TEXAS
Health and Human Services

Texas Department of State Health Services

GETAC Air Medical Services Utilization and Recommendations

Purpose

- Provide best practice for integration of air medical service resources into EMS system of care
- Understand variations in air medical providers so informed clinical decisions can be made

Acknowledgement

- This presentation is based on the article "Appropriate Air Medical Services Utilization and Recommendations for Integration of Air Medical Services Resources into the EMS System of Care: A Joint Position Statement and Resource Document of NAEMSP, ACEP, and AMPA." We thank the authors for the joint position statement and their guidance to use evidence-based decision making for improved air medical utilization.
- John W. Lyng, Sabina Braithwaite, Heidi Abraham, Christine M. Brent, David A. Meurer, Alexander Torres, Peter V. Bui, Douglas J. Floccare, Andrew N. Hogan, Justin Fairless & Ashley Larrimore (2021) Appropriate Air Medical Services Utilization and Recommendations for Integration of Air Medical Services Resources into the EMS System of Care: A Joint Position Statement and Resource Document of NAEMSP, ACEP, and AMPA, Prehospital Emergency Care, 25:6, 854-873, DOI: 10.1080/10903127.2021.1967534
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Utilization Considerations

- Three major categories:
  - Clinical
    - Initiation or continuation of locally unavailable advanced or specialty care
    - Expedited delivery to definitive care for time-sensitive interventions
    - Extraction from physically remote or otherwise inaccessible area
  - Safety
    - Level of risk to patient and crew must be carefully weighed against the reasonably anticipated degree of medical benefit to the patient
  - System Integration and Quality Assurance
    - Requests for utilization and transport destinations should follow locally established guidelines
    - Applicable physician oversight

Utilization Considerations

- Variations in air medical providers
  - Aviation
    - **VFR** vs **IFR** with availability of potential IFR approach (helipad, airport, etc.)
      - **V**isual **F**light **R**ules -the pilot primarily controls and navigates the aircraft using outside visual references
      - **I**nstrument **F**light **R**ules - the aircraft is flown using only the instruments with no visual references to the outside world
    - **ETA** (Estimated Time of Arrival) vs. **ETE** (Estimated Time En Route)
      - ETA is a **clock time** - "We will land on your scene at 1147"
      - ETE is **flight time** - "We will be there in 22 minutes" - The ETE does NOT include the time it takes to lift off.
      - For further education on the utilization of ETA vs. ETE please utilize the following link:
        - https://www.dshs.texas.gov/sites/default/files/emstraumasystems/GETAC/PDF/GETAC-Position-2020A-StandardizedResponseTimeLanguage.pdf

Utilization Considerations

- Variations in air medical providers
  - Clinical
    - Level of care
    - Blood products
    - Standard of care vs “access to resources”
    - Aircraft configuration and quality of care (i.e. CPR)
    - Crew certification/licensure (nurse, paramedic, physician, etc.)
    - Level of care delivered to patients during transport may be more beneficial than speed
      - A large multicenter study of TBI patients transported by air medical providers suggests patients received greater benefit from early activation of critical care interventions by air medical provider clinicians rather than from the speed of transport (2).

Clinical Care

- Research has shown that patient benefit is gained from the clinical care capabilities of air medical services independent of potential time saved when transporting patients (3-9).
  - The level and quality of care delivered during transport may be more important than the speed of the transfer
- Consider using scoring system for air medical utilization
  - Utilization review highly recommended to determine efficacy of scoring system
- Resources vary significantly across the state so please learn what capabilities are available in your area and follow local protocols and/or regional guidelines
- Ground-EMS (GEMS) transport is preferred when it is able to provide the necessary level of care and timely transport to definitive care.

Clinical Care - AMPT

- The Air Medical Prehospital Triage Score is one example of a scoring system that identifies patients with improved survival following HEMS transport and should be considered in air medical triage protocols (8).

Air Medical Prehospital Triage (AMPT) Score

Criterion	Points
Glasgow Coma Scale <14	1
Respiratory Rate <10 or >29 breaths/min	1
Unstable chest wall fractures*	1
Suspected hemothorax or pneumothorax†	1
Paralysis	1
Multisystem trauma ‡	1
PHY+ANA §	2
Consider helicopter transport if AMPT score ≥ 2 points	

*Any chest wall instability or deformity including flail chest or multiple ribs fractures on physical exam

†Absence of breath sounds on affected hemithorax PLUS objective signs of respiratory distress (cyanosis, SpO2<92%, signs of tension physiology)

‡3 or more anatomic body regions injured

§any 1 physiologic criterion plus any 1 anatomic criterion present from American College of Surgeons Committee on Trauma national field triage guidelines

Clinical Care – Trauma

- Numerous studies have demonstrated that air medical transport improves survival in suburban and rural settings when compared to ground transport for various trauma patient populations (10-19)
- Multidisciplinary panel of experts created recommendations for the selection of prehospital trauma patients who would most likely benefit from air versus ground transport (3, 20 - 22).
- The Air Medical Prehospital Triage Criteria (AMPT) Score (7-9).
  - Increased survival odds regardless of whether air transport reduced transport time

