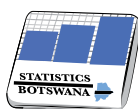


Botswana - Maternal Mortality Ratio 2016

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STATISTICS BOTSWANA

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 2016, there were 54,267 live births of which 54,159 were institutional births representing 99.8 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 before rising to 156.6 in 2016.

The leading direct causes of maternal mortality included abortion related incidents of genital tract and pelvic infection following abortion and ectopic pregnancy at 14.1 followed by other immediate postpartum haemorrhage with 8.2 percent and puerperial sepsis (infection) with 7.1 percent. On the other hand, Diseases of the circulatory system complicating pregnancy, childbirth and the puerperium were the leading indirect causes of maternal mortality with 12.9 percent.

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

March 2018

1.0 Introduction

This Stats Brief provides information on Botswana Maternal Mortality Ratio for the period 2012 – 2016. 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 (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.

We hope readers and users of this information will find this brief informative and we welcome input on how to further improve the content of this publication.

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 lived 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.

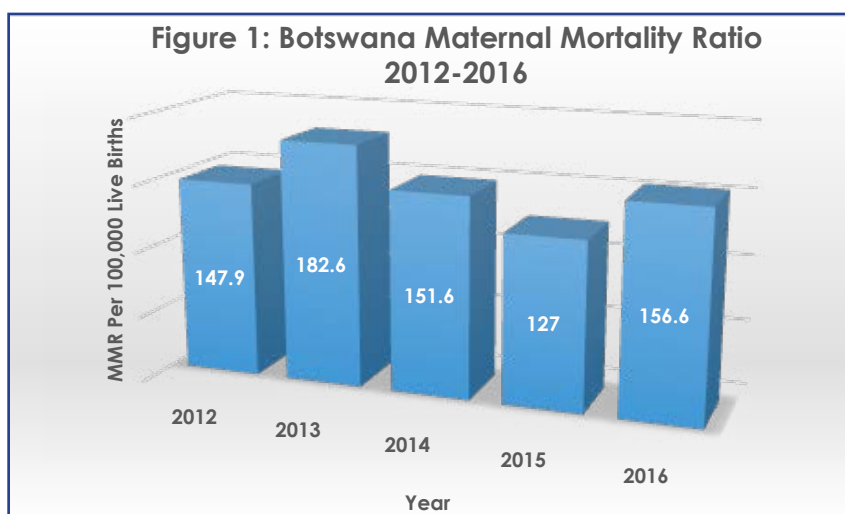
The 2007 Botswana Family Health Survey further indicated that over 99 percent of deliveries were assisted by skilled birth attendants in cities/towns, accounting for 97.2 percent in urban villages and 90.2 percent in rural areas. The high level of birth attendance by skilled health personnel should lead 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 for the period 2012 to 2016 is shown in Table 1 and Figure 1. The MMR increased from 127.0 to 156.6 per 100,000 live-births between 2015 and 2016.

Table 1: Botswana Maternal Mortality Ratio 2012– 2016

	2012	2013	2014	2015	2016
Institutional live births	49,957	49,771	47,273	57,290	54,159
Non-Institutional live-births	91	68	205	190	108
Total live-births	50,048	49,839	47,478	57,480	54,267
Maternal Deaths	74	91	72	73	85
Maternal Morality Ratio (per 100,000 live-births)	147.9	182.6	151.6	127	156.6



3.1 Causes of Maternal Mortality by Age

There were 85 maternal deaths in 2016 as indicated in Tables 2 and 5. The maternal mortality data have been divided into direct and indirect causes. The development has been initiated with the view to providing clear information on what exactly the underlying cause of death of a pregnant woman was, which will further guide the interventions accordingly and give a clear picture on whether there is reduction on maternal deaths or not. The most common causes of these deaths are indicated in Table 5 as thus; Genital tract & pelvic infection following abortion, ectopic and molar pregnancy with twelve cases in the direct causes, Diseases of the circulatory system complicating pregnancy, childbirth and the puerperium on the indirect causes with eleven cases followed by Other immediate Postpartum haemorrhage with seven cases in the direct causes, Puerperal sepsis with six cases from the direct causes. Lastly we have Ectopic pregnancy unspecified, and severe pre-Eclampsia with five cases each, also from the direct causes.

