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Strategic framework for strengthening Health system response to Covid -19 pandemic

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Abstract

The novel Covid-19 pandemic has emerged a new sequel of distributing scarce resources according to a critical triage system and has put the healthcare management into a greater difficulty in allocating resources. Different countries have addressed these issues in different manners but highlighted on having a good response framework. The Covid operation cell was established during the first wave of Covid-19 in Base Hospital Horana and it was consisted of all relevant stakeholders. It was expanded during the second wave and the functions were done according to the strategic response framework. Decisions were made through several subcommittees. The framework outlined the objective of addressing issues on resources management in health care services at the Base Hospital Horana and to propose strategic actions to strengthen health care services during the Covid-19 pandemic. The strategic response framework included institutional policies, continuation of patient care, human resource management, logistic management, caring and emotional support for Health Care Workers (HCWs) and environment cleanliness. Most of the developments within the hospital were done to continue healthcare services to the patients while safeguarding the staff. The outcome of the response framework was to give the maximum service for patients without any intra-cross infections among HCWs.

Key words: Covid-19, Response, Risk Assessment, Resource allocation

Introduction

The Covid-19 pandemic has put an enormous strain on Health systems all over the world. Countries need to expand healthcare delivery system to the public, expand hospitals and increase critical care [1]. Health systems in these countries have limited resources. Therefore, allocation of scarce resources was the major difficulty faced by the health authorities during this pandemic [1, 2, 3]. An expert panel has highlighted the importance of a critical care triage system to allocate scarce resources [1, 3, 4, 5]. Managing a hospital in a critically changing environment is a challenge [6, 7, 8, 10, 11, 12] and it is important to focus on maintaining essential health care services while technically sound use of scarce resources for the Covid-19 response [9, 13].

Justification

It is a need of healthcare system to design and develop a contingency strategic action plan or a framework [5] which is applicable to Sri Lanka to combat future occurrence of pandemics.

Objective

To describe the issues on resources management in health care services at the Base Hospital Horana and to propose a strategic response framework to strengthen healthcare services during the Covid-19 pandemic.

Methodology

A descriptive cross sectional study was conducted with both qualitative and quantitative components based on data collected at the infection control unit, by desk reviews, Focus Group Discussions (FGD) and Key Informant Interviews (KII). The Covid operation cell was established and initiated the strategic response framework including institutional policies, continuation of patient care, human resource management, logistic management, caring and emotional support for Health Care Workers (HCWs) and environment cleanliness.

Results

Horana is a type A Base Hospital with 518 beds before Covid-19 but it was increased by 10 beds after establishment of Covid isolation ward. The total number of health staff was 758 (21 specialists, 119 medical officers, 301 nursing officers, 227 orderly staff, etc.).

Institutional policies

The Covid operational cell was established on the second week of March 2020 and it was more strengthened during the second wave of Covid-19 with subcommittees of Action team, Data collection and Risk analysis team, Logistic management team, Health education and training team, Infection control team, Grievances handling team and a focal point to communicate with external health authorities and all the activities were under the supervision of the Medical Superintendent. The institution adhered to all the guidelines and circulars issued by the Ministry of Health regarding Covid-19 preparedness. The most striking issue was to develop isolation units as a novel requirement of healthcare services with already under cadre healthcare staff.

Continuation of patient care

Fever was checked at hospital entrance points. A triage unit was expanded to 24 hours functioning with Medical Officers (MOs) and nurses (NOs). A fever corner was established with an isolation room to separate the patients with fever or respiratory symptoms. A fully equipped ten bedded isolation ward was established with a High Dependency Unit (HDU), glass partitions with fullest security to the staff and microphone system to communicate with patients. The health education team has published posters/banners/leaflets/daily announcements/television videos regarding Covid-19 infection and preventive measures and advised on properly wearing a face mask and hand washing. Only one visitor per patient was allowed and restricted visiting time to minimize overcrowding. An isolation emergency room was established with separate donning and doffing area at the Preliminary Care Unit (PCU). Three huts were established in an open space to maintain social distancing. One meter distance lines were marked at waiting areas at the Out Patient Department (OPD), pharmacy lobby. Drugs were distributed for two months for patients. Delivery system was arranged to deliver medicines for the clinic patients to their doorstep. Outreached medical clinics for elders were continued. Public Health Nurse has continued giving home based palliative care services throughout the period. After converting Homagama, Pimbura and Ingiriya as Covid hospitals our drainage area for seeking antenatal care and haemodialysis were increased. Isolation beds were established in labour room and dialysis unit.

Human resource management

Staff members were advised to wear face masks and face shields as well and not to gather in staff rooms while having their meals. Nurses and orderlies were mobilized to fever corner and isolation ward according to a common roster. They were allocated for shorter duty hours.

