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Models of Emergency Medical Services in India

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I. Introduction:

An Emergency Medical Service (EMS) can be defined as "a comprehensive system which provides the arrangements of personnel, facilities and equipment for the effective, coordinated and timely delivery of health and safety services to victims of sudden illness or injury." The aim of EMS focuses on providing timely care to victims of sudden and life-threatening injuries or emergencies in order to prevent needless mortality or long-term morbidity. The function of EMS can be simplified into four main components; accessing emergency care, care in the community, care en route, and care upon arrival to receiving care at the health care facility.

The simplest emergency service is provided only as a transportation operation to easily move the patient from that location to the nearest medical facility. This is common in historical contexts and also applies to developing countries where a variety of operators, such as taxi drivers and operators, can operate this service. Today, most developed countries offer federal-funded ambulance services that can operate on a national basis, as they do in the United Kingdom. Alternatively, it may operate in a more regional model, as in the United States, where individual institutions are responsible for providing these services.

II. Different Types of Operators in EMS System:

1) Government Ambulance Service – Operating separately from (although alongside) the fire and police service of the area, these ambulances are funded by local, provincial or national government. In some countries, these only tend to be found in big cities, whereas in countries such as U.K., almost all emergency ambulances are part of a national health system.

2) Fire or Police Linked Service – In countries such as the U.S.A., Japan, and France; ambulances can be operated by the local fire or police service. This is particularly common in rural areas, where maintaining a separate service is not necessarily cost effective. In some cases this can lead to an illness or injury being attended by a vehicle other than an ambulance, such as a fire truck.

3) Volunteer Ambulance Service – Charities or non-profit companies operate ambulances, both in an emergency and patient transport function. They may be linked to a voluntary fire service, with volunteers providing both services. There are charities which focus on providing ambulances for the community, or for cover at private events (sports etc.). The Red Cross provides this service across the world on a volunteer basis (and in others as a Private Ambulance Service). These volunteer ambulances may be seen providing support to the full-time ambulance crews during times of emergency. In some cases the volunteer charity may employ paid members of staff alongside volunteers to operate a full time ambulance service, such in some parts of Australia, Ireland and most importantly Germany and Austria.

4) Private Ambulance Service – Normal commercial companies with paid employees, but often on contract to the local or national government. Private companies may provide only the patient transport elements of ambulance care (i.e. non urgent), but in some places, they are contracted to provide emergency care, or to form a 'second tier' response, where they only respond to emergencies when all of the full-time emergency ambulance crews are busy.

This may mean that a government or other service provide the 'emergency' cover, whilst a private firm may be charged with 'minor injuries' such as cuts, bruises or even helping the mobility impaired if they have for example fallen and just need help to get up again, but do not need treatment. This system has the benefit of keeping emergency crews available all the time for genuine emergencies.

5) Combined Emergency Service – these are full-service emergency service agencies, which may be found in places such as airports. Their key feature is that all personnel are trained not only in ambulance (EMT) care, but as a firefighter and a peace officer (police function).

6) Hospital Based Service – Hospitals may provide their own ambulance service as a service to the community, or where ambulance care is unreliable or chargeable. Their use would be dependent on using the services of the providing hospital.

7) Company Ambulance - Many large factories and other industrial centres, such as chemical plants, oil refineries, breweries and distilleries have ambulance services provided by employers as a means of protecting their interests and the welfare of their staff. These are often used as first response vehicles in the event of a fire or explosion.

III. Models of Delivering EMS:

An essential decision in pre-hospital care design is determining whether the patient should be transported to the care facility immediately or be provided with advanced care resources where they lie. Although a variety of differing philosophical approaches are used in the provision of EMS care around the world, they can be placed into one of two categories: one physician-led and the other paramedic-led with accompanying physician oversight.

The **Franco-German model** of EMS delivery is based on the 'stay and stabilise' philosophy. Usually run by physicians with an extensive scope of practice with very advanced technology, the motive of this model is to bring the hospital to the patients. The attending doctors in the field have the authority to make complex clinical judgement and treat patients in their homes or at the scene.

In contrast, the **Anglo-American model** is based around the 'scoop and run' philosophy. Run by trained paramedics and Emergency Medical Technicians (EMTs), the aim of this model is to rapidly bring patients to the hospital with less pre-hospital interventions.

