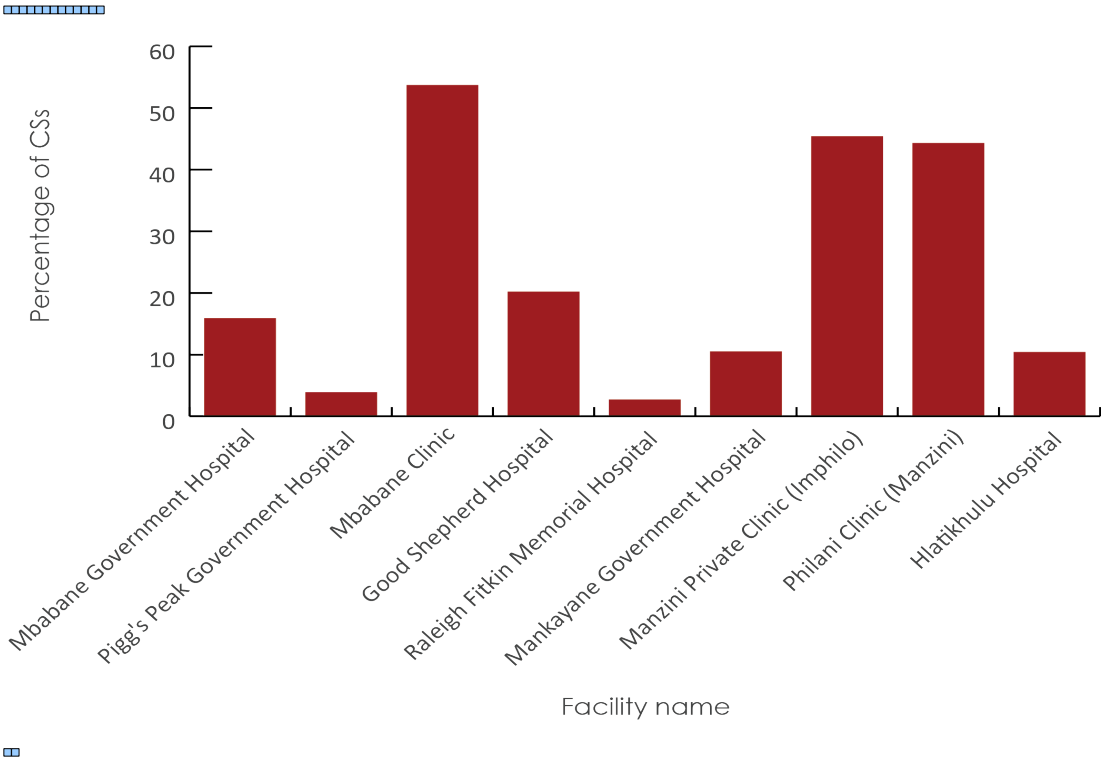

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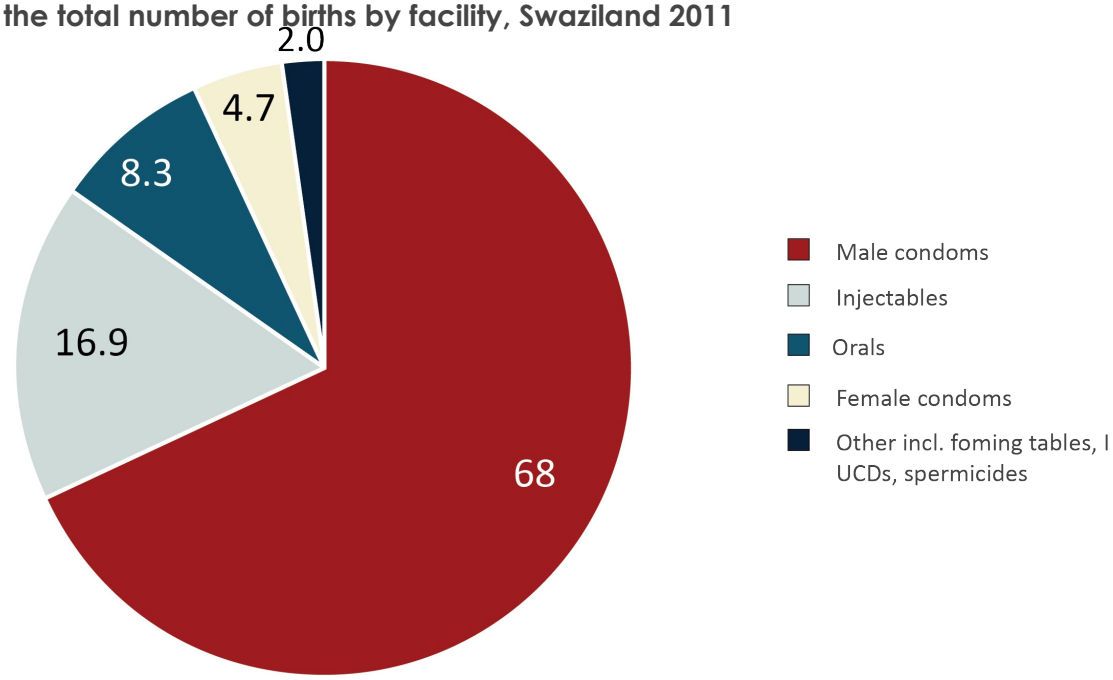

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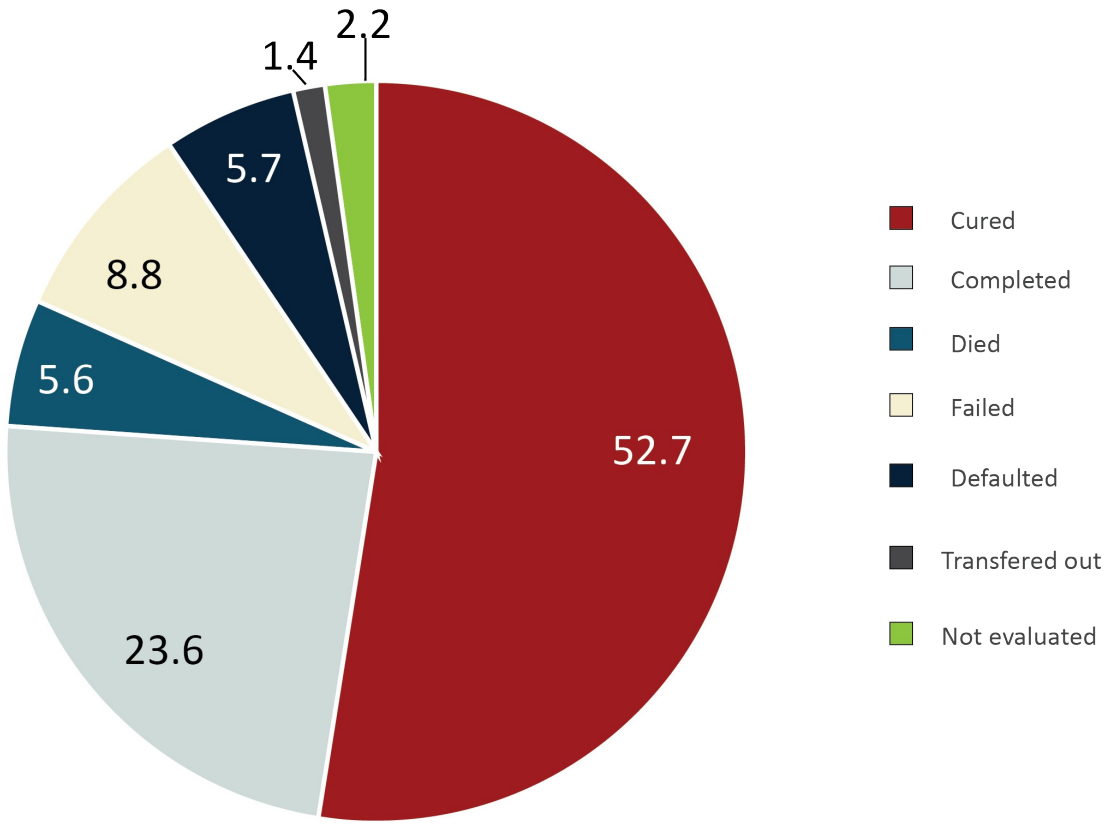

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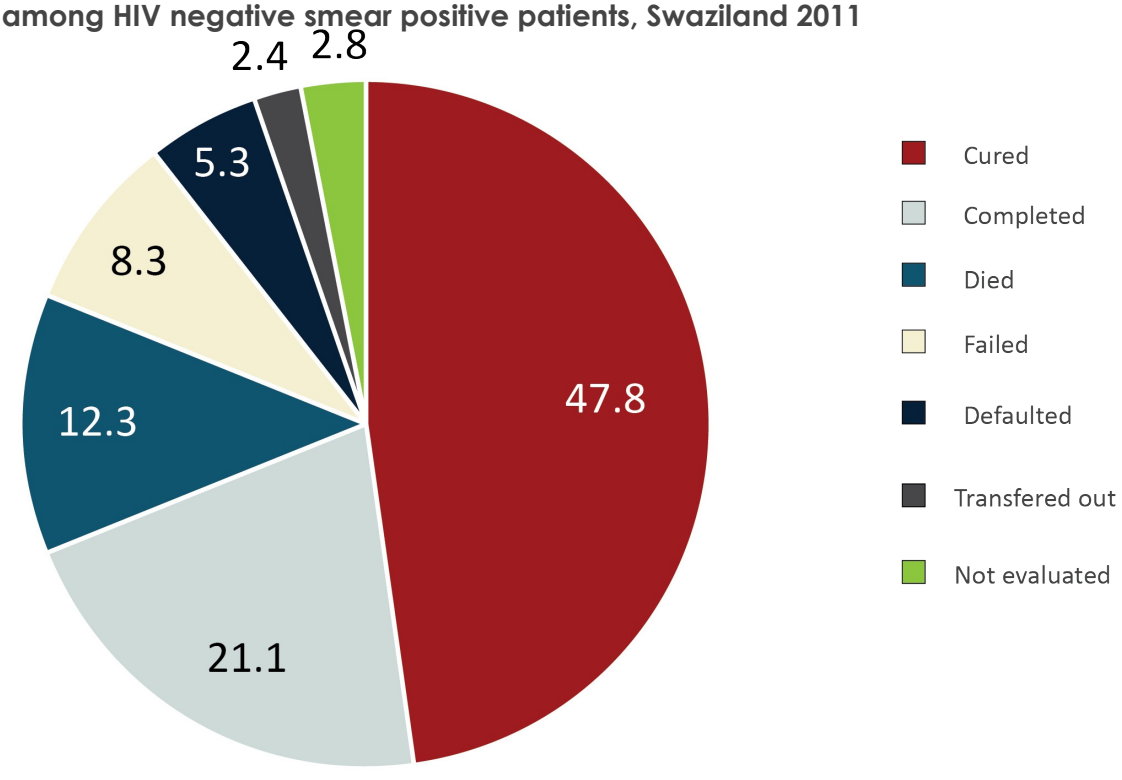

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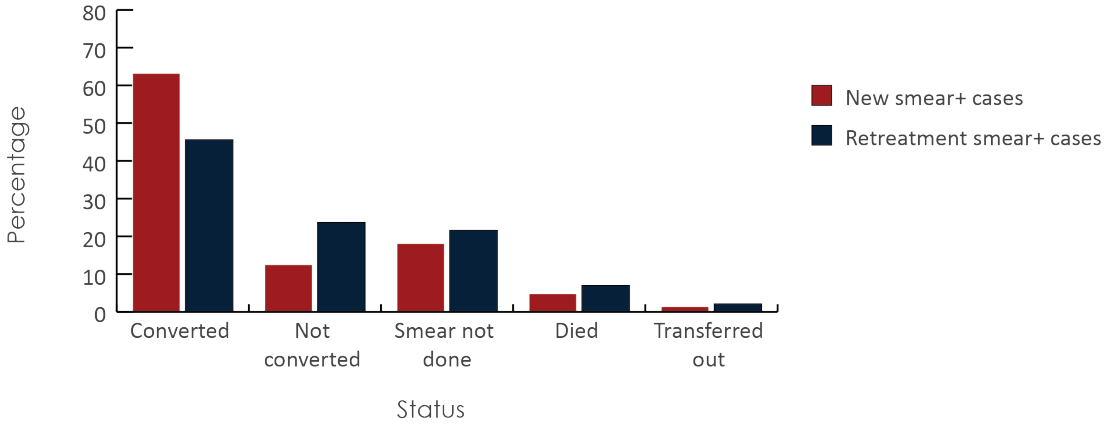

