 963	632 402	638 011
	U5 Population	80 388	84 968	86 248	87 290	87 520
	U15 Population	238 012	249 329	247 942	246 616	245 577
	Annual births	14 054	13 201	13 421	11 722	-
	Deaths U1	395	347	98	-	-
	Deaths U5	532	476	98	-	-
Health system profile						
	N° PHC clinics	53	-	-	-	58
	N° CHCs	-	-	-	-	-
	N° 1° hospitals	5	-	-	-	5
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	-	-	-	-	-
Service utilization						
	PHC U5 utilization rate	3.9	4.3	4.6	4.7	4.7
	ALOS	6.5	6.4	6.4	5.9	5.4
	Bed utilization rate	67.0	61.7	61.2	59.7	61.7
Health indicator						
EPI	Fully immunized @ 1 year	72.4	73.5	77.9	78.2	74.3
	DPT - Measles drop out	-	-86.3	5.9	3.7	3.9
	Exclusively breastfed @ HepB 3	-	-	33.0	56.6	50.4
HIV / TB	PCR coverage	-	105.9	123.8	122.6	121.0
	PCR +ve @ 2 months	-	7.4	3.3	3.4	2.4
	Children U1 initiated on HAART	33	37	41	57	29
	TB contact U5 initiated on IPT	-	-	-	-	50.4
SAM	SAM incidence	6.7	9.9	19.4	10.7	11.9
	SAM CFR (DHIS)	15.3	5.5	5.8	7.2	10.0
	SAM IHMR (Child PIP)	33.3	25.0	23.0	18.7	18.5
GE	Diarrhoeal disease incidence	31.5	25.0	16.5	13.9	17.0
	Diarrhoeal disease CFR (DHIS)	7.1	2.8	2.6	3.2	3.4
	Diarrhoeal disease IHMR (Child PIP)	13.1	12.3	7.1	4.0	8.2
ARI	ARI incidence	137.8	243.9	196.3	160.0	128.3
	ARI CFR (DHIS)	7.8	5.4	5.6	3.7	2.4
	ARI IHMR (Child PIP)	6.6	6.2	4.7	2.3	3.1

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Other diagnosis				
	Cause of death 3 - Child PIP	Other possible serious infection				
	Cause of death 4 - Child PIP	Pneumonia				
	Cause of death 5 - Child PIP	Other Nutritional				
IMR	Registered deaths (StatsSA)	395	347	98	-	-
	Hospital deaths (DHIS)	207	177	122	151	125
	Child PIP deaths in hospital - N^{o}.	75	43	97	57	73
	IMR (StatsSA)	28.1	26.3	7.3	-	-
	IHMR (DHIS)	45.2	14.2	8.6	8.3	6.2
	IHMR - Child PIP	8.0	10.8	8.2	-	6.8
	% deaths in hospital	75.7	-	61.5	-	-
U5MR	Registered deaths (StatsSA)	532	476	98	-	-
	Hospital deaths (DHIS)	163	179	171	210	169
	Child PIP deaths in hospital - N^{o}.	103	51	226	133	107
	U5MR (StatsSA)	37.9	36.1	7.3	-	-
	IHMR (DHIS)	32.3	11.4	6.8	6.4	4.5
	IHMR - Child PIP	7.0	7.3	5.7	-	5
	% deaths in hospital	69.5	-	55.1	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	2	3	5	3	3
	% severe malnutrition	44.3	37.7	20.8	14.9	15.4
	% HIV Infected or Exposed	50.8	55.7	47.4	59.4	55.6
	% Deaths within 24 hrs	28.7	18.0	20.8	20.7	20.9
	Top modifiable factors - Home - 1	Traditional remedy from traditional healer, with -ve effect on child				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Insufficient assessment for chronic illness				
	Top modifiable factors - Clinic/OPD - 2	Inadequate review of child with dehydration				
	Top modifiable factors - Clinic/OPD - 3	No documentation of mother`s antenatal HIV status				
	Top modifiable factors - A&E - 1	Doctor not called for critically ill child				
	Top modifiable factors - A&E - 2	No hand-over of critically ill child from admitting doctor to ward doctor				
	Top modifiable factors - A&E - 3	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	NONE				
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 2	Doctor at peripheral hospital did not call referral hospital				
	Top modifiable factors - Ward - 3	Inadequate investigations				

DC28: UTHUNGULA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	8 213	8 213	8 213	8 213	8 213
	Population	892 736	908 784	918 462	927 991	937 793
	U5 Population	104 779	125 502	123 978	122 634	121 636
	U15 Population	314 350	349 149	349 288	349 500	350 756
	Annual births	22 967	21 284	21 322	19 086	-
	Deaths U1	951	649	577	-	-
	Deaths U5	1 197	842	748	-	-
Health system profile						
	N° PHC clinics	53	-	-	-	63
	N° CHCs	1	-	-	-	1
	N° 1° hospitals	6	-	-	-	6
	N° 2° hospitals	-	-	-	-	1
	N° 3°/4° hospitals	2	-	-	-	1
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	2	-	-	-	2
Service utilization						
	PHC U5 utilization rate	4.2	3.8	3.7	4.4	4.2
	ALOS	6.3	6.6	6.6	6.6	6.6
	Bed utilization rate	57.8	65.6	61.1	64.8	67.0
Health indicator						
EPI	Fully immunized @ 1 year	91.7	73.4	78.8	92.4	82.9
	DPT - Measles drop out	-	-129.2	3.4	-0.6	6.2
	Exclusively breastfed @ HepB 3	-	-	19.6	51.8	52.3
HIV / TB	PCR coverage	-	62.0	77.6	102.2	103.9
	PCR +ve @ 2 months	-	10.7	3.0	2.0	1.7
	Children U1 initiated on HAART	28	57	47	87	45
	TB contact U5 initiated on IPT	-	-	-	-	58.9
SAM	SAM incidence	5.5	2.9	5.6	3.8	4.3
	SAM CFR (DHIS)	10.8	17.1	8.7	16.5	17.2
	SAM IHMR (Child PIP)	20.9	28.9	22.4	20.2	15.0
GE	Diarrhoeal disease incidence	43.6	27.9	21.6	16.7	13.2
	Diarrhoeal disease CFR (DHIS)	8.7	8.4	11.3	3.8	3.5
	Diarrhoeal disease IHMR (Child PIP)	9.8	11.4	9.3	6.5	5.1
ARI	ARI incidence	171.0	124.5	133.7	107.1	88.6
	ARI CFR (DHIS)	10.7	41.7	5.6	4.5	4.8
	ARI IHMR (Child PIP)	9.2	10.7	7.6	8.2	7.9

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	Other diagnosis				
	Cause of death 5 - Child PIP	TB (all)				
IMR	Registered deaths (StatsSA)	951	649	577	-	-
	Hospital deaths (DHIS)	256	179	148	452	496
	Child PIP deaths in hospital - N^{o}.	287	173	140	111	106
	IMR (StatsSA)	41.4	30.5	27.1	-	-
	IHMR (DHIS)	55.3	11.2	6.8	9.4	9.0
	IHMR - Child PIP	11.3	11.4	9.8	5.1	8.6
	% deaths in hospital	76.8	-	70.5	-	-
U5MR	Registered deaths (StatsSA)	1197	842	748	-	-
	Hospital deaths (DHIS)	166	145	189	568	554
	Child PIP deaths in hospital - N^{o}.	396	248	341	258	138
	U5MR (StatsSA)	52.1	39.6	35.1	-	-
	IHMR (DHIS)	34.9	7.5	5.3	8.3	7.1
	IHMR - Child PIP	9.1	9.2	7.4	3.5	6.6
	% deaths in hospital	71.8	-	64.0	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	4	5	7	4	4
	% severe malnutrition	30.2	34.4	21.5	29.1	21.3
	% HIV Infected or Exposed	57.4	63.9	51.1	42.3	40.2
	% Deaths within 24 hrs	30.4	23.5	22.4	29.7	19.9
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Traditional remedy from traditional healer, with -ve effect on child				
	Top modifiable factors - Clinic/OPD - 1	No follow up for child`s nutrtional problem				
	Top modifiable factors - Clinic/OPD - 2	Incorrect IMCI assesment				
	Top modifiable factors - Clinic/OPD - 3	Staff communication problem at clinic or between clinic & hospital				
	Top modifiable factors - A&E - 1	Emergency signs not recognised				
	Top modifiable factors - A&E - 2	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 3	Inadequate problem list compiled				
	Top modifiable factors - REF FAC - 1	Child not assessed properly by ambulance crew on entry to ambulance				
	Top modifiable factors - REF FAC - 2	Child not managed correctly in ambulance				
	Top modifiable factors - REF FAC - 3	No or delayed referral to higher level				
	Top modifiable factors - Ward - 1	Inadequate investigations				
	Top modifiable factors - Ward - 2	Results of investigations inadequately documented (including x-rays)				
	Top modifiable factors - Ward - 3	New danger signs inadequately identified				

DC29: iLEMBE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	3 269	3 269	3 269	3 269	3 269
	Population	632 603	601 412	610 820	620 474	630 464
	U5 Population	73 442	64 052	66 131	68 117	69 341
	U15 Population	217 366	197 214	196 655	196 341	196 084
	Annual births	12 314	9 501	8 468	7 122	-
	Deaths U1	405	4 110	339	-	-
	Deaths U5	557	533	9 501	-	-
Health system profile						
	N° PHC clinics	30	-	-	-	38
	N° CHCs	2	-	-	-	2
	N° 1° hospitals	3	-	-	-	3
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	1
	N° private hospitals	1	-	-	-	-
Service utilization						
	PHC U5 utilization rate	4.6	4.8	5.0	5.2	5.1
	ALOS	5.5	6.3	6.3	5.7	5.3
	Bed utilization rate	69.4	69.5	69.8	75.0	71.8
Health indicator						
EPI	Fully immunized @ 1 year	86.5	77.7	77.3	74.1	79.6
	DPT - Measles drop out	-	-76.5	2.3	8.0	6.5
	Exclusively breastfed @ HepB 3	-	-	25.1	61.8	50.2
HIV / TB	PCR coverage	-	127.6	116.0	122.1	127.4
	PCR +ve @ 2 months	-	4.9	3.2	2.8	2.5
	Children U1 initiated on HAART	-	-	-	-	-
	TB contact U5 initiated on IPT	-	-	-	-	64.9
SAM	SAM incidence	7.7	3.7	3.3	7.4	8.7
	SAM CFR (DHIS)	10.4	8.9	10.9	7.7	6.8
	SAM IHMR (Child PIP)	25.0	33.3	9.4	13.9	13.1
GE	Diarrhoeal disease incidence	46.4	41.2	21.7	17.2	22.4
	Diarrhoeal disease CFR (DHIS)	8.8	8.3	7.8	6.6	2.8
	Diarrhoeal disease IHMR (Child PIP)	4.2	5.6	3.7	2.1	5.3
ARI	ARI incidence	160.9	152.6	158.5	117.8	110.2
	ARI CFR (DHIS)	6.6	8.1	2.6	1.9	1.5
	ARI IHMR (Child PIP)	6.7	7.9	2.1	1.9	2.9

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Septicaemia				
	Cause of death 3 - Child PIP	Pneumonia				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Meningitis				
IMR	Registered deaths (StatsSA)	405	410	339	-	-
	Hospital deaths (DHIS)	155	170	204	199	165
	Child PIP deaths in hospital - N^{o}.	11	-	1	33	64
	IMR (StatsSA)	32.9	43.2	40.0		
	IHMR (DHIS)	18.5	11.9	11.2	10.7	8.9
	IHMR - Child PIP	7.3	-	-	3.0	6.3
	% deaths in hospital	68.6	-	68.0	-	-
U5MR	Registered deaths (StatsSA)	557	533	455	-	-
	Hospital deaths (DHIS)	145	201	238	231	222
	Child PIP deaths in hospital - N^{o}.	16	-	3	78	100
	U5MR (StatsSA)	45.2	56.1	53.7	-	-
	IHMR (DHIS)	13.5	11.0	7.8	6.7	5.8
	IHMR - Child PIP	5.2	-	-	2.8	5.1
	% deaths in hospital	65.4	-	62.2	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	2	-	1	1	4
	% severe malnutrition	-	-	-	46.2	43.8
	% HIV Infected or Exposed	-	-	-	46.2	41.1
	% Deaths within 24 hrs	15.8	-	-	42.3	26.2
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Delayed referral for severe malnutrition, wt loss, or growth faltering				
	Top modifiable factors - Clinic/OPD - 2	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to danger signs				
	Top modifiable factors - A&E - 1	Lack of access to Intensive and High Care beds				
	Top modifiable factors - A&E - 2	Emergency signs not recognised				
	Top modifiable factors - A&E - 3	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	Emergency or priority care not provided				
	Top modifiable factors - REF FAC - 3	Child poorly assessed by ambulance crew on entry to ambulance				
	Top modifiable factors - Ward - 1	Inadequate number of nurses assigned to children`s ward				
	Top modifiable factors - Ward - 2	Danger signs missed due to inadequate monitoring				
	Top modifiable factors - Ward - 3	Inadequate review of child with severe dehydration				

DC43: HARRY GWALA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	11 127	11 127	11 127	11 127	11 127
	Population	319 987	453 052	459 230	465 465	471 904
	U5 Population	39 881	60 881	60 611	60 866	61 385
	U15 Population	117 082	174 815	174 448	174 576	175 472
	Annual births	8 021	11 874	11 976	10 995	-
	Deaths U1	283	506	336	-	-
	Deaths U5	391	673	462	-	-
Health system profile						
	N° PHC clinics	37	-	-	-	38
	N° CHCs	1	-	-	-	1
	N° 1° hospitals	4	-	-	-	4
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	2	-	-	-	2
	N° private hospitals	2	-	-	-	1
Service utilization						
	PHC U5 utilization rate	3.4	3.6	3.9	4.2	4.1
	ALOS	9.4	8.4	8.7	8.1	8.5
	Bed utilization rate	73.1	63.7	65.0	61.8	68.0
Health indicator						
EPI	Fully immunized @ 1 year	66.1	70.2	84.9	87.5	81.9
	DPT - Measles drop out	-	-46.4	4.7	1.1	3.0
	Exclusively breastfed @ HepB 3	-	-	39.4	56.5	47.9
HIV / TB	PCR coverage	-	96.0	110.8	124.0	127.4
	PCR +ve @ 2 months	-	6.8	3.4	2.4	1.7
	Children U1 initiated on HAART	21	56	64	83	66
	TB contact U5 initiated on IPT	-	-	-	-	63.3
SAM	SAM incidence	6.5	6.7	6.2	8.4	6.5
	SAM CFR (DHIS)	19.9	33.8	16.9	13.1	12.7
	SAM IHMR (Child PIP)	41.0	28.7	32.3	18.2	16.7
GE	Diarrhoeal disease incidence	24.9	15.5	11.4	9.8	9.3
	Diarrhoeal disease CFR (DHIS)	8.4	8.7	5.7	4.9	4.8
	Diarrhoeal disease IHMR (Child PIP)	7.8	8.8	6.6	4.1	4.6
ARI	ARI incidence	161.0	151.7	145.2	139.1	121.9
	ARI CFR (DHIS)	9.2	11.1	4.4	2.9	3.4
	ARI IHMR (Child PIP)	12.3	9.7	6.0	5.1	3.4

