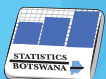




BOTSWANA - MATERNAL MORTALITY RATIO (MMR) 2011 – 2015



STATISTICS BOTSWANA

Private Bag 0024 Gaborone Botswana

Tel: (+267) 367 1300. **Fax:** (+267) 395 2201.

Email: info@statsbots.org.bw **Website:** www.statsbots.org.bw

Preface

The Stats Brief on Maternal Mortality Ratio is produced annually by Statistics Botswana in collaboration with the Ministry of Health and Wellness to monitor levels of maternal deaths in the country. The brief assesses the major causes of maternal mortality with a view to monitoring the effectiveness of Government interventions to ensure that no mother dies as a result of child birth. This commitment as initially highlighted through the Millennium Development Goals and now the Sustainable Development Goals still remains a Government priority.

The report shows that in 2015, there were 57,480 live births of which 57,290 were institutional births representing 99.6 percent of all births. The report further shows that maternal mortality ratio has been fluctuating over the years and had declined from 151.6 deaths per 100,000 in 2014 to an estimated 127.0 in 2015.

The leading direct causes of maternal mortality included abortion related incidents of genital tract and pelvic infection following abortion and ectopic pregnancy at 18.9 followed by severe eclampsia and third stage haemorrhage with 5.5 percent each. On the other hand, tuberculosis complicating pregnancy and child puerperium was the leading indirect cause of maternal mortality.

Statistics Botswana welcomes feedback on the presentation and content of this publication from stakeholders to ensure that it adequately serves their needs.

Thank you



Anna Majelantle

Statistician General

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1.0 Introduction

This Stats Brief presents information on Botswana Maternal Mortality Ratio for the period 2011 – 2015. Maternal Mortality Ratio is defined as the number of maternal deaths per 100,000 live births. As part of a collaborative effort between Statistics Botswana and Ministry of Health & Wellness (Department of Public Health- Sexual and Reproductive Health SRH) to enable and improve the availability and quality of maternal mortality information, the parties, ensure that data on live births and maternal deaths are provided.

2.0 Access to Health Services and Birth Attendants Assistance

The 2007, Botswana Family Health Survey showed that 95 percent of Botswana's population had access to health services and live within an average of 8 kilometers radius from the nearest health facility. Hence there is a high coverage and precision on the collection of births and deaths data.

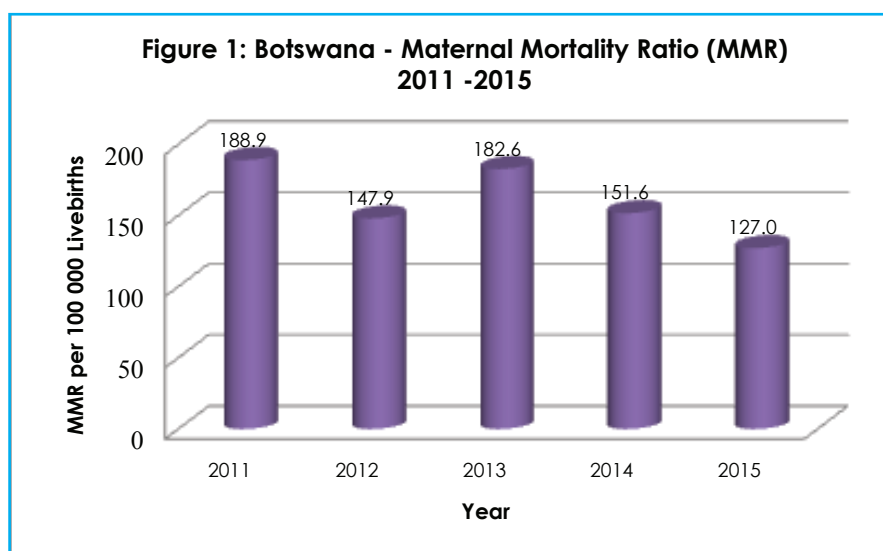
Botswana Family Health Survey of 2007 further indicated that over 99 percent of deliveries were assisted by skilled birth attendants in cities/towns, 97.2 percent in urban villages and 90.2 percent in rural areas. The high level of birth attendance by skilled health personnel should lead to accurate identification and classification of maternal death cases, as well as certification of causes of maternal deaths. The survey further indicated that over 95 percent of all reported deliveries occur in health facilities.

