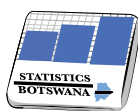


Botswana - Maternal Mortality Ratio 2017

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STATISTICS BOTSWANA

Preface

The Stats Brief on Maternal Mortality Ratio is an annual publication produced by Statistics Botswana in collaboration with the Ministry of Health and wellness to monitor the levels of maternal deaths in the country. The publication's content also scrutinizes major causes of maternal deaths with a view to monitoring the impact of Government interventions to ensure that no mother dies as a result of child birth. This commitment remains relevant and is underscored by the country's subscription to the Sustainable Development Goal of 'ensuring healthy lives and promoting well-being for all at all ages'. The goal commits to reducing maternal mortality ratio to less than 70 deaths per 100,000 live births by 2030.

The report shows that in 2017, there were 52,358 live births, of which 52,242 were institutional births, representing 99.8 per cent of all births. The report further shows that maternal mortality ratio which has been fluctuating over the years has declined from 156.6 deaths per 100,000 live births in 2016 to 143.2 deaths per 100,000 live births in 2017.

Overall, 76.0 per cent of all maternal deaths were due to direct causes, while the remainder were due to indirect causes. The leading direct cause of maternal mortality was 'genital tract and pelvic infection following abortion and ectopic and molar pregnancy' which accounted for 20.0 per cent of all maternal deaths, followed by 'diseases of the circulatory system complicating pregnancy, childbirth and the puerperium' at 10.7 per cent, 'severe pre-eclampsia' with 8.0 percent and 'rapture of uterus during labour' at 8.0 percent . On the other hand, diseases of the circulatory system complicating pregnancy, childbirth and the puerperium were the leading indirect cause of maternal deaths.

Statistics Botswana appreciates the collaboration with stakeholders, particularly the Ministry of Health and Wellness, in making this publication possible and welcomes feedback on the presentation and content of this publication from stakeholders to ensure that it continues to meet their expectations.

Thank you.



Dr. Burton Mguni
Statistician General
February 2019

1.0 Introduction

This Stats Brief provides information on Botswana Maternal Mortality Ratio for the period 2013 – 2017. 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 and Wellness (Department of Public Health-Sexual and Reproductive Health SRH) to enable and improve availability and quality of maternal mortality information, the parties, ensure that data on live births and maternal deaths are provided. The data for the period 2013 to 2017 are provisional until the National Annual Health Statistics Reports are published.

2.0 Access to Health Services and Birth Attendants Assistance

The 2007 Botswana Family Health Survey shows that 95 percent of Botswana's population have 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.

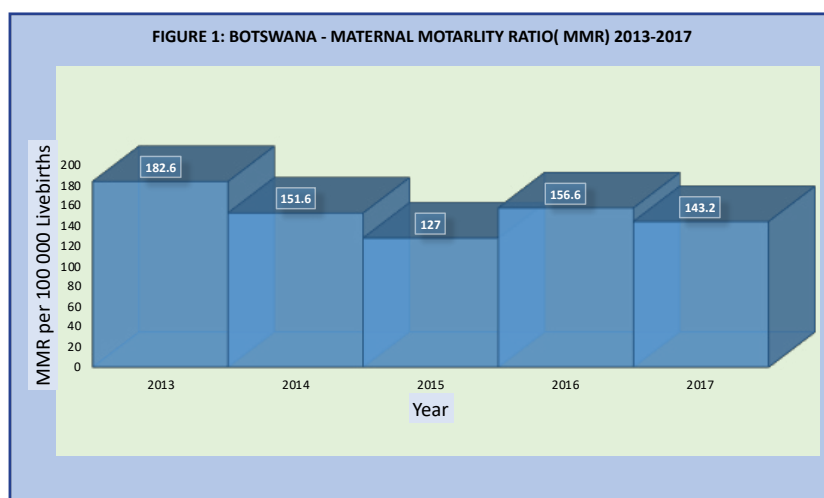
In addition, the 2017 Vital Statistics Report indicated that 99.7 percent of deliveries have been assisted by skilled birth attendants. The high level of birth attendance by skilled health personnel should lead to accurate identification and classification of maternal death cases, as well as certification of causes of maternal deaths. The survey further indicated that over 99.7 percent of all reported deliveries occur in health facilities.