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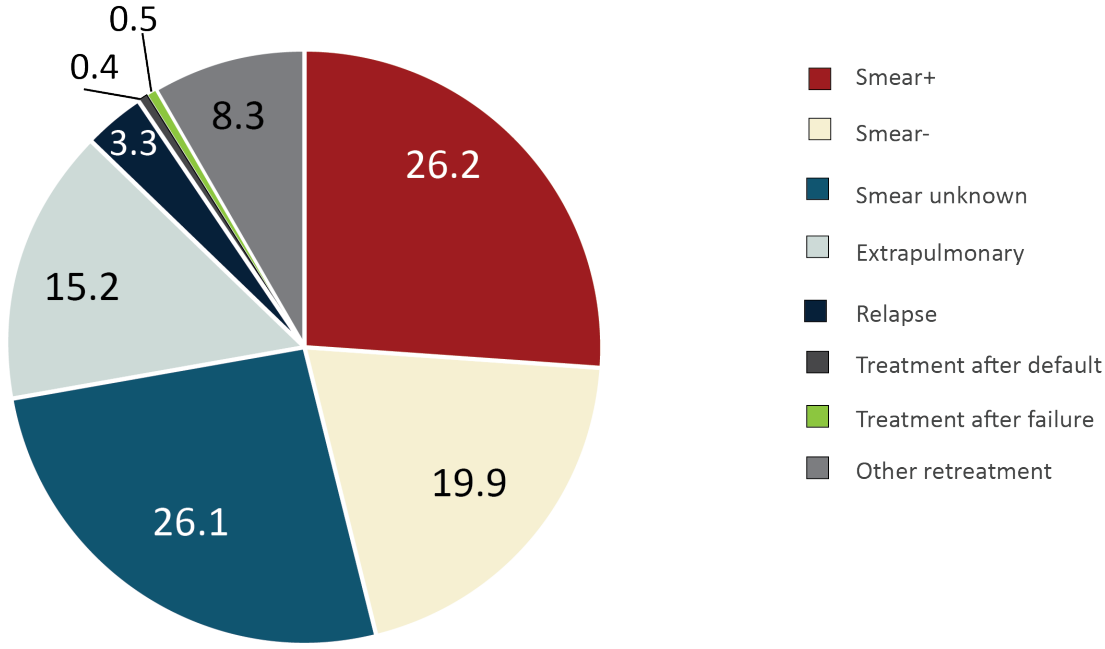

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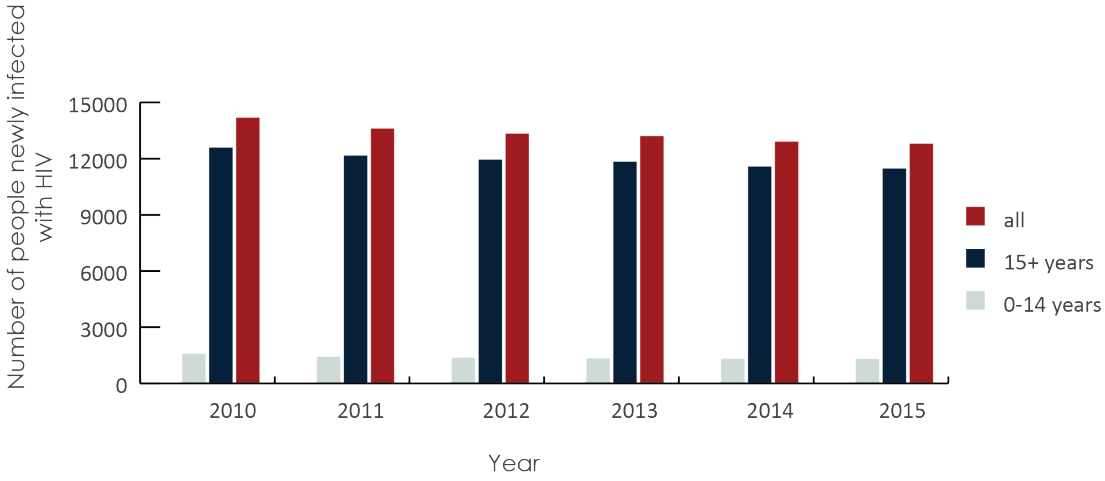

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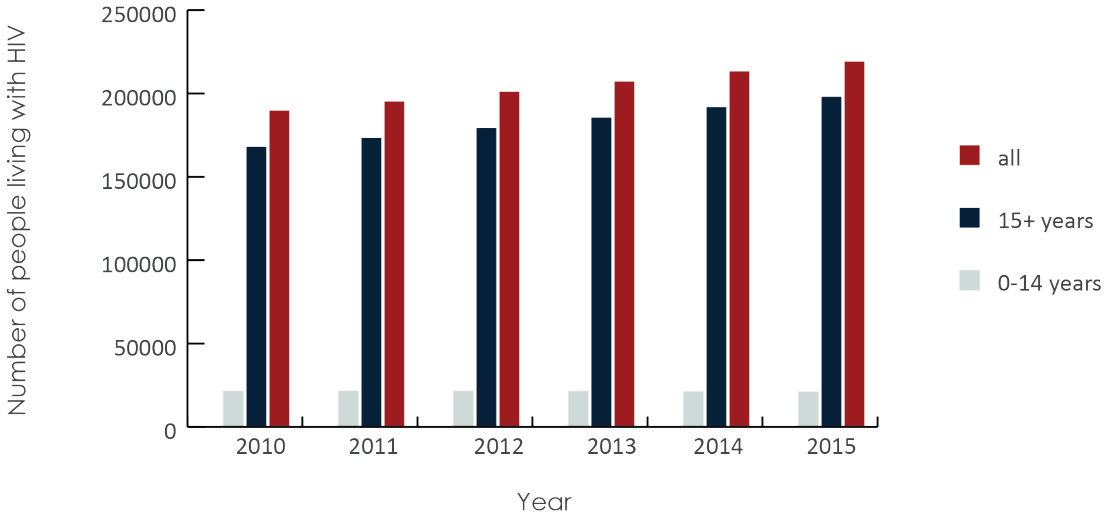

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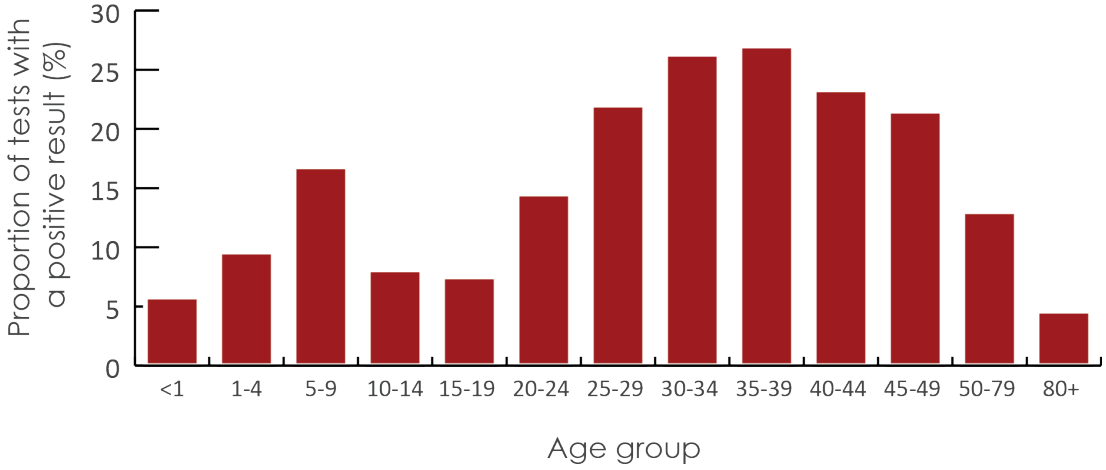

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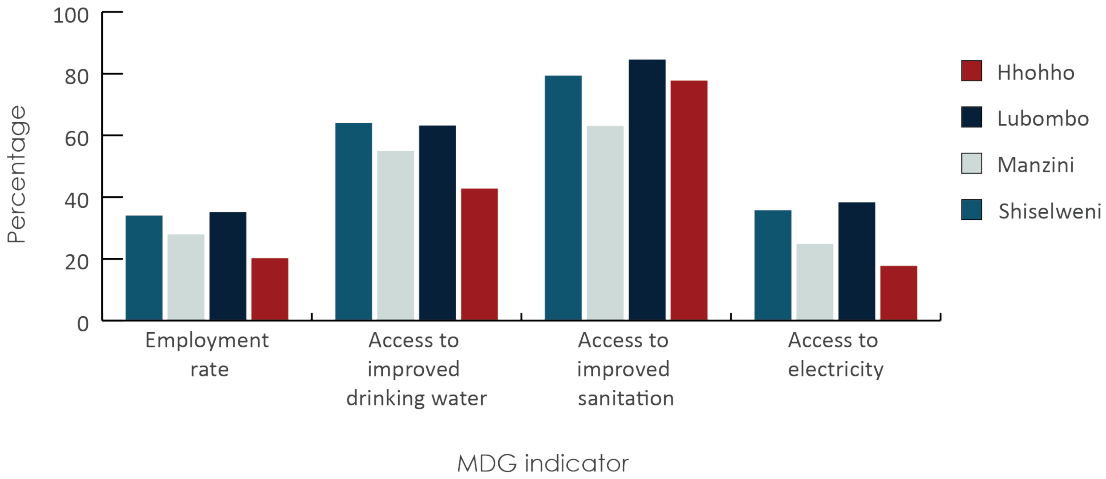

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Ministry of Health

Annual Health Statistics Report 2011

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1. Abbreviations and acronyms

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral Therapy
ARV	Antiretroviral
AZT	Zidovudine
BCG	Bacillus Calmette-Guérin, tuberculosis vaccine
CD4	Cluster Designation 4
CI	Confidence Interval
CNR	Case Notification Rate
CS	Caesarean Section
DNA	Deoxyribonucleic Acid
DTP	Diphtheria, Tetanus and Pertussis vaccine
EPI	Expanded Programme on Immunization
HepB	Hepatitis B vaccine
Hib	Haemophilus influenzae type B *vaccine*
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HRIS	Human Resources Information System
HTC	HIV Testing and Counselling
IUCD	Intra-uterine Contraceptive Device
MC	Male Circumcision
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey
MTCT	Mother-to-child Transmission
N/n/No	Number
NCD	Non-Communicable disease
NGO	Non-Governmental Organization
OPD	Outpatient Department
PMTCT	Prevention of Mother-to-child Transmission
PCR	P*olymerase Chain Reaction*
SD	Standard Deviation
Sd-NVP	Single dose Nevirapine
SHIES	Swaziland Household Income and Expenditure Survey
SID	Strategic Information Department
STI	Sexually Transmitted Infections
TB	Tuberculosis
UNGASS	United Nations General Assembly Special Session
VAC	Vulnerability Assessment Committee
WHO	World Health Organization
+	positive (e.g. HIV+ is HIV positive)
-	negative (e.g. HIV- is HIV negative)

2. Foreword

The Annual Health Statistics Report 2011 has been made possible thanks to support from the United States Agency for International Development (USAID) to the Swaziland Enhancing Strategic Information (ESI) project This report is similar to an earlier one: both reports published data from 2010 and provide an overview of key health statistics from routine data collection systems from the Ministry of Health. However, changes have been made in order to make the information provision clearer, for example by: adding an executive summary and a references section; re-structuring the position of different indicators (out- and inpatient statistics under health services instead of morbidity); combining data from different sources (routine data, modelling exercises, population survey) per topic; focussing not only on numbers, but also on proportions if possible.

The findings of this report indicate significant achievements, but also continue to highlight that much more is still needed. We are committed to continuing the publication of this and similar reports related to different programs (e.g. HIV testing and counselling, antiretroviral treatment, prevention of mother-to-child transmission). It is only through monitoring these statistics that we are able to adapt our strategies in the direction that is needed.

The Ministry of Health would like to acknowledge the contributions of the following institutions and individuals who made it possible for us to compile this year's report:

- The staff of the Strategic Information Department who provided input on the proposed outline of this report, provided the datasets as well as reports published by the Ministry of Health, and gave feedback on the draft version of this report.
- The staff of IHM, especially Bheki Mamba, who provided input on the proposed outline of this report, provided reports compiled by IHM or other relevant organisations, as well as gave feedback on the draft version of this report.
- Dr. Annette Gerritsen, epidemiology consultant Epi Result, who made and presented the proposal for the content of the report, analysed the datasets and reports based data and wrote the report.
- All staff of the Ministry of Health or other health facilities that were involved in the data collection and management.

3. Executive summary

Comprehensive, up to date and precise health information is essential for formulating health policy and for planning to meet the demand for appropriate health services and interventions in order to improve and promote the well-being of the population. The objective of this 2011 Annual Health Statistics Report is to present information on key health statistics from routine data collection systems from the Ministry of Health, supplemented by data from other sources, at national as well as regional level.

The main data sources used are: Health Management Information System (HMIS) (in- and outpatient data); Immediate disease notification system; HIV/AIDS datasets; Tuberculosis (TB) datasets; Human Resources Information System (HRIS). Analyses focused on the 2011 data, but where relevant data were available, data for 2010 and 2009 are also presented for comparison purposes (identifying trends). Furthermore, if considered relevant and data were available, results are presented for the different regions (Hhohho, Lubombo, Manzini, Siselweni) or different facilities, and by age and sex.