A new model of EMS delivery that has attracted attention recently is the **Emergency Care Practitioner Scheme in the United Kingdom (UK).** The UK, National Health Service has developed an Emergency Care Practitioner (ECP) scheme in a reaction to a change in primary health care provision in order to increase the percentage of patients treated in a community setting or at the scene of an incident.

IV. Emergency Medical Services – India

The Indian EMS system can best be described as fragmented. India's public health system begins at the subcenter level, each serving about 5,000 people. This service has a variety of providers, especially in urban areas. India mainly adopts the "scoop and run" model, but the system is constantly evolving to meet its socio-economic needs. India's EMS is not born of a structured policy, but a passionate desire to change the concept of transport vehicles from "ambulance" to "emergency medical transport" and to have an EMS based on technology evidence. Promoted by individuals and organizations. Staff are driven and trained.

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1) EMRI "108" Model (Comprehensive EMS model)

GVK EMRI (Emergency Management and Research Institute) is a pioneer in Emergency Management Services in India. As a not – for – profit professional organization operating in the Public-Private Partnership (PPP) mode, GVK EMRI is the largest professional Emergency Service Provider in India today.Having launched the 108 emergency response service on August 15, 2005, in Hyderabad, GVK EMRI presently provides an integrated emergency service across India with 14,177 ambulances serving over 26,942 Emergencies per day (by 108 Emergency Response Ambulances) and 31,310 JSSK Beneficiaries per day via 102 JSSK Referral Transportation Ambulances.

GVK EMRI is currently operational in 17 States and Union Territories i.e. Andhra Pradesh, Telangana, Gujarat, Goa, Tamil Nadu, Karnataka, Assam, Meghalaya, West Bengal, Himachal Pradesh, Chhattisgarh, Uttar Pradesh, Rajasthan, Kerala, Delhi and Union Territories Dadra & Nagar Haveli and Daman & Diu.

2) Janani Express Scheme (non-EMS, merely transportation model)

The Janani Express scheme launched by the Department of Health and Family Welfare, Government of Madhya Pradesh (MP), on August 15, 2006 as a strong and innovative measure aimed at addressing the delay factor affecting MMR and the IMR, as envisioned by the National Rural Health Mission. The understanding behind it was that MP is not only the largest state in terms of area but also dominated by tribal areas with poor connectivity and inaccessibility to the cities/towns. The Janani Express scheme is a Public – Private partnership model, where the contract is signed between the Government (at the district/block level) and the private vehicle provider who is generally a local transporter. The Janani Express is basically a vehicle (four wheeler – jeep/Tata Sumo/Mahindra) hired locally for a period of one year, to ensure provisioning of 24- hours transport availability at the field level (Block level) in order to bring the pregnant women to the health institutions. Transport is made available in the area served by a government hospital, CHC, and PHC. The RogiKalyanSamitis (RKS) of the concerned health facility plays a vital role in all issues related to the contracted vehicle and all reimbursements and the monitoring and control of the scheme is with the respective RKS. There is also the provision of performance-based incentives to the transport agency.

3) Bihar Model: "102" and "1911" (mix of EM and basic transportation model)

In Bihar, the ambulances and respective hospitals are connected through a toll-free number – "102". In addition to this, doctors are also empaneled, who would provide services on conference call and also would visit the patients who needed immediate doctor's assistance (using another toll-free number – "1911"). The calls can be transferred from 102 to 1911. Details of the empanelled ambulances and hospitals are provided to the control room operated by IT managers who would contact the ambulance at the time of emergency. The State Health Society of Bihar (SHSB) under NRHM is the nodal agency for 102 control room. The SHS, along with District Health Society (DHS) has district wise empanelled list of ambulances (who are functional at that point of time) with their driver contact details and also enrolled ambulances from interested not-for-profit NGOs.

4) West Bengal Ambulance PPP Model (non-EMS, merely transportation model)

Another model of emergency transport is contracting out of the management and operation of Ambulance services to various NGOs/CBO‟s/Trusts under PPP arrangement in West Bengal. In this PPP model the state government procured and equipped ambulances and handed them over to selected NGOs, keeping the ownership with itself. This was facilitated by entering into agreements with various NGOs/CBO‟s/Trusts by the respective District

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Health & Family Welfare Samiti (DHFWS) for a five-year period. These NGOs then operate the ambulance in the designated area on a user-fee basis. The DHFWS fixes the user charges and these can be retained by the NGO"s for meeting the recurring expenditure. The monitoring of the program is done by Block Health and Family Welfare Samitis (BHFWS).