3.0 Maternal Mortality Ratio Trend

Botswana Maternal Mortality Ratio(MMR) for the period 2011 to 2015 is shown in **Table 1** and **Figure 1**. The MMR dropped from 151.6 to 127.0 per 100,000 live-births between 2014 and 2015 showing an improvement of 16.2 percent.

Table 1: Botswana Maternal Mortality Ratio 2011 – 2015

	2011	2012	2013	2014	2015
Institutional live births	44,904	49,957	49,771	47,273	57,290
Non-Institutional live-births	104	91	68	205	190
Total live-births	45,008	50,048	49,839	47,478	57,480
Maternal Deaths	85	74	91	72	73
Maternal Morality Ratio (per 100,000 live-births)	188.9	147.9	182.6	151.6	127



3.1 Causes of Maternal Mortality by Age

There were 73 maternal deaths in 2015 as shown in **Tables 2** and **5**. The maternal mortality data for 2015 has been divided into two parts - direct and indirect causes. This development has been initiated with the view to providing clear information on the underlying causes of death of a pregnant woman, which will further guide the interventions accordingly.

The most common causes of maternal deaths as shown in **Table 5** were Genital tract & pelvic infection following abortion, ectopic and molar pregnancy with fourteen cases in the direct causes, Diseases of the circulatory system complicating pregnancy, childbirth and the puerperium on the indirect causes with eight cases followed by Ectopic pregnancy unspecified, severe pre-eclampsia, Third-stage hemorrhage each with four cases from the direct causes. Lastly there is Tuberculosis complicating pregnancy, childbirth and the puerperium also with four cases from the indirect causes.

Overall, direct causes contributed a higher percentage (58.9%) of all maternal deaths. Additionally, **Table 5** shows that the highest maternal deaths were recorded among the age group 25 – 29 at 26,(35.6 percent), followed by ages 35-39 (24.7 percent), 30-34 with 11.0 percent, 20-24 with 9.6 percent and lastly 40-44 with 8.2 percent.. However there was no maternal death recorded among those less than 15 years and ages 45 and above.

Table 2: Summary of Causes of Maternal Deaths

Major causes of Maternal Deaths	2011		2012		2013		2014		2015	
	Number	%	Number	%	Number	%	Number	%	Number	%
HIV-related & other viral diseases	3	3.5	1	1.4	1	1.1	10	13.9	1	1.4
Top cause of Maternal Deaths (excludes HIV)	41	48.2	41	55.4	58	63.7	34	47.2	38	52
Other diseases	41	48.2	32	43.2	32	35.2	28	38.9	34	46.6
Total	85	100	74	100	91	100	72	100	73	100

*Note: Top – cause of Maternal Deaths refer to Table 5

3.2 Female Population and corresponding Livebirths

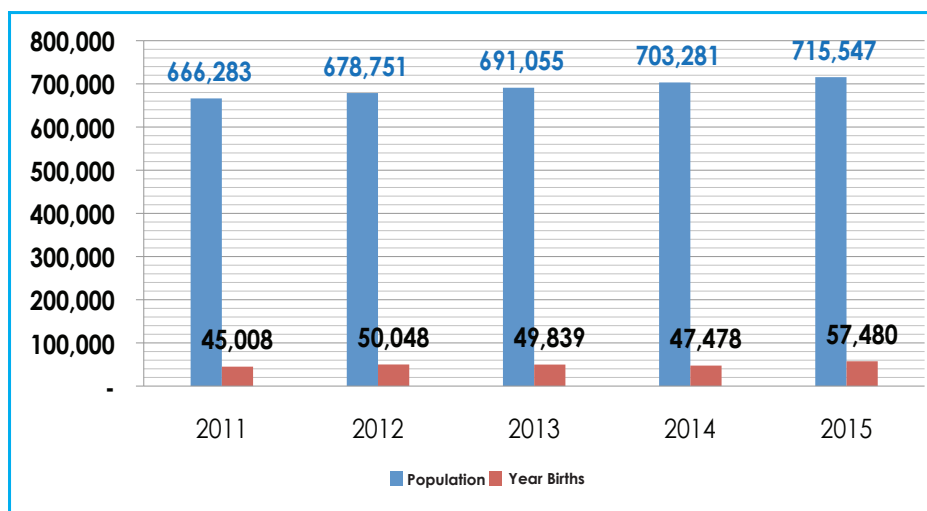
According to Botswana Population Projections, in 2015 female population aged 10 – 49 was estimated at 715,547 while there was an estimated 57,480 Livebirths. This would imply a 17.4 percent increase in the number of Livebirths estimated since 2014. An important observation is that female population has been increasing steadily while the number of livebirths had been fluctuating over the period.