Clinical Care – Cardiovascular

- Bypass of non-interventional facilities and/or long distance interfacility transfer of patients for percutaneous coronary intervention (PCI) has shown benefit over locally administered fibrinolytic agents when first medical contact to balloon time is less than 90 minutes (27, 28).
- Total ischemic time less than 120 minutes provides maximum patient benefit (29, 30), and thus to be clinically meaningful, the decision on use of mode of transport should focus on achieving this target.
- Air medical services may help expand access to ECMO, VADs, and balloon pumps via transport of specialty teams and equipment to the patient
- Variance in providers due to aircraft frame and ability to perform effective, high-quality chest compressions (31 - 36). Access to mechanical compression devices have shown an increase in ROSC (37, 38)

Clinical Care - Neurological

- Limited data to support for or against
- Overall, the use of air medical services for stroke has been shown to be cost-effective when examined per quality adjusted life year, additional studies are needed to determine specific subtypes of stroke patients for aircraft-based care and transport

Clinical Care – Obstetric & Neo

- Air medical providers may provide fetal monitoring, specialty neonatal care, and other interventions during transport that exceed the equipment and critical care capabilities of local ground EMS resources
- Scoring tools such as the Transport Risk Index of Physiological Stability
- (TRIPS) score or the Risk Score for Transport Patients (RSTP) aid in risk-stratifying neonates and may help support decisions on the best mode of patient transport (39 – 41)

