

# **STARS<sup>®</sup>**

## **SCENE TEAM MANUAL**





# MISSION STATEMENT

The **Alberta Shock Trauma Air Rescue Society (STARS)** is dedicated to providing a safe, rapid, highly specialized emergency aeromedical transport system to critically ill and injured patients



## **STARS Scene Team Manual**

Your guide to working with STARS...

The STARS Scene Team Manual has been developed for individuals and agencies responsible for patient management, safety and working with STARS Air Rescue.

The Scene Team Manual provides critical information on landing zone operations, patient transport and management, as well as essential services for activating STARS to a scene call.

# STARS<sup>®</sup>

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# INTRODUCTION

IN 1984, SOUTHERN ALBERTA DID NOT HAVE A DEDICATED helicopter ambulance service. Ground and fixed wing air ambulances were the usual transportation methods for patients — no matter how critical their condition. Dr. Greg Powell, STARS President and CEO, and his colleagues became progressively concerned by what they saw as “needless deaths”. They felt it was taking too long to transport rural patients to the larger urban hospitals.

The death of a young woman who died as a result of bleeding after giving birth to a healthy normal baby sparked the first steps. Her prolonged care and transport time were significant contributors to the tragic outcome.

Work began on the STARS program by a group of dedicated and passionate volunteers comprised of physicians, paramedics and nurses who wanted to make a difference. Backed by strong support from the Lions of Alberta Foundation, a committed aviation provider for a helicopter based in Calgary, and volunteers, STARS was able to fly its first mission on December 1, 1985. At the request of the Edmonton medical community, the Edmonton base was opened in September 1991 to serve the central part of the province.

Since inception, STARS has flown over 14,000 missions. STARS is unique in Alberta in having five helicopters that remain exclusively dedicated to the transport of the critically ill and injured. Our Air Medical Crews are available at each base 24 hours a day, seven days a week and can be in the air within eight minutes of dispatch. The Air Medical Crew includes an advanced life support paramedic, a critical care nurse and a Referral Emergency Physician (REP).

The REP provides online medical control during all missions and participates as a flight crew member on approximately 20-25 per cent of patient transports.

The paramedics and nurses are highly dedicated and skilled individuals who volunteer part of their time to STARS. They hold part or full-time positions with high performance advanced life support emergency medical services (EMS) and major hospital critical care departments including emergency, intensive care unit (ICU) and cardiac care units (CCU).

During each mission, the Air Medical Crew is supported by a sophisticated emergency medical communications centre and communications specialists.

When required, the STARS helicopter is used to transport specialty teams to assist special patient populations. These include Pediatric Intensive Care Unit (PICU) teams for pediatric patients (<17 years old), Neonatal Intensive Care Unit (NICU) teams for newborn patients (<28 days old) and the Calgary Fire Department Aquatic Dive Team. One Air Medical Crew member assists the specialty teams during these missions.

The STARS helicopter pilots work full time at our bases. Our captains are highly experienced and have a minimum of 3,000 helicopter flying hours. STARS captains are Air Transport Licensed and all pilots are Instrument Flying Rated, as well as the use of Night Vision Goggles.



# INDICATIONS FOR STARS

AIR TRANSPORTATION SHOULD BE CONSIDERED WHEN EMERGENCY CARE PERSONNEL HAVE EVALUATED INDIVIDUAL CIRCUMSTANCES AND FOUND:

## GENERAL CRITERIA

- The patient requires critical care life support (invasive procedures, specific equipment, etc.) during transport that is not available locally
- The patient's clinical condition requires that the time spent out of the hospital (in transport) be as short as possible.
- The potential for delays which may be associated with ground transport including road obstacles and traffic, is likely to worsen the patient's clinical status.
- The patient is located in an area which is inaccessible to regular ground transport.
- The use of a ground transport team would leave the local area without adequate EMS coverage or physician coverage when the patient needs physician escort.

## TRAUMA PATIENTS

- The patient fell from a height of greater than two metres (six feet).
- The patient experienced a critical penetrating injury.
- The patient experienced a scalping or de-gloving injury.
- The patient experienced a severe hemorrhage. Included are those patients with a systolic BP of less than 90 mmHg after initial volume resuscitation and those requiring ongoing blood transfusions to maintain a stable blood pressure.
- The patient experienced major burns of the face or thorax with the potential for or clearly evident airway or inhalation injury.
- The patient suffered injuries to the face or neck which may result in an unstable or potentially unstable airway and may require invasive procedures (Endotracheal intubation, Nasotracheal intubation, cricothyroidotomy) to stabilize airway.
- The patient had a score from an objective ranking system for trauma (such as the Champion Trauma Score, Revised Trauma Score, CRAMS, Glasgow Coma Scale, etc.) at the scene which indicates a severe injury.
- The patient is a child with multiple traumatic injuries requiring care at a Pediatric Trauma Centre.
- Lengthy extrication of the patient from the accident site and the severity of the patient's injury require delivery of a critical care team to the accident site.
- One or more of the following mechanisms of injury with a motor vehicle accident is present:
  - The patient was ejected from the vehicle
  - Another person in the same vehicle died
  - The patient was thrown from a motorcycle
- The patient is greater than 55 years of age and has multiple traumatic injuries, with or without pre-existent illness, such as diabetes mellitus, coronary artery disease, chronic obstructive pulmonary disease, or chronic renal failure.



- The patient is an adult with a respiratory rate of less than 10 or greater than 30 breaths per minute, or a heart rate of less than 60 or greater than 120 beats per minute.

## **ADULT MEDICAL/SURGICAL PATIENTS**

- The patient experienced a respiratory or cardiac arrest or is experiencing acute respiratory failure not responsive to initial therapy.
- The patient requires continuous intravenous anti-dysrhythmia medications or mechanical ventricular assist device to maintain a stable cardiac output.
- The patient requires mechanical ventilator support or is at risk of having an unstable airway.
- The patient requires immediate invasive therapy for hypothermia.
- The patient has a respiratory rate of less than 10 or greater than 30, or a heart rate of less than 50 or greater than 150, or a systolic BP of less than 90 mmHg or greater than 200 mmHg.
- The patient requires immediate transport in a critical care environment to a medical centre that can perform organ transplantation or procurement.
- The patient is experiencing an acute myocardial infarction, a dissecting or leaking aneurysm, or an acute cerebrovascular accident in evolution.

- The patient is pregnant with a high-risk obstetrical condition and requires urgent transport to a perinatal centre. This is to include the delivery of premature infants.

