

Burden of COVID-19 on healthcare service delivery on the tamale teaching hospital in Ghana

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Abstract

The COVID-19 pandemic created global crises on almost every facet of the global economy, most especially on medical logistics.

The purpose of the study was to determine the effects of the pandemic on the Tamale Teaching Hospital's healthcare resource management and utilization.

The study compared data on the hospital utilization by clients by reviewing a three-month data before COVID-19 and three months data after the hospital started recording COVID-19 cases.

Findings revealed that on the advent of COVID-19 in the hospital, patients' admission figures declined by 21% bringing down the revenue generation by 31%. However, the value of logistics and supply chain increased by 35.72%, reflecting in the hospital's expenditure that went up by 44.8%. The COVID-19 pandemic left the Tamale Teaching Hospital with a ballooned expenditure and a disruption of the health service delivery.

Keywords: COVID-19; Revenue; Expenditure; Supply chain; Staffing norms

1. Introduction

Coronaviruses are a large group of viruses that are common among animals. In rare cases, they are what scientists call zoonotic, meaning they can be transmitted from animals to humans. It is a dangerous disease with incubation period between 6-41 days (median of 14 days) (1). On average symptoms appear in 5 days after exposure (2). It is fatal especially for the elderly, the very young and those with weakened immune system. It is a multi-organ disease but identifiable with difficulty breathing and pneumonia or bronchitis.

The COVID-19 pandemic has achieved global crises on almost every facet of global economies, most especially on medical logistics. In order to stop the spread of the COVID-19 outbreak, many countries all around the globe have advocated for the restriction on human movement and social distancing. The airline and shipping industries are some

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of the worst hit thereby further troubling medical supplies. As a result, countries and the world capital have been put under strict lockdown, bringing a total halt to major industrial production chains and transportation.

It has been noted clearly that the COVID-19 pandemic presents two crisis; health crisis and economic crisis and these have implications on the health financing system in Ghana (3).

Ghana recorded its first two cases of the COVID-19 on the 12th of March 2020(4). A little over two weeks after Ghana recorded the first COVID-19; the Northern Region recorded its first eleven COVID-19 cases on the 29th of March 2020 at the Tamale Teaching Hospital.

The Tamale Teaching hospital, which has been designated as the treatment centre within the northern territory (Northern, Savanna, North East Upper East and Upper West Regions) of Ghana, had been up to the task. As a result, the hospital adopted a number of strategic steps geared towards dealing with the global pandemic.

The steps TTH adopted included the suspension of non-emergency cases to reduce the burden of other hospital care. This was done to lessen the burden on the use of hospital consumables in preparation to accommodate the care of COVID-19 cases in the northern territory. The hospital also reduced other non-essential staff, such as service personnel, medical and non-medical interns, in order to decrease the risks and to conserve logistics such as PPEs in the fight.

Mindful of the aforementioned problems associated with COVID-19 pandemic and the rapid rise of the COVID-19 cases, this operational study therefore tried to examine the burden of the pandemic on hospital service delivery. It is also to ensure the judicious use of the few medical supplies in TTH coupled with other support extended to the facility by government and other philanthropic organisations. The study objectives were to determine the hospital utilization in the midst of COVID-19, understand the financial implication and the staff re-distribution within the in the first the three months of the COVID-19 in Ghana. This was to enable the institution strategize going forward in dealing with the pandemic.

2. Material and methods

This was a three month record review covering; the period with COVID-19 cases, 29th March, 2020 to 29th of June 2020 (Q2) and comparing with the period without COVID-19 cases, 1st January, 2020 to 28th March, 2020 (Q1)

The Key variables considered included; Admission statistics and Bed utilization, Supply chain management (stock review), Financial statements review, Staffing norms and changes.

3. Results

The study sought to understand the number of patient inflows in the admissions which revealed that all the specialty areas of the hospital experienced marked reduction in the number of admissions when the COVID-19 pandemic broke out except the maternity that witnessed a substantial increase (12.5%) in the number of admissions. The impact of the pandemic were assessed at the various wards of the Tamale Teaching Hospital, the following results demonstrate that (see table 1).

