

# Preparation of Patients for Transport

## General Principles

**Dr Stephen Langford**  
Medical Director  
Royal Flying Doctor Service of Australia  
Western Operations

## Preparation of Patients - General Principles

*Our goal is to provide a hospital level of clinical management for the duration of the transport.*

### Standard interventions

*An essential principle of aeromedical transport is the proper preparation of patients prior to flight.*

*Referring practitioners can help us by providing accurate clinical information and undertaking appropriate interventions and treatment prior to transfer.*

Patients being transferred by air are usually travelling long distances. During their journey, at altitudes of up to 35,000 feet, the only assistance available is that onboard the aircraft. An essential principle of aeromedical transport is proper preparation of patients prior to transport. This includes having a reasonably accurate diagnosis, selecting appropriate staff and equipment for the flight and having all the necessary interventions and treatment in place prior to departure.

Referring practitioners can assist us to provide smooth and uneventful transfers by providing us with accurate clinical information when referring patients, commencing relevant treatment and assisting with patient preparation prior to flight.

Our goal is to ensure that we provide a hospital level of management for the duration of the journey, whether a primary evacuation, where we initiate all the treatment, or an interhospital transfer, where we continue existing monitoring and treatment.

There are established principles that patients who having entered the health system should not have the level of care diminish during transport. All patients carried on RFDS fixed wing aircraft are accompanied by a Flight Nurse with critical care and midwifery experience. Almost half our patients have a medical Retrieval Doctor on board the aircraft also. Most rotary wing interhospital transfers coordinated by the RFDS are currently undertaken with a Critical Care Paramedic and an RFDS Retrieval Doctor on the aircraft.

All of the normal interventions which may occur in a hospital setting can usually be managed in flight. This ranges from simple oxygen therapy and intravenous fluids to management of chest drains, urinary catheters, central lines, wound drains to ventilation and invasive pressure monitoring.

### Airway & Oxygen

Patients need to have a secure airway, adequate ventilation and appropriate oxygen therapy during transport.

Due to the reduced partial pressure of oxygen at altitude, most patients carried by air will receive supplemental oxygen in flight by simple face mask. Patients with acute cardiac, respiratory and obstetric problems as well as those with other causes of tissue ischemia and blood loss are particularly susceptible to hypoxia at altitude. Patients who already require medical oxygen on the ground will receive additional oxygen in our aircraft at altitude, sometimes using a non-rebreather mask.

When receiving referrals for air transport, we will routinely seek information about your patient's respiratory rate and oxygen saturations and whether they require oxygen in the hospital setting. We will also ask for a GCS (Glasgow Coma Scale) on patients who have head injuries or are otherwise obtunded, with a view to determining the need for intubation and assisted ventilation.

*In our routine pre-flight assessment we will ask about respiratory function including respiratory rate, oxygen saturation and use of oxygen in the hospital setting.*

*Most patients with acute cardiac, respiratory and obstetric problems, as well as those with tissue ischemia, poor circulation or blood loss, will require oxygen during transport on the ground and in the air.*

Most patients have a secure *airway*. Those who do not, due to trauma, burns, infection or obtunded state, will require interventions such as intubation. The cervical spine needs to be protected with a collar in trauma patients with suspected cervical spine injury.

Patients with inadequate *ventilation* due to drugs, fatigue, neurological conditions or other disorders of respiratory function, may also require intubation and assisted ventilation.

If the patient's airway is at risk, intubation should be performed by referring doctors if they are capable of doing so. This should be undertaken sooner rather than later and not left to the retrieval team, unless there are special circumstances.

### Endotracheal intubation

The "gold standard" for airway protection and assisted ventilation is a cuffed endotracheal tube, inserted orally or nasally. This is usually performed with a rapid sequence intubation (RSI). Ongoing muscle relaxation is continued with agents such as Vecuronium, and sedation is continued with drugs such as Morphine and Midazolam or Propofol. A cuffed tube of appropriate size is used in adults and this enables ventilation at higher inspiratory pressures and protects the trachea from aspiration.

### Laryngeal mask airways

A laryngeal mask airway (LMA) can be helpful if intubation is difficult. Whilst the airway is not completely protected by an LMA, patients can at least be ventilated. A transport team will usually replace an LMA.

