



TITLE

**MANEUVERING, LOADING AND UNLOADING OF STRETCHERS AND INCUBATORS**

SCOPE

Provincial Emergency Medical Services; Neonatal Intensive Care Units (NICU); Pediatric Intensive Care Units (PICU)

DOCUMENT #

PS-EMS-01-06

APPROVAL AUTHORITY

Vice President & Chief Health Operations Officer  
(Northern AB)  
Vice President & Chief Health Operations Officer  
(Southern, Central AB)

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Associate Executive Director Provincial Air Ambulance and Inter-Facility Transfer Strategy, EMS

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**NOTE:** The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

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## OBJECTIVES

- To set the standard for safe maneuvering, loading and unloading of stretchers and transport incubators for **EMS staff** and NICU/PICU **Neonatal and Pediatric Critical Transport Team staff** (hereinafter referred to as Transport Team staff).
- To ensure staff and patient safety by outlining a collaborative approach between EMS staff, Transport Team staff and **Aircrew**.

## PRINCIPLES

The responsibility of maneuvering, loading and unloading the stretcher and incubator is shared by a team of EMS staff, **EMS Air Medical Crew (AMC)**, Transport Team staff and/or Aircrew.

## APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, students, volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary).

## ELEMENTS

### 1. Points of Emphasis

- 1.1 As subject matter experts in stretcher usage, EMS staff shall direct ground based resource movement and operate the controls at the foot end of **powered stretchers**. As subject matter experts of the aircraft, Aircrew and AMC staff shall direct air resource movements.
- 1.2 The patient transported in an incubator shall be secured inside the incubator prior to movement of the stretcher and incubator unless access is required for medical and/or resuscitative procedures.

### 2. General Considerations for Maneuvering/Moving a Stretcher and Incubator

- 2.1 Prior to any maneuvering/movement of the stretcher and incubator, EMS staff shall:
  - a) verbally or visually confirm with each member of the **loading/unloading team** that they are ready to move the stretcher and incubator;
  - b) lower the stretcher and incubator so they are level; and
  - c) keep the stretcher and incubator's centre of gravity as low as possible.
- 2.2 When a stretcher and incubator are in motion:
  - a) A minimum of two (2) staff members shall be used to safely maneuver the stretcher. One (1) Transport Team staff member or EMS staff member shall be located at the head end and one (1) EMS staff member at the foot end at all times.
    - (i) The EMS and/or Transport Team staff member at the head end of the stretcher shall maintain two (2) points of contact (i.e., both hands) on the frame while they push the stretcher. The EMS staff member at the foot end steers and controls the forward momentum.
    - (ii) If additional EMS and/or Transport Team staff are available, they should be located at the sides of the stretcher (one [1] on each side) anytime it is being moved outdoors or on uneven surfaces (e.g., grates in ambulance bays, snow).
      - These staff members should be prepared to quickly grasp the stretcher and incubator to stabilize, should it become destabilized at any time during movement.

- b) The loading/unloading team shall avoid sideways movement of a stretcher and incubator as this decreases stability. This is especially important when maneuvering over:
    - (i) uneven and/or rough transport surfaces (e.g., gravel, stones, debris);
    - (ii) winter conditions (e.g., ice, snow); or
    - (iii) softer non-asphalt or concrete surfaces.
  - c) Direction shall come from the Aircrew and/or AMC staff regarding any required safety procedures when around an aircraft.
- 2.3 If a patient is in the incubator when a stretcher and incubator are not in motion, a minimum of one (1) EMS or Transport Team staff member shall be within arm's reach.
- a) The stretcher brakes must be engaged when the stretcher is not in motion.

