

Health Statistics

Stats Brief 2007-2015



Published by

STATISTICS BOTSWANA
Private Bag 0024, Gaborone
Tel: 3671300 Fax: 3952201
E-mail: info@statsbots.org.bw
Website: www.statsbots.org.bw

May 2017

Copyright © Statistics Botswana 2017



2017/1

HEALTH STATISTICS
STATS BRIEF 2007 - 2015

Preface

This brief is an analysis of the midnight records between the years 2007 and 2015. The brief presents the user with a trend analysis of the number of health facility beds, inpatient admissions, and average length of stay in health facilities among others. The brief presents important indicators for assessing the performance of the health care system. The average length of stay in all categories of health care was a week (7days) with the General Hospitals having the highest average length of stay at 8 days, followed by Primary hospitals at 4 and clinics with only 1.

The number of health facility beds across all categories of health care increased from 4,155 to 5,751 between 2007 and 2015. In line with Government commitment to provide health care services to majority of Batswana, eighty four percent of the population live within a 5km radius from a health facility, while a further 96 percent live within a 15km radius. As expected, the urban areas had the highest proportion living within 5km within 96 percent compared to 72 percent for the rural areas.

As an agency mandated to provide official statistics to facilitate evidence based planning and decision making, Statistics Botswana welcomes feedback from stakeholders in an endeavour to continue improving the quality of its statistical products to serve the needs of its users.

I thank you.



Anna Majelantle
Statistician General
May 2017

SECTION 1: PATIENT CARE SERVICES (MIDNIGHT CENSUS RESULTS) : 2007 - 2015

Midnight census is an account of the number of residents living in a health care facility by midnight. This number is used to determine beds occupancy and length of facility stay. It may differ from the daytime census in that during the day residents may travel to or occupy more than one facility so that they can receive specialized care services. The census recorded reflects the complete activities which took place in the 24 hour period from midnight. The facility is required to compile a midnight census report daily. This report presents result of the recordings from 2007 to 2015. Tables 1 and 2 provide health information on hospital activities recorded and reported for referral, general hospitals, primary hospitals and clinics with maternity wards. During the period 2007 to 2015, the number of beds increased from 4,155 in 2007 to 5,751 (14.7%) in 2015 while inpatient admissions also increased from 173,935 to 188,275 (8.2%) respectively over the same period. The number of inpatient deaths fluctuated between 2007 and 2015, although showing a generally downward trend. The highest number of deaths was higher in 2014 (10,073) as compared to only 5,898 in the previous year. This was a staggering increase of 71 percent. However in 2015 there was a further decrease of 39.3 percent in the number of recorded deaths when compared with the 2014 figure.

1.2 Turnover Rate

The turnover rate defines the period for which a bed is occupied. The turnover rate indicates the speed with which patients on any bed are rotated. The more complicated the case dealt with by the hospitals, the lower the turnover rate and too large a turnover rate indicates that only simple type of treatment is being provided. It is estimated by formula as the number of admissions in a given time period as compared to be number of beds in the health facility during that time period. The bed turnover rate for 2015 was 33 patients per bed. This rate varied only marginally from 2007-2015; in the range 39 to 33, indicating a below optimal use of hospital beds.

1.3 Bed Occupancy rate

On the other hand bed occupancy ratio reflects the popularity of the hospitals in terms of Inpatients. The level of occupancy varies with the type of services available in the hospital. Usually the more the number of beds, the larger is the number of service providers and services. As a result more services are provided and the level of medical care tends to be of a higher magnitude. Given this, it is normally the case that the bed occupancy ratio in Referral Hospitals and District Hospitals is higher than in Primary Hospitals. The bed occupancy rate for 2015 was 66 percent, slightly higher than observed in 2014, at 54 % indicating an above average utilization of hospital beds.