### Surgical airways

Surgical airways such as a cricothyroidotomy are useful to buy time and enable some ventilation urgently. An example is the Melker cricothyroidotomy catheter kit. They may need to be converted to a larger diameter surgical airway or an endotracheal tube for ongoing management.

### Other aids

A wide variety of other devices exist to manage difficult airways. These include combitubes and obturator airways, bougies, intubating LMA's, Trachlight devices, fiberoptic laryngoscopes and retrograde intubation kits. They are rarely available in rural settings and rely on the skills and experience of the operator.

## Breathing & Ventilation

Ensure your patient is adequately ventilating, despite having a secure airway. Patients on supplemental oxygen may show satisfactory oxygen saturations, whilst under-ventilating and becoming progressively acidotic.

### **Bag-valve-mask**

Inadequate breathing can be most readily and safely augmented with bag-valve-mask (BVM) ventilation. Self-inflating bags are generally easier and more effectively used by a variety of health professionals, than soft anaesthetic bags.

In most Western Australian ambulances and aeromedical aircraft, a "demand resuscitator" positive pressure resuscitation device is available. These are manually triggered with a hard shell mask, and are generally easier to use than a BVM assembly in an emergency.

However for ongoing care, or if the patient's airway is at risk, intubation will be required.

### **Mechanical ventilation**

If patients require assistance with ventilation, they should ideally be placed on a mechanical ventilator. This provides far more consistent and reliable rates, volumes and pressures than ventilation by hand, and frees up staff to deal with other management. Secure the ET tube and place a humidifying filter in the circuit as well as the endtidal CO<sub>2</sub> sensor. A flexible connector helps with connection and to the ventilator and positioning of the tube.

- ➔ Hand ventilation may sometimes be used for children or difficult cases. In these circumstances a reliable experienced practitioner needs to be allocated to this function. It is not helpful to have carefully secured the airway then left the patient being ventilated inappropriately by inexperienced personnel or volunteers.

A range of portable ventilators are available in hospitals and used by transport services. The most common of these are produced by Drager. The Drager 1000 is a simple, easy to use and reliable unit which only requires connection to a medical oxygen source such as hospital, ambulance or aircraft outlets, or to portable cylinders. The Oxylog 2000 and 3000 have more features but require electrical power. Battery life is limited and they have increased levels of complexity. The majority of emergency patients will only require intermittent mandatory ventilation (IMV).

### **Monitoring**

Patients who are ventilated require careful clinical supervision to ensure rates, volumes and pressures are appropriate. They should be monitored with oxygen saturation and capnometry (end tidal CO<sub>2</sub>), plus intermittent blood gases if available. Alarms should be set to warn of disconnection, high or low pressures or failure of the oxygen supply.

- ➔ Use of multifunction critical care monitors is even more important in rural settings than in the city, as staff numbers are often limited and may be less experienced in managing critical care patients. If you have the equipment - use it!
- ➔ The ventilated patient should be under the direct supervision of a medical practitioner with skills to modify ventilator settings, administer drugs, titrate infusion rates, and manage any potential complications which might arise, including extubation. A suitably trained health professional should remain in attendance at all times and an alternate method of ventilation and airway management should be readily available.

### **Paralysis and sedation**

Patients who are being ventilated for transport should be paralysed and sedated to ensure optimal conditions for ventilation and prevent awareness. Pain management is also necessary.

## Care of the ventilated patient

Some general principles and tips for care of the ventilated patient, whilst awaiting transport, are out lined in the section on Tips for Special Groups of Patients.

## Circulation & Fluids

*Most patients undergoing air transport require at least one site of intravenous access.*

*Where patients only require drugs in flight, a well secured intravenous cannula with injection port is best located in the right forearm.*

*More seriously ill patients and those requiring ongoing fluids, blood or drug infusions, need two peripheral intravenous lines, to ensure backup access if one line fails (as commonly occurs).*

Most patients who require air transport will need some form of intravenous access. Some patients may only require intravenous access to enable parenteral drugs to be more easily given, for example, intravenous analgesia, sedation or emergency drugs. Those patients who are fasted, dehydrated or shocked will require a means of providing intravenous fluids as well.