### 3. Raising/Lowering a Stretcher and Incubator

- 3.1 Prior to raising/lowering of a stretcher and incubator, EMS staff shall:
- a) ensure the stretcher battery has a sufficient charge to complete the lift prior to commencing a raising/lowering sequence when using powered stretchers;
  - b) verbally or visually confirm with each member of the loading/unloading team that they are ready to move the stretcher and incubator; and
  - c) ensure lifting forces are balanced using the corners of the stretcher as the points of contact (two [2] person or four [4] person lift). Unequal lifting forces applied to the sides of the stretcher might cause the stretcher and incubator to tip.
- 3.2 Raising/lowering a powered stretcher and incubator:
- a) A minimum of two (2) EMS and/or Transport Team staff members are required to raise/lower a powered stretcher and incubator.
    - (i) One (1) EMS or Transport Team staff member shall be at the head of the stretcher and one (1) EMS staff member shall be at the foot end of the stretcher. The EMS staff member at the foot end shall operate the controls and guide the raising/lowering team as to when to raise/lower the stretcher and incubator.
  - b) If additional EMS and/or Transport Team staff are available, they should be located at the sides of the stretcher (one [1] on each side).

- 3.3 Raising/lowering a non-powered stretcher and incubator:
- a) A minimum of four (4) EMS and/or Transport Team staff members are recommended to raise/lower a non-powered stretcher and incubator.
  - b) Two (2) EMS and/or Transport Team staff members shall lift from each corner at the head of the stretcher.
  - c) Two (2) EMS and/or Transport Team staff members shall lift from each corner at the foot end of the stretcher. There shall be at least one (1) EMS staff member to operate the controls and guide the group as to when to raise/lower the stretcher and incubator.

#### 4. Loading/Unloading a Stretcher and Incubator with Ground Based Resources

- 4.1 Transport Team staff should have access to spare batteries for any battery operated equipment.
- 4.2 Prior to any loading/unloading of a stretcher and incubator, EMS staff shall:
- a) ensure the lights inside the ambulance are turned on to aid with visualizing the loading/unloading sequence;
  - b) verbally or visually confirm with each member of the loading/unloading team that they are ready to move the stretcher and incubator; and
  - c) ensure the weight is balanced using the corners of the stretcher as the points of contact. Unequal lifting forces applied to the sides of the stretcher could cause the stretcher and incubator to tip.
- 4.3 Loading/unloading using a powered stretcher and an ambulance with a hydraulic lift:
- a) One (1) EMS staff member shall be at the foot end of the powered stretcher to operate the controls when loading/unloading into/out of an ambulance using the hydraulic lift.
  - b) If additional EMS and/or Transport Team staff are available, they should be available on either side of the powered stretcher to ensure a secure connection/disconnection with the hydraulic lift and to prevent lateral drifting during docking/undocking.
  - c) All loading/unloading team members shall observe the loading/unloading sequence to ensure that no obstructions exist (e.g., in the stretcher undercarriage).
  - d) An EMS staff member shall verify that the powered stretcher is properly seated into the rear attachment pin prior to initiating transport.

- 4.4 Loading/unloading using a non-powered stretcher and an ambulance with a hydraulic lift:
- a) The same process applies as listed in 4.3 (a) to (d), however, an EMS or Transport Team staff member shall manually retract the stretcher legs.
- 4.5 Loading/unloading using a non-powered stretcher and an ambulance without a hydraulic lift:
- a) Two (2) EMS and/or Transport Team staff members are required to be at the foot end of the non-powered stretcher when loading/unloading into/out of an ambulance without a hydraulic lift.
  - b) An EMS staff member shall ensure the safety bale on the stretcher engages/disengages with the safety hook completely prior to loading/unloading.
  - c) An EMS staff member shall ensure that the bumper of the ambulance is at the appropriate level and that no obstructions exist prior to loading /unloading.
  - d) Two (2) EMS or Transport Team staff members (one [1] on each side to avoid creating a twisting force) shall manually retract/expand the undercarriage when loading/unloading a non-powered stretcher as guided by the EMS staff member who is controlling the lift/load.
  - e) To unload the stretcher and incubator, one (1) EMS or Transport Team staff member shall manually control the expansion of the stretcher undercarriage.
    - (i) An EMS staff member shall release the safety bale from the safety hook once the stretcher has been safely unloaded from the ambulance.
- 4.6 Loading/unloading using a powered stretcher and an ambulance without a hydraulic lift:
- a) The same process applies as listed in 4.3 (a) to (d), however, an EMS or Transport Team staff member is not required to manually retract the stretcher legs.

