

# AIR MEDICAL AND AMBULANCE SERVICES: A RAPID EMERGING NEW TREND OF SAVING LIVES IN AFRICA

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**Abstract:** Air ambulance is about delivering specialized medical care in a mobile environment. It could be a fixed-wing (airplane) or rotor-wing (helicopter) aircraft, or land transport. Air Ambulance is the connective tissue for the hospital system. It links hospitals together enabling access to specialized care for victims of health issues. Air ambulance has doctors, nurses and paramedics to provide immediate care to victims before they reach referral health centers.

**Key Words:** Ambulance, Medicare, Injury, Evacuation, Specialized Care, Helicopter, Health care, Military service.

## 1.0 INTRODUCTION:

### History of Air Ambulance

Air Ambulance is a complex service in which acute care meets air and land transport. Using aircraft to transport the injured has its origins in the military and is almost as old as powered flight itself. In 1870, during the Siege of Paris, 160 wounded French soldiers were transported back to France by hot-air balloon. In the Korean War in the early 1950s the U.S. had specially equipped helicopters dedicated for medical transport and by 1969, in the Vietnam War; specially trained medical corpsmen were providing in-flight care. Subsequent to this, a group of researchers concluded that servicemen wounded in battle had better rates of survival than motorists injured on California highways, which inspired the use of paramedics in civilian medical transport.

## 2.0 METHOD:

Sample research where taken from scientific data from other works done and published in peer reviewed journals. They were analysed, criticized constructively, appraised and some which the writers deem fit was taken as a reference on this work.

Stratified and probity of empirical data and cross sectional surveys done on the subject matter was also revised by the authors in bringing out the final write up.

## 3.0 DISCUSSION:

An air medical service is a comprehensive term covering the use of air transportation, airplane or helicopter, to move patients to and from healthcare facilities and accident scenes. Personnel provide comprehensive pre hospital and emergency and critical care to all types of patients during aeromedical evacuation or rescue operations aboard helicopter and propeller aircraft or jet aircraft.

The advantages of medical transport by helicopter may include providing a higher level of care at the scene of trauma and improving access to trauma centers. Helicopter-based emergency medical service (EMS) also provides critical care capabilities during inter facility transport from community hospitals to trauma centers.

### 3.1 Air Medical services in the United Kingdom

Air ambulance services in the United Kingdom are provided by a mixture of organisations, operating either helicopters or fixed-wing aircraft to respond to medical emergencies, and transport patients to, from, or between

points of definitive care. These air ambulances fulfil both emergency medical services functions, as well as patient transport between specialist centres, or as part of a repatriation operation.

### **3.2 History**

The first air ambulance services in the UK commenced in Scotland in November 1933 with a flight from Wideford Airport, Kirkwall Orkney and in February 1939 the first night time ambulance flight was undertaken from Wideford to the island of Sanday, using car headlights to help takeoff and landing. The aircraft used was a General Aircraft Monospar G-ACEW operated by Highland Airways.

### **3.3 Emergency air ambulances**

Emergency air ambulances are generally helicopter based, and used to respond to medical emergencies in support of local ambulance services. In England and Wales, all of these services are charitably funded, and operated under contract with a private provider. The ambulance staffs crewing these flights are generally seconded from the local NHS ambulance service. In Scotland, there is the only publicly funded air ambulance service, with the Scottish Ambulance Service operating two helicopters and two fixed wing aircraft in this role, alongside a single charity operator helicopter (EC135T2).

### **3.4 Patient transport operations**

There are also a number of patient transport operations in the UK, generally using fixed wing aircraft, and which are part of a system of moving patients between points of care, or as part of a repatriation to the UK. There is a helicopter based patient transfer service, focused on paediatric cases, called the Children's Air Ambulance, which first flew in 2012.

The Scottish Ambulance Service operates two fixed wing aircraft in this role, and there is a similar service provided under contract in Northern Ireland, with patients flown to the mainland UK for treatment. In 2015 the neonatal, paediatric and adult emergency care and retrieval operations were brought together with the Scottish Ambulance Service and utilise the aircraft and road ambulances for this purpose. They are co-located at the Scottish Ambulance Air Base at Glasgow International Airport. There are also a number of private providers offering transport by fixed wing aircraft.

### **3.5 Notable accidents involving air ambulances**

On 19 May 1996, a Britten-Norman Islander aircraft operated by Loganair for the Scottish Ambulance Service crashed short of the runway at Lerwick Tingwall Airport in Orkney while turning to final approach at night during strong and gusting winds. The pilot was killed, and the physician and flight nurse were injured. There was no patient on board at the time.

On 26 July 1998, the three man crew of the Kent Air Ambulance died when the aircraft collided with power lines and crashed in a field in Burham, near Rochester Airport. Initial investigation established no definitive cause for the crash, due to the fireball produced on impact. Controversy ensued when the pilot's employers, Police Aviation Services, denied liability.