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Septicaemia				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Other Nutritional				
IMR	Registered deaths (StatsSA)	283	506	336	-	-
	Hospital deaths (DHIS)	203	174	213	169	181
	Child PIP deaths in hospital - N^{o}.	130	167	138	44	76
	IMR (StatsSA)	35.3	42.6	28.1	-	-
	IHMR (DHIS)	20.4	10.6	13.6	11.1	10.3
	IHMR - Child PIP	11.4	11.2	7.5	5.6	4.9
	% deaths in hospital	68.6	-	55.7	-	-
U5MR	Registered deaths (StatsSA)	391	673	462	-	-
	Hospital deaths (DHIS)	120	233	257	197	221
	Child PIP deaths in hospital - N^{o}.	187	235	329	112	104
	U5MR (StatsSA)	48.7	56.7	38.6	-	-
	IHMR (DHIS)	25.4	11.1	9.8	7.3	7.4
	IHMR - Child PIP	8.6	8.7	5.8	3.4	3.8
	% deaths in hospital	61.1	-	49.8	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	3	4	4	3	4
	% severe malnutrition	28.6	31.6	34.9	36.7	43.3
	% HIV Infected or Exposed	58.6	43.0	49.3	50.6	49.2
	% Deaths within 24 hrs	27.10	35.0	25.6	15.2	23.7
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Home - 3	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Clinic/OPD - 1	IMCI not used for patient assessment				
	Top modifiable factors - Clinic/OPD - 2	Inadequate IMCI classification				
	Top modifiable factors - Clinic/OPD - 3	HIV result not obtained/documented				
	Top modifiable factors - A&E - 1	Emergency signs not recognised				
	Top modifiable factors - A&E - 2	Not classified as critcally ill despite presence of danger signs				
	Top modifiable factors - A&E - 3	Child not triaged at (spent time in a queue)				
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	No high care bed in referring facility for pre-transfer care				
	Top modifiable factors - REF FAC - 3	Referral pathways and/or procedures not clear				
	Top modifiable factors - Ward - 1	Inadequate review of child with severe dehydration				
	Top modifiable factors - Ward - 2	Inadequate monitoring of shocked child				
	Top modifiable factors - Ward - 3	New danger signs inadequately identified while				

ETHEKWINI

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	2 292	2 292	2 292	2 292	2 292
	Population	3 227 311	3 380 118	3 408 184	3 436 239	3 464 205
	U5 Population	301 885	338 726	333 813	327 047	321 161
	U15 Population	904 031	975 666	975 120	971 984	969 269
	Annual births	68 208	68 299	64 895	58 792	-
	Deaths U1	2 044	1 559	1 114	-	-
	Deaths U5	2 735	2 135	1 494	-	-
Health system profile						
	N° PHC clinics	120	-	-	-	133
	N° CHCs	8	-	-	-	8
	N° 1° hospitals	4	-	-	-	4
	N° 2° hospitals	6	-	-	-	6
	N° 3°/4° hospitals	1	-	-	-	2
	N° Specialised hospitals	8	-	-	-	9
	N° private hospitals	16	-	-	-	20
Service utilization						
	PHC U5 utilization rate	5.1	4.2	4.6	5.1	5.0
	ALOS	7.9	8.6	8.5	8.4	8.0
	Bed utilization rate	74.3	70.8	73.2	73.3	75.4
Health indicator						
EPI	Fully immunized @ 1 year	100.3	77.8	108.8	104.0	105.7
	DPT - Measles drop out		-205.4	8.2	11.8	13.1
	Exclusively breastfed @ HepB 3	0.0	0.0	17.9	38.4	52.8
HIV / TB	PCR coverage	-	92.0	93.8	107.3	109.9
	PCR +ve @ 2 months	-	11.9	6.3	2.8	1.5
	Children U1 initiated on HAART	41	96	109	146	145
	TB contact U5 initiated on IPT	-	-	-	-	33.6
SAM	SAM incidence	7.1	6.8	4.7	4.5	3.7
	SAM CFR (DHIS)	8.3	6.7	3.5	5.4	4.4
	SAM IHMR (Child PIP)	14.7	20.9	14.6	14.6	18.8
GE	Diarrhoeal disease incidence	69.1	40.9	35.2	21.9	17.3
	Diarrhoeal disease CFR (DHIS)	3.8	7.5	2.8	4.0	2.4
	Diarrhoeal disease IHMR (Child PIP)	5.2	4.6	1.6	2.8	3.4
ARI	ARI incidence	181.4	139.3	162.3	131.0	101.4
	ARI CFR (DHIS)	1.8	3.5	2.0	1.0	2.6
	ARI IHMR (Child PIP)	5.5	4.5	2.3	1.4	1.1

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Diarrhoea				
	Cause of death 3 - Child PIP	Pneumonia				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Other Nervous System				
	Non-natural deaths (%)					
IMR	Registered deaths (StatsSA)	2 044	1 559	1 114	-	-
	Hospital deaths (DHIS)	214	655	375	470	834
	Child PIP deaths in hospital - N^{o}.	222	346	151	131	156
	IMR (StatsSA)	30.0	22.8	17.2	-	-
	IHMR (DHIS)	9.7	9.7	3.5	2.9	3.8
	IHMR - Child PIP	6.3	6.3	3.3	-	43.0
	% deaths in hospital	63.6	-	61.4	-	-
U5MR	Registered deaths (StatsSA)	2 735	2 135	1 494	-	-
	Hospital deaths (DHIS)	82	511	354	594	1088
	Child PIP deaths in hospital - N^{o}.	321	500	387	318	212
	U5MR (StatsSA)	40	31	23.0		
	IHMR (DHIS)	7.6	6.1	1.9	2.5	3.6
	IHMR - Child PIP	4.8	5.5	3.3	-	3.7
	% deaths in hospital	60.1	-	61.4	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	6	5	3	3	3
	% severe malnutrition	31.0	30.9	30.8	25.0	24.2
	% HIV Infected or Exposed	54.4	53.9	51.2	51.3	43.0
	% Deaths within 24 hrs	33.3	31.1	33.2	40.5	41.0
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Traditional remedy from traditional -ve effect on child				
	Top modifiable factors - Clinic/OPD - 1	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 2	Inadequate response to danger signs				
	Top modifiable factors - Clinic/OPD - 3	Oxygen not prescribed or given				
	Top modifiable factors - A&E - 1	Inadequate treatment fof shock				
	Top modifiable factors - A&E - 2	Emergency signs not recognised				
	Top modifiable factors - A&E - 3	Inadequate assessment of shock				
	Top modifiable factors - REF FAC - 1	Emergency or priority care not provided				
	Top modifiable factors - REF FAC - 2	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 3	No or delayed referral to higher level				
	Top modifiable factors - Ward - 1	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 2	Inadequate response to new danger signs				
	Top modifiable factors - Ward - 3	Inadequate review of severe ARI				

LIMPOPO

DC33: MOPANI

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	24 487	24 487	24 487	24 487	24 487
	Population	1 132 421	1 083 769	1 092 270	1 100 925	1 109 823
	U5 Population	130 471	112 701	115 735	118 975	120 058
	U15 Population	390 942	350 671	345 788	342 021	338 562
	Annual births	19 540	25 462	26 970	25 769	-
	Deaths U1	868	810	637	-	-
	Deaths U5	464	435	296	-	-
Health system profile						
	N° PHC clinics	89	-	-	-	99
	N° CHCs	9	-	-	-	8
	N° 1° hospitals	6	-	-	-	6
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	6.4	6.2	6.3	6.0	5.8
	ALOS	5.6	5.8	5.6	5.9	6.1
	Bed utilization rate	64.6	66.0	69.4	73.6	73.1
Health indicator						
EPI	Fully immunized @ 1 year	97.4	84.3	81.2	79.7	76.9
	DPT - Measles drop out	-270.7	-14.5	-1.2	-14.2	22.5
	Exclusively breastfed @ HepB 3	-	-	-	-	35.7
HIV / TB	PCR coverage	-	75.3	86.3	90.2	94.2
	PCR +ve @ 2 months	-	30.5	7.0	2.6	2.3
	Children U1 initiated on HAART	51	86	96	105	76
	TB contact U5 initiated on IPT	-	-	-	-	35.0
SAM	SAM incidence	3.5	4.2	4.7	4.9	4.5
	SAM CFR (DHIS)	28.3	24.3	18.1	19.6	16.3
	SAM IHMR (Child PIP)	-	-	-	-	17.6
GE	Diarrhoeal disease incidence	19.2	17.0	17.2	14.4	19.1
	Diarrhoeal disease CFR (DHIS)	10.9	8.6	8.6	10.2	4.8
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	17.6
ARI	ARI incidence	52.4	45.5	45.1	35.5	32.1
	ARI CFR (DHIS)	11.5	9.5	6.3	6.3	5.8
	ARI IHMR (Child PIP)	-	-	-	-	10.3

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Pneumonia				
	Cause of death 2 - Child PIP	Diarrhoea				
	Cause of death 3 - Child PIP	Other Nutritional				
	Cause of death 4 - Child PIP	Septicaemia				
	Cause of death 5 - Child PIP	Other Nervous System				
IMR	Registered deaths (StatsSA)	868	810	637	-	-
	Hospital deaths (DHIS)	356	356	275	298	408
	Child PIP deaths in hospital - N^{o}.	-	-	-	-	8
	IMR (StatsSA)	44.4	31.8	23.6		
	IHMR (DHIS)	14.7	15.4	10.7	10.5	17.1
	IHMR - Child PIP	-	-	-	4.0	7.8
	% deaths in hospital	933	-	47.7	-	-
U5MR	Registered deaths (StatsSA)	1332	1245	933	-	-
	Hospital deaths (DHIS)	508	446	319	461	547
	Child PIP deaths in hospital - N^{o}.	-	-	-	-	11
	U5MR (StatsSA)	68.2	48.9	34.6		
	IHMR (DHIS)	10.8	10.4	7.2	9.3	10.8
	IHMR - Child PIP	-	-	-	3.6	4.0
	% deaths in hospital	-	44.9	43.3	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	-	-	-	-	3
	% severe malnutrition	-	-	-	-	27.3
	% HIV Infected or Exposed	-	-	-	-	45.5
	% Deaths within 24 hrs	-	-	-	-	54.5
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Home - 3	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Clinic/OPD - 1	Inadequate notes on clinical care				
	Top modifiable factors - Clinic/OPD - 2	NONE				
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1	Inadequate assessment of dehydration				
	Top modifiable factors - A&E - 2	No formal, structured triage system				
	Top modifiable factors - A&E - 3	Emergency signs not recognised				
	Top modifiable factors - REF FAC - 1	Inadequate notes on transit care				
	Top modifiable factors - REF FAC - 2	Emergency or priority care not provided				
	Top modifiable factors - REF FAC - 3	Inadequate referral letter				
	Top modifiable factors - Ward - 1	Other caregiver modifiable factor				
	Top modifiable factors - Ward - 2	Inadequate review of child with severe dehydration				
	Top modifiable factors - Ward - 3	HIV-infected but not adequately screened for TB				

DC34: VHEMBE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	21 349	21 349	21 349	21 349	21 349
	Population	1 329 840	1 271 997	1 290 419	1 308 837	1 327 785
	U5 Population	159 964	152 151	154 331	157 269	158 680
	U15 Population	481 088	443 488	441 209	440 710	441 297
	Annual births	34 404	29 056	29 665	27 789	-
	Deaths U1	669	771	556	-	-
	Deaths U5	1 017	1 208	877	-	-
Health system profile						
	N° PHC clinics	112	-	-	-	114
	N° CHCs	8	-	-	-	8
	N° 1° hospitals	7	-	-	-	6
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	-	-	-	-	-
Service utilization						
	PHC U5 utilization rate	7.2	5.7	5.9	5.7	5.6
	ALOS	5.9	5.9	5.8	6.1	5.5
	Bed utilization rate	74.2	72.1	75.3	77.7	72.2
Health indicator						
EPI	Fully immunized @ 1 year	102.0	82.9	85.4	83.6	81.7
	DPT - Measles drop out	-342.3	1.7	1.8	-3.3	11.0
	Exclusively breastfed @ HepB 3	-	-	-	-	49.3
HIV / TB	PCR coverage	-	60.1	64.9	59.7	91.5
	PCR +ve @ 2 months	-	11.7	4.8	3.1	2.6
	Children U1 initiated on HAART	4	7	8	6	3
	TB contact U5 initiated on IPT	-	-	-	-	79.5
SAM	SAM incidence	4.4	4.1	5.1	5.2	4.5
	SAM CFR (DHIS)	22.1	25.6	16.0	16.5	12.3
	SAM IHMR (Child PIP)	-	-	8.1	18.3	-
GE	Diarrhoeal disease incidence	21.4	13.2	21.0	14.1	13.6
	Diarrhoeal disease CFR (DHIS)	7.8	8.9	7.7	6.1	4.3
	Diarrhoeal disease IHMR (Child PIP)	-	-	2.5	3.5	3.0
ARI	ARI incidence	96.4	65.9	66.0	52.3	51.5
	ARI CFR (DHIS)	11.0	7.1	4.6	4.9	3.1
	ARI IHMR (Child PIP)	-	-	2.7	3.4	1.9

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Unknown				
	Cause of death 4 - Child PIP	Other Nutritional				
	Cause of death 5 - Child PIP	Other Respiratory System				
IMR	Registered deaths (StatsSA)	669	771	556	-	-
	Hospital deaths (DHIS)	387	254	311	438	448
	Child PIP deaths in hospital - N^{o}.	-	42	32	60	85
	IMR (StatsSA)	19.4	26.5	18.7	-	-
	IHMR (DHIS)	9.8	7.0	8.5	11.2	9.7
	IHMR - Child PIP	-	-	0.4	5.4	5.0
	% deaths in hospital	60.4	-	52.1	-	-
U5MR	Registered deaths (StatsSA)	1 017	1 208	877	-	-
	Hospital deaths (DHIS)	609	411	407	478	570
	Child PIP deaths in hospital - N^{o}.	-	78	82	164	135
	U5MR (StatsSA)	29.6	41.6	29.6	-	-
	IHMR (DHIS)	8.1	6.2	5.6	6.4	6.1
	IHMR - Child PIP	-	-	2.5	4.0	3.0
	% deaths in hospital	55.2	-	52.1	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	-	1	1	6	6
	% severe malnutrition	-	50.6	55.9	51.2	36.1
	% HIV Infected or Exposed	-	44.8	40.7	35.7	42.4
	% Deaths within 24 hrs	-	35.6	27.1	41.1	32.1
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Home - 3	Traditional remedy from traditional healer, -ve effect on child				
	Top modifiable factors - Clinic/OPD - 1	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 2	Did not arrive on day of referral/did not keep appointment				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to growth faltering or failure				
	Top modifiable factors - A&E - 1	Lack of experienced doctors				
	Top modifiable factors - A&E - 2	Admission records incomplete or inappropriate				
	Top modifiable factors - A&E - 3	Inadequate history taken				
	Top modifiable factors - REF FAC - 1	No high care bed in referring facility for pre-transfer care				
	Top modifiable factors - REF FAC - 2	Delayed arrival of ambulance				
	Top modifiable factors - REF FAC - 3	Other administrator modifiable factor in transit care				
	Top modifiable factors - Ward - 1	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 2	Other administrator modifiable factor				
	Top modifiable factors - Ward - 3	RTHC information not present in child`s folder				

