Trauma Facility Helicopter Safety and Landing Zone Training

DISCLOSURES

- **Title: Trauma Facility Helicopter Safety and Landing Zone Training**
- **Date: August 1, 2025**

- **Requirements for successful completion for awarding CNE include all of the following:**
  - Attendance for the entire educational activity
  - Completion and submission of a post-course feedback survey
  - Successful completion of a post-test exam, achieving 85% or higher

- **No relevant financial relationships with ineligible companies were identified for any other individuals with the ability to control content of the educational activity.**

- **Texas EMS, Trauma & Acute Care Foundation is approved as a provider of nursing continuing professional development by the Louisiana State Nurses Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation. LSNA Provider No. N002155**

INTRODUCTION

The GETAC Air Medical Committee is responsible for affecting and supporting **safe** air medical operations and high-quality clinical care provided by air medical transport services in Texas.

This committee provides guidance in the development and review of hospital and pre-hospital assessment tools, regional plans, treatment guidelines, and the committee SOP.

INTRODUCTION

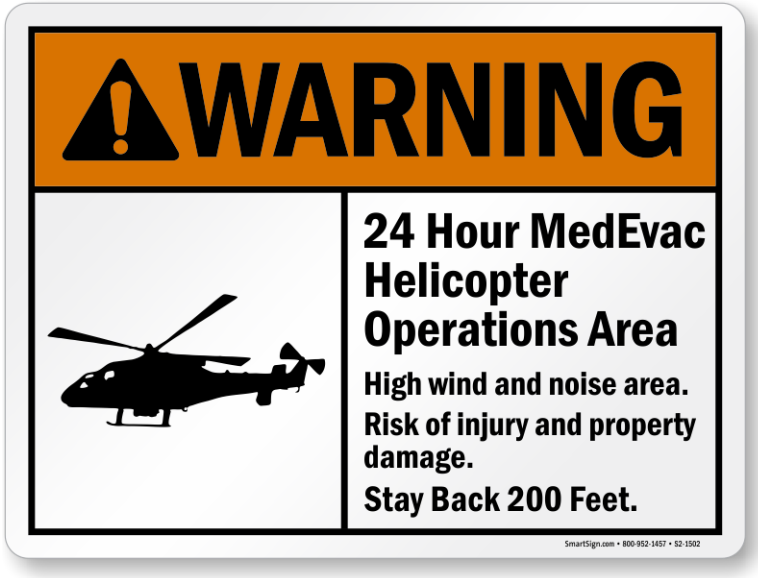
The following content has been developed to fulfill requirement (h)(6) of the ***Texas Administrative Code Chapter 157, Rule 157.126 Trauma Facility Designation Requirements*** which will be effective on September 1, 2025 and states:

"Facilities must have landing zone capabilities or system processes to establish a landing zone (when rotor-wing capabilities are available) ***with appropriate staff safety training."***

OBJECTIVES

The **#1 objective** of this training is to ensure Safe Helipad Operations and to **PROTECT**

- Patients
- Flight crew
- Hospital staff and,
- The public



OBJECTIVES

- Identify landing zone requirements.
- Identify safety practices and security around an aircraft and within the landing zone.
- Define FOD and your role in preventing FOD damage to aircraft.
- Identify factors to consider when preparing your patient for air transport.
- Define “EMS Timeout” and identify its critical components.
- Define your role in the Texas EMS Wristband Project
- Recognize additional considerations during night operations.

DISCLAIMER

This presentation is a state-wide, universal training for educational use only; this presentation does not provide a substitute for any agency-specific education or training.

We strongly encourage reaching out to your local air medical providers for further guidance.

SAFETY

The number one priority for any air medical operation!

SAFETY STARTS BEFORE THE FLIGHT!

- Safety applies to both those inside and outside of the aircraft.
- Vigilance is required by those on the ground and in the aircraft during take-offs and landings.
- LZ team members must eliminate all non-essential distractions (i.e., phones, cameras, etc.). Those responsible for the safety and security of the LZ should not engage in photography or videography during the landing and departure of the aircraft.

SAFETY

The number one priority for any air medical operation!

- If your first air medical provider declines the flight, the second provider that is contacted needs to be made aware of the declination
- Honest communications can mitigate risk to the flight crew and ultimately everyone involved in patient care.

LANDING ZONE REQUIREMENTS

Safety begins before the aircraft arrives!