## **PEDIATRIC PATIENTS**

- The patient is experiencing or has a high risk of developing cardiac dysrhythmia or cardiac pump failure that requires interventions not available at the referring hospital.
- The patient is experiencing or has a high risk of developing acute respiratory failure or respiratory arrest, and is not responsive to initial therapy.
- The patient requires invasive airway procedures (including endotracheal intubation, nasotracheal intubation, or cricothyroidotomy) and assisted ventilation.
- The patient experiences clinical signs of shock including pallor, poor capillary refill, tachycardia, hypotension, or decreased level of consciousness.
- The patient is experiencing any of the following clinical conditions:
  - Near-drowning
  - Status epilepticus
  - Acute bacterial meningitis
  - Hypothermia
  - Acute respiratory failure
  - Multiple trauma



# SEARCH AND RESCUE



**THE CALGARY FIRE DEPARTMENT AQUATIC HELI-RESCUE TEAM AND STARS HAVE DEVELOPED A PARTNERSHIP TO RESPOND TO COLD WATER IMMERSION AND NEAR DROWNING INCIDENTS.**

Established dive teams in their respective areas will receive the first call to respond to the scene; STARS and the Calgary Fire Department Aquatic Heli-Rescue Team will still respond, as the CFD Aquatic Heli-Rescue Team can offer mutual aid / support and the STARS helicopter can offer air medical transport.

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## The scope of this service is as follows:

- Drowning / near drowning patients where the CFD Dive Team and the STARS Air Medical Crew are able to be on scene within 60 minutes of request. This is approximately 150-160 kms from Calgary.
- CFD Dive Team and STARS Air Medical Crew will attempt rescue efforts for up to 90 minutes from known submersion time. After this time, the dive team will change focus to body recovery. (Note: Review of medical literature shows victims submerged longer than this have virtually no chance of survival.)
- **CALL IMMEDIATELY - DO NOT DELAY - PLEASE NOTIFY US AS SOON AS YOU RECEIVE INFORMATION FROM YOUR CALLER.**

To access this service: **Dial 1-888-999-EVAC (3822) or #4567** on cellular. Callers may be linked in with Calgary Fire Department Dispatch and may need to discuss the logistics of the rescue with the CFD Dive Team leader and STARS pilot.

- Please do not delay calling until you are on the scene. Due to the limited window of opportunity for survival in cold water immersion drowning, reporting incidents after Emergency Services has arrived on scene may not allow enough time to effect a successful rescue.
- If you have a vehicle in the water with victims trapped inside, please call a tow truck to the scene immediately, as it may be necessary to remove the vehicle from the water in order to rescue the occupants. **IF ICE IS PRESENT, DO NOT ALLOW THE TOW TRUCK TO DRIVE ONTO IT.**

# HAZARDOUS MATERIALS



Accidents involving hazardous materials require special handling by Fire/Rescue units on the ground. Just as important are the preparations and considerations for helicopter operations in these areas.

Hazardous materials of concern are those which are toxic, poisonous, flammable, explosive, irritating or radioactive. Helicopter crews normally don't carry protective equipment to protect them from hazardous materials.

The STARS crew must be told of hazardous materials on the scene. For the crew's protection, patients who have become contaminated may require special precautions in packaging before loading on the aircraft.

## HAZARDOUS CHEMICALS/GASES

Hazardous chemicals and gases are extremely dangerous to the unprotected person and may be fatal if inhaled or absorbed through the skin.

Upon initial radio contact, the helicopter crew must be made aware of any hazardous gases in the area. Never assume that the crew has already been informed. If STARS were to fly through the hazardous gases, the crew could be poisoned and/or the engines could develop mechanical problems.

Poisonous or irritating gases may cling to a victim's clothing and go unnoticed until the patient is loaded and the doors of the helicopter are closed; the crew is then compromised.

## RADIOACTIVE MATERIALS

Some radioactive materials are more dangerous than others, depending upon the type and amounts of those materials. In general, radioactive materials are difficult to ignite, but will burn and the smoke is toxic to humans.

STARS should be advised if victims may be contaminated by radioactivity.

## HAZARDOUS MATERIAL LANDING ZONES (UPWIND)

When hazardous materials, explosives, poisonous gases/vapours, or chemicals in danger of exploding and burning are on site, helicopter landing zones must be prepared upwind from the hazardous material accident site and never in low-lying areas. The toxic gases or vapours may be heavier than air and gather in low-lying areas. The designated LZ should not involve the helicopter's approach over the scene.

If steam or smoke is involved, they will land in a clear area. The landing site may be further from the scene than in the above examples.



# ACTIVATING SYSTEM FROM THE SCENE

EMS, Fire, Police, Forest/Park Ranger, First Responders, SEARCH AND RESCUE (SAR) and Industrial First Aid may initiate a request for STARS transport by calling the **STARS Emergency Link Centre at 1-888-999-EVAC (3822) or #4567 on cellular**. As well, you will be immediately conferenced with the Provincial Flight Coordination Centre (PFCC) and, as required, with a Referral Emergency Physician (REP) and/or ground ambulance.

Request for standbys can be made when the potential need for STARS exists. Putting the team on standby allows us to place the helicopter in a state of readiness. **THE USE OF A STANDBY REQUEST IS STRONGLY ENCOURAGED**. When requesting STARS, the following information should be given to the communication specialist:

## WHEN ACTIVATING STARS ... BE PREPARED TO COMMUNICATE THE FOLLOWING:

- 1. WHO ARE YOU:**  
Give the service, unit #, and level of medical training.
- 2. CALL BACK NUMBER AND METHOD THAT STARS CAN COMMUNICATE WITH THE SCENE.**
- 3. LOCATION OF OCCURRENCE:**  
Use highway numbers, geographical description or distance to closest town, legal land description (i.e. section, township, range) or global positioning system (GPS) coordinates - latitude and longitude.
- 4. NATURE OF INCIDENT:**  
Mechanism of injury or type of illness and age and weight.
- 5. PERTINENT WEATHER CONDITIONS:**  
Wind, visibility, freezing rain, etc.

**CALL if prevailing weather at the scene is marginal — a decision will be made based on judgement from the duty pilots.**

## BE PREPARED TO COMMUNICATE ADDITIONAL INFORMATION WHEN APPLICABLE:

- **MECHANISM OF INJURY (WHAT HAPPENED)** – Speed of collision; vehicle interior damage; distance thrown or fallen; trapped or crushed; penetrating gunshot; stabbing; explosion/fire; inhalation injury; electrocution; drowning.
- **TYPE OF ILLNESS** – Imminent complicated child birth; internal bleeding; ischemic heart pain - uncontrolled or with dysrhythmia; metabolic imbalance; acute asthma; anaphylaxis; hypoglycemia; overdose; seizures.
- **PERTINENT MEDICAL HISTORY** – Medications; allergies; medical illness; age; weight.
- **NUMBER OF PATIENTS** – Requiring air evacuation.
- **PATIENT CONDITION** – Level of response to verbal/painful stimuli; query deteriorating loss of consciousness; significant wounds or deformity.
- **TREATMENT GIVEN** – What treatment has been given and how has the patient responded.



