

New Emergency treatment Unit for Base Hospital, Elpitiya: A better approach to save the golden hour

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Abstract- Emergency Treatment Unit which is the entry point for patients to the hospital, is responsible for initial accident and emergency care for patients. The need of prompt action in emergency care was explained by Dr. Cowley of Maryland University as the “Golden hour in emergency medicine”, as patient’s survival or death may decide on how the patient is cared within the first hour of onset of the emergency. A & E policy in Sri Lanka defines the optimum level of care in each level of health care institutions. The article describes the strategies and ways and means of establishing a new ETU at Base Hospital, Elpitiya, Sri Lanka to address the basic objectives of accident and emergency care. With the establishment of the new ETU, number of minor surgical procedures and thrombolysis of acute MI patients at ETU were markedly improved indicating reduction of door to needle time.

Index Terms- Accident & Emergency care, Emergency Treatment Unit, Golden hour

I. INTRODUCTION

Providing accident and emergency care need prompt attention, swift action and an efficient, uncomplicated and easy to navigate systems. Patient’s survival or death may decide on how the patient is cared in the Emergency Treatment Unit (ETU). ETU is the entry point for patients to the hospital and plays an important role in prompt and effective medical care. Hence, ETU pose a diverse challenge as it is responsible for receiving, sorting, assessing, stabilizing and managing patients with different degrees of urgency and complexity [1]. With the objective of reducing morbidity, mortality and disability related to accidents and emergencies, the Accident and Emergency (A & E) policy had been approved by the cabinet of ministers of Sri Lanka in 2015 [2]. Accordingly, four levels of A & E care had been identified. Base Hospitals were belonging to level IV of A & E care [2].

Base Hospital (B H), Elpitiya is situated towards the northern part of the Galle district of Southern province of Sri Lanka. Elpitiya divisional secretariat which has an area of 151.9Km² consists of 19486 families with a total population of 64726 [3]. However, Base Hospital, Elpitiya drain patients from several adjacent districts because of the exceptional service it provide [4]. The history of the hospital goes back to nearly 100 years when it was started as a District Hospital consisted of 5 wards and a staff of 10. With the improvement of facilities the hospital was promoted to a Base Hospital in 2005, with major specialized care. At present the hospital possess the services of 16

fulltime specialist doctors, 44 Grade Medical Offices, 20 Intern medical officers, 180 nurses and a number of paramedical and junior staff accounts for a total of 537 staff. The hospital has a bed strength of 338 with 75% bed occupancy ratio. In 2017, there were 47358 admissions to the hospital, 138542 patients had outpatient treatment and 95822 patients attended the clinics. A number of 12276 surgeries performed and 3296 deliveries done in the hospital during the same year. Total admissions to the ETU in year 2017 was 9576 [4]. With the construction of the Southern expressway, B H Elpitiya was recognized as its main accident and emergency centre as it is the nearest hospital to the expressway, which is only 4 Kms from Kurundugaha interchange.

Inadequate facilities in an ETU can lead to numerous problems including overcrowding, extended waiting time, poor quality of care, increased number of patients left without seeing and even increased patient mortality and eventually lead to inability to meet the expectations of the patients, their families and healthcare staff [5]. The need of prompt action in emergency care was explained by Dr. Cowley of Maryland University as the “Golden hour in emergency medicine” [6]. Until 2018, the hospital had an ETU with a limited space of about 800 square feet with only three beds. This was highly inadequate to the daily work load of the ETU. Hence it was of vital importance to establish an ETU with more space and more facilities to cater the upcoming needs of the hospital.

This article describes the strategies adopted to establish a new ETU at Base Hospital, Elpitiya and how the challenges were overcome and achieved the goal in just three months.

II. METHODOLOGY

Pre-implementation phase

I. Needs assessment

Multiple stakeholder meetings were conducted at institutional, regional, provincial and national level to identify the needs and to establish a new ETU according to the A & E Policy and guidelines. This included the care model, triage, standard requirements, infrastructure development and quality improvement. Basic challenge was to find a place to establish the ETU. With the financial constrains it was difficult to build a new building for the ETU. However, it was observed that that the hospital canteen was functioning at the entrance of the wards complex and that space was identified as the optimum place to establish the new ETU.

II. Planning infrastructure

After many discussions it was agreed to establish a six bedded ETU including a resuscitation bay at the ground floor of ward complex. The ground plan was designed by the Southern provincial chief secretary’s office and District engineering services and the estimated cost for renovation of the premises and building necessary infrastructure was 2.5 million rupees which was bared by the Provincial Health Ministry. This included facilitating 6 beds, staff duty rooms and rest rooms, wash rooms, vomiting room for poisoned patients, supply of wall oxygen and power supply etc. An ambulance bay was planned in front of the ETU. Necessary equipment was identified and requested from the provincial health authorities and from the central government.