1.4 Average length of stay

The average length of stay represents the time the patient is retained in the hospital. As in the case of the turnover rate, a longer average length of stay is to be expected in the case of hospitals that have better and diverse services such as the District Hospitals. In the case of Health Clinics where the level of treatment in general is lower, the average length of stay is likely to be low. The average length of stay stood at 7 days for the period 2009 to 2015. However the longest average length of stay of up to 9 days was observed in general hospitals (Table 6). These are referral institutions dealing with more acute patient cases.

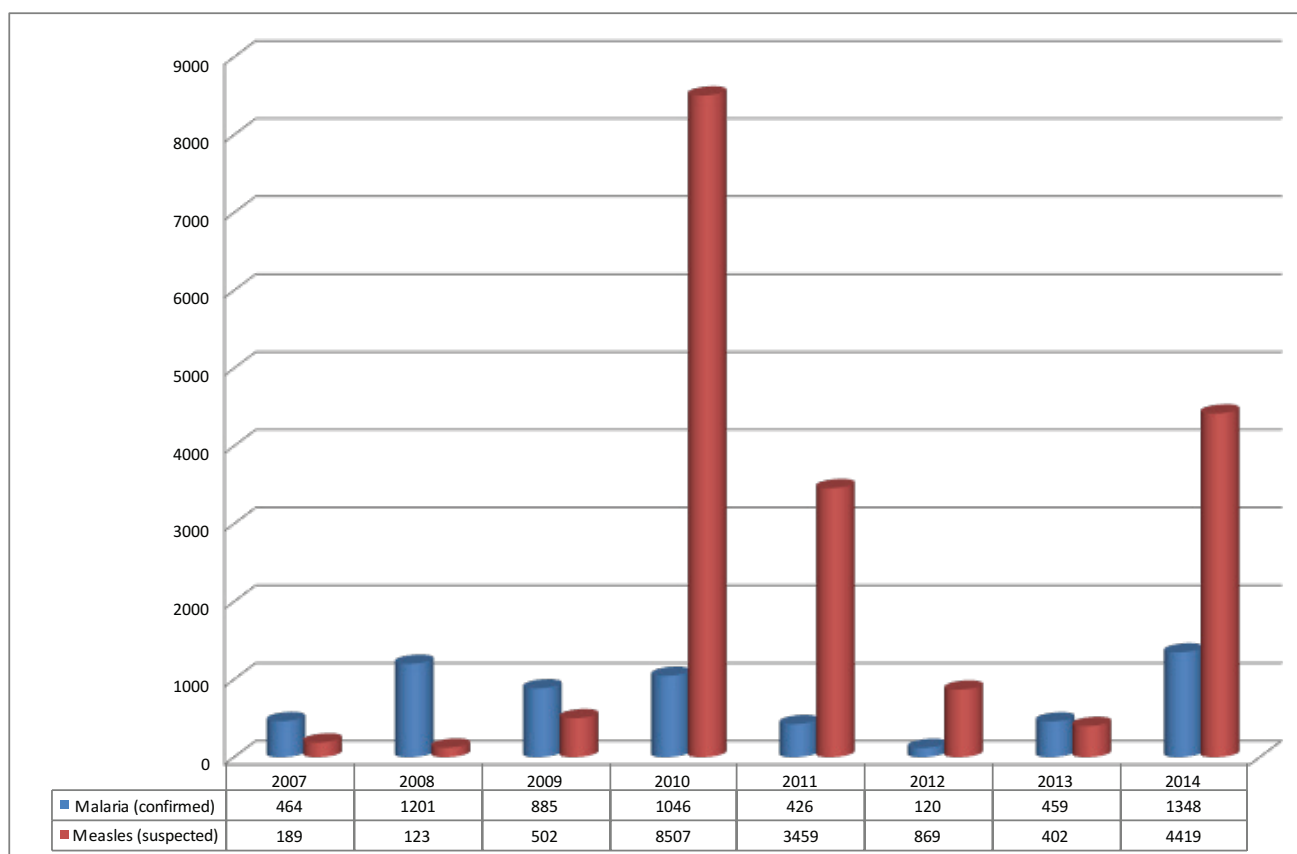
Table 1: Trends in Hospital Activities by Type: 2007-2015