Overall, maternal direct causes contributed a higher 63.5 percent of total deaths. Additionally, Table 5 shows that the highest maternal deaths were 24 (28.2 percent), reported among age groups 30-34, followed by ages 35-39 (23.5 percent), 20-24 with 15.3 percent, 25-29 with 14.2 percent and lastly 40-44 with 9.4 percent respectively. No maternal death was evident on less than 15 years of age.

However in 2016, there were two cases of maternal deaths recorded for ages 45 and above in both direct and indirect causes, which has not been the case in the past three years.

Table 2: Summary of Causes of Maternal Deaths

Major causes of Maternal Deaths	2012		2013		2014		2015		2016	
	Number	%	Number	%	Number	%	Number	%	Number	%
HIV-related & other viral diseases	1	1.4	1	1.1	10	13.9	1	1.4	1	1.2
Top cause of Maternal Deaths (excludes HIV)	41	55.4	58	63.7	34	47.2	38	52	46	54.1
Other diseases	32	43.2	32	35.2	28	38.9	34	46.6	38	44.7
Total	74	100	91	100	72	100	73	100	85	100

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

3.2 Female Population and corresponding Livebirths

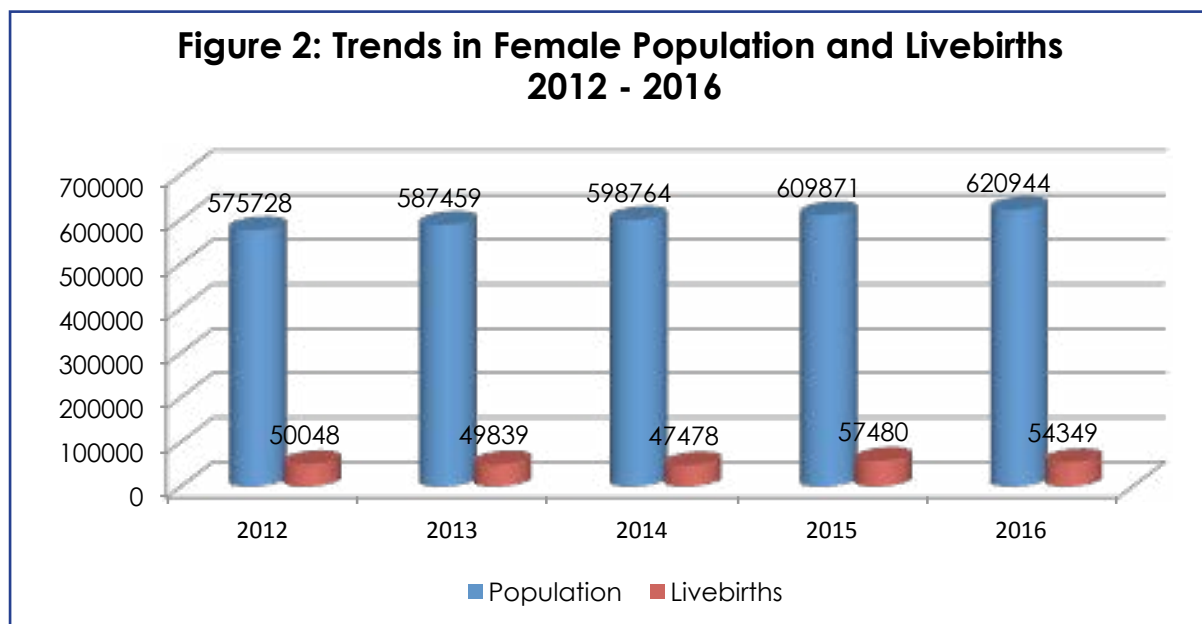
The trend in female population and the corresponding Livebirths are shown in Table 3 and figure 2 below. According to Botswana Population Projections, the female population in 2016 was estimated at 620,944 while the corresponding Livebirths were 54,349, indicating a decrease of 5.8 percent in the number of Livebirths from the 2015 figure. Notably the female population has been substantially increasing while the Livebirths have been fluctuating over the period.