If patients only require access for drugs, then a single intravenous cannula with injection port is sufficient. This is ideally placed in the forearm, avoiding wrist and elbow flexures and well secured. Standard needle-free injection ports such as Smartsite™ minimize the need to use needles in flight. Placement in the right forearm is more accessible, as patients are normally on stretchers located on the starboard side of ambulances and aircraft. Cannulae can be occasionally flushed with normal saline. Heparinised saline is not required.

In general, patients with blood loss requiring reliable and ongoing intravenous fluid resuscitation, or those on essential drug infusions, need two peripheral intravenous lines. This provides a back-up in the common event that one fails during transport. Whilst it is possible to insert intravenous lines during transport, it is better to be prepared. One line in each upper limb, avoiding the back of the wrist, and wrist and elbow flexures, provides the greatest reliability and flexibility.

## Infusions & Giving Sets

*It is helpful if intravenous cannulae can have a multi-flow connector or extension tubing attached, to enable infusion giving sets to be changed easily without disturbing the cannula site.*

*It is helpful to hand over patients with full bags and freshly prepared infusions, to minimize the need to make these up in flight.*

Due to variations in the types of infusion pumps used across the State, it is helpful if intravenous cannulae can have some form of multi-flow connector or extension tubing attached, or at worst, a three-way tap. This makes it easier to change infusion giving sets without disturbing the cannula site itself.

Intravenous fluids are most commonly provided in plastic bags and 500mL bags are usually most convenient and adequate. Drugs in glass bottles can be accommodated if necessary but are best avoided due to risk of breakage.

Considering the duration of transport, it is helpful if patients are handed over at the airport with reasonably full fluid bags and fresh infusions. This minimizes the need to make up new infusions in flight.

## Drugs & Fluids

### Drug Infusion Guidelines

*Standard Drug Infusion Guidelines are available from the RFDS for all common infusions.*

The RFDS publishes clinical guidelines for setting up common intravenous infusions formulated for both 500mL bag and 50mL syringe driver use. Whilst not prescriptive, standardization increases familiarity and minimizes the risk of errors during transport. The guidelines are available on our website, by phoning the RFDS, and can be faxed by our retrieval doctors for individual case scenarios.

### Blood & Blood Products

*Discuss the need for blood products with the RFDS retrieval doctor prior to transport and whether blood can be provided or needs to be brought (uncross-matched) by the retrieval team.*

*Any blood products provided for transport must be packed in accordance with the ARCBTS guidelines and accompanied by complete documentation if cross-matched.*

Some patients require ongoing blood transfusions during transport. These range from acute trauma or surgical patients who may still be bleeding, to those requiring a top-up for chronic blood loss.

If your patient has suffered a significant haemorrhage, you should discuss with the retrieval doctor whether cross-matched blood products can be provided for transport by your hospital, or whether the retrieval team should bring uncross-matched blood for emergency use.

If blood is to be provided "just in case", this should also be discussed with the RFDS retrieval doctor prior to flight. It is essential that blood is packed for transport according to Australian Red Cross Blood Transfusion Service (ARCBTS) guidelines, and not just put in a foam "Esky". This meets air transport requirements and ensures that if it is not used, it can be safely passed on to a Transfusion Lab at the receiving hospital for further use and will not be discarded. Posters are available from the ARCBTS in Perth outlining the correct packing procedures for country hospital staff.

If Fresh Frozen Plasma is required this should also be discussed with the retrieval doctor and provided appropriately thawed.

When any cross-matched blood products are supplied, the appropriate documentation needs to be supplied.

### Drugs in Flight

*Confirm all medications which the patient is receiving when referring for transport.*

*Provide details of drugs required in flight and ensure they are supplied with the patient.*

Many patients require medication to be administered in flight. Ideally, if regular drugs such as antibiotics are almost due, they should be given prior to transfer, to minimize our in-flight workload.

RFDS carries a comprehensive but nevertheless limited range of emergency drugs routinely on the aircraft. Specific drugs required during transport need to be supplied when the patient is handed over. Copies of drug charts should be provided routinely with transfer documents to confirm when medications were last administered and ensure continuity of care. Information on allergies is also essential.