On 19 February 2004, following a civil case brought by the pilot's widow to the High Court in Manchester, it ruled that the crash was caused by mechanical failure, not as suggested flying low for fun, and ordered compensation to be paid.

On 14 June 2000, four passengers and one pilot were killed when a Piper PA-31-350 Navajo Chieftain, chartered for a medical transfer from the Isle of Man, crashed on approach to Liverpool Airport.

On 15 March 2005, a Britten - Norman Islander aircraft operated by Loganair crashed into the sea while descending toward Campbeltown Airport in western Scotland. The aircraft was operating an air ambulance flight on behalf of the Scottish Ambulance Service. The pilot and paramedic both died in the crash.

## **4.0 ANALYSIS:**

### ***4.1 Air Medical transport services and its make up***

#### **a. Inter-facility Patient Transfers**

The majority of medical transports conducted by Ornge in Canada are transfers between health care facilities for patients who require critical, advanced or primary levels of care and who meet the criteria for Ornge transports. Historically, many hospitals throughout Ontario provided primary, secondary and tertiary care in a broad range of medical disciplines. In an effort to provide higher quality and more cost efficient medical care to patients, the healthcare system in Ontario has been reorganized around the concept of centres of excellence. The creation of centres of excellence involves the designation of certain hospitals in a given geographic area as responsible for specific medical disciplines such as neurology and cardiac sciences, cancer care, transplants, and pediatrics. For example, physicians working on a heart attack patient at one hospital may determine that the patient needs to be transported to a cardiac centre of excellence for a cardiac intervention.

As another example, a child at a small community hospital in a remote region of Ontario with signs of a respiratory infection may need to be transported to a hospital in a larger metropolitan centre to be seen by a pediatrician. Therefore, the design of the medical system around centres of excellence located around the province not only necessitates more numerous and frequent patient transfers from one health care facility to another but often requires the services of Ornge for that transport. Indeed, approximately ninety per cent of the approximately 19,000 annual medical transports conducted by Ornge are hospital to hospital patient transfers.

#### **b. Emergency Response**

Unlike emergency medical service providers, Ornge is not accessible to the public through 911 calls. The coordination of Ornge services is the responsibility of the Operations Control Centre (the OCC). The OCC provides communication services as defined in the Ambulance Act. When requested by the local land ambulance dispatch centre, called the Central Ambulance Communications Centres or the Ambulance Communications Services, an Ornge aircraft may be deployed to respond to an accident or travel to a remote area, if the patient meets the established guidelines for transport by Ornge.

#### **c. Organ Transplant**

Ornge is the primary provider of organ transport services for Ontario-based organ transplant patients and organ donation surgical recovery teams within North America. Ornge is responsible for the rapid transport of recovered organs and the medical teams to transplant centres throughout Ontario.

#### **d. Indications for air transport**

Effective use of helicopter services for trauma depends on the ground responder's ability to determine whether the patient's condition warrants air medical transport. Protocols and training must be developed to ensure appropriate triage criteria are applied. Excessively stringent criteria can prevent rapid care and transport of trauma victims; relaxed criteria can result in the embarrassing and costly situation of transporting a patient by helicopter only to have the patient discharged in good condition from the emergency department.

#### **e. Air Safety**

Some have questioned the safety of air medical services, while the number of crashes may be increasing; the number of programs and use of services has also increased. Factors associated with fatal crashes of medical transport helicopters include flying at night and during bad weather, and post-crash fires. Crew and patient safety is the single most important factor to be considered when deciding whether to transport a patient by helicopter. Weather, air traffic patterns, and distances (e.g., from trauma scene to closest level one trauma center) must also be considered. Another reason for cancelling a flight is based on Flight Crew comfort with the flight. The general rule of safety is upon the crew, when there is one pilot and two medical crew is: 3 to go, 1 to say "NO". If one Flight Member is not comfortable with the flight for whatever reason, the flight is cancelled.

## 4.2 Air Ambulance

An air ambulance is a specially outfitted helicopter that transports injured or sick people in a medical emergency or over distances or terrain impractical for a conventional ground ambulance. These and related operations are called aeromedical. In some circumstances, the same aircraft may be used to search for missing or wanted people.

Like ground ambulances, air ambulances are equipped with medical equipment vital to monitoring and treating injured or ill patients. Common equipment for air ambulances includes medications, ventilators, ECGs and monitoring units, CPR equipment, and stretchers. A medically staffed and equipped air ambulance provides medical care in flight while a non-medically equipped and staffed aircraft simply transports patients without care in flight. Military organizations and NATO refer to the former as medical evacuation (MEDEVAC) and to the latter as casualty evacuation (CASEVAC).