DC35: CAPRICORN

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	16 988	16 988	16 988	16 988	16 988
	Population	1 210 027	1 236 039	1 245 378	1 254 846	1 264 686
	U5 Population	139 983	144 984	146 468	148 787	149 938
	U15 Population	432 094	432 145	427 677	424 727	423 005
	Annual births	30 275	32 065	33 203	31 785	-
	Deaths U1	1 053	877	600	-	-
	Deaths U5	471	482	303	-	-
Health system profile						
	N° PHC clinics	90	-	-	-	99
	N° CHCs	4	-	-	-	6
	N° 1° hospitals	7	-	-	-	8
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	2	-	-	-	2
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	5.9	5.4	5.3	4.7	5.0
	ALOS	7.3	7.4	7.0	7.0	7.5
	Bed utilization rate	73.3	70.1	73.1	69.2	55.1
Health indicator						
EPI	Fully immunized @ 1 year	28.3	81.9	74.9	70.4	65.0
	DPT - Measles drop out	101.4	-18.1	9.5	-2.4	18.4
	Exclusively breastfed @ HepB 3	-257.6	-	-	-	46.7
HIV / TB	PCR coverage	-	73.0	92.2	98.2	99.9
	PCR +ve @ 2 months	-	20.5	4.4	2.1	2.5
	Children U1 initiated on HAART	5	11	17	14	11
	TB contact U5 initiated on IPT	-	-	-	-	63.1
SAM	SAM incidence	3.2	3.0	3.2	2.8	3.1
	SAM CFR (DHIS)	28.3	40.9	29.7	17.9	25.8
	SAM IHMR (Child PIP)	17.8	29.3	24.7	17.1	11.5
GE	Diarrhoeal disease incidence	16.2	12.8	11.4	10.0	12.9
	Diarrhoeal disease CFR (DHIS)	13.5	10.9	8.2	11.0	7.1
	Diarrhoeal disease IHMR (Child PIP)	4.9	5.6	5.0	1.1	0.0
ARI	ARI incidence	70.7	54.5	51.6	41.1	36.1
	ARI CFR (DHIS)	11.1	9.0	6.7	5.2	6.7
	ARI IHMR (Child PIP)	13.7	3.1	3.9	0.9	1.6

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Other Respiratory System				
IMR	Registered deaths (StatsSA)	1 053	877	600	-	-
	Hospital deaths (DHIS)	569	496	544	625	710
	Child PIP deaths in hospital - N°.	35	41	25	18	22
	IMR (StatsSA)	34.8	27.4	18.1	-	-
	IHMR (DHIS)	13.6	11.9	11.3	11.7	13.6
	IHMR - Child PIP	11.1	9.0	4.3	3.6	4.5
	% deaths in hospital	49.5	-	46.8	-	-
U5MR	Registered deaths (StatsSA)	1 524	1 359	903	-	-
	Hospital deaths (DHIS)	676	603	597	742	840
	Child PIP deaths in hospital - N°.	40	63	33	47	36
	U5MR (StatsSA)	50.3	42.4	27.2	-	-
	IHMR (DHIS)	10.3	9.1	7.9	9.2	10.3
	IHMR - Child PIP	6.0	5.5	3.5	1.3	3.5
	% deaths in hospital	45.3	-	41.3	-	-
Modifiable factors	Child PIP Hospitals N°.	1	1	1	1	4
	% severe malnutrition	19.2	40.6	37.5	27.5	28.6
	% HIV Infected or Exposed	48.1	30.4	41.7	15.0	28.6
	% Deaths within 24 hrs	26.9	26.1	27.1	40.0	19.5
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Traditional remedy from traditional healer, with -ve effect on child				
	Top modifiable factors - Home - 3	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Clinic/OPD - 1	Insufficient investigations done				
	Top modifiable factors - Clinic/OPD - 2	Missed vaccines despite				
	Top modifiable factors - Clinic/OPD - 3	Delayed referral for severe malnutrition, wt loss, or growth faltering				
	Top modifiable factors - A&E - 1	Inadequate history taken				
	Top modifiable factors - A&E - 2	Inadequate treatment of shock				
	Top modifiable factors - A&E - 3	Inadequate rehydration plan				
	Top modifiable factors - REF FAC - 1	Inadequate referral letter				
	Top modifiable factors - REF FAC - 2	Inappropriate care or late referral from private sector/GP				
	Top modifiable factors - REF FAC - 3	Inadequate notes on transit care				
	Top modifiable factors - Ward - 1	Inadequate number of nurses assigned to children`s ward				
	Top modifiable factors - Ward - 2	Possible serious bacterial infection not considered				
	Top modifiable factors - Ward - 3	Danger signs missed due to inadequate monitoring				

DC36: WATERBERG

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	49 504	49 504	49 504	49 504	49 504
	Population	680 493	670 340	683 119	695 827	708 682
	U5 Population	73 481	83 882	84 204	84 806	85 518
	U15 Population	222 015	225 545	227 632	229 987	232 984
	Annual births	15 531	15 510	16 511	15 105	-
	Deaths U1	437	395	343	-	-
	Deaths U5	158	190	139	-	-
Health system profile						
	N° PHC clinics	57	-	-	-	62
	N° CHCs	1	-	-	-	2
	N° 1° hospitals	7	-	-	-	7
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	5	-	-	-	5
Service utilization						
	PHC U5 utilization rate	5.4	3.7	3.9	3.9	3.6
	ALOS	5.1	5.4	6.3	6.1	5.6
	Bed utilization rate	64.7	64.0	73.8	74.9	72.5
Health indicator						
EPI	Fully immunized @ 1 year	92.2	54.5	57.1	61.2	55.1
	DPT - Measles drop out	-501.9	-0.8	6.8	-6.0	23.1
	Exclusively breastfed @ HepB 3	-	-	-	-	48.5
HIV / TB	PCR coverage	-	83.1	91.1	92.8	103.5
	PCR +ve @ 2 months	-	19.9	4.2	2.7	3.0
	Children U1 initiated on HAART	31	66	64	75	55
	TB contact U5 initiated on IPT	-	-	-	-	16.3
SAM	SAM incidence	6.3	6.0	5.1	3.9	4.4
	SAM CFR (DHIS)	19.9	23.5	28.4	16.2	15.3
	SAM IHMR (Child PIP)	15.3	16.9	16.2	9.5	18.2
GE	Diarrhoeal disease incidence	14.5	9.9	9.2	7.3	10.4
	Diarrhoeal disease CFR (DHIS)	12.2	8.8	14.8	9.0	9.3
	Diarrhoeal disease IHMR (Child PIP)	7.1	5.6	7.1	2.9	7.0
ARI	ARI incidence	48.5	32.6	32.5	22.5	20.9
	ARI CFR (DHIS)	8.6	6.7	7.5	5.1	5.9
	ARI IHMR (Child PIP)	7.8	4.1	3.4	4.1	3.1

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Other Nutritional				
	Cause of death 4 - Child PIP	Septicaemia				
	Cause of death 5 - Child PIP	TB (all)				
IMR	Registered deaths (StatsSA)	437	395	343	-	-
	Hospital deaths (DHIS)	249	192	149	183	229
	Child PIP deaths in hospital - N^{o}.	-	56	46	58	28
	IMR (StatsSA)	28.1	25.5	20.8	-	-
	IHMR (DHIS)	15.3	12.2	11.5	11.4	13.0
	IHMR - Child PIP	-	8.0	8.7	2.8	6.7
	% deaths in hospital	46.9	-	42.0	-	-
U5MR	Registered deaths (StatsSA)	595	585	482	-	-
	Hospital deaths (DHIS)	291	269	208	243	296
	Child PIP deaths in hospital - N^{o}.	-	93	100	129	47
	U5MR (StatsSA)	38.3	37.7	29.2	3.6	-
	IHMR (DHIS)	8.3	8.8	7.0	6.9	8.0
	IHMR - Child PIP	-	5.7	6.0	2.5	3.9
	% deaths in hospital	41.3	-	38.2	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	-	4	4	3	4
	% severe malnutrition	48.4	52.0	44.7	34.1	58.5
	% HIV Infected or Exposed	62.4	62.7	42.1	33.0	47.2
	% Deaths within 24 hrs	29.0	37.3	31.6	34.1	32.1
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Home - 3	Traditional remedy from traditional healer, with -ve effect on child				
	Top modifiable factors - Clinic/OPD - 1	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 2	Did not arrive at on day of referral/did not keep appointment				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to growth faltering or failure				
	Top modifiable factors - A&E - 1	Lack of experienced doctors				
	Top modifiable factors - A&E - 2	Admission records incomplete or inappropriate				
	Top modifiable factors - A&E - 3	Inadequate history taken				
	Top modifiable factors - REF FAC - 1	No high care bed in referring facility for pre-transfer care				
	Top modifiable factors - REF FAC - 2	Delayed arrival of ambulance				
	Top modifiable factors - REF FAC - 3	Other administrator modifiable factor in transit care				
	Top modifiable factors - Ward - 1	Caregiver delayed seeking care				
	Top modifiable factors - Ward - 2	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Ward - 3	Traditional remedy from traditional healer, with -ve effect on child				

DC47: GREATER SEKHUKHUNE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	13 426	13 426	13 426	13 426	13 426
	Population	1 037 260	1 062 410	1 076 936	1 091 770	1 106 991
	U5 Population	119 426	113 247	115 860	119 287	121 586
	U15 Population	375 505	362 413	357 693	354 188	351 323
	Annual births	15 821	19 856	19 231	17 991	-
	Deaths U1	665	548	382	-	-
	Deaths U5	1 020	921	668	-	-
Health system profile						
	N° PHC clinics	77	-	-	-	86
	N° CHCs	6	-	-	-	3
	N° 1° hospitals	5	-	-	-	5
	N° 2° hospitals	2	-	-	-	2
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	-	-	-	-	-
Service utilization						
	PHC U5 utilization rate	6.1	5.7	6.1	5.5	5.4
	ALOS	4.3	4.3	4.6	4.3	4.3
	Bed utilization rate	63.8	57.4	65.1	66.0	62.3
Health indicator						
EPI	Fully immunized @ 1 year	92.0	78.0	65.3	59.6	58.6
	DPT - Measles drop out	-366.4	-26.6	-10.9	-27.5	24.3
	Exclusively breastfed @ HepB 3	-	-	-	-	10.5
HIV / TB	PCR coverage	-	49.7	85.5	98.5	97.0
	PCR +ve @ 2 months	-	49.4	7.5	2.1	2.5
	Children U1 initiated on HAART	4	8	28	22	6
	TB contact U5 initiated on IPT	-	-	-	-	11.1
SAM	SAM incidence	2.5	2.0	2.6	3.1	3.7
	SAM CFR (DHIS)	17.1	18.6	18.2	14.7	16.6
	SAM IHMR (Child PIP)	-	10.8	26.1	0.0	-
GE	Diarrhoeal disease incidence	9.9	11.8	10.7	8.5	10.8
	Diarrhoeal disease CFR (DHIS)	6.9	6.4	8.5	4.7	5.3
	Diarrhoeal disease IHMR (Child PIP)	-	10.0	2.2	0.0	-
ARI	ARI incidence	49.7	38.3	39.9	28.1	26.5
	ARI CFR (DHIS)	8.4	7.9	4.3	4.5	4.8
	ARI IHMR (Child PIP)	-	4.9	4.3	0.0	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 2 - Child PIP	NO DATA				
	Cause of death 3 - Child PIP					
	Cause of death 4 - Child PIP					
	Cause of death 5 - Child PIP					
IMR	Registered deaths (StatsSA)	665	458	382	-	-
	Hospital deaths (DHIS)	543	484	369	314	438
	Child PIP deaths in hospital - N°.	1	29	14	2	-
	IMR (StatsSA)	42.0	27.6	19.9	-	-
	IHMR (DHIS)	17.3	15.3	13.1	9.2	10.9
	IHMR - Child PIP	-	5.9	6.3	2.1	-
	% deaths in hospital	44.2	-	37.7	-	-
U5MR	Registered deaths (StatsSA)	1 020	921	668	-	-
	Hospital deaths (DHIS)	553	451	354	380	508
	Child PIP deaths in hospital - N°.	2	41	38	4	-
	U5MR (StatsSA)	64.5	46.4	34.7	-	-
	IHMR (DHIS)	10.1	8.5	6.5	6.2	7.0
	IHMR - Child PIP	-	4.1	3.3	0.9	-
	% deaths in hospital	40.9	-	32.9	-	-
Modifiable factors	Child PIP Hospitals N°.	1	1	1	1	4
	% severe malnutrition	50.0	0.0	28.6	100.0	-
	% HIV Infected or Exposed	50.0	48.9	35.7	50.0	-
	% Deaths within 24 hrs	50.0	31.9	35.7	100.0	-
	Top modifiable factors - Home - 1	NO DATA				
	Top modifiable factors - Home - 2					
	Top modifiable factors - Home - 3					
	Top modifiable factors - Clinic/OPD - 1					
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1					
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1					
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1					
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

MPUMALANGA

DC30: GERT SIBANDE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	31841	31841	31841	31841	31841
	Population	924 318	1 025 735	1 035 783	1 045 956	1 056 179
	U5 Population	103 089	96 567	99 832	102 345	103 332
	U15 Population	309 010	323 623	320 161	316 034	311 040
	Annual births	18 832	18 741	18 425	17 017	-
	Deaths U1	1 320	1 130	814	-	-
	Deaths U5	1 653	1 470	1 049	-	-
Health system profile						
	N° PHC clinics	59	-	-	-	66
	N° CHCs	14	-	-	-	18
	N° 1° hospitals	8	-	-	-	8
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	2	-	-	-	2
	N° private hospitals	3	-	-	-	5
Service utilization						
	PHC U5 utilization rate	3.7	4.4	3.9	3.9	4.0
	ALOS	4.7	4.6	5.1	5.4	5.1
	Bed utilization rate	55.4	59.3	66.0	66.9	65.3
Health indicator						
EPI	Fully immunized @ 1 year	73.9	69.9	62.8	64.5	66.0
	DPT - Measles drop out	-386.3	-15.7	6.4	15.1	13.7
	Exclusively breastfed @ HepB 3	-	-	-	-	23.9
HIV / TB	PCR coverage	-	38.0	79.6	98.0	111.3
	PCR +ve @ 2 months	-	22.6	3.7	2.9	2.2
	Children U1 initiated on HAART	29	53	50	55	51
	TB contact U5 initiated on IPT	-	-	-	-	100.8
SAM	SAM incidence	5.3	2.7	2.3	2.5	2.3
	SAM CFR (DHIS)	11.8	29.5	29.3	17.7	13.9
	SAM IHMR (Child PIP)	23.8	30.8	34.4	26.1	25.0
GE	Diarrhoeal disease incidence	8.5	13.3	8.6	6.3	10.5
	Diarrhoeal disease CFR (DHIS)	13.0	11.8	16.0	10.5	5.5
	Diarrhoeal disease IHMR (Child PIP)	9.0	9.2	10.4	6.1	7.0
ARI	ARI incidence	31.4	39.3	36.9	26.6	17.9
	ARI CFR (DHIS)	14.0	7.4	10.0	7.6	6.3
	ARI IHMR (Child PIP)	10.1	9.3	7.8	8.2	6.0

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Other Poisoning				
	Cause of death 4 - Child PIP	Septicaemia				
	Cause of death 5 - Child PIP	Other Respiratory System				
IMR	Registered deaths (StatsSA)	1320	1130	814	-	-
	Hospital deaths (DHIS)	474	371	239	217	277
	Child PIP deaths in hospital - N^{o}.	454	375	280	249	247
	IMR (StatsSA)	70.1	60.3	44.2	-	-
	IHMR (DHIS)	14.8	11.2	10.2	8.7	10.2
	IHMR - Child PIP	12.3	11.5	10.9	2.9	8.0
	% deaths in hospital	52.6	-	47.8	-	-
U5MR	Registered deaths (StatsSA)	1100	986	759	-	-
	Hospital deaths (DHIS)	499	381	253	200	291
	Child PIP deaths in hospital - N^{o}.	544	468	579	504	306
	U5MR (StatsSA)	87.8	78.4	56.9	-	-
	IHMR (DHIS)	9.1	7.9	6.3	4.5	6.2
	IHMR - Child PIP	8	8.1	7.1	1.6	5.2
	% deaths in hospital	48.7	-	44.9	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	9	9	9	9	9
	% severe malnutrition	17.0	21.6	25.3	25.9	26.8
	% HIV Infected or Exposed	32.9	46.4	45.7	44.4	47.0
	% Deaths within 24 hrs	40.3	35.4	38.1	45.6	38.3
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Inadequate assesment for HIV (IMCI not used)				
	Top modifiable factors - Clinic/OPD - 2	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 3	Delayed referral for severe malnutrition, wt loss, or growth faltering				
	Top modifiable factors - A&E - 1	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 2	Inadequate notes on clinical care				
	Top modifiable factors - A&E - 3	Inadequate history taken				
	Top modifiable factors - REF FAC - 1	Inadequate referral letter				
	Top modifiable factors - REF FAC - 2	Inadequate notes on transit care				
	Top modifiable factors - REF FAC - 3	Child not monitored while awaiting ambulance				
	Top modifiable factors - Ward - 1	Inadequate monitoring of blood glucose				
	Top modifiable factors - Ward - 2	Insufficient notes on clinical care				
	Top modifiable factors - Ward - 3	Inadequate history				

