



THE IMPORTANCE OF AMBULATORY SERVICES (AIR AMBULANCE) IN HEALTHCARE SECTOR

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ABSTRACT

This paper explores the critical role of Ambulatory Services, specifically Air Ambulance Services, within the healthcare sector. India is a vast and diverse country, access to timely medical care is a big challenge especially in remote areas such as North East, Terrains such as Jammu & Kashmir, Ladak, remote areas like Lakshadweep during emergency to lift the patients to any nearest healthcare facilities, the only operationable service is Air Ambulance. Hence, while examining the evolution, types, and operational frameworks of air ambulances, distinguishing between rotary-wing (helicopter) and fixed-wing aircraft, and highlighting their respective advantages in emergency medical response and patient transportation to reach the Patient to advanced multi-speciality and superspeciality healthcare facilities without loss of time for better health services. The aim of this article its relevance to present advanced technological development in Healthcare with respect to Ambulatory Services (Air Ambulance) and also emphasizing the significance of air ambulances in providing rapid healthcare access, particularly in geographically challenging or disaster-affected regions where ground transportation is impractical or impossible. Drawing on examples from India, the paper discusses how air ambulances enhance medical capabilities during transit, facilitate seamless organ transplantation logistics, and support medical tourism. The analysis also addresses the challenges of cost and accessibility, referencing both public and private sector initiatives. This the right time to improve more technical development as there is advanced technology support system is being introduced and with the help of AI we can address the more challenges which help the Central Government, State Government and Union Territories to bring out the new phenomena in Development of Medical Tourism by helping the foreigners who come to India for better Medical/Healthcare Services with the participation of Corporate/Private Healthcare facilities. In this modern and advanced world, Air Ambulance Services have become more beneficial to the healthcare facilities/providers/professionals in noticing every single kind of ailments/discomforts by using of latest medical equipment for the patients who required emergency medical care and get full treatment while flying on these aircrafts and also it is now possible for healthcare professionals/facilities/providers to pick up their patients from anywhere in the world and even in remote areas and these ambulances carry all sort of medical supplies and have the capacity to handle any type of case and can help in saving thousands of lives all over the World. Therefore to conclude that air ambulatory services have become an indispensable component of modern healthcare infrastructure, contributing to improved patient outcomes and supporting the broader goals of timely, equitable, and advanced medical care delivery.

KEY WORDS:

Air Ambulance Services, Fixed Wing, Rotary Wing, Corporate Houses Participation, Aircraft services, Advanced Medical Care delivery.

AIM AND OBJECTIVE:

This is an exploratory article with respect to Ambulatory Service (Air Ambulance) and its relevance to present advanced technological development in Healthcare.

INTRODUCTION

An Air Ambulance Service or Ambulatory Service refers to a specialized service in healthcare sector to move the patients in emergency conditions to an aircraft/helicopter specially designed for the purpose equipped with all necessary equipment that are necessary to attend during travel from place of origin to healthcare facility by the trained medical personnel to give continuous care during the flight. Unlike other ambulance services Ambulatory service is a unique of its kind where in the journey is longer and the patient condition is serious, the personnel holding the responsibilities having experience, expertise and qualifications needed to take a decision in critical conditions with the help of experts. These Ambulatory Services are equipped with advanced Medical Equipment and staffed by medical healthcare professionals provide continuous care during the flight. Ambulatory/Air Ambulance Services are mostly used to reduce travel time to reach any healthcare facility for better service. According to Cambridge dictionary an Air Ambulance is defined as,

“A Plane or helicopter with all equipment needed to fly sick or injured people to hospital”

“A specially outfitted Aircraft, that transports injured or sick people in a medical emergency or over distances or terrain impractical for conventional ground ambulance”

LITERATURE REVIEW:

These aircrafts that are being used in Ambulatory Services are Air Ambulance are classified into two different categories namely, Rotary-Wing and Fixed-Wing.

