

BOTSWANA MATERNAL MORTALITY RATIO (MMR) 2008 - 2012

No. 2014/2

STATS BRIEF

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Botswana - Maternal Mortality Ratio (MMR) 2008 - 2012

Preface

This Stats Brief provides information on Botswana Maternal Mortality Ratio for the period 2008 – 2012. Maternal Mortality Ratio is defined as the number of infants deaths per 100,000 live births. As part of a collaborative effort to enable and improve the availability and quality of maternal mortality information, Statistics Botswana and Ministry of Health, ensure that data on live births and maternal deaths are provided on a regular basis. The data for the period 2010 to 2012 are provisional until the national health statistics reports are published.



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Statistician General

April 2014

Access to Health Services and Birth Attendants Assistance

According to 2007 Statistics Botswana's study on Percentage of Population with Access to Primary Health care Services, over 95 percent of Botswana population have access to health services and live within an average of 8 kilometers radius from the nearest health facility.

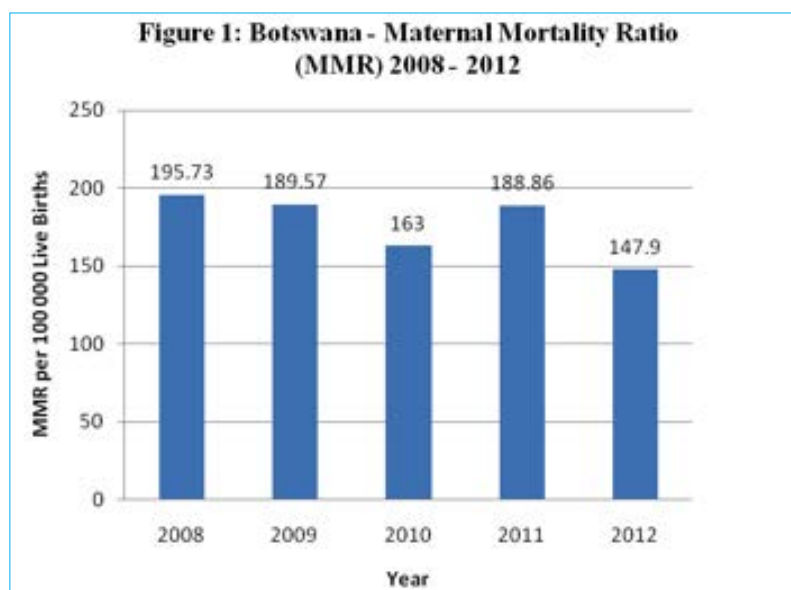
In addition, the 2007 Botswana Family Health Survey suggested that over 99 percent of deliveries were assisted by skilled birth attendants in cities/towns accounting for, 97.2 percent in urban villages and 90.2 percent in rural areas. Therefore, given the high birth attendance by skilled health personnel, the information gathered is likely to give accurate identification and classification of maternal death cases, as well as certification of causes of maternal deaths. The 2007 survey further indicates that over 95 percent of all reported deliveries occurred in health facilities.

Maternal Mortality Ratio Trend

Botswana Maternal Mortality Ratio (MMR) for the period 2008 to 2012 is given in Table 1 and Figure 1. The MMR shows a decrease of 21.7 percent from 188.9 to 147.9 per 100,000 live-births between 2011 and 2012.

Table 1: Botswana Maternal Mortality Ratio 2008 – 2012

	2008	2009	2010	2011	2012
Institutional live births	44,212	45,145	49,853	44,904	49,957
Non-Institutional live-births	749	220	475	104	91
Total live-births	44,961	45,365	50,328	45,008	50,048
Maternal Deaths	88	86	82	85	74
Maternal Morality Ratio (per 100,000 live-births)	195.73	189.57	163	188.86	147.9



Causes of Maternal Mortality by Age

Table 2 gives a summary of the causes of maternal mortality. The table shows that increasingly most maternal deaths are not related to HIV and AIDS. The proportion of maternal deaths due to HIV related diseases declined from 9 cases (10.2 percent) in 2008 to just 1 case (1.4 percent) in 2012.