The requirement for drug treatment in flight and details of each agent and dose need to be provided to the assessing RFDS doctor when the transfer is requested, as treatment given in flight is ultimately the responsibility of the supervising RFDS doctor.

### **Analgesia**

Patients being transported are exposed to movement which can exacerbate the pain from fractures and other injuries. Ideally analgesia is provided prior to the ambulance journey to the airport and the subsequent transfer between stretchers and loading onto the aircraft.

Large doses of narcotic analgesia immediately prior to transport should be avoided, unless there is an appropriate escort on the ambulance and airway management available. Caution is necessary with obtunded patients and those who are shocked.

Small doses of intravenous analgesia are reliable and quick acting in contrast to intramuscular injections. In-flight analgesia is almost always given by regular small intravenous doses of narcotics thus the requirement for intravenous access. Innovative options such as intranasal Fentanyl may be considered in some circumstances such as paediatric analgesia.

Pain relief may be augmented through proper splinting and the use of regional anaesthetic blocks. These can be inserted in the referring hospital using a long acting local anaesthetic agent and provide comfort without the side effects of narcotics for prolonged periods.

We consider it prudent not to top up epidural catheters in the transport environment.

### **Escorts and Infusion Devices**

Patients requiring drug infusions require a suitable escort on the ambulance to the airport and an infusion controlling device. This is to ensure drugs are administered accurately in a continuous manner, and that any complications of drug treatment or the underlying condition can be dealt with between hospital and the airport. Apart from supervising treatment, an escort provides valuable information at handover.

An RFDS retrieval team does not come into the hospital in all situations and there remains a duty of care for the referring doctor and health service to safely transport the patient to the airport.

We would expect a registered nurse or medical practitioner to accompany patients receiving anti-arrhythmics, inotropes, anaesthetic agents, tocolytics or blood products by continuous infusion. It is our view is that all patients receiving a drug by a continuous infusion should have an additional suitable escort provided. However whether infusions containing Heparin, GTN or antibiotics are escorted, is ultimately a duty of care matter for the referring practitioner.

### **Sedation**

Most commonly sedation is used for disturbed mental health patients. Midazolam alone is not usually the most suitable agent in these cases. A major tranquilizer such as Haloperidol or Olanzapine in combination with a benzodiazepine such as Midazolam or Diazepam, is usually more effective in obtaining longer duration sedation and suppression of agitation.

As with all sedation, monitoring and care of the airway is imperative at all stages of transport.

## Documentation

Transporting the patient alone is only part of the job. Transferring all their documents and investigation results is also important to ensure that the receiving hospital does not need to duplicate investigations and can continue to provide appropriate treatment.

***Ensure that patients are accompanied by all appropriate documentation. This assists transport staff in providing ongoing treatment, as well as the receiving hospital.***

***Patients should be accompanied by an RFDS Flight Registration Form plus an appropriate referral letter, copies of relevant hospital medical records and results of investigations and x-rays.***

***A convenient RFDS Transport Envelope and checklist is provided to help collate all these documents.***

## RFDS Registration Form

A book of forms is provided to all hospitals and other regular referring locations. The cover outlines the simple steps involved in contacting the RFDS for transport. The single sheet forms inside provide a means of confirming the essential patient identifying details and a summary of the observations, treatment and general clinical condition at the time of referral.

It is preferable if this form is completed prior to calling the RFDS as the clinical details it contains match the details we will request when assessing the request. That is, our medical staff use standardized flight assessment forms, which mirror in layout and content, the basic details on the form provided to hospitals. A flight request can thereby be processed in the quickest and most efficient manner if all details are at hand.

The forms are in quadruplicate, with the original white copy going to the receiving hospital, and the blue copy retained by RFDS for our medical records. The pink copy is provided to St John Ambulance as a source of patient identifying data. The yellow copy may be included in the medical record of the patient in the referring location, or kept in the book as a form of register of all patients referred to RFDS for transport.

Apart from sending out the top three copies of this single patient registration document, there is other important documentation which should accompany the patient.