### TYPES

#### a. Government Operated

In some cases, governments provide air ambulance services, either directly or via a negotiated contract with a commercial service provider, such as an aircraft charter company. Such services may focus on critical care patient transport, support ground-based EMS on scenes, or may perform a combination of these roles. In almost all cases, the government provides guidelines to hospitals and EMS systems to control operating costs and may specify operating procedures in some level of detail to limit potential liability. However, the government almost always takes a hands-off approach to actual running of the system, relying instead on local managers with subject matter (physicians and aviation executives) expertise. Ontario's ORNGE program and the Polish Lotnicze Pogotowie Ratunkowe (LPR) are examples of this type of operating system. The Polish LPR is a national system covering the entire country and funded by the government through the Ministry of Health but run independently, there is no independent HEMS operator in Poland. In North East Ohio, USA including Cleveland, the Cuyahoga County-owned Metro Health Medical Center uses its Metro Life Flight to transport patients to Metro's level I trauma and burn unit. There are 5 helicopters for North East Ohio and, in addition, Metro Life Flight has one fixed-wing aircraft. In the United Kingdom, the Scottish Ambulance Service operates two helicopters and two fixed-wing aircraft twenty-four hours per day. These represent the UK's only government-funded air ambulance service.

#### b. Multi-purpose

In some jurisdictions, cost is a major consideration, and the presence of dedicated air ambulances is simply not practical. In these cases, the aircraft may be operated by another government or quasi-government agency and made available to EMS for air ambulance service when required. In southern New South Wales, Australia, the helicopter that responds as an air ambulance is actually operated by the local hydroelectric utility, with the New South Wales Ambulance Service providing paramedics, as required. In some cases, local EMS provides the flight paramedic to the aircraft operator as-needed. In the case of the Los Angeles County Fire Department the helicopters are brush fire choppers also configured as air ambulances with a paramedic provided from whichever fire department rescue unit has responded. Sometimes the air ambulance may be run as a dual concern with another governmental body - for example the Wiltshire Air Ambulance is run as a joint Ambulance Service and police unit.

In other cases, the paramedic staffs the aircraft full-time, but has a dual function. In the case of the Maryland State Police, for example, the flight paramedic is a serving State Trooper whose job is to act as the Observer Officer on a police helicopter when not required for medical emergencies.

#### c. Fee for service

In many cases, local jurisdictions do not charge for air ambulance service, particularly for emergency calls. However, the cost of providing air ambulance services is considerable and many, including government-run operations, charge for service. Organizations such as service aircraft charter companies, hospitals, and some private-for-profit EMS systems generally charge for service. Within the European Union, almost all air

ambulance service is on a fee-for-service basis, except for systems that operate by private subscription. Many jurisdictions have a mix of operation types. Fee-for-service operators are generally responsible for their own organization, but may have to meet government licensing requirements. Rega of Switzerland is an example of such a service.

#### **d. Donations by business**

In some cases, a local business or even a multi-national company may choose to fund local air ambulance service as a goodwill or public relations gesture. Examples of this are common in the European Union, where in London the Virgin Corporation previously donated to the Helicopter Emergency Medical Service, and in Germany and the Netherlands a large number of the Christoph air ambulance operations are actually funded by ADAC, Germany's largest automobile club and DRF Luftrettung. In Australia and New Zealand, many air ambulance helicopter operations are sponsored by the Westpac Bank. In these cases, the operation may vary, but is the result of a carefully negotiated agreement between government, EMS, hospitals, and the donor. In most cases, while the sponsor receives advertising exposure in exchange for funding, they take hands off approach to daily operations, relying instead on subject matter specialists.

#### **e. Public donation**

In some cases, air ambulance services may be provided by means of voluntary charitable fundraising, as opposed to government funding, or they may receive limited government subsidy to supplement local donations. Some countries, such as the United Kingdom, use a mix of such systems. In Scotland, the parliament has voted to fund air ambulance service directly, through the Scottish Ambulance Service.

In England and Wales, however, the service is funded on a charitable basis via a number of local charities for each region covered, although the service to London receives most of its funding through the National Health Service.

Great strides have been made in the UK, with the Association of Air Ambulance (AAA). This organization is widely credited for having created the political climate that made the helicopter industry and National Health Service recognise the enormous contribution charities make to trauma care in the United Kingdom. In 2013, the AAA published the Framework for a High Performing Air Ambulance Service which details many of the developments from 2008 to 2013.

In recent years, the service has moved towards the physician-paramedic model of care. This has necessitated some charities commissioning clinical governance services, however many air ambulances operate under the tasking ambulances services clinical governance. The AAA now publishes Best Practice Guidance on a range of operational and clinical functions and provides a code of conduct that all full members, both ambulance services and charities must uphold.

### **4.3 BASIC BUILD UP OF AIR AMBULANCE:**

#### **a. Medical control**

The nature of the air operation frequently determines the type of medical control required. In most cases, an air ambulance staffer is considerably more skilled than a typical paramedic, so medical control permits them to exercise more medical decision-making latitude. Assessment skills tend to be considerably higher, and, particularly on inter-facility transfers, permit inclusion of functions such as reading x-rays and interpretation of lab results. This allows for planning, consultation with supervising physicians, and issuing contingency orders in case they are required during flight. Some systems operate almost entirely off-line, using protocols for almost all procedures and only resorting to on-line medical control when protocols have been exhausted. Some air ambulance operations have full-time, on site medical directors with pertinent backgrounds (e.g emergency medicine); others have medical directors who are only available by pager. For those systems operating on the Franco-German model, the physician is almost always physically present, and medical control is not an issue.