Table 3: Female Population by Age-group - Botswana 2011-2015

Age	Year				
	2011	2012	2013	2014	2015
10-14	102,875	103,023	103,596	104,517	105,676
15-19	105,928	105,647	104,964	104,102	103,386
20-24	103,101	103,097	103,750	104,739	105,560
25-29	106,658	107,502	106,914	105,485	104,051
30-34	86,027	90,727	95,674	100,359	104,110
35-39	66,784	70,428	74,031	77,698	81,588
40-44	50,530	52,943	55,900	59,265	62,834
45-49	44,380	45,384	46,226	47,116	48,342
Total	666,283	678,751	691,055	703,281	715,547

Source: Botswana Population Projections 2011-2026

Figure 2: Trend in Female Population and Livebirths 2011-2015



4.0 Institutional Births

There were 57,290 Institutional births registered in 2015 as shown in **Table 1**. **Table 4** shows that most births (63.5 %) occurred in General Hospitals followed by primary hospitals with 22.0 percent and clinics with 14.2 percent. An interesting observation is that most deliveries take place in health facilities than at home (**Table 4**). The overall average length of stay in a health facility was estimated at 7 days (**Table 6**) with hospitals having longer length of stays as they often handle complicated referral cases.

Table 4: Live Births by Place of delivery 2014 - 2015

Place of Birth	2014		2015	
	Number	Percent	Number	Percent
General Hospital	31,397	66.1	36,504	63.5
Primary Hospital	9,013	19	12,621	22
Clinics	6,863	14.5	8,165	14.2
Non Institutional	205	0.4	190	0.3
Total Live Births	47,478	100	57,480	100

4.1 Born Before Arrival (BBA)

The born before arrival (BBA) refers to babies brought to the health facility after delivery. The BBA accounted for 3.9 percent of the 57,290 births in 2015 as compared to 3.6 percent of 47, 273 births in 2014 (**Table 6**). The highest proportion (17.8) of births born before arrival was recorded in Letsholathebe Memorial Hospital followed by Ngangabgwe Referral Hospital with 14.6 percent and Scottish Livingstone Hospital with 12.4 percent.

4.2 Non-Institutional Births

There were 190 recorded non-institutional Live births in 2015 indicating a decrease of 0.3 percent compared to the 2014 figure. (**Table 4**). It has been realized that non-institutional births reported by Health Facilities to Ministry of Health were insignificant ever since Ministry of Labour and Home Affairs inaugurated the collection of births and deaths certificates.

Francistown and Selibe-Phikwe districts reported the highest (31) non-Institutional births, accounting for 16.3 percent, followed by Greater Gaborone with 28 births (14.7 percent), Kweneng East with 20 births (10.5 percent), Kgatleng with 12 births (6.3 percent) and lastly South East registered 11 births (5.8 percent). However, the distribution of these non- institutional births is shown in **Table 7**.

5.0 Technical Note

The availability of data on number of live births and maternal mortality are a collaborative effort between Ministry of Health's Sexual and Reproductive Health Unit and Statistics Botswana through its Health Statistics Unit to ensure production of quality national maternal mortality information.

6.0 Access to Health Services in Botswana

In Botswana, healthcare is delivered through a decentralized system with primary health care being the pillar of the delivery system. Botswana has an extensive network of health facilities (Hospitals, Clinics, Health posts and Mobile Stops) clustered in the 27 Health Districts.

7.0 Definition of Maternal Mortality Ratio (MMR)

As indicated earlier, Maternal Mortality Ratio is defined as the number of maternal deaths per 100,000 live births. This indicator estimates the proportion of pregnant women or mothers who die from causes related or aggravated by pregnancy or its management. The ratio is expressed as follows:

$$\frac{\text{Maternal deaths} * K}{\text{Live Births}}$$

Where K = 100,000.