Relevant documents to accompany the patient include, but are not limited to:

- RFDS patient registration form (white, blue and pink copy)
- A referral letter from the treating doctor outlining history, investigations, diagnosis and current treatment

Copies of medical records including:

The image shows a sample of the RFDS Flight Registration Form. The form is divided into several sections: 'BASIC DETAILS: TODAY'S CASE' (including patient name, age, sex, height, weight, and location), 'CLINICAL DETAILS' (with checkboxes for symptoms like syncope, dizziness, chest pain, etc.), 'VITALS' (with checkboxes for pulse, blood pressure, oxygen saturation, etc.), and 'CURRENT MEDICATIONS'. The form is designed to be filled out by medical staff at the referring location.



## Transporting Your Patient

- Inpatient medical and nursing progress notes,
- Observation charts
- Medication charts
- Fluid balance charts
- Pathology results
- Cross-matching results
- Radiology reports and original films if possible
- Operative notes
- Relevant past notes and discharge summaries

Other items not to be overlooked include:

- False teeth and dental appliances
- Spectacles
- Hearing aids
- Prosthetics and other appliances
- Valuables and personal identification
- Medications & Insulin pens

You should send relevant original x-rays, if this will assist with management of the patient during transfer and at the receiving hospital. Even if they haven't been formally reported yet, they aren't much use to you once the patient has been transferred!

## Transfer Envelope

An RFDS Transfer Envelope is available to all country hospitals. This not only provides a checklist of items to accompany the patient but provides a single resealable envelope to hold all relevant patient documentation. We encourage you to use this to avoid loose papers going astray during transport. Additional supplies are available by phoning the RFDS.

## Consent

We assume that conscious mentally sound patients are able to consent to transport and treatment. Where there are issues relating to resuscitation orders, or refusal of certain forms of treatment on religious or other grounds, then these need to be brought to our attention when the patient is referred for transport and the patient accompanied by relevant documentation.

Blood products will not be administered to Jehovah's Witnesses where they are conscious and refuse consent, or if unconscious but have a current wallet card declaring their requirements. Children are normally accompanied by a parent or guardian wherever possible. Issues may arise when this is not the case and any supporting documentation such as written parental consents to treatment or surgery would be helpful to us and the receiving hospital.

## Mental Health Patient Documentation

A large number of mostly involuntary mental health patients are carried by RFDS every year. These patients generally have Forms 1 and 3 under the Mental Health Act 1997 but there are



The image shows a yellow 'TRANSFER ENVELOPE / PRE FLIGHT CHECK LIST' form from the Royal Flying Doctor Service (RFDS) Western Operations. The form is designed to be filled out by medical staff to ensure all necessary items are packed for a patient's transport. It includes fields for the patient's name and flight details, and a checklist of items categorized into 'ALL PATIENTS' and 'SPECIFIC PATIENTS'. The 'ALL PATIENTS' section includes items like medications, documentation, X-rays, CTs, ultrasound, IV access, bladder, valuables, and nutrition. The 'SPECIFIC PATIENTS' section includes items for ventilated patients, mental health patients, chest trauma, spinal patients, eye injuries, fractures, and additional documentation. At the bottom, there is a section for 'Checked By' and 'EMERGENCY & MEDICAL CALLS: 1800 625 800'.

a range of other Forms which may be relevant, such as Forms 7 or 11. (See Section on Mental Health Transfers).

It is important to confirm what Forms a patient is on, when referring to us for treatment. Mental Health patients transferred on a voluntary basis can leave the aircraft and abscond at intermediate stops, or in Perth, and we are powerless to prevent this. Voluntary patients should normally be referred for transport by other means such as private transport, public transport or commercial flights.

It is worth noting that if a patient's condition changes, such that they should no longer be an involuntary transfer (organic medical condition diagnosed, or suitable for voluntary transfer), then Mental Health Forms may be rescinded by the referring practitioner. (Refer to *Clinicians' Guide to the Mental Health Act 1996*. Office of the Chief Psychiatrist. 2009)

## Baggage & Meals

*Only a small bag containing minimal personal items can accompany patients on aeromedical flights - definitely not suitcases.*

*Carriage of dangerous and flammable goods is restricted, as it is on airlines.*

*Biological specimens must be appropriately packaged to prevent leakage and contamination of the aircraft and occupants.*

*Light snacks and drinks for patients (and RFDS staff) are always appreciated.*

## Luggage

There is limited space on board aeromedical aircraft and no dedicated luggage area. Only minimal personal belongings can be carried. Suitcases cannot be carried and a small overnight bag is the usual maximum.

