2016





# **Operative Principles** in AIR Transport







#### **Outcomes**

- At the conclusion of this presentation the learner will be able to:
  - Determine when to call for AIR transport
  - Determine when to call for a hot load
  - State safety related scene/landing zone principles
  - Explain Back Country patient packaging principles for a variety of scenarios
  - Discuss other hot loading specifics







#### PREPARING TO CALLING for HEMS

#### Measure vital signs and level of consciousness

Glasgow Coma Scale Systolic Blood Pressure (mmHg) Respiratory Rate

<90 mmHa

<10 or >29 breaths per minute, or need for ventilatory support (<20 in infant aged

<1 year)

≤13

Assess anatomy of injury

· All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee

- · Chest wall instability or deformity (e.g. flail chest)
- · Two or more proximal long-bone fractures
- · Crushed, degloved, mangled, or pulseless extremity
- Amputation proximal to wrist or ankle
- Pelvic fractures
- Open or depressed skull fracture
- Paralysis

Transport to a trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to the highest level of care within the defined trauma system.

> Fig. 1. 2011 Guidelines for Field Triage of Injured **Patients**

NO









### PREPARING TO CALLING for HEMS

Assess mechanism of injury and evidence of high-energy impact

7

- Falls
  - Adults: >20 feet (one story is equal to 10 feet)
  - Children: >10 feet or two or three times the height of the child
- · High-risk auto crash
  - Intrusion, including roof: >12 inches occupant site;
    >18 inches any site
  - Ejection (partial or complete) from automobile
  - Death in same passenger compartment
  - Vehicle telemetry data consistent with a high risk of injury
- Auto vs. pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact
- Motorcycle crash >20 mph

YES

Transport to a trauma center, which, depending upon the defined trauma system, need not be the highest level trauma center.



Assess special patient or system considerations

- Older Adults
- Risk of injury/death increases after age 55 years
- SBP <110 may represent shock after age 65
- Low impact mechanisms (e.g. ground level falls) may result in severe injury
- Children
- Should be triaged preferentially to pediatric capable trauma centers
- · Anticoagulants and bleeding disorders
  - Patients with head injury are at high risk for rapid deterioration
- Burns
- Without other trauma mechanism: triage to burn facility
- With trauma mechanism: triage to trauma center
- Pregnancy >20 weeks
- · EMS provider judgment

YES

Transport to a trauma center or hospital capable of timely and thorough evaluation and initial management of potentially serious injuries. Consider consultation with medical control.

Fig. 2. 2011 Guidelines for Field Triage of Injured Patients (cont.)





Transport according to protocol

#### **CALLING for HEMS**



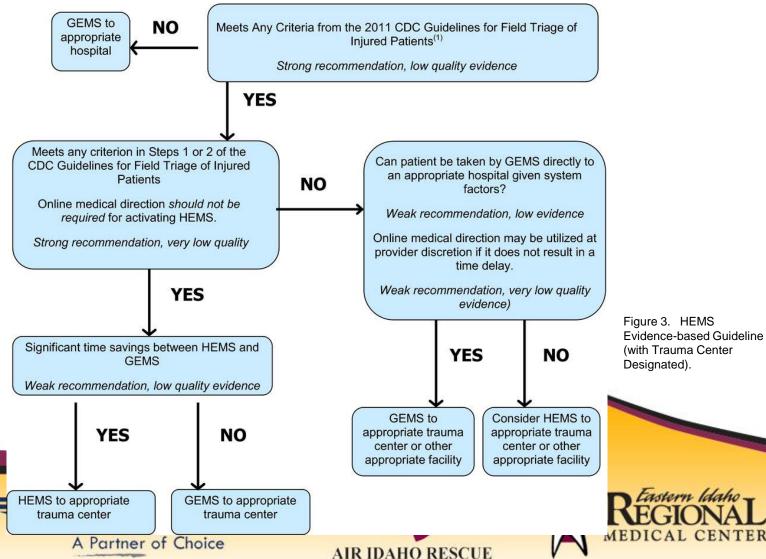
Start here...

Figure 3. HEMS

Designated).

(with Trauma Center

Evidence-based Guideline



Published in: Stephen H. Thomas: Kathleen M. Brown: Zoë J. Oliver: Daniel W. Spaite: Benjamin J. Lawner: Ritu Sahni: Tasmeen S. Weik: Yngve Falck-Ytter: Joseph L. Wright; Eddy S. Lang; Prehospital Emergency Care 2014, 18, 35-44. DOI: 10.3109/10903127.2013.844872 Copyright © 2014 National Association of EMS Physicians

#### Other Reasons to Call for HEMS

- Reasons to call for a helicopter
  - 39% lower chance of death (Sullivent, Faul, & Wald, 2011)
  - FALTER acronym (Whitehead, 2013)



#### Other Reasons to Call for HEMS

Decreased LOC – Airway obstruction – Respiratory
 Distress – Shock – Significant head injury (Thomas et. Al, 2014)

 Higher level of care than many ground units (equipment and expertise)