## **b. Equipment and interior**

Most aircraft used as air ambulances, with the exception of charter aircraft and some military aircraft, are equipped for advanced life support and have interiors that reflect this. The challenges in most air ambulance operations, particularly those involving helicopters, are the high ambient noise levels and limited amounts of working space, both of which create significant issues for the provision of ongoing care. While equipment tends to be high-level and very conveniently grouped, it may not be possible to perform some assessment procedures, such as chest auscultation, while in flight. In some types of aircraft, the aircraft's design means that the entire patient is not physically accessible in flight. Additional issues occur with respect to pressurization of the aircraft. Not all aircraft used as air ambulances in all jurisdictions have pressurized cabins, and those that do typically tend to be pressurized to only 10,000 feet above sea level. These pressure changes require advanced knowledge by flight staff with respect to the specifics of aviation medicine, including changes in physiology and the behaviour of gases.

There are a large variety of helicopter makes that are used for the civilian HEMS models. The commonly used types are the Bell 206, 407, and 429, Eurocopter AS350, BK117, EC130, EC135, EC145, and the Agusta Westland 109 & 149 and Sikorsky S -76. Due to the configuration of the medical crew and patient compartments, these aircraft are normally configured to only transport one patient but some can be configured to transport two patients if so needed. Additionally, helicopters have stricter weather minimums that they can operate in and commonly do not fly at altitudes over 10,000 feet above sea level.

## **5.0 FINDINGS:**

### **5.1 AIR AMBULANCE AND INSURANCE COVERAGE**

#### **a. What Is Air Ambulance Coverage**

Air ambulance coverage may come in handy if you are injured while traveling or if you require medical care due to an emergency or a medical condition that requires specialized care that is not available in your local hospital or health - care services center. It may be used during an emergency or to obtain specialized services. Air Ambulance coverage may be included in health insurance or travel insurance policies. Air ambulance services and air medical transport is not something we usually think about when we are healthy. It's important to review your travel insurance or healthcare insurance coverage in advance to choose a policy that offers air ambulance coverage with lower out-of-pocket expenses, reasonable deductibles and the co-insurance that works best for you.

Air ambulances are largely used in emergency medical situations or situations where timing is of the essence in helping a patient receive treatment. Air ambulance coverage may be covered under a health insurance or travel insurance policy.

#### **b. Air Ambulance Transfers Are Useful**

1. When you are injured during a trip and would like to be transported home to receive care near home
  2. If you need to go to medical facilities for specialized treatment
  3. If you need to be transported to a rehabilitation center to receive specialized care
  4. If being transported by ground is impossible or will provide a risk to your health
- When rapid transportation is necessary

#### **c. How Much Does Air Ambulance Cost**

According to the National Association of Insurance Commissioners (NAIC) an average cost for one air ambulance flight is between \$12,000 and \$25,000.

#### **d. When Can Air Ambulance Be Covered by Health Insurance or Travel Insurance**

1. When the attending physician at an emergency recommends an air ambulance due to the fact that it is medically necessary

## 2. When a patient receives a letter of medical necessity

### **Definition of Medically Necessary**

Medically necessary refers to the medical care required to prevent, diagnose, or treat an illness, injury, condition, or disease according to current medical standards. Medically necessary health care may refer to either services or supplies and must be deemed medically necessary by a medical doctor.

For example, if an air ambulance is deemed medically necessary, and there is no other way for the patient to receive the care, diagnosis or treatment, then it may be covered by a travel or health insurance plan that covers the cost of air ambulances.

#### **e. When Is an Air Ambulance Medically Necessary**

If you have been in a serious accident or you're in a condition where you may not survive an emergency trip in a land ambulance, an air ambulance may be contacted to quickly come directly to you. The air ambulance has medical professionals on board along with a mini-hospital where they can quickly start treating you as you fly to an appropriate medical center.

#### **f. Who Would Need an Air Ambulance**

Here are some examples of when you may need an air ambulance as a result of an emergency:

1. When other forms of medical transportation would be dangerous to your health or would jeopardize the success of a medically required procedure.
2. When you are bleeding beyond the control of regular ambulatory services
3. When you need oxygen, life support or other medical assistance during transportation that may not be accomplished with regular services

Air ambulances are often used in cases involving stroke, heart attack, burn care, head injury, spinal cord injury and transplant.

Air transport via an air ambulance is also common when the site of an injury is a remote destination where regular transport may not be easily accessible or large distances must be traveled quickly.

#### **g. Is Approval required Before an Air Ambulance is covered by Insurance**

Even if the physician in an emergency recommends an air ambulance, it still has to be approved by your health or travel insurance. A doctor working for your insurance company will review the request and situation and decide if it is in fact medically necessary by the current medical standards. Your insurance company must approve the recommendation for the air ambulance or you may not be covered.