DC31: NKANGALA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	16758	16758	16758	16758	16758
	Population	1 129 031	1 286 278	1 309 539	1 333 422	1 357 744
	U5 Population	117 553	113 087	117 789	122 331	125 610
	U15 Population	361 376	373 005	371 367	369 769	367 634
	Annual births	25 337	20 489	21 605	20 358	-
	Deaths U1	807	677	542	-	-
	Deaths U5	1 100	986	759	-	-
Health system profile						
	N° PHC clinics	70	-	-	-	92
	N° CHCs	16	-	-	-	19
	N° 1° hospitals	7	-	-	-	7
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	1	-	-	-	1
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	3	-	-	-	9
Service utilization						
	PHC U5 utilization rate	4.3	4.5	4.5	4.4	4.2
	ALOS	5.4	5.3	5.2	5.0	5.4
	Bed utilization rate	62.2	64.4	70.4	73.0	66.6
Health indicator						
EPI	Fully immunized @ 1 year	83.7	65.4	54.4	63.4	70.5
	DPT - Measles drop out	-197.9	-9.4	-1.0	15.7	7.7
	Exclusively breastfed @ HepB 3	-	-	-	-	16.6
HIV / TB	PCR coverage	-	81.9	85.0	103.1	108.0
	PCR +ve @ 2 months	-	9.3	6.0	3.8	2.0
	Children U1 initiated on HAART	3	22	28	52	37
	TB contact U5 initiated on IPT	-	-	-	-	100.5
SAM	SAM incidence	5.1	4.9	3.0	2.1	2.2
	SAM CFR (DHIS)	13.2	14.0	25.3	13.1	10.5
	SAM IHMR (Child PIP)	21.6	19.3	11.7	12.2	11.2
GE	Diarrhoeal disease incidence	6.3	7.8	7.6	8.0	12.0
	Diarrhoeal disease CFR (DHIS)	12.0	9.4	4.5	5.6	5.4
	Diarrhoeal disease IHMR (Child PIP)	6.1	7.0	5.1	5.8	5.2
ARI	ARI incidence	47.9	45.2	50.4	31.2	28.2
	ARI CFR (DHIS)	6.9	8.5	7.8	4.2	3.4
	ARI IHMR (Child PIP)	9.4	8.7	5.5	5.4	3.9

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Pneumonia				
	Cause of death 2 - Child PIP	Diarrhoea				
	Cause of death 3 - Child PIP	Septicaemia				
	Cause of death 4 - Child PIP	Other Poisoning				
	Cause of death 5 - Child PIP	Anaemia				
IMR	Registered deaths (StatsSA)	807	677	542	-	-
	Hospital deaths (DHIS)	303	238	266	266	306
	Child PIP deaths in hospital - N^{o}.	207	147	153	123	130
	IMR (StatsSA)	31.9	33.0	25.1	-	-
	IHMR (DHIS)	12.1	8.1	8.2	8.3	9.3
	IHMR - Child PIP	8.3	6.9	6.5	5.0	4.9
	% deaths in hospital	45.1	-	42.4	-	-
U5MR	Registered deaths (StatsSA)	1 100	986	759	-	-
	Hospital deaths (DHIS)	345	271	294	333	446
	Child PIP deaths in hospital - N^{o}.	285	231	351	280	173
	U5MR (StatsSA)	43.4	48.1	35.1	-	-
	IHMR (DHIS)	8.1	5.6	5.6	5.8	8.4
	IHMR - Child PIP	6.6	6.0	4.8	3.9	3.5
	% deaths in hospital	42.4	-	37.8	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	8	8	8	8	8
	% severe malnutrition	38.3	32.3	26.2	29.1	27.9
	% HIV Infected or Exposed	-	55.0	51.5	53.2	47.3
	% Deaths within 24 hrs	38.6	43.1	32.9	40.4	38.3
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Caregiver unaware of child`s health history				
	Top modifiable factors - Clinic/OPD - 1	Inadequate assesment for HIV (IMCI not used)				
	Top modifiable factors - Clinic/OPD - 2	Inadequate referral letter				
	Top modifiable factors - Clinic/OPD - 3	Inadequate notes on clinical care				
	Top modifiable factors - A&E - 1	Inadequate notes on clinical care				
	Top modifiable factors - A&E - 2	Inadequate history taken				
	Top modifiable factors - A&E - 3	Inadequate physical examination				
	Top modifiable factors - REF FAC - 1	Inadequate referral letter				
	Top modifiable factors - REF FAC - 2	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 3	Delayed arrival of ambulance				
	Top modifiable factors - Ward - 1	Inadequate intake-output charting				
	Top modifiable factors - Ward - 2	Inadequate history taken				
	Top modifiable factors - Ward - 3	Insufficient notes on clinical care				

DC32: EHLANZENI

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	27895	27895	27895	27895	27895
	Population	1 617 297	1 657 592	1 676 766	1 695 387	1 714 048
	U5 Population	189 604	221 173	220 225	218 267	215 642
	U15 Population	571 394	616 913	618 161	618 526	619 476
	Annual births	43 674	42 321	43 880	42 028	-
	Deaths U1	946	790	661	-	-
	Deaths U5	1 491	1 404	1 068	-	-
Health system profile						
	N° PHC clinics	107	-	-	-	119
	N° CHCs	14	-	-	-	15
	N° 1° hospitals	8	-	-	-	8
	N° 2° hospitals	2	-	-	-	2
	N° 3°/4° hospitals	1	-	-	-	1
	N° Specialised hospitals	2	-	-	-	2
	N° private hospitals	2	-	-	-	2
Service utilization						
	PHC U5 utilization rate	5.9	4.0	4.1	4.1	4.3
	ALOS	5.4	5.3	4.8	4.6	4.8
	Bed utilization rate	72.6	68.4	70.4	75.6	76.6
Health indicator						
EPI	Fully immunized @ 1 year	95.5	54.0	55.1	68.0	73.4
	DPT - Measles drop out	-357.1	-32.7	-4.3	9.2	6.7
	Exclusively breastfed @ HepB 3	-	-	-	-	28.3
HIV / TB	PCR coverage	-	69.8	80.5	101.3	102.5
	PCR +ve @ 2 months	-	7.2	4.9	3.2	2.6
	Children U1 initiated on HAART	22	45	51	66	49
	TB contact U5 initiated on IPT	-	-	-	-	111.3
SAM	SAM incidence	5.5	2.7	2.3	2.5	2.3
	SAM CFR (DHIS)	25.1	29.5	29.3	17.7	13.9
	SAM IHMR (Child PIP)	37.1	37.9	32.3	24.2	17.9
GE	Diarrhoeal disease incidence	16.9	13.3	8.6	6.3	10.5
	Diarrhoeal disease CFR (DHIS)	12.0	11.8	16.0	10.5	7.3
	Diarrhoeal disease IHMR (Child PIP)	8.1	8.2	9.1	7.7	7.8
ARI	ARI incidence	89.3	13.3	8.6	6.3	10.5
	ARI CFR (DHIS)	10.1	7.4	10.0	7.6	7.4
	ARI IHMR (Child PIP)	10.2	11.2	7.9	6.8	5.1

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Septicaemia				
	Cause of death 4 - Child PIP	Other Poisoning				
	Cause of death 5 - Child PIP	TB (all)				
IMR	Registered deaths (StatsSA)	946	790	661	-	-
	Hospital deaths (DHIS)	562	494	429	393	513
	Child PIP deaths in hospital - N^{o}.	477	490	420	366	287
	IMR (StatsSA)	21.7	18.7	15.1	-	-
	IHMR (DHIS)	5.9	7.4	10.7	9.4	11.1
	IHMR - Child PIP	10.0	10.5	9.4	0.7	6.6
	% deaths in hospital	68.6	-	60.4	-	-
U5MR	Registered deaths (StatsSA)	1 491	1 404	1 068	-	-
	Hospital deaths (DHIS)	595	555	509	573	620
	Child PIP deaths in hospital - N^{o}.	680	748	983	871	435
	U5MR (StatsSA)	34.1	33.2	24.3	-	-
	IHMR (DHIS)	5.1	6.0	6.8	6.5	6.7
	IHMR - Child PIP	7.3	7.8	6.5	0.4	4.6
	% deaths in hospital	58.7	-	51.1	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	10	11	11	11	11
	% severe malnutrition	36.1	35.5	33.0	31.5	30.5
	% HIV Infected or Exposed	49.8	53.9	51.8	48.4	46.7
	% Deaths within 24 hrs	33.0	28.8	32.6	34.9	32.6
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Traditional remedy from traditional healer, with -ve effect on child				
	Top modifiable factors - Clinic/OPD - 1	Inadequate assesment for HIV (IMCI not used)				
	Top modifiable factors - Clinic/OPD - 2	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 3	Delayed referral for severe malnutrition, wt loss, or growth faltering				
	Top modifiable factors - A&E - 1	Inadequate notes on clinical care				
	Top modifiable factors - A&E - 2	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 3	Inadequate history taken				
	Top modifiable factors - REF FAC - 1	Inadequate notes on transit care				
	Top modifiable factors - REF FAC - 2	Emergency or priority care not provided				
	Top modifiable factors - REF FAC - 3	Inadequate referral letter				
	Top modifiable factors - Ward - 1	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 2	RTHC information not present in child`s folder				
	Top modifiable factors - Ward - 3	Inadequate response to new danger signs				

NORTH WEST

DC37: BOJANALA PLATINUM

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	18 333	18 333	18 333	18 333	18 333
	Population	1 297 400	1 469 340	1 501 112	1 533 089	1 565 474
	U5 Population	132 612	181 531	179 873	176 986	174 845
	U15 Population	381 095	458 507	467 961	476 264	482 071
	Annual births	36 190	36 154	35 541	33 461	-
	Deaths U1	1 189	1 285	930	-	-
	Deaths U5	1 576	1 753	1 223	-	-
Health system profile						
	N° PHC clinics	113	-	-	-	114
	N° CHCs	14	-	-	-	8
	N° 1° hospitals	4	-	-	-	4
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	1	-	-	-	-
	N° private hospitals	5	-	-	-	6
Service utilization						
	PHC U5 utilization rate	4.5	3.2	2.9	3.0	3.1
	ALOS	5.0	4.9	3.9	4.3	4.0
	Bed utilization rate	72.5	69.5	75.3	81.4	77.1
Health indicator						
EPI	Fully immunized @ 1 year	83.6	50.8	57.8	69.5	67.0
	DPT - Measles drop out	-136.5	-45.5	-10.2	-7.3	11.2
	Exclusively breastfed @ HepB 3	-	-	-	-	30.9
HIV / TB	PCR coverage	-	97.8	104.0	109.2	119.1
	PCR +ve @ 2 months	-	9.7	4.7	2.5	2.6
	Children U1 initiated on HAART	-	-	-	-	-
	TB contact U5 initiated on IPT	-	-	-	-	145.5
SAM	SAM incidence	8.4	2.4	2.6	2.4	2.7
	SAM CFR (DHIS)	24.9	17.8	14.6	15.1	18.4
	SAM IHMR (Child PIP)	12.5	13.7	10.6	19.0	19.8
GE	Diarrhoeal disease incidence	8.5	6.3	6.1	4.0	7.7
	Diarrhoeal disease CFR (DHIS)	12.6	7.7	7.1	10.3	6.9
	Diarrhoeal disease IHMR (Child PIP)	0.0	6.0	8.2	10.3	7.2
ARI	ARI incidence	66.3	35.7	34.1	21.5	15.6
	ARI CFR (DHIS)	9.5	8.0	6.4	7.1	6.8
	ARI IHMR (Child PIP)	5.5	7.4	7.8	8.2	7.2

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Other Nutritional				
	Cause of death 3 - Child PIP	Pneumonia				
	Cause of death 4 - Child PIP	PCP				
	Cause of death 5 - Child PIP	Septicaemia				
IMR	Registered deaths (StatsSA)	1189	1285	930	-	-
	Hospital deaths (DHIS)	260	252	242	237	225
	Child PIP deaths in hospital - N^{o}.	-	-	-	52	107
	IMR (StatsSA)	34.0	36.3	26.2	-	-
	IHMR (DHIS)	12.9	11.6	10.5	13.4	10.2
	IHMR - Child PIP	13.8	1.9	7.6	5.9	11.0
	% deaths in hospital	39.4	-	39.0	-	-
U5MR	Registered deaths (StatsSA)	1576	1753	1223	-	-
	Hospital deaths (DHIS)	376	325	302	271	272
	Child PIP deaths in hospital - N^{o}.	-	-	-	118	151
	U5MR (StatsSA)	45.0	49.5	34.0		
	IHMR (DHIS)	10.8	9.0	8.0	9.2	8.0
	IHMR - Child PIP	5.5	1.7	4.6	4.2	7.7
	% deaths in hospital	36.7	-	37.7	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	1	1	1	1	5
	% severe malnutrition	-	-	-	26.7	39.6
	% HIV Infected or Exposed	-	-	-	-	-
	% Deaths within 24 hrs	-	-	-	-	-
	Top modifiable factors - Home - 1	Traditional remedy from traditional healer, with -ve effect on child				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Caregiver not assessed and managed for HIV&AIDS				
	Top modifiable factors - Clinic/OPD - 1	No policy on short-stay for paediatric patients				
	Top modifiable factors - Clinic/OPD - 2	HIV result not obtained/documented				
	Top modifiable factors - Clinic/OPD - 3	Basic laboratory investigation not available (e.g. blood glucose)				
	Top modifiable factors - A&E - 1	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 2	Results of urgent investigations not obtained				
	Top modifiable factors - A&E - 3	Inadequate notes on clinical care				
	Top modifiable factors - REF FAC - 1	No nurse assigned to child while awaiting the ambulance				
	Top modifiable factors - REF FAC - 2	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 3	Inadequate referral letter				
	Top modifiable factors - Ward - 1	Inadequate number of nurses assigned to children`s ward				
	Top modifiable factors - Ward - 2	Inadequate `septic workup`				
	Top modifiable factors - Ward - 3	Inadequate daily `Problem List`				

DC38: NGAKA MODIRI MOLEMA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	27 889	27 889	27 889	27 889	27 889
	Population	771 230	830 969	837 583	844 894	852 613
	U5 Population	85 891	67 574	72 426	76 974	79 547
	U15 Population	258 200	243 111	238 810	235 050	230 494
	Annual births	10 485	10 341	10 070	9 234	-
	Deaths U1	1 056	886	814	-	-
	Deaths U5	1 376	1 230	1 080	-	-
Health system profile						
	N° PHC clinics	81	-	-	-	80
	N° CHCs	17	-	-	-	16
	N° 1° hospitals	5	-	-	-	5
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	0
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	4.8	5.9	5.7	5.3	5.3
	ALOS	4.4	4.6	5.5	6.2	6.2
	Bed utilization rate	61.5	59.6	61.6	65.4	68.7
Health indicator						
EPI	Fully immunized @ 1 year	77.2	88.3	71.5	68.4	70.1
	DPT - Measles drop out	-277.7	-5.6	-4.1	5.9	2.5
	Exclusively breastfed @ HepB 3	-	-	-	-	46.1
HIV / TB	PCR coverage	-	91.3	98.3	94.3	99.8
	PCR +ve @ 2 months	-	7.5	4.9	2.5	2.7
	Children U1 initiated on HAART	-	1	-	2	1
	TB contact U5 initiated on IPT	-	-	-	-	90.6
SAM	SAM incidence	9.1	13.3	12.3	8.8	13.1
	SAM CFR (DHIS)	12.6	14.9	10.2	7.5	10.3
	SAM IHMR (Child PIP)	16.2	13.4	12.2	11.0	12.8
GE	Diarrhoeal disease incidence	16.4	21.1	14.8	11.0	20.2
	Diarrhoeal disease CFR (DHIS)	6.9	5.2	4.5	4.8	4.7
	Diarrhoeal disease IHMR (Child PIP)	4.0	3.6	2.7	4.5	4.0
ARI	ARI incidence	132.3	157.2	146.4	87.2	46.7
	ARI CFR (DHIS)	4.1	6.4	4.3	4.5	4.3
	ARI IHMR (Child PIP)	5.1	4.6	3.5	3.4	3.8