	2 007	2 008	2009	2010	2011	2012	2013	2014	2015
Number of Beds	4,155	4,239	4,561	5,015	5,294	5,276	5,550	5,577	5,751
Inpatient Admissions	162,072	169,459	174,867	173,935	159,835	170,483	173,092	163,124	188,275
Inpatient Deaths	7,958	7,714	7,491	7,064	6,537	6,091	5,898	10,073	6,115
Patient Days	1,016,498	1,089,613	1,276,294	1,291,609	1,152,611	1,164,816	1,258,360	1,097,304	1,379,920
Occupancy Rate (%)	67	70	77	71	60	60	62	54	66
Average length of stay (days)	6	6	7	7	7	7	7	7	7
Bed Turnover Rate	39	40	39	35	30	32	32	30	33
Newborns	42,746	42,331	44,517	47,495	42,962	47,948	47,928	45,569	55,062
Born Before Arrival (BBA)	1,706	1,909	1,887	2,358	1,942	2,009	1,843	1,704	2,228
Total Live Births	44,452	44,240	46,404	49,853	44,904	49,957	49,771	47,273	57,290
Discharged Alive (neonatal)	43,282	43,849	45,275	45,999	42,790	49,555	48,459	46,015	55,603
Discharged Dead (neonatal)	1,000	1,060	578	659	979	931	824	1124	846

SECTION 2: NOTIFIABLE DISEASE SURVEILLANCE

The notifiable disease refers to communicable/infectious diseases that must be reported to public health authorities at the time they are diagnosed for early warning of possible outbreaks. In Botswana, this category includes malaria, suspected measles, diarrhea, rabies exposure as shown in Figure 2 and Table 4, presenting marginal fluctuations in the number of confirmed malaria, and suspected measles cases between 2007 and 2014. There was a marked increase in malaria cases in 2010, followed by a significant decrease in 2011, 2012, 2013 and a substantial increase in 2014. The number of malaria cases recorded in 2012 was the lowest recorded during the 2007 - 2014 periods. However, 2014 recorded more cases of malaria (1,348 confirmed cases) compared to 2013 (459 confirmed cases). The number of suspected measles cases was also highest in 2010, decreasing in the subsequent years and picked in 2014 (8,507, 3,459, 869, 402 and 4,419 cases respectively).

FIGURE 1: TREND IN SELECTED NOTIFIABLE DISEASES, BOTSWANA 2007 – 2014



Section 3: Number of Health Facilities and Health Personnel

The total number of health facilities tends to fluctuate due to several reasons among others due to closures for reasons such as upgrading as well as Ministry of Health and Wellness's discretion deemed necessary. Sometimes there are new clinics which have been donated and private clinics mushrooming mostly in Ngamiland and greater Francistown.

In 2013 there was a new private Hospital (Riverside) which started operating in greater Francistown District. However in October 2014 Ministry of Health Wellness took a deliberate decision to close another private hospital (Delta Medical Centre) in Ngamiland District, hence the total number of hospitals dropped from 19 to 18 (**Table 2**).

SECTION 4: ACCESS TO PRIMARY CARE 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 (Referral hospitals, District hospitals, Primary hospitals, clinics, health posts, mobile stops) spread over the twenty seven (27) health districts. Table 2 indicates how the six levels are categorized structurally.

Table 5 gives a summary of populations with access to a health facility within a 15km, 8km and 5km radius of the nearest health facility. At national level, 84 percent of the population lived within 5km radius of the nearest health and a further 11 percent of population lived within 5 km to 8 km radius, which translate into a total of 95 percent population within an 8 km radius. A significant 96 percent of urban residents lived within a 5 km radius of the nearest Health Facility compared to 72 percent of rural residents. Only 4 percent of urban residents live within 5km to 8km radius of the nearest health facility all of whom were found in Palapye and Jwaneng areas.