#### **h. Does Insurance Cover the Cost of an Air Ambulance**

Many people who have insurance through their employer, a private travel insurance or health insurance plan, Medicaid or Medicare don't think twice about an ambulance bill because they think the insurance company pays for it. Given the clauses in health and travel insurance policies like deductibles and co-insurance, even in cases where coverage is provided, you could still end up with a hefty bill. Air Ambulances are not automatically covered and are subject to the definitions of the situation by each insurance company.

#### **i. Check the Deductible and Co-Insurance Clauses of Air Ambulance Insurance Coverage**

You should never assume the full costs of an air transport or air ambulance will be covered. If you don't check with your insurance company first, you may end up paying thousands of dollars out of pocket. Costs associated with air ambulances stem from: the air ambulance company used, the services provided on the air ambulance and the travel distance to the hospital.

### **j. What Are the Limitations and Exclusions in Air Ambulance Insurance Coverage**

The coverage for emergency air transport will vary from state to state and by insurance type and company. You can contact your state insurance commissioner's office to find out more about the insurance coverage available in your area if you are unsure. Some insurance companies specify the specific situations in which coverage may be provided in whole or in part for air transport services. It is important to note that some insurance companies will also limit the type of aircraft covered under the air ambulance coverage. Insurers may also decide to pay only the portion of the cost they deem "reasonably necessary", similar to the way other health insurance coverage work. In cases like this, the remainder of the bill could be at your cost.

### **k. How to Make Sure You Have Air Ambulance Coverage in Your Insurance**

Air Ambulance could be covered under your health insurance plan or your travel insurance. Contact your insurance company, employee benefits plan administrator or your insurance agent to see what air ambulance coverage you may have. If you don't feel like the coverage is sufficient then ask your insurance company if you can add extra coverage on your policy for an air ambulance. You may also check if you are covered under a spouse's health insurance plan, or under domestic partner benefits. In cases like this, you could also look into reducing costs using coordination of benefits.

If you still feel like you need more coverage you may need to reevaluate your insurance needs with another insurance company.

### **l. Are Air Ambulances Only For Emergencies**

According to the Association of Air Medical Services, more than 550,000 people use air medical transports per year in the U.S. An air ambulance is a medical transport used in many circumstances. It is not always for unplanned medical emergency services. Very often a service could be considered medically necessary but may not have the immediate urgency we often think of. Care may be required during transport, but the timing of the transport is not always necessary to be on the spot. Oftentimes hospitals coordinate to transport patients and are able to set a schedule to help lower the costs of the medical transport if the services of the air transport are medically necessary but not urgent.

### **Example of Non-Urgent Medically Necessary Air Transport**

AMMA SMART is being treated following a skiing accident at family tree medical centre. Unfortunately, although AMMA SMART is temporarily stable, the family tree Hospital is an emergency care facility with limited resources, AMMA SMART needs more tests and specialized treatment. The closest qualified hospital is too far for her to travel by ambulance due to her injuries, so the doctor recommends an air transport in order to get madam to the closest hospital center that can provide the additional services without putting her health at further risk. They arrange a transport for the following afternoon since the care is not critically urgent, yet still requires the advanced care that will be available in the air transport; the air ambulance can come the following day.

### **m. Are Air Ambulance Services Covered By Medicare or Obama care or other National health insurances**

Medicare or the Affordable Health Act coverage may pay for essential services like emergency air-transport if no other form of transport is available and if it meets the criteria for being considered medically necessary. It is important to note that this coverage might be subject the deductible and then the co-insurance clause of the plan, so you would end up paying part of the costs out of pocket even if it is covered by insurance.

### **Advance Beneficiary Notice of Non coverage (ABN)**

If air ambulance services are deemed medically necessary, yet non-urgent, and may not be covered, you may receive Advance Beneficiary Notice of Noncoverage (ABN) that will advise you that you will be held responsible for all charges, so you are made aware before taking the service.



## **Example of Air Ambulance and Obama care Coverage**

Under the Affordable Health Care Act if it is medically necessary, then air transport may be covered under essential services. E.g. AWO YAA sustained a serious injury and in order to save her life, her doctor recommended medical transport to a hospital nearby that would be able to offer her the emergency treatment she needed. The air ambulance cost \$29,000 she had a \$5000 deductible and a 30/70 co-insurance clause. Once the air ambulance services were approved, she did not receive the full \$29,000 of expenses for the air ambulance, she received \$29,000 less her \$5000 deductible, less the 30% co - insurance (\$7,200), for a total reimbursement of \$16,800. Due to the deductible and co-insurance she paid \$12,200 out of pocket.

### **n. Where Will an Air Ambulance Take You**

Depending on your health coverage, the air ambulance may take you to the nearest medical facility where you can be treated, or if your contract provides a higher level of coverage, it may take you all the way home. This is where it becomes important to fully understand the coverage you have purchased and based on your personal situation and the kinds of activities or destinations you will travel to, you should decide on how much air ambulance coverage you need.