Rotary Wing Aircrafts are those that are powered by rotating blades such as helicopters in ordinary terms and these type of Air Ambulances are commonly used during emergencies when an injured/sick patient needs to be transported shorter distance in its shortest time. This type of Air Ambulance will have the ability to land almost anywhere (without any runway) and are mostly useful where it is extremely difficult for a ground Ambulance (Ambulance Vehicle) to reach the patient because of terrain conditions and at times in accessible places through road.

Fixed-Wing Air Craft include those that are propeller driven or jet engines powered and have wings that do not move. These types of Air Ambulatory Services are commonly used for longer travel distances than the other rotary wing Aircraft cover because they can go

further before needing to refuel. The other advantage of fixed wing Air Ambulance is that, these Air Ambulances are able to fly in inclement weather such as Fog etc. that rotary wing cannot. In such circumstances, fixed wing air ambulances not only can reach the destination but also because they are wide bodied aircraft having much more space than helicopter that allows more equipment and staff on board. In addition these fixed wing aircrafts can fly at an higher altitude and can provide less turbulent and more comfortable experience during Air Travel.

One of such Ambulatory services namely AERO MED Express, presents that, **“Our Air Ambulance is a fixed wing Diamond Jet, complete with equipment to handle array of medical situations and highly trained and experienced staff. We have all the technology needed to transport our patients to the proper facility in the shortest amount of time possible”.**

**“Air Ambulance Services means,
Medical Transport by helicopter or Airplane for Patients”.**

With reference to India and its importance of Air Ambulance Services because India is a vast and diverse country, access to timely medical care is a big challenge especially in remote areas such as North East, Terrains such as Jammu & Kashmir, Ladak, remote areas like Lakshadweep during emergency to lift the patients to any nearest healthcare facilities, the only operationable service is Air Ambulance.

Air Ambulances serves as a life line, providing rapid healthcare response, enhanced healthcare procedural capabilities and seamless transportation to save lives wherein every minute counts. Ambulatory/Air Ambulance services offer several advantages that contribute to their importance in India.

Following are some of the advantages of Ambulatory/Air Ambulance service in India.

a) Rapid Healthcare Response and evacuation: As already mentioned above Rotary wing/helicopter ambulances has unique ability to reach remote areas and inaccessible terrains without any loss of time, such as a remote village struck by a natural disaster, or a critical patient who needs immediate healthcare in a far flung region these Air Ambulance services are most useful and can immediately transport healthcare professionals equipment and medicines to save the lives of the critically ill. This difference of serving the needy it can mean that difference between life and death in emergency situations.

b). Enhanced Medical capabilities: These Ambulatory/Air Ambulance Services are equipped with most advanced healthcare equipments and facilities that are found in intensive care units of any modern healthcare facility and are staffed with highly trained, experienced and qualified healthcare professions including physicians, surgeons, paramedical staff and in addition state of the art equipment that ensures a patient receives immediate and appropriate medical attention/healthcare procedure during transit.

c). Seamless transportation and accessibility: Ambulatory Services/Air Ambulance provide a high level of transportation and accessibility that ground ambulances or ambulance vehicles cannot do or match the services offered by Air Ambulance because Ambulance vehicles that are passing through crowded streets often stopped by moving vehicles, signals etc. (Ground Ambulances). In addition hilly regions are areas affected by floods. These types of Air ambulances best fitted into in serving the sick and the needy. Unlike Ground Ambulances, these Air Ambulances can travel freely because of the flexibility to reach the patients remote areas quickly where it is practically impossible for Ground Ambulance Services.