- Most facilities have a helipad or designated LZ. If not, these are the requirements for an unplanned LZ.
- Area should be a minimum of 100’x100’ with no overhead obstructions.
- Area should be a flat and level surface, 3-degree grade or less with little to no slope, as well as firm with no hidden obstacles.
- The area’s surface should be paved, short grass, or hard packed dirt that does NOT create dust. Brownouts caused by dust can be catastrophic.

LANDING ZONE REQUIREMENTS

Safety begins before the aircraft arrives!

- Area surrounding LZ should also be as free as possible from obstructions/hazards.
- If power lines are present, they can be marked by parking an emergency vehicle directly underneath them.
- The unplanned LZ **CAN** be marked with cones, strobes, or response vehicle lights.
- The LZ **CANNOT** be marked using road flares as they can cause fires and/or become projectiles during landing or departure of the aircraft.

LANDING ZONE REQUIREMENTS

Safety begins before the aircraft arrives!

Communication regarding LZ conditions is IMPERATIVE TO SAFETY!

You should communicate the following to the air medical provider prior to landing:

1. Any known obstructions/obstacles and how they are marked
2. The landing surface
3. Description of the LZ and location with regards to the facility

FOD Prevention

Safety begins before the aircraft arrives!

- Foreign Object Debris (FOD) is **any** unsecured object in or around the LZ. It can be anything from rocks and trash to stretchers, sheets, hospital bed mattresses.
- During take-off & landing, FOD can be lifted by rotor wash and sucked into the engine, main or tail rotor. causing catastrophic damage.
- FOD damage can put an aircraft out of service and leave it blocking the helipad until it can be repaired.
- This could prevent other patients from coming in or transferring out.
- FOD can also cause catastrophic aircraft damage resulting in the loss of life

FOD Prevention

Safety begins before the aircraft arrives!

- Areas surrounding LZ, such as open truck beds, should also be as free as possible from loose material.

- Security should do a daily FOD check, or at minimum, prior to each landing.
- Restrict bystander access to the area. Blown FOD can become dangerous projectiles.
- On elevated helipads, unattended equipment or stretchers could be blown off causing injuries below.
- If you have a windsock, ensure that it is in functional condition. If not, contact your local provider for help in obtaining a new one.

MULTI AIRCRAFT CONSIDERATIONS

- LZ requirements are designed for a single aircraft.
- Helipad safety area, in most cases, extends past the concrete pad or designated LZ due to the rotor wash of an arriving or departing aircraft.
- If landing multiple aircraft, an additional LZ will be needed. Hospital security must ensure an adequate safety area is available between each LZ.
    - For example, two established LZs may require an additional 100’ in between them for the safety area.

SAFETY - DRONE OPERATIONS

- An unmanned aircraft system (UAS), sometimes called a drone, is a safety risk to aircraft and should not be operated in the vicinity of air medical operations.
- Some hospital systems are utilizing drones to courier medications, supplies, and other items around large facility campuses.
- If you observe a drone in the vicinity of the LZ, immediately notify hospital security and the incoming helicopter's communication center and if possible, request the drone operator to shut down the drone until the helicopter has safely departed the area.

PREPARING YOUR PATIENT FOR TRANSPORT

General Considerations

- Consider the outside weather- Although aircraft are equipped with AC and heat, it can still get hot/cold during transport. Have extra blankets available or remove excessive clothing if needed.
- More than one IV site preferred. When loading the patient into the aircraft, do not utilize IV poles. Keep IV bags below the level of your head.
- Ensure all lines and tubes are well secured- There will be a lot of pt movement during loading/unloading, and things can become dislodged easily.
- Remove or secure any loose items such as clothing or bandaging- Items that can get sucked into the rotor system.
- If applicable, ensure the patient is decontaminated according to Safety Data Sheet (SDS) standards.