# STARS EMERGENCY LINK CENTRE®

IN 1996, THE CANADIAN ASSOCIATION OF PETROLEUM PRODUCERS (CAPP) PROVIDED STARS WITH THE funds necessary to establish a communications centre. The STARS Emergency Link Centre has the capability to link any callers to the closest agency.

The goal of the **STARS Emergency Link Centre** is to provide a one-number system for the coordination of emergency response outside of areas serviced by 911, and for referral of patients to the tertiary care hospitals. In areas serviced by 911, the first number to call is 911, and once the emergency call has been processed, the services of the STARS Emergency Link Centre may be utilized. Additionally, the centre monitors the progress of and coordinates activities for our flights.

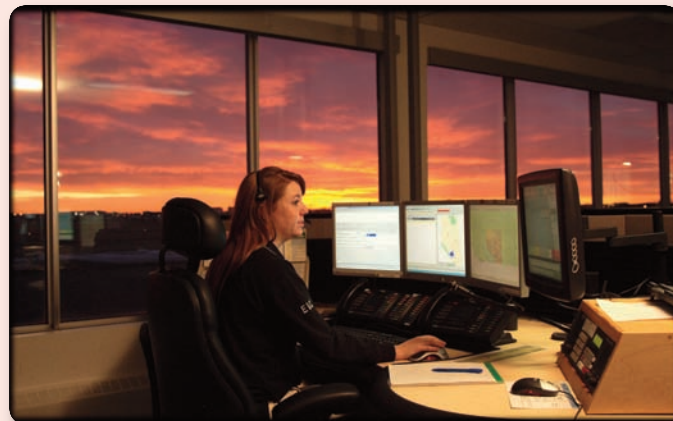
Communication is of the utmost importance. STARS helicopters are equipped with programmable radio equipment. This capability allows the flight crew to program any UHF or VHF frequency to allow direct communication with the requesting parties while in flight, and also allow the pilot to obtain crucial landing zone information assuring safe landing and departure paths.

When your dispatch centre is requesting STARS, please advise us which frequency will be used along with the Landing Zone Officer's identification/designation. This vital information will be relayed to the air crew.

In situations when STARS cannot communicate with ground personnel, such as interference or incompatible frequencies, the requesting party should contact STARS through the STARS Emergency Link Centre at **1-888-999-EVAC (3822) or #4567** on cellular. The centre can patch you through to the STARS aircraft.

Users should know there is no special language or codes used in communicating with STARS. Plain language is used at all times.

In addition, the STARS helicopter can communicate with you over the telephone. Built in airphone equipment allows us to dial to any telephone. We also communicate on the Provincial Ambulance frequency and are capable of communicating with the RCMP on Tac 9.



**When contacting the STARS EMERGENCY LINK CENTRE, it is important to give your exact location. In describing your location, give first priority to highway numbers and range / township road. Alternatively, select landmarks near or at the scene.**

**REMEMBER, THE HELICOPTER IS FLYING OVER AN AREA AT 300 TO 500 METRES (1000 TO 1500 FEET) AND 240KMH (147 MPH) AND CAN EASILY MISS WHAT MIGHT BE OBVIOUS FEATURES FROM THE GROUND.**

**GENERAL** A suitable landing zone (LZ) should be prepared prior to the arrival of the STARS helicopter. The pilots will be relying on the first responders on scene to identify hazards and safely secure the LZ.

The landing zone team are their eyes and ears on the ground; potential hazards, especially during night operations, may not be visible or apparent from the air. When selecting the LZ and completing the site survey, many factors need to be considered, including wind direction (the helicopter normally lands into wind), proximity to obstacles, ease of stretcher transfer to the casualty, debris and dust, traffic control, location of HAZMAT, etc.

A trained Landing Zone Officer (LZO) should be selected from the on scene responders to take responsibility for landing zone (LZ) safety duties. These duties include LZ preparation and hazard identification, the LZ pre-landing report, marshalling, and LZ security.

**INITIAL REQUEST** When making the initial request for STARS, first responders should consider the following:

#### **Location Information**

The scene location information should be as accurate and complete as possible. It should include at least two or more of the following items:

- Highway and intersection identifiers
- Township and range
- GPS co-ordinates
- Distance and direction from major landmarks like towns, river crossings, lakes, etc.

#### **Scene Description**

A description of the scene should be provided to help the pilots quickly identify it from the air once they are within range (roadway, industrial site, farmyard, forest confined area, etc). Distinguishing or unique landmarks which may be visible from the air should be noted. If this information is not available during the initial dispatch it should be provided during the LZ pre-landing report. Weather Limits

STARS may not be able to respond or complete a mission in adverse weather conditions. The following weather conditions or limits will determine the ability of STARS to respond:

**Day (VFR) ceiling & visibility limits:** As low as 800 metres (½ mile) visibility and clear of cloud. In practice, STARS pilots will require 1.6 km (one mile) or more visibility and a cloud base of several hundred feet or more before they will accept a mission. The flight distance,

terrain, weather patterns and patient transport requirements will influence the go/no go decision.

**Instrument flight rules conditions:** The STARS helicopters are fully instrument flight rules (IFR) equipped and capable of flying in cloud or fog to normal IFR limits, which may be as low as 800 metres (½ mile) visibility and a 61 metre (200 foot) ceiling (vertical cloud base) at selected airports (e.g. Calgary, Lethbridge, Edmonton, Grande Prairie). IFR weather limits at hospitals with GPS approach procedures or at smaller IFR airports typically range from 1.6 to 3.2 km (one to two miles) visibility and 91 to 182 metre (300 to 600 foot) ceilings. IFR approaches cannot be flown to scene call locations. The BK117 helicopters are also not capable of IFR flight in icing conditions which may be encountered in cloud or visible moisture above the freezing level.

**Night limits:** Minimum visibility of 4.82 km (three miles); 8 km (five miles) in mountainous terrain; and 457 metres (1500 foot) cloud base above the highest obstacle along the flight route.

**Mountainous terrain:** STARS pilots at selected bases are qualified to fly on night vision goggles (NVG) within mountainous areas (advanced qualification). Flight into mountainous terrain may only be completed along pre-surveyed routes. Landings at scene locations within mountainous areas may be completed within 1.6 km (one mile) laterally of designated NVG routes (some additional restrictions apply).