By contrast, 72 percent of rural residents lived within a 5 km radius of the nearest health facility, 17 percent is within 5 to 8 km. Most of the remainder, 11 percent is within 8 to 15 km radius.

A further look at access to health facilities by district shows that, the North East, Southern and Kgalagadi South all have (100 %) of their inhabitants within 5 km radius of a health facility followed by Maun, Serowe (excl. Palapye), Mahalapye, Kgatleng, Tutume and Gumare had 80-99 percent of their inhabitants within 5 km radius. Bobirwa, Ghanzi, Chobe and Kgalagadi North have 60-79 percent of their inhabitants within a 5 km radius.

On the far end, Kweneng West District had the lowest proportion of population within a 5 km radius at 5 percent. The District tends to have the highest proportion of its inhabitants (55.0%) residing between 8 and 15 km radius of the health facility. Other districts with significant populations with lower proportions living within a 5km radius were South East at 14 percent followed by Boteti is next with 22 percent.

SECTION 5: HEALTH STATISTICAL DATA FLOW SYSTEM

As shown in the diagram below, most data for the Annual Health Statistics Report originate in the health facilities, and reach the Health Statistics Unit through the District Health management Team. There are a few notable exceptions when the Health Statistics Unit accesses the data directly from the health facilities. For instance, the Health Statistics Unit retrieves service data for Princess Marina, Nyangabgwe, Sekgoma Memorial and Letsholathebe II Memorial hospitals through the Integrated Patient Management System (IPMS). Currently, in each health district, non-institutional births and deaths are reported by Ministry of Labour and Home Affairs ever since the inauguration of the collection of birth and deaths certificates, then shared with the Health Statistic Unit.