A further observation of causes of maternal deaths, as shown in table 4, showed that the most common cause of maternal mortality was other Immediate Postpartum Hemorrhage (excessive bleeding) with twelve (12) cases, followed by Gestational Pregnancy Induced Hypertension without Significant Proteinuria and Eclampsia, Unspecified as to Time Period with seven (7) cases each. Other and Unspecified Failed Attempted Abortion, Complicated by Genital Tract & Pelvic Infection with six (6) cases, Unspecified Abortion with five (5) cases and Puerperal Sepsis with four (4) cases respectively. In 2012 there was only one (1) case of HIV related diseases that attributed to maternal deaths (Table 2). This further indicates that the HIV pandemic has been dropping since 2010 due to interventions in place.

In Table 4, the highest 20 (27 %) maternal deaths were reported among age groups 30-34, followed by ages 20-24, 25-29 and 35-39 with 20 percent each.. However, age group 45 and above recorded only one (1) maternal death.

Table 2: Summary of Causes of Maternal Deaths

Major causes of Maternal Deaths	2008		2009		2010		2011		2012	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
HIV-related & other viral diseases	9	10.2	11	12.8	8	9.8	3	3.5	1	1.4
Top cause of Maternal Deaths (excluding HIV)	38	43.2	36	41.9	27	32.9	41	48.2	41	55.4
Other diseases	41	46.6	39	45.3	47	57.3	41	48.2	32	43.2
Total	88	100	86	100	82	100	85	100	74	100

*Note: Top – cause of Maternal Deaths refer to Table 4

Institutional Births

There were 49,957 Institutional births in 2012 as indicated in Table 1. Table 3 shows that most births (61.6 %) occurred in General Hospitals, compared to 19.2 and 19.1 percent in Primary Hospitals and Clinics respectively. It is quite evident that most mothers delivered in health facilities than at home (Table 3). The overall average length of stay at an Institution was 6.8 days (Table 5) which is skewed towards hospitals as they often handle complicated referral cases.

Table 3: Live Births by Place of delivery 2011 - 2012

Place of Birth	2011		2012	
	Number	Percent	Number	Percent
General Hospital	24,874	55.4	30,822	61.6
Primary Hospital	10,744	23.9	9,593	19.2
Clinics	9,286	20.7	9,542	19.1
Total Health Facilities	44,904	99.8	49,957	99.8
Non Institutional	104	0.2	91	0.2
Total Live Births	45,008	100	50,048	100

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 50,048 births in 2012 as compared to 4.3 percent of 45,008 births in 2011.

Non-Institutional Births

The non-institutional births accounted for the same percent (0.2%) births in 2012, as compared to 2011 percentage (Table 6). Furthermore it indicates that Ghanzi district continues to report the highest non-institutional births notably: 40 births, accounting for 44.0 percent of all non institutional births, followed by Okavango (33 births) with 36.3 percent, Mabutsane (17 births) with 18.7 percent and Charles Hill (1 birth) with 1 percent.

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.

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, following the relocation of Tonota and Tlokwenig Sub-districts to Greater Francistown and Greater Gaborone respectively.

Definition of Maternal Mortality Ratio (MMR)

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

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 4: Causes of In-patient Maternal Mortality by Age Group of Mother 2012

