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View Point

Health Management and Policy Section

First Responders: The Critics of the Critical

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Newer developments in the field of medical technology have significantly changed hospital-based medical emergency services. However, the "out-of-hospital management" of the most emergent situations, such as cardiac arrest and stroke, remains poorly addressed. Basic Life Support (BLS) is a great tool if used in time by a trained service provider. The critical determinant of survival remains the availability of good quality Cardiopulmonary Resuscitation (CPR) as soon as possible.

Most emergencies happen unexpectedly outside the hospital setting, making it difficult for the Emergency Medical Service (EMS) team to locate and reach the spot in a short time. The protocol for out-of-hospital emergency services has more or less remained the same over the years. The strategies should be planned by the government and private associations to reach the site of an emergency faster and provide timelier BLS by a trained provider. This will increase the chance of patient survival. The various strategies that can be planned are discussed below.

1. **Primary prevention-** It is done with population-based interventions, such as smoking cessation, healthier diets, and improved lifestyles, should be of the highest priority. The key to preventing sudden death in the general population is to prevent coronary attacks by avoiding or correcting the risk factors [1].
2. **Second strategy-** To improve the medical response system infrastructure in developing countries should be considered. Presently, many congested urban cities have high traffic congestion, which does not allow emergency medical response teams to reach the site of a Sudden Cardiac Arrest (SCA) in a short time. The value of infrastructural changes to facilitate the arrival of the first responder to the site is just being appreciated. In a handful of developed cities, emergency medical response is beginning to provide appropriate timely care.
3. **Third strategy-** The use of home-based Automatic External Defibrillators (AEDs) by patients at high risk of SCA. It is believed that almost 80% of SCAs occur at home and 20% in a public place [2]. Although the effectiveness needs to be evaluated with prospective studies, the cost is low and can be accepted by a much larger community [3].

In the near future, a significant research focus will be on risk stratification, which involves defining patient groups with or without cardiovascular disease who are at the highest risk of Sudden Cardiac Arrests (SCAs). This will enable the delivery of appropriate treatment technologies to these individuals in a more cost-effective manner, thereby lowering healthcare costs in developed and developing economies. Simultaneously, the efficacy and cost-effectiveness of Automatic External Defibrillators (AEDs) for SCA management need to be prospectively evaluated. This evaluation could have a significant impact on reducing SCA mortality in developing economies, where 80% of SCAs occur [4]. The value of Emergency Medical Services (EMS) is also gaining recognition, and with improvements in road infrastructure, it could become an important component of the overall strategy for preventing SCAs [5]. According to the limited data available in the literature, formal training of CPR teams greatly improves survival rates and survival to hospital discharge rates following resuscitation of cardiac arrest victims. Formal certified Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS) training courses, including hands-on practice and periodic renewal, are crucial for improving CPR outcomes [6]. Therefore, educating medical undergraduates about BLS may prove to be an excellent strategy to reach the broader community if students share their acquired knowledge with their families and friends [7].

In India, very limited data have been published on the outcome of CPR in Out-Of-Hospital Cardiac Arrests (OHCA). One of the key reasons for low survival rates in OHCA events is the lack of a comprehensive Emergency Medical Services (EMS), which is a crucial component of the overall healthcare system [8]. Despite considerable advancements in the healthcare industry, India has yet to establish a single, comprehensive EMS that is accessible from anywhere in the nation. This is why survival rates have not significantly improved over the past several decades. In the early 1990s, the Indian government established centralised accidents and trauma services in an attempt to address this issue. However, it failed to achieve the same level of acceptance as Western EMS, despite having a centralised "108" number for medical emergencies and a national extension of medical services [9]. Furthermore, neither ambulances nor emergency medical staff are required to adhere to predetermined EMS protocols for patient assessment, triage, transfer, or disposition to a medical facility.

Focused strategies should be developed to establish a centralised medical emergency body that can provide guidelines for setting up an Emergency Medical Services (EMS), preparing emergency protocols, and disseminating technical assistance and training to improve the effectiveness of CPR and the low survival rates following an Out-Of-Hospital Cardiac Arrest (OHCA) event in India. Additionally, there is an urgent need for a national campaign to increase bystander CPR rates and educate the general public on basic CPR, which is essential for enhancing the survivability of OHCA episodes [9].

Developed countries have multiple facilities, such as dispatcher telephone CPR, helicopter teams, and pre-hospital resuscitative endovascular balloons for aortic occlusion [10]. However, developing countries like India still struggle to ensure the timely availability of EMS teams at the site of an emergency. Apart from the strategies discussed above, we propose a novel idea that has not been discussed yet.

