Helicopter EMS (HEMS) Utilization Guidelines

State of Wisconsin EMS Section

Wisconsin Air Medical Council

Emergency Medical Services Advisory Board

Physicians Advisory Council

State Trauma Advisory Council

Guidelines

1. Helicopter EMS (HEMS) is an important part of the state EMS system and should be used when appropriate to transport patients to or between hospitals.
2. HEMS utilization is a medical decision requiring appropriate oversight and should be integrated within regional systems of care.
3. Hospital destination and mode of transport are two distinct but related clinical issues.
4. When considering time benefits for HEMS compared to Ground EMS (GEMS) the following factors must be considered for HEMS:
    - Response time
    - Care transitions
    - Load and off-load times
    - Pre-flight safety checks
5. HEMS may provide a time savings benefit to patients with time-sensitive emergencies[1] in reaching hospitals that can provide interventions **if** the patient can be delivered during an interventional window[2] **and** Ground EMS are not able to appropriately deliver the patient to definitive care within that interventional window.
    a. Major trauma patients (see the 2021 National Guidelines for the Field Triage of Injured Patients, Appendix A) should be transported to the closest most appropriate Level I or II Trauma Center. If HEMS transport to the Trauma Center is more expeditious than GEMS transport or if HEMS is able to bring additional resources to patient care, transport by HEMS should be considered.
        i. HEMS utilization for Mechanism of Injury or EMS Judgement alone lacks clear evidence of benefit. Since these are patients who may not necessarily need the resources of the highest trauma level in a region, the use of HEMS should be carefully considered. Standing protocols or online medical consultation may offer individual guidance.
    b. Patients with acute STEMI needing transportation to a cardiac catheterization lab where ground transportation exceeds an interventional window.
    c. Patients with Large Vessel Occlusion[3] stroke symptoms when HEMS is able to transport a patient to an interventional capable hospital in less time than ground transport to a non-interventional capable hospital as defined by regional guidelines.
6. HEMS may provide clinical resources or timely transport to patients needing urgent transport when a similar level of care or transport is not available by GEMS.
7. HEMS may provide an operationally appropriate mode of transport for long-distance interfacility transports to minimize out-of-hospital time.
8. HEMS may provide a mode of transport for geographically isolated, remote patients independent of medical urgency (for example, for those on islands) although this mode should be carefully considered.
9. HEMS may provide a resource to local GEMS systems during disasters and times of low community resources.

[1] A time-sensitive emergency can be defined as an acute life-threatening medical or traumatic event that requires a time critical intervention to reduce mortality or morbidity or both.
[2] An interventional window can be defined as the period of time from which mortality or morbidity is likely to be reduced by the administration of pharmaceutical agents, medical procedures, or interventions.
[3] Large vessel occlusions (LVOs), variably defined as blockages of the proximal intracranial anterior and posterior circulation as indicate on a LVO stroke scale.

10. The decrease in response time for HEMS for prehospital responses is further enhanced by early activation by initial public safety responders.
    a. EMS agencies should work with their dispatch centers and HEMS to use "auto-launch" protocols based on preliminary incident information if such protocols would reduce the amount of time needed to activate HEMS (See Appendix B).
    b. HEMS cancellation may be made by or after consultation with the transporting ground EMS agency or if additional credible information is received that HEMS is not required.
11. The closest HEMS asset should be requested and dispatched for scene response and time-sensitive inter-facility transports.
    a. If a HEMS service declines a request related to weather, landing zone availability, or other safety factors, such information must be relayed to any subsequently requested HEMS service, and subsequent requests should be limited.
    b. Wisconsin HEMS programs have agreements that their communication centers will contact additional HEMS program communication centers if:
        i. Their helicopter is not available or not the closest helicopter.
        ii. Multiple helicopters are needed for an incident response.
12. Landing zone (LZ) safety is critical and a priority of the agency designated to establish the landing zone.
    a. Pre-designated landing zones should be established and used when possible.
    b. Landing Zone guidelines established by the HEMS services are to be practiced and followed.
    c. A dedicated LZ coordinator with reliable communication on the mutually designated frequency must be appointed by agency establishing the landing zone.
13. Basic Life Support providers should consider Advanced Life Support intercept when HEMS is not available or to augment HEMS response.
14. EMS agencies using HEMS should have a process improvement plan in place to review appropriate triage, mode of transport, destination and outcome including rates of overtriage and undertriage.
    a. Specialty Care Centers and HEMS should work with the local EMS agencies to review transports and patient outcomes.