**EARLY NOTIFICATION** Notify STARS as soon as possible if you believe a rotary-wing transport may be required. By placing the STARS helicopter on pre-alert, the crew will be better prepared to rapidly respond if a dispatch request is confirmed. Early notification will give the pilots more time to check weather, top up the fuel if required, move the aircraft to the launch position, and, if the scene is close in, to start for a hot (rotors turning) dispatch.

**SELECTING A LANDING ZONE** First responders should select a LZ with the following considerations in mind. During the on-scene reconnaissance, the pilots may choose a different landing area if they are uncomfortable with the selected LZ. The total area required for the LZ is approximately 60 x 60 metre (approximately 200 x 200 feet).

**APPROACH & DEPARTURE PATHS** The site chosen for the LZ should allow the helicopter to make a safe approach to and departure from the scene location. Approach and departure paths should be as clear of trees, power and telephone lines, and other

# LANDING ZONE PREPARATION AND GROUND OPERATIONS



potential hazards as possible. When selecting an LZ, be aware that the pilots will want to land and take-off into the wind, or as close to it as possible. Locations which will require the pilots to execute a steep into-wind approach over obstacles should be avoided.

**LANDING AREA** The landing area should be at least 30 x 30 metres (approximately 100 x 100 feet). The LZ surface should be:

- As flat as possible, firm, and free of debris which may blow up into the rotor system;
- Clear of obstructions such as vehicles, trees, poles and wires;
- Free of any stumps, brush, posts, or large rocks which may damage the helicopter or interfere with a safe landing;
- Kept clear of all personnel and vehicles during flight operations;
- Located at least 60 metres (200 feet) away from the accident or patient care location. The LZ should be downwind of the scene if possible unless a HAZMAT incident is involved. If the LZ is located upwind of the scene, the distance to the accident site should be increased as much as possible to avoid having the helicopter downwash create a hazard for the emergency responders or compromise patient care.

## Touchdown Area

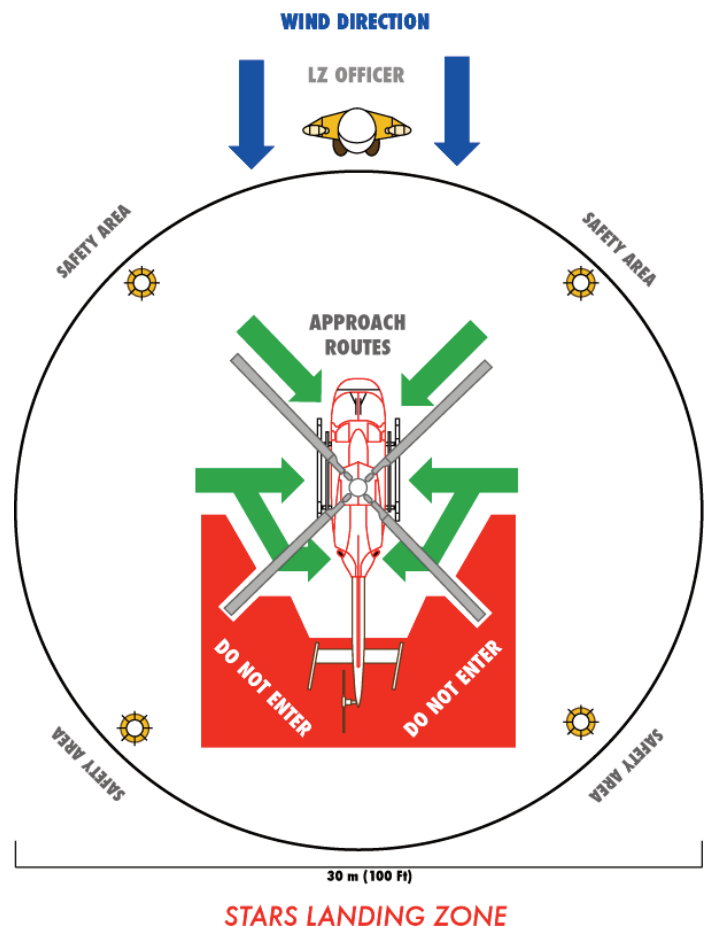
The touchdown area which will support the helicopter landing gear should be flat and clear of all rocks, stumps, curbs, or other irregularities which may snag the skids. The surface slope should be no greater than five degrees in any direction. Safety Area

When possible, an additional 30 metres (100 feet) wide safety area should be secured around the touchdown zone. This area should be kept clear of all non-essential personnel and vehicles.

**LZ MARKING AND LIGHTING** The perimeter of the LZ should be marked or lighted so it will be visible from the air. The four corners and midpoints (if possible) of each side of the LZ should be identified using one or more of the following methods or devices:

- **TurboFlares™** set up four (see illustration →)
- **Weighted Traffic Cones** - for night operations reflective tape and strobe beacons may be used to illuminate the cones

- **Emergency Flares** - may be used for day or night operations. Flares should be closely monitored since they may create a fire hazard if they are blown away from the LZ by the rotor downwash. Flares also emit toxic gases;
- **Headlights** - Two vehicles with their headlights on low-beam pointed to cross at the centre of the LZ may be used in conjunction with a perimeter marker (e.g. traffic cones). The vehicles



should be parked outside of the LZ at the downwind corners with their headlights pointing into wind;

- **Fluorescent Paint** - may be used to mark the LZ perimeter or in the form of a large X. This is especially effective on snow.

**HAZARDS** All obstacles and hazards which might compromise safety during flight operations should be identified:

- **Foreign Object Debris (FOD)** - objects on or near the LZ and safety areas which may damage the helicopter or become an airborne hazard to personnel on the ground should be removed or secured (e.g. plastic tarps, large pieces of sheet metal, plywood, etc.);
- **Wires and Obstructions** - The entire area in the vicinity of the scene should be carefully surveyed for wires or obstructions which may be a hazard to the helicopter during approach or landing. If possible, these hazards should be marked to help the pilots identify them from the air. For example, emergency vehicles with flashing lights may be parked underneath wires which cross the anticipated approach path to the LZ. At night, vehicle search lights should be used to identify poles or towers which may be a hazard. Do not use flagging tape or other markers which may become detached and thrown into the air in the helicopter downwash;
- **Vehicles and Traffic** - All traffic or access routes which underlie or are adjacent to the LZ and approach and departure paths should be blocked and secured during flight operations:
  - Whenever possible, emergency vehicles should be used to create a physical barrier which will block access to the LZ;
  - All traffic (both directions) should be blocked at scene locations on a divided highway unless it is apparent that the helicopter will be able to safely conduct an into-wind approach to the LZ without over-flying or operating in close vicinity to the opposite (non-accident) lanes of traffic;
  - Traffic or access routes outside of the LZ and safety area may be re-opened once the helicopter has landed. The pilots shall

be consulted if emergency vehicles must be moved through the LZ or safety area in close proximity to the helicopter. If permission is granted, the safety pilot will marshal the vehicle as it passes the helicopter while blocking its approach to the edge of the rotor disc. Alternatively, the helicopter should be re-positioned to allow emergency vehicle access.