## Dangerous Goods

Staff preparing patients for transport should understand that the normal restrictions which apply to carriage of dangerous goods on airlines, also applies to aeromedical flights. Dangerous items such as matches, lighters, gas cylinders or other flammable liquids, large knives or weapons must not be brought on board aircraft. Pilots are entitled to search patient baggage.

## Biological Specimens

Likewise specimens and biological substances (with the exception of blood products for transfusion) must be safely packaged to prevent spillage and contamination.

## Meals

Most aeromedical flights last for a few hours and may require diversions to additional locations whilst en route. On long distance flights from the northwest, patients may be in transit for up to 12 hours. The RFDS has no facility to provide meals in flight. It is extremely helpful for your patient's comfort and well-being if you are able to provide something to eat and drink. Sandwiches, snacks, fruit and drinks such as water bottles or juice boxes are ideal. Any spare meals are also appreciated by RFDS staff!

## Relatives

***We cannot routinely carry relatives or any significant baggage.***

Aircraft used for aeromedical transport have limited seating capacity and payload, especially when undertaking long distance transfers across Western Australia. There is a maximum take-off weight for the aircraft and every extra kilogram loaded means less fuel which can be carried. This can cause problems when adverse weather requires additional fuel to be carried to enable holding, or landing at alternate airports.

Unnecessary passengers or baggage on the aircraft may prevent it being diverted to another urgent case en route, or require an intermediate stop for refuelling - thus delaying arrival at the patient's ultimate destination.

More passengers on an aircraft reduce the space available for staff to move around and care for patients routinely and to perform effectively in a resuscitation scenario. If they become air sick they become an additional liability.

As a general principle we do not carry relatives of patients other than a single parent or guardian of a child, or an essential carer or relative in special circumstances. Whilst it may be possible to accept a relative upon arriving at the airstrip, this is by no means certain. Relatives should not be given unrealistic expectations of travelling on medical aircraft. In many cases, if they travel by private means or commercial aircraft, they may well arrive at the receiving hospital in a similar time frame.

Where a relative is carried, we reserve the right to offload them at an intermediate destination, if we need to attend to another emergency patient.

## Handover

***It is more efficient for patients to be picked up at the airstrip.***

***A medical team will only go in to the hospital for complex unstable patients.***

***Some urgent patients cannot be 'stabilized'. Much time can be saved if they are brought to the airstrip also.***

***Patients should be properly monitored, escorted and handed over.***

***Escorts should be able to manage predictable complications which may occur.***

The RFDS has long-standing expectations of clinical escorts and handover processes based on many decades of air transport experience and an understanding of things which commonly go wrong.

It is both a professional courtesy and good clinical practice to ensure patients are properly handed over. Patients who justify an expensive air transfer usually warrant having an escort to the airport, in addition to ambulance personnel, and a comprehensive clinical handover.

Our expectation of all hospitals is that patients are brought to and handed over at the airport. Hospitals and referring practitioners accept responsibility for their care up until that time. At the destination end, RFDS accepts responsibility for the handover and escort arrangements to the destination hospital.

In the case of seriously ill patients, the retrieval team will come in and a handover will usually involve treating medical and nursing staff in the referring hospital. The main benefit of a team coming in to a hospital is when there is further resuscitation and stabilization required, or the patient already has numerous complex interventions (lines, infusions etc.) which are best sorted out in a hospital environment rather than at an airstrip. A disadvantage is that the aircraft and team are unavailable for other tasks for an additional 1-2 hours, so that other patients and hospitals around the State are kept waiting longer. Planning is required as we are unable to leave another patient on the aircraft if we have to come in.