3.1. General Admission Statistics

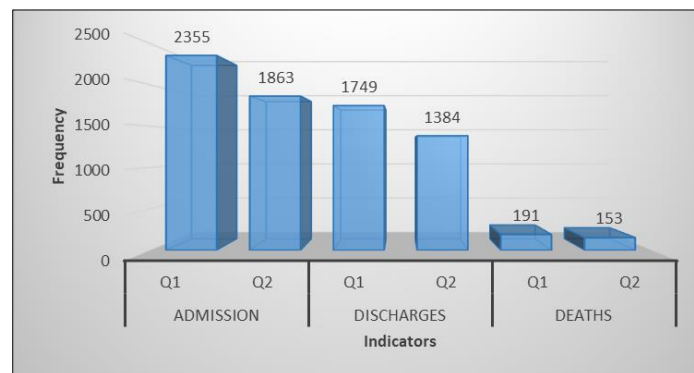


Figure 1 Quarterly statistics of patients in TTH

The first quarter of 2020 was the period when the COVID-19 was not recorded in Ghana, the country started recording its first case later in March 2020 (27th March). Hence data on healthcare delivery were collected three months apiece before and after the onset of COVID-19 in Ghana.

Over all, the first quarter of 2020 recorded 2355 admissions. However, in the second quarter of 2020 when COVID-19 was pronounced in the country, there was a marginal reduction (621) of admissions to 1863 (see fig 2).

Table 1 Admission Statistics for First (Q1) and Second (Q2) Quarters of 2020

Ward	Admission		Discharges		Deaths	
	Q1	Q2	Q1	Q2	Q1	Q2
Accident and Emergency	716	621	223	216	77	65
Children Emergency Ward	73	42	3	2	10	5
Plastic surgery	23	18	20	16	1	1
Male Surgery	74	48	70	47	5	1
Female Surgery	60	29	58	28	5	3
Medical 1	128	94	121	84	8	7
Medical 2	82	63	70	48	14	9
Medical 3	92	68	89	62	13	11
Maternity	232	265	265	362	5	3
Gynaecology	177	144	168	107	2	0
Paediatrics	212	95	222	90	5	4
NICU	267	233	229	201	39	35
Neurosurgical Ward	51	42	50	36	0	3
ENT	56	26	57	23	0	0
Urology	39	19	42	17	0	0
Orthopaedics & Trauma	58	45	59	44	1	1
ICU	15	11	3	1	6	5
Total	2355	1863	1749	1384	191	153

3.2. Supply Chain (Logistics and Supplies)

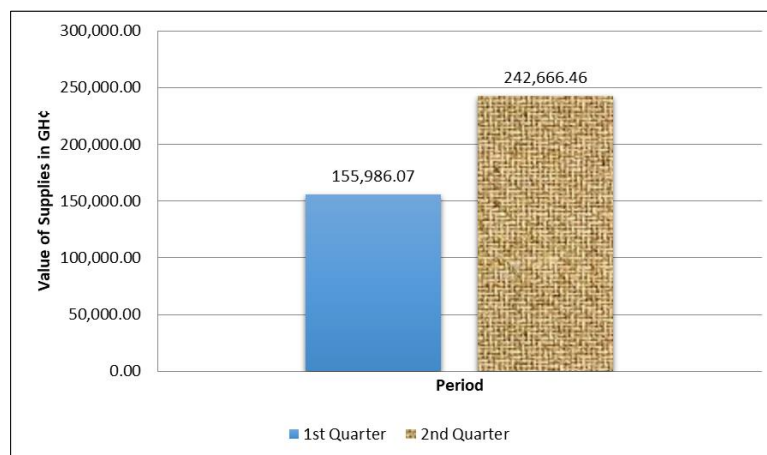


Figure 2 Quarterly Analysis of Total Value of Consumable supplies issued for stores

The stores issues consumables such as dressing items, cleaning items, lotions, detergents maintenance materials such as biomedical and estates items.

As shown in figure 2 below it is obvious that there was a nominal rise (35.72%) of the value of supplies in the hospital following the outbreak of COVID-19 in northern region. In the first quarter of 2020 when the country had not recorded any case of COVID-19, the total value of supply was GH¢ 155,986.07. However, following the advent of COVID-19 in Ghana, particularly in TTH, the total value of goods issued was GH¢ 242,666.46.