- **HAZMAT** - The LZ should be located well upwind of any accident sight which involves HAZMAT. The nature of the HAZMAT incident should be investigated prior to the arrival of the helicopter and communicated to the STARS crew during the LZ report so that appropriate protective measure may be taken.
- **Dust or Snow** - Dust, sand, or loose snow blown up by the rotor downwash may reduce visibility and (in the case of dust or sand) damage the helicopter during landing and take-off. The following mitigating measures may be taken:
  - Water down the site to control the dust or sand. The law enforcement officers on site should be consulted prior to watering the LZ in order to ensure that important evidence required for their investigation will not be damaged or obliterated;
  - Park an emergency vehicle upwind and adjacent to the LZ to provide the pilots with a visual reference in white-out winter conditions.
- **Ground Lights** - High intensity vehicle headlights, warning, or spotlights directed at the LZ may damage the pilots' night vision and reduce visibility, especially when NVG are in use. Headlights (unless required for LZ lighting), strobe lights, and search lights should not be directed at the LZ or should be placed on low.

**LANDING ZONE OFFICER (LZO)** A Landing Zone Officer should be assigned to provide LZ security and to marshal the helicopter during landing and take-off. LZO duties include:

**LZ Security** - During flight operations the LZ officer should ensure



the LZ is clear of hazards, vehicles, or personnel. He/she should maintain security until relieved by the safety pilot;

**LZ Report** - Air-to-ground communications should be established with the STARS crew prior to the arrival of the helicopter. The report should include:

**Location of the scene relative to conspicuous landmarks** (i.e. towns, highway intersections, river crossings, etc.);

**Location of the LZ within the scene area relative to conspicuous landmarks or objects** (e.g. on the north-bound lane south of the fire trucks);

**LZ marking or lighting;**

**Nature and location of hazards;** This should include their location relative to the scene and any measures that have been taken to identify them visually (e.g. emergency vehicle parked under wires to the north of the scene).

**Wind direction;**

**Marshalling** - Just prior to the arrival of the helicopter, the LZ Officer should position him/herself on the upwind edge of the LZ with his/her back to the wind. He/she should wear protective clothing including eye protection. Hats or helmets should be secured by chin straps. Only a few signals are required:

**Safe for landing** - As the helicopter begins its final approach the LZ Officer should raise his/her arms above his/her head to indicate that the LZ is safe for landing. As the helicopter approaches to a hover, the Officer should maintain position and crouch while protecting his/her face from debris. The Officer should not move during the landing, especially during low visibility conditions (blowing dust or snow) since the pilots may inadvertently follow him/her and fly into an obstruction;

**Abort** - If the LZ officer feels it is necessary to abort the landing procedure for any reason, he/she should wave the helicopter off by repeatedly crossing his/her arms above his/her head in a waving motion;

**Safe for Take-off** - When the safety pilot re-enters the cockpit and it is apparent the crew is ready for take-off, the LZ Officer should re-confirm that the area is secure, make eye contact with the Captain, and give a thumbs-up signal. The Officer

should then crouch in position while the helicopter takes-off.

## LZ SAFETY

**Ground personnel** should observe the following safety precautions when moving within the vicinity of the LZ:

**Spectators** - Spectators should be kept at least 60 m or more away from the LZ at all times;

**Protective Clothing** - Eye protection should be worn by all personnel who must be near the LZ during flight operations. Helmets and hats must be secured by a chin strap;

**Fire Protection** - If available, fire fighting equipment should be positioned at the LZ during flight operations;

**Approaching the Helicopter** - No one should approach the helicopter after it has landed. The STARS crew will normally be able to unload without assistance. If assistance is required during unloading or loading, ground personnel should wait until they are cleared to approach the helicopter. Emergency personnel should be instructed in the following safety procedures:

- Always approach and depart the LZ via the front quadrants in clear sight of the pilot(s). Never approach from the rear of the helicopter;
- Move beneath the main rotor in a semi-crouched position. Do not raise anything over your head. Long objects should be carried in a horizontal position at waist level. If the helicopter is parked on a slope, approach and depart in the downslope direction;
- Never throw anything while in the vicinity of the helicopter;
- If assisting with loading, stay with the STARS crew. Once the stretcher is at the rear loading doors and you have received a signal that you are no longer required, depart the LZ immediately via the front quadrants (as above);
- Make sure all loose objects (including blankets) are secure;
- Observe and obey all instructions from the safety pilot. Never move behind the safety pilot toward the tail rotor;
- If boarding the helicopter for the return flight, obey all instructions given by the crew. Wait at the edge of the LZ until given the clearance to approach the helicopter. Do not operate the doors.



All Clear



Land Here



Abort Landing

# HAND SIGNALS



# PATIENT PACKAGING

ONCE LANDING ZONE DETAILS HAVE BEEN COMMUNICATED, IT WOULD HELP THE AIR MEDICAL CREW IF YOU WOULD GIVE A BRIEF COMMENT ON THE PATIENT'S CURRENT STATUS

## 1. OXYGEN THERAPY:

- O2 via most appropriate means
- airway management - endotracheal intubation if warranted
- proper tube placement and properly secured
- nasogastric / orogastric tube following intubation (in hospital transfer)

## 2. C-SPINE PRECAUTIONS:

- stiff collar with blanket roll to stabilize the head
- backboard
- blankets outside straps - ensures rapid patient accessibility during transport

## 3. INTRAVENOUS ACCESS:

- two large bore IVs, if possible
- well-secured, exposed sites
- prefer in the left arm if possible, as its accessible for air transport
- splint fractures

## 4. FOLEY CATHETER (in hospital transfer)

## 5. CHEST TUBES:

- taped and well secured,
- Heimlich valves with urine drainage bags attached or pleura-vac

## 6. DOCUMENTATION:

- time of event
- mechanism of injury
- level of consciousness (changes, trend, Glasgow Coma Scale)
- primary/secondary assessments
- vital signs
- fluid status (in & out) including blood products
- allergies, past history, medications
- tube sizes
- photocopies of chart, lab x-ray results
- next of kin (notified and/or phone number)



**NO PERSONAL EFFECTS PLEASE**



### **EQUIPMENT RETURN**

Equipment will be cleaned, packaged and returned as per sender's specific requests. Please call STARS if you are missing equipment from previous STARS missions.