Figure 2: Health Statistical Data Flow System

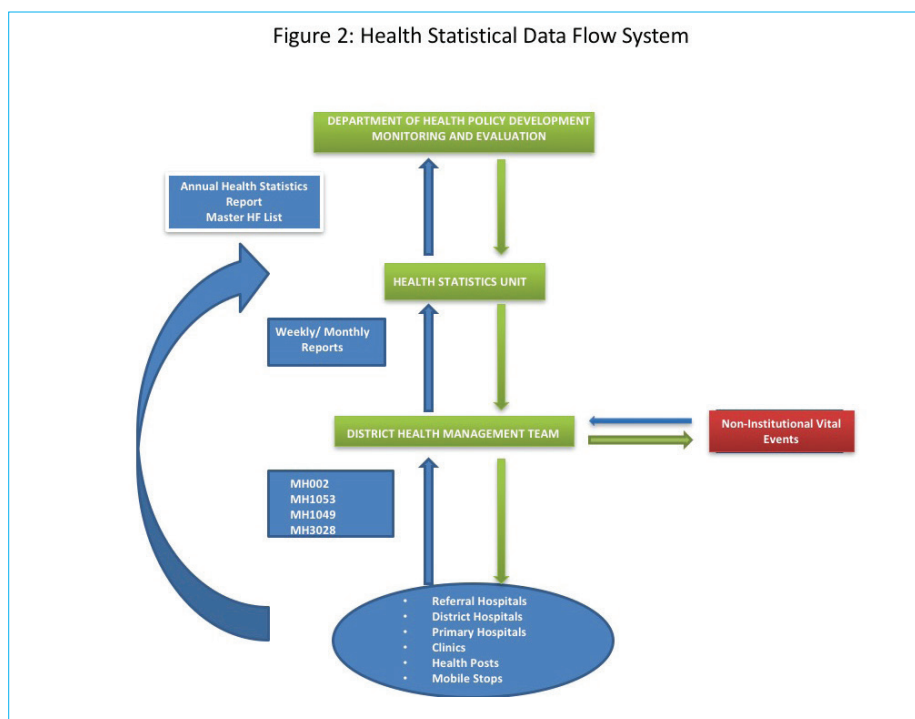


TABLE 2: Number of Health Facilities and Beds 2007 -2015

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Health Facilities										
General Hospitals	17	17	18	18	18	18	19	18	18	18
Primary Hospitals	17	17	17	17	17	17	17	17	17	17
Clinics with Beds	101	106	111	114	108	108	104	105	104	104
Clinics without Beds	171	173	175	175	180	182	195	206	214	214
Health Posts	338	351	343	357	347	349	350	351	347	347
Mobile Stops	844	876	1,052	894	898	900	906	931	973	973
Number of Beds /a										
General Hospitals	2,718	2,806	3,080	3,532	3,823	3,768	3,982	4,009	4,090	4,090
Primary Hospitals	737	737	746	748	738	750	808	808	901	901
Clinics	700	696	735	733	733	758	760	760	760	760
Total Beds	4,155	4,239	4,561	5,013	5,294	5,276	5,550	5,577	5,751	5,751
Doctors	709	716	819	819*	819*	819*	n/a	n/a	n/a	830
Dentists	32	18	55	55*	55*	55*	n/a	n/a	n/a	91
Nurses	5,765	5,616	5,816	5,816*	5,816*	5,816*	n/a	n/a	n/a	7,427
Family Welfare Educators	476	450	166	166*	166*	166*	n/a	n/a	n/a	n/a
Doctors	4.1	4.1	4.6	4.6*	4.6*	4.6*	n/a	n/a	n/a	3.7
Dentists	0.2	0.1	0.3	0.3*	0.3*	0.3*	n/a	n/a	n/a	0.4
Nurses	33.2	32	32.7	32.7*	32.7*	32.7*	n/a	n/a	n/a	33.4
FWEs	2.7	2.6	0.9	0.9*	0.9*	0.9*	n/a	n/a	n/a	n/a

* Figures are carried forward
n/a: Data not available

Note: Latest health personnel information for 2016 is still being sourced accordingly.

TABLE 3: MIDNIGHT CENSUS RESULTS

	Authorized Beds		Admissions		Discharges		Patient -Days	Occupancy Rate (%)	Average Length of Stay(Days)	Bed Turnover	Recorded Births		Total		
	Authorized Beds	Beds	Admissions	Discharges	Alive	Dead					Newborn	BBA	Recorded Births	Discharges	Alive
2007	4,155	4,155	162,072	155,441	7,958	1,016,498	67	6	39	42,746	1,706	44,452	43,282		
2008	4,239	4,239	169,459	162,971	7,714	1,089,613	70.4	6	40	42,331	1,909	44,240	43,849		
2009	4,561	4,561	174,867	170,067	7,491	1,276,294	76.7	7	39	44,517	1,887	46,404	45,275		
2010	5,013	5,013	173,935	166,123	7,064	1,291,609	70.6	7	35	47,495	2,358	49,853	45,999		
2011	5,294	5,294	159,835	152,674	6,537	1,152,611	59.6	7	30	42,962	1,942	44,904	42,790		
2012	5,284	5,284	172,821	167,014	6,222	1,182,455	61.3	7	33	48,521	2,059	50,580	50,153		
2013	5,550	5,550	173,092	169,127	5,898	1,258,360	62.1	7	32	47,928	1,843	49,771	48,459		
2014	5,577	5,577	163,124	158,482	10,073	1,097,304	53.9	7	30	45,569	1,704	47,273	46,015		
2015	5,751	5,751	188,275	181,328	6,115	1,379,920	66	7	33	55,062	2,228	57,290	55,603		
2014															
General hospitals	4,009	4,009	117,717	117,376	8,865	971,521	66	8	31	30,874	523	31,397	30,246		
Primary Hospitals	808	808	30,983	27,136	1,170	111,847	38	4	35	8,530	483	9,013	8,968		
All Clinics	760	760	14,424	13,970	38	13,936	5	1	18	6,165	698	6,863	6,801		
Grand Total	5,577	5,577	163,124	158,482	10,073	1,097,304	54	7	30	45,569	1,704	47,273	46,015		
2015															
General hospitals	4090	4090	135,410	131,019	4,885	1,222,143	82	9	33	35,746	758	36,504	35,605		
Primary Hospitals	901	901	36,991	34,541	1,206	143,675	44	4	40	12,010	611	12,621	11,906		
All Clinics	760	760	15,874	15,768	24	14,102	5	1	21	7,306	859	8,165	8,092		
Grand Total	5,751	5,751	188,275	181,328	6,115	1,379,920	66	7	33	55,062	2,228	57,290	55,603		

