

Ina von Koenig:

S.O.S. Air Rescue in the Service of Emergency Patients

The transport of emergency patients (persons with multiple injuries, seriously injured persons, medical and psychiatric emergency cases) is divided basically into two different categories:

1. Primary Transport

covers all types of transport from the scene of an accident, into the hospital responsible for the medical treatment of the most serious injury. In such cases it is necessary above all to provide for the transportability of the injured or sick person prior to loading. Primary importance is attached to the initiation of life-saving first aid measures for maintaining respiration and circulation - be it by means of artificial respiration, external heart massage, staunching of bleeding or by the application of an infusion - then the fixation of fractures of all types and correct positioning.

2. Secondary Transport

covers all types of transport from smaller hospitals or from a doctor's practice to a medical centre. Whereas virtually only air transport vehicles - primarily helicopters - without pressure cabins are used for primary transport, secondary transport is today principally effected only using air transport vehicles which are equipped with pressure cabins. For such purposes, S.O.S. Air Rescue uses predominantly CESSNAS 414 and 421 as well as Lear Jets for covering greater distances. Since none of these air transport vehicles were designed as ambulance

planes by the manufacturers, the medical transport material has to be specially adapted to these air transport vehicles. The constant perfecting and supplementation of this material with the latest products on offer in this field enables S.O.S. Air Rescue nowadays to deliver even patients with the most serious injuries into the nearest medical centre immediately after the accident. This can be done either within Germany or on take-you-home flights (so-called repatriation flights) from abroad (this includes the whole of Europe, the Near East, North Africa, political circumstances permitting, and the Canary Islands) back to the Federal Republic of Germany.

As a non-profit making organization, S.O.S. Air Rescue enjoys the advantage of being allowed to use virtually all civil and military airfields as well as flying over prohibited areas.

There are 3 important reasons for repatriating persons who become sick or have an accident abroad:

a) Psychological:

The patients who usually do not speak the native language find themselves in a hospital atmosphere which is totally strange to them and often cannot converse either with the hospital personnel or the doctors in charge.

b) Medical:

If success is achieved in repatriating the seriously injured persons before their operation and delivering them into a medical centre in their own country, this can lead in most cases to a 6 - 12 month reduction in healing time. Patients who have been poorly handled from a surgical point of view must often undergo repeat operations in their own country, which may prolong the time required for healing by up to one year.

c) Economic:

Every employed person who travels abroad takes knowledge with him which his employer misses if he does not return to his place of work after the trip. If the person concerned is delivered into a hospital abroad, the communication of this urgently required knowledge is usually connected with great difficulties because only very few foreign hospitals have telephone connections on the floor, not to mention the bed, of the patient. If, however, the patient is in a hospital in his own country, he can be visited and reached by telephone. Maintained contact is thus guaranteed.

Seriously injured persons and those with multiple injuries are bedded from the hospital bed onto the vacuum mattress or aeroplane stretcher carried by S.O.S. Air Rescue. As a rule, this takes place in the despatching hospital using the lamella-type or shovel-type stretcher. The vacuum mattress replaces the transport plaster and its good fixation properties prevent any displacement of fractures. Thanks to this method it is possible to repatriate even patients with recent and very recent vertebral fractures without any danger of a transverse lesion on the day of the accident or following day.

Patients with a cardiac infarct are always transported using an electrocardioscope as well as with oxygen insufflation. In such cases, the procedure is as follows: the ambulance plane takes off in Germany on the evening before, if possible, so that the patient can be visited on the same evening in hospital and can be connected to the electrocardioscope. This permits the accompanying doctor to obtain an early picture of the type and degree of the injuries. In addition, on the evening before, the patient is already certain in the knowledge that he

is being cared for, and on the following morning he is usually calm and well prepared for transport. Of course, he is monitored during the entire flight by means of the electrocardioscope. The heart sounds can be made audible by means of a separate adjustment so that any occurring arrhythmia can be recognized immediately.