### **o. Does Air Ambulance or Medical Air Transport Cover Transport of a Companion, Dependent or Spouse**

Depending on your health insurance or travel insurance coverage, if the air ambulance is covered, then insurance companies will often include coverage for an accompanying family member or necessary companion in the coverage. Make sure to ask your insurance representative about this.

### **p. Is a Private Air Ambulance Service a Good Idea**

There are various private air ambulance services available. These services are generally geared towards travelers who would like to be able to fly back to their home doctor or hospital to be treated if they happen to need medical care while away from home. If you choose to use one of the private air ambulance providers please remember that although they are great services they may not provide every ambulance need or cover all the costs of any air ambulance service you choose. If you want to arrange your own air ambulance then you should contact your health insurance provider prior to making any commitment or you may find that your claim will be denied. Private air ambulance providers usually have an insurance coordination service, so are sure and find out before purchasing a service if they can help you coordinate with your insurance and outline what costs will or will not be covered. Again, the best thing to do is to make sure you ask plenty of questions and read any contracts carefully before committing to an air ambulance service

## **6.0 RESULTS:**

### **6.1 Air Ambulance in Africa**

AMREF Flying Doctors is a company limited by guarantee wholly owned by Amref Health Africa, which is the leading international health development non-governmental organization based in Africa, headquartered in Nairobi. They started the pioneering role of air medical services in Africa, thus especially east Africa. AMREF Flying Doctors was established in 1957 by three surgeons: Sir Michael Wood, Archibald McIndoe, & Thomas Rees and has since been involved in a number of health care projects in East Africa.

Spurred by what they had seen of the combined effects of poverty, tropical disease, and a lack of adequate health services in East Africa, their collective vision was born in the foothills of Mt Kilimanjaro. At that time, there was one doctor to every 30,000 people in East Africa while in Britain it was 1:1,000. Medical facilities were sparse, with rough terrain and often impassable roads, making access to medical care difficult for people in rural and remote areas.

As this was where the majority of the population lived, Archie, Tom, and Michael saw an air based service as the only way to get health care to remote communities.

AMREF Flying Doctors is the largest and best-known international air ambulance services provider in the region. They have been in the Aeromedical transport industry for close to 60 years, acquiring a huge wealth of experience, professionalism, and solid infrastructure. AMREF Flying Doctors is the only Air Ambulance provider in the region that is internationally accredited by the European Aero-Medical Institute (EURAMI) and twice a winner of the International ITIJ Air Ambulance Provider of the Year Award, the most prestigious award in the global travel and health insurance industry. This is a true reflection of the exemplary effort put in by their highly trained staff.

AMREF Flying Doctors provides air evacuation services in medical emergencies across East Africa, as well as air ambulance transfers between medical facilities. They provide air ambulance services and operate across many East African countries including Uganda, Kenya, Tanzania, and when clearance can be obtained, most neighboring countries including the Democratic Republic of Congo, Eritrea, Somalia, Ethiopia, Rwanda, and Burundi.

Subject to flight clearances, AMREF Flying Doctors will carry out evacuations from anywhere on the African continent. In addition, patients can be repatriated via an AMREF Flying Doctors aircraft to Europe, Asia, and North America or a medical escort can be provided on commercial carriers.

AMREF Flying Doctors operates 24 hours a day, 365 days a year. As a vital link between remote areas and AMREF Flying Doctors Emergency Control Centre at Wilson Airport in Nairobi, AMREF Flying Doctors has established a radio network that comprises over 100 HF radio stations across East Africa, making it the largest two-way radio network in Africa. Apart from emergency evacuations, AMREF Flying Doctors provides a medical outreach program, taking essential health care to some of the most impoverished and remote areas of Africa.

## ***6.2 Basics and Standards of Air Medical Services***

As one of the leading providers of safe and professional aero-medical transportation, they provide medical evacuations for patients in serious medical conditions using both air and ground ambulances. When it comes to air ambulance transportation, experience matters and their pilots and medical professionals are highly skilled and trained.

The medical teams are certified in specialized areas such as critical care, trauma, neonatal, pediatric and adult intensive care transports, and at-risk patients. They also adhere to the procedures of the medical flight industry. Air ambulances are fitted with life saving equipment to respond to medical emergencies, including intensive care cases.