Note: Midnight Census = Movement of patients and facility activities as at midnight during a period.

BBA = Born before arrival in a facility

Bed Turn Over= No of times the bed has changed patients over a given time.

Occupancy rate = proportion of beds that were occupied in any given period.

TABLE 4: NOTIFIABLE DISEASES BY TYPE AND HEALTH DISTRICT - 2014

District	Malaria Confirmed		Typhoid Fever		Diarrhoea (some dehydration)		Diarrhoea (severe dehydration)		Diarrhoea (with Blood)		Suspected measles		Rabies Exposure	
	C	D	C	D	C	D	C	D	C	D	C	D	C	D
Ngamiland	85	2	0	0	671	19	57	5	258	1	287	0	211	0
North East	2	1	0	0	183	0	12	0	51	0	52	0	84	0
Palapye	62	2	0	0	1,490	0	144	3	148	0	493	0	68	0
Serowe	16	1	0	0	671	2	70	7	84	0	94	0	66	0
Bobirwa	60	2	0	0	485	0	79	10	60	0	238	0	28	0
Kweneng East	15	1	0	0	1,406	0	166	4	395	0	608	0	346	0
Moshupa	0	0	0	0	387	0	19	0	68	0	17	0	9	0
Kanye	0	0	0	0	622	2	51	4	159	0	28	0	48	0
Gantsi	6	0	0	0	474	2	45	2	101	1	28	0	18	0
Mahalapye	34	1	0	0	884	1	117	7	274	0	505	0	57	0
Kgatleng	11	0	0	0	760	0	130	1	165	0	211	0	65	0
Chobe	87	0	0	0	210	1	11	0	64	0	132	0	141	0
Kgalagadi South	0	0	0	0	367	3	34	3	40	0	5	0	4	0
Tutume	19	1	0	0	907	7	127	2	161	0	44	0	53	0
Boteti	9	0	0	0	701	5	47	4	67	0	209	0	34	0
Okavango	897	7	0	0	322	1	31	2	53	0	82	0	109	0
Gaborone	16	1	0	0	869	3	110	12	90	0	442	0	61	0
F/town	4	0	0	0	340	0	39	1	41	0	187	0	67	0
South East	0	0	0	0	451	0	25	0	89	0	135	0	47	0
Lobatse	3	0	0	0	366	1	110	5	26	0	42	0	44	0
SPTC	11	2	0	0	598	0	122	8	41	0	274	0	19	0
Kweneng West	1	0	0	0	316	0	32	0	237	0	104	0	42	0
Mabutsane	0	0	0	0	80	0	5	0	50	0	13	0	7	0
Jwaneng	2	0	0	0	197	1	28	7	78	0	98	0	14	0
Goodhope	2	0	0	0	185	1	41	2	63	0	15	0	21	0
Hukuntsi	4	0	0	0	181	0	32	0	68	0	64	0	14	0
Tonota	1	0	0	0	337	0	37	0	49	0	9	0	27	0
Charlshill	1	0	0	0	77	0	3	1	33	0	3	0	5	0
Total	1,348	21	0	0	14,537	49	1,724	90	3,013	2	4,419	0	1,709	0

