Review Article
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Study on management efficiency of a tertiary level referral hospital in western Nepal

Abstract

This study aims to explore the management efficiency of inpatient hospital wards in a tertiary level referral public hospital located in western Nepal. Western Regional Hospital (WRH) located in Gandaki province in western Nepal was taken as a representative public referral hospital for this study. Bed occupancy rate in inpatient wards was taken as a single indicator to measure the management efficiency of public hospital despite the limitation of using a single criterion. Medical records maintained by the hospital in one full Nepali calendar fiscal year 2074 (July 2016 to June 2017) were analyzed for this study. Overall bed occupancy rate was 74.28 percent and the hospital management was efficient. Out of 12 inpatient wards, management was highly efficient in three wards, efficient in four wards, neutral in one ward, fairly efficient in one ward and inefficient in three wards. The hospital management authority can promote a culture of inter-wards learning for efficient management of hospital wards. The Ministry of Health and Population is recommended to develop a policy of inter and intra hospital learning for efficient management of inpatient wards in tertiary level referral hospitals.

Keywords: western regional hospital, Nepal, wards, authority, inter-wards, hospital

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Introduction

Access to basic health services is a fundamental right of people across the globe.[1] Ensuring fundamental health services to people is one of the pressing challenges in many countries particularly in developing world where as the developed world is moving forward to attain the highest possible level of health services. Access to basic health services are governed by many factors like political commitment of the government, literacy level of people, GNI per capita of people, health technology and skill of health personnel. Even today, at least half of the world's population still does not have full coverage of essential health services and about 100million people are still being pushed into extremely poverty because of the high expenses for health care.[1] The government of Nepal is committed to increase access to basic health services to its people.

The government of Nepal already implemented two cycle of Nepal Health Sector Programs (NHSP) and it is implementing third cycle of NHSS 2016-2021 which is perfectly aligned with SDG Goal 3. Nepal Health Sector Strategy (NHSS) envisioned that all Nepali citizens have productive and quality lives with highest level of physical, mental, social and emotional health and empower Nepalese people to utilize the fundamental health rights, utilizing available resources optimally through strategic cooperation between service providers, service users and other stakeholders.[2]

The government of Nepal established 123 public hospitals, 200 primary health care centers, 3,808 health posts, 12,180 primary outreach health care clinics, 16,022 expanded immunization clinics and these services are supported by 49,001 Female Community Health Volunteers across the country for 28.4million population residing in 147181 square K.M. of land.[3] These health facilities are managed for increasing access to basic health services to people. It is not known by empirical study how efficiently these public hospitals are managed in Nepal to provide basic health services to people. Therefore, it has been rationale to carry out an empirical study on management efficiency of public hospitals in Nepal.

Methodology

Selection of a tertiary level public referral hospital for this study

Western Regional Hospital, one of the tertiary level public referral hospital located in Gandaki province in western Nepal was selected purposively as a representative public hospital for this study. Patients from neighboring districts like Syangja, Parbat, Baglung, Myagdi, Tanahun, Lamjung, and Manang are referred in this hospital for specialized services. It is one of the crowded tertiary level public referral hospital in Nepal where 1,100 patients visit per day in outpatient departments for diagnostic and curative services.[4]

Data collection

Required data for this study was collected from the available hospital record maintained by Medical Record Department and patient registers maintained by each ward of the hospital. One full Nepali fiscal calendar year 2074 (July 2016 to June 2017) was taken a reference year for data collection and analysis. Patients' admission and discharge reports of 21,298 patients admitted in inpatient wards of the hospital in one year were transferred into excel sheet between April to June 2018. Frequency tables were generated from the excel sheet for analysis.

Efficiency analysis

Management efficiency analysis of this hospital is done based on single criteria-bed occupancy rate in the inpatient wards. Efficiency is rated as follows:

i. Highly efficient=if bed occupancy rate in whole calendar year is above 90percent

ii. Efficient=if bed occupancy rate in whole calendar year is above 70 and below 90percent

iii. Neutral=if bed occupancy rate in whole calendar year is above 50 and below 70percent

iv. Fairly efficient=if bed occupancy rate is above 30 and below 50percent

v. Inefficient=if bed occupancy rate in below 30percent

Limitation of study

There are several other criteria like cost per client, time spent by clients to get desired services, supply of goods and commodities in right quantity, right quality and in right time etc. Due to time constraint and limited resources, this study is confined to use single criteria as bed occupancy rate in inpatient wardsto analyze the efficiency of hospital management. Use of single criteria to assess the management efficiency of the tertiary level public referral hospital is the limitation of this study.

Ethical issues

Information pertaining in patients' admission and discharge cards maintained by the Medical Record Department of the hospital were collected and analyzed with due permission of the hospital authority. Senior Medical Record Officer employedin same hospital collected and analyzed the information maintaining privacy of all records. Any personal information of the patients is not disclosed for any reason.