3.0 Maternal Mortality Ratio Trend

Botswana Maternal Mortality Ratio for the period 2013 to 2017 is shown in Table 1 and Figure 1. The table shows that Maternal Mortality Ratio declined from 156.6 to 143.2 per 100,000 live-births between 2016 and 2017.

Table 1: Botswana Maternal Mortality Ratio 2013– 2017

	2013	2014	2015	2016	2017
Institutional live births	49,771	47,273	57,290	54,159	52,242
Non-Institutional live-births	68	205	190	108	116
Total live-births	49,839	47,478	57,480	54,267	52,358
Maternal Deaths	91	72	73	85	75
Maternal Morality Ratio (per 100,000 live-births)	182.6	151.6	127.0	156.6	143.2



3.1 Causes of Maternal Mortality by Age

There were 75 maternal deaths in 2017 as indicated in Tables 2 and 5. The maternal mortality data was classified into direct and indirect causes. This development was initiated with the view to providing information on the underlying causes of mortality the woman, 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 fifteen cases in the direct causes, Diseases of the circulatory system complicating pregnancy, childbirth and the puerperium with eight cases on the indirect causes, Severe pre-eclampsia and Rapture of uterus during labour with six cases each from the direct causes followed by Other immediate Postpartum haemorrhage with five cases in the direct causes. Lastly we have Eclampsia, unspecified as to time period with four cases from the direct causes.

Overall, maternal direct Causes contributed a higher 76.0 percent of total deaths. Additionally, Table 5 shows that the highest maternal deaths were 24 (32.0 percent), reported among age groups 35-39, followed by ages 30-34 (20.0 percent), 20-24 with 16.0 percent, 25-29 with 14.7 percent and lastly age-groups 15-19 and 40-44 with a tie of 8.0 percent respectively. However, this year a case of less than 15 years of age was recorded in the direct causes.

No case of maternal death was evident for ages 45 and above in both direct and indirect causes.

Table 2: Summary of Causes of Maternal Deaths

Major causes of Maternal Deaths	2013		2014		2015		2016		2017	
	Number	%	Number	%	Number	%	Number	%	Number	%
HIV-related & other viral diseases	1	1.1	10	13.9	1	1.4	1	1.2	3	4.0
Top cause of Maternal Deaths (excludes HIV)	58	63.7	34	47.2	38	52.0	46	54.1	44	58.7
Other diseases	32	35.2	28	38.9	34	46.6	38	44.7	28	37.3
Total	91	100	72	100	73	100	85	100	75	100

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

3.2 Female Population and corresponding Live Births

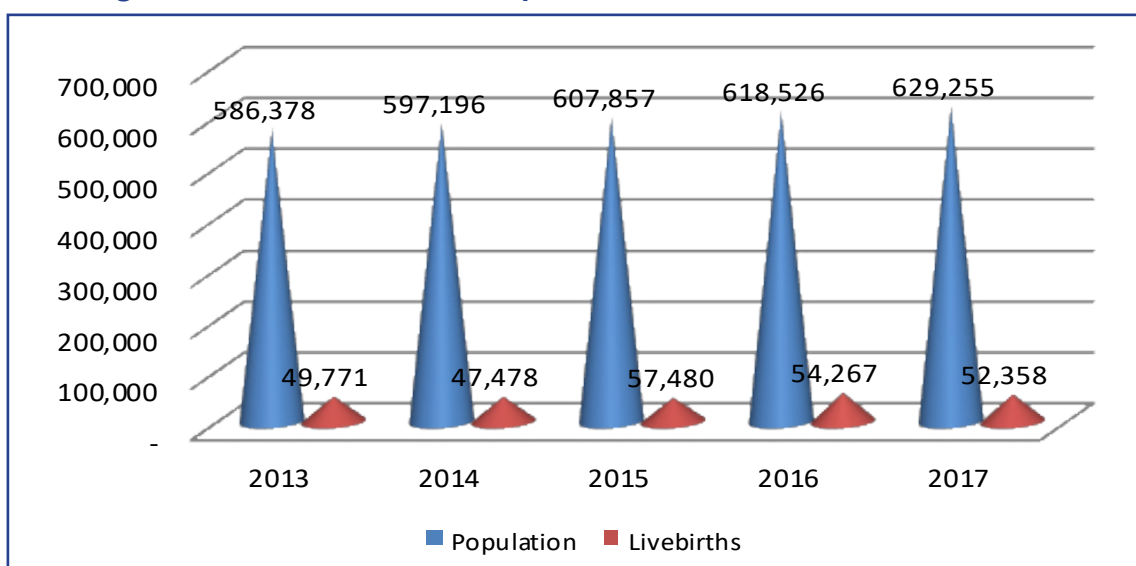
The trend in female population and the corresponding Livebirths are shown in Table 3 and figure 2 below. According to Botswana Population Projections, the female population in 2017 was attributed to 629,255 while the corresponding Livebirths were 52,358, indicating a decrease of 3.5 percent in the number of Livebirths from the 2016 figure comparatively. 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,2013-2017