The most important findings of the report are the following:

- HIV/AIDS and TB place a huge burden on the health system (both mortality and morbidity).
- The number of HIV positive tests has decreased over the past three years, but due to improvements in treatment (provision) the number of people living with HIV/AIDS will continue to increase.
- It is of concern that the number of initiations on antiretroviral treatment (ART) was lower in 2011 compared to 2010, probably due to a stock out of CD4 reagents and of ARTs. Furthermore, the estimated coverage of ART among children (52.9%) is below the target of 80%.
- Although 90.7% of women attending antenatal care (ANC) and eligible for HIV testing are tested, the ultimate goal is to test all eligible women, especially in the light of the high ANC HIV prevalence.
- Ideally, all HIV positive women should undergo a CD4 count and receive their results. This was however not the case in 2011; about two-thirds were tested and of those again about two-thirds received the results (with the latter partly being due to reagent stock out). Furthermore, all HIV positive women should either be put on ART if they are eligible and otherwise receive prophylaxis to avoid mother-to-child transmission. Although there is

an increasing trend to treat HIV positive women through these routes (from 69% in 2009 to 86.3%) it has not reached 100% yet.

- The TB case notification rate shows a downward trend (1 057 to 860 per 100 000). An increasing percentage of TB patients are screened for HIV, although with coverage of 91.7% the target of 100% has not yet been reached. The number of co-infections with HIV seems to be decreasing (from 83.4% in 2009 to 77.0% in 2011). However, treatment success is not optimal, and

lower for those that are HIV positive (68.9%) compared to those that are HIV negative (76.4%).

- More women should attend ANC earlier in pregnancy (as recommended) as well as attend postnatal care in the first week (as recommended). Currently these figures are 13.3% and 58.7%, respectively.
- Ideally all births should be attended skilled birth attendant. Currently 97.8% of births in health facilities are supported in this way and the target is for this level of coverage to be matched for deliveries outside formal health settings.
- In 2011 fewer male circumcisions (MCs) were performed than in 2010. This marks an end to the previous increasing trend. As MC is an effective way to prevent HIV transmission, effort to circumcise as many HIV negative men in the population as possible should continue.
- It seems that (severe) underweight is becoming less of a problem in the country compared to overweight among children under 5. Figures go from 1.2% to 10.7% of the children being overweight, which has considerable potential health implications at a later age, e.g. cardiovascular diseases and diabetes.
- Although the coverage of the different childhood immunizations has increased over the years (in 2011 between 78.3% and 91.1% depending on the type of vaccination), ideally all children should be reached.

Despite all efforts to ensure that this report contains a comprehensive and accurate overview of the health statistics available for 2011, it does have its limitations: data are facility, not population based; completeness of the reporting depends heavily on data collection by facility staff; some data are only available on an aggregated level, not on patient level; the system also lacks information on the correct denominator; sometimes different sources give different figures.

Despite the limitations, the information in this report about diseases presented in health facilities will enable more effective planning to meet the demand.

Furthermore, the same data are compared over time, which makes it possible to monitor any changes. Based on the information provided prevention efforts and improvements in treatment (provision) can be initiated and again the effects monitored over time.

Based on the above, the following recommendations can be made: there should be continuous efforts to improve the routine data collection systems; it is important that the compilation of this report should be continued in the future in order to detect any changes over time and that the results of this publication should be widely distributed to all interested stakeholders; more population research and improved data collection is needed to get an overview of the burden of NCDs.

4. 1. Introduction

1.1 Background/Rationale

Health statistics provide information to support the understanding, monitoring and improvement of the health (and hence the well-being) of the people in the country. Comprehensive, up to date and precise health information is essential for the formulation of health policy and to plan to meet the demand for appropriate health services and interventions in order to improve and promote the well-being of the population.

In the National Health Sector Strategic Plan 2008-2013 (1) one of the strategic priorities is to strengthen policy, planning, monitoring and evaluation systems. This is to ensure sustained improvement in the functioning and performance of the health sector. This is particularly important in the context of the declining health status of the population and inadequacy of government resources to support health care. More importantly, the desire to ensure universal equitable access to minimum standards of health services makes the need for reliable and evidence-based policy, planning, monitoring and evaluation systems urgent.

The Ministry of Health is a producer and user of health statistics. It is committed to streamlining and integrating its data collection processes, in order to reduce the number of data collection tools used by facilities and to simplify the flow of information throughout the health sector. Its role also comes with the obligation to disseminate health statistics to inform the public, health institutions and other interested stakeholders about key health issues.

1.2 Objective

The 2011 Annual Health Statistics Report presents information on key health statistics from routine data collection systems from the Ministry of Health, supplemented by data from other sources, at national as well as regional level.

5. 2. Data sources, management and analysis

2.1 Data sources

As the aim of the Annual Health Statistics Report is to disseminate data collected by the Ministry of Health, the main data sources are the different routine data collection systems maintained by the Ministry. These data collection systems cover not only health facilities managed by the Ministry itself, but also Mission and private-sector health facilities. The datasets include:

- Health Management Information System (HMIS). This includes routinely collected data from the Admission and discharge sheet (inpatient data) as well as from the Integrated monthly summary sheet (version 2) (outpatient data) and is managed by the Ministry's Health Statistics Unit. The inpatient data give information on e.g. the final diagnosis of the admission to the facility and discharge status (including death). Furthermore, information on births can be found here (e.g. antenatal care use, still births, type of delivery, attendant at birth, discharge status). The outpatient data cover different aspects: outpatient morbidity (OPD register), antenatal and postnatal care, child growth monitoring, family planning services and commodities, Expanded Programme for Immunization (EPI).

- Immediate disease notification system. This includes data on perinatal and maternal deaths, and cases of measles, malaria and cholera.

- HIV/AIDS datasets. This includes
- Datasets containing information on HIV Testing and Counselling (HTC), anti-retroviral treatment (ART) service provision, the prevention of mother-to-child treatment (PMTCT), and male circumcision (MC).

- TB datasets. This includes datasets containing information on case finding, treatment outcomes and sputum conversion.

- Human Resources Information System (HRIS). This system is developed by the Ministry's HMIS and updated by the Personnel Unit. It includes information on the number of established and vacant posts within the Ministry of Health.

The text, tables and figures all include a description of the source of the data presented.

2.2 Data management

To ensure the completeness of the data used in compiling this report, the Strategic Information Department (SID) has employed regional officers who are responsible for receiving monthly summary sheets (paper sheets) and capturing data from all health facilities in the country that are reporting to the Ministry of Health. The regional officers make follow-ups with the facilities to make sure that all the data collection tools are submitted and the data is captured in the designated applications.

To ensure improved data quality regional officers go through the submitted data collection tools checking them for any errors and where necessary contact the facility staff in order to make the necessary corrections on the submitted tools. During meetings with the health facilities the regional officers use the submitted data to create reports for the facilities as a way of giving feedback. This encourages the administrators to maintain collaborative relationships with the staff responsible for the data collection, thereby improving the quality of the data collected.

SID has engaged its systems developers to include some validation rules on the data collection applications that ensure that all data entered in the systems databases are within a certain range, as part of the overall quality improvement structure.

2.3 Data analysis

All analysis took place using Microsoft Office Excel, with data being made available to the team in that format, which was. Analyses focused on the 2011 data, but where additional data were available for 2010 and 2009 they are also presented for comparison purposes and to identify trends. Furthermore, if considered relevant and data were available, results are presented for the different regions (Hhohho, Lubombo, Manzini, Shiselweni) or different facilities, and by age (e.g. adults 15+ years, children <15 years, children under 5) and sex.

In general, numbers of cases/patients are given, and if a correct denominator was available, proportions are also given, typically percentages or per 1 000. Population figures are generally from the Swaziland population projections 2007-2030 (2).

For comparison purposes, as well as to give additional information that was not available from the data collected by the Ministry of Health, data from reports have been presented. These are

referenced in the text, tables and figures.

6. 3. Demographic, socio-economic and health

7. (Risk) indicators

In order to place the results on the health (service) indicators in a better perspective, Table 1 presents data on some demographic characteristics of the country for 2011 from the Swaziland population projections 2007-2030 (2). When comparing these data with data from the World Health Statistics 2012 report (3), Swaziland has a lower total fertility rate compared to the average of the World Health Organization (WHO) Africa region (3.7 versus 4.8) and a lower crude birth rate 31.3 versus 38.3. The life expectancy at birth in Swaziland is lower than the average of the WHO Africa region (45.2 versus 54), the infant mortality rate higher (100.5 versus 75), the under 5 mortality rate higher (146.3 versus 119) and the crude death rate higher (17.6 versus 12.3).

Table . Selected demographic characteristics, Swaziland 2011

Indicator	Value
Population	
Total population	1 067 773
Women	52.6% of total population
0-4 years	13.0% of total population
5-14 years	24.5% of total population
15+ years	62.5% of total population
Hhohho	28.1% of total population
Lubombo	20.3% of total population
Manzini	32.0% of total population
Shiselweni	19.6% of total population
Fertility	
Total fertility rate	3.7 children born to a woman by the end of her childbearing period
Crude birth rate	31.3 per 1 000
Mortality	
Life expectancy at birth	45.2 years
Infant mortality rate	100.5 per 1 000

Under 5 mortality rate	146.3 per 1 000
Crude death rate	17.6 per 1 000

Source: Swaziland population projections 2007-2030 (2)

Table 2 gives data on socio-economic and health (risk) indicators from the Multi Indicator Cluster Survey (MICS) 2010 (4) that are either related to the Millennium Development Goals (MDGs) or considered relevant in the context of this report. According to the World Health Statistics 2012 report (3), Swaziland has a lower adolescent birth rate compared to the average of the WHO Africa region (89 versus 117) and the unmet need for family planning is lower (13% versus 25%). Furthermore, compared to the average of selected countries, the comprehensive knowledge about HIV for young women is higher (58.2% versus 27%), and also for young men (53.6% versus 34%). According to the MDGs report 2011 (5), the literacy rate among young people is high in Swaziland compared to sub-Saharan Africa (94.2% women/90.9% men versus 72% overall); the primary school net attendance ratio is also above average for the region (96.5% versus 89%).

Table . Selected socio-economic and health (risk) indicators, Swaziland 2010

Indicator	Value
Children under age 5 sleeping under insecticide-treated nets	1.5%
Anti-malarial treatment of children under age 5	1.7%
Adolescent birth rate	89 per 1 000
Unmet need reproductive health	13.0%
Literacy rate among young women	94.2%
Literacy rate among young men	90.9%
Primary school net attendance ratio (adjusted)	96.5%
Children reaching last grade of primary	92.7%
Comprehensive knowledge about HIV prevention among women 15-24 years	58.2%
Comprehensive knowledge about HIV prevention among men 15-24 years	53.6%

Source: MICS 2010 (4)

Finally, Figure 1 gives an impression of the development level of each of the four regions by presenting data on four MDG indicators (based on Census 2007 and Swaziland Household Income and Expenditure Survey (SHIES) 2009/10 results) (6). Hhoho (including the capital Mbabane) and Manzini score higher on each of these MDG indicators, compared to Lubombo and Shiselweni.

8. 4. Health status indicators

4.1 Mortality

Based on the discharge status shown on the admission and discharge sheet, the HMIS indicated that out of 63 150 admissions in 2011, 7.8% (4 927) were dead on discharge (in 2010 this was 8.9% and in 2009 8.8%).19.0% (937) of those that were dead on discharge had a final admission diagnosis of AIDS and 17.0% (838) of pulmonary tuberculosis (TB). There are small differences in the percentage dead on discharge by region, with Lubombo having the highest percentage (8.9%), followed by Manzini (8.4%), Shiselweni (7.5%) and Hhohho (6.8%). The percentage of dead on discharge was higher for men (13.3%) compared to women (5.6%). Furthermore, the percentage dead on discharge was similar for adults (15+ years) and children (<15 years) (7.9% and 7.8% respectively), but higher for children under 12 months of age (11.5%).

Also based on the discharge status shown on the admission and discharge sheet, the HMIS indicated that out of 20 500 deliveries in 2011, 204 (1.0%) were still births (in 2010 this was 1.5% and in 2009 0.7%). There were small differences in the percentage of still births by region, with Shiselweni having the highest percentage (1.9%), followed by Lubombo (1.3%), Manzini (0.8%) and Hhohho (0.7%). Furthermore, 4 (0.02%) newborns were dead when leaving the ward (in 2010 this was 0.07% (15) and in 2009 0.04% (8)). The immediate disease notification system reported 6 perinatal deaths in 2011 (17 in 2010), so these figures are very similar to the HMIS data.

Furthermore, 4 mothers (0.02% of women that delivered) were dead on discharge in 2011 (in 2010 this was 0.07% (15) and in 2009 0.04% (8)). This is probably a considerable underestimation as according to the immediate disease notification system data there were 19 maternal deaths in 2011. Also the confidential enquiry into maternal deaths triennial report 2008-2010 (7) reported much higher numbers for maternal deaths in 2010 and 2009: 33 and 32, respectively.