Demographic features of the patients

Patients flow from peripheral districts

On an average 58 patients admitted per day in inpatient wardsfor diagnostic and curative services. Out of the total 21,298 inpatients admitted in the hospital in one calendar year, nearly half were refereed from adjoining districts like Tanahun, Syangja, Parbat, Baglung, Gorkha Myagdi, and Dhading for specialized services and another half were from same district where the hospital is located (Table 1). By sex more than 70percent patients were female and nearly 30percent were male.

Table 1 Patient flow in inpatients wards from adjoining districts

District	Male	Female	Sex ratio	Patients	%
Kaski	3823	7353	51.99	11176	52.47
Tanahun	742	2163	34.30	2905	13.64
Syangja	542	1885	28.75	2427	11.40
Parbat	305	939	32.48	1244	5.84
Baglung	177	514	34.44	691	3.24
Myagdi	190	375	50.67	565	2.65
Lamjung	157	390	40.26	547	2.57
Gorkha	109	326	33.44	435	2.04
Dhading	44	191	23.04	235	1.10
Others	182	891	20.43	1073	5.04
Total	6271	15027	41.73	21298	100

Age and composition of patients

Age analysis relieved high proportion of adult patients between 25 to 59years admitted in inpatient departments. Nearly two fifth of patients were in this age group (Table 2). The share of female patients in this age group was high compared to other age groups. Adolescent and youth ages between 15 to 24years were second largest age cohort patients admitted in the hospital followed by children and pre-adolescent below 15years and senior citizen aged 60years and above (Table 2). By sex, more than two third (70%) patients were female and nearly one third were male. High proportion of female patients was a result of free maternity services in this referral hospital provisioned by the government to increase institutional delivery for reducing the maternal mortality rate (MMR) in Nepal. The MMR is 239/100000 live birth[5] and the government of Nepal has set an ambitious target to reduce the MMR to 70 by 2030.[6]

Table 2 Age composition of patients admitted in inpatient wards in WRH

Age category	Male patients	Percent	Female patients	Percent	Total patients	Percent	Sex ratio
0-28days	778	12.41	557	3.71	1335	6.27	139.68
1-11months	555	8.85	361	2.4	916	4.3	153.74
1-4years	495	7.89	269	1.79	764	3.59	184.01
5-14years	935	14.91	561	3.73	1496	7.02	166.67
15-24years	616	9.82	5300	35.27	5916	27.78	11.62
25-59years	1676	26.73	6741	44.86	8417	39.52	24.86
60-69years	505	8.05	427	2.84	932	4.38	118.27
70-79years	454	7.24	533	3.55	987	4.63	85.18
80-89years	215	3.43	222	1.48	437	2.05	96.85
90-99years	40	0.64	50	0.33	90	0.42	80
100>years	2	0.03	6	0.04	8	0.04	33.33
Total	6271	100	15027	100	21298	100	41.73

Citation: Paudel BP, Paudel GS. Study on management efficiency of a tertiary level referral hospital in western Nepal. *MOJ Yoga Physical Ther.* 2018;3(4):102–105. DOI: 10.15406/mojypt.2018.03.00054

Discharge status of patients

Analysis of discharge data after treatment revealed that about 97.21percent female patients and 93.11percent male patients admitted in the inpatient wards were recovered and discharged. Overall 96 percent of the total admitted patients were recovered. While 0.16percent admitted patients were not recovered and most of them were admitted in surgery ward followed by medical ward. Similarly, 0.72percent patients were referred in other advanced hospitals especially from medical ward followed by intensive care unit (ICU) and pediatric ward. About 1.83 percent patients were left against medical advice (LAMA) and 0.05percent was absconded from hospital. Hospital death was 1.24percent of the total inpatients in which more deaths were in ICU followed by Neonatal care unit (NCU) and medical ward respectively (Table 3) during this study year.

Table 3 Discharge status of patients

Status / Wards	Recovered		Not recovered		Referred		LAMA		Absconded		Death	
	M	F	M	F	M	F	M	F	M	F	M	F
Medical	1169	1363	4	3	25	16	62	54	0	4	33	27
Maternity	0	8898	0	0	0	1	0	11	0	1	0	4
ICU	167	205	1	0	22	12	41	63	0	0	62	47
Gynecology	0	1074	0	1	0	4	0	8	0	0	0	0
Geriatric	134	219	0	1	6	3	13	15	0	1	5	11
ENT	92	80	0	0	0	0	1	0	0	0	0	0
NCU	695	493	0	0	11	7	21	15	1	0	32	35
Orthopedic	764	351	4	1	0	1	17	7	1	0	0	0
Pediatric	1471	931	0	0	19	9	9	25	2	1	0	0
Post up	58	56	1	0	0	0	0	0	0	0	0	2
Psychiatric	7	10	0	0	0	0	0	0	0	0	0	0
Surgical	1282	927	5	13	12	6	6	21	0	0	5	1
Total	5839	14607	15	19	95	59	170	219	4	7	137	127
%	93.11	97.21	0.24	0.13	1.51	0.39	2.71	1.46	0.06	0.05	2.18	0.85
Total %	96		0.16		0.72		1.83		0.05		1.24	

Top ten inpatient morbidity

Top ten morbidity cases were identified analyzing the patient records. The acute respiratory infection was one of the diseases causing high morbidity (3.79%) in this study followed by typhoid and unspecified fever (3%), chronic obstructive pulmonary disease (2.71%), diarrhea and gastroenteritis of presumed (2.52%), bacterial sepsis of newborn unspecified (2.35%). Other high morbidity diseases were neonatal jaundice unspecified, cholelithiasis, urinary tract infection, pneumonia unspecified and thalassemia unspecified (Table 4).

