

Capacity Utilization of University of Maiduguri Teaching Hospital, Nigeria

Babale Garba Nafada¹, MM Baba², Hyelcinta C.J¹, Abdulrahman Tahir¹, Bashir Tahir¹, Muhammad Talle², Obi S.O¹

1- University of Maiduguri Teaching Hospital, Maiduguri-Nigeria

2- WHO National Polio Laboratory, Maiduguri-Nigeria

Muhammادت6@gmail.com

Abstract: Full utilization of available resources is vital to the development of any country especially those that are striving to meet the Millennium Development Goals (MDGs). This study was carried out to determine the level of the community's patronage and utilization of a Nigeria's tertiary health institution with particular reference to University of Maiduguri Teaching Hospital, Borno state. Ten years (2000 and 2009) data were collected retrospectively from medical records departments of the hospital. Medical clinic had the highest outpatients attendance of 35568, followed by GOPD clinic with 21406 and Obstetrics and Gynecology (O/G) with 21,301 compared to pediatrics clinic with 17,190 and Surgical clinic with 4205. The medical clinic had the highest average daily clinic attendance of 185 patients, followed by O/G with 151. The least was pediatrics clinic with 32 patients. Within the period under study, highest admission steadily increased from 2000, peaked in 2003 and drops gradually from 2004-2006. There was a sharp drop in the number of admissions in 2007 (from 11988 to 1169) there after it increased in 2008 and 2009. However, the number of deaths steadily increased from 2000 (438) to 2004 () and peaked in 2007 (1087) before it declined in 2009 (775). 75% of the hospital beds were occupied in 2009 with the average length of stay of 17 days. The turnover interval (number of replacement per bed) was highest (13 days) in 2000 and 2007 but lowest in 2003 (3days). The throughput (number of patient that pass through the bed) was highest in 2003 (29 days) but lowest in 2000 (17days). UMTH appears to be over utilized by the community. Proper utilization of both the primary and secondary health care delivery Institutions in Borno State will reduce the pressure on the tertiary facility. In UMTH there is need for improvement for adequate patronage of the medical, O&G and paediatric clinics.

[Babale Garba Nafada³, MM Baba⁴, Hyelcinta C.J, Abdulrahman Tahir, Bashir Tahir, Muhammad Talle, Obi S.O. **Capacity Utilization of University of Maiduguri Teaching Hospital, Nigeria.** Report and Opinion 2011;3(8):35-38]. (ISSN: 1553-9873). <http://www.sciencepub.net>.

Key words; University of Maiduguri Teaching Hospital, Capacity utilization, patients, services, clinics.

Introduction:

In Nigeria before the advent of colonial administration, medical care was purely based on traditional practices. Formal or orthodox medical services began with the early missionaries establishing hospitals in Lagos and Abeokuta barely a century ago.

Historical background:

The history of the hospital dated back to 1974, when the defunct North-East government conceived the construction of a specialist hospital in Maiduguri, the State capital. The then Federal Military Government later took over and completed the project. The first patient was admitted on 18th February, 1982. Since then the hospital has witnessed a monumental development in infrastructure, manpower and equipment leading to its current designation as "CENTER OF EXCELLENCE" in immunology and infectious diseases by the Federal Government of Nigeria. The University of Maiduguri Teaching hospital is a 530 bed facility spread over 17 wards; serving a population of over 20 million in the North- Eastern sub-region of the country, comprising six states (Borno, Yobe, Adamawa, Taraba, Bauchi and Gombe) as well as

sizeable number across the borders of Cameroon, Chad and Niger Republics. This study was designed to assess the level of utilization of the available facilities in UMTH

Materials and Methods: Ten years (2000 and 2009) data were collected retrospectively from medical records departments of the hospital. The level of patronage of the Institution by patients was adjudged by the number of admissions and discharge recorded over the years.

Statistical analysis:

RESULTS

The facilities in UMTH include curative and preventive health care departments and units include : Internal Medicine, General Surgery, Obstetric and Gynecology, Pediatrics, Community Medicine, Radiology, Chemical Pathology, Heamatology, Histopathology, Microbiology, Immunology. Orthopaedics and Trauma, Dental/ Maxillofacial surgery, Endoscopy, Ophthalmology, ENT, Cardiology, Pharmacy, Nursing Services, Immunization, Family planning, Physiotherapy,

Social work, outreach comprehensive Health center at Madagali (Adamawa state), Banki (Borno state) and

hosts a WHO National/ ITDI Polio , PEPFAR /APIN and Avian FLU Laboratories.