Table 5: Percentage of Population with Access to Primary Health Care Services within 15km, 8km and 5km Radius from Health Facility by Urban/Rural Residence – April 2007

Residence	Percentage of population Between 8 and 15 km radius from facility	Percentage of population Between 5 and 8 km radius from facility.	Percentage of population Within 5 km radius from facility
Urban			
Gaborone	-	-	100
Francistown	-	-	100
Lobatse	-	-	100
Selibe Phikwe	-	-	100
Jwaneng	-	20	80
Orapa	-	-	100
Palapye	-	10	90
Tlokwen	-	-	100
Urban Total	-	4	96
Rural			
Maun	14	6	80
North East	-	-	100
Serowe (excl. Palapye)	-	20	80
Bobirwa	-	28	72
Kweneng East	9	31	60
Southern	-	-	100
Ghanzi	9	13	78
Mahalapye	-	1	99
Kgatleng	2	6	92
Chobe	9	31	60
Kgalagadi North	22	3	75
Kgalagadi South	-	-	100
Tutume	16	-	84
Boteti (excl.Orapa)	31	47	22
Gumare	-	5	95
South East (excl. Tlokwen)	34	52	14
Kweneng West	55	40	5
Rural Total	11	17	72
National Total	5	11	84

Note: The information in Table 5 was collected between December 2006 and April 2007 in all health districts in Botswana. Health districts were requested to submit distances that clients travel to access primary Health Facilities. The Health Statistics Unit then calculated proportion of population in given localities as per the given distances from the nearest facility using the 2007 Population projections.

Table 6: Health Facilities by Patient Care Services - 2015

District Health Facility	Newborns													
	Discharged									Discharged				Total Live Births
	Number of Beds	Admissions	Alive	Dead	Patient Days	Occupancy Rate(%)	Average L. of Stay (Days)	Turnover Rate	Number	BBA	Alive	Dead		
General Hospitals														
Letsholathebe II Memorial	340	10,372	10,235	369	79,555	64	8	31	3,129	135	3,346	46	3,264	
Sekgoma Memorial	370	11,025	10,676	348	77,816	58	7	30	2,458	61	2,426	31	2,519	
Scottish 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 Relief 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	
Thamaga	61	2,491	2,436	89	7,836	35	3	41	760	27	779	7	787	
Good Hope	58	2,408	2,363	85	12,105	57	5	42	976	43	979	11	1,019	
Ghanzi	96	3,321	3,166	118	17,030	49	5	34	881	157	1,024	15	1,038	
Sefhare	66	2,598	2,529	66	10,847	45	4	39	682	20	701	1	702	
Kasane	33	1,368	1,315	29	4,933	41	4	41	433	19	434	0	452	
Tsabong	57	2,529	2,439	68	10,691	51	4	44	492	16	508	0	508	
Tutume	44	3,731	3,586	148	13,005	81	3	85	943	38	911	9	981	
Rakops	42	753	727	24	2,728	18	4	18	332	13	341	4	345	
Lethakane	25	288	275	10	1,014	11	4	11	1,044	96	1,142	2	1,140	
Gumare	34	2,233	2,082	96	11,690	94	5	64	1,034	28	935	9	1,062	
Thebe-Phatshwa	42	63	56	4	713	5	12	1	2	1	4	0	3	
Hukuntsi	70	1,440	1,367	64	8,112	32	6	20	416	15	417	9	431	
Gweta	50	1,188	1,128	56	5,665	31	5	24	397	21	408	6	418	
Total	901	36,991	34,541	1,206	143,675	44	4	40	12,010	611	11,906	99	12,621	
Total All Clinics	760	15,874	15,768	24	14,102	5	1	21	7,306	859	8,092	135	8,165	
Grand Total	5,751	188,275	181,328	6,115	1,379,920	66	7	33	55,062	2,228	55,603	846	57,290	