A precise flight assistant report is made on each patient. This means that every 15 minutes notes are made on the blood pressure, the pulse and breathing frequencies, general condition, administration of medicines, additional insufflation of oxygen and the type and quantity of an infusion. At the place of destination, a copy of this flight assistant report is submitted to the doctor or - in case the patient is transferred into hospital by ambulance after landing - to the ambulance crew so that they can transmit it to the doctor in charge. In most cases, all the precautionary measures mean that the general condition of the patient on landing in his own country is better than it was in the despatching hospital. The psychological factor plays a quite considerable role in this. On each transfer or repatriation flight, medical equipment (rescue set) is carried which, apart from the woollen blanket, also includes paper linen and rubber underlay, inflatable pillows, ten plastic sputum bowls, 10 airsickness bags, all necessary medicines and syringes, a refreshment bottle, bedpan and urine bottle. Depending on the type of injury - for example in the case of heart patients - the equipment includes an insufflation bag, oxygen, an ambulance unit with suction pump as well as, in the case of emergency, tetanus or polio patients, an intubation set and a tracheotomy set.

Each flight must be accompanied by a doctor and a well trained flight assistant who is familiar with the S.O.S. flight material. If a doctor is also present who does not have the relevant specific knowledge, then the flight

must be accompanied by a rescue worker who has precise knowledge of the material as well as the special techniques of loading and unloading patients.

The reanimation of the circulation includes - apart from pulse measurement - the assessment of the general condition, the oscillometric measurement of the blood pressure, knowledge of external heart massage and all on-board circulation-supporting medicines and their intramuscular or intravenous injection as well as the maintenance of an infusion, which, due to possible decompression, may possibly lead to considerable difficulties. Of course, the rescue worker must be acquainted with all the technical equipment of the air transport vehicle and he must also know how to make radio contact with a specialist concerning first aid measures in the event of possibly occurring emergency situations.

Every repatriation flight must be prepared down to the most minute detail. First of all, contact is made with the doctor in charge in the foreign hospital.

S.O.S. Air Rescue has concluded contracts with a large number of doctors who have undertaken to accompany flights and who advise us in our preparations for a flight.

Usually, it is not only a question of clarifying the transportability of the patient, which, as a rule, is denied a priori by the foreign doctors, be this out of economic considerations or out of ignorance with regard to the highly specialized equipment available to S.O.S. Air Rescue. The person contacting the doctor in charge has the task of convincing him that more or less any patient who can be transported in any manner at all - even if only in a hospital ambulance - can also be safely transported in an air transport vehicle which has a pressure cabin. Dealings with airfields are facilitated by documents compiled over years of painstaking work

covering each and every airfield in the vicinity of hospitals in Europe, with information on the position, length, direction and state of the runway as well as information on the available installations, telephone and telex numbers.

Direct or bilateral negotiations mean that in most countries even airfields without customs posts may be used for landing. This makes it possible to fetch the patients even from places where there is no customs post and to transport them directly to Germany or to other European countries.

Repatriation flights can pose quite special navigational problems. It is a question here of "off-airway navigation", i.e. one uses - as long as this is possible - the air routes laid down in international air traffic and marked by means of radio beacons as far as the radio beacon from which then the destination must be approached by ground navigation. It goes without saying that such flights can, for this reason - since the last part was a "VFR" flight (i.e. a flight according to visual flight conditions) - can only be made during daytime and with relatively good visibility, in contrast to 100 % "IFR" flights (i.e. flights relying on instruments) which can be made both day and night in any weather to any airfield served by passenger airlines.

Various European countries still have special legislation according to which persons may not be picked up by an air transport vehicle unless they entered the country in question by means of this plane. In such cases, the necessary permission must be obtained by telex from the relevant ministries prior to flight commencement.