Source

These guidelines are based on the *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*.

Lyng, J. W., Braithwaite, S., Abraham, H., Brent, C. M., Meurer, D. A., Torres, A., … Larrimore, A. (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. https://doi.org/10.1080/10903127.2021.1967534

Appendix A

National guideline for the field triage of injured patients

RED CRITERIA High risk for serious injury

Injury Patterns	Mental Status & Vital Signs
• Penetrating injuries to head, neck, torso, and proximal extremities • Skull deformity, suspected skull fracture • Suspected spinal injury with new motor or sensory loss • Chest wall instability, deformity, or suspected flail chest • Suspected pelvic fracture • Suspected fracture of two or more proximal long bones • Crushed, degloved, mangled, or pulseless extremity • Amputation proximal to wrist or ankle • Active bleeding requiring a tourniquet or wound packing with continuous pressure	**All Patients** • Unable to follow commands (motor GCS < 6) • RR < 10 or > 29 breaths/min • Respiratory distress or need for respiratory support • Room-air pulse oximetry < 90% **Age 0–9 years** • SBP < 70mm Hg + (2 x age years) **Age 10–64 years** • SBP < 90 mmHg or • HR > SBP **Age ≥ 65 years** • SBP < 110 mmHg or • HR > SBP

Patients meeting any one of the above RED criteria should be transported to the highest-level trauma center available within the geographic constraints of the regional trauma system.

YELLOW CRITERIA Moderate risk for serious injury

Mechanism of Injury	EMS Judgment
• High-Risk Auto Crash – Partial or complete ejection – Significant intrusion (including roof) • >12 inches occupant site OR • >18 inches any site OR • Need for extrication for entrapped patient – Death in passenger compartment – Child (Age 0–9) unrestrained or in unsecured child safety seat – Vehicle telemetry data consistent with severe injury • Rider separated from transport vehicle with significant impact (for example, motorcycle, ATV, horse) • Pedestrian/bicycle rider thrown, run over, or with significant impact • Fall from height > 10 feet (all ages)	Consider risk factors, including: • Low-level falls in young children (age ≥ 5 years) or older adults (age ≥ 65 years) with significant head impact. • Anticoagulant use. • Suspicion of child abuse. • Special, high-resource healthcare needs • Pregnancy > 20 weeks. • Burns in conjunction with trauma. • Children should be triaged preferentially to pediatric capable centers. If concerned, take to a trauma center.

Patients meeting any one of the yellow criteria who do not meet red criteria should be preferentially transported to a trauma center, as available within the geographic constraints of the regional trauma system (need not be the highest-level trauma center).

Appendix B

Considerations for HEMS auto-launch or early-activation based on dispatch information

- High-Risk Auto Crash
  - Partial or complete ejection
  - Significant intrusion (including roof)
    - >12 inches occupant site OR
    - >18 inches any site OR
    - Need for extrication for entrapped patient
  - Death in passenger compartment
  - Child (Age 0–9) unrestrained or in unsecured child safety seat
  - Vehicle telemetry data consistent with severe injury
- Rider separated from transport vehicle with significant impact (for example, motorcycle, ATV, horse) or reported high speed crash
- Pedestrian/bicycle rider thrown, run over, or with significant impact
- Fall from height > 10 feet (all ages)
- Large animal (rodeo, horse, bull, etc.) related injuries
- Altered mental status or unconsciousness in setting of trauma
- Serious burns or injuries from an explosion
- Any penetrating injury to abdomen, pelvis, chest, neck, or head (gunshot, knife wound, industrial accident)
- Crushing injuries to abdomen, chest, or head
- Drowning patients
- Any incident where signs indicate that a person may be seriously injured, and the reporting party/caller is not able to clearly relay the necessary information
- Any event with three or more critically injured patients
- Seriously ill or injured patient in an inaccessible area

Appendix C

Document content was approved by the following councils on the date as listed.

Wisconsin Air Medical Council	December 8, 2023
Physician Advisory Council	March 5, 2024
EMS Board	March 6, 2024
State Trauma Advisory Council	March 6, 2024