Logistic management

Initially availability of Personal Protective Equipment (PPEs) were unsatisfactory due to various delays of supplies in spite of almost doubling the requirement. Table 1 describes the increased use of PPEs during the Covid-19 period.

Table 1: Details of the number of PPEs used at the BH Horana during the 1st wave and the 2nd wave of Covid-19 with comparison use in 2019

PPEs used	From April 2019 to January 2020		From April 2020 to January 2021	
	Apr.- Aug.	Sep. – Jan.	Apr.- Aug.	Sep. – Jan.
Face masks	38550	44000	78850	89530
Examination gloves	135300	137650	218050	221850
Goggles	00	00	40	49
Face shields	00	00	567	1896
N-95 masks	00	00	92	1780
Coveralls	00	00	168	1230
Head covers	00	00	26	285
Original PPEs	00	00	54	1141
Isolation gowns	00	00	05	353

Therefore, the supply committee has designed an exposure risk assessment tool to prioritize the risk level of exposure to Covid-19 before allocating PPEs. Staff were promoted to prepare face masks, coveralls, head covers, pyjamas, and other PPEs once the materials were supplied by the hospital management.

Caring and emotional support for HCWs

The grievance subcommittee was established consisting of the Psychiatrist, MO/Mithuru piyasa and a senior MO to address psychological distress, fatigue, occupational burnout, stigma and fear of cross infection and real need of Polymerase Chain Reaction (PCR) sampling and PPEs.

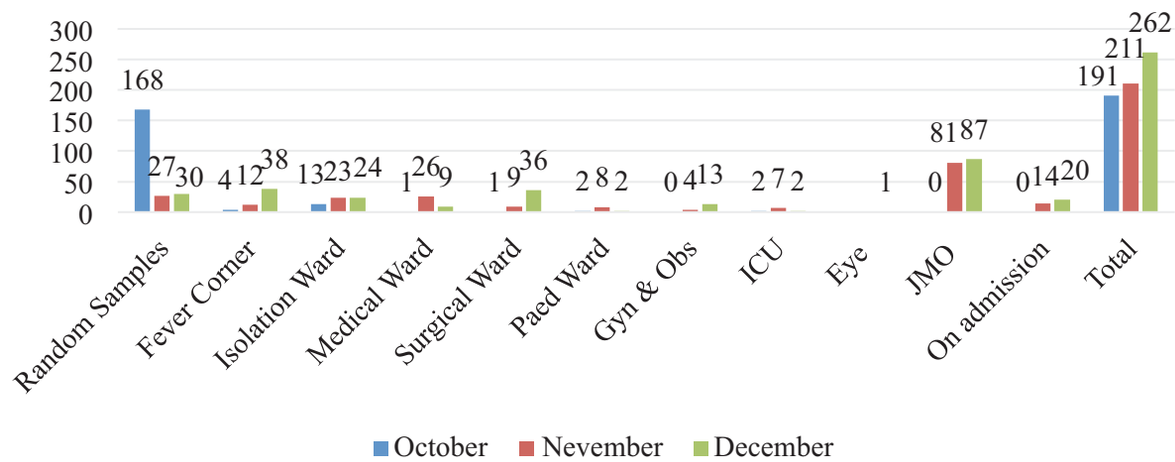
Environmental cleanliness

Environmental continuous cleaning was ensured with Tropical Chloride of Lime (TCL) spraying, mobbing walls, floors, windows according to a time table and appointed a responsible person to monitor it. Elbow taps, peddled washbasins, peddled waste bins and adequate soap were provided at the entrances to each and every unit and the process of hand washing was continuously supervised by the infection control team.

Outcome of the response framework

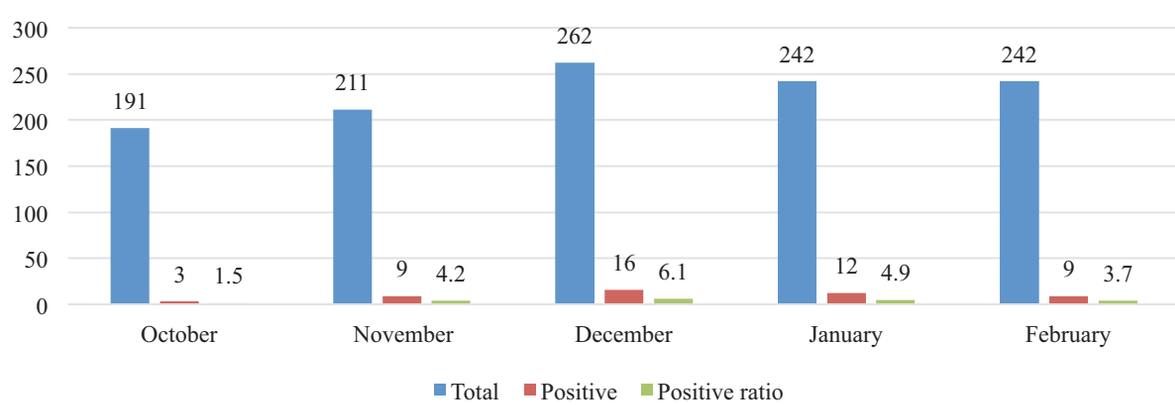
The number of PCR samples done at different units during the second wave of Covid-19 are described in figure 1.