Table 1: The Total Out Patient Consultative Clinic Attendance

YEARS	MEDICAL C/ ATTENDANCE			OBS & GYNAE C/ATTENDANCE			PAEDIATRIC C/ATTENDANCE			CLINIC C/ATTENDANCE					
	T/Att	Clinic session	average	T/Att	Clinic session	average	T/Att	Clinic session	average	T/Att	Clinic session	average	T/Att	Clinic session	average
2000	6206	131	47	8053	130	62	965	109	9	2059	102	20	11303	169	67
2001	7482	186	40	8819	124	71	1181	170	7	2890	140	21	12878	57	22
2002	8759	150	58	7902	117	68	1320	136	10	2357	110	21	10410	199	52
2003	16205	167	97	13100	141	93	1425	159	9	3565	127	28	15352	245	63
2004	17235	196	88	13269	131	101	1353	134	10	3440	130	26	14674	233	63
2005	22652	1202	19	12771	244	52	7058	432	16	7517	515	15	6429	232	28
2006	28699	1128	25	13928	268	52	1577	135	12	2986	244	12	12942	482	27
2007	38020	310	123	16154	797	20	3140	292	11	4111	20	206	11025	242	46
2008	5176	82	63	19178	310	62	738	97	8	5337	240	22	17901	249	72
2009	35568	192	185	21301	141	151	17190	542	32	4205	129	33	21406	240	81

Medical clinic had the highest outpatients attendance of 35568 , followed by GOPD clinic with 21406 and Obstetrics and Gynecology (O/G) with 21,301 compared to pediatrics clinic with 17,190 and

Surgical clinic with 4205. The medical clinic had the highest average daily clinic attendance of 185 patients, followed by O/G with 151. The least was pediatrics clinic with 32 patients.

Table 2: The Average Daily Clinic Attendance In Umth

YRS	Medical clinic		Obs&Gynae clinic		Paediatrics clinic		Surgical clinic		GOPD Clinic	
	Clinic session	average	Clinic session	average	Clinic session	average	Clinic session	average	Clinic session	average
2000	131	47	130	62	109	9	102	20	169	67
2001	186	40	124	71	170	7	140	21	57	226
2002	150	58	117	68	136	10	110	21	199	52
2003	167	97	141	93	159	9	127	28	245	63
2004	196	88	131	101	134	10	130	26	233	63
2005	1202	19	244	52	432	16	515	15	232	28
2006	1128	25	268	52	135	12	244	12	482	27
2007	310	123	797	20	292	11	20	206	242	46
2008	82	63	310	62	97	8	240	22	249	72
2009	192	185	141	151	542	32	129	33	240	81

The medical clinic had the highest average daily clinic attendance of 185 patients, followed by O/G with 151. The least was paediatric clinic with 32 patients. (Table2)

Table 3: The In- Patient Admissions, Discharges And Death At Umth

Years	Available Beds	Admissions	Discharges	Death
2000	381	6336	6108	439
2001	381	9004	6293	627
2002	392	10280	9270	830
2003	435	24014	12499	874
2004	435	11472	10630	898
2005	436	11336	10067	1007
2006	468	11988	10909	1072
2007	468	1169	10998	1087
2008	468	12177	11051	1036
2009	468	10128	8511	775

The admission steadily increased from 6336 in 2000, peaked in 2003 with 24014 patients. In 2005, the number of recorded admissions was 11,336 as against 11,014 in 2004. Similarly, 10,067 patients were discharged in 2005, while a total of 10,035 discharges were recorded in 2004. There was a sharp drop in the number of admissions in 2007 (from 11988 to 1169) there after it increased in 2008 and 2009. However, the number of deaths steadily increased from 2000 (438) to 2004 () and peaked in 2007 (1087) b

Table 4: Percentage Of Occupancy, Length Of Patient Stay, Turnover Interval, And Throughput.

YEARS	% OF OCCUPANCY	AVERAGE LENGTH OF STAY	TURNOVER INTERVAL	THROUGHPUT
2000	41	9	13	17
2001	51	10	10	18
2002	58	8	6	26
2003	65	9	4	29
2004	57	8	8	27
2005	64	9	5	25
2006	63	9	5	25
2007	66	10	13	26
2008	74	14	5	26
2009	75	17	6	20

75% of the hospital beds were occupied in 2009 with the average length of stay of 17 days. The turnover interval (number of replacement per bed) was highest (13 days) in 2000 and 2007 but lowest in 2003 (3days). The throughput (number of patient that pass through the bed) was highest in 2003 (29 days) but lowest in 2000 (17days).