Table 3: Female Population by Age-group - Botswana 2012-2016

Age	Year				
	2012	2013	2014	2015	2016
15-19	105,647	104,964	104,102	103,386	103,056
20-24	103,097	103,750	104,739	105,560	105,868
25-29	107,502	106,914	105,485	104,051	103,206
30-34	90,727	95,674	100,359	104,110	106,486
35-39	70,428	74,031	77,698	81,588	85,773
40-44	52,943	55,900	59,265	62,834	66,454
45-49	45,384	46,226	47,116	48,342	50,101
Total	575,728	587,459	598,764	609,871	620,944

Source: Botswana Population Projections 2011-2026

Figure 2: Trends in Female Population and Livebirths 2012 - 2016



4.0 Institutional Births

There were 54,349 Institutional births registered in 2016 as indicated in Table 1. Table 4 shows that most births (62.0 percent) occurred in General Hospitals, as compared to 21.6 percent in Primary Hospitals and 16.0 percent in Clinics respectively. It is quite evident that most mothers prefer to deliver in health facilities than at home (Table 4). The overall average length of stay in a health facility was 7 days (Table 6) which is skewed towards hospitals as they often handle complicated referral cases.

Table 4: Live Births by Place of Delivery 2015 - 2016

Place of Birth	2015		2016	
	Number	Percent	Number	Percent
General Hospital	36,504	63.5	33,708	62
Primary Hospital	12,621	22.0	11,766	21.6
Clinics	8,165	14.2	8,685	16.0
Non Institutional	190	0.3	190*	0.3
Total Live Births	57,480	100	54,349	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 4.0 percent of 54,159 births in 2016 as compared to 3.9 percent of 47,290 births in 2015 (Table 6).

4.2 Non-Institutional Births

The 190 non-institutional live births in 2016 have been carried forward from 2015 data. The figures indicate a decrease of 0.3 percent as compared to the 2014 figure. (Table 4). It has been realized that non-institutional births reported by Health Facilities to Ministry of Health were on a decline ever since Ministry of Labour and Home Affairs inaugurated the collection of births and deaths certificates.

Furthermore it is worth noting that 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). 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:

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

Where K = 100,000.

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

MR: 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 pre existing 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.