4.2 Morbidity

4.2.1 HIV/AIDS

HIV Testing and Counselling

According to the HIV Testing and Counselling (HTC) data, in total 170 638 HIV tests were conducted in 2011, 37.1% (63 163) among men and 62.9% (107 144) among women (sex unknown for 331 tests). Overall 17.4% (29 610) of the tests had a positive result, 17.2% among men and 17.4% among women. In 2010 the overall percentage with a positive result was 22.6% and in 2009 25.3%, so there seems to be a decreasing trend. When looking at the different regions, 18.4% of tests were positive in Manzini, 16.8% in Hhohho, 16.7% in Shiselweni and 16.5% in Lubombo. The percentage of tests with a positive result by age group is given in Figure 2. This shows that the age group 25-49 years has the highest number of positive test results.

HIV prevalence

According to the preliminary findings from the Spectrum HIV estimates and projections 2012 (9), the overall HIV prevalence rate is 26.1% (95% Confidence Interval (CI) 25.2-27.2%) in 2011. Based on the results presented in the United Nations General Assembly Special Session (UNGASS) 2012 report (10), there were 195 399 HIV positive people in the country in 2011. Of these 11.1% (21 780) were children (0 - 14 years) and 88.9% (173 619) adults 15+ years. The increasing trend over time is given in Figure 3.

More detailed information on the HTC data can be found in the annual HTC report (8).

HIV incidence

According to the preliminary findings from the Spectrum HIV estimates and projections 2012 (9), the overall HIV incidence rate is 2.6% (95% CI 2.3-2.9%).

There were 13 634 new HIV infections in the country in 2011. Of these 10.6% (1 440) were children (0 - 14 years) and 89.6% (12 194) adults 15+ years. The decreasing trend over time is given in Figure 4.

ART

According to the antiretroviral treatment (ART) service dataset, there were 16 695 initiations in 2011, 4 502 in Hhohho, 2 906 in Lubombo, 4 913 in Manzini and 4374 in Shiselweni. The total number of initiations in 2011 is lower compared to the 20 954 initiations in 2010. This is probably due to stock out of CD4 reagents in 2011 (the latter making it impossible to do CD4 counts needed to determine ART eligibility). Out of all initiations, 63.2% (10 543) were among women and 91.3% (15 242) among adults (15+ years).

By the end of 2011, there were 72 402 people actively on ART, of which 90.9% (65 835) were adults (15+ years). Of the adults 64.9% (42 741) were women, and 20 020 were in Hhohho, 11 840 in Lubombo, 19 141 in Manzini and 14 834 in Shiselweni.

According to the UNGASS report (10), there were 12 353 children (<15 years) in need for ART in 2011 (using the eligibility criteria of CD4 cell count <350/mm^3). With 6 567 actively on ART the coverage is only 53.2% among children. For adults this figure is 84.3% (65 835 on ART out of 78 127 in need). So for adults the target of 80% coverage has been reached, but for children the coverage is far below the target.

More detailed information on the ART data can be found in the annual ART report (11).

PMTCT Testing and counselling

According to the Swaziland prevention of mother-to-child transmission (PMTCT) dataset, there were 33 277 first time antenatal care (ANC) clients in 2011. 6 085 were already known to be positive prior to the first visit. 90.7% (24 659 out of 27 192 eligible) were tested and 6 181 of all those tested were tested HIV positive. So in total the HIV prevalence in ANC is 36.9% (12266 out of 33 277). Data per region are given in Table 3.

Table . PMTCT testing and counselling statistics, Swaziland 2011

Region	No. of first ANCs	No. with known HIV+	No. eligible for HTC	Total tested		No. newly diagnosed HIV+	Total HIV+	
				n	%		n	%
Hhohho	10 079	1 805	8 274	7 581	91.6	1 919	3 724	36.9
Lubombo	6 228	1 308	4 920	4 703	95.6	1 076	2 384	38.3
Manzini	11 193	1 950	9 243	7 874	85.2	2 120	4 070	36.4
Shiselweni	5 777	1 022	4 755	4 501	94.7	1 066	2 088	36.1
Total	33 277	6 085	27 192	24 659	90.7	6 181	12 266	36.9

Source: PMTCT dataset

In 2011, 1.8% of women (470 out of 25 852) came to labour and delivery with an unknown HIV status. From these 68.7% (323) opted to test for HIV of which 30.7% (99) tested positive.

According to the 2010 ANC survey (12), the prevalence of HIV was 41.1% in 2010, 41.9% in Hhohho, 43.3% in Lubombo, 39.5% in Manzini and 40.2% in Shiselweni. The increasing trend over time (which seems to stabilize) is given in Figure 5. Figure 6 shows that the prevalence was highest among the 30-34 years age group, and lowest in the 15-19 years age group.

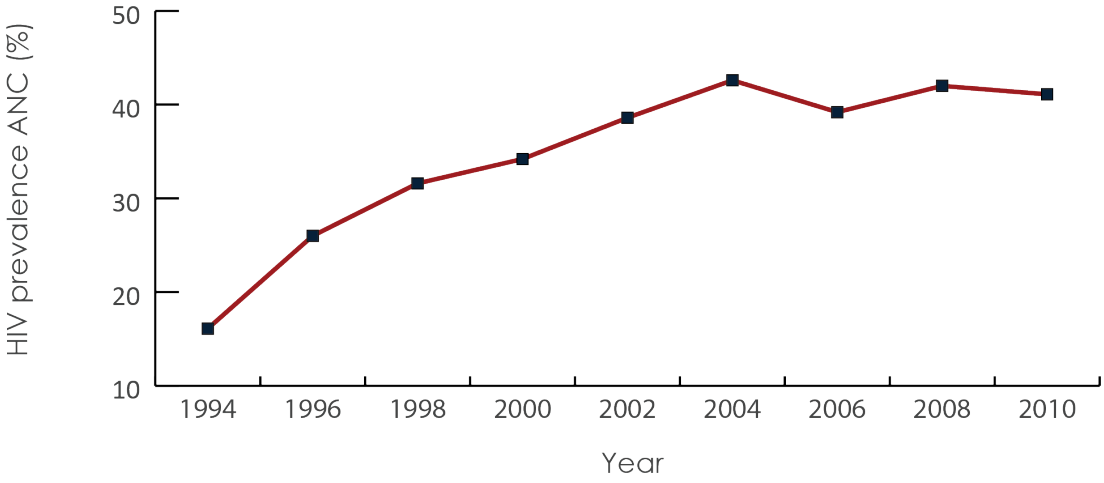

Figure . HIV prevalence in ANC, Swaziland 1994-2010
Source: ANC survey 2010 (12)

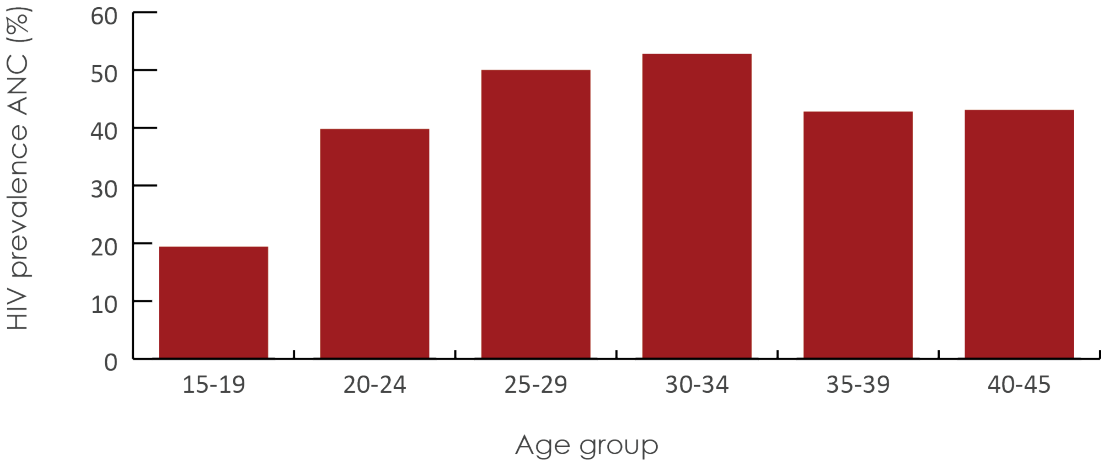

Figure . HIV prevalence in ANC by age group, Swaziland 2011
Source: ANC survey 2010 (12)

Table . PMTCT CD4 testing statistics, Swaziland 2011

Region	Total HIV+	CD4 tested		CD4 result received	
		n	%	n	%
Hhohho	3 724	2 264	60.8	1 455	64.3
Lubombo	2 384	1 477	62.0	923	62.5
Manzini	4 070	2 856	70.2	1 685	59.0
Shiselweni	2 088	1 541	73.8	1 172	76.1
Total	12 266	8 138	66.3	5 235	64.3

Source: PMTCT dataset

PMTCT CD4 uptake

According to the PMTCT dataset, out of the 12 266 HIV positive pregnant women 66.3% (8138) had their CD4 count tested (in order to determine eligibility for ART). Of those tested, 64.3% (5 235) received the CD4 count result. In 2010 this was 73% and the difference is probably due to stock out of CD4 reagents in 2011. Data per region are given in Table 4.

PMTCT ARV prophylaxis women

In total 86.3% (10 590) of pregnant HIV positive women received ARV (antiretrovirals) for their own health or as prophylaxis to prevent mother-to-child transmission (MTCT) according to the PMTCT dataset (Table 5). Some women were already on ART (2 402), some were put newly on ART (1 302) and the rest received either a single dose of Nevirapine (NVP) (227), or the Combi AZT (6 659) now given in line with current recommendations. In 2010 79% women received ARV prophylaxis and in 2009 69%, so there is an increasing trend.

Table . PMTCT ARV prophylaxis statistics, Swaziland 2011

Region	Total HIV+	Already on ART	ARV Prophylaxis		Newly on ART	Total ARVs	
			Sd-NVP	Combi AZT		n	%
Hhohho	3 724	755	29	1 966	364	3 114	83.6
Lubombo	2 384	480	19	1 438	154	2 091	87.7
Manzini	4 070	700	129	2 236	459	3 524	86.6
Shiselweni	2 088	467	50	1 019	325	1 861	89.1
Total	12 266	2 402	227	6 659	1 302	10 590	86.3

Source: PMTCT dataset

PMTCT ARV and cotrimoxazole prophylaxis infants

According to the PMTCT dataset 9 912 exposed infants were seen at the first Child Welfare Clinic visit at 6 weeks. From these 92.3% (9 149) got ARV prophylaxis at birth and 79% (8 844) were initiated on cotrimoxazole prophylaxis. In 2010 the figure was 90.5% (slightly lower than 2011) and 88.9% (higher compared to 2011).

More detailed information on the PMTCT data can be found in the annual PMTCT report (13).

4.2.2 Tuberculosis

Notifications

According to the National TB case finding data there were 9 180 cases notified in 2011. In total 87.5% (8 031) were new cases (smear positive, smear negative, smear unknown, extrapulmonary) and 12.5% (1 149) retreatment cases (relapse, treatment after default, treatment after failure, other). The distribution among the different types is presented in Figure 7.

Table . Number of TB cases notified and case notification rate by region, Swaziland 2011

	Total TB cases notified	CNR all TB cases
Hhohho	2 537	845 / 100 000
Lubombo	1 339	617 / 100 000
Manzini	3 581	1 049 / 100 000
Shiselweni	1 723	824 / 100 000

Source: Tuberculosis National case finding data

The case notification rate (CNR) for all TB cases, using population figures from the Swaziland population projections (1), was 860 / 100 000 for 2011. In 2010 this was 1048 / 100 000 and in 2009 1057 / 100 000, so there seems to be a downwards trend. The CNR for all TB cases per region in 2011 is given in Table 6.

The CNR for all TB cases was 933 / 100 000 for men and 794 / 100 000 for women in 2011. Furthermore, the CNR for all TB cases in 2011 was 269 / 100 000 for children under 15 years old and 1 253 / 100 000 for adults 15+.

According to the TB case finding data, out of all notified TB cases in 2011, 91.7% (8 419) were tested for HIV, up from86.2% in 2010 and 73.0% in 2009. Overall 77.0% of TB patient (6 480) tested HIV positive in 2011. In 2010 this was 81.7% and in 2009 83.4%, indicating a reduction in the prevalence of HIV co-infection. Of those testing HIV positive, 94.7% (6 138) were on cotrimoxazole and 50.7% (3 283) on ART in 2011. In 2010 this was 93.0% and 35.3% respectively, indicating an improvement in treatment levels, especially ART.

Smear conversion

According to the TB sputum conversion data, 63.2% of new smear positive cases converted at 2 or 3 months and 45.6% of retreatment smear positive cases converted in 2011 (Figure 8). In 2010 these percentages were 69% and 53% and in 2009 66% and 52%, indicating a lower treatment success rate in 2011.