In the case of India, all locations in a town or city are well connected through a strong online network of various food delivery agents and cab drivers who provide mobile application-based services to every part of the city. This makes them familiar with the shortest/quickest routes to reach a particular destination. They typically use motorcycles for food deliveries, which can navigate road traffic better than an ambulance with a blaring siren. Moreover, these applications are widely used by all sections of society.

We suggest that all food delivery agents and cab drivers be trained in Basic Life Support (BLS). The training should be imparted by a competent authority such as the American Heart Association (AHA), the Indian Society of Anaesthesiologists, or the Indian Medical Association. Delivery agencies and taxi providers should promote such training processes as part of their corporate social responsibility, allocating adequate funding for the training fees. Some incentives can be granted as rewards to the providers who assist people during emergencies. The government or local bodies may formulate and regulate policies and also provide additional funding for training and equipment expenses.

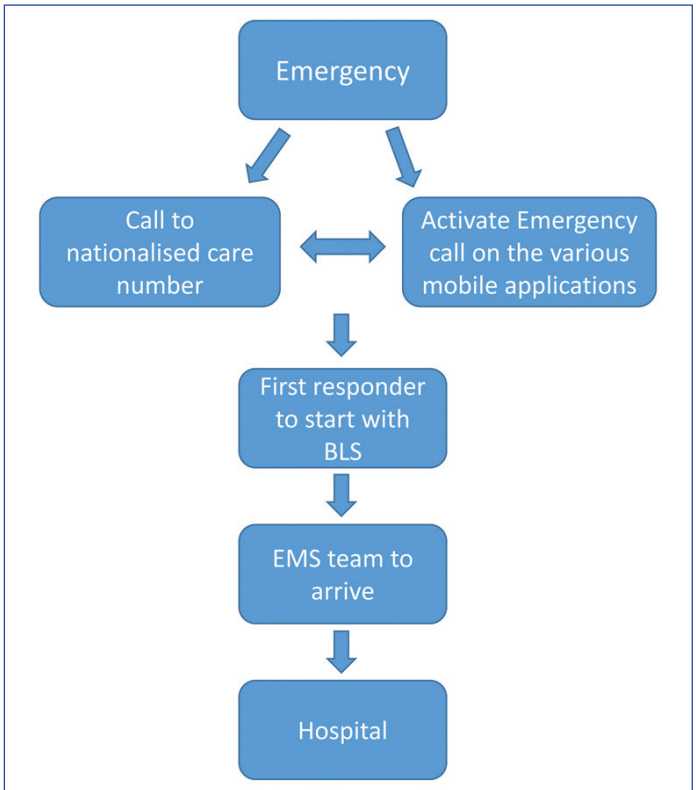
A separate option for the applications of these food delivery and cab services could be installed for use in a medical emergency. If used, the call would directly connect to the nearest available food delivery/cab service agent, who would then arrive at the site of the emergency as quickly as possible. If the applications permit or evolve, a second call should be immediately directed to the nearest EMS location. If this is not possible, a relative or bystander should now place a second call to the desired EMS location or "108," the free telephone number for emergency services in India.

However, if the patient or bystander calls 108, the EMS should not only arrange to reach the desired location as soon as possible but also initiate the movement of a food delivery agent or cab driver to arrive ahead of them and initiate the chain of survival.

It is important to note that no matter how soon an agent reaches the emergency location, a fully trained EMS team from the hospital would be required to provide the most appropriate services. These agents would only serve as the very first primary responders who would reach the site of the emergency earlier and provide the initial steps of the chain of survival, briefing the EMS team about the situation upon their arrival [Table/Fig-1].

In addition to this, BLS certification can be made mandatory for all drivers of public transportation, such as buses, taxis, auto-rickshaws, and police officials (traffic as well as civil). They should also have a compulsory Automated External Defibrillator (AED) in their stations.

The major challenges faced would be the hesitation of providers to leave their core job and learn something entirely new. The responsibility for engaging a suitable organisation dealing with EMS to motivate and encourage cab drivers and food delivery agents to promote this socially rewarding activity would lie with the parent company. Technological or mobile application glitches, server problems, or any breaks in the schematic chain may complicate the workflow. Reluctance to respond in an emergency situation as a non medico is another major issue that needs to be addressed with proper counseling and practice during the training program itself. Some repetition of face-to-face training will be required after two years, but online videos and trainings can be provided every six months.



[Table/Fig-1]: Workflow for proposed EMS system.

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