Table 4 Top ten inpatient morbidity

S.N	Disease	Morbidity cases	% out of total	Case fatality rate (CFR)
1	Acute respiratory infection	808	3.79	0.00
2	Fever typhoid, unspecified	638	3.00	0.22
3	Chronic obstructive pulmonary disease	578	2.71	7.44
4	Diarrhea and gastroenteritis of presumed	537	2.52	0.19
5	Bacterial sepsis of newborn unspecified	501	2.35	1.80
6	Neonatal jaundice unspecified	328	1.54	0.00
7	Cholelithiasis	293	1.38	0.00
8	Urinary tract infection	278	1.31	0.72
9	Pneumonia unspecified	272	1.28	2.21
10	Thalassemia unspecified	263	1.23	0.00

Citation: Paudel BP, Paudel GS. Study on management efficiency of a tertiary level referral hospital in western Nepal. *MOJ Yoga Physical Ther.* 2018;3(4):102–105. DOI: 10.15406/mojypt.2018.03.00054

Results

Out of 12 in patient wards in the hospital, nearly two fifth of patients (41.86%) were admitted in maternity ward followed by medical ward (12.96%), pediatric ward (11.58%), surgical ward (10.70%), NCU (6.15%), orthopedic ward (5.38%) and gynecology ward (5.10%) (Table 5). There were few patients in ear, nose, throat (ENT), post up and psychiatric wards. The maternity and medical wards were crowded wards in this hospital. Average length of stay of the patients in hospital wards was 3.92days. High stay was in psychiatric ward (9.53 days/patient) followed by orthopedic ward (7.84days), post up ward (7.22days), geriatric ward (6.12days), ICU (5.77days) and medical (5.04days). While the average stays was lowest (2.61days) in maternity ward (Table 5). Similarly, average length of stay in inpatient wards in other public hospitals was 3 days in same period (DoHS, 2017).

Table 5 Bed occupancy rate in inpatients wards

Wards	Bed No	Male	Female	Total	Percent	Sex ratio	Average length of stay	Bed occupancy rate	Bed turnover rate
Medical	36	1304	1456	2760	12.96	89.56	5.04	96.13	76.67
Maternity	70	0	8915	8915	41.86	0.00	2.61	91.11	127.36
ICU	11	293	327	620	2.91	89.60	5.77	89.17	56.36
Gynecology	34	0	1087	1087	5.10	0.00	4.18	36.61	31.97
Geriatric	8	158	250	408	1.92	63.20	6.12	85.45	51
ENT	6	93	80	173	0.81	116.25	3.29	25.98	28.83
NCU	20	760	550	1310	6.15	138.18	4.00	71.85	65.5
Orthopedic	31	786	360	1146	5.38	218.33	7.84	96.99	45.84
Pediatric	37	1501	966	2467	11.58	155.38	3.79	69.3	66.68
Post up	14	59	58	117	0.55	101.72	7.22	16.54	8.36
Psychiatric	10	7	10	17	0.08	70.00	9.53	4.44	1.7
Surgical	37	1310	968	2278	10.70	135.33	4.66	78.45	61.57
Total	308	6271	15027	21298	100.00	41.73	3.92	74.28	69.15

On an average the bed occupancy rate was 74.28 percent of all available beds in the hospital. Hospital management in three wards was highly efficient. The bed occupancy rate in orthopedic ward was 96.99% followed by medical ward 96.13% and maternity ward 91.11% respectively. Hospital management in four wards was efficient. The bed occupancy rate in ICU was 89.17 % followed by geriatric ward 85.45 %, surgical ward 78.45 %, and NCU 71.85%. While the hospital management efficiency in pediatric was neutral where the bed occupancy rate was 69.3 percent. Management efficiency of gynecological ward was fairly efficient where the bed occupancy rate was 36.61 percent. Finally, the management efficiency of three wards was inefficient. The bed occupancy rate in ENT ward was 25. 98% followed by post up ward 16.54 % and psychiatric ward 4.44 percent.

Conclusion and policy implication

Overall bed occupancy rate in Western Regional Hospital inpatient wards was 74.28 percent and it is rated as an efficient management. Out of 12 wards, management of three wards was highly efficient, four wards were efficient, one ward was neutral, one was fairly efficient, and three wards were inefficient. The inefficient wards can learn management skill from highly efficient and efficient wards within the hospital.

It is recommended that the hospital management authority should promote a culture of inter-wards learning for efficient management of hospital wards and beds in public hospitals, which are often crowed in Nepal. The Ministry of Health and Population is recommended to develop a policy of inter and intra hospital learning for efficient management of inpatient wards in tertiary level referral hospitals.

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None.

Conflict of interest

The author declares no conflict of interest.

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