YOUR judgement







### Calling for the Hot Load

Patient subsets for whom to request a hot load

 Time critical – where they really need what the hospital has to offer













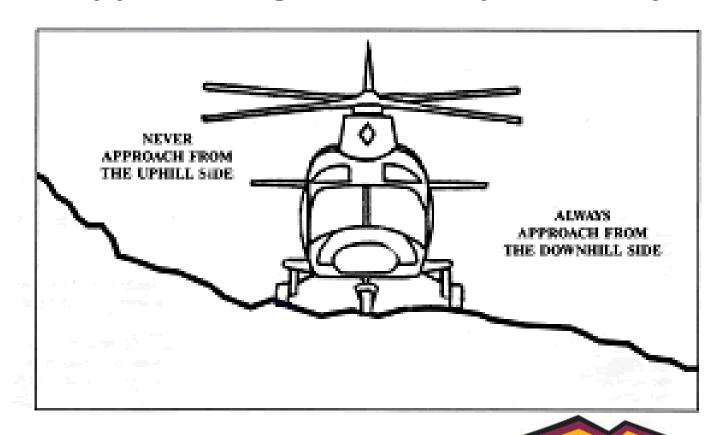








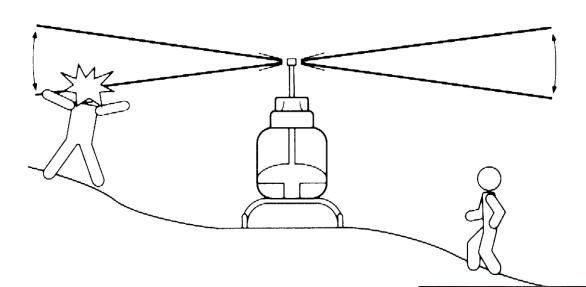
















A Partner of Choice



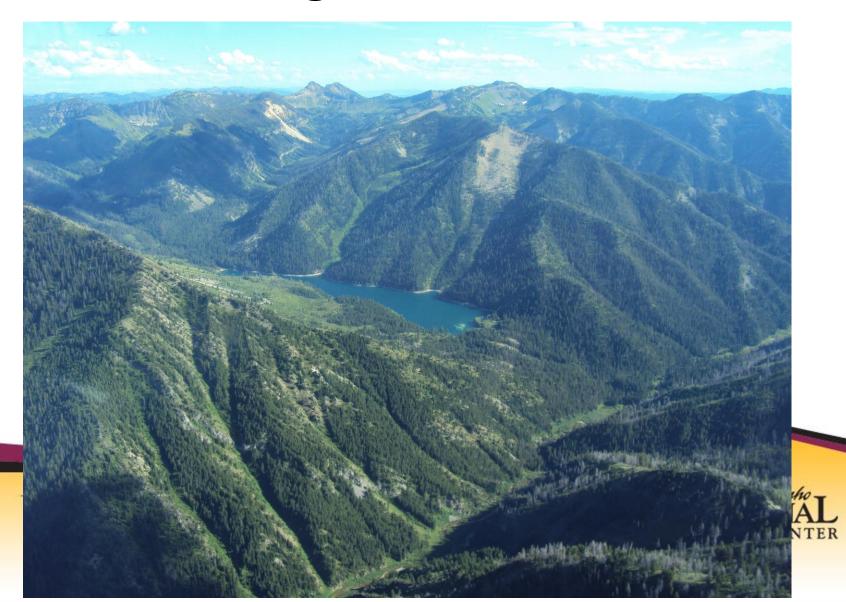
### **Scene/LZ Considerations**



### Moving the Patient



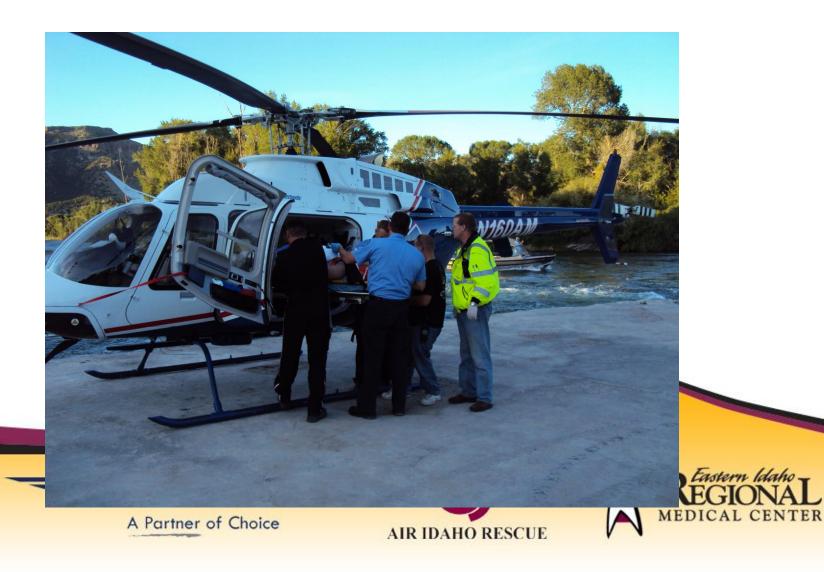
# Moving the Patient



# Moving the Patient



### Loading the Patient











#### References

Sullivent, E., Faul, M., Wald, M., (2011). Prehospital Emergency Care. Reduced mortality in injured adults transported by helicopter emergency medical services. vol. 15(3). p. 295, 298

Thomas, S., Brown, K., Oliver, Z., Spaite, D., Lawner, B., Sahni, R., Lang, E. (2014). *Prehospital Emergency Care*. An evidence-based guideline for the air medical transportation of prehospital trauma patients. vol. 18(1), p. 36-44

Whitehead, S., (2013). EMS1.com. How to decide when to call an air ambulance. Retrieved from: http://www.ems1.com/air-medical-transport/articles/1589630-How-to-decide-when-to-call-an-air-ambulance/