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Diarrhoea				
	Cause of death 3 - Child PIP	Pneumonia				
	Cause of death 4 - Child PIP	Other Nutritional				
	Cause of death 5 - Child PIP	Anaemia				
IMR	Registered deaths (StatsSA)	1056	886	814	-	-
	Hospital deaths (DHIS)	208	180	200	129	172
	Child PIP deaths in hospital - N°.	184	136	85	15	144
	IMR (StatsSA)	100.7	85.7	80.8	-	-
	IHMR (DHIS)	9.5	2.6	7.3	4.8	6.4
	IHMR - Child PIP	7.6	4.7	4.6	7.6	6.1
	% deaths in hospital	33.0	-	39.3	-	-
U5MR	Registered deaths (StatsSA)	1376	1230	1080	-	-
	Hospital deaths (DHIS)	289	285	207	207	246
	Child PIP deaths in hospital - N°.	278	217	231	45	244
	U5MR (StatsSA)	131.2	118.9	107.2	-	-
	IHMR (DHIS)	7.9	3.0	4.2	4.2	4.6
	IHMR - Child PIP	5.4	4.7	4.6	7.6	4.7
	% deaths in hospital	30.9	-	38.5	-	-
Modifiable factors	Child PIP Hospitals N°.	5	4	3	3	4
	% severe malnutrition	61.1	56.1	67.5	59.4	46.7
	% HIV Infected or Exposed	51.0	50.2	54.1	43.8	38.7
	% Deaths within 24 hrs	35.0	35.0	29.3	43.8	36.5
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Traditional remedy from traditional healer, with -ve effect on child				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	IMCI not used for case management				
	Top modifiable factors - Clinic/OPD - 2	IMCI not used for patient assessment				
	Top modifiable factors - A&E - 1	Inadequate notes on clinical care				
	Top modifiable factors - A&E - 2	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 3	Inadequate history taken				
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	Inadequate referral letter				
	Top modifiable factors - REF FAC - 3	Inadequate notes on transit care				
	Top modifiable factors - Ward - 1	WHO `10 Steps` not followed for child with severe malnutrition				
	Top modifiable factors - Ward - 2	Inadequate investigations				
	Top modifiable factors - Ward - 3	Inadequate `septic workup`				

DC39: DR RUTH SEGOMOTSI MOMPATI

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	44 017	44 017	44 017	44 017	44 017
	Population	468 454	465 351	467 472	469 697	472 023
	U5 Population	56 219	54 843	54 233	58 781	53 339
	U15 Population	167 183	165 577	163 898	162 168	160 806
	Annual births	18 106	17 613	17 675	16 515	-
	Deaths U1	681	607	507	-	-
	Deaths U5	939	856	685	-	-
Health system profile						
	N° PHC clinics	48	-	-	-	50
	N° CHCs	12	-	-	-	12
	N° 1° hospitals	5	-	-	-	4
	N° 2° hospitals	-	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	5.5	5.5	5.4	5.4	5.5
	ALOS	4.8	4.7	4.6	4.7	4.3
	Bed utilization rate	60.9	63.4	58.3	60.9	60.5
Health indicator						
EPI	Fully immunized @ 1 year	81.1	72.9	78.2	83.6	86.3
	DPT - Measles drop out	-276.4	-4.7	-1.7	28.0	4.4
	Exclusively breastfed @ HepB 3	-	-	-	-	34.6
HIV / TB	PCR coverage	-	135.3	113.6	104.7	116.6
	PCR +ve @ 2 months	-	5.4	4.2	3.2	2.5
	Children U1 initiated on HAART	-	-	-	1	-
	TB contact U5 initiated on IPT	-	-	-	-	85.1
SAM	SAM incidence	5.5	5.5	5.2	3.1	4.9
	SAM CFR (DHIS)	25.8	19.4	10.2	13.2	10.2
	SAM IHMR (Child PIP)	30.4	15.8	19.2	15.5	17.0
GE	Diarrhoeal disease incidence	14.0	16.8	11.6	5.7	8.9
	Diarrhoeal disease CFR (DHIS)	7.3	7.4	3.6	2.8	4.2
	Diarrhoeal disease IHMR (Child PIP)	6.1	10.0	8.4	4.2	8.4
ARI	ARI incidence	214.1	104.2	82.3	46.8	28.6
	ARI CFR (DHIS)	12.1	12.3	8.0	5.6	4.7
	ARI IHMR (Child PIP)	10.3	10.6	8.1	5.4	7.0

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Other Nutritional				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Acute renal failure				
IMR	Registered deaths (StatsSA)	681	607	507	-	-
	Hospital deaths (DHIS)	91	79	79	79	89
	Child PIP deaths in hospital - N^{o}.	19.0	48	52	22	62
	IMR (StatsSA)	37.6	34.5	28.7	-	-
	IHMR (DHIS)	10.3	8.2	6.3	7.1	8.1
	IHMR - Child PIP	10.0	9.6	8.1	6.1	7.1
	% deaths in hospital	46.5	-	42.2	-	-
U5MR	Registered deaths (StatsSA)	939	856	685	-	-
	Hospital deaths (DHIS)	87	122	111	100	106
	Child PIP deaths in hospital - N^{o}.	27.0	69	124	52	97
	U5MR (StatsSA)	38.8	48.6	38.8	-	-
	IHMR (DHIS)	7.3	7.4	6.4	6.5	5.5
	IHMR - Child PIP	6.0	6.6	5.5	3.3	5.6
	% deaths in hospital	45.0	-	39.0	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	2.0	4	2	2	4
	% severe malnutrition	53.3	31.5	54.4	48.5	42.1
	% HIV Infected or Exposed	40.0	50.2	54.1	43.8	38.7
	% Deaths within 24 hrs	50.0	35.6	30.4	27.3	27.9
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Traditional remedy from traditional healer, with -ve effect on child				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Inadequate referral letter from clinic to hospital				
	Top modifiable factors - Clinic/OPD - 2	Inadequate notes on clinical care (assess, classify, treat)				
	Top modifiable factors - Clinic/OPD - 3	Oxygen saturation not monitored				
	Top modifiable factors - A&E - 1	Inadequate investigations				
	Top modifiable factors - A&E - 2	Inadequate response to new danger signs				
	Top modifiable factors - A&E - 3	Danger signs missed due to inadequate monitoring				
	Top modifiable factors - REF FAC - 1	Inadequate investigations				
	Top modifiable factors - REF FAC - 2	Inadequate response to new danger signs				
	Top modifiable factors - REF FAC - 3	Danger signs missed due to inadequate monitoring				
	Top modifiable factors - Ward - 1	Inadequate investigation				
	Top modifiable factors - Ward - 2	Inadequate response to new danger signs				
	Top modifiable factors - Ward - 3	Danger signs missed due to inadequate monitoring				

DC40: DR KENNETH KAUNDA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	16 273	16 273	16 273	16 273	16 273
	Population	639 751	682 776	690 688	698 952	707 479
	U5 Population	65 526	67 521	66 826	65 513	64 612
	U15 Population	186 502	198 036	199 131	199 369	199 529
	Annual births	16 637	13 825	13 714	13 405	-
	Deaths U1	875	693	616	-	-
	Deaths U5	1 066	906	774	-	-
Health system profile						
	N° PHC clinics	45	-	-	-	30
	N° CHCs	8	-	-	-	9
	N° 1° hospitals	3	-	-	-	2
	N° 2° hospitals	2	-	-	-	3
	N° 3°/4° hospitals	2	-	-	-	0
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	10	-	-	-	7
Service utilization						
	PHC U5 utilization rate	4.2	4.0	3.6	3.8	3.8
	ALOS	9.9	9.6	9.4	9.4	9.9
	Bed utilization rate	68.2	77.3	76.4	77.1	78.0
Health indicator						
EPI	Fully immunized @ 1 year	82.4	70.0	74.7	77.4	81.4
	DPT - Measles drop out	-102.7	-8.2	6.0	1.1	3.6
	Exclusively breastfed @ HepB 3	-	-	-	-	21.3
HIV / TB	PCR coverage	-	78.0	102.4	94.9	91.5
	PCR +ve @ 2 months	-	5.3	3.5	3.0	2.3
	Children U1 initiated on HAART	-	-	1	10	-
	TB contact U5 initiated on IPT	-	-	-	-	109.2
SAM	SAM incidence	7.9	8.1	6.3	6.5	7.2
	SAM CFR (DHIS)	22.3	17.8	12.4	10.3	6.9
	SAM IHMR (Child PIP)	30.8	20.7	12.3	12.6	10.9
GE	Diarrhoeal disease incidence	13.5	12.4	13.0	6.6	13.0
	Diarrhoeal disease CFR (DHIS)	6.2	5.6	4.5	5.5	6.0
	Diarrhoeal disease IHMR (Child PIP)	4.0	4.4	3.2	4.9	3.2
ARI	ARI incidence	101.2	88.0	73.4	44.9	39.5
	ARI CFR (DHIS)	6.6	6.8	3.0	3.2	4.6
	ARI IHMR (Child PIP)	13.7	7.6	4.1	2.3	3.2

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	Other Circulatory System				
	Cause of death 5 - Child PIP	TB (all)				
IMR	Registered deaths (StatsSA)	875	693	616	-	-
	Hospital deaths (DHIS)	244	266	277	298	257
	Child PIP deaths in hospital - N^{o}.	8.0	89	64	49	83
	IMR (StatsSA)	52.6	50.1	44.9	-	-
	IHMR (DHIS)	8.8	9.9	8.7	9.3	9.4
	IHMR - Child PIP	12.0	8.1	7.0	7.4	5.6
	% deaths in hospital	51.9	-	52.1	-	-
U5MR	Registered deaths (StatsSA)	1066	906	774	-	-
	Hospital deaths (DHIS)	337	332	315	325	306
	Child PIP deaths in hospital - N^{o}.	9.0	126	154	114	124
	U5MR (StatsSA)	64.1	65.5	56.4	-	-
	IHMR (DHIS)	8.4	6.9	6.4	6.9	6.6
	IHMR - Child PIP	11.7	6.3	4.6	5.0	4.1
	% deaths in hospital	50.8	-	50.0	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	1.0	2	2	1	4
	% severe malnutrition	63.2	41.3	38.7	29.1	42.9
	% HIV Infected or Exposed	31.6	52.7	37.8	38.4	37.9
	% Deaths within 24 hrs	31.6	26.7	22.5	34.9	41.2
	Top modifiable factors - Home - 1	Caregiver delayed seeking care				
	Top modifiable factors - Home - 2	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Home - 3	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Clinic/OPD - 1	IMCI not used for case management				
	Top modifiable factors - Clinic/OPD - 2	IMCI not used for patient assessment				
	Top modifiable factors - Clinic/OPD - 3	Inadequate IMCI classification				
	Top modifiable factors - A&E - 1	Inadequate history taken				
	Top modifiable factors - A&E - 2	Inadequate investigations (blood, x-ray, other)				
	Top modifiable factors - A&E - 3	Blood glucose not monitored in child with danger signs				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	Inadequate referral letter				
	Top modifiable factors - REF FAC - 3	Emergency or priority care not provided				
	Top modifiable factors - Ward - 1	Inadequate intake-output charting				
	Top modifiable factors - Ward - 2	Inadequate monitoring of blood glucose				
	Top modifiable factors - Ward - 3	Inadequate investigations				

NORTHERN CAPE

DC6: NAMAKWA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	27 283	27 283	27 283	27 283	27 283
	Population	116 521	117 803	117 968	118 209	118 451
	U5 Population	10 251	8 413	9 235	9 948	10 317
	U15 Population	32 542	31 369	31 447	31 269	30 799
	Annual births	1 681	1 501	1 401	1 455	-
	Deaths U1	41	46	45	-	-
	Deaths U5	51	59	52	-	-
Health system profile						
	N° PHC clinics	19	-	-	-	25
	N° CHCs	9	-	-	-	10
	N° 1° hospitals	4	-	-	-	2
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	4.8	5.5	5.2	5.1	5.0
	ALOS	2.7	2.7	2.8	2.8	2.8
	Bed utilization rate	45.4	45.2	57.7	58.4	56.7
Health indicator						
EPI	Fully immunized @ 1 year	74.5	105.8	83.8	69.7	64.3
	DPT - Measles drop out	-3073.1	-11.7	1.3	1.4	-1.1
	Exclusively breastfed @ HepB 3	-	-	-	-	40.3
HIV / TB	PCR coverage	-	74.6	92.6	89.8	60.9
	PCR +ve @ 2 months	-	13.2	8.0	9.4	5.7
	Children U1 initiated on HAART	-	-	-	-	-
	TB contact U5 initiated on IPT	-	-	-	-	69.3
SAM	SAM incidence	3.5	4.5	4.0	1.0	2.2
	SAM CFR (DHIS)	11.1	3.3	5.6	20.8	16.7
	SAM IHMR (Child PIP)	-	11.1	7.7	28.6	50.0
GE	Diarrhoeal disease incidence	13.3	10.3	8.4	5.4	9.1
	Diarrhoeal disease CFR (DHIS)	1.1	1.5	2.6	4.4	0.0
	Diarrhoeal disease IHMR (Child PIP)	-	2.0	0.0	4.7	0.0
ARI	ARI incidence	56.5	65.9	48.5	26.6	24.5
	ARI CFR (DHIS)	2.8	1.2	0.9	12.5	2.3
	ARI IHMR (Child PIP)	-	0.0	1.3	3.1	2.5

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Pneumonia				
	Cause of death 2 - Child PIP	Septicaemia				
	Cause of death 3 - Child PIP	Unknown				
	Cause of death 4 - Child PIP	Anaemia				
	Cause of death 5 - Child PIP	Hypoglycaemia				
IMR	Registered deaths (StatsSA)	41	46	45	-	-
	Hospital deaths (DHIS)	21	13	12	32	24
	Child PIP deaths in hospital - N^{o}.	-	-	1	3	3
	IMR (StatsSA)	24.4	30.6	32.1	-	-
	IHMR - Child PIP	-	-	1.9	7.3	1.6
	% deaths in hospital	48.8	-	15.6	-	-
U5MR	Registered deaths (StatsSA)	51	59	52	-	-
	Hospital deaths (DHIS)	11	40	14	33	21
	Child PIP deaths in hospital - N^{o}.	-	1	2	8	4
	U5MR (StatsSA)	30.3	39.3	37.1	-	-
	IHMR (DHIS)	1.1	4.6	2.0	3.3	2.4
	IHMR - Child PIP	-	0.3	0.4	5.2	0.8
	% deaths in hospital	51.0	-	17.3	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	-	2	2	2	2
	% severe malnutrition	-	50.0	0.0	16.7	25.0
	% HIV Infected or Exposed	-	-	-	-	-
	% Deaths within 24 hrs	-	50.0	100.0	33.3	75.0
	Top modifiable factors - Home - 1	Caregiver took child to clinic infrequently				
	Top modifiable factors - Home - 2	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 3	Caregiver delayed seeking care				
	Top modifiable factors - Clinic/OPD - 1	NONE				
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1	NONE				
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1	NONE				
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1	NONE				
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

