

The organization and operation of Pre-Hospital care emergency ambulance Service (Suwaseriya1990) in Sri Lanka

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DOI: <https://doi.org/10.5281/zenodo.6773038>

Published Date: 28-June-2022

Abstract: In 2016 Suwaseriya1990 ambulance service was launched and in 2018, Suwaseriya1990 Foundation was established by parliamentary act No.18 of 2018 to deliver high quality pre-hospital emergency health care to people of Sri Lanka. At present, Suwaseriya1990 provide island-wide, pre- hospital emergency care to all Sri Lankan free of charge at point of delivery. Objective of this study is to study the organization and operation of Pre-Hospital Care emergency ambulance service (Suwaseriya1990) in Sri Lanka

A desk review was conducted to studying the organization and operation of Suwaseriya 1990 and thematic areas were based on World Health Organization's Health system frame work. Narrative data synthesis was done for reporting.

Thematic areas were recorded positives in leadership and governance, services delivery, information technology and work force. Gaps and opportunities for development can be seen in leadership and governance, work force and service delivery. Average response time of ambulance is less than 14.32 minute in non-Colombo area and 8.38 minute in Colombo area. Some policies like equity, quality and risk reduction and mechanism for evidence base practice is lacking. Opportunities are existed for service expansion and staff development

Improvement of Capacity of Emergency Medical Technician and strengthening of evidence base practices are recommended for further improvement of services. Further policy development of equity, quality and risk reduction is recommended

Keywords: Emergency Medical Care, Suwaseriya1990, Pre-Hospital Care, Emergency ambulance service, Emergency Medical Technician, Call center.

1. INTRODUCTION

Emergency Medical Care covers varies activities which include pre-hospital care and transport, initial patient evaluation, diagnosis and resuscitation and in hospital care. World Health Organization has published a frame work for Emergency Care System (EMS).[1]

Scene	Bystander response
	Dispatch
	Provider response
Transfer	Patient Transport
	Transport Care

Facilities	Reception
	Emergency Unit care
	Disposition
	Inpatient care

WHO Emergency care System Frame work explains that emergency ambulance service is a component of EMS.

Developing countries have faced many challenges of handling increased morbidity and mortality from vascular diseases and trauma [2]. This has led to an emerging interest in establishing Emergency Medical care system to handle these emergencies efficiently [3]. Government of Sri Lanka has recognized importance of pre hospital ambulance care as an essential service to its people and is expected to delivering comprehensive, speedy reliable and quality ambulance service to fill the gap of emergency pre hospital care [4]. Emergency pre-hospital care ambulance service will help to reduce effects of emergencies in some non-communicable diseases and injuries.[5] Demand for pre-hospital urgent care has expanded over past decade due to trend of rising non-communicable disease (NCD) and changing demography of the disease and increasing incident of trauma.[6]

Suwaseriya1990 ambulance services which commenced on the 27th of July 2016, has first launched in southern and Western Province and present covers entire country free of charge at point of delivery. Though many people oppose the service initially, over short period of time with multiple challenges it caters greater service to the country. [7]

This study may assess the current policies, organization and operations of five-year-old pre-hospital ambulance services and guide managers to make decisions for delivering high quality services to the people.

Objective

To study organization and operation of Pre- Hospital care emergency ambulance Service (Suwaseriya1990) in Sri Lanka in order to further strengthening of services.

2. METHODOLOGY

A desk review was conducted to achieve the above objective. National and International documents related to Suwaseriya1990 (Selected acts, reports on Pre hospital care and Suwaseriya) were reviewed. Relevant literature and websites on pre-hospital ambulance care and Suwaseriya1990 were searched through selected databases (Google scholar and PubMed)

Thematic areas for study were based on WHO health system framework and literature.

Thematic areas

Input	output	outcome
Leadership and governance		Improved health
	Access	
Service delivery		Responsiveness
	Coverage	
Workforce		Risk Reduction
	Quality	
Information and communication		Improved efficiency
	safety	
Financing		

International literature about pre-hospital ambulance services was gathered to identified strengthens and areas to improve. Narrative data synthesis was done and reported accordingly.

3. RESULTS AND DISCUSSION

1990 ambulance service is commissioned in two provinces in 2016 and island wide services are started from 18/7/2018. The ambulance service is just five years and Island wide service has been operated for 3 years.

Leadership and Governance

Suwaseriya1990 Foundation has established by parliamentary act No.18 of 2018[8] and function under state ministry of Primary care, Epidemics and Covid disease control. This state ministry is functioned under administrative purview of Ministry of Health. Objectives of Foundation are

- Provide pre- emergency response service free of charge to any person
- Provide immediate and effective pre hospital care free of charge in a safe and clinical working environment until a person reaches the nearest health care provider

Administration and Management of the foundation is done by the Board of Management, senior managers and middle level managers. The board comprises 7 members. Four of them are appointed by His excellency the President of Democratic Social Republic of Sri Lanka and others are ex-officio members from three government organizations which include Ministry of Health, Ministry of Finance and Department of Police. Director board work as honorary capacity and provide guidance and advice to the foundation.