Age (years)	Year				
	2013	2014	2015	2016	2017
15-19	104,892	104,005	103,271	102,930	103,050
20-24	103,605	104,541	105,323	105,605	105,291
25-29	106,681	105,166	103,666	102,770	102,693
30-34	95,436	100,002	103,640	105,916	106,629
35-39	73,860	77,435	81,230	85,316	89,803
40-44	55,778	59,078	62,579	66,130	69,619
45-49	46,126	46,969	48,148	49,859	52,170
Total	586,378	597,196	607,857	618,526	629,255

Source: Botswana Population Projections 2011-2026

Figure 2: Trend in Female Population and Live Births 2013-2017



4.0 Institutional Births

There were 52,242 Institutional births registered in 2017 as indicated in Table 1. Table 4 shows that most births (63.9 percent) occurred in General Hospitals, compared to 21.5 percent in primary hospitals and 14.4 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 2016 - 2017

Place of Birth	2016		2017	
	Number	Percent	Number	Percent
General Hospital	33,708	62.1	33,442	63.9
Primary Hospital	11,766	21.7	11,285	21.5
Clinics	8,685	16.0	7,515	14.4
Non Institutional	108	0.2	116	0.2
Total Live Births	54,267	100	52,358	100

4.1 Born Before Arrival (BBA)

The born before arrival (BBA) refers to babies brought to the health facility within 24hrs after delivery. The BBA accounted for 3.5 percent of 52,242 births in 2017 compared to 4.0 percent of 54,159 births in 2016 (Table 6).

4.2 Non-Institutional Births

There were 116 recorded non-institutional Live births in 2017 constituting 0.2 percent of the total births (Table 4). It has been realized that non-institutional births reported by Health Facilities to Ministry of Health and Wellness were insignificant ever since Ministry of Labour and Home Affairs inaugurated the collection of births and deaths certificates.

Furthermore it is worth noting that South East district reported the highest (49) non-Institutional births, accounting for 42.2 percent, followed by Greater Gaborone with 14 births (12.1 percent), Selibe Phikwe and Kweneng East with a tie of 11 births (9.5 percent) and lastly Southern with 6 births (5.2 percent). However, the distribution of these non-institutional births is shown in Table 7.

5.0 Technical Note

The availability of data on numbers of live births and maternal mortality are a collaborative effort between Ministry of Health and Wellness' 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.