DC7: PIXLEY KA SEME

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	126 836	126 836	126 836	126 836	126 836
	Population	186 575	186 815	187 858	188 939	190 019
	U5 Population	17 784	18 494	18 732	18 948	19 058
	U15 Population	57 011	58 574	58 095	57 518	56 917
	Annual births	2 743	4 086	3 706	3 615	-
	Deaths U1	226	245	217	-	-
	Deaths U5	281	338	286	-	-
Health system profile						
	N° PHC clinics	29	-	-	-	31
	N° CHCs	6	-	-	-	8
	N° 1° hospitals	5	-	-	-	3
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	-	-	-	-	1
Service utilization						
	PHC U5 utilization rate	4.1	4.6	4.7	4.4	4.6
	ALOS	2.8	2.9	2.8	2.6	2.6
	Bed utilization rate	48.5	51.2	49.4	41.1	44.8
Health indicator						
EPI	Fully immunized @ 1 year	79.2	76.8	83.3	71.8	74.3
	DPT - Measles drop out	-2591.9	-6.0	3.3	8.7	7.8
	Exclusively breastfed @ HepB 3	-	-	-	-	47.3
HIV / TB	PCR coverage	-	74.1	113.9	100.3	99.0
	PCR +ve @ 2 months	-	11.3	4.9	3.8	2.8
	Children U1 initiated on HAART	2	3	9	7	3
	TB contact U5 initiated on IPT	-	-	-	-	95.0
SAM	SAM incidence	8.9	6.8	6.4	17.7	7.0
	SAM CFR (DHIS)	25.0	27.7	6.5	10.9	1.7
	SAM IHMR (Child PIP)	0.0	13.5	6.7	6.7	5.6
GE	Diarrhoeal disease incidence	24.7	17.5	15.4	15.9	18.2
	Diarrhoeal disease CFR (DHIS)	11.4	4.6	3.4	2.5	0.8
	Diarrhoeal disease IHMR (Child PIP)	9.6	4.6	3.4	0.6	3.4
ARI	ARI incidence	67.7	65.5	66.5	55.7	38.4
	ARI CFR (DHIS)	5.2	5.6	1.6	0.9	0.0
	ARI IHMR (Child PIP)	17.1	19.6	26.9	21.4	1.3

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Unknown				
	Cause of death 3 - Child PIP	Ill-defined/Unknown cause of mortality				
	Cause of death 4 - Child PIP	Pneumonia				
	Cause of death 5 - Child PIP	Septicaemia				
IMR	Registered deaths (StatsSA)	226	245	217	-	-
	Hospital deaths (DHIS)	70	82	67	55	43
	Child PIP deaths in hospital - N°.	7.0	20	18	20	9
	IMR (StatsSA)	82.4	60.0	58.6	-	-
	IHMR - Child PIP	8.70	6.8	5.4	5.7	4.1
	% deaths in hospital	53.1	-	45.2	-	-
U5MR	Registered deaths (StatsSA)	281	338	286	-	-
	Hospital deaths (DHIS)	74	64	80	60	42
	Child PIP deaths in hospital - N°.	8.0	31	45	41	14
	U5MR (StatsSA)	102.4	82.7	77.2	-	-
	IHMR (DHIS)	3.7	3.3	4.2	3.2	2.2
	IHMR - Child PIP	5.90	4.8	4.0	3.6	2.5
	% deaths in hospital	53.7	-	41.6	-	-
Modifiable factors	Child PIP Hospitals N°.	1	6	5	5	4
	% severe malnutrition	12.5	11.8	21.4	16.7	6.3
	% HIV Infected or Exposed	25.0	35.3	17.9	10.0	25.0
	% Deaths within 24 hrs	75.0	29.4	21.4	33.3	36.4
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Primary caregiver unemployed, or no household breadwinner				
	Top modifiable factors - Clinic/OPD - 1	IMCI not used for patient assessment				
	Top modifiable factors - Clinic/OPD - 2	Inadequate review of child with dehydration				
	Top modifiable factors - Clinic/OPD - 3	NONE				
	Top modifiable factors - A&E - 1	Child not triaged				
	Top modifiable factors - A&E - 2	NONE				
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1	Inadequate record keeping system for proper transit care				
	Top modifiable factors - REF FAC - 2	Inadequate notes on transit care				
	Top modifiable factors - REF FAC - 3	No or inappropriate grade of ambulance available				
	Top modifiable factors - Ward - 1	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 2	Caregiver declined consent for life-saving intervention				
	Top modifiable factors - Ward - 3	NONE				

DC8: SIYANDA

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	102 727	102 727	102 727	102 727	102 727
	Population	239 514	234 101	237 407	240 771	244 155
	U5 Population	25 694	22 653	22 848	22 942	23 069
	U15 Population	75 397	70 743	70 565	70 232	69 815
	Annual births	4 826	4 811	8 949	5 157	-
	Deaths U1	251	176	169	-	-
	Deaths U5	343	239	248	-	-
Health system profile						
	N° PHC clinics	14	-	-	-	17
	N° CHCs	6	-	-	-	6
	N° 1° hospitals	3	-	-	-	2
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	1	-	-	-	4
	N° private hospitals	1	-	-	-	2
Service utilization						
	PHC U5 utilization rate	4.2	4.1	4.1	4.1	4.2
	ALOS	3.6	4.0	4.1	3.6	3.6
	Bed utilization rate	60.2	71.2	76.6	75.0	104.3
Health indicator						
EPI	Fully immunized @ 1 year	96.3	77.7	83.4	82.2	85.0
	DPT - Measles drop out	-483.1	-4.3	-0.3	5.7	-2.6
	Exclusively breastfed @ HepB 3	-	-	-	-	54.6
HIV / TB	PCR coverage	-	52.9	88.7	79.1	75.1
	PCR +ve @ 2 months	-	10.9	4.8	2.4	3.4
	Children U1 initiated on HAART	-	-	-	-	1
	TB contact U5 initiated on IPT	-	-	-	-	71.5
SAM	SAM incidence	6.1	4.9	4.9	4.9	4.2
	SAM CFR (DHIS)	12.5	11.5	8.6	6.7	11.1
	SAM IHMR (Child PIP)	17.1	19.6	26.9	21.4	20.8
GE	Diarrhoeal disease incidence	10.0	11.4	13.1	9.9	21.0
	Diarrhoeal disease CFR (DHIS)	2.4	1.9	2.7	1.0	2.1
	Diarrhoeal disease IHMR (Child PIP)	4.4	0.9	4.4	1.7	2.3
ARI	ARI incidence	141.5	121.7	96.9	109.1	117.3
	ARI CFR (DHIS)	2.7	2.5	2.6	1.5	2.2
	ARI IHMR (Child PIP)	2.5	1.5	2.3	2.3	2.9

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Anaemia				
	Cause of death 2 - Child PIP	Septicaemia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	Pneumonia				
	Cause of death 5 - Child PIP	Other Nutritional				
IMR	Registered deaths (StatsSA)	251	176	169	-	-
	Hospital deaths (DHIS)	48	45	60	72	95
	Child PIP deaths in hospital - N^{o}.	16	17	13	14	35
	IMR (StatsSA)	52	37	19	-	-
	IHMR (DHIS)	4.4	4.2	4.9	7.5	7.5
	IHMR - Child PIP	2.5	3.4	2.7	4.1	3.8
	% deaths in hospital	55.0	-	44.4	-	-
U5MR	Registered deaths (StatsSA)	343	239	248	-	-
	Hospital deaths (DHIS)	35	54	80	52	109
	Child PIP deaths in hospital - N^{o}.	26	22	44	38	57
	U5MR (StatsSA)	71.1	49.7	27.7	-	-
	IHMR (DHIS)	1.7	3.8	4.3	3.8	5.5
	IHMR - Child PIP	2.3	1.9	2.8	2.9	3.0
	% deaths in hospital	55.7	-	47.6	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	1.0	3	1	1	1
	% severe malnutrition	65.4	34.8	30.3	25.9	43.5
	% HIV Infected or Exposed	42.3	21.7	15.2	40.7	16.1
	% Deaths within 24 hrs	26.9	39.1	33.3	25.9	27.5
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	NONE				
	Top modifiable factors - Home - 3					
	Top modifiable factors - Clinic/OPD - 1	NONE				
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1	Child not triaged				
	Top modifiable factors - A&E - 2	NONE				
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1	Inadequate record keeping system for proper transit care				
	Top modifiable factors - REF FAC - 2	Inadequate notes on transit care				
	Top modifiable factors - REF FAC - 3	No or inappropriate grade of ambulance available				
	Top modifiable factors - Ward - 1	RTHC information not present in child`s folder				
	Top modifiable factors - Ward - 2	Inadequate history				
	Top modifiable factors - Ward - 3	Inadequate physical examination				

DC9: FRANCES BAARD

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	102 524	102 524	102 524	102 524	102 524
	Population	351 647	374 417	376 136	377 792	379 353
	U5 Population	36 456	39 743	38 960	38 071	37 297
	U15 Population	111 549	115 492	115 018	114 137	113 349
	Annual births	8 796	8 547	8 717	8 516	-
	Deaths U1	281	238	211	-	-
	Deaths U5	391	337	310	-	-
Health system profile						
	N° PHC clinics	28	-	-	-	26
	N° CHCs	2	-	-	-	4
	N° 1° hospitals	4	-	-	-	2
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	-	-	-	-	1
	N° Specialised hospitals	2	-	-	-	2
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	3.9	4.1	4.0	4.6	4.6
	ALOS	5.3	5.1	4.9	5.6	5.4
	Bed utilization rate	51.9	54.3	63.7	63.5	65.5
Health indicator						
EPI	Fully immunized @ 1 year	92.4	84.2	95.5	98.0	97.5
	DPT - Measles drop out	-415.1	10.6	13.0	10.6	2.2
	Exclusively breastfed @ HepB 3	-	-	-	-	51.1
HIV / TB	PCR coverage	-	98.8	85.5	110.9	84.4
	PCR +ve @ 2 months	-	6.2	6.6	3.4	2.6
	Children U1 initiated on HAART	2	1	2	2	5
	TB contact U5 initiated on IPT	-	-	-	-	63.5
SAM	SAM incidence	5.0	5.9	3.8	5.0	4.3
	SAM CFR (DHIS)	20.7	13.1	10.5	10.3	12.0
	SAM IHMR (Child PIP)	18.9	22.1	16.1	14.3	14.7
GE	Diarrhoeal disease incidence	14.9	13.0	10.6	13.0	12.4
	Diarrhoeal disease CFR (DHIS)	5.1	7.0	3.0	3.0	3.4
	Diarrhoeal disease IHMR (Child PIP)	5.8	9.3	4.5	4.5	4.3
ARI	ARI incidence	134.4	123.3	114.3	83.5	64.5
	ARI CFR (DHIS)	4.4	3.2	2.7	3.4	2.9
	ARI IHMR (Child PIP)	4.9	4.1	3.1	1.8	3.4

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Septicaemia				
	Cause of death 3 - Child PIP	TB (all)				
	Cause of death 4 - Child PIP	Pneumonia				
	Cause of death 5 - Child PIP	Meningitis				
IMR	Registered deaths (StatsSA)	281	238	211	-	-
	Hospital deaths (DHIS)	243	178	147	201	174
	Child PIP deaths in hospital - N°.	87	79	78	59	64
	IMR (StatsSA)	31.9	27.8	24.2	-	-
	IHMR (DHIS)	11.2	7.4	6.8	12.8	6.7
	IHMR - Child PIP	5.0	5.3	3.9	2.2	3.3
	% deaths in hospital	47.7	-	33.6	-	-
U5MR	Registered deaths (StatsSA)	391	337	310	-	-
	Hospital deaths (DHIS)	416	247	220	243	225
	Child PIP deaths in hospital - N°.	142	146	204	161	124
	U5MR (StatsSA)	44.5	39.4	35.6	-	-
	IHMR (DHIS)	5.9	6.2	6.5	8.8	5.4
	IHMR - Child PIP	3.5	4.1	3.1	1.8	2.9
	% deaths in hospital	44.0	-	36.5	-	-
Modifiable factors	Child PIP Hospitals N°.	1	2	2	3	3
	% severe malnutrition	31.9	42.4	28.0	29.1	42.5
	% HIV Infected or Exposed	41.6	47.1	35.7	24.4	29.5
	% Deaths within 24 hrs	26.5	22.7	20.4	24.4	32.2
	Top modifiable factors - Home - 1	NO DATA				
	Top modifiable factors - Home - 2					
	Top modifiable factors - Home - 3					
	Top modifiable factors - Clinic/OPD - 1					
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1					
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1					
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1					
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

DC45: JOHN TAOLO GAETSEWE

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	13 518	13 518	13 518	13 518	13 518
	Population	31 705	220 447	223 884	227 382	230 938
	U5 Population	2 923	25 688	26 048	26 497	26 817
	U15 Population	9 535	77 347	77 333	77 304	77 330
	Annual births	4 985	5 261	5 616	5 563	-
	Deaths U1	281	315	200	-	-
	Deaths U5	363	433	260	-	-
Health system profile						
	N° PHC clinics	36	-	-	-	38
	N° CHCs	1	-	-	-	5
	N° 1° hospitals	2	-	-	-	2
	N° 2° hospitals	-	-	-	-	-
	N° 3°/4° hospitals	-	-	-	-	-
	N° Specialised hospitals	-	-	-	-	-
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	5.9	5.3	5.0	5.1	5.0
	ALOS	2.1	3.5	3.4	3.6	4.4
	Bed utilization rate	63.7	51.1	47.3	56.7	54.1
Health indicator						
EPI	Fully immunized @ 1 year	109.1	79.1	83.4	97.1	95.5
	DPT - Measles drop out	-252.2	4.1	3.4	10.1	-2.3
	Exclusively breastfed @ HepB 3	-	-	-	-	37.8
HIV / TB	PCR coverage	-	81.0	83.1	92.9	83.3
	PCR +ve @ 2 months	-	7.1	3.9	2.6	3.9
	Children U1 initiated on HAART	-	-	-	-	-
	TB contact U5 initiated on IPT	-	-	-	-	92.5
SAM	SAM incidence	3.9	4.0	4.0	4.0	4.0
	SAM CFR (DHIS)	28.5	14.3	17.3	3.8	21.0
	SAM IHMR (Child PIP)	-	-	-	-	43.3
GE	Diarrhoeal disease incidence	18.1	11.0	9.8	10.3	18.4
	Diarrhoeal disease CFR (DHIS)	12.6	10.7	13.1	1.0	11.9
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	13.4
ARI	ARI incidence	130.3	94.9	91.5	95.4	85.8
	ARI CFR (DHIS)	8.9	10.3	8.9	4.4	17.8
	ARI IHMR (Child PIP)	-	-	-	-	7.7

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Other Nutritional				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Other Respiratory System				
IMR	Registered deaths (StatsSA)	281	315	200	-	-
	Hospital deaths (DHIS)	6	50	80	47	51
	Child PIP deaths in hospital - N°.	-	-	-	-	38
	IMR (StatsSA)	56.4	59.9	35.6		
	IHMR (DHIS)	3.4	18.9	25.0	22.6	13.8
	IHMR - Child PIP	-	-	-	-	8.0
	% deaths in hospital	46.3	-	41.0	-	-
U5MR	Registered deaths (StatsSA)	363	433	260	-	-
	Hospital deaths (DHIS)	70	110	67	76	67
	Child PIP deaths in hospital - N°.	-	-	-	-	60
	U5MR (StatsSA)	72.8	82.3	46.3	-	-
	IHMR (DHIS)	7.9	9.2	7.0	9.0	9.6
	IHMR - Child PIP	-	-	-	-	6.0
	% deaths in hospital	44.4	-	42.3	-	-
Modifiable factors	Child PIP Hospitals N°.	-	-	-	-	2
	% severe malnutrition	-	-	-	-	63.3
	% HIV Infected or Exposed	-	-	-	-	50.0
	% Deaths within 24 hrs	-	-	-	-	30.0
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 2	Growth not plotted correctly on RTHC				
	Top modifiable factors - Clinic/OPD - 3	Delayed referral for severe malnutrition, wt loss, or growth faltering				
	Top modifiable factors - A&E - 1	Inadequate assessment of dehydration				
	Top modifiable factors - A&E - 2	Inadequate treatment of shock				
	Top modifiable factors - A&E - 3	No mechanical intravenous flow controller available				
	Top modifiable factors - REF FAC - 1	NONE				
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1	No functioning pulse oxymeter				
	Top modifiable factors - Ward - 2	WHO `10 Steps` not followed for child with severe malnutrition				
	Top modifiable factors - Ward - 3	Inadequate monitoring of respiratory rate and/or oxygen saturation				