The BK117 is specifically designed for EMS operations and can be quickly loaded. The aircraft comes equipped with rear loading clam shell doors. The clam shells are opened while the aircraft remains running. The design of the main rotor system is such that it does not present a height hazard and the tail rotor is guarded by one of the two pilots.

Patients are loaded into the helicopter without lifting them or removing them from the wheeled stretcher.

Typically one patient is carried on board at a time. The helicopter can be configured for two patient transportation. Equipment is carried aboard for this operation and the pilots can reconfigure the aircraft within minutes.





## **MISSION REVIEW FORMS**

The following five pages are examples of the STARS Mission Review Forms. These forms are distributed by our crew following a mission.

Valuable feedback is taken from returned forms, which enables STARS to continuously provide exceptional care and service with in our community.

## **FAMILY FORMS AND MAPS**

Essential services maps for Calgary, Edmonton and Grande Prairie (page 27) and the Family Forms (page 30) are provided to our patients' families and friends as an informative guide.

Information, specific to each mission, is included on these forms to assist the patients' support network once the mission is completed.

# STARS

## REFERRING PHYSICIAN

Date of Mission: \_\_\_\_\_ TIME: \_\_\_\_\_

Contact Person/ Position: \_\_\_\_\_

Hospital: \_\_\_\_\_

# MISSION REVIEW

### Transport System Activation & Communication:

- Access to ...  
CALGARY - Southern Alberta Referral and Coordination Centre (SARCC) 1-800-661-1700;  
EDMONTON and GRANDE PRAIRIE - Critical Care Line (CCL) 1-800-282-9911  
... was simple and readily available. Y  N
- Rapid access to Tertiary Care/Flight Physician for patient management/transport discussion occurred. Y  N
- Was crew composition made clear prior to dispatch? Y  N
- Was a rapid decision regarding mode of transport made? Y  N
- Were additional calls required? Y  N

### Patient Care & Transport

- The Air Medical Crew were courteous and attentive to report. Y  N
- STARS Air Medical Crew worked in an efficient and timely fashion to transport the patient from your facility. Y  N

### Reason For Air Transport

1. Was the primary reason for initiating air transport related to lack of comfort with any of the following:  
 Obtaining central venous access       Performing intubation  
 Evaluation of head or spinal injury       Preparing the patient for safe transport  
 Other: \_\_\_\_\_
2. In managing this case please indicate which, if any of the following you performed:  
 Central venous access       Intubation with/without RSI  
 Evaluation of head or spinal injury       Prepared the patient for safe transport
3. If you asked for attendance directly by a flight physician, was it related to lack of comfort with any of the following: (Please omit if not applicable)  
 Obtaining central venous access       Performing intubation with/without RSI  
 Evaluation of head or spinal injury       Preparing the patient for safe transport  
 Other: \_\_\_\_\_

Suggestions for improvement: \_\_\_\_\_

- Have you completed the General Emergency Medicine Skills (GEMS) program? Y  N   
    ▶ If no, please go to [www.rpap.ab.ca](http://www.rpap.ab.ca) and click on *Support for Practicing Physicians* for information on the program.

If you would like the opportunity to discuss the call with the Air Medical Crew or Transport Physician, please call the STARS EMERGENCY LINK CENTRE at 1-888-999-EVAC (3822).

- Is faxing the best way to receive and send the Mission Review Y  N

Or would you prefer email  phone call  website form  mail

Current as of MAY 2007

We work diligently to evaluate our program effectiveness and to identify opportunities to enhance patient care and transport; with your comments, we can work in unison to provide the best possible care available.

Thank you for taking the time to complete this evaluation. Your comments are greatly appreciated.

Please fax your feedback to the attention of the Outreach Program Leader

Calgary Base: (403) 275-4891

Edmonton Base: (780) 447-5493

Grande Prairie: (780) 830-7009

Your comments will be kept confidential.

**Date of Mission:** \_\_\_\_\_ **TIME:** \_\_\_\_\_

**Receiving Centre:** \_\_\_\_\_

**Contact Person/ Position:** \_\_\_\_\_

# STARS

# MISSION REVIEW

**Transport System Activation & Communication:**

- The dispatch process was efficient & easy to follow. **Y**  **N**
- Did we call with an updated ETA & request for a patient update. **Y**  **N**
- Suggestions for improving transport system activation & communication:

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**Patient Care & Transport:**

- The Air Medical Crew:
  - were courteous and attentive to report **Y**  **N**
  - introduced themselves to the patient **Y**  **N**
  - spoke with the family prior to departure **Y**  **N**
- You and your staff felt STARS crew worked in a timely fashion to transport the patient from your hospital **Y**  **N**
- Equipment from your hospital was sent with the patient **Y**  **N**

Please list: \_\_\_\_\_

Suggestions for improving patient care & transport:

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**We would like the opportunity to debrief the call with you.**

**If a crew member does not contact you within four hours, please call the STARS EMERGENCY LINK CENTRE at 1-888-999-EVAC (3822) and ask for the Air Medical Crew.**

- Is faxing the best way to receive and send the Mission Review **Y**  **N**   
*Or would you prefer* **email**  **phone call**  **website form**  **mail**

Current as of MAY 2007

We work diligently to evaluate our program effectiveness and to identify opportunities to enhance patient care and transport; with your comments, we can work in unison to provide the best possible care available.

Thank you for taking the time to complete this evaluation. Your comments are greatly appreciated.

Please fax your feedback to the attention of the Outreach Program Leader

Calgary Base: (403) 275-4891

Edmonton Base: (780) 447-5493

Grande Prairie: (780) 830-7009

Your comments will be kept confidential.



Date of Mission:

TIME:

Contact Person/ Position:

Hospital:

# STARS

# MISSION REVIEW

## Transport System Activation & Communication:

- The dispatch process was efficient & easy to follow. Y  N
- Was communication established prior to landing. Y  N
- Suggestions for improving transport system activation & communication

## Patient Care & Transport

- The Air Medical Crew:  
were courteous and attentive to report. Y  N
- assisted you & your crew in expediting pt. treatment. Y  N
- Equipment from your service was sent with the patient. Y  N

Please list:

- Suggestions for improving transport system activation & communication

**We would like the opportunity to debrief the call with you. If a crew member does not contact you within four hours, please call the STARS EMERGENCY LINK CENTRE at 1-888-999-EVAC (3822) and ask for the Air Medical Crew.**

**If your department would like a landing zone in-service please call the Outreach Team Leader for your area.**

- Is faxing the best way to receive and send the Mission Review Y  N   
Or would you prefer email  phone call  website form  mail

Current as of MAY 2007

We work diligently to evaluate our program effectiveness and to identify opportunities to enhance patient care and transport; with your comments, we can work in unison to provide the best possible care available.