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 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 Deaths by Age Group of Mother 2017

Direct Causes		Age group of mothers (years)								N/S	Total	%
		<15	15-19	20-24	25-29	30-34	35-39	40-44	45+			
Code	Diagnosis											
O00.9	Ectopic Pregnancy, unspecified	0	0	0	1	0	2	0	0	0	3	4.0
O08.0	Genital tract and pelvic infection following abortion and ectopic and molar pregnancy	0	1	3	1	4	6	0	0	0	15	20.0
O14.1	Severe pre-eclampsia	1	2	3	0	0	0	0	0	0	6	8.0
O15.0	Eclampsia in pregnancy	0	1	0	0	0	0	0	0	0	1	1.3
O15.2	Eclampsia in the puerperium	0	0	0	0	0	0	1	0	0	1	1.3
O15.9	Eclampsia, unspecified as to time period	0	0	1	1	1	1	0	0	0	4	5.3
O21.1	Hyperemesis gravidarum with metabolic disturbance	0	0	0	0	1	0	0	0	0	1	1.3
O41.1	Infection of amniotic sac and membranes	0	0	1	0	0	1	0	0	0	2	2.7
O45.9	Premature separation of placenta, unspecified	0	0	0	0	1	0	0	0	0	1	1.3
O62.2	Other uterine inertia	0	0	0	1	0	0	0	0	0	1	1.3
O71.1	Rapture of uterus during labour	0	0	0	1	1	4	0	0	0	6	8.0
O72.0	Third-stage haemorrhage	0	0	0	0	0	1	0	0	0	1	1.3
O72.1	Other immediate postpartum haemorrhage	0	0	0	2	0	1	2	0	0	5	6.7
O74.9	Complication of anaesthesia during labour and delivery, unspecified	0	0	0	0	0	1	0	0	0	1	1.3
O85	Puerperal sepsis	0	1	0	0	2	0	0	0	0	3	4.0
O88.1	Amniotic fluid embolism	0	0	1	1	0	0	1	0	0	3	4.0
O88.2	Obstetric blood-clot embolism	0	0	1	0	1	0	0	0	0	2	2.7
O90.3	Cardiomyopathy in the puerperium	0	0	1	0	0	0	0	0	0	1	1.3
Total		1	5	11	8	11	17	4	0	0	57	76.0

Indirect Causes		Age group of mothers (years)								N/S	Total	%
		<15	15-19	20-24	25-29	30-34	35-39	40-44	45+			
Code	Diagnosis											
O98.0	Tuberculosis complicating pregnancy, childbirth and the puerperium	0	0	0	0	0	0	1	0	0	1	1.3
O98.7	Human immunodeficiency(HIV) disease complicating pregnancy, childbirth and the puerperium	0	0	1	1	0	1	0	0	0	3	4.0
O99.3	Mental disorders and diseases of the nervous system complicating pregnancy, childbirth and the puerperium	0	0	0	0	0	1	1	0	0	2	2.7
O99.4	Diseases of the circulatory system complicating pregnancy, childbirth and the puerperium	0	1	0	1	2	4	0	0	0	8	10.7
O99.5	Diseases of the respiratory system complicating pregnancy, childbirth and the puerperium	0	0	0	0	0	1	0	0	0	1	1.3
O99.8	Other specified diseases and conditions complicating pregnancy, childbirth and the puerperium	0	0	0	1	2	0	0	0	0	3	4.0
Total		0	1	1	3	4	7	2	0	0	18	24.0
Grand Total		1	6	12	11	15	24	6	0	0	75	100