III. Planning human resource

Human resource need assessment was done and required number of doctors, nurses and junior staff was requested from relevant authorities. Adequate number of nurses were employed and a sister –in charge of ETU was designated. Junior staff were allocated in a roster basis. However, most difficult challenge was to find doctors to the ETU. However, five relief house officers and a one medical officer were volunteered to work in the ETU for long shifts until adequate number of Medical Officers were recruited. Emergency care training for doctors and nurses were arranged from ETU of Teaching Hospital, Karapitiya.

It was agreed that the consultant physician should be the in-charge of the ETU and a multidisciplinary clinical care would be provided 24/7 by all other consultants according to the requirement. Infection prevention and control support was rendered by the consultant microbiologist of teaching Hospital, Karapitiya.

III. IMPLEMENTATION PHASE

First, the hospital canteen was shifted to a renovated old building with the financial support of the Hospital Development Fund (HDF). As the canteen generated a lot of funds to the HDF a lot of resistance came from the trade unions. However, after several discussions explaining the importance of the project, finally all trade unions supported the mission. Construction work of the ETU started in May 2018. The contractor was able to build the required infrastructure within two months of awarding the tender while working day and night. The construction work was frequently monitored by the engineer and the technical officers of the provincial health ministry and amending the plan as requested by the hospital team.

Six eclectic adjustable beds were acquired from the Ministry of Health, Donation store with the generous support from the Medical Supplies Division. Some of the required medical equipment were procured by the District and Provincial Directors of Health Services and the remaining were redistributed from the other units of the hospital. With the limited space in the ETU, rest rooms were provided for doctors, nurses and the junior staff separately. Unfortunately, at the final stage a trade union dispute occurred requesting a room for the sister-in-charge inside the ETU. However, after several discussions all parties came to a consensus to have a sister’s room outside and adjacent to the ETU. The new ETU was ceremonially opened by the Chief Minister of the Southern province and a cabinet minister representing the area on 31st August 2018. The same day patient admissions were started

through the new ETU. Electronic Patient Admission system was established at the front desk and all the admissions to the hospital were admitted through the ETU.

IV. POST IMPLEMENTATION PHASE

The successful completion of the new ETU project had many outcomes for accident and emergency care. Reception of the patient was quicker because of one way traffic created to avoid vehicle jams which happened at earlier place. Since the new premises was spacious patient handling was easy. Patient registration, laboratory, blood bank, elevators to the wards, telephone exchange, police post were all very closer for quick actions. Proposed Intensive Care Unit (ICU) was adjacent to the ETU. Hence, the patients who need ICU care could be quickly rushed to the ICU. Further, the Operating Theatre complex was also very close to the ETU.

V. RESULTS

Statistics from the ETU of B H Elpitiya confirm that 02 Thrombolysis for Acute Myocardial Infarction and 1092 minor surgical procedures performed at the ETU in 2018 before the establishment of new ETU. However, in 2019 Thrombolysis for Acute Myocardial Infarction at ETU was 31 and 2501 minor surgical procedures were performed.

Table 1: Number of procedures done at ETU in 2018 and 2019.

Procedure	2018	2019
Thrombolysis for acute MI	02	31
Number of minor surgical procedures	1092	2501

It is encouraging to note that the door to needle time was reduced to 52 minutes with the limited resources in the ETU [3].

Table 2: Average door to needle time in 2018 and 2019

	2018	2019
Average door to needle time	1 hour 30 min	52 min

VI. CONCLUSIONS

The performance of the ETU affects all the other sections of the hospital as it is the entry point for patients to the hospital. A & E care which need prompt attention and quick action may decide between the life and death of a patient which was explained as the “Golden hour of emergency” by Dr. Cowley of Maryland University. As one of the two type A Base Hospitals in the Galle district and the closest hospital to the southern expressway the three bedded ETU of B H Elpitiya was highly inadequate to cater the growing need of emergencies. Overcoming many challenges and heartfelt support from many stakeholders the new ETU project to B H Elpitiya was a great success in a very short time. Immediate results indicated increased number of minor surgeries and thrombolysis of acute MI patients at ETU and marked reduction

in door to needle time. The beneficiaries of the outcome of the project will not only be the catchment population, but also all people who are travelling through the southern expressway.

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