More detailed information on the tuberculosis data can be found in the annual TB report (14).

Treatment outcomes

Treatment outcomes are presented separately for HIV positive and HIV negative patients.

According to the TB treatment outcomes data, of 2 220 registered sputum smear positive HIV positive patients, 1 061 were cured and 468 completed their treatment, making the treatment success rate 68.9% in 2011. In 2010 this was 64.6% and in 2009 62.6%, indicating a slight increase in treatment success rate. However, the rate is still far below the WHO target of 85%. The distribution of treatment outcomes of these HIV positive patients is given in Figure 9. The treatment success rate was 72.9% in Hhohho, 60.0% in Lubombo, 70.8% in Manzini and 68.3% in Shiselweni, indicating that the Lubombo region may need additional support to increase the treatment success rate.

Of 876 registered sputum smear positive HIV negative patients, 462 were cured and 207 completed their treatment, making the treatment success rate 76.4% in 2011. The distribution of the treatment outcomes of these patients is given in Figure 10. When comparing the figures of the HIV positive and negative TB patients, it can be seen that the success rate among HIV positive patients is lower, and the dead rate higher.

4.2.3 Malaria

According to the OPD data from the HMIS there were 835 suspected cases in 2011 (76 severe anaemia, 759 uncomplicated) which is a reduction compared to 2010 when there were 1 722 suspected cases and especially compared to 2009 when there were 6 639 suspected cases. Of all suspected cases in 2011, there were 293 in Hhohho, 212 in Lubombo, 241 in Manzini and 88 in Shiselweni.

However, according to the immediate disease notification system data, there were 458 confirmed cases of malaria in 2011 and only 58 cases in 2010 (although the latter could be due to the starting up of the system).

According to the Swaziland malaria indicator survey 2010 (15), national malaria prevalence was estimated at 0.2% (95% CI 0.0-0.6%) based on DNA PCR results. 10.1% (84) of all cases were among children under 5 years.

4.2.4 Diarrhoea

According to the OPD data from the HMIS there were 156 637 cases of diarrhoea in 2011 (in 2010 185 955 and in 2009 185 866). The distribution by type is presented in Figure 11. The main difference between the four regions is that in Lubombo 24.8% of all diarrhoea cases were diarrhoea with blood/dysentery, 17.9% in Hhohho, 10.1% in Shiselweni and 7.9% in Manzini. 43.7% (68 500) of all cases were among children under 5 years.

There were only 13 suspected cholera cases in 2011, 8 in Manzini region and 5 in Lubombo (in 2010 267 and in 2009 63). According to the immediate disease notification system there were 4 suspected cholera cases in 2011.

Both the Vulnerability Assessment Committee (VAC) 2011 (16) and the MICS 2010 (4) report on the proportion of children under 5 that had diarrhoea in the 2 weeks preceding the interview. The figures were 11% and 15.9% respectively.

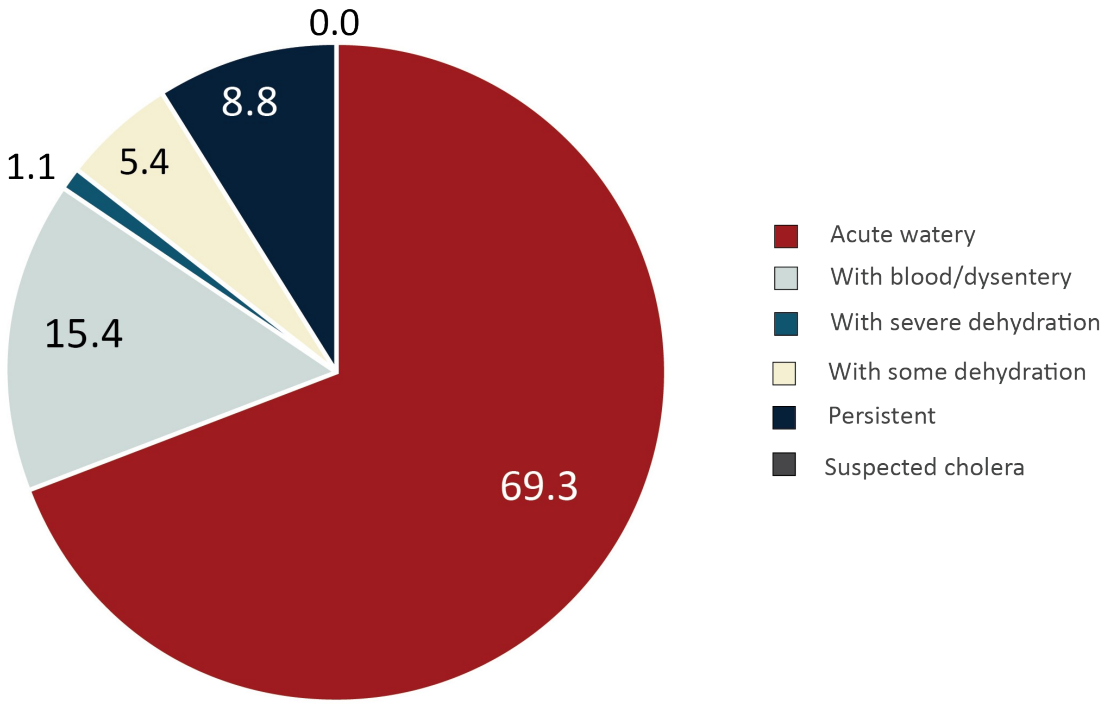

Figure . Distribution (percentage) of different types of diarrhoea, Swaziland 2011
Source: OPD data, HMIS

4.2.5 Non-communicable diseases

According to the National health sector strategic plan 2008-2013 (1) non-communicable diseases (NCDs), e.g. diabetes and hypertension, have received inadequate attention and there is only limited data available. The only data available is from the out- and inpatient statistics which are presented later on. From these data can be seen that diabetes and hypertension are both on high positions in the top 20 of most frequent diagnoses/conditions, for both women and men (Table 13, 14, 16 and 17). However, this does not provide information on the actual prevalence of these diseases in the population; further studies on the prevalence of NCDs would be needed to determine prevalence.

4.3 Reproductive health

4.3.1 Contraception use

Limited data is available on contraception use from the HMIS. Table 7 gives the number of items/packs of tablets distributed via the health facilities per commodity for 2009-2011. It must be noted that for male condoms the figures in the HMIS are lower than the figures from the distributer of the condoms. The further development of the logistic system will allow for more accurate reporting on contraception commodities. Furthermore, note that these figures do not say anything about the frequency distribution of these commodities per sexual act: condoms are used only once, while a package of oral contraceptives lasts for a month and intra-uterine contraceptive devices (IUCDs) can be used for years. In addition, condoms can be used for prevention of sexually transmitted infections (STIs) rather than for contraception. Looking at the figures it seems that the female condom is gaining some popularity (although use is very low compared to that of male condoms.

Table . Number of items/packs of tablets of contraception commodities distributed via the health facilities, Swaziland 2009-2011

Commodity	2009	2010	2011
Male condoms	1 204 415	1 075 962	1 266 992
Injectables	157 662	150 376	146 149
Oral Contraceptives	133 233	141 556	138 846
Female condoms	52 987	58 906	75 244
IUCDs	548	491	364
Foaming tablets	1 062	753	129
Other	440	3 004	2 622
Spermicides	7	49	7

Source: HMIS

In addition HMIS data provide the number of clients attending for the first time for family planning commodities (total 90 313 in 2011). The distribution per family planning commodity is given in Figure 12 for 2011. This might give a better indication of the popularity of the different commodities: male condoms are most popular, followed by injectable and oral contraceptives.

The MICS 2010 (4) indicates that 21.5% of women aged 15-49 years are using male condoms as a contraceptive method, 15.1% injectable and6.6% oral contraceptives. Overall the contraceptive prevalence rate was 49.3%.

According to the VAC 2011 (16), the overall contraceptive prevalence rate was 46%, with 31% of women using male condoms, 14% using injectables and 6% using oral contraceptives in the country. Overall the contraceptive prevalence rate was lowest in Lubombo (41%), followed by Manzini (47%), Hhohho (49%) and Shiselwini (50%) in 2011. An overall increase in contraception use was seen compared to 2010.

4.3.2 Antenatal care

Based on the admission and discharge sheet, HMIS data indicated that 99.6% (20 414) of mothers who delivered in a health facility received ANC in 2011 (in 2010 this was 99.6% and in 2009 99.7%).

According to the Swaziland PMTCT dataset, there were 33 277 first time ANC clients in 2011; 13.3% were seen in the first trimester (as recommended), 67.7% in the second trimester and 19.0% in the third trimester. In 2010 23.8% attended in the first trimester, in 2009 10.7%. The figures by region are given in Table 8 for 2011. There are

only minor differences between the areas.

According to the MICS 2010 (4) the percentage of women who had a live birth during the two years preceding the survey that did not attend ANC at all was only 3.1% in the country. For Hhohho it was 5.9%, for Lubombo 3.1%, for Manzini 1.5% and for Shiselweni 2.5%. 76.6% had at least four visits (by any provider). The VAC 2011 (16) reports that 77% of women had access to ANC services.

Table . Percentage of women that attended ANC for the first time by region, Swaziland 2011

	Hhohho	Manzini	Shiselweni	Lubombo
First trimester	13.4	17.6	9.1	9.5
Second trimester	67.3	63.3	70.0	74.8
Third trimester	19.2	19.4	20.9	15.7

Source: ANC, HMIS

4.3.3 Type of delivery

The percentage of Caesarean sections (CSs) gives an indication as to whether pregnant women who are in need of a CS actually do receive one. The often quoted acceptable level (although there is no concrete basis for this) is 5 to 15 percent. If the level is too low, it implies that women do not have access to the procedure, and if it is too high it indicates that CSs are being unnecessarily employed. Based on the admission and discharge sheet, 20 500 births were recorded in the HMIS in 2011 (20 390 in 2010 and 19 503 in 2009). Out of the total number of births, 18 387 (89.7%) were normal vaginal deliveries or born before arrival, and 2 050 (10.0%) were CSs. This suggests an increasing trend: the proportion of CSs was 8.6% in 2010 and 6.5% in 2009.

Out of all CSs performed, most are done in Mbabane Government Hospital in Hhohho region (34.8% - 713),

followed by Good Shepherd Hospital in Lubombo (28.8% - 590), Hlatikhulu Hospital in Shiselweni (12.9% - 264), Raleigh Fitkin Memorial Hospital (8.2% - 168) and Mankayane Government Hospital (7.7% - 158), both in Manzini. However, these are not the hospitals that perform the most CSs when related to the total number of births. As can be seen from Figure 13, Mbabane Clinic in Hhohho region (53.8%), Manzini Private Clinic (Imphilo) in Manzini (45.5%) and Philani Clinic (Manzini) (44.4%) have the highest CS rate.

The MCIS 2010 (4) showed that out of all women aged 15-49 who had a live birth in the two years preceding the survey (not restricted to hospital deliveries) 12.3% had a CS. For Hhohhlo this was 21.9%, for Lubombo 9.2%, for Manzini 9.5% and for Shiselweni 8.8%.

4.3.4 Attendant at birth

The HMIS data from the admission and discharge sheet indicated that 20 055 (97.8%) of the hospital births were attended by a skilled professional (medical officer, midwife, nurse) in 2011 (for 2010 this was 98.2% and for 2009 99.1%). In 2011 87.5% (17 928) of the births were attended by a midwife, 10.3% (2 112) by a Medical officer and 7.3% (15) a nurse. However, these percentages differ between the facilities as can be seen in Figure 14; in Manzini Private Clinic (Imphilo) 69.7% of the births were attended by a medical officer, while in Sithobela Rural Health Center 97.4% was attended by a midwife.

The MCIS 2010 (4) showed that of women aged 15-49 who had a live birth in the two years preceding the survey 82.0% had a delivery that was assisted by a skilled attendant. This was 82.2% for Hhohho, 72.3% for Lubombo, 90.3% for Manzini and 78.4% for Shiselweni. Note that these figures are not restricted to hospital deliveries and are therefore lower than the HMIS data.