World Health Organization (WHO) Maternal Death Definitions for classification and calculation of MMR

KEY TERMINOLOGIES	
The following World Health Organization (WHO) maternal death definitions were used for classification and calculation of MMR. The classification of causes of maternal deaths is also according to WHO International Classification of Diseases Volume 10 (ICD 10).	
Maternal Death	A death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.
Direct Maternal Death	A death resulting from complications of pregnancy, labor or delivery or their management.
Indirect Maternal Death	A death in which pregnancy exacerbated a preexisting health problem.
Non-Maternal Death	A death that occurred during pregnancy or within 42 days of termination of pregnancy, but was considered unrelated to pregnancy (e.g. due to injury, homicide, or suicide).
Maternal Mortality Ratio (Commonly abbreviated as MMR)	Number of maternal deaths during a given period per 100,000 live-births during the same time-period.
Maternal Mortality Rate (Commonly abbreviated as MM Rate)	Number of maternal deaths in a given period per 100,000 women of reproductive age during the same time period.

Table 5: Causes of Maternal Mortality by Age Group of Mother 2015

		Age group of mother(years)										
Code	Direct Causes	<15	15-19	20-24	25-29	30-34	35-39	40-44	45+	N/S	Total	%
O00.9	Ectopic pregnancy unspecified	0	0	0	2	1	0	0	0	1	4	5.5
O06.4	Unspecified abortion, incomplete without complications	0	0	0	1	0	0	0	0	0	1	1.4
O08.0	Genital tract and pelvic infection following abortion, ectopic & molar pregnancy.	0	3	1	6	1	1	2	0	0	14	18.9
O14.1	Severe pre-eclampsia	0	0	1	1	0	2	0	0	0	4	5.5
O14.9	Pre-eclampsia, unspecified	0	0	0	1	1	0	0	0	0	2	2.7
O15.2	Eclampsia in the puerperium	0	0	0	0	0	0	1	0	1	2	2.7
O15.9	Eclampsia, unspecified as to time period	0	1	0	0	0	0	0	0	1	2	2.7
O16	Unspecified maternal hypertension	0	0	0	1	0	0	0	0	0	1	1.4
O45.9	Premature separation of placenta, unspecified (abruptio placenta)	0	0	0	1	0	0	0	0	0	1	1.4
O71.8	Other specified obstetric trauma	0	0	0	2	0	1	0	0	0	3	4.1
O71.9	Obstetric trauma unspecified (uterine rupture)	0	0	0	0	0	1	0	0	0	1	1.4
O72.0	Third-Stage haemorrhage	0	1	0	1	0	2	0	0	0	4	5.5
O72.1	Other immediate postpartum haemorrhage	0	0	0	2	0	1	0	0	0	3	4.1
O72.3	Post-partum coagulation defect	0	0	0	0	0	1	0	0	0	1	1.4
	Total	0	5	2	18	3	9	3	0	3	43	58.9
		Age group of mother (years)										
Code	Indirect Causes	<15	15-19	20-24	25-29	30-34	35-39	40-44	45+	N/S	Total	%
O24.4	Diabetic mellitus arising in pregnancy	0	0	0	0	0	1	0	0	0	1	1.4
O26.6	Liver disorders in pregnancy, childbirth and the puerperium	0	0	0	1	0	0	1	0	0	2	2.7
O87.9	Venus complication in the puerperium, unspecified	0	0	0	0	1	1	0	0	0	2	2.7
O90.3	Cardiomyopathy in the puerperium	0	0	0	2	0	0	0	0	0	2	2.7
O98.0	Tuberculosis complicating pregnancy, childbirth and the puerperium	0	0	1	1	0	0	2	0	0	4	5.5
O98.6	Protozoal diseases complicating pregnancy, childbirth and the puerperium	0	0	1	0	0	0	0	0	0	1	1.4
O98.7	HIV disease complicating pregnancy, childbirth, and the puerperium	0	0	0	0	0	1	0	0	0	1	1.4
O99.1	Other disease of the blood and blood forming organs and certain disorders involving the immune mechanism complicating pregnancy, childbirth and the puerperium	0	0	0	0	1	0	0	0	0	1	1.4
O99.2	Endocrine, nutritional and metabolic diseases complicating pregnancy, childbirth and the puerperium	0	0	1	0	1	0	0	0	0	2	2.7
O99.4	Diseases of the circulatory system complicating pregnancy, childbirth and the puerperium	0	0	1	3	1	3	0	0	0	8	11.0
O99.5	Diseases of the respiratory system complicating pregnancy, childbirth and the puerperium	0	0	0	1	1	1	0	0	0	3	4.1
O99.8	Other specified diseases and conditions complicating pregnancy, childbirth and the puerperium	0	0	1	0	0	1	0	0	0	2	2.7
X09.9	Burns	0	0	0	0	0	1	0	0	0	1	1.4
	Total	0	0	5	8	5	9	3	0	0	30	41.1
	Grand Total	0	5	7	26	8	18	6	0	3	73	100