An evaluation of critical situations where Ambulatory services/Air Ambulance Services are vital:

Ambulatory/Air Ambulance Services play a critical role in such situations providing a vital component of India's Healthcare Infrastructure:

a). Natural disasters and emergencies: In unforeseen conditions such as, Natural calamities, Earth Quakes, Floods, Cyclones and Tsunamis where the existing infrastructure is heavily damaged and access by road is inaccessible and ground ambulances cannot put their services in such conditions, in such circumstances Ambulatory Service/Air Ambulance provides a crucial role in assisting the needy and to make emergency medical supplies and even short procedures. In such natural calamities, Ambulatory Services are the only means to deploy healthcare professionals, medicines and emergency surgical equipment and to evacuate critically wounded so that they can receive timely healthcare procedures to increase their chances of survival.

b). Healthcare emergencies in remote areas: As we are aware that India is a diversified country with a different linguistic separations, habits, religious faiths and inaccessible terrains like hills, forests where tribal's will live having no access to the healthcare except depend upon quack doctors and Vadiyars and there are some areas wherein they are not aware of healthcare advances and technology presently being applied in developed areas where multispecialty healthcare facilities are available. During Natural calamities it is practically impossible for this people to move an inch for medical health. In such circumstances, Air Ambulance/Ambulatory service is of immense help and support to give immediate preliminary healthcare procedures to gain time to shift the ailing patients to advanced healthcare facilities for further procedures and to save the lives. This kind of healthcare service will have important task of not only attending the sick and ailing personnel but also shift them quickly without any loss of time to better healthcare facility centers for further healthcare help. In healthcare time is more important and every second counts to save the life of a person. This Ambulatory Service is of immense help.

c). Organ Transplantation and Movement of Organs from the Donor to the Receiver: Helicopter Ambulance a part of Ambulatory Service plays a vital role in Organ Transplantation because the time is very limit from the point of retrieving the organ from the donor and to reach the receivers end. Especially organs like heart, lungs, kidney etc are to be transplanted within few hours from the time it is removed and is replaced to the receiver that is why recently in India all the State and Central Governments have planned and implemented "*What is called Green Corridor*" that means from the Donors Healthcare Facility to the receivers healthcare facility within the country with the help of all the connected people where this transportation route takes place are cleared from traffic by giving emergency signals so that the Ambulance that carries the organ travel by road will reach the destination without any difficulty. In this operation where air lift is necessary there such Ambulatory services are made ready to pick up the organ from the Ambulance. In this regard India made history by meeting the deadlines hundred percent compared to advanced countries. In case the patients are to be moved who are in critical condition from one facility to other in addition to road transportation, this Ambulatory plays an important and meaningful role.

d). Cost of Air Ambulance services and their accessibility: As already mentioned above Indian Landscape with different terrains to move medicines and medical equipment especially in natural calamities, wars and where terrorists attacks took place the movement of Medicines and Healthcare Equipment and also the Healthcare Professionals and Paramedics in the shortest time. This type of Ambulatory service plays an important role where the cost is not the criteria compared to life of a person. Article 21 of the Indian Constitution wherein all the Governments Central and State and union territories, it is their fundamental duty to provide healthcare to

all the citizens in emergency. Number of Pronouncements by the Hon'ble Supreme Court, the Highest Judiciary of the Country in this regard. Now due to the advancement of healthcare facilities that are equivalent to west are having close co-operation with the registered and recognized Ambulatory Services in this regard. This also facilitates Medical tourism to shift the patient from the Airport to the healthcare facility without any loss of time. This Ambulatory Service/Air Ambulance comes under infrastructure of any healthcare facility undoubtedly became an indispensable asset to woo the Foreign Healthcare Tourists.

There are certain registered healthcare facilitators like medical-air-service.com are providing this type of Ambulatory Service to the foreign healthcare tourists who wants to have their healthcare procedures in India.

Another Company by name India Air Ambulance who are having 24/7 emergency Air Ambulance are coordinating a fleet ambulance Aircraft that are fitted with ICU Medical Equipment and Supplies with qualified healthcare professionals in a best possible manner to give patient's care in the Air.

“India Air Ambulance is run by a team of highly qualified healthcare professionals and offers domestic and worldwide Air Ambulance, evacuation with outstanding end to end patient care. Our dedicated provides the services 24/7/365 to ensure speedy and smooth evacuation of patients. India Air Ambulance coordinates a fleet of Air Ambulance Aircraft which are fitted with ICU Medical Equipment and supplies to ensure the best possible patient care in the Air, and are staffed by an experienced intensive care healthcare team comprising atleast a physician and a nurse. While staffing the Airlines will assess the condition of the patient to support the patient in the Air Travel. They have also provide two attendants in addition to the Patient who are near and dear.”