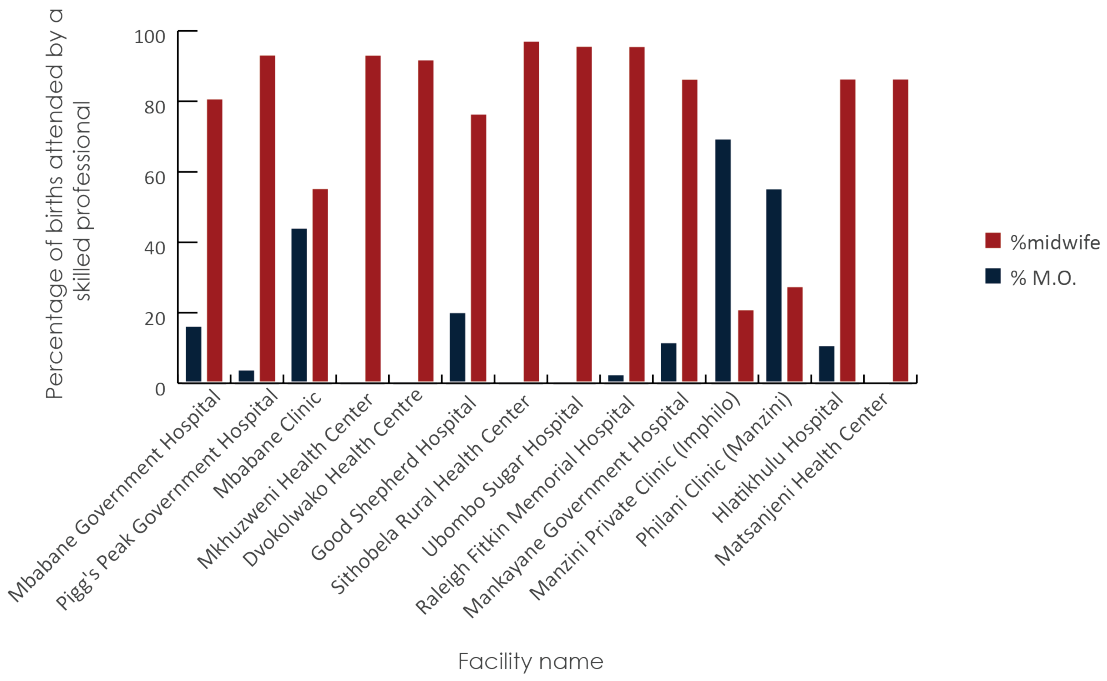

Figure . Percentage of births attended by a medical officer or midwife per facility, Swaziland 2011

Source: admission and discharge sheet, HMIS

4.3.5 Postnatal care

According to the postnatal care data of the HMIS, in 2011 58.7% (13 179) of women who attended postnatal care did this in line with recommendations within 7 days after birth. In Hhohho the figure was 63.7%, in Lubombo 56.9%, in Manzini 54.5%, and in Shiselweni 60.6%. Despite the increasing trend (54.4% in 2010 and 49.5% in 2009) this figure is still low.

4.3.6 Male circumcision

According to data from the National Swaziland male circumcision (MC) dataset, 11 507 procedures have been performed in 2011. Of the men circumcised 2.3% were HIV positive, 77.6% were HIV negative and 20.2% had an unknown HIV status. The trend of the number of MCs performed over the years can be seen from Figure 15. The number of MCs increased significantly from 2009 to 2010, but in 2011 the number decreased. The total number of MCs performed since 2006 is 33 527.

The age distribution of the MCs performed in 2011 can be seen from Figure 16; the majority were performed on 15-24 year olds.

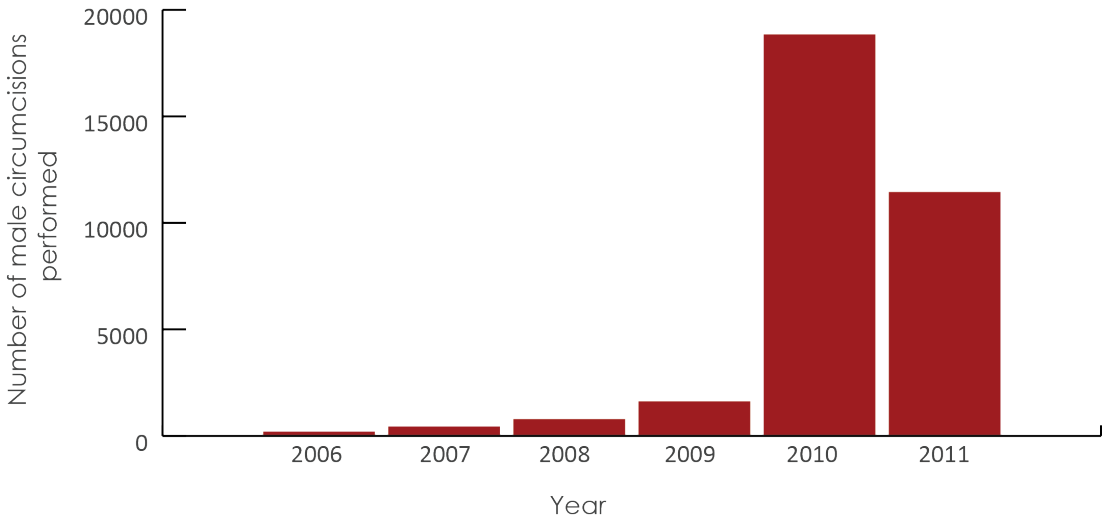

Figure . Number of male circumcisions performed, Swaziland 2006-2011
Source: National Swaziland MC Dataset

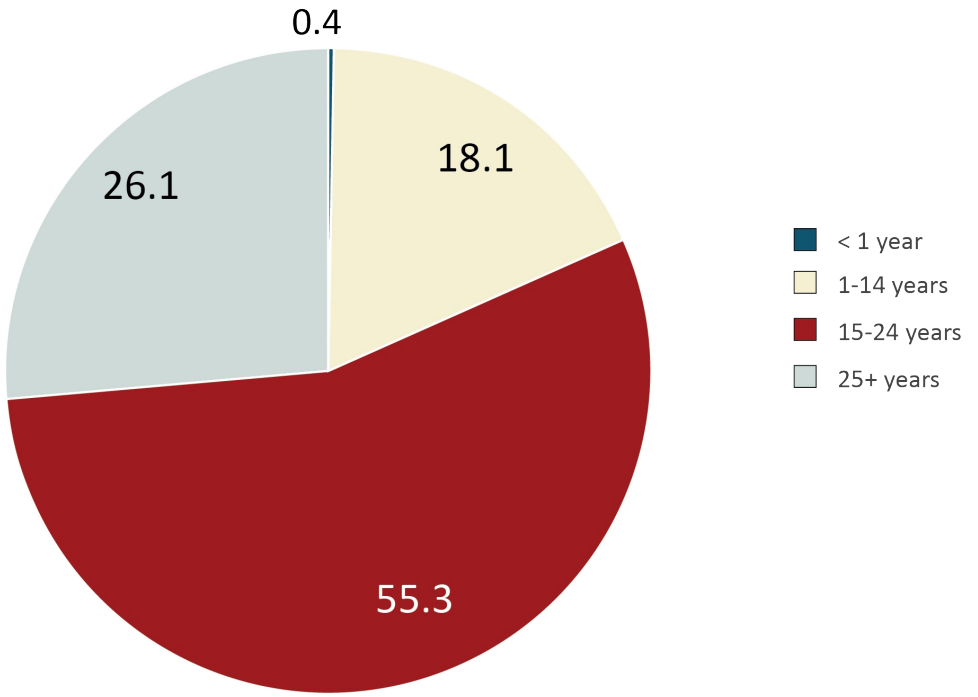

Figure . Percentage of male circumcisions performed by age group, Swaziland 2011
Source: National Swaziland MC Dataset

In total 48 sites in the country performed at least one MC in 2011. 73.5% of all MCs performed were conducted in 10 sites as can be seen from Figure 17.

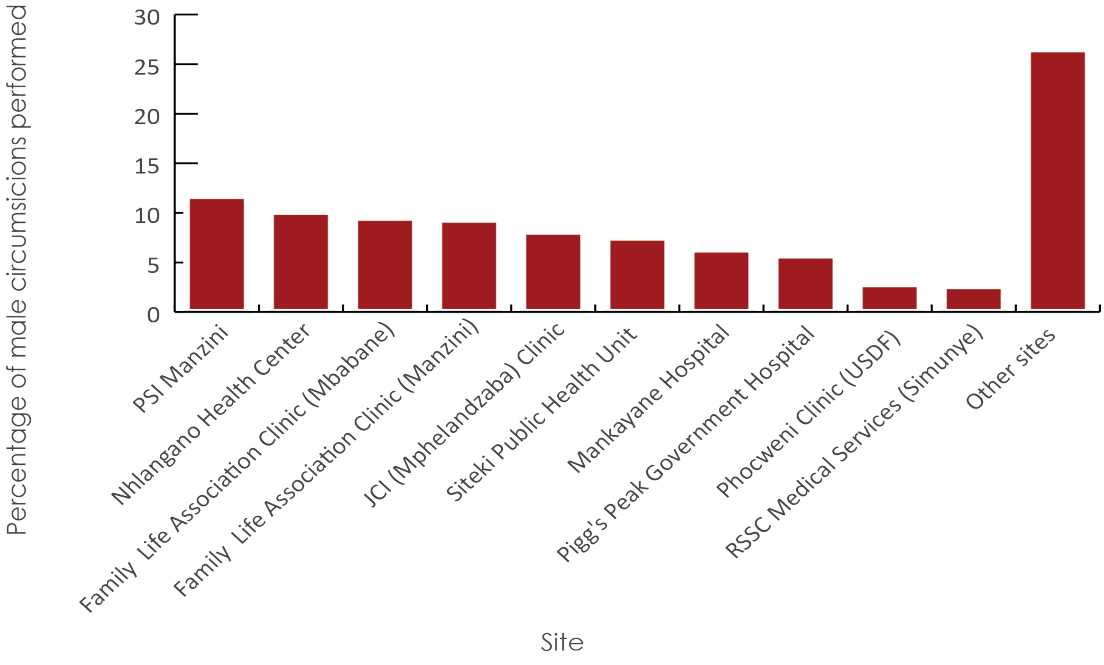

Figure . Percentage of male circumcisions performed per site, Swaziland 2011
Source: National Swaziland MC dataset

According to the MICS 2010 (4), 19.1% of men aged 15-59 years have been circumcised in the country: 17.3% in Hhohho, 16.2% in Lubombo, 24.5% in Manzini and 13.8% in Shiselweni.

4.4 Child health

4.4.1 Nutrition Status

According to the child growth monitoring data of the HMIS 328 111 measurements were done among children under 5 in 2011. The proportion of measurements of children that indicated (severe) underweight or overweight out of all measurements done was calculated. 1.5% of measurements indicated underweight or severe underweight, 0.1% severe underweight and 1.2% overweight in 2011 (Table 9). For 2010 these figures were 1.7%, 0.1% and 1.0 % respectively, and for 2009 2.2%, 0.1% and 1.4%: the proportion of (severe) underweight slowly decreases over time. The 2011 figures by region are given in Table 9 and by age category in Table 10. Differences between the regions and age groups are minor.

Table . Proportion of measurements that indicated (severe) underweight or overweight by region, Swaziland 2011

	Hhohho	Lubombo	Manzini	Shiselweni
Underweight or severely underweight	1.3	1.0	2.0	1.4
Severely underweight	0.1	0.1	0.1	0.1
Overweight	1.4	0.7	1.2	1.4

Source: Child growth monitoring, HMIS

Table . Proportion of measurements that indicated (severe) underweight or overweight by age category, Swaziland 2011

	0-11 months	12-23 months	24-59 months
Underweight or severely underweight	1.5	1.9	1.0
Severely underweight	0.1	0.1	0.1

Overweight	1.4	0.8	1.0

Source: Child growth monitoring, HMIS

The MICS 2010 report (4) found much higher percentages than the HMIS data of children (not measurements) with a weight that is abnormal. 5.8% of children under 5 were moderately or severely underweight (< -2 SD) and 1.0% severely underweight (< -3SD). For Hhohho these figures were 6.4% and 1.3% respectively, for Lubombo 5.2% and 0.7%, for Manzini 5.0% and 0.8%, and for Shiselweni 6.8% and 1.2%. Furthermore, 10.7% of children under 5 were overweight (+2 SD) in the country, and 12.1% in Hhohho, 8.2% in Lubombo, 11.4% in Manzini, and 10.5% in Shiselweni. One explanation is that the data from child growth monitoring might be an underestimation of the actual number of children with an abnormal weight, due to the fact that measurements are recorded.

4.4.2 Immunisation status

Data on the number of children under 1 year vaccinated against tuberculosis (BCG), diphteria/whooping cough/ tetanus/hepatitisB/haemophilus influenza type B (DPT/HebB/Hib), measles and polio under the Expanded Programme for Immunization (EPI) was retrieved from the HMIS for the years 2009-2011. In order to calculate the coverage, these numbers were divided by the number of children in that age group according to the Swaziland population projections for these years (2). Figure 18 gives the coverage for the country over the past 3 years. In 2011 78.3% of children under 1 year received BCG, 91.1% DPT/HebB/Hib3, 81.1% measles and 90.4% polio3. This was higher compared to earlier years, except for measles (possibly due to the integrated measles campaign conducted in late 2010). Data are not presented per region, as these seemed to be unreliable (coverage over 100%, due to different sources of the vaccination and population data).