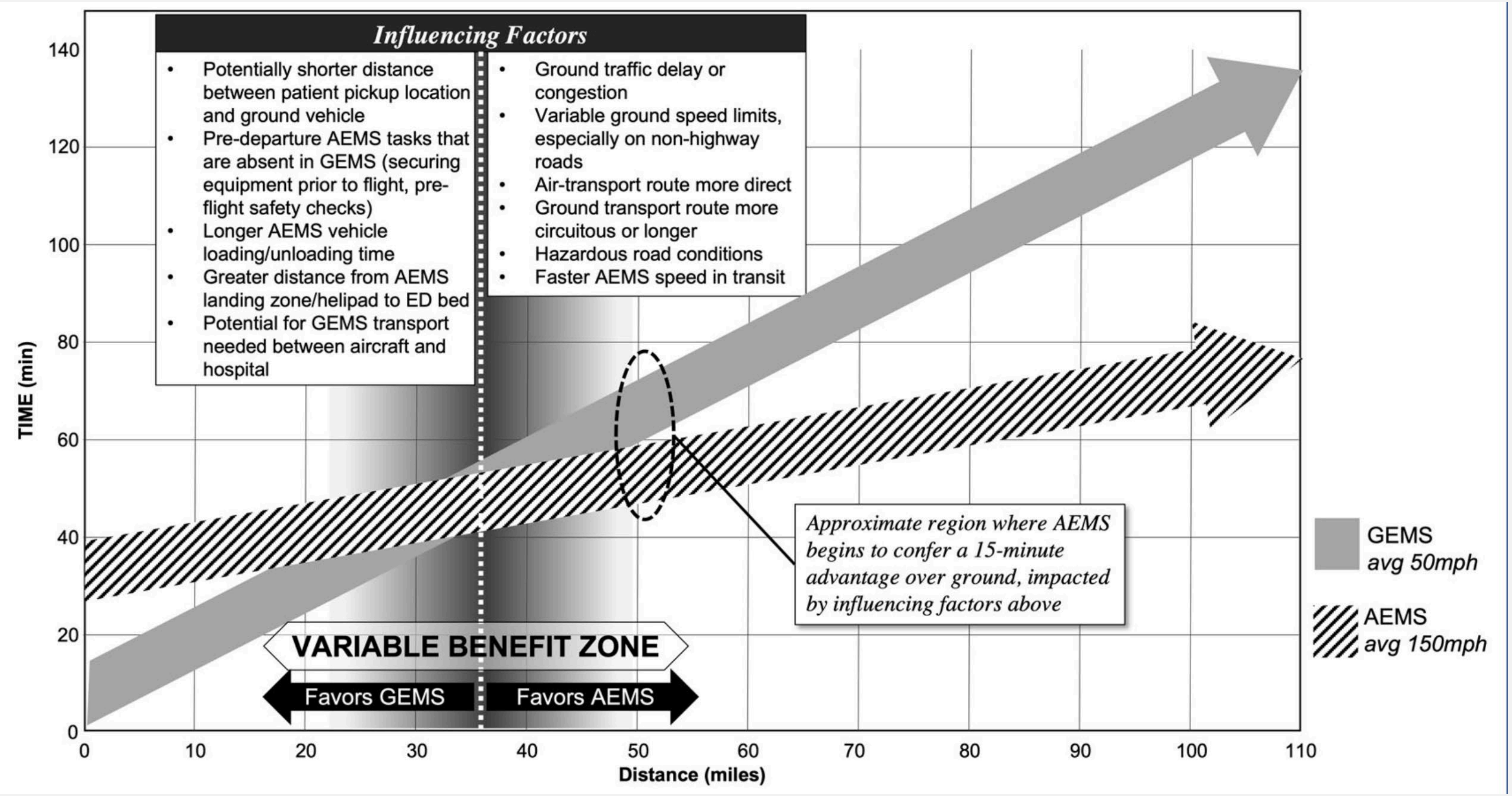
Clinical Care – Misc. Medical

- Limited studies to evaluate the use of air medical for other high acuity medical patients
  - Risk of airway deterioration: angioedema, epiglottitis, inhalation injury, etc.
  - Emergent need for medical therapy: hemodialysis, hyperbaric oxygen therapy, etc.
  - Emergent need for surgical intervention: aortic dissection/aneurysms, necrotizing fasciitis, limb reimplantation, etc.
  - Other need for critical care: complex mechanical ventilation, continuous titration of vasoactive medication, etc.
  - Specialty care: any required intervention not available at the referring facility

Temporal & Geographic Considerations

- True time of air medical transport includes lift off time, response time, scene time, patient load time, transport time, and patient off load time.
- Distance is an indirect measure of time
  - Construction, significant traffic, spontaneous events such as riots or civil unrest, geographic considerations (limited road access, need for ferry utilization, remote location otherwise inaccessible by ground, natural disasters, etc.),

Temporal & Geographic Considerations



Risk Identification & Mitigation

- Air and ground EMS utilization decisions must include a risk versus benefit analysis for both the patient and the system from both safety and economic perspectives (23)
- Patient based factors
  - Weight/girth
  - Hazards with appropriate PPE unconducive for flight operations
  - Behavior/agitation considerations

Helicopter Shopping

- **Helicopter Shopping** – refers to the practice of repeatedly contacting various helicopter services to secure a flight for a patient, often without informing the other services about the reasons for previous declines.
  - Can lead to safety concerns, as it may result in multiple flights being requested for the same patient, which can create confusion and increase the risk of unsafe conditions.
  - FAA definition: calling multiple operators until one agrees to accept the flight request without sharing the reasons for previous declines.
  - Strongly discouraged; however, consideration should be given to variance in air medical providers and capabilities
    - Clinical and aviation capabilities vary which may result in one air medical provider being able to safety transport the patient despite the request being turned down by another provider.
    - Examples include VFR vs IFR, weather variances between aircraft locations, specialized clinical care specific for patient request

Helicopter Shopping

- Reverse helicopter shopping – air medical providers contact sending provider to offer service after hearing another provider turned down the flight. This practice is highly discouraged

  - **If an air medical provider declines a flight, the entity requesting transport must inform all subsequent agencies of both the prior turndown and the reasons for the refusal (24).**

Economic Factors

- Air medical transport may introduce significant financial burdens to the patient and should be considered when contemplating air versus ground transport.
- There is a substantial variance in the charges/billing practices across independent, hospital-based, and for-profit air medical service agencies

Economic Factors - NSA

- No Surprises Act (42)
  - The No Surprises Act, a component of the Consolidated Appropriations Act, 2021, addresses surprise air ambulance bills, effective January 1, 2022. Privately insured patients will pay only the deductibles, and copayment amounts that they would have paid for in-network air ambulance providers.
  - It removes the patient from billing disputes, letting providers and insurers resolve payment issues directly.

System Integration & QA

- Air medical services integration into local and regional health care systems requires multifaceted approach with engagement of appropriate stakeholders, oversight, and protocol development.
  - Stakeholders – appropriate integration requires understanding of capabilities of various air medical services
    - Air medical directors, medical directors, EMS/FD & police leadership, hospital administration, as well as representatives from local, regional, and state advisory boards
    - Air medical provider medical directors should meet the guidelines outlined in the NAEMSP position statements Flight Physician Training Program – Core Content and Physician Oversight of Air-based EMS (25, 26).
  - Oversight – stakeholders must establish protocols addressing authorized requestors, dispatching, communication, and quality assurance.

Coordination and Communication

- Communication systems should promote the reliable and accurate flow of information among dispatch centers, air resources, ground EMS, public safety/security, local air traffic controller, and the receiving facility.
- Work with your local providers to ensure safe helipad/LZ operations
- On-scene personnel and hospital personnel should be educated about aviation safety and communication requirements
  - https://www.dshs.texas.gov/sites/default/files/emstraumasystems/GETAC/PDF/AirMed-Landing-Zone-Training.pdf

Conclusion

- To ensure optimal function of the system, entities that use and provide air medical services resources should work collaboratively to ensure these resources are used in a safe, clinically appropriate, professional, and integrated manner.
- Medical Director involvement is essential for determining criteria for appropriate aircraft utilization

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