WESTERN CAPE

DC1: WEST COAST

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	2 460	2 460	2 460	2 460	2 460
	Population	297 645	391 773	400 438	409 412	418 608
	U5 Population	26 505	33 177	34 434	35 431	36 095
	U15 Population	82 758	104 953	105 400	105 845	106 038
	Annual births	5 983	5 694	5 735	5 130	-
	Deaths U1	139	170	128	-	-
	Deaths U5	159	200	162	200	-
Health system profile						
	N° PHC clinics	28	-	-	-	29
	N° CHCs	2	-	-	-	0
	N° 1° hospitals	7	-	-	-	7
	N° 2° hospitals	-	-	-	-	0
	N° 3°/4° hospitals	-	-	-	-	0
	N° Specialised hospitals	1	-	-	-	2
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	5.3	4.5	4.5	4.3	4.0
	ALOS	2.9	3.4	3.4	3.6	3.6
	Bed utilization rate	69.9	69.3	69.6	76.5	80.9
Health indicator						
EPI	Fully immunized @ 1 year	95.7	80.5	68.0	68.0	67.4
	DPT - Measles drop out	-486.0	-0.3	4.4	-277.7	-28.0
	Exclusively breastfed @ HepB 3	-	-	-	-	27.0
HIV / TB	PCR coverage	-	138.7	119.4	104.5	52.2
	PCR +ve @ 2 months	-	3.9	2.8	2.6	4.7
	Children U1 initiated on HAART	19	14	22	23	27
	TB contact U5 initiated on IPT	-	-	-	-	-
SAM	SAM incidence	3.0	2.0	1.4	1.4	1.5
	SAM CFR (DHIS)	9.3	4.7	3.2	6.7	6.3
	SAM IHMR (Child PIP)	14.3	0.0	4.8	3.8	2.2
GE	Diarrhoeal disease incidence	28.7	17.5	13.9	17.1	26.9
	Diarrhoeal disease CFR (DHIS)	0.3	0.9	0.8	0.7	0.1
	Diarrhoeal disease IHMR (Child PIP)	8.1	0.6	0.4	0.8	0.2
ARI	ARI incidence	41.7	43.0	41.0	32.9	32.5
	ARI CFR (DHIS)	1.1	0.6	0.4	-	-
	ARI IHMR (Child PIP)	15.8	0.0	0.2	0.5	0.2

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	NO DATA				
	Cause of death 2 - Child PIP					
	Cause of death 3 - Child PIP					
	Cause of death 4 - Child PIP					
	Cause of death 5 - Child PIP					
IMR	Registered deaths (StatsSA)	139	170	128	-	-
	Hospital deaths (DHIS)	43	35	34	44	36
	IHMR - Child PIP	3	4	8	19	9
	IMR (StatsSA)	23.2	29.9	22.3	-	-
	IHMR (DHIS)	2.4	1.7	1.6	1.9	1.4
	IHMR - Child PIP	5.0	0.9	0.7	11.6	0.5
	% deaths in hospital	48.2	-	45.3	-	-
U5MR	Registered deaths (StatsSA)	159	200	162	-	-
	Hospital deaths (DHIS)	37	41	38	47	36
	IHMR - Child PIP	3	6	19	40	10
	U5MR (StatsSA)	26.6	35.1	28.2	-	-
	IHMR (DHIS)	0.9	0.9	0.9	1.0	0.7
	IHMR - Child PIP	3.4	0.5	0.4	8.8	0.2
	% deaths in hospital	48.4	-	43.8	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	1	5	7	7	7
	% severe malnutrition	50.0	-	42.9	20.0	14.3
	% HIV Infected or Exposed	-	-	14.3	12.0	14.3
	% Deaths within 24 hrs	0.0	16.7	57.1	36.0	40.0
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Inadequate transport from home to nearest health facility				
	Top modifiable factors - Home - 3	Caregiver delayed seeking care				
	Top modifiable factors - Clinic/OPD - 1	Child`s growth problem inadequately identified or classified				
	Top modifiable factors - Clinic/OPD - 2	Delayed referral for severe malnutrition, wt loss, or growth faltering				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to growth faltering or failure				
	Top modifiable factors - A&E - 1	Emergency signs not recognised				
	Top modifiable factors - A&E - 2	NONE				
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1	Child not managed correctly in ambulance				
	Top modifiable factors - REF FAC - 2	Inadequate notes on transit care				
	Top modifiable factors - REF FAC - 3	Inadequate in-transit consumables in ambulance				
	Top modifiable factors - Ward - 1	Insufficient notes on clinical care				
	Top modifiable factors - Ward - 2	Basic laboratory investigations not available 24 hours a day				
	Top modifiable factors - Ward - 3	Other administrator modifiable factor				

DC2: CAPE WINELANDS

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	31 104	31 104	31 104	31 104	31 104
	Population	675 067	755 090	772 249	789 962	808 041
	U5 Population	60 278	70 922	72 667	73 771	74 601
	U15 Population	186 179	210 915	212 986	214 927	216 536
	Annual births	13 884	13 303	13 208	12 689	-
	Deaths U1	336	334	274	-	-
	Deaths U5	415	416	346	-	-
Health system profile						
	N° PHC clinics	55	-	-	-	65
	N° CHCs	3	-	-	-	0
	N° 1° hospitals	4	-	-	-	4
	N° 2° hospitals	3	-	-	-	2
	N° 3°/4° hospitals	-	-	-	-	0
	N° Specialised hospitals	2	-	-	-	3
	N° private hospitals	4	-	-	-	6
Service utilization						
	PHC U5 utilization rate	5.7	4.8	4.6	4.5	4.4
	ALOS	4.4	4.9	5.2	5.4	5.3
	Bed utilization rate	81.9	80.7	81.7	79.9	78.4
Health indicator						
EPI	Fully immunized @ 1 year	100.2	81.8	77.9	79.0	81.3
	DPT - Measles drop out	-576.0	-0.6	3.2	-289.0	-36.6
	Exclusively breastfed @ HepB 3	-	-	-	-	36.9
HIV / TB	PCR coverage	-	92.8	95.0	101.1	49.6
	PCR +ve @ 2 months	-	3.6	2.8	2.4	1.4
	Children U1 initiated on HAART	56	66	43	58	23
	TB contact U5 initiated on IPT	-	-	-	-	-
SAM	SAM incidence	5.0	4.1	2.9	2.8	2.8
	SAM CFR (DHIS)	2.5	2.9	6.3	5.3	2.8
	SAM IHMR (Child PIP)	6.7	7.5	10.5		3.6
					3.7	
GE	Diarrhoeal disease incidence	43.7	33.4	26.4	30.8	30.2
	Diarrhoeal disease CFR (DHIS)	0.4	0.5	0.1	0.2	0.3
	Diarrhoeal disease IHMR (Child PIP)	0.5	1.0	0.5	0.5	0.4
ARI	ARI incidence	108.5	51.5	56.4	52.0	44.5
	ARI CFR (DHIS)	0.2	0.7	0.5	0.0	0.3
	ARI IHMR (Child PIP)	0.3	0.8	0.4	0.4	0.4

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Pneumonia				
	Cause of death 2 - Child PIP	Septicaemia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	TB (all)				
	Cause of death 5 - Child PIP	Hypoglycaemia				
IMR	Registered deaths (StatsSA)	336	334	274	-	-
	Hospital deaths (DHIS)	95	117	157	111	106
	Child PIP deaths in hospital - N^{o}.	-	39	31	25	24
	IMR (StatsSA)	25.1	25.1	20.7	-	-
	IHMR (DHIS)	1.7	1.6	1.8	1.5	1.4
	IHMR - Child PIP	-	0.8	0.8	6.2	0.5
	% deaths in hospital	49.1	-	48.5	-	-
U5MR	Registered deaths (StatsSA)	415	416	346	-	-
	Hospital deaths (DHIS)	98	131	177	129	121
	Child PIP deaths in hospital - N^{o}.	40	57	78	65	38
	U5MR (StatsSA)	31.0	31.3	26.2	-	-
	IHMR (DHIS)	1.7	1.6	1.8	1.5	1.4
	IHMR - Child PIP	0.7	0.7	0.7	3.8	0.5
	% deaths in hospital	46.7	-	45.4	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	5	4	6	6	6
	% severe malnutrition	53.5	32.2	50.9	27.3	25.0
	% HIV Infected or Exposed	11.6	32.2	10.5	25.0	22.5
	% Deaths within 24 hrs	34.9	42.4	33.3	38.6	56.3
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 1	Inadequate response to danger signs				
	Top modifiable factors - Clinic/OPD - 2	Inadequate fluid management for diarrhoeal disease				
	Top modifiable factors - Clinic/OPD - 3	Not referred for ART				
	Top modifiable factors - A&E - 1	Lack of experienced doctors				
	Top modifiable factors - A&E - 2	Inadequate assessment of shock				
	Top modifiable factors - A&E - 3	Emergency signs not recognised				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	Delayed arrival of ambulance				
	Top modifiable factors - REF FAC - 3	Emergency or priority care not provided				
	Top modifiable factors - Ward - 1	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 2	Other administrator modifiable factor				
	Top modifiable factors - Ward - 3	New danger signs inadequately identified				

DC3: OVERBERG

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	22 309	22 309	22 309	22 309	22 309
	Population	216 530	253 302	259 653	266 109	272 624
	U5 Population	20 464	22 658	22 975	23 134	23 293
	U15 Population	59 612	67 667	68 367	68 990	69 505
	Annual births	2 733	2 837	2 763	2 765	-
	Deaths U1	79	92	84	-	-
	Deaths U5	93	129	106	-	-
Health system profile						
	N° PHC clinics	29	-	-	-	26
	N° CHCs	1	-	-	-	0
	N° 1° hospitals	4	-	-	-	4
	N° 2° hospitals	-	-	-	-	0
	N° 3°/4° hospitals	-	-	-	-	0
	N° Specialised hospitals	-	-	-	-	0
	N° private hospitals	1	-	-	-	1
Service utilization						
	PHC U5 utilization rate	5.7	6.0	6.4	6.1	4.7
	ALOS	3.0	3.0	3.3	3.2	3.3
	Bed utilization rate	65.0	62.8	74.9	79.1	75.7
Health indicator						
EPI	Fully immunized @ 1 year	92.6	79.6	73.9	75.7	78.8
	DPT - Measles drop out	-829.3	-11.0	5.6	-333.5	-46.8
	Exclusively breastfed @ HepB 3	-	-	-	-	52.5
HIV / TB	PCR coverage	-	125.9	121.4	113.5	57.9
	PCR +ve @ 2 months	-	1.7	1.9	1.8	2.1
	Children U1 initiated on HAART	11	8	11	10	6
	TB contact U5 initiated on IPT	-	-	-	-	-
SAM	SAM incidence	4.3	5.8	2.1	2.8	2.6
	SAM CFR (DHIS)	4.3	-	-	-	-
	SAM IHMR (Child PIP)	8.3	7.9	11.1	0.0	2.2
GE	Diarrhoeal disease incidence	22.2	22.1	13.8	18.8	15.2
	Diarrhoeal disease CFR (DHIS)	1.8	-	-	-	-
	Diarrhoeal disease IHMR (Child PIP)	0.0	2.0	0.4	0.3	
ARI	ARI incidence	162.7	162.2	182.5	139.2	78.8
	ARI CFR (DHIS)	0.4	-	-	-	-
	ARI IHMR (Child PIP)	0.7	0.2	0.0	0.3	0.0

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Diarrhoea				
	Cause of death 2 - Child PIP	Other Oncology/Haematology				
	Cause of death 3 - Child PIP	None				
	Cause of death 4 - Child PIP	None				
	Cause of death 5 - Child PIP	None				
IMR	Registered deaths (StatsSA)	79	92	84	-	-
	Hospital deaths (DHIS)	23	18	11	21	35
	Child PIP deaths in hospital - N^{o}.	12.0	6	6	6	-
	IMR (StatsSA)	28.5	32.4	30.4	-	-
	IHMR (DHIS)	3.4	2.0	1.0	1.7	2.7
	IHMR - Child PIP	0.9	1.3	0.9	3.8	-
	% deaths in hospital	38.0	-	29.8	-	-
U5MR	Registered deaths (StatsSA)	93	129	106	-	-
	Hospital deaths (DHIS)	27	18	13	22	36
	Child PIP deaths in hospital - N^{o}.	14	9	15	12	1
	U5MR (StatsSA)	33.5	45.5	38.4	-	-
	IHMR (DHIS)	1.7	0.9	0.5	0.9	1.5
	IHMR - Child PIP	0.5	0.6	0.6	2.0	0.1
	% deaths in hospital	34.4	-	28.3	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	4	4	4	4	4
	% severe malnutrition	-	36.4	33.3	16.7	50.0
	% HIV Infected or Exposed	26.7	27.3	11.1	16.7	-
	% Deaths within 24 hrs	40.0	27.3	44.4	50.0	-
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver unaware of child`s health history				
	Top modifiable factors - Home - 3	NONE				
	Top modifiable factors - Clinic/OPD - 1	NONE				
	Top modifiable factors - Clinic/OPD - 2					
	Top modifiable factors - Clinic/OPD - 3					
	Top modifiable factors - A&E - 1	NONE				
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1	No or delayed referral to higher level				
	Top modifiable factors - REF FAC - 2	NONE				
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1	NONE				
	Top modifiable factors - Ward - 2					
	Top modifiable factors - Ward - 3					

DC4: EDEN

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	11 405	11 405	11 405	11 405	11 405
	Population	482 878	557 523	566 753	576 228	585 833
	U5 Population	42 797	47 518	48 465	49 099	49 515
	U15 Population	133 084	151 258	151 281	151 097	150 678
	Annual births	9 965	9 608	9 402	8 937	-
	Deaths U1	235	182	185	-	-
	Deaths U5	281	226	224	-	-
Health system profile						
	N° PHC clinics	32	-	-	-	45
	N° CHCs	6	-	-	-	0
	N° 1° hospitals	6	-	-	-	6
	N° 2° hospitals	1	-	-	-	1
	N° 3°/4° hospitals	-	-	-	-	0
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	5	-	-	-	8
Service utilization						
	PHC U5 utilization rate	5.2	5.9	6.0	5.3	4.6
	ALOS	3.5	4.0	4.5	4.5	4.6
	Bed utilization rate	77.0	75.0	77.8	80.0	83.0
Health indicator						
EPI	Fully immunized @ 1 year	86.8	88.9	85.3	82.5	80.7
	DPT - Measles drop out	-797.9	-2.4	1.5	-306.8	-37.6
	Exclusively breastfed @ HepB 3	0.0	0.0	0.0	0.0	35.1
HIV / TB	PCR coverage	-	101.7	101.5	102.6	52.9
	PCR +ve @ 2 months	-	2.9	1.7	1.9	1.6
	Children U1 initiated on HAART	48	42	26	29	20
	TB contact U5 initiated on IPT	-	-	-	-	-
SAM	SAM incidence	4.2	3.9	2.7	3.7	4.2
	SAM CFR (DHIS)	8.1	3.2	1.0	-	6.1
	SAM IHMR (Child PIP)	0.0	2.8	5.8	2.2	0.6
GE	Diarrhoeal disease incidence	12.6	11.6	7.8	9.1	10.9
	Diarrhoeal disease CFR (DHIS)	1.5	0.9	0.8	0.3	0.5
	Diarrhoeal disease IHMR (Child PIP)	2.3	0.0	0.8	0.1	0.1
ARI	ARI incidence	25.3	31.3	26.8	26.4	36.2
	ARI CFR (DHIS)	0.5	0.5	0.0	0.0	0.0
	ARI IHMR (Child PIP)	0.0	0.5	0.6	0.6	0.2