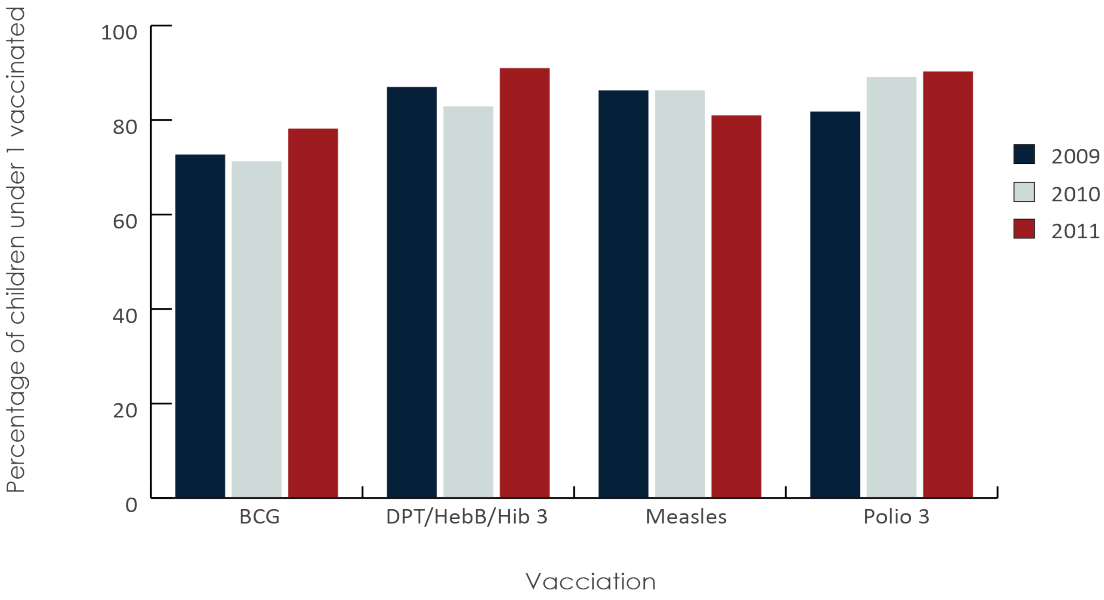

Figure . Vaccination coverage among children under 1, Swaziland 2009-2011
Sources: EPI/HMIS and Swaziland population projections (2)

The abovementioned coverage figures differ somewhat from those reported by the MICS 2010 (4). The vaccination coverage (based on vaccination card and/or mother's report) among children under 1 was: BCG 97.9%, DPT/HebB/Hib3 89.4%, measles 93.9% and polio3 83.8%. 77.3% of all children were fully immunised in the country. Regional data are only given for children 12-23 months: Hhohho 80.4%, Lubombo 85.3%, Manzini 82.0%, and Shiselweni 85.5% (country 83.1%).

The VAC 2011 (16) reports measles coverage of 78.6% in the country, which is lower than that of the HMIS and the MICS 2010. The figures by region were: Hhohho 84.6%, Lubombo 88.2%, Manzini 66.7% and Shiselweni 71.4%.

The immediate disease notification system data indicated that in 2011 there were 83 suspected measles cases, much lower than the 254 notified in 2010.

More detailed information on the immunization data can be found in the annual report from the Expanded Programme on Immunization (17).

4.5 Disability

Data on disability is limited which is surprising as the number of people with a disability seems to be significant when looking at the results of the Swaziland Population and Housing Census 2007 (18) and VAC 2011 (16).

The Census 2007 (18) indicates that 16.8% of the population is disabled. The results by region are presented in Figure 19. Of those identified as having a disability, 63.1% have a visual impairment, 15.0% hearing impairment, 14.1% have a mobility disability, 5.5% have difficulty remembering/concentrating and 2.2% have speech impairments.

The VAC 2011 (16) reports on the percentage of households that are hosting a member with a disability. In the country, 17.4% of the households has a disabled member. The results by region are presented in Figure 19.

Note that although the overall percentage of disabled people / households with a disabled member seems to be in line, the percentages per province differ between the census and VAC.

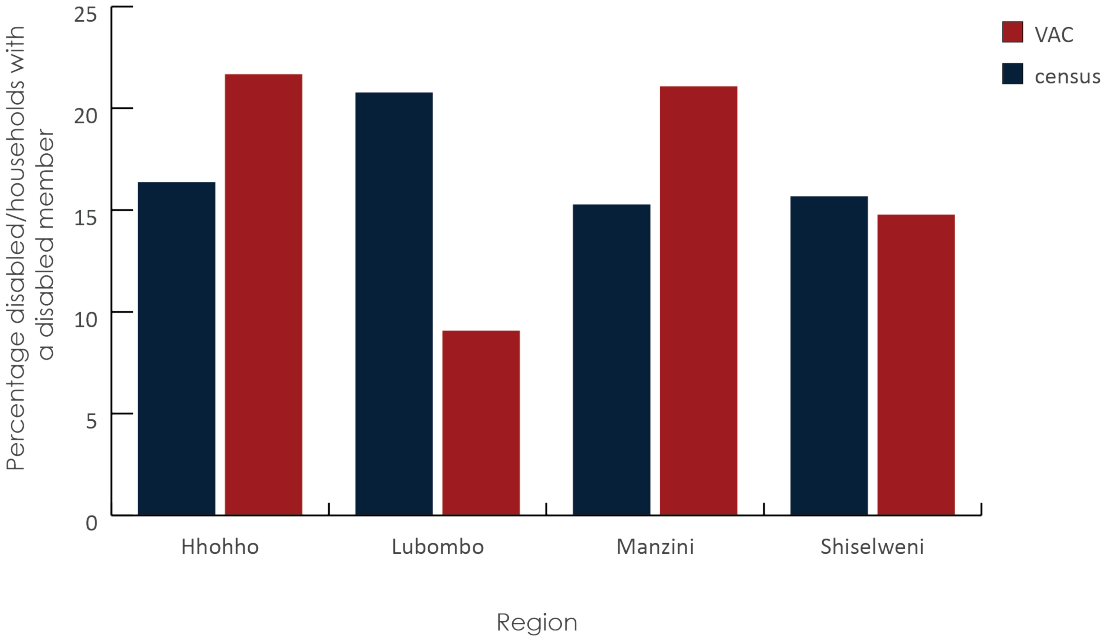

Figure . Percentage of disabled / households with a disabled member, Swaziland 2007 and 2011

Source: Census 2007 (18) and VAC 2011 (16)

9. 5. Health services indicators

5.1 Health facilities

Data on the number of health facilities is available from the Service Availability Mapping report of 2010 (19). In total there were 265 health facilities in the country, 25.3 per 100 000 population (Table 11). The density of health facilities is highest in Lubombo (33.3 facilities per 100 000 population) and lowest in Shiselweni (17.3 facilities per 100 000 population).

Of the 265 health facilities in the country, 70.2% (186) are clinics without maternity services. The distribution of the type of health facilities for the country and by region is given in Table 12.

Table . Health facilities (number and per 100 000 population) by region, Swaziland 2010

Region	Number of health facilities	Facilities per 100 000 population
Hhohho	71	24.5
Lubombo	53	33.3
Manzini	104	31.7
Shiselweni	37	17.3
Total	265	25.3

Source: Service Availability Mapping report 2010 (19)

Table . Type of health facilities by region, Swaziland 2010

Facility type	Hhohho	Lubombo	Manzini	Shiselweni	Total	
					n	%
National referral hospital	1	0	2	3	2	1.1
Regional hospital	1	1	2	1	5	1.9
Hospital	2	1	1	0	4	1.5
Health centre	2	1	0	2	5	1.9
Public health unit	2	1	2	3	8	3.0

Clinic with maternity	4	12	7	2	25	9.4
Clinic without maternity	49	33	76	28	186	70.2
Specialized facility	10	4	14	1	29	10.9

Source: Service Availability Mapping report 2010 (19)

Of the 265 health facilities in the country, 40.0% (106) are owned by government and 29.1% (77) are private. The distribution of the health facilities by ownership is given in Figure 20.

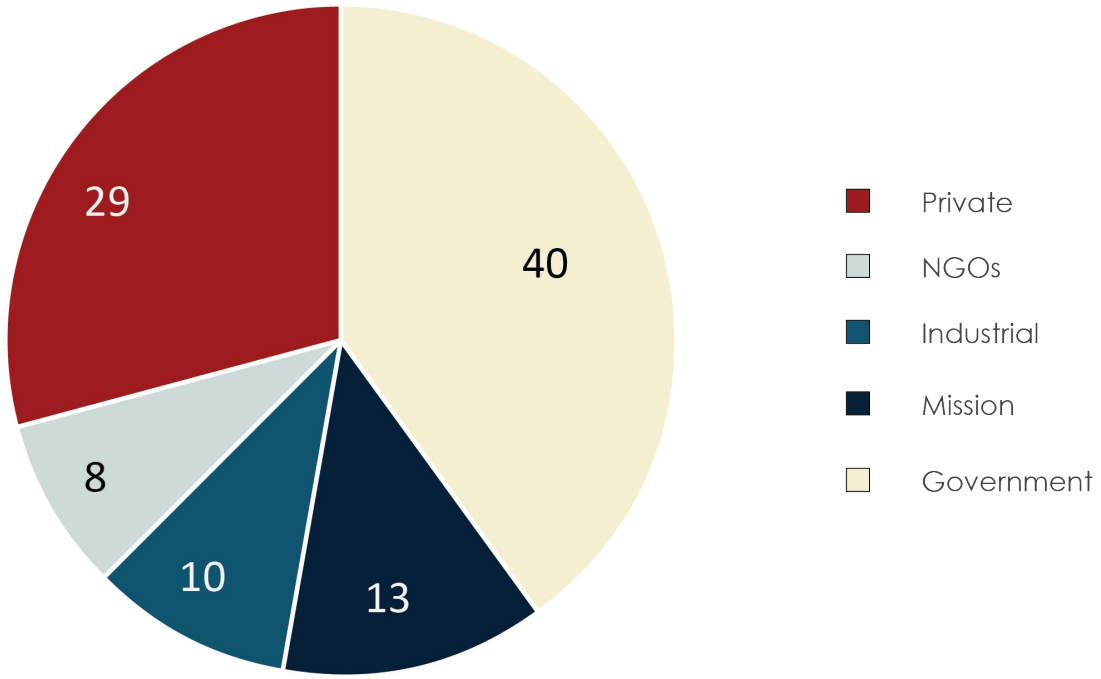

Figure . Facility Ownership (in percentages), Swaziland 2010
Source: Service Availability Mapping report 2010 (19)

5.2 Outpatient statistics

According to the OPD register of the HMIS there were total of 1 997 794 cases presenting with specified diseases/ conditions recorded in 2011 (in 2010 that was 2 069 092 and in 2009 1 892 971). The most frequent diseases/conditions (top 20) are given for females 5+ years (Table 13), males

5+ years (Table 14) and children under 5 years (Table 15). These figures indicate the most frequent diseases/ conditions for which people seek medical care and therefore put the highest burden on the health facilities.

Table . Top 20 diseases/conditions among females (5+ years), Swaziland 2011 (N=942 064)

Disease/condition	n	%
Upper respiratory infection	140 586	14.9
Other	132 445	14.1
Hypertension	91 113	9.7
Musculoskeletal conditions	75 611	8.0
Skin disorder	64 439	6.8
Lower respiratory infection (mild)	47 480	5.0
Digestive disorders	45 143	4.8
Acute watery diarrhoea	35 653	3.8
Vaginal discharge	28 380	3.0
Diabetes mellitus	27 358	2.9
Other STI	24 461	2.6
Eye diseases	21 740	2.3
Injury	20 515	2.2
Dental caries	18 520	2.0
Pregnant	16 338	1.7
AIDS presumptive	12 997	1.4
Ear problems	12 729	1.4
Lower respiratory infection (severe)	12 104	1.3
Oral health problems	11 542	1.2
Gastric ulcers	11 309	1.2

Source: OPD register, HMIS

Table . Top 20 diseases/conditions among males (5+ years), Swaziland 2011 (N=625 615)

Disease/condition	n	%
Upper respiratory infection	98 181	15.7
Other	81 363	13.0
Skin disorder	50 978	8.1
Musculoskeletal conditions	43 772	7.0
Hypertension	35 028	5.6
Lower respiratory infection (mild)	33 098	5.3
Injury	31 449	5.0
Digestive disorders	28 237	4.5
Acute watery diarrhoea	23 208	3.7
Urethral discharge	18 227	2.9
Eye diseases	17 569	2.8
Diabetes mellitus	16 283	2.6
Dental caries	14 880	2.4
AIDS presumptive	13 047	2.1
Other STI	12 590	2.0
Ear problems	9 792	1.6
Lower respiratory infection (severe)	9 112	1.5
Oral health problems	8 852	1.4
Suspected pulmonary tuberculosis	8 273	1.3
Genital ulcer	8 055	1.3

Source: OPD register, HMIS

Table . Top 20 diseases/conditions among children under 5, Swaziland 2011 (N=430 115)

Disease/condition	n	%
Upper respiratory infection	118 517	27.6
Skin disorder	66 628	15.5
Acute watery diarrhoea	49 695	11.6
Lower respiratory infection (mild)	39 746	9.2
Other diseases/conditions	35 279	8.2
Digestive disorders	23 886	5.6
Eye diseases	11 024	2.6
Ear problems	9 623	2.2
Diarrhoea with blood/dysentery	9 578	2.2
Oral health problems	9 335	2.2
Lower respiratory infection (severe)	9 008	2.1
Injury	8 346	1.9
Intestinal worms	7 489	1.7
Persistent diarrhoea	5 372	1.2
Chicken pox	4 069	0.9
Allergic reaction	4 018	0.9
Diarrhoea with some dehydration	3 379	0.8
Mumps	2 235	0.5
Musculoskeletal conditions	1 956	0.5
Suspected pulmonary tuberculosis	1 733	0.4

Source: OPD register, HMIS

Male and female patients seek medical care for a range of diseases/conditions which are largely similar. Note that the "other" diagnoses/conditions make up a large part of the total. Among children, respiratory infections are very prominent, as well as diarrhoea and childhood diseases (chicken pox, mumps).