DISCUSSION:

A capacity utilization rate, for any Organization, is the amount of output it has compared to the potential output it should produce (*Medical Care Research and Review, 2001*). This implies that capacity utilization embraces the difference between what an organization is designed to produce and what it is capable of producing at any given time. This phrase is used in many aspects of commerce, including the government, in determining the potential for a company or product. (Washington: Advisory Board Company, Fall 2001). The community can benefit from capacity utilization rate data because it tells the types of services that are most needed and are available and whether the facility is underutilized. (*Managed Care Interface, 2000*). Capacity utilization could be a function of political stability and economic viability

and stability of any country (*Health Affairs, 2000*). A health referral Institution of this nature is not profit oriented but humanitarian and service conscious to the community. Therefore, it will be a mere waste of resources if an organization is not capable of providing adequate services according to its installed capacity and if the community fails to optimally utilize this capacity. The knowledge of the balance between the service and the end user enables the organization to adjust accordingly. (*Chicago Tribune, 2003*).

To assess the utilization of UMTH, the hospital is divided into specific departments as listed above. These departments measure the potential or depicts the kind of services the hospital could render to the community. However, the number of admissions, bed occupancy, out-patient attendance and average daily clinic measure the degree of utilization of the facility by the community. In this report, the number of admissions per year significantly increased over the years. The highest number of admissions (24014) observed in 2003 with 65% bed occupancy was rather alarming but clearly shows how well the community utilizes the facility. It is not yet clear why such an upsurge occurred that year. Even with the least number of admissions (1169) in 2007, the facility seemed to be over stretched in an environment with a secondary, primary health facilities and many private clinics. It may be necessary to state that, each State in the northeastern Nigeria (where UMTH is: located) has a tertiary health care Institution in the form of Federal medical Centre along with secondary, primary and many private clinics. The question one may wish to ask include: Is the influx of patients in UMTH due to the fact that it is a teaching hospital where medical doctors and other health professionals are trained? Or is it because it is designated as Centre of Excellence in Immunology and Infectious diseases or is it because it has more qualified human resources than others within the region or that the services it provides are better both in quantity and quality compared with other health care providers in the region?. There may be need to evaluate the beliefs, perception and the attitude of the populace in northeastern Nigeria on health care delivery to effectively answer these questions in order to decongest the facility.

In this environment, health needs are more or less general in nature as observed in the number of out-patients attendance in medical clinics being higher than all other clinics in the hospital. This observation align with the highest (185) average daily clinic attendance in Medical clinics compared to others. However, it is expected that the number of attendance in GOPD clinic should exceed that of the Medical but a reverse was the case in this environment. Probably it is because the hospital serves as a referral centre in the region and even the GOPD within UMTH refers

medical cases to the medical clinics. The knowledge of the commonest health needs of the community may necessitate the hospital to strengthen the capacity of that unit to accommodate the influx of patients. It may be necessary to note that, an average daily attendance of 115 in O& G in this environment indicates active pro creativity. This may necessitate the need to promote reproductive health.

It was observed that, the number of deaths steadily increased from 438 in 2000, peaked with 1087 in 2007 and then gradually declined to 775 in 2009. The peak of deaths in 2007 could be attributed to periodic outbreaks of infectious diseases in the environment. If that speculation is correct, then regular and persistence surveillance for endemic diseases and proper reporting system would serve as an early warning system for pending epidemics. It could be assumed also that, if proper outbreak response mechanism was implemented in 2007 with 1087 deaths, the drop on the number of deaths could have been more significant than just 1036 deaths in 2008. There may be need to assess the causes of these deaths in the environment.

CONCLUSION

UMTH has been adequately utilized by the community. There may still be need for improvement by strengthening the medical, O&G and the paediatric clinics.

References

1. Health Care Advisory Board, "The New Economics of
2. Care: Briefing for the Board and Health System Executives" (Washington Advisory Board Company, 2001).
3. B.Japsen, "Hospital Capacity Debate Heats Up: Aging Population Means Sharp Rise in Need, Study Says," *Chicago Tribune*, 17 July 2003.
4. L.V.Green, "How Many Hospital Beds?" *Inquiry* (Winter 2002/2003): 400–412.
5. See C.S.Lesser and P.B. Ginsburg, "Guest Editors Introduction: Community Tracking," *Health Services Research* (February 2003, Part II): 333–336.
6. C.Worzala, N. Zhang, and G.F. Anderson, "The Effect of HMOs on Hospital Capacity, 1982–1996," *Managed Care Interface* (February 2000): 51–61;
7. J.Ashby, S. Guterman, and T. Greene, "An Analysis of Hospital Productivity and Product Change," *Health Affairs* (Sep/Oct 2000): 197–205; and M.D.Rosko, "Impact of HMO Penetration and Other Environmental Factors on Hospital X-Inefficiency," *Medical Care*

Research and Review (December 2001): 430–454.

10/2/2011