Foundation

S.O.S. Air Rescue was founded in Munich in 1975. The initiator and founder was Mrs. Ina von Koenig. This private association is non-profit making and is recognized as being particularly deserving of promotion.

Activities cover:

- Transfer flights for emergency patients (e.g. patients with multiple injuries, patients with a cardiac infarct, cranial injuries, burns, tetanus, premature births) from small hospitals to larger medical centres;
- Repatriation flights from abroad for persons who have had an accident and those who are acutely ill;
- Disaster aid at home and abroad;
- Transport of medical specialists, rescue workers and material;
- Transport for the transplant surgery association (organs, donors, recipients, stored blood).

Alarm Centre

S.O.S. Air Rescue maintains a 24 hour alarm and operations centre. From here, rescue operations can be immediately initiated at any time and can be coordinated with other institutions who may also be possibly involved.

Air Transport Ambulances

At present S.O.S. Air Rescue has the following means of transport at its disposal:

Ambulance Planes

Twin-engined e.g. CESSNA 414 or 421

PIPER

Twin-jet e.g. Lear Jet 24, 25, 36

Falcon 20 Mystère

Helicopters

ALOUETTE III

Bo 105

Charter contracts exist with numerous plane operators, thus ensuring the immediate availability of the appropriate planes and helicopters when necessary.

Examples of Operation:

Since the founding of S.O.S. over 150 operation flights have been made and 169 persons have been rescued or transported. These involved almost exclusively secondary transport from abroad (outside the Federal Republic of Germany). The greatest transport distance covered to date is6 5 0 0..... km from Nairobi to Nuremberg.

In the case of long intercontinental transport operations, S.O.S. undertakes the organization using commercial airlines and the medical care of the patients.

Minimum Requirements made of the Ambulance Planes:

All medical measures which are initiated pre-flight, such as infusion, circulation supervision, respiration etc., must be able to be properly continued during the flight. This gives rise to minimum transport-medical requirements

which have to be met by the ambulance planes. Thus, among other things, the size of the hatch-door for recumbent loading, adequate ventilation and heating systems, an on-board communication system (Interphon) together with medical equipment are of decisive importance in determining whether air transport vehicles can be used for the transport of patients.

Unfortunately, we notice time and time again that in some places these conditions are unfortunately not yet fulfilled.

Important Data on the Lear Jet 24 D (Emergency Plane) (Lear 35)

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| Hatch-door width: | 0.91 m |
| Range: | 2000 km incl. flight to alternative airfield and 45 min. reserve (3700 - 4000 km) |
| Cruising speed: | approx. 420 knots = Mach 0.82 = approx 780 km/hr |
| Approach speed: | 130 knots = 240 km/hr |
| Cruising altitude: | 45 000 feet = 13 700 m |
| Pressure cabin: | differential pressure 8.9 psi |
| Normal cabin pressure altitude when cruising: | 2000 m above sea level. The pressure altitude of Frankfurt can be maintained up to 30 000 feet = 9 150 m. |
| Crew: | pilot and co-pilot; in the case of ambulance flights also doctor and rescue worker |
| Medical equipment: | approximately equivalent to a medical intensive care or observation unit at a university clinic. |

S.O.S. Air Rescue Sponsor System

(valid as of 1 January 1977)

For DM 30.-- per person or

DM 60.-- per family (incl. children up to their 18th birthday)
you can become a sponsor of S.O.S. Air Rescue.

As a sponsor, in the event of medically necessary air transport, you receive a reduction of up to DM 10 000.-- (for exact information please consult Sponsor Reductions below). By the additional payment of DM 30.-- or DM 60.-- you can also entitle other persons or families to reductions. You need only give us their names. This is of particular interest to companies and their employees.

Thank you very much for your interest and I hope that the information we have given will prove to be of sufficient interest for you to take a detailed look at what we have been able to develop.

Become a sponsor of S.O.S. Air Rescue !

S.O.S. fights for human lives every day.

Help us to help you !!!!