Code	Diagnosis	Age group of mothers (years)								N/S	Total
		<15	15-19	20-24	25-29	30-34	35-39	40-44	45+		
O72.1	Other Immediate Postpartum Hemorrhage	0	0	1	4	2	3	1	1	0	12
O98.8	Other Maternal Infectious & Parasitic Diseases Complic. Pregnancy, Childbirth & the Puerperium	0	0	1	0	2	0	0	0	0	3
O13	Gestational Pregnancy Induced Hypertension without Significant Proteinuria	0	1	1	2	3	0	0	0	0	7
O98.0	Tuberculosis Complicating Pregnancy, Childbirth & the Puerperium	0	0	0	1	1	0	0	0	0	2
O14.1	Severe Pre-eclampsia	0	0	1	0	1	0	1	0	0	3
O12.0	Gestational Oedema	0	0	1	0	0	1	0	0	0	2
O85	Puerperal Sepsis	0	0	0	2	1	1	0	0	0	4
O99.3	Mental Disorders & Diseases of Nervous System Complicating Pregnancy, Childbirth & the Puerperium	0	0	0	0	1	1	0	0	0	2
O14.0	Moderate Pre-eclampsia	0	0	0	1	0	0	0	0	0	1
O74.9	Complication of Anaesthesia during Labour & Delivery	0	1	0	0	0	1	0	0	0	2
O15.9	Eclampsia, Unspecified as to Time Period	0	0	2	2	2	1	0	0	0	7
O07.5	Other and Unspecified Failed Attempted Abortion, Complicated by Genital Tract & Pelvic Infection	0	0	1	1	0	3	1	0	0	6
O99.8	Other Specified Diseases & Conditions Complic. Preg., Childbirth & the Puerperium	0	0	0	0	0	1	0	0	0	1
O99.4	Disease of the Circulatory System Complicating Preg., Childbirth & the Puerperium	0	0	0	0	1	1	0	0	0	2
O06.4	Incomplete Abortion	0	0	0	0	0	0	1	0	1	2
O75.1	Shock During or Following Labour & Delivery	0	0	0	0	1	0	0	0	0	1
O95	Obstetric Death of Unspecified Cause	0	0	0	1	0	1	0	0	0	2
O99.5	Disease of the Respiratory System Complicating Preg. Childbirth & the Puerperium	0	0	0	0	1	0	0	0	0	1
O00.1	Ruptured Ectopic Pregnancy	0	0	1	0	1	0	0	0	0	2
O99.6	Diseases of Digestive System Complicating Preg. Childbirth & the Puerperium	0	0	0	0	1	0	0	0	0	1
O08.0	Septic Incomplete Abortion	0	0	1	0	0	0	0	0	0	1
O06.9	Unspecified Abortion	0	0	1	1	2	1	0	0	0	5
O07.7	Other Unspecified Failed Attempted Abortion, Complicated by Embolism	0	0	1	0	0	0	0	0	0	1
O98.7	HIV Disease Complicating Pregnancy, Childbirth & the Puerperium	0	0	1	0	0	0	0	0	0	1
O46.8	Other Antepartum Hemorrhage	0	0	1	0	0	0	1	0	0	2
O45.9	Premature Separation of Placenta, Unspecified	0	0	1	0	0	0	0	0	0	1
Grand Total		0	2	15	15	20	15	5	1	1	74

