

Complications with
Prolonged Inter-facility
Transport

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Objectives

- Differentiate between air medical and ground transport capabilities
- Predict logistical complications of long-distance transport
- Anticipate the medical needs of patients in the out-of-hospital setting



A two year old male is brought to your community emergency department by his parents after a lawn mower accident just down the street...

The patient had extensive bilateral lower extremity injury, pelvic instability and tire tracks are noted across his abdomen

You and your staff immediately initiate treatment.



You are located 60 miles from a Pediatric Trauma Center so you make the decision to request air medical for the transfer.

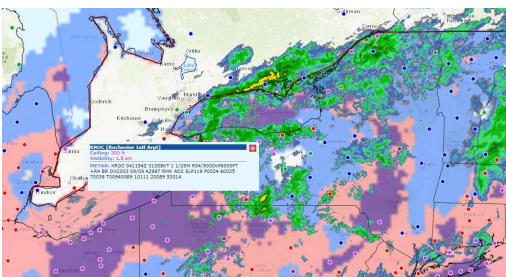
Do they have the weather to fly?



It looks okay outside!


- Origin weather
- Receiving weather
- Everything else in between
- Actual weather AND forecasted weather






Visual Flight Rules (VFR)

- Risk Assessment
- Weather Minimums
 - Ceiling
 - Visibility
 - Day vs Night
- Other Factors
 - Wind
 - Icing Conditions




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Location	Day		Night		Night using an Approved NVIS or HTAWS	
	Ceiling	Flight Visibility	Ceiling	Flight Visibility	Ceiling	Flight Visibility
Nonmountainous local flying areas	800-feet	2 statute miles	1,000-feet	3 statute miles	800-feet	3 statute miles
Nonmountainous non-local flying areas	800-feet	3 statute miles	1,000-feet	5 statute miles	1,000-feet	3 statute miles
Mountainous local flying areas	800-feet	3 statute miles	1,500-feet	3 statute miles	1,000-feet	3 statute miles
Mountainous non-local flying areas	1,000-feet	3 statute miles	1,500-feet	5 statute miles	1,000-feet	5 statute miles





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So now what?

- Initiate ground transport?
- Admit patient?
- Operative care then transfer?






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Levels of Interfacility Transport

- BLS - Basic monitoring such as vital signs, oxygen delivery, saline lock
- ALS - EKG monitoring, IV Fluid management, some basic medication infusions
- Critical Care Transport (Specialty Care Transport)
 - Any transport where level of care exceeds the training or capabilities of an Advanced Life Support Ambulance.
 - "...the transport of a patient, from a scene or a clinical setting, whose condition warrants care commensurate with the scope of practice of critical care transport professionals. (i.e. physician or registered nurse)"
- Teams - Any combination of the above EMS units + Hospital Transport Team such as Pediatrics or Cardiac




Critical Care Transport Goals

- Provide and maintain a stable, safe transport environment for critical or high-risk patients
- Maintain or enhances the level of care from the sending facility
- Provide critical interventions not available to a standard ground ambulance
- Seamless transition from sending hospital to receiving hospital, providing a "Continuum of Care".



What can exceed the scope of an ALS Ambulance?

- Intubated/Ventilated patients including non-invasive ventilation: Many ambulance services do not carry transport ventilators, or have limited modes/CPAP only
- Initiation and titration of continuous infusions including vaso-pressors may be limited by regional and/or agency protocols
- Invasive hemodynamic monitoring
- Blood infusion (Varies)
- Chest tube management
- Patient may destabilize/deteriorate: may need "extra hands", RSI, advanced procedures



Key to Success

- Start with a time out
 - Good MIST or SBAR handoff
- Don't rush the EMS crew out the door
- Discuss goals for transport such as MAP, HR or BP
- Medical Control



Airway

- Does this patient have the ability to maintain their own airway for an additional two hours?
 - Prolonged ground transport due to drive time and poor weather conditions
 - What is the likelihood that the patient will decompensate?
- What can the ground crew do if the patient's airway status changes?
 - Intubation
 - RSI

Breathing

- Current and anticipated work of breathing
- Are they oxygenating?
- Are they ventilating?
- What interventions are required for a two hour ambulance ride?



Circulation

- Hemorrhage Control
 - Laceration
 - Fracture Management
- Vasopressor
 - What agents?
 - How many agents?
 - Will there be enough?
 - Arterial Line
- Blood Products
 - Continue vs initiate
 - ATS
- Central Access



Deformity

- Fracture Management
 - Spinal Motion Restriction
 - Cervical Clearance
 - Control or Prevent additional bleeding




Exposure

- Hypothermia Prevention
 - Don't let them get cold
 - Warm Blankets
 - Warm IV Fluids and Blood Products



Other


- Pain Management, Sedation and Neuromuscular Blockade Demand
 - Infusions and bolus dosing
- Labs
 - Those that may change or guide the management during transport such as ABG
- Imaging
- Documentation
- Fuel
- Crew Rest

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Back to our 2 y/o with extensive lower extremity

- A. Intubation
- B. Mechanical Ventilation
- C. Wound Closure and Warmed Blood Products
 - Pressor only to support MAP after adequate resuscitation
 - RN to accompany ground crew to continue bl
- D. Stabilization of Fractured Extremities to Prevent Bleeding
- E. Aggressive Hypothermia Prevention

Other. Analgesia and sedation (infusions as well as orders for bolus), imaging and lab reports

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Thank you for your time!

Questions?

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