The power, function and duties of the foundation include:

- Provide ambulance service, emergency response service and lifesaving pre-hospital care
- Training and equipment supply
- Receive gifts and donations
- Manage, control and operate funds of the foundation

Chief Executive Officer should execute the decisions of the board and responsible for administration and control of the staff. Senior Management level include

- Chief Executive Officer (CEO)
- Chief Medical officer
- Head of Human Resource
- Head of Quality, Training and protocol
- Head of the Emergency command and control center
- Manager operation
- Manager Finance and procurement

Middle level management includes:

- Manager fleet
- Assistant Manager Quality
- Regional manager 1
- Regional manager 2

These official hierarchies show the areas of governance and they look for management activities. New structure is required to support the strategic development of ambulance and pre-hospital research. Evidence base practice will help to address gap in services and increase their capacity and capabilities of service. [9]

Service delivery

Suwaseriya1990 is operated its services by 297 ambulance which strategically located in police stations in Island. These ambulances are connected with fast and efficient call centres which operate 24hour of the day. People can dial 1990 toll free hot line number via any service provider or can use 1990 app in an emergency health condition.

The 1990 Emergency Command and Control Centre (ECCC) works 24/7 hours throughout the year. 40-seater call centre handles 5300 calls per day. Call agents work on shift basis in end-to-end system driven call centre.

When Emergency Medical Technicians (EMT) assess the patient at scene, he/she will connect to the doctor in call centre. Doctor advises them about treatments and decide on to nearest suitable government hospital. Patient can be transported to private hospital on patient request if private hospital is located in the same district and call centre doctor approves it is safe to the patient.

Workforce

Overall, 1390 staff working in the service and they are public servants.

Ambulance Roles include:

- Emergency Medical technician (EMT): attend to the emergency management at the scene
- Pilot: Driving the vehicle and other support to EMT

Information and communication

All ambulances are fixed with GPS and also integrated with google traffic. Therefore, system shows fastest ambulance not the nearest ambulance to patients.

Suwaseriya1990 is using technology including

- Real time vehicle tracking system monitored by central command and control center
- Ambulance navigation and routing system for fast reach to the patient location

Regarding privacy of patient information, Suwaseriya1990 do not release patients' information to other parties unless legal requirement to release.

Financing

Funds to suwaseriya1990 are provided by Ministry of Health. Members of the board are given remuneration and others are given salaries.

Access

Any person can dial toll free 1990 number via any network or use 1990 app which is user friendly and designed to all three languages. Further it designs to use in limited or no network and low or no credit situations. The app is only active only in Sri Lanka. Foreigners also have opportunity to use the app.

Coverage

Fleet of 297 ambulance are strategically located in police stations across the island and connected to 24 hours call centres to ensure attend in pre-hospital medical emergencies. It covers both urban and rural areas.

Quality

Head of the quality, training and protocol responsible for quality care. However, outside quality standard monitoring system is not available. External quality standard may strengthen the service.[10]

Safety

The processes. starting from patient's call, ambulance dispatch and patient handing over to hospital are monitored by ECCC. Emergency Response Physicians based at the ECCC advice the EMT on each and every case they handle. For the safety of patient and staff Suwaseriya 1990 is aligned with police 119 police emergency centre for police assistance. Further 1990 follow up the patient out come within 48 hours.

Response

Most of the calls (98.9%) answered on the first ring. Average response time in Colombo the commercial capital is 8.38 seconds (Excluding covid 19 period) and average response time in rest of the country is 14.32 seconds (excluding covid 19 period) while international standard for response time is 8 minute.[11]All the cases are followed up within 48 hours. Triage and standardization of the time is not done. At present not all out of hospital emergencies are attended by Suwaseriya1990. In some instance patient their self-present to hospital by own vehicles. With the improvement of services, demand will increase Standardization of response may help to attend more efficiently life-threatening cases without exhausting the staff.[12]

4. CONCLUSIONS AND RECOMMENDATIONS**Leadership and governance**

- Leadership and governance are on right tract with these short periods of time.
- Policies on equity, quality and risk reduction should be developed.

Workforce

- Capacity of work force further to be developed. EMT qualification should be developed to university graduation and increased capabilities to provide more services at pre-hospital care.
- Developed undergraduate degree courses for paramedics.
- Enhance training to use technology. eg; training to use defibrillator.

Service Delivery

- Should be look for new expansions of services delivery.
- Establishment of unit for pre hospital care in sites with man-made or natural hazardous situations.

Research and audits

- Should encourage more and more researches and audits in area of pre-hospital care emergencies and accidents.
- Establishing research unit in Suwaseriya1990 trust is a better option.
- Building research partnerships with universities also an option.

Quality

- Though senior Manager quality, training and protocol cover quality. Quality of care should be further strengthened.
- Establish separate unit for quality management.
- Key Performance Indicators (KPI) should be developed.
- standards, protocols and guidelines should be developed.

Responsiveness

- Therefore, standardization of response is required to attend life threatening emergencies earlier.

Conflict of Interest

No conflict of interest declared

Authors contribution

Indika Wanninayake IW Hemantha Ranasinghe HR

Both IW and HR contributed to conceptualizing the idea, reviewing documents/ literature and final review of article. IW involve in data collection and report writing

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