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## ASSEMBLY — 39TH SESSION

### TECHNICAL COMMISSION

#### Agenda Item 37: Other issues to be considered by the Technical Commission

#### AIR AMBULANCE AND HELICOPTER EMERGENCY MEDICAL SERVICES

(Presented by India)

#### EXECUTIVE SUMMARY

This paper outlines the steps that the Indian Directorate General of Civil Aviation (DGCA) has taken this year to formalize regulations, guidance and the operational environment for aeromedical transportation involving movement of patients, organs, blood, tissue, medical supplies or medical personnel by aeroplane or helicopter. These formal regulations and guidance serve to regulate and facilitate the fast growing industry and population demand for timely medical services enhancing lifesaving efforts.

<i>Strategic Objectives:</i>	This working paper relates to the Safety Strategic Objective.
<i>Financial implications:</i>	None.
<i>References:</i>	

## 1. INTRODUCTION

1.1 Aeromedical transportation (AMT) is the movement of patients, organs, blood, tissue, medical supplies, or medical personnel by aeroplane or helicopter. This is further divided into air ambulance (AA) and helicopter emergency medical services (HEMS) depending upon the time criticality of effort required and nature of operations and equipment involved.

1.2 India has recently formalized regulations and guidance for the approval/acceptance of air ambulance and helicopter emergency medical services. India is witnessing expansion of terrestrial medical facilities and with the double-digit economic growth there is an increasing demand from the industry and populace to establish a regulatory framework under which AA and HEMS can be undertaken, particularly for the latter, which is capital intensive, exclusive in deployment and needs clear direction for industry commitment.

## 2. DISCUSSION

2.1 AMT is undertaken when terrestrial methods of transportation are not practicable mainly in terms of time. The nature of AMT further divided into AA and HEMS, depends on the underlying usage, which can be routine ambulance transport where surface transport is not available or a faster mode of transport is required at one end of the spectrum. The other end could be to render immediate medical care to prevent loss of life or aggravation of physical or psychological illness or injury. As an analogy with surface medical transport, AA operations are akin to those operations where a patient is being transferred from one hospital or location to another with the road ambulance following traffic rules while HEMS operations are akin to those where the road ambulance moves without regard to traffic rules with sirens blazing since there is an urgency in medical care required. Indian regulations have been developed in this framework.

2.2 AMT transfers are classified according to the response activity depending upon the degree of stabilization of the patient. Three types of AMT transfers have been considered. Firstly, those involving primary response where the patient has to be recovered from the location of their injury or illness and is undertaken by a HEMS helicopter by virtue of the helicopter's versatility in landing and taking off from the scene of accident/incident. Secondly, those involving secondary response where there is an indirect action with rendezvous with ground emergency medical services (GEMS) ambulance to facilitate carriage of a critical patient to a higher or more appropriate level of medical care. This could be carried out by a helicopter or in limited cases by an aeroplane. Thirdly, those involving tertiary response where the patient is transferred between facilities such as hospitals, which can be carried out by helicopters and aeroplanes.

2.3 For the AA and HEMS roles, there are specific aircraft, equipage and operational requirements to be met for acceptance/approval. AA operations require acceptance while HEMS require approval and issue of operations specifications. Since HEMS operations are more demanding, the requirements are more stringent, and at the same time considering the need for flexibility and nature of operations, there are certain operational requirements of visibility that are less stringent than conventional AA operations. The risk in stipulating lower visibility requirements are offset and mitigated by higher level of training and technology demanded in the HEMS operation.

2.4 AA can essentially be conducted with aeroplanes and helicopters that do not need to be specifically maintained at all times in the medical configuration and may be used inter-changeably in commercial air transport roles on a demand basis. AA can be carried out by day or night and by single or

multi-engine aircraft, and with a single pilot in case of helicopters. HEMS operations on the other hand require a dedicated helicopter equipped and maintained in that configuration. The crew needs to be specifically trained and not deployed on any other role other than HEMS. Considering the existing helicopter strength in India and experience of other States such as the United States, single-engine helicopters are permitted HEMS, but only by day. The minimum crew strength in the HEMS role is two wherein combination of one pilot and one technical crewmember is also permitted provided certain conditions are met. Considering that single-engine helicopters would usually not be equipped with technology comparable with multi-engine helicopters, the lower equipage level is offset by operational restrictions of radius of action. On the other hand, for full-fledged HEMS operations by day and night, a multi-engine helicopter with a minimum crew complement of two pilots is needed with higher equipage requirements including weather radar.

2.5 The critical element in delivering medical trauma care is when this is accomplished within the “golden hour” which in HEMS parlance is the time period where access to medical care within an hour of occurrence of the trauma can make the difference between life and death, especially in accidents/incidents. To realize the full potential of HEMS, the helicopter should be able to land as close to the accident/incident site on a landing site, which may not be surveyed in advance. Due to the nature of HEMS operations, the level of risk is higher than commercial air transportation and therefore needs to be managed accordingly by a dedicated organizational structure and capability.

2.6 Two key pre-conditions in realizing the full potential benefit of HEMS are the ability to land directly at the accident/incident site without the need for survey or prior coordination with local authorities other than that required to ensure safe operations such as cordoning off the landing site. Secondly, there is need of an accelerated flight plan wherein clearances to operate from the air traffic control and air defence authorities are expedited so that delivery of medical care is within the golden hour. Presently, in the Indian scenario HEMS is being operationalized in two phases. In the first phase, while the two pre-conditions are worked upon for resolution, HEMS would be carried out at surveyed landing sites and zones within the existing flight plan clearance system. In the second phase, once an accelerated flight plan and the ability to land at the accident/incident site are permitted, the true value of HEMS would be realized.

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