## ***6.3 The Standard Equipment carried on a flight for Air medical service or ambulance***

Life port stretchers fitted with full oxygen cylinders, Thomas packs which includes the following:

- Airway, Breathing, and difficult intubation apparatus
- Chest drainage equipment with Heimlich Valves
- Current Advanced Life Support Medications, Antibiotics
- Intravenous Fluids (Crystalloids, colloids)
- Intravenous and Intraosseous cannulae
- Thermal blanket
- Diagnostic Tools (Stethoscope, Spotlight, Thermometer)
- Cardiac Monitors/ Defibrillators (Zoll M, X and E series) with the capacity to provide 12 lead ECG and Hemodynamic monitoring
- Hand held Pulse Oximeters
- Respiratory Ventilators dictated by the medical case with additional back up (Oxylog Series, Medumatt Life Base, HamiltonT1)
- Bedside Laboratory equipment (I-Stat Blood gas analyzers and Portable Glucometer)
- Extraction & Immobilization gear (Full body and limb splints, Scoop Stretcher & harness)

Syringe Pumps (B Braun)  
Laerdal Suction Units  
Portable Oxygen Cylinders  
Cool boxes (W.H.O approved for maintenance of cold chain)  
Torches, Headlamps

#### ***6.4 Air Ambulance in South Africa***

Air Ambulance Aviation in South Africa providing the air ambulance services in South Africa domestic and international sectors with all ICU facility, all the air ambulance needs, air ambulance flights in South Africa, air ambulance helicopter in South Africa, rescue operations in South Africa, disaster managements in South Africa, and medivac in South Africa, air ambulance services in South Africa is provided on request.

They have medical and technical experts from highly qualified Aerospace medicine and medical exports, pilots and all ground staff only has one aim to serve the society in well way to save some one life in our leaving time, Air ambulance aviation in South Africa team fly equipped with even in space program, advanced cardiac life support systems, advanced trauma life support systems to save some one in deed.

They have 1 Air Ambulance Helicopter 2 air ambulance flights, 3 air ambulance sea plain, and commercial starcher facility in passenger crafts. Air Ambulance Aviation works 1 patients transfer, organ transfer, and search and rescue program, disaster works

#### ***6.5 Features of the air ambulance aviation in South Africa***

Air ambulance Advance ICU support  
Medical escort 24/7  
The entire multi speciality  
Doctor and aero nurse are available in air ambulance  
ICU to ICU transfers (inter-hospital intensive care patients)  
Ventilator-dependent patients  
Cardiac emergencies  
Multi-trauma cases  
Spinal cord/head injury  
Rehabilitation  
Transplant recipients  
Babies and children needing emergency  
Medical attention, ACLS, ITLS Care  
Medical equipment's' transport high-density infusion pump, cardiac monitor, ventilator, defibilter

#### ***6.6 Air Ambulance in Ethiopia***

Captain Mulat brought in to play the first air ambulance aircraft. The King Air 350 was bought from a US based company at a cost of 2.5 million Dollars. In introducing air ambulance transportation, flight training and private charter services all in one place, the company is one of the pioneers in East African region.

The ambulance is furnished with state -of-the-art medical equipment. Stretcher, oxygen concentrator, among many others equipment, are installed from the rear seat to the cabin in the air ambulance.

The air craft had bedside to bedside service; crews with the patient from the initial pick up, and stay with them until the final arrival at their destination. They specialize in transporting patients to and from hospitals, rehabilitation centers, specialized care facilities, and private residences, with the same level of care that would be expected from a hospital ICU. Our aircraft contains cutting-edge medical equipment. The medical equipment in the air ambulance costs USD 500 million.

Their medical staffers are exceptionally qualified and skilled at providing emergency and primary health care on board and in inaccessible or remote areas.

The Medical staffers frequently undergo training in Intensive Care Medicine. All staff is certified in Advanced Cardiac Life Support, Advanced Trauma Life Support and Pediatric Advanced Life Support. They are also certified by the FAA in aeromedical transport. The new air ambulance has a licensed physician from United States. The ambulance can have a capacity of hauling a patient, physician and custodian. Ethiopian Civil Aviation Authority has a mandate to supervise the service and the aircraft too. The air ambulance has gone operational recently here in Addis. The aviation plans to extend its service to international aid organizations, travel agencies, VIPs, mining and construction companies who operate in remote parts of Ethiopia.

### ***6.7 Air Ambulance in Nigeria by flying doctors***

Dr. Olamide Orekunrin, a physician has delivered the healthcare innovation that Nigeria's government has not been able and might yet to: Flying Doctors Nigeria. The air ambulance company has airlifted more than 500 patients to safety, and has seen Orekunrin rewarded with a TED fellowship, as well as lecturing on entrepreneurship at the Massachusetts Institute of Technology, USA. It's a beacon of hope, with 20 aircraft and 47 staffs. Forty-four of the staff is doctors, including a team of senior flight physicians who are skilled in critical care designed to work miles above ground. As well as moving injured and ill patients to hospital, Flying Doctors sets up medical infrastructure for the government, and works with private companies to improve their on-site medical services.

Since its inception, the air ambulance service has travelled the world. But Orekunrin emphasises that mere existence of the service has more impact than the length of the journeys it makes. The most impact is still within West Africa, transporting people from rural areas to more urban areas for specialist treatment.

Flying Doctors Nigeria has partnered Nigerian hospitals, each specialising in a particular type of care. For example, Lagos's Lagoon hospital treats burns and orthopaedic injuries, while Reddington hospital deals with heart problems. Flying Doctors provides its services to the public via contracts with the government, as well as working with private companies. Helicopters are provided for corporate clients running large events, and wealthy families and individuals can set up a membership plan for private emergency healthcare.