Thank you for taking the time to complete this evaluation. Your comments are greatly appreciated.

Please fax your feedback to the attention of the Outreach Program Leader

Calgary Base: (403) 275-4891

Edmonton Base: (780) 447-5493

Grande Prairie: (780) 830-7009

Your comments will be kept confidential.

# FIRE SERVICE

**Date of Mission:** \_\_\_\_\_ **TIME:** \_\_\_\_\_

**Emergency Service:** \_\_\_\_\_

**Location of Scene Call:** \_\_\_\_\_

**Contact Person/Position:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_

# STARS

# MISSION REVIEW

- Were communications established with helicopter prior to landing? **Y**  **N**
- Landing zone setup problems/difficulties? **Y**  **N**

Comments: \_\_\_\_\_

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- Hazardous situations? **Y**  **N**
- Approximately how long before/after the helicopter arrived was the LZ ready? \_\_\_\_\_ Min.
- LZ marked with **pylons, turbo flares, strobes, headlights** (circle), **other** \_\_\_\_\_
- LZ Officer acted as Marshall
- Or LZ Officer assigned another person as Marshall
- Landing zone was relocated or helicopter landed outside LZ

Suggestions: \_\_\_\_\_

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Current as of MAY 2007

We work diligently to evaluate our program effectiveness and to identify opportunities to enhance patient care and transport; with your comments, we can work in unison to provide the best possible care available.

Thank you for taking the time to complete this evaluation. Your comments are greatly appreciated.

Please fax your feedback to the attention of the Outreach Program Leader

Calgary Base: (403) 275-4891

Edmonton Base: (780) 447-5493

Grande Prairie: (780) 830-7009

Your comments will be kept confidential.

- If you would like to discuss any issues, please call the STARS EMERGENCY LINK CENTRE at 1-888-999-EVAC (3822) and ask for the pilots.

**If your department would like a landing zone in-service please call the Outreach Team Leader for your area.**

- Is faxing the best way to receive and send the Mission Review **Y**  **N**
- Or would you prefer **email**  **phone call**  **website form**  **mail**

# TRANSPORT PHYSICIAN

Date of Mission: \_\_\_\_\_ TIME: \_\_\_\_\_

Referring Centre: \_\_\_\_\_

Receiving Centre: \_\_\_\_\_

Crew: \_\_\_\_\_

Flight Physician: \_\_\_\_\_

# STARS

# MISSION REVIEW

### Transport System Activation & Communication:

- The source of initial contact if other than the ELC: \_\_\_\_\_
- Your cellular phone / pager was on and working properly? **Y**  **N**   
*If no, please contact the Link Centre at 299-0935.*
- All equipment on the helicopter was functioning properly. **Y**  **N**   
*If no, please ensure duty crew is aware or phone the Link Centre at 299-0935.*

### Patient Care and Transport:

- Rotary Wing Air Transport was the most appropriate form of transport for this patient. **Y**  **N**   
*If no, what would have been appropriate?*  
**Ground**  **FW**  **No Transport**
- On initial triage of call, a Transport Physician presence was required on the mission. **Y**  **N**   
*If yes, why?* \_\_\_\_\_
- In retrospect, a Transport Physician directly contributed to the patient's care. **Y**  **N**   
*If yes, how:* \_\_\_\_\_

- Suggestions for improved mission performance:  
*[i.e., patient assessment, procedures, communication, report and documentation]*  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Please contact the sending MD to debrief the call, if you have not already done so (as required).

- Is faxing the best way to receive and send the Mission Review **Y**  **N**   
*Or would you prefer* **email**  **phone call**  **website form**  **mail**

Current as of MAY 2007

We work diligently to evaluate our program effectiveness and to identify opportunities to enhance patient care and transport; with your comments, we can work in unison to provide the best possible care available.

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Please fax your feedback to the attention of the Outreach Program Leader

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Edmonton Base: (780) 447-5493

Grande Prairie: (780) 830-7009

Your comments will be kept confidential.