Table 6: Health Facilities by Patient Care Services - 2017

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	9,259	9,200	267	80,569	65	9	28	2,974	99	4,931	57	3,073
Scotish Livingstone	346	11,023	10,939	381	80,044	63	7	33	2,843	71	2,973	61	2,914
Bokamoso Private	135	5,877	5,745	155	20,820	42	4	44	822	10	752	3	832
Seventh Day Adventist	182	5,583	5,364	189	22,893	34	4	31	1,311	43	1,334	13	1,354
Mahalapye	320	8,317	7,694	330	68,225	58	9	25	2,562	74	2,431	38	2,636
Deborah Retief Memorial	181	4,266	4,130	150	31,044	47	7	24	1,725	21	1,704	22	1,746
Orapa	106	2,781	2,672	25	8,097	21	3	25	769	1	772	1	770
Princes Marina Referral	567	21,413	20,852	996	320,702	155	15	39	6,110	28	5,911	227	6,138
Gaborone Private	89	5,741	5,633	75	21,219	65	4	64	1,047	2	1,012	2	1,049
Nyangabgwe Referral	542	20,815	20,204	1,044	151,655	77	7	39	5,161	60	4,282	129	5,221
Riverside Private	29	1,570	1,548	15	4,552	43	3	54	194	1	193	1	195
Bamalete Lutheran	163	6,029	6,096	128	20,728	35	3	38	1,692	9	1,694	4	1,701
Athlone	172	4,288	4,215	131	21,187	34	5	25	849	14	850	10	863
Sbrana Mental	300	1,591	1,541	5	96,415	88	62	5	-	-	-	-	-
BCL	15	20	20	-	102	2	5	1	-	-	-	-	-
Selibe-Phikwe	65	4,380	4,276	115	19,125	81	4	68	1,346	22	1,513	12	1,368
Jwaneng Mine	60	3,093	2,972	82	11,642	53	4	51	989	14	998	14	1,003
Sekgoma Memorial	370	11,732	11,700	356	73,269	54	6	33	2,527	52	2,516	37	2,579
Total	3,982	127,778	124,801	4,444	1,052,288	72	8	32	32,921	521	33,866	631	33,442

Table 6: Health Facilities by Patient Care Services – 2017 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	54	2,178	2,113	35	8,098	41	4	40	368	9	367	3	377
Palapye	75	3,558	3,394	136	12,665	46	4	47	1,636	53	1,551	145	1,689
Bobonong	33	3,611	3,672	97	13,638	113	4	114	820	25	843	2	845
Mmadinare	31	1,321	1,261	45	4,921	43	4	42	348	13	361	4	361
Thamaga	61	2,220	2,235	44	7,735	35	3	37	582	25	605	1	607
Ghanzi	104	4,010	2,828	104	19,693	52	7	28	1,037	140	1,166	16	1,177
Sefhare	44	2,249	2,199	50	8,265	51	4	51	488	14	502	-	502
Kasane	30	2,475	2,473	54	7,901	72	3	84	472	12	478	7	484
Tsabong	57	2,198	2,134	75	11,674	56	5	39	556	14	554	4	570
Tutume	42	3,886	3,777	119	13,191	86	3	93	909	37	885	81	946
Gweta	50	1,474	1,302	36	6,122	34	5	27	378	16	394	-	394
Rakops	35	1,152	1,152	19	5,470	43	5	33	298	28	325	5	326
Lethakane	25	3,185	3,123	77	11,332	124	4	128	848	115	863	95	963
Gumare	41	2,452	2,312	108	10,792	72	4	59	934	42	894	98	976
Thebephatshwa	42	28	30	-	334	2	11	1	13	-	13	-	13
Good Hope	58	2,120	2,055	79	8,077	38	4	37	624	27	597	1	651
Hukuntsi	70	1,320	1,267	33	10,556	41	8	19	380	24	399	5	404
Total	852	39,437	37,327	1,111	160,464	52	4	45	10,691	594	10,797	467	11,285
Total Clinics	748	14,195	14,149	15	12,445	5	1	19	6,798	717	7,661	106	7,515
Grand Total	5,582	181,410	176,277	5,570	1,225,197	60	7	33	50,410	1,832	52,324	1,204	52,242

Table 7: Non-Institutional Livebirths by District - 2017

District	Home Deliveries	Percentage
Gaborone	14	12.1
Francistown	5	4.3
Lobatse	4	3.4
Selibe Phikwe	11	9.5
Orapa	2	1.7
Jwaneng	1	0.9
Sowa	0	0.0
Ngwaketse/southern	6	5.2
Barolong	5	4.3
Ngwaketse west	0	0.0
South East	49	42.2
Kweneng East	11	9.5
Kweneng West	0	0.0
Kgatleng	0	0.0
Central Palapye	0	0.0
Central Mahalapye	1	0.9
Central Bobonong	1	0.9
Central Boteti	0	0.0
Central Tutume	2	1.7
North East	1	0.9
Ngamiland East	2	1.7
Ngamiland West	0	0.0
Chobe	0	0.0
Ghanzi	1	0.9
Kgalagadi South	0	0.0
Kgalagadi North	0	0.0
Total	116	100