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Pneumonia				
	Cause of death 2 - Child PIP	Septicaemia				
	Cause of death 3 - Child PIP	PCP				
	Cause of death 4 - Child PIP	Meningitis				
	Cause of death 5 - Child PIP	Other Nervous System				
IMR	Registered deaths (StatsSA)	235	182	185.0	-	-
	Hospital deaths (DHIS)	128	131	137	107	127
	Child PIP deaths in hospital - N^{o}.	1	11	25	26	18
	IMR (StatsSA)	23.6	18.9	19.7	-	-
	IHMR (DHIS)	2.8	3.3	3.3	2.5	3.1
	IHMR - Child PIP	0.6	0.9	1.2	1.9	0.5
	% deaths in hospital	46.6	-	46.5	-	-
U5MR	Registered deaths (StatsSA)	281	226	224.0	-	-
	Hospital deaths (DHIS)	132	156	150	120	134
	Child PIP deaths in hospital - N^{o}.	1	17	64	60	18
	U5MR (StatsSA)	28.2	23.5	23.8	-	-
	IHMR (DHIS)	1.6	1.9	1.8	1.5	1.7
	IHMR - Child PIP	1	0.6	0.7	1.1	0.2
	% deaths in hospital	48.8	-	43.8	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	2	4	6	6	7
	% severe malnutrition	26.7	10.0	31.7	19.5	25.0
	% HIV Infected or Exposed	50.0	25.0	22.0	17.1	30.0
	% Deaths within 24 hrs	0.0	20.0	29.3	31.7	44.4
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver did not take child to clinic for vaccines as scheduled				
	Top modifiable factors - Home - 3	Caregiver delayed seeking care				
	Top modifiable factors - Clinic/OPD - 1	Insufficient assessment for chronic illness				
	Top modifiable factors - Clinic/OPD - 2	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 3	Referred for ART but ART not initiated				
	Top modifiable factors - A&E - 1	Child not triaged (spent time in a queue)				
	Top modifiable factors - A&E - 2	Other clinical personnel modifiable factor				
	Top modifiable factors - A&E - 3	No A&E staff trained in ETAT/BLS/APLS				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	Child not managed correctly in ambulance				
	Top modifiable factors - REF FAC - 3	Emergency or priority care not provided				
	Top modifiable factors - Ward - 1	Lack of access to High Care and/or ICU facilities for children				
	Top modifiable factors - Ward - 2	Inadequate review of child with severe dehydration				
	Top modifiable factors - Ward - 3	New danger signs inadequately identified				

DC5: CENTRAL KAROO

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	23 331	23 331	23 331	23 331	23 331
	Population	64 953	68 306	69 235	70 218	71 231
	U5 Population	6 767	5 648	6 025	6 305	6 469
	U15 Population	20 833	19 886	19 766	19 600	19 347
	Annual births	1 184	1 174	1 104	1 110	-
	Deaths U1	48	36	38	-	-
	Deaths U5	61	47	45	-	-
Health system profile						
	N° PHC clinics	6	-	-	-	10
	N° CHCs	1	-	-	-	-
	N° 1° hospitals	4	-	-	-	4
	N° 2° hospitals		-	-	-	-
	N° 3°/4° hospitals		-	-	-	-
	N° Specialised hospitals	1	-	-	-	1
	N° private hospitals	-	-	-	-	-
Service utilization						
	PHC U5 utilization rate	6.4	7.2	6.4	5.4	5.1
	ALOS	5.3	5.8	6.6	6.7	6.6
	Bed utilization rate	59.2	53.2	50.3	52.6	59.6
Health indicator						
EPI	Fully immunized @ 1 year	100.8	90.8	68.4	65.5	61.9
	DPT - Measles drop out	-425.0	-6.9	7.0	-276.1	-33.0
	Exclusively breastfed @ HepB 3	-	-	-	-	38.8
HIV / TB	PCR coverage	-	59.3	81.3	93.3	42.3
	PCR +ve @ 2 months	-	0.0	4.6	1.2	0.0
	Children U1 initiated on HAART	1	2	7	0	1
	TB contact U5 initiated on IPT	-	-	-	-	-
SAM	SAM incidence	4.5	11.7	3.2	1.1	5.6
	SAM CFR (DHIS)	-	14.3	-	-	-
	SAM IHMR (Child PIP)	-	-	-	-	-
GE	Diarrhoeal disease incidence	18.2	18.2	39.5	12.2	16.2
	Diarrhoeal disease CFR (DHIS)	-	-	-	-	-
	Diarrhoeal disease IHMR (Child PIP)	-	-	-	-	0.4
ARI	ARI incidence	11.8	23.4	41.3	37.1	77.4
	ARI CFR (DHIS)	-	-	-	-	-
	ARI IHMR (Child PIP)	-	-	-	0.5	-

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Other diagnosis				
	Cause of death 2 - Child PIP	Diarrhoea				
	Cause of death 3 - Child PIP	Renal disease (acute & chronic)				
	Cause of death 4 - Child PIP	Other Respiratory System				
	Cause of death 5 - Child PIP	Meningitis: viral (meningo-encephalitis)				
IMR	Registered deaths (StatsSA)	48	36	38	-	-
	Hospital deaths (DHIS)	11	20	14	17	11
	Child PIP deaths in hospital - N^{o}.	-	-	0	5	2
	IMR (StatsSA)	40.5	30.7	34.4	-	-
	IHMR (DHIS)	1.6	4.0	3.0	2.9	1.7
	IHMR - Child PIP		-	2.0	7.2	1.2
	% deaths in hospital	43.8	-	47.4	-	-
U5MR	Registered deaths (StatsSA)	61	47	45	-	-
	Hospital deaths (DHIS)	10	22	17	17	16
	Child PIP deaths in hospital - N^{o}.		-	-	8	9
	U5MR (StatsSA)	51.5	40.0	40.8	-	-
	IHMR (DHIS)	0.9	2.4	1.8	1.4	1.2
	IHMR - Child PIP		-	1.0	3.9	0.9
	% deaths in hospital	44.3	-	44.4	-	-
Modifiable factors	Child PIP Hospitals N$^{o.}$	0	-	4	4	4
	% severe malnutrition	-	-	-	-	-
	% HIV Infected or Exposed	-	-	-	16.7	18.2
	% Deaths within 24 hrs	-	-	100.0	66.7	66.7
	Top modifiable factors - Home - 1	Other administrator modifiable factor				
	Top modifiable factors - Home - 2	Unsafe home environmnet (e.g. open flames)				
	Top modifiable factors - Home - 3	Insufficient notes on child`s health history				
	Top modifiable factors - Clinic/OPD - 1	Danger signs missed				
	Top modifiable factors - Clinic/OPD - 2	No follow up for child`s nutrtional problem				
	Top modifiable factors - Clinic/OPD - 3	NONE				
	Top modifiable factors - A&E - 1	NONE				
	Top modifiable factors - A&E - 2					
	Top modifiable factors - A&E - 3					
	Top modifiable factors - REF FAC - 1	NONE				
	Top modifiable factors - REF FAC - 2					
	Top modifiable factors - REF FAC - 3					
	Top modifiable factors - Ward - 1	Inadequate response to new danger signs				
	Top modifiable factors - Ward - 2	NONE				
	Top modifiable factors - Ward - 3					

CITY OF CAPE TOWN

Indicator	Data Items	2009	2010	2011	2012	2013
Demographic profile						
	Size	38 854	38 854	38 854	38 854	38 854
	Population	3 302 425	3 656 003	3 723 769	3 792 088	3 860 588
	U5 Population	306 659	352 213	351 155	346 352	342 152
	U15 Population	895 736	3 656 003	3 723 769	3 792 088	3 860 588
	Annual births	73 470	71 582	70 058	67 770	-
	Deaths U1	1 591	1 590	1 198	-	-
	Deaths U5	1 922	1 963	1 514	-	-
Health system profile						
	N° PHC clinics	110	-	-	-	137
	N° CHCs	43	-	-	-	11
	N° 1° hospitals	7	-	-	-	9
	N° 2° hospitals	4	-	-	-	5
	N° 3°/4° hospitals	-	-	-	-	3
	N° Specialised hospitals	12	-	-	-	9
	N° private hospitals	23	-	-	-	36
Service utilization						
	PHC U5 utilization rate	4.6	4.1	4.2	4.0	3.8
	ALOS	6.8	7.0	7.3	8.0	7.5
	Bed utilization rate	83.5	81.5	84.2	85.9	86.4
Health indicator						
EPI	Fully immunized @ 1 year	107.9	88.6	89.1	95.8	91.0
	DPT - Measles drop out	-529.0	-23.7	-1.4	-298.0	-46.3
	Exclusively breastfed @ HepB 3	-	-	-	-	11.0
HIV / TB	PCR coverage	-	95.2	85.2	96.7	50.3
	PCR +ve @ 2 months	-	3.0	1.8	1.4	1.7
	Children U1 initiated on HAART	-	-	-	-	-
	TB contact U5 initiated on IPT	-	-	-	-	-
SAM	SAM incidence	6.5	3.1	3.3	2.8	2.2
	SAM CFR (DHIS)	3.3	0.7	2.3	6.1	2.9
	SAM IHMR (Child PIP)	1.0	6.4	3.6	3.5	1.3
GE	Diarrhoeal disease incidence	37.6	20.8	14.8	13.7	12.7
	Diarrhoeal disease CFR (DHIS)	0.2	0.2	0.1	0.2	0.1
	Diarrhoeal disease IHMR (Child PIP)	0.3	1.7	0.8	0.5	0.5
ARI	ARI incidence	97.9	69.5	73.1	66.5	75.5
	ARI CFR (DHIS)	0.2	0.9	0.5	1.0	0.8
	ARI IHMR (Child PIP)	0.4	1.7	0.8	0.7	0.6

Indicator	Data Items	2009	2010	2011	2012	2013
Mortality	Cause of death 1 - Child PIP	Septicaemia				
	Cause of death 2 - Child PIP	Pneumonia				
	Cause of death 3 - Child PIP	Diarrhoea				
	Cause of death 4 - Child PIP	Other Nervous System				
	Cause of death 5 - Child PIP	Congenital Heart Disease				
IMR	Registered deaths (StatsSA)	1 591	1 590	1 198	-	-
	Hospital deaths (DHIS)	674	688	681	756	705
	Child PIP deaths in hospital - N°.	231	266	188	195	173
	IMR (StatsSA)	21.7	22.2	17.1	-	-
	IHMR (DHIS)	3.4	3.0	2.8	2.9	2.0
	IHMR - Child PIP	1.5	1.7	1.2	1.1	1.0
	% deaths in hospital	53.0	-	47.7	-	-
U5MR	Registered deaths (StatsSA)	1 922	1 963	1 514	-	-
	Hospital deaths (DHIS)	754	822	792	869	810
	Child PIP deaths in hospital - N°.	337	385	469	484	268
	U5MR (StatsSA)	26.2	27.4	21.6	-	-
	IHMR (DHIS)	2.4	2.3	2.0	2.1	1.6
	IHMR - Child PIP	1.1	1.3	0.9	0.6	0.8
	% deaths in hospital	50.9	-	44.8	-	-
Modifiable factors	Child PIP Hospitals N°.	6.0	7	7	8	9
	% severe malnutrition	19.3	18.1	16.0	117.0	12.2
	% HIV Infected or Exposed	30.5	25.1	19.8	18.0	20.4
	% Deaths within 24 hrs	34.4	26.0	29.5	32.0	31.9
	Top modifiable factors - Home - 1	Caregiver did not recognise danger signs/severity of illness				
	Top modifiable factors - Home - 2	Caregiver delayed seeking care				
	Top modifiable factors - Home - 3	Child not provided with adequate (quality and/or quatity) food				
	Top modifiable factors - Clinic/OPD - 2	Inadequate response to growth faltering or failure				
	Top modifiable factors - Clinic/OPD - 3	Inadequate response to danger signs				
	Top modifiable factors - A&E - 1	Inadequate history taken				
	Top modifiable factors - A&E - 2	Inadequate paediatric resuscitation area				
	Top modifiable factors - A&E - 3	Lack of access to Intensive and High Care beds				
	Top modifiable factors - REF FAC - 1	Severity of child`s condition incorrectly assessed				
	Top modifiable factors - REF FAC - 2	Child not managed correctly in ambulance				
	Top modifiable factors - REF FAC - 3	No or delayed referral to higher level				
	Top modifiable factors - Ward - 1	New danger signs inadequately identified				
	Top modifiable factors - Ward - 2	Inadequate response to new danger signs				
	Top modifiable factors - Ward - 3	Lack of access to High Care and/or ICU facilities for children				

APPENDIX 4: COMMITTEE MEMBERS

Chairman:		
Dr N McKerrow	2011 - 2014	Provincial Specialist: Paediatrics & Child Health, Department of Health, KwaZulu-Natal
Deputy Chairs:		
Dr M Mulaudzi	2011 - 2014	Senior Specialist, Department of Paediatrics, Kalafong Hospital, Gauteng
Members:		
Prof G Boon	2011 - 2014	Principal Specialist & Head: Department of Paediatrics & Child Health, East London Hospitals Complex, Eastern Cape
Dr A Ferris	2013	District Paediatrician, Pixley ka Seme District, Northern Cape
Dr B Gaede	2011 - 2014	Director, Centre for Rural Health, University of KwaZulu-Natal
Ms F N Mabuza	2011 - 2014	Paediatric Nurse, Shongwe Hospital, Mpumalanga
Dr S Matela	2011 - 2014	Provincial Specialist: Paediatrics, Department of Health, Free State
Dr O Mekgoe	2011	Principal Specialist, Department of Paediatrics, Klerksdorp Hospital, North West
Dr F Mothebe	2011 – 2014	Principal Specialist & Head: Department of Paediatrics, Bethlehem Hospital, Free State
Dr V Mubaiwa	2011 – 2014	Manager MNCWH, DoH, KwaZulu-Natal
Ms L Napoles	2011	Nutritionist, School of Health Systems and Public Health, University of Pretoria
Dr A Njie	2012 - 2014	Head of Clinical Unit: Family Medicine, Ngaka Modiri Molema District, North West Province
Dr A Robertson	2011 – 2014	Principal Specialist, Polokwane Hospital, Limpopo
Prof H Saloojee	2011 – 2014	Head: Division of Department of Paediatrics & Child Health, University of Witwatersrand
Ms G Thabapelo	2011 - 2012	Paediatric Nurse and Provincial IMCI Manager, Northern Cape.
Prof A Venter	2011 – 2014	Chief Specialist & Head, Department of Paediatrics & Child Health, University of the Free State
Prof A Westwood	2011 - 2014	Head of Clinical Department: Department of Paediatrics, New Somerset Hospital and Metro West, Western Cape

Logistics & support:

Prof L Bamford	2011 – 2014	Senior Specialist, Child & Youth Health Directorate, NDOH
Ms S Ngake	2011 - 2014	Child & Youth Health Directorate, NDOH
Ms E Maseti	2011 - 2014	Child & Youth Health Directorate, NDOH
Ms A Ngqaka	2013 – 2014	Nutrition Directorate, NDOH
Ms K Moodley	2011 – 2014	Personal Assistant, Dr N McKerrow – Committee Chairperson
Ms L Slade	2011 - 2014	Secretary, Child & Youth Health Directorate, NDOH