Table 5: Health Facilities by Patients Care Services - 2012

Facility	Number of Beds	Admissions Discharges	Patient		Occupancy Rate (%)	L. of Stay (Days)	Turn-over Rate	New Born Number	Discharged			Total-Live births	
			Alive	Dead					Days	BBA	Alive		Dead
Hospitals													
Letsholathebe Memorial Hospital	281	5,831	5,529	138	42,603	41.5	7.5	20	1,691	21	1,799	20	1,712
Delta Medical Centre	0	0	0	0	0	0.0	0.0	0	0	0	0	0	0
Sekgoma Memorial Hospital	475	10,704	10,994	316	91,064	52.5	8.1	24	2,237	48	2,231	10	2,285
Scottish Livingstone Hospital	295	9,842	9,355	408	62,149	57.7	6.4	33	2,893	108	2,851	38	3,001
Bokamoso Private Hospital	128	5,423	5,339	123	19,012	40.7	3.5	43	1,256	1	1,157	0	1,257
Jwaneng Mine Hospital	57	2,549	2,442	94	10,754	51.7	4.2	44	786	20	745	10	806
Seventh Day Adventist Hospital	167	4,949	4,654	259	23,237	38.1	4.7	29	1,533	35	1,539	30	1,568
Mahalapye Hospital	320	9,066	8,350	366	117,889	100.9	13.5	27	2,113	64	2,071	32	2,177
Deborah Relief Memorial Hospital	130	5,332	5,051	161	30,174	63.6	5.8	40	1,708	18	1,689	19	1,726
Orapa Hospital	0	0	0	0	0	0.0	0.0	0	0	0	0	0	0
Princes Marina Hospital	567	29,911	28,389	1201	342,097	165.3	11.6	52	6,259	58	6,089	228	6,317
Gaborone Private Hospital	89	4,822	5,452	81	15,597	48	2.8	62	1,054	2	1,076	9	1,056
Nyangabgwe Ref Hospital	567	21,293	20,288	1,207	166,229	80.3	7.7	38	4,958	35	5,599	195	4,993
Bamalete Lutheran Hospital	140	5,132	4,986	154	19,169	37.5	3.7	37	1,711	23	1,672	6	1,734
Athlone Hospital	163	3,574	3,335	158	15,116	25.4	4.3	21	933	17	935	14	950
Sbrana Mental Hospital	300	1,370	1,353	6	70,510	64.4	51.9	5	-	-	-	-	-
BCL Hospital	23	261	264	1	922	11.0	3.5	12	-	-	-	-	-
Selibe-Phikwe Hospital	66	4,687	4,487	136	15,479	64.3	3.3	70	1,219	21	1,212	38	1,240
Sub total	3,768	124,746	120,268	4,809	1,042,001	75.8	8.3	33	30,351	471	30,665	649	30,822
Primary Hospitals													
Masunga Primary Hospital	50	2,028	1,918	100	8,487	46.5	4.2	40	602	15	609	6	617
Palapye Primary Hospital	50	2,810	2,629	174	8,610	47.2	3.1	56	1,098	40	1,113	22	1,138
Bobonong Primary Hospital	38	2,502	2,380	119	8,816	63.6	3.5	66	765	32	860	19	797
Mmadinare Primary Hospital	48	1,444	1,385	53	5,832	33.3	4.1	30	375	10	384	5	385
Thamaga Primary Hospital	39	1,491	1,435	52	3,944	27.7	2.7	38	570	20	585	3	590
Good Hope Primary Hospital	35	1,856	1,737	103	5,892	46.1	3.2	53	677	51	688	14	728
Ghanzi Primary Hospital	96	2,707	2,698	110	13,713	39.1	4.9	29	893	114	988	20	1,007
Sefhare Primary Hospital	50	1,987	1,867	117	6,497	35.6	3.3	40	645	20	53	11	665
Kasane Primary Hospital	33	1,607	1,571	29	6,975	57.9	4.4	48	317	14	331	1	331
Tsabong Primary Hospital	57	1,720	1,636	78	6,361	30.6	3.7	30	523	26	496	56	549
Tutume Primary Hospital	37	2,735	2,620	119	10,719	79.4	3.9	74	1,102	50	1,155	8	1,152
Rakops Primary Hospital	42	1,527	1,469	64	5,898	38.5	3.8	37	344	19	363	2	363
Letlhakane Primary Hospital	25	1,343	1,243	60	5,374	58.9	4.1	52	492	61	534	11	553
Gumare Primary Hospital	34	410	396	24	2,358	19.0	5.6	12	127	10	129	1	137
Thebe-Phatshwa Primary Hospital	42	114	108	2	528	3.4	4.8	3	17	1	18	-	18
Hukunsi Primary Hospital	24	514	486	24	2,503	28.6	4.9	21	173	4	170	6	177
Gweta Primary Hospital	50	1,454	1,319	47	6,517	35.7	4.8	27	356	30	404	9	386
Total	783	28,801	27,429	1,298	111,570	38.1	3.9	36	9,218	525	9,035	191	9,593
All Clinics	758	17,488	17,312	7	13,791	5.0	0.8	23	8,521	1,021	9,410	88	9,542
Grand Total	5,276	170,483	164,477	6,091	1,164,816	60.5	6.8	32	47,948	2,009	49,555	931	49,957

Table 6 Non -Institutional live births by district ,age group of mother and sex of infant -2012

District	<15		15 -19		20-24		25-29		30-34		35-39		40-44		45-49		50+		N/S		Total		Grand Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Ngamiland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North East	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Palapye	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bobirwa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kweneng East	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Southern	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gantsi	-	-	4	3	5	4	7	-	6	1	3	1	3	2	-	1	-	-	-	-	28	12	40
Mahalapye	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kgatleng	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chobe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kgalagadi South	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tutume	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boteti	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Okavango	-	-	4	5	3	4	5	2	4	2	1	3	-	-	-	-	-	-	-	-	17	16	33
South East	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lobatse	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S/Phikwe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kweneng West	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mabutsane	-	-	2	1	6	1	1	2	3	-	1	-	-	-	-	-	-	-	-	-	13	4	17
Jwaneng .I. Council	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Goodhope	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kgalagadi North	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moshupa Sub	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Charles hill Sub	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Serowe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	10	9	14	9	13	4	13	4	5	4	3	2	-	1	-	-	-	-	58	33	91