## 5. Loading/Unloading an Incubator with Air Based Resources

- 5.1 Prior to loading/unloading in an air based environment an AMC staff member shall:
- a) verbally or visually confirm with each member of the loading/unloading team that they are ready to move the stretcher and incubator;

- b) align the foot end of the stretcher to the aircraft ramp; and
- c) lock the wheels of the stretcher.

#### 5.2 Loading the incubator into the aircraft:

- a) A minimum of five (5) people are recommended to load the incubator into the aircraft and should be evenly spaced around the stretcher to stabilize the sled. This group should be comprised of EMS (may include AMC) and/or Transport Team staff members and/or Aircrew.
  - (i) One (1) Aircrew member shall be inside the aircraft directing movement.
  - (ii) Two (2) EMS (may include AMC) and/or Transport Team staff members and/or Aircrew shall be at the foot end to lift and slide the sled with the incubator onto the aircraft ramp.
  - (iii) Two (2) EMS (may include AMC) and/or Transport Team staff members and/or Aircrew shall be at the head end of the stretcher to lift and slide the remainder of the sled with the incubator onto the aircraft.
- b) An AMC staff member shall secure the sled with the incubator into the LifePort and raise the foot end of the ramp.

#### 5.3 Unloading an incubator from the aircraft:

- a) A minimum of five (5) people are recommended to unload the incubator from the aircraft to help align the transport stretcher with the ramp. This group should consist of EMS (may include AMC) and/or Transport Team staff members and/or Aircrew.
  - (i) One (1) Aircrew member shall be inside the aircraft to slide the sled with the incubator from the LifePort onto the aircraft ramp. The AHS staff member most responsible for patient care should also be inside the aircraft.
  - (ii) Two (2) EMS (may include AMC) and/or Transport Team staff members and/or Aircrew shall be at the head end and lift and slide the sled with the incubator down the ramp and onto the transport stretcher that has the clip-deck.
  - (iii) Two (2) EMS (may include AMC) and/or Transport Team staff members and/or Aircrew shall be at the foot end of the transport stretcher shall lift and slide the remainder of the sled with the incubator onto the transport stretcher.

- b) An AMC staff member shall secure the sled, with the incubator, to the clip deck on the transport stretcher prior to any movement/maneuvering.

## DEFINITIONS

**Aircrew** means the pilot and co-pilot of the responding aircraft.

**Emergency Medical Services (EMS) Air Medical Crew (AMC)** means the air medical EMS staff, either direct delivery or contract service providers.

**Emergency Medical Services (EMS)** staff means all Alberta Health Services EMS direct delivery providers and contract service providers, including casual, part time employees as well as volunteer EMS.

**LifePort** means a piece of equipment that the sled is attached to that is permanently affixed to the aircraft.

**Loading/unloading team** means the group of Transport Team staff, EMS or AMC staff responsible for loading/unloading the stretcher/incubator into/out of the transport vehicle. Aircrew may or may not comprise part of the loading/unloading team based on pre-determined local practice.

**Neonatal and Pediatric Critical Transport Team staff** (Transport Team staff) means the specialized members of the Neonatal and Pediatric Critical Transport Teams that may join EMS staff during patient transport to maintain an appropriate level of patient care. Examples of Transport Team staff may include, but is not limited to, Registered Nurses and Respiratory Therapists.

**Powered stretcher** (e.g., Stryker Power PRO-IT Cot) means an ambulance stretcher (cot) that is specifically designed to secure and transport incubators. It has an electrical/hydraulic lift feature that assists with expanding and contracting the stretcher (cot) undercarriage.

**Sled** means a patient transport surface without wheels or an under and undercarriage that is often transported on top of a ground stretcher and secured in an aircraft.

## REFERENCES

- Alberta Health Services Resources:
  - *NICU/ PICU Power Cots - Ground Transfers and Air Medevac Scenarios* (EMS, Edmonton Zone) Local Service Standard EDM-015

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