Flying doctors operatives and aircrafts are on standby, anytime of the day or night, fully packed with state-of-the-art gears such as:

Oxylog 1000 Ventilators,  
 Multiparameter Monitors,  
 Inter Osseous Access,  
 Nebulisers,  
 Asherman Seal for Open Chest Wounds,  
 Infusion Pumps, Automated Defibrillators,  
 Pulse Oximeters, Automatic Suction Units,  
 Scoop Stretchers and Vacuum Mattresses,  
 Endo-Tracheal Intubation Equipments,  
 Traction Splints and Neck Collars,  
 Oxygen Masks, Airways Adjuncts,  
 Intravenous Fluids (Crystalloids, Colloids),  
 Current ACLS Medications

### ***6.8 Their Standards of Practice***

All doctors are trained to international standards and hold Trauma Life Support qualifications (ATLS, PHTLS) equivalent to those held by aero-medical personnel in the UK and Australia. This makes no need for Nigerians seek foreign treatment; it has also bridged the gap between the middle level and the executive, thus cost effective wise.

They adhere to the highest standards of medical practice as air ambulance cases are reviewed both internally and externally and held to the highest clinical practices at all times. They operate by international quality standards with which all staffs are trained and re-trained. Compulsory periodic training modules include, among others like:

Flight Physiology

Critical Care Transport

Trauma Life Support

Crew Resource Management and Infectious Diseases

Trainings & Reviews

Besides these periodic peer review sessions, annual external audit and review sessions with leading emergency medical professionals from the United Kingdom is observed. Also, doctors and paramedics are constantly drilled in various training schemes to keep the organisation on the international cutting-edge of emergency medical practices.

### **6.9 Air medical ambulance a disincentive on Ghana**

Ghana has no neither public nor privately owned air medical service, with the exception of the Ghana armed forces that has laid down structures and have had helicopters for evacuations and medical emergencies for years. Governments in and out have not put in place any essential measure to study the mode of air ambulance and its essentials in helping to save lives in Ghana.

The ministry of health, Ghana that is mandated to help put policies in place to procure air medical equipment's, train physicians, nurses and other paramedics accordingly as per the international standards has failed woefully. Most of their proposals are in to public health especially with communicable and non-communicable diseases neglecting emergency preparedness for road accidents, fire out breaks and the likes.

Ghana has four teaching hospitals, with about 6 regional hospitals and more than 900 district hospitals, many private health centers, mission hospitals and quasi health organisations. Due to increasing population and sparsely dense settlements, transfers and referrals of emergencies from smaller facilities to either the regional, teaching or specialist hospitals are delayed causing fatal complications to the extent of patients losing their lives before reaching the referral points for treatment.

With the influence of air medical services, these lives would have been saved since is a convenient way and a faster transport process to keep human life. These helicopters used have specially trained physicians, nurses, paramedics to resuscitate and keep victims of such circumstances alive to reach referral points.

Thousands of lives are lost yearly in Ghana through road accidents, hundreds through fire out breaks and they die in the process of transferring them to the health facilities. Vehicular ambulances have been so helpful and immensely useful. It also has paramedics and nurses who are trained to save lives on the way to transporting patients to health centers but they are pushed to the corners and not able to achieve most of their aim of preserving human lives due to heavy traffic in the cities, unmotorable roads in the smaller towns and villages causing death on arrival issues.

Is time Government of Ghana through the ministry of health sit down, draft policies on air medical services, under study developed countries like the united kingdom, Europe, Australia, Canada, United States and pacesetters in Africa in other to help initiate air medical services in Ghana to save more lives.

### **7.0 RECOMMENDATION:**

The writer is not saying that these 1<sup>st</sup> class or highly developed countries don't lose lives when struck by disasters, they do but in minimal and lesser as compared to Africa especially Ghana. In Africa, Ethiopia, South Africa and Nigeria have taken a great task to implement air ambulance, east Africa had a taste of these service 50

years ago and it has helped transformed their health care industry. The ministry of health Ghana should work hand in hand with donor agencies, civil societies, and non-governmental agencies to help create and allocate a budget to accommodate air ambulance even if it's a quarterly budget. With these pragmatic steps, a time will come that Ghana will enjoy the vital benefits of air medical services in saving precious human lives. In fact if the economic community of west African states (ECOWAS) will sit up, take a critical look at draft cross country policies on air ambulance and implement them, then Africa will record improved life expectancies.

## 8.0 CONCLUSION:

Air medical services or ambulance is now an indispensable tool in the health care industry for Africa and we must all embrace it. Governments of developing countries should give grants for research experts to work more on how to make these valuable assets beneficial to the general population in Africa. Scholarships should be given to medical doctors, nurses, paramedics, aerospace engineers and pilots to abreast themselves with the current trend in the air medical services.

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