Table 6: Health Facilities by Patient Care Services - 2015

Newborns													
District Health Facility	Discharged												
	Number of Beds	Admissions	Alive	Dead	Patient Days	Occupancy Rate	Average L. of Stay (Days)	Turnover Rate	Number	BBA	Alive	Dead	Total Live births
General Hospitals													
Letsholathebe	340	10,372	10,235	369	79,555	64	8	31	3,129	135	3,346	46	3,264
Il Memorial													
Sekgoma Memorial	370	11,025	10,676	348	77,816	58	7	30	2,458	61	2,426	31	2,519
Scotish Livingstone	346	10,311	9,933	346	77,807	62	8	30	2,740	93	2,833	0	2,833
Bokamoso Private	128	5,604	5,526	140	21,265	46	4	44	951	0	961	0	951
Jwaneng Mine	55	3,040	2,954	108	11,619	58	4	56	983	27	1,002	7	1,010
Seventh Day Adventist	167	5,484	5,181	183	20,572	34	4	32	1,431	31	1,422	19	1,462
Mahalapye	320	9,588	9,472	344	119,678	102	12	31	2,405	64	2,348	23	2,469
Deborah Retief Memorial	181	3,419	3,283	120	23,156	35	7	19	1,446	33	1,491	24	1,479
Orapa Mine	106	1,966	1,939	32	7,083	18	4	19	731	8	741	0	739
Princes Marina Referral	592	24,571	23,430	1,120	330,136	153	13	41	6,686	31	6,431	227	6,717
Gaborone Private	89	2,579	2,945	60	8,572	26	3	34	895	83	734	1	978
Nyangabgwe Referral	560	20,723	19,491	1,131	142,532	70	7	37	6,054	111	6,014	151	6,165
Riverside Private	29	235	253	0	681	6	3	9	165	0	163	2	165
Bamalete Lutheran	163	8,124	8,074	148	74,135	125	9	50	1,971	10	1,975	4	1,981
Athlone	172	4,712	4,675	163	25,988	41	5	28	960	27	973	24	987
Sbrana Mental Referral	300	3,055	2,838	6	146,603	134	52	9	0	0	0	0	0
BCL	15	132	131	1	536	10	4	9	0	0	0	0	0
Selibe-Phikwe	157	10,470	9,983	266	54,409	95	5	65	2,741	44	2,745	53	2,785
Total	4,090	135,410	131,019	4,885	1,222,143	82	9	33	35,746	758	35,605	612	36,504
Primary Hospitals													
Masunga	55	2,768	2,714	58	9,034	45	3	50	600	29	627	0	629
Palapye	75	3,521	3,363	157	12,487	46	4	47	1,404	47	1,444	13	1,451
Bobonong	38	3,436	3,354	99	10,936	79	3	91	885	35	913	9	920
Mmadinare	55	2,855	2,769	91	10,514	52	4	52	729	27	747	10	756

Table 7: Non-Institutional Livebirths by District - 2015

District	Home Deliveries	Percentage
Gaborone	28	14.7
Francistown	31	16.3
Lobatse	1	0.5
Selibe Phikwe	31	16.3
Orapa	2	1.1
Jwaneng	0	0.0
Sowa Town	0	0.0
Ngwaketse	3	1.6
Barolong	3	1.6
Ngwaketse West	0	0.0
South East	11	5.8
Kweneng East	20	10.5
Kweneng West	1	0.5
Kgatleng	12	6.3
Central-Serowe	1	0.5
Central-Mahalapye	3	1.6
Central-Bobonong	6	3.2
Central-Boteti	4	2.1
Central-Tutume	4	2.1
North East	7	3.7
Ngamilang South	8	4.2
Ngamiland West	6	3.2
Chobe	2	1.1
Ghanzi	1	0.5
Kgalagadi South	3	1.6
Kgalagadi North	2	1.1
Total	190	100