Table 5: Causes of Maternal by Age Group of Mother 2016

Code	Diagnosis	Age group of mothers (years)								N/S	Total	%
		<15	15-19	20-24	25-29	30-34	35-39	40-44	45+			
Direct Causes												
O00.9	Ectopic pregnancy unspecified.	0	0	1	1	3	0	0	0	0	5	5.9
O02.1	Missed abortion.	0	0	0	0	0	0	1	0	0	1	1.2
O06.4	Unspecified abortion, incomplete without complications.	0	0	2	0	0	0	0	0	0	2	2.4
O08.0	Genital tract and pelvic infection following abortion, ectopic & molar pregnancy.	0	2	1	0	5	2	2	0	0	12	14.1
O13	Gestational (pregnancy-induced) hypertension without significant proteinuria.	0	0	1	1	0	1	0	0	0	3	3.5
O14.1	Severe pre-eclampsia.	0	0	0	1	3	0	1	0	0	5	5.9
O15.9	Eclampsia, unspecified as to time period.	0	0	1	0	0	0	0	0	1	2	2.4
O21.1	Hyperemesis gravidarum with metabolic disturbance.	0	0	0	1	0	1	0	0	0	2	2.4
O44.1	Placenta praevia with haemorrhage.	0	0	0	0	0	1	0	0	0	1	1.2
O45.9	Premature separation of placenta, unspecified (abruptio placenta)	0	0	0	0	0	1	0	0	0	1	1.2
O46.0	Antepartum haemorrhage with coagulation defect.	0	0	0	1	0	0	0	0	0	1	1.2
O71.1	Rupture of uterus during labour.	0	0	0	0	0	2	0	1	0	3	3.5
O72.1	Other immediate Postpartum haemorrhage.	0	0	1	0	2	1	2	0	1	7	8.2
O74.8	Other complications of anaesthesia during labour and delivery.	0	0	0	1	0	1	0	0	0	2	2.4
O85	Puerperal sepsis	0	0	3	2	1	0	0	0	0	6	7.1
O88.1	Amniotic fluid embolism	0	0	1	0	0	0	0	0	0	1	1.2
Total		0	2	11	8	14	10	6	1	2	54	63.5
Indirect Causes												
Code	Diagnosis	Age group of mothers (years)								N/S	Total	%
		<15	15-19	20-24	25-29	30-34	35-39	40-44	45+			
O26.6	Liver disorder in pregnancy, childbirth and the puerperium.	0	0	0	1	0	0	0	0	0	1	1.2
O90.3	Cardiomyopathy in the puerperium.	0	0	0	0	0	1	0	0	0	1	1.2
O98.0	Tuberculosis complicating pregnancy, childbirth and the puerperium.	0	0	0	1	2	0	0	0	0	3	3.5
O98.5	Other viral disease complicating pregnancy childbirth and the puerperium.	0	0	0	0	0	0	1	0	0	1	1.2
O98.6	Protozoal diseases complicating pregnancy, childbirth and the puerperium.	0	0	1	0	0	2	0	1	0	4	4.7
O98.7	HIV disease complicating pregnancy, childbirth, and the puerperium	0	0	0	0	1	0	0	0	0	1	1.2
O99.3	Mental disorders and disease of the nervous system complicating pregnancy, child birth and puerperium.	0	0	0	1	1	1	0	0	0	3	3.5
O99.4	Diseases of the circulatory system complicating pregnancy, childbirth and the puerperium	0	2	0	1	2	5	1	0	0	11	12.9
O99.6	Diseases of the digestive system complicating pregnancy, childbirth and puerperium.	0	0	0	0	0	1	0	0	0	1	1.2
O99.8	Other specified diseases and conditions complicating pregnancy, childbirth and the puerperium.	0	0	0	0	2	0	0	0	0	2	2.4
C50.9	Malignant neoplasm of breast unspecified.	0	0	0	0	1	0	0	0	0	1	1.2
X48.9	Accidental poisoning by and exposure to pesticides.	0	0	1	0	0	0	0	0	0	1	1.2
Y50.1	Opioid receptor antagonists.	0	0	0	0	1	0	0	0	0	1	1.2
Total		0	2	2	4	10	10	2	1	0	31	36.5
Grand Total		0	4	13	12	24	20	8	2	2	85	100