3.3. Hospital Finances (Revenue and Expenditure)

In the advent of COVID-19 for the first quarter in TTH the revenue of the hospital dropped by 30.9% from GH¢ 5335094.3 to GH¢ 3686423.42. However, the expenditure rose by 43.8% from GH¢ 2,495,581.99 to GH¢ 4,440,627.21.

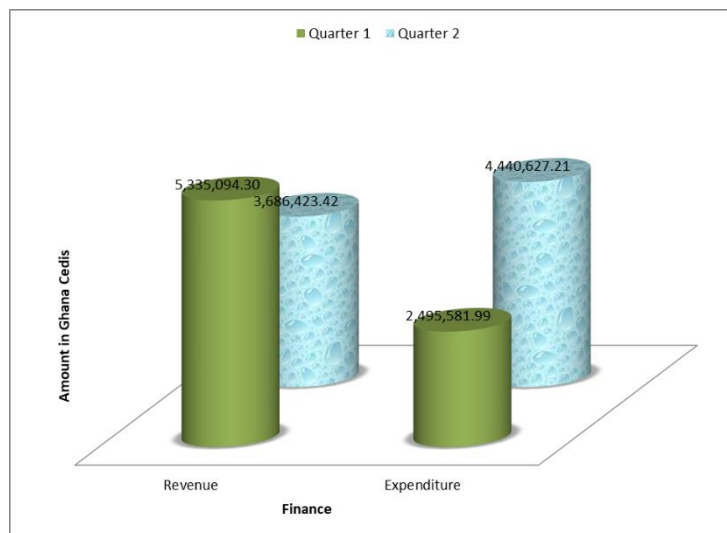


Figure 3 Quarterly Revenue and Expenditure

3.4. Staffing norms and changes

The first 11 recorded cases at TTH had exposed 29 staff as primary contacts who then had to be quarantined for a week as laboratory samples had to be transported to Accra (Noguchi lab) for testing since there was no testing yet within the northern part of the country. Based on this hospital management decided to let non-essential staff largely administrative had to take vacation leaving behind only skeleton staff mainly records and finance staff to work on alternate weekly shift basis. Clinical staff including orderlies were also rescheduled on alternate day basis. Only the core COVID 19 management team worked their full 24 schedules.

4. Discussion

The study demonstrated some marginal disruption of service delivery with regards to finances and the supply chain management of the hospital. The admission figures witnessed a 21% reduction in the advent of COVID-19 and these had dire implication on the finances of the hospital.

However, the hospital witnessed a substantial increase (35.72%) in the value of supply chain management. The increase in the value of supply chain management could be the initiative instituted by the hospital to contain the pandemic by spending more on hospital logistics and other sanitary materials, especially so, when the hospital had not received any external assistant to deal with the pandemic. It could also be linked to “panic buying” especially when countries in the world started some COVID-19 restraining measures such as lockdowns and a fall in travels of the aviation industry.

The revenue generation in the midst of the pandemic dropped by 31% reflecting the drop in admission figures and general hospital attendance. On the contrary, the hospital’s expenditure swelled up by 44.8%. This could be attributed to investment in essential hospital supplies such as infection control items, biomedical and estates items. Activation of emergency services and other expenditures that were not originally planned by the hospital could all be attributed to the rise of expenditure in the midst of COVID-19.

The staff rescheduling helped in decreasing the use of consumables including personal protective equipment, hand sanitizers and even water and soap supplies. Above all in decreased staff exposure and consequent cost of testing and quarantining of staff.

It is therefore demonstrable that the COVID-19 pandemic left the Tamale Teaching Hospital with a ballooned expenditure and disrupted the health service delivery.

Limitation

A number of limiting conditions were encountered in the study. First and foremost, data on this study were limited to the Human Resources department, the Supply Chain Management and the Finance Department. As a result, not all the service points were able to furnish the study with the requested data. The study was purely descriptive in nature.

5. Conclusion

This study found within that within 3 months of the first case of Covid-19 recorded in Ghana there was a shift in the service delivery dynamics where revenue generation decreased as hospital attendance and admissions decreased whilst expenditure increased largely as a result of supply management constraints. This was compounded by staff usage of more consumables for protection and run minimal schedules to decrease exposure. This trend is likely with future pandemics and so national and global blue print strategies to mitigate this is recommended.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest.

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