Helicopter Medical Emergency Services

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Over 150000 lives were lost in India in 2016due to road accidents, in addition to the lives lost due to natural and man-made disasters. These losses could have been reduced, if the victims were provided emergency medical assistance within the golden-hour period and transported to hospitals.

Helicopters are versatile machines which can provide the fastest evacuation of victims from Accident sites. They are ideal for operations in India. However due to various institutional, regulatory and policy issues in India, there are no Helicopter Emergency Medical Services (HEMS) here, though it is popular in many countries.

This policy paper tries to identify theissues hampering operations of HEMS and offers suggestions to incentivise HEMS in India. For this, related policies in other countries, published articles, primary and secondary data from various stakeholders, relevant policies of Government of India were examined.

India's vast geographical expanse and diverse physical featurespose a big connectivity challenge. Roads carry 87% of traffic,in the ever-increasing count of vehicles on the road.In 2015 alone, 196 million new vehicles were registered in India, ie@53720 vehicles/day(ToI,18/8/2016). *With only 1% of the number of global vehicles, India contributes to 10% of deaths in road accidents worldwide annually*" (TIFAC, 2015). In 2016 there were 480652 road accidents in-which 150785 persons (mostly belonging to the productive age group) were killed. National Highways accounted for 29.6% of these accidents and 34.5% of total deaths.(MoRTH, 2017). It is estimated that "*a GDP growth of 7% increases vehicle population by 10%"* (TIFAC, 2015). With the massive thrust given by the government to develop highways and a consistent GDP growth of over 7%, these mortifying mortality figures are bound to go up. In addition to the deathsin road accidents, untimely deaths also occur due to disasters – both natural and man-made. Many of these deaths could be reduced and life-long traumaof many accident victims ameliorated, if Emergency Medical Service (EMS) is given to them during the "*golden-hour*."

"**Golden-hour**"in EMS parlance is the first hour immediately after the occurrence of a life-threatening trauma. Research/Statistics show that chances of survival of accident victims are very high, if proper EMS is provided to the victims during this golden-hour by evacuating them at the earliest from accident site to a trauma-care facility. World wide experience shows that HEMS provide the fastest and most effective such evacuations, particularly from remote and inaccessible sites like mountains, ski-slopes etc and even from highways and city roads clogged with traffic congestion .Muhlbauer,D. et al's (2016) analysis brought out that maximum use of HEMS was in motor vehicle accidents related trauma cases and it had helped significantly patients with Injury Severity Score (ISS)>15, corroborating outcomes of similar studies elsewhere. HEMS, however, is not very popular as yet due to its high operational costs. But it's only a matter of time that these costs will come down when its operations are scaled up.

Helicopters are one of the most versatile modes of transport invented by man. These machines can fly in all directions (forward/reverse/sideways) and even stand-still (hover) in the air. They can operate day or night, requireno runway- only very little infrastructure for taking-off and landing-; hover over mountains, desert, sea or water-bodies. They can fly fast,taking the shortest aerial route to the destination, making themthe fastest mode for evacuation from congested roads, inaccessible mountains, forests or ski-slopes. Helicopters carrying trained medical personnel and fitted with emergency medical equipment can provide immediate medical care to accident victims at/from the site itself and while being transported to a well-equipped trauma management centre. "*Helicopters are ideal delivery systems for EMS due to their capability to hover and land without being constrained to runways and can vault across road traffic delays unaffected by terrain. HEMS utilizes the tenet of trauma management that clinical benefit increases considerably when care is delivered within the golden-hour*." (DGCA, 2016)

HEMS is getting increasingly popular in Europe, USA, Brazil, Australia and in many African Countries like South Africa mainly due to a matured aviation sector or necessitated due to vastness, inaccessibility or remoteness of areas. Almost all skiing resorts in Europe have operational HEMS.

HEMS in India is virtually a non-starter. But, India was a very late entrant to effective, efficient GEMS (Ground-EMS) *as well!* Trauma-management centres and co-ordinated GEMS like 108-ambulance services developed in India in the last decadeonly. HEMS is ideally suited for India which has vast, inaccessible hilly, mountainous and rural terrains;inadequately spread airport infrastructure;lots of narrow, congested& badly maintained roads; few &far flungtrauma-management centres and insufficient well-trained medical professionals to attend to large number of accidents and disasters taking place in its geographically spread-out expanse. Despite having "*over 5.23 million kilometres of road network* in India*",* there are still many inaccessible and difficult-to-access areas*.* (TIFAC, 2015). DGCA, the Indian aviation regulator, has issued the HEMS operational circular recently, on 11/2/2016(DGCA, 2016). But due to many regulatory, bureaucratic and policy hurdles and the not-so-sector-friendly business environment, HEMS has not taken off till now, though some corporate hospitals have started air-ambulance services for quick organ transportation and for transferring critically ill rich patients between hospitals. Such instances are also rare, as it costs over Rs 1.25 lakhs for an hour's engagement.

Bad optics in a "socialistic, democratic" set-up is perhaps the biggest bane for aviation sector;and helicopters in particular. Touted as elitist's mode of transport, policies and tax-structures are loaded heavily against it, makingoperational costs exorbitant. Aviation Turbine Fuel (ATF) is highly taxed (upto29% in some states) that its cost is almost double in India when compared to many countries. (ATF Per kilo-litre costed Rs 74335 in Kolkota on 8/8/2018, compared to about Rs 40000 in Kuwait). Taxes and restrictions on the import and storage of spare parts, dollar denominated expenditures in a weak rupee regime, high maintenance costs, high charges imposed by airports for navigation, landing, parking, security and ground-handling etc balloons up the cost.DGCA's manyregulations meant for fixed-wing

planes, illogically enforced on helicopters add to its woes.Pro-poor image conscious Government and politicians are reluctant to even discuss these issues in public.

MoRTH/NHAI in consultation with insurance companies should frame policies for effective usage of HEMS to quickly evacuate critically injured road-accident victims to trauma-mitigation centres. If Government sheds its ostrich-like approach to a booming aviation sector, reducestaxes on ATF, maintenance, spare parts of helicopters etc and brings-in a conducive regulatory framework similar to those in Europe or USA for operations of HEMS in India, many valuable lives can be saved.

References on HEMS

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