Table 6: Health Facilities by Patient Care Services - 2016

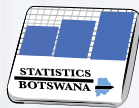
District Health Facility	Newborns												
	Discharged												
	Number of Beds	Admissions	Alive	Dead	Patient Days	Occupancy Rate(%)	Average L. of Stay (Days)	Turnover Rate	Number	BBA	Alive	Dead	Total Livebirths
General Hospitals													
Letsholathebe II Memorial	340	8,967	8,778	264	71,770	58	8	27	3,176	79	3,018	67	3,255
Sekgoma Memorial	370	11,711	11,368	374	79,063	59	7	32	2,511	42	2,613	40	2,553
Scottish Livingstone	346	10,307	9,997	402	77,902	62	7	30	1,807	62	1,865	4	1,869
Bokamoso Private	128	6,347	6,231	187	23,416	50	4	50	893	6	853	7	899
Jwaneng Mine	55	2,993	2,846	78	11,189	56	4	53	953	105	910	15	1,058
Seventh Day Adventist	167	5,276	5,018	197	20,773	34	4	31	1,481	48	1,505	24	1,529
Mahalapye Hospital	320	8,890	8,635	305	63,731	55	7	28	2,292	77	2,346	23	2,369
Deborah Retief Memorial	181	4,248	4,035	154	28,752	44	7	23	1,616	24	1,634	6	1,640
Orapa Hospital	106	2,188	2,152	41	6,763	17	3	21	697	4	698	3	701
Princess Marina	592	25,582	24,558	1,122	320,146	148	12	43	6,633	35	6,450	221	6,668
Gaborone Private	89	4,533	5,545	77	16,013	49	3	63	1,307	5	543	65	1,312
Nyangabgwe Referral	560	21,024	20,437	1,200	148,292	73	7	39	5,191	63	5,132	122	5,254
Riverside Private	29	1,186	1,177	7	3,601	34	3	41	166	1	161	2	167
Bamalete Lutheran	163	7,498	7,392	129	27,039	45	4	46	1,876	12	1,886	1	1,888
Athlone Hospital	172	4,858	4,778	126	26,971	43	5	29	854	21	869	6	875
Sabrana Mental	300	3,055	2,838	6	146,603	134	52	9	-	-	-	-	0
BCL Hospital	15	77	79	1	298	5	4	5	-	-	-	-	0
Selibe-Phikwe	157	5,046	4,905	145	21,050	37	4	32	1,649	22	1,649	14	1,671
Total	4,090	133,786	130,769	4,815	1,093,372	73	8	33	33,102	606	32,132	620	33,708

Table 6: Health Facilities by Patient Care Services – 2016 Cont'd

District Health Facility	Newborns												
	Discharged												Total Livebirths
	Number of Beds	Admissions	Alive	Dead	Patient Days	Occupancy Rate(%)	Average L. of Stay (Days)	Turnover Rate	Number	BBA	Alive	Dead	
Primary Hospitals													
Masunga Primary	55	2,558	2,537	42	7,963	40	3	47	410	22	441	0	432
Palapye Primary	75	2,954	2,828	114	10,451	38	4	39	1,527	48	1,558	2	1,575
Bobonong Primary	38	3,383	3,270	94	11,224	81	3	89	984	6	1,010	8	1,010
Mmadinare Primary	55	1,279	1,233	42	4,327	22	3	23	408	21	428	1	429
Thamaga Primary	61	2,424	2,363	54	8,326	37	3	40	760	27	779	7	787
Good Hope Primary	58	2,207	2,117	89	9,721	46	4	38	601	30	627	1	631
Ghanzi Primary	96	3,019	2,915	95	14,507	41	5	31	1,017	126	1,109	10	1,143
Sefhare Primary	66	2,164	2,102	62	8,277	34	4	33	548	17	560	5	565
Kasane Primary	33	2,451	2,352	34	7,333	61	3	72	483	18	501	0	501
Tsabong Primary	57	2,606	2,533	71	11,610	56	4	46	570	21	591	0	591
Tutume Primary	44	3,803	3,680	148	13,257	83	3	87	862	48	910	0	910
Rakops Primary	42	1,310	1,268	49	6,842	45	5	31	255	24	279	0	279
Lethakane Primary	25	3,350	3,238	109	12,189	134	4	134	954	105	1,057	2	1,059
Gumare Primary	34	2,191	2,071	103	8,170	66	4	64	981	22	991	12	1,003
Thebe-Phatshwa Primary	42	46	46	0	537	4	12	1	3	0	3	0	3
Hukuntsi Primary	70	1,559	1,510	50	8,889	35	6	22	467	11	474	4	478
Gweta Primary	50	1,547	1,523	44	6,159	34	4	31	351	19	368	0	370
Total	901	38,851	37,586	1,200	149,782	46	4	43	11,181	585	11,686	52	11,766
Total Clinics	760	16,614	16,580	17	13,834	5	1	22	7,694	991	8,671	117	8,685
Grand Total	5,751	189,251	184,935	6,032	1,256,988	60	7	33	51,977	2,182	52,489	789	54,159

Table 7: Non-Institutional Livebirths by District – 2016*

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



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