Figure 1: The number of PCR samples done at different units from October to December 2020



The number of PCR samples done, the number of positives and the positivity ratio in the second wave of Covid -19 are described in figure 2.

Figure 2: The total number of PCRs done, number of positives and positivity ratio from October 2020 to February 2021



There were only twelve PCR positive cases identified with risk of cross contamination to the staff. These 12 cases are described in table 2.

Table 2: Details of cross contamination to the staff reported during the 2nd wave of Covid 19

No	Date	Place	Incidence in brief	Risk forms collect (No)	Covid Operation cell decisions after performing risk assessment	PCR done (No)	+ve/-ve
1	06/10/20	Ward (WD) 5	Nursing officer's husband +ve (working at Brandex)	163	1st line- 40 2nd line 108	148	-ve
2	02/11/20	WD 1, 5, 10	5 Close contacts with Bodyline garment	Not nec.	Quarantined at home	00	00
3	07/11/20	WD 9 +ve,	NO's husband at Bodyline	40	All contacts exposed were on relevant PPEs during working hours but had taken meals together in the night.	21	-ve
4	23/11/20	WD 14	Covid +ve patient has come to ward. Contact period 8-10min. MO/PBU- visited for 15 min.	None	Contact was not significant MO - home quarantined	00 00	01 -ve
5	28/11/20	WD 2	Husband and child +ve of a mother admitted for Caesarean Section.	32	Decided to do PCR if Mother becomes +ve but mother's PCR was –ve and Delivered safely	00	00
6	02/12/20	PCU, WD 7, ENT, EYE Radio. Dental Theater (OT)	Patient after Road Traffic Accident (RTA) had several lacerations on face/oral cavity became +ve	41	PCU, EYE, ENT, Dental – Minimum risk. WD 07, OT and Radiology b/c very close contact with pt.'s face, 12 home Quar.	12	-ve
7	06/12/20	OT	HCW's Husband +ve	Not nec.	Home quarantined. No sig. contacts.	00	00
08	06/12/20	WD 5	HCW's Son's close contact +ve	Not nec.	Home quarantined. Son's PCR became -ve	00	00
09	20/12/20	LSO	Lady Security Officer +ve. - one night shift during contact period and had dinner with a staff member	12	11 Security officers & one HCW -had meal with Pt. 4days back	12	-ve
10	02/01/21	OT	Family of Seamstress +ve 9 days passed when identified as +ve	04	Op. cell decided to do Rapid Antigen Tests but PCR done on Anesthetist request.	04	-ve
11	06/01/21	OPD	NO's husband working in Police dept. got +ve. NO got +ve done by MOH	Not nec.	NO has not reported to duty during the contact period	00	00
12	13/01/21	WD 4	PCR +ve of a patient waiting for surgery	31	PCRs were done on patients who were in close contact with +ve patient	20	-ve

None of them were identified as Covid-19 positive and there was no cross infection among HCWs.

Discussion

It was agreeable that outbreak preparedness was a major challenge in a scarce resource setup in our setup and in other countries as well [4, 6, 7, 9, 10, 11]. Hospitals in other countries had a similar experience to combat Covid-19 concurrently safeguarding the staff and their families using a rapid response structure which were similar to strategic response framework used in this hospital [5, 6]. Achievements were also the same that there were no intra-hospital infections reported [5]. Most of the literature touched on right strategies in the right time to control the disease [8, 12, 13] but this paper highlighted the importance of having a right strategic framework at the right time to continue patient care with zero intra-hospital infections.

Conclusion

Managing a hospital during the Covid-19 pandemic is a challenging task with scarcity of resources. Combating Covid-19 without any restrictions in services was the main challenge for all HCWs. Implementation of the strategic response framework was the key success in this hospital to give the maximum service for patients without any cross infections among HCWs. Neither they took the Covid-19 to their families from the hospital nor spread the disease to their co-workers from outside.

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