5.3 In-patient statistics

In total there were 63 150 final diagnoses recorded on the admission and discharge sheet according to the HMIS in 2011 (for 2010 this was 67 833 and for 2009 62 401). 70.3% (44 394) of all diagnoses were from four hospitals in the country: Mbabane Government Hospital in Hhohho region (22.0% of diagnoses), Raleigh Fitkin Memorial Hospital in Manzini (20.3%), Good Shepherd Hospital in Lubombo (14.0%) and Hlatikhulu Hospital in Shiselweni (13.9%). The most frequent final diagnoses (top 20) in 2011 are given in Table 16 for adult (15+ years) women, in Table 17 for adult men and in Table 18 for children (<15 years).

Table . Top 20 final admission diagnoses adult (15+) women, Swaziland 2011 (N=40 221)

Final admission diagnosis	n	%
Normal delivery	18 931	47.1
Other indications for care or intervention related to labour	1 780	4.4
Acquired Immune Deficiency Syndrome	1 745	4.3
Pulmonary tuberculosis	1 328	3.3
Other complications of labour and delivery, not classified	1 036	2.6
Diabetes mellitus	831	2.1
Early or threatened labour	750	1.9
Other non-infective gastroenteritis and colitis	728	1.8
Essential hypertension	588	1.5
Complications following abortion and ectopic and molar pregnancies	566	1.4
Other and unspecified anaemias	512	1.3
Spontaneous abortion	480	1.2
Pneumonia, organism unspecified	405	1.0
Cataract	366	0.9
Inflammatory disease of ovary, fallopian tube, pelvic cellular	333	0.8
Other disorders of urethra and urinary tract	302	0.8
Gastritis and duodenitis	232	0.6
Meningitis of unspecified cause	212	0.5
Unspecified abortion	190	0.5
Failed attempted abortion	179	0.4

Source: Admission and discharge sheet, HMIS

Table . Top 20 final admission diagnoses adult (15+) men, Swaziland 2011 (N=113 85)

Final admission diagnosis	n	%
Acquired Immune Deficiency Syndrome	1 258	11.0
Pulmonary tuberculosis	1 245	10.9
Other non-infective gastroenteritis and colitis	530	4.7
Diabetes mellitus	491	4.3
Essential hypertension	311	2.5
Superficial injury of other, multiple and unspecified sites	300	2.6
Pneumonia, organism unspecified	298	2.6
Cataract	229	2.0
Other and unspecified anaemias	200	1.8
Meningitis of unspecified cause	180	1.6
Injury, other and unspecified	175	1.5
Fracture of tibia and fibula	148	1.3
Gastritis and duodenitis	148	1.3
Epilepsy	143	1.3
Intracranial injury of other and unspecified nature	139	1.2
Fracture of radius and ulna	132	1.2
Heart failure	105	0.9
Meningitis due to other organisms	104	0.9
Other diseases of respiratory system	101	0.9
Other cellulites and abscess	99	0.9

Source: Admission and discharge sheet, HMIS

Table . Top 20 final admission diagnoses children, Swaziland 2011 (N=10 643)

Final admission diagnosis	n	%
Other non-infective gastroenteritis and colitis	1 861	17.5
Pneumonia, organism unspecified	872	8.2
Pulmonary tuberculosis	556	5.2
Acquired Immune Deficiency Syndrome	505	4.7
Other and unspecified protein - calorie malnutrition	330	3.1
Acute upper respiratory infections of multiple or unspecified site	259	2.4
Asthma	247	2.3
Bronchopneumonia, organism unspecified	246	2.3
Fracture of radius and ulna	200	1.9
Epilepsy	188	1.8
Burn unspecified	179	1.7
Disorders of fluid, electrolyte and acid - base balance	167	1.6
Infections specific to the perinatal period	143	1.3
Influenza	134	1.3
Other severe protein - calorie malnutrition	132	1.2
Septicaemia	131	1.2
Disorders relating to short gestation and low birth weight	115	1.1
Other diseases of respiratory system	115	1.1
Acute tonsillitis	113	1.1
Intestinal infections due to other organisms	110	1.0

Source: Admission and discharge sheet, HMIS

For adult women, pregnancy related diagnoses dominate. If these are disregarded, the most important diagnoses are AIDS, pulmonary tuberculosis, diabetes mellitus, other non-infective gastroenteritis and colitis, and essential hypertension (this list is similar to the list for adult men). For adult men, besides communicable and non-communicable diseases, injuries/fractures are a frequent admission diagnosis. Infectious diseases as well as nutrition related disorders are important admission diagnoses for children.

5.4 Health personnel

According to the HRIS, there were 3 685 established posts in the Ministry of Health on 18 December 2011, of which 85.4% (3146) were filled (Table 19). 14.6% (539) of posts were vacant, and for laboratory, psychology and medical imaging staff these percentages were above 50% (62.0%, 54.4% and 53.2% respectively). In 2010 the percentage of vacant posts was 17.2% and in 2009 20.7%, so some progress can be observed.

Table . Established and vacant posts in the Ministry of Health, Swaziland 2011

Position	Established posts	Vacant posts	
		n	%
Administration	210	34	16.2
Biomedical engineering	35	5	14.3
Dental	71	25	35.2
Environmental health	122	10	8.2
Health education	30	15	50.0
Laboratory	108	67	62.0
Medical	127	18	14.2
Medical imaging	47	25	53.2
Nursing	1 508	216	14.3
Nutrition	77	15	19.5
Other paramedical	88	19	21.6
Pharmaceutical	59	29	49.2
Physiotherapy	26	8	30.8
Psychology	11	6	54.5
Social welfare	3	1	33.3
Support staff	1 163	46	4.0
Total	3 685	539	14.6

Source: HRIS

10. 6. Discussion

The objective of this 2011 Annual Health Statistics Report was to present information on key health statistics from routine data collection systems from the Ministry of Health, supplemented by data from other sources, at national as well as regional level.

The most important findings are highlighted in the following section, interpreted and contextualised:

- HIV/AIDS and TB place a huge burden on the health system. These are the two most frequent diagnoses among admitted patients (when pregnancy/delivery related issues are disregarded for women). Furthermore, mortality due to HIV/AIDS and TB constitutes more than a third (36%) of all hospital deaths.

- The number of HIV positive tests has decreased over the past three years (from 25.3% to 17.4%), which is in line with the decreasing HIV incidence according to modelling exercises. However, due to improvements in treatment (provision) the number of people living with HIV/AIDS will continue to increase (according to modelling exercises). The current overall HIV prevalence in Swaziland is 26.1% which is high compared to South Africa where it is 10.6% (20). Also the overall incidence of 2.6% is high, compared to 1.38% among adults 15-49 years in South Africa (20).

- It is of concern that the number of initiations on ART was lower in 2011 compared to 2010, probably due to stock out of CD4 reagents. Furthermore, the estimated coverage of ART among children (53.2%) is below the target of 80%.

- Although 90.7% of women attending ANC and eligible for HIV testing are tested, this still falls short of the ultimate goal of testing all eligible women. This is particularly important in light of the high ANC HIV prevalence. According to the 2010 ANC survey after many years of growth the HIV prevalence has stabilised at 41.1% in Swaziland, while a similar report in South Africa gives an HIV prevalence of 30.2% among pregnant women (21).

- Ideally, all HIV positive women should undergo a CD4 count and receive their results. This was however not the case in 2011; about two-thirds were

tested and of those again about two-thirds received the results (with the latter partly being due to reagent stock out). Furthermore, all HIV positive women should either be put on ART if they are eligible or otherwise receive prophylaxis to avoid MTCT. Although there is an increasing trend of treatment in this group (from 69% in 2009 to 86.3% in 2011) it has not yet reached 100%.

- The TB CNR shows a downward trend (1 057 to 860 per 100 000) and assuming that diagnosis efforts are similar, this is positive. An increasing percentage of TB patients are screened for HIV (91.7%), although the target remains 100% the number of co-infections with HIV appears to be decreasing (from 83.4% in 2009 to 77.0% in 2011). However, treatment success is not optimal (below the WHO target of 85%), and lower for those who are HIV positive (68.9%) compared to those that are HIV negative (76.4%). The Global TB Control Report 2011 gives a success rate of 69% for Swaziland and 73% for South Africa in 2009 (22).

- More women should attend ANC earlier in pregnancy (as recommended) as well as attend postnatal care in the first week (as recommended). Currently these figures are 13.3% and 58.7%, respectively.

- Currently 97.8% of deliveries in health care facilities are attended by a skilled birth attendant. Ideally this should be the case for all deliveries, not just those which take place in a health care facility.
- In 2011 fewer MCs were performed than in 2010, ending the previous trend of increasing demand for the service. As MC is an effective way to prevent HIV transmission, effort to circumcise as many HIV negative men in the population as possible should continue.

- It seems that (severe) underweight is becoming less of a problem in the country than the issue of overweight children under 5. Figures from different sources range from 1.2% to 10.7% of the children being overweight, which has increases the risk of developing cardiovascular diseases and diabetes at a later age.

- Although the coverage of the different childhood immunizations has increased (in 2011 coverage was between 78.3% and 91.1% depending on the type of vaccination), ideally all children should be reached.

Despite all efforts to ensure that this report contains a comprehensive and accurate overview of the health

statistics available for 2011, the following limitations should be noted:

- Due to the fact that data routinely collected by the Ministry of Health are all facility based, and not population based, it only gives information on those that accessed care. Hence, those persons that do not have access to care or do not know that they can access care with specific signs or symptoms, have not been included.

- Furthermore, due to the fact that data needs to be recorded by facility staff, the system is very reliant on how consistently this is done. (The Data Management section of this report describes the efforts undertaken to make the data as complete and valid as possible).

- The outpatient data are only available on an aggregated level, not on patient level. As a consequence, data on weight of children is only available per measurement, not per child. For contraception use only the number of contraceptives distributed is known, but not the percentage of women using a certain contraceptive.

- The system also lacks information on the correct denominator. For example as the catchment/target population of children under 1 per facility is unknown, general population figures needed to be used, hampering regional comparison (as percentages were over 100%).

- Sometimes different sources give different figures, for example the HMIS/Admission and discharge data gave a much lower number of maternal deaths compared to the immediate disease notification system and the confidential enquiry into maternal deaths.

- Not everything can be covered in all possible detail. Therefore reference is made to the ART, HIV and PMTCT annual reports which will be published separately by the Ministry of Health. This report focusses particularly on those data that are not published elsewhere.

- It is not easy to compare data between Swaziland and surrounding countries because facility-based data are very dependent on the quality of the data collection system, as well as on access to care, and knowledge of access to care. However, where possible and appropriate population/ modelling data has been compared with figures from South Africa.

- Furthermore, it is difficult to give a clear picture of how each of the four regions are doing compared to each other, as the differences are often small and the results appear to differ per indicator.

Although there are limitations, this report does give information on the diseases that are presented in the facilities, which makes it possible to plan to meet the demand. Furthermore, the same data are compared over time, which makes it possible to monitor any changes. Based on the information provided, prevention efforts and improvements in treatment (provision) can be initiated, and the effects monitored over time.

Based on the above, the following recommendations can be made:

- There should be continuous efforts to improve the routine data collection systems: by improving the actual data collection process; by providing patient level data; by including population data (catchment/target population) for correct denominators, and by linking the different data sets (at patient level).

- It is important that the compilation of this report should be continued in the future in order to detect any changes over time. Furthermore, the results of this publication, and of other publications commissioned by the Ministry of Health, should be widely distributed to all interested stakeholders (not only in hard copy, but also online).

- Data on NCDs is currently lacking. It is very important that prevalence studies are conducted as NCDs are an emerging epidemic. Further population research and improved data collection are needed to establish an overview of the burden of NCDs. Related to that it would be interesting to know how risk factors for NCDs (e.g. overweight, tobacco and alcohol use, limited physical activity) change over time.

- Although information is routinely collected on the number of TB cases screened for HIV, it would be valuable to know how many of those who are diagnosed with HIV are screened for TB.

- No data on disability is available from the routine data collection systems. However, in order to provide care, it is important to understand the extent of the challenge.

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