It is always appreciated if referring doctors make themselves available to handover at the hospital but we understand that other clinic commitments, and self-preservation in the middle of the night, mean this is not always possible. Good clinical notes, a clear telephone referral in the first instance and nursing staff able to provide an update on the patient's treatment and progress, are an appropriate alternative.

Some patients are time critical and cannot be further "stabilized" (for example, an acute extradural haematoma, leaking abdominal aortic aneurysm, advanced preterm labour). In these instances we will ask that the patient be brought to the airport whenever possible, to avoid the additional 1½ - 2 hour delay involved in a retrieval team coming in to the hospital. This will require the referring doctor and nursing staff to arrange for packaging and transport to the airport but ultimately means urgent patients reach definitive care nearly 2 hours earlier.

With many ambulance sub-centres being staffed by volunteers, it is difficult to obtain a comprehensive clinical handover unless there is at least a registered nurse, familiar with the patient, able to provide this. Handover of documentation, clarification of drug orders, infusions and patient progress are all helpful and relevant.

The normal process at handover involves the Flight Nurse entering the ambulance and recording a set of standard observations, accepting a clinical handover of the patient and notes from the escort, attaching a vital signs monitor and swapping over infusions, giving sets and infusion devices.

The patient is then transferred out of the ambulance, moved onto the aircraft stretcher and loaded into the aircraft. Assistance with each of these phases of transfer is appreciated.

***It is helpful if the ambulance remains at the airstrip till the aircraft has safely departed, in case a problem with the patient or aircraft arises.***

The ambulance and escorts should preferably not leave the airstrip until the aircraft is airborne. Situations have arisen where the patient deteriorates, or there is an unexpected aircraft problem, which results in an aborted takeoff.

The expectation is that any escorts are reasonably able to manage predictable complications which may occur during transfer to the airport. This might include administration of drugs such as analgesics, anticonvulsants, acute cardiac life support agents, the management of infusion devices, or management of complications such as transfusion reactions or even delivery of a premature infant.

- The period between leaving care in a hospital and handover to an RFDS aircraft should not be a void in which the patient is at risk. Appropriate monitoring should occur. In the case of cardiac patients this must include continuous ECG monitoring with a defibrillator readily available. Respiratory patients should have pulse oximetry as a minimum and most seriously ill patients would benefit from comprehensive ongoing vital signs monitoring of blood pressure, pulse rate, oxygen saturation and ECG.

Obstetric cases should have a midwife escort able to monitor the rate and strength of contractions, fetal heart rate, or post-delivery fundal height and PV losses.

## Coordination & Arrival Times

We are unable to give you an exact arrival time when you call as there are many factors to consider and usual multiple patients being prioritized. The RFDS should be able to give you a rough estimate, particularly for urgent cases. Otherwise you should ask them to call you back.

Our normal procedure is to notify you, or the staff of the referring hospital, as soon as our aircraft is airborne. In this situation our estimated time of arrival (ETA) is usually very accurate.

***We cannot give you an accurate arrival time until the aircraft has actually departed.***

***You should discuss the estimated arrival time with the RFDS doctor to ensure it is reasonable for your patient, and consider alternatives if it is not.***

If we have to pick up another patient first, or the flight time is very short, we may have less time to notify you of our ETA than is desirable. We will do our best to provide advance warning of arrival.

If we are delayed by the patient at the first location, our ETA for a subsequent location will be delayed, as will other flights waiting. It is therefore imperative to minimize delays whenever possible. Please try to get your patients to the airstrip on time.

If we are preparing to depart for your patient and another more urgent call comes in, we may divert the aircraft to that patient, in which case we will advise you of the delay.

We work in an environment of pilot flight duty time limitations and constantly changing priorities. If you have not heard back from us or wish to have an update on when the aircraft may arrive, please call.

***Please try to get your patients to the air strip on time to prevent delays for others.***

***Please notify us of any significant changes in your patient's condition, which may alter how we do things..***

Likewise, please notify us of significant changes in your patient's condition as we may divert an aircraft to respond more urgently or need to put additional equipment or personnel on the aircraft.

In planning flights involving multiple sectors, we will make a choice of which patient to collect first. It may be that a more serious patient is collected last, to minimize the time they spend flying around the skies.