ICATT Air Ambulance India offering 24/7 Medical Transportation Service for Emergency and Non Medical Emergency.

Uttarakhand is the first state who introduced dedicated Air Ambulance Service in India, at All India Institute of Medical Sciences, Rushikesh in Uttarkhand that will bring faster life saving medical assistance to remote and critical medical areas in the hilly state of Uttarakhand. In this regard, the Government of India giant in Oil Sector ONGC is honored to be associated with the first Heli Ambulance Project.

However, France is the first country during the world war, succeeded in inducing aviation department to construct an Aeroplane Ambulance designed for patients in a recumbent position. Subsequently, other developed countries like USA etc have introduced the same.

The founder of the World's first Air Ambulance is **Dr. Vola Brown**.

In India AP Ranga Rao is credited with first Conceptualizing 108 Ambulance Service in India, having spent ten years working with National Health Services in Britain learning about emergency systems. In January 2005, the CEO of an Indian based German Multinational Corporation, Venkat Chengavalli, invited Rama Linga Raju, the chairman of Satyam Computer Services at that time to be the Chief Guest in a business conference. After the conference, Raju proposed creating an emergency medical services organization for India, and the Satyam foundation began initial its operations. Emergency Management and Research Institute (EMRI) with Satyam Computers (later purchased by Tech Mahindra) remaining the Technology Partner. EMRI was launched on August 15, 2005 with Fourteen Ambulances and Seventy Employee in AP. Subsequently in 2009 under the leadership of Venkat Chengavalli this services has grown (EMRI) and spread to Eight States across India which had to operate without funds for four

months while receiving funding assurances from the then Chief Minister of Andhra Pradesh, YS Raja Sekhar Reddy. By 2017, this EMRI was expanded to fourteen states and partnered with Robert Bosch GMBH to improve the technology usage (Wikipedia). Though there is much history about Ambulance/Ambulatory Services in India due to constrain, I have mentioned very few.

DISCUSSIONS AND ANALYSIS:

Ambulatory Service/Air Ambulance a new phenomena that has changed the topography of the healthcare, healthcare facilities, healthcare providers and the persons who are getting the benefit of it. Ambulatory service/Air Ambulance has become a part of infrastructure that is to be embedded in super specialty and multispecialty hospitals that are recognized and registered under NABH in India and JCI an International recognition. Any Healthcare facility having JCI Accreditation/NABH will have better opening and opportunities to attract foreign healthcare tourists. Air Ambulance/Ambulatory Service is a service that is offered either by the government or private healthcare facilities are Air facilitators who are engaged in healthcare activities in rescuing and giving treatment to those in need.

It is not enough if you have Ambulatory or Air Ambulance Services but we should have experience qualified and experienced personnel to handle the situation in the Air at the time of evacuating the critically ill patients who are otherwise cannot reach the healthcare facility. Hence there are two things that are needed one is an Aircraft that is an Aircraft fully equipped with medical equipment and it can be used as an ICU in addition to qualified and experienced personnel not only healthcare professionals but also paramedical staff who are in a position to take decision in a split second during the transportation of the patients either with the help outside or by themselves.

For the past few decades change in Government Healthcare Policy allowing Private Participation many Corporate houses and individuals connected with the healthcare have entered into the sector and it has become the second largest foreign exchange sector in earning. One of the fastest developed sector in introducing technology, artificial intelligence, machine learning, 3D and also infrastructure development such as Introduction of Air Ambulance/Ambulatory Service has become order of the day that made recognition to the Healthcare Sector Globally. It is not enough to provide healthcare to the urban areas where everything is within reach but one should look into the rural areas especially in India where divergent atmospheric, religious faiths, customs or deep rooted. When people refuse to go to the healthcare facility for the ailments and sufferings instead of depending upon the local Vaidyars and crude way of administering healthcare procedures are the drawbacks in India. The Policy of Government of India to reach healthcare to remotest places and hilly regions where accessibility is less or nil by road, this kind of Ambulatory Service will necessary emergent healthcare procedures and also to shift the critically ill patients to facilities to safe guard their lives is an utmost important task of the government.

