

National Disaster Medical System Aeromedical Evacuation A Guide for Healthcare Providers

The following guidelines are intended to assist health care professionals when evaluating and preparing patients for aeromedical evacuation. Patients may be evacuated by the Department of Defense through the National Disaster Medical System (NDMS) when local treatment and evacuation options and resources have been exhausted. Although there are no absolute contraindications to aeromedical evacuation, patient selection and preparation are key elements in successful patient movement.

The US Air Force aeromedical evacuation system moves stabilized patients (airway protected, breathing and circulation controlled) with specialized equipment and aeromedical evacuation crews, comprised of flight nurses and aeromedical evacuation technicians. For critical care patients, we add Critical Care Air Transport Teams (CCATTs), comprised of a physician, nurse and respiratory technician.

The major medical risks associated with air transport are hypoxia and gas expansion. Other factors that may affect patients include noise, temperature variations, vibration, low lighting, and the stresses of multiple patient transfers.

During a disaster, the sending physician has to believe the level of care will be improved by transferring the patient from one medical facility to another and be willing to accept the risk associated with the transfer. A disaster may mandate hospital evacuation due to loss of infrastructure. In a pre-landfall hurricane evacuation scenario, the risks of sheltering in place must be weighed against the risk of hospital patient evacuation.

Patient Stabilization and Preparation- Remember your ABC's

Airway protected? Controlling airway problems in flight is challenging even for the most experienced clinicians. CCATTs are trained to manage ventilated patients and can monitor endotracheal tube cuff pressure. Patients who have been recently extubated should be monitored for at least 4 hours prior to evacuation.

Breathing adequately supported? Normally, oxygenation at altitude is impaired. We prefer not to move vented patients with high oxygen requirements (FiO_2 greater than 60%).

Circulation acceptable? We typically do not transport patients with hemoglobin levels less than 9 g/dl. Hemoglobin of 9 g/dl is the lowest that is safe without either significant supplemental oxygen or transfusion.

Disability – Brain injuries swell and seizure thresholds lower at altitude. Take precautions and pre-medicate to prevent seizures, if needed. At least ensure the AE crews have the tools they need to address seizures if they develop (i.e., IV Ativan and IV access). Watch out for compartment syndrome or spine injuries.

Expansion, as in trapped air. Specifically consider intra- abdominal (i.e., post-op ileus, post-op laparoscopic procedures), intra-cranial, intra-thoracic, and trapped air within the sinuses, ears, or eyes.

Fixation Ensure careful fixation and stabilization of all lines and tubes. Plaster casts should be at least 48 hours old to allow for possible soft tissue expansion after an acute injury or should be bi-valved if swelling is expected. There can be no hanging weights for traction in flight; other traction devices must be used if required.

Other Considerations

Equipment and supplies

If the patient is dependent on continuous treatment, the transferring facility should send additional medications and supplies with the patient. Only authorized medical equipment is allowed on AE missions. Patients will be switched over to approved medical equipment prior to flight. There is a waiver process for unapproved medical equipment; call GPMRC at 618-229-4200 for equipment questions.

Patient Staging

The transferring physician should consider that it may take up to 12 hours before the patient is back in a hospital comparable to the one the patient left. Patients are typically transported to an aeromedical staging facility at the airport prior to being loaded onto aircraft. Aeromedical staging facility medical personnel will ensure that patients are appropriately prepared and stabilized. This facility is usually located in a building of opportunity at the airport and has limited patient care capability.

Psychiatric Patients

Psychiatric patients are likely to need attendants, they must not be disruptive, and they must be able to follow directions.

Consultation

Aeromedical evacuation consultation regarding patient appropriateness for flight and preparation for aeromedical evacuation is available through the Global Patient Movement Requirements Center (GPMRC), located at Scott Air Force Base, IL; phone 618-229-4200.