# CALGARY

## Calgary Health Region

### 1. STARS

1441 Aviation Park NE | Calgary, Alberta | T2E 8M7

Administration 295-1811

### 2. FOOTHILLS MEDICAL CENTRE

1403 - 29 St. SW | Calgary, Alberta | T2N 2T9

Emergency 944-1315 | ICU 944-1464 | CCU 944-1513

### 3. ALBERTA CHILDRENS HOSPITAL

2888 Shaganappi Trail NW | Calgary, Alberta | T3B 6A8

Emergency 955-7070 | ICU 955-7074

### 4. ROCKYVIEW HOSPITAL

7007 - 14 St. SW | Calgary, Alberta | T2V 1P9

Emergency 943-3449 | ICU 943-3446 | CCU 943-3444

### 5. PETER LOUGHEED HOSPITAL

3500 - 26 Ave. NE | Calgary, Alberta | T1Y 6J4

Emergency 943-4999 | ICU 943-5724 | CCU 943-4321

**area  
code  
4 0 3**

## PLEASE...DRIVE CAREFULLY



## 1. STARS

Bldg. #16, City Centre Airport 29 Airport Road | Edmonton, Alberta | T5G OW6

Administration 447-5492

## 2. ROYAL ALEXANDRA HOSPITAL

10240 Kingsway | Edmonton, Alberta | T5H 3V9

Emergency 735-4444 | ICU 735-4523 | CCU 735-5701

**area  
code  
7 8 0**

# EDMONTON

## Capital Health

## 3. UNIVERSITY OF ALBERTA HOSPITAL

8440- 112 Street | Edmonton, Alberta | T6G 2B7

Emergency 407-8432 | ICU 407-6480 | PICU 407-6033

## 4. GREY NUNS HOSPITAL (CARITAS)

1100 Youville Dr. W. | Edmonton, Alberta | T6L 5X8 | Emergency 450-7180

## 5. MISERICORDIA COMMUNITY HOSPITAL (CARITAS)

16940 - 87 Avenue | Edmonton, Alberta | T5R 4H5 | Emergency 735-2252

## 6. STURGEON COMMUNITY HOSPITAL AND HEALTH CENTRE

201 Boudreau Road | St. Albert, Alberta | T8N 6C4 | Emergency 418-8229

# PLEASE...DRIVE CAREFULLY



# GRANDE PRAIRIE

## Peace County Health Region

### 1. STARS

101C – 11010 Airport Drive | Grande Prairie, AB | T8V 7Z5

Administration 830-7000

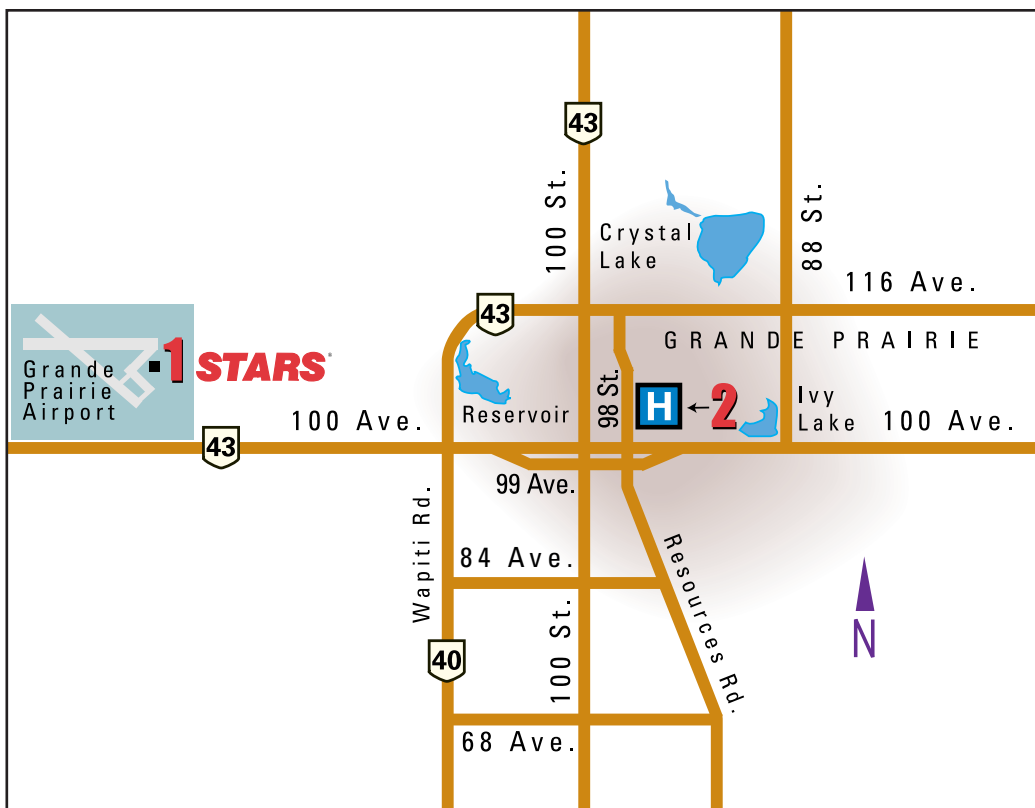
**area  
code  
7 8 0**

### 2. QUEEN ELIZABETH II HOSPITAL

10409 – 98 Street | Grande Prairie, AB | T8V 2E8

Switchboard: 538-7100 ask for Emergency/ICU

## PLEASE...DRIVE CAREFULLY



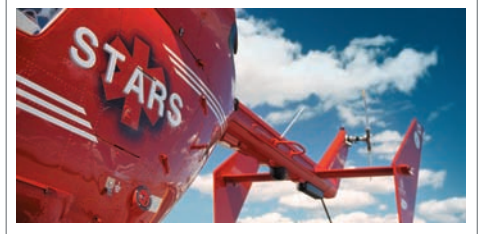
# STARS®

## Alberta Shock Trauma Air Rescue Society

The STARS program is fully accredited by the *Commission of Accreditation of Medical Transport Systems* and provides the delivery of emergency care and transportation to the critically ill and injured. Founded in 1985, through partnerships with community, government and business, the primary goal of STARS is to provide excellence in patient care.

Our commitment and responsibility to the patient has resulted in a program dedicated to three main components: service, education and research.

# FAMILY FORM



### VISION

Saving lives through partnership, innovation and leadership.

### MISSION STATEMENT

STARS – dedicated to providing a safe, rapid, highly-specialized emergency medical transport system for the critically ill and injured.

### In fulfilling this mission, we will:

- be an innovative leader in the provision of excellence in pre-hospital mobile emergency medical care through service, communications, education, training, research and consultation to the communities we serve.
- value and be responsive to the needs of individuals, communities and emergency care providers and services.
- expand knowledge and skills through innovative product design, research, simulation technology and ongoing professional development within the Chain of Survival.
- optimize the development and responsible management of resources required to support the mission.

**STARS Calgary Base**  
Phone 403-295-1811  
Fax 403-275-4891

**STARS Edmonton Base**  
Phone 780-447-5492  
Fax 780-447-5493

**STARS Grande Prairie Base**  
Phone 780-830-7000  
Fax 780-830-7009

Website: [www.stars.ca](http://www.stars.ca)

## YOUR FLIGHT CREW

**PARAMEDIC:** \_\_\_\_\_

**NURSE:** \_\_\_\_\_

**PILOTS:** \_\_\_\_\_

**PHYSICIAN:** \_\_\_\_\_

**ADDITIONAL  
CREW:** \_\_\_\_\_

**PATIENT IS BEING TRANSPORTED TO:**

APPROXIMATE FLYING TIME  MINUTES

## Caring for your loved one...

During this stressful time, we would like to provide you with some important information.

The service is supported by a team of physicians, paramedics, nurses, pilots and communication specialists who all have extensive experience in their own fields. The crew's combined skills provide your loved one with the highest level of emergency care and transport. We are committed to providing the best possible care for our patients.

For your convenience, directions and phone numbers of the hospitals and the STARS bases are located in this brochure. When travelling to the hospital, we strongly advise someone else drive you for your own safety and peace of mind.

# CONCLUSION



## A Final Note ...

**STARS is one link in the chain of survival and for the chain of survival to be effective, all components must work together in an efficient manner.**

The STARS Air Rescue helicopter can serve you only if we arrive safely. Our safety and the safety of the people on the ground depends on you, the professionals on the scene.

We hope that this manual proves beneficial to your organization. If at any time you have questions concerning STARS, please feel free to call us.

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**STARS | Calgary 403-295-1811**

**STARS | Edmonton 780-447-5492**

**STARS | Grande Prairie 780-830-7000**





**SPECIAL THANKS TO PHOTO CONTRIBUTORS**  
Photos® Mark Mennie/STARS

---

Renée Lamoureux  
Bob Young



# CONTACT INFORMATION

## ***THE STARS CENTRE***<sup>TM</sup>

### **STARS CALGARY BASE**

1441 Aviation Park NE | Calgary, Alberta | T2E 8M7

Administration: (403) 295-1811

### **STARS EDMONTON BASE**

Bldg. #16, City Centre Airport 29 Airport Road | Edmonton, Alberta | T5G 0W6

Administration: (780) 447-5492

### **STARS GRANDE PRAIRIE BASE**

101C – 11010 Airport Drive | Grande Prairie, AB | T8V 7Z5

Administration: (780) 830-7000