Though there are many advantages of introducing Ambulatory/Air Ambulance services in healthcare sector there are certain side effects and drawbacks. Now will examine what are the advantages and disadvantages uplifting the infrastructure in the healthcare sector is the introduction of Air Ambulance/Ambulatory Services by the multispecialty/super specialty healthcare facilities or joint hands with facilities or who are in a position to give such facility. In this regard, many healthcare facilities like Apollo, Care, Aster DM, Yashoda, Jaslok, Dhirubhai Ambani healthcare, Medanta in Delhi are some of the healthcare facility who are providing Ambulatory service to attract not only domestic patients but also International Patients by providing safe travel from their own country to the destination country.

In addition to the healthcare professionals who are manning the patients inside the Ambulance but also the crew who are in control of the Air Ambulance should have special skills and knowledge of routes they travel and also responsible for gruesome situations as well as dealing with traumatized family members. The Air crew should be physically fit calm so as to be able to handle such disturbing situations professionally. As everybody knows in a critically ill patient the time is so crucial that every minute counts and not only the healthcare professionals like Physicians and Surgeons but also the Para Medical Staff namely nurses and technicians who should be well trained in attending Air borne situations unlike in a hospital because they have to make themselves stable in the position and should see that the equipment that is being put into the patients are not disturbed. These Para Medical Staff are specially trained in providing intensive care under time sensitive situations and they should have previous experience in dealing with patients critically wounded for which advanced life supporting systems are to be provided. These Para Medical Staff would have necessary qualifications, experience and expertise as required and standardized by World Health Organization (protocol procedures). So that not only attending the patients but they should be in a position to give moral support to the patient and the accompanier. The advantage of using Air Ambulance/Ambulatory Service include patients are able to be shifted from one healthcare facility or any place to another healthcare facility if more advanced healthcare procedures and equipment in a shortest time possible compared to the use of other transportation systems. Another advantage of using Air Ambulance is as they are fitted with latest equipment and well trained healthcare professionals and paramedics. In addition to the availability of latest equipment and medicines more lives can be saved until they reach any required facility of their choice. In an Ambulance by road only one patient can be shifted but in Air Ambulance more than one patient will have opportunity to take care of them.

Though there are many advantages, every technology is having its own drawbacks but only thing is we have to weigh between the advantages and disadvantages which are more. The main disadvantage of using Air Ambulatory Service includes the risk of Air Craft Crashing thereby killing not only the patient but also the healthcare professionals and the crew also. Unless otherwise these Air Ambulances are properly maintained with regular checkups. Hence, it is not enough to have an Air Ambulance/Ambulatory Service but they should be kept and properly maintained not only the Air Craft but also the equipment so that above said situations cannot be eliminated but minimized.

Another disadvantage is because the ambience is limited provision for more sophisticated equipment is not possible; only equipment in general that are needed for critically ill/wounded patients are available. The fact that the planes have little rooms to equip more equipment, it is also difficult for the Healthcare Professionals and Para Medical Staff with the little time available to provide the services to patients there are always risks involved. In this regard, the healthcare professionals and paramedics who are specially trained to go on board in Air Ambulances should be trained to keep them updated on technical operations of various equipment that are being used in the Ambulances and every personnel on board should be certified and accredited.

Another important aspect of maintaining an Air Ambulance is with respect to cleanliness. An Air Ambulance requires washing similar to any transport vessel because different types of patients with different ailments/illness some are contagious are being transported, unless these cleanliness by washing the Ambulance in a systematic manner between the transportation of patient to patient should be scheduled and for such procedures the major airports should have such facility.