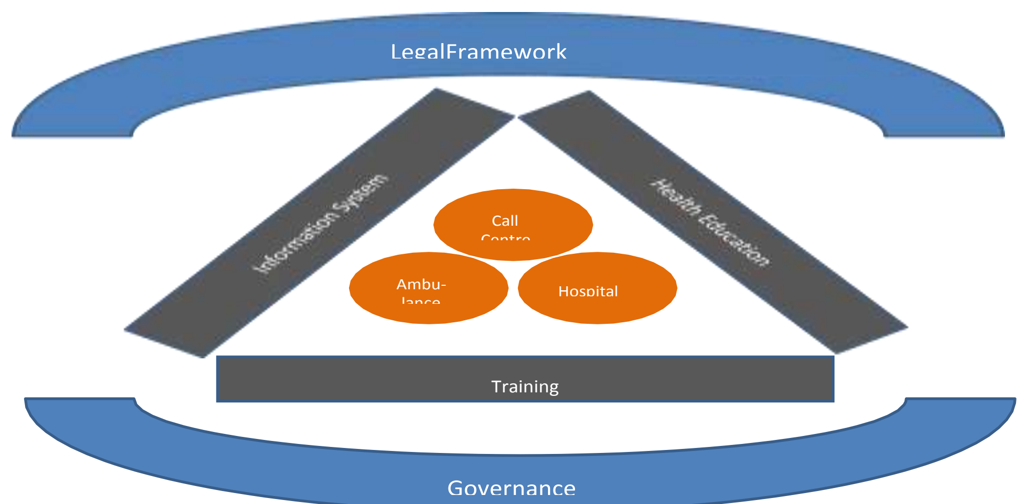
5)Referral Transport System in Haryana (trauma/highway ambulance)

To reduce the maternal & neonatal deaths the Government of Haryana has launched a unique scheme to provide referral transport service branded as "Haryana SwasthyaVahanSewa No.102" on 14th November 2009. All the 21 districts of Haryana are covered under the scheme. The scheme offers (a) Transportation from the site of accident or home or any other place to nearest appropriate Medical Facility in case of medical need, and (b) Transportation from a Medical Facility to a higher medical facility. Free transportation Services are provided to pregnant women, victims of road side accident, patients belonging to BPL or notified slums, post-natal cases in case of emergency (till 6 weeks after delivery), neonates in case of emergency (till 14 days after birth), freedom fighters and ex-defiance personnel. For all other categories of patients, user-fees are charged which amounts to Rs 7/per kilometer. The scheme is run by the government in collaboration with District Red Cross Societies and toll free telephone number "102" installed at each district control room for easy access to the public.

V. Proposed EMS for India

As discussed in the previous section, many states in India have already initiated various models of EMS, mainly involving timely transportation of emergency cases. Most of these initiatives have been supported under NRHM, and states also have share in the expenditure. The focus had been on encouraging states to develop their own solutions and models of EMS, based on local needs and available health infrastructure., the proposed EMS for India is not a strict centralized system, but a loose conglomeration of state-initiated systems, with a common set of monitoring and governance tools for comparability and transparency across the country. The essential components of the nationwide EMS, which would constitute of state-based schemes/initiatives, are discussed in details below.

Components of proposed national-wide Emergency Medical System (EMS)



Source: EMS in India, NHSRC

There are certain core elements in an EMS like the ambulance operations, call centre, and the treating hospitals/health facilities. These work in an environment that includes elements

like information system, health education and training, legal environment and governance system. the core elements of ambulance transporting the patients to the hospitals, coordinated by the call centre, would be linked in real-time through information system, using multi-mode and multi-channel media. This needs to be supported by well-trained healthcare providers, both the in ambulance as well as in the hospitals, and also by aware members of the public (on the road, in workplaces, at home – made aware through targeted health education). For overall transparency in operations and fairness in service provision, an overarching legal and governance framework would be needed.

VI. Conclusion

The significance of a dependable EMS cannot be overstated, particularly in India, where the government is responsible for the bulk of the population. It may be argued that a billion people have been without a quality EMS for far too long, and it is past time for the government to act decisively. The necessity for EMS and what it will take to ensure that it operates as intended may be seen in the success of a few providers. A public-private partnership framework could be the proper path ahead for policymakers in a healthcare system that is blooming and experiencing the benefits of integrating private companies. Pre-hospital care will be critical to ensuring that lives are not lost due to avoidable conditions at a time when the emphasis on preventing damage is higher than ever.

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