Another disadvantage is the middle men who will be acting as Ambulance providers will dictate terms and the healthcare facilities normally support the middle men; this causes awkward situation to the patients accompanier because they are worried more about the patient's condition. Hence, Government should interfere make certain laws so that the middlemen cannot take advantage of the

situation to their side for financial gains also it is the responsibility of the Government to pass laws in this regard in Parliament to curb the misleading activities for financial gains by the Ambulatory Services/Middlemen/Healthcare Providers and if anybody takes advantage of the situation they should be penalized both criminal and civil and by way of putting huge penalties. To conclude as mentioned above it is not enough to introduce legal actions on the erring personnel but also they should in cooperation with Indian Medical Association and such other medical bodies and voluntary organizations should establish guidelines for those who are connected with the Air Ambulance Services. This type of service falls under the servicing of the Medical Air Vessel (Air Ambulance) but in some instances a specialized cleaning crew should be made available where the Ambulances are hangar.

CONCLUSION:

It is not enough to introduce Air Ambulance/Ambulatory Service as an infrastructure by the healthcare facilities but proper maintenance, handling by the crew and also the healthcare professionals and para medics who have to attend the patients when the Air Ambulance is air borne and during the transit of the patient from one place to other. For these purposes, the healthcare professionals and paramedics are to be specially trained with latest developments and in maintaining Air Borne Intensive Care Units. That means an Intensive Care Unit in an healthcare facility can have the advantage of getting more equipments for the procedures which is not there in Air Ambulance as such the healthcare professionals and para medics should be on their toes in utilizing the available existing equipment by using their experience and expertise to save the lives of the patients till they are transferred to an healthcare facility. The healthcare professionals and para medics should have experienced in taking split second decisions in a given environment that will give maximum benefit to the patient so that the patient can be shifted to a ground healthcare facility. This kind of situation arises when the critically wounded war personnel from the battle field, critically ill patients who are capsized during natural calamities like cyclones, tsunamis, floods where these people have to be lifted from the places where an Air Craft cannot land.

In addition this medical colleges and the government should introduced emergency courses not only for the healthcare professionals and also para medical staff to handle such situations and those who complete such courses are only to be appointed in Ambulatory Services. After their professional course as the healthcare professional or paramedics if they are interested in Ambulatory service should study this course and get certified.

Globalization of healthcare and many foreign patients are coming to India for healthcare procedures and the introduction of Medical Visa and converting ordinary Visa into Medical Visa in certain conditions introduced by the Government of India as given more impetus for foreign patients coming to India because affordable cost compared to their own country, same facilities and procedures and healthcare professionals are the main cause for Indian Healthcare Sector to be a place to reckon in healthcare. This is right and opportunity time not only to Central Government but also to State and Union Territories to keep an eye on the infrastructure (Air Ambulance/Ambulatory Services) so that the country can attract more patients to earn more foreign exchange.

Medical Tourism is not a new phenomenon to India but it is a old tradition since Vedic Period when allopathy is not there people used to travel to Asian Countries mainly to India for healthcare procedures. Mahatma Gandhi, father of nation,

“Health is Wealth but not piece of Gold and Silver”

References:

1. Air ambulance transport - Eric Sy, Terrance Ross – www.pmc.ncbi.nlm.nih.gov/articles/PMC8476219/
2. Analysis of Helicopter Air Ambulance Accidents in United States from 2010 to 2021 – www.airmedicaljournal.com

3. Inside the World of Air Ambulances: What You Need to Know – www.emergencyassistanceplus.com
4. Air Ambulance: Potential, Challenges and Future Prospects – www55nda.com
5. The advantages and disadvantages of using Air Ambulances – www.airambulance.wikidot.com
6. Air Medical Transport – An overview – www.sciencedirect.com
7. Understanding the factors that influence Air Ambulance Prices – WWW.ZHL.ORG.IN/BLOG/AIR-AMBULANCE-PRICE
8. Air Ambulance Services in India – www.yatrabyhelicopter.in
9. Importance of Air Ambulance Services in India – www.udanaviation.in
10. Positioning of aerial ambulances to improve health care access: A framework using fuzzy DEMATEL and fuzzy ANP
www.tandfonline.com/