MOVING YOUR PATIENT

General Stretcher Considerations

Facilities should work with local Air Medical Providers as certain patient conditions may require a deviation from the following recommendations:

Types

- Hospital bed
- EMS-style stretcher

Requirements

Stretcher and/or hospital bed should receive routine and ongoing maintenance to ensure safe and proper working condition

- Functional brake, steering system, and ability to raise and lower to full capability
- Dual-sided locking rails and 3-point straps if using an EMS stretcher
- With or without a secured mattress based upon crew discretion

PREPARING FOR ARRIVAL

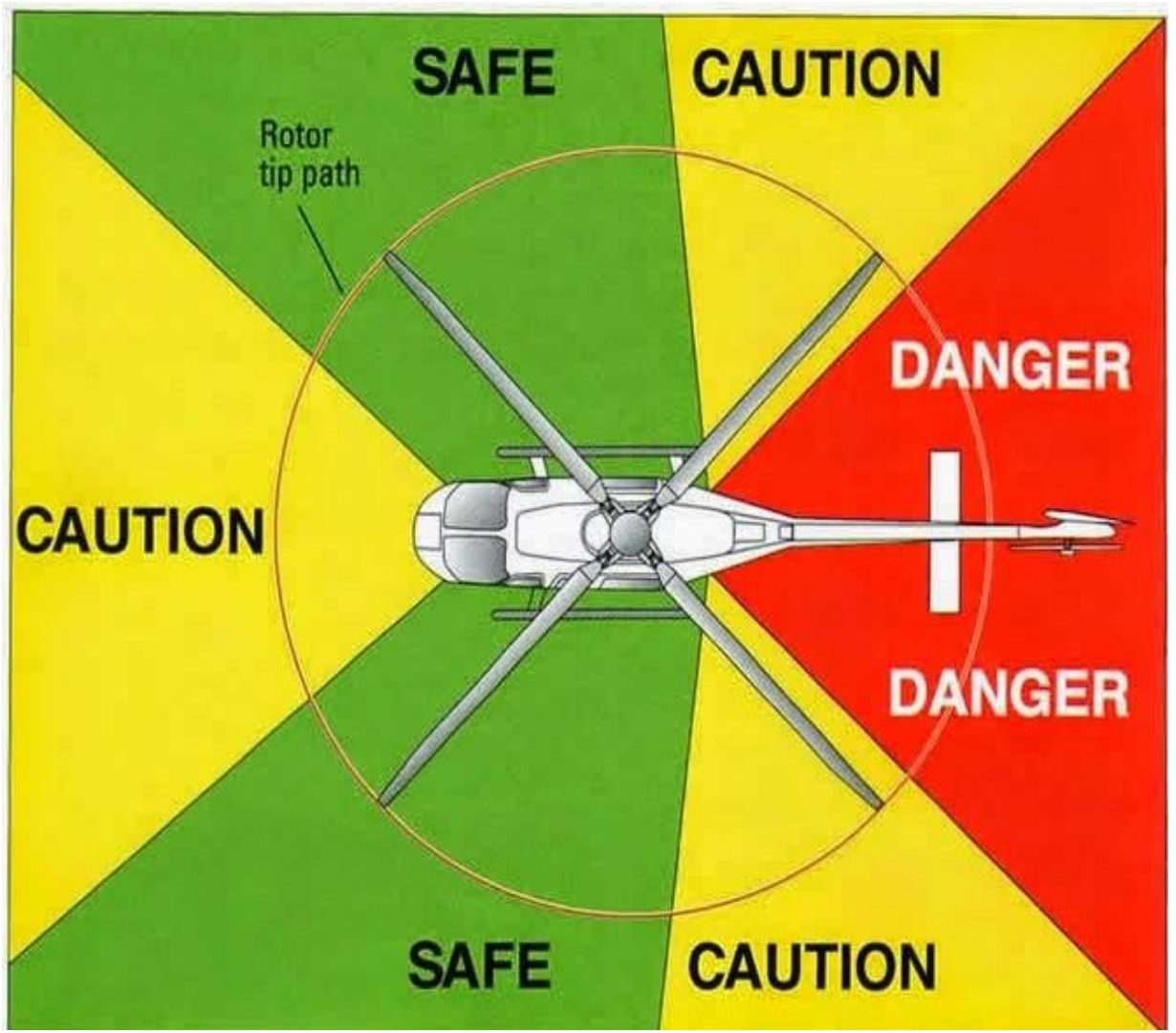
- **Gear Up!** Wear safety glasses and hearing protection.
- Assign a tail rotor guard and/or LZ safety officer (This needs to be someone not actively involved in the pt treatment).
- Ensure the area is secured and there are no pedestrians, animals, or vehicles within or immediately adjacent to the landing area
- Walk the area and remove any FOD that could be easily blown around when the aircraft arrives.
- Observe for any possible obstructions around the landing area. If you see something, say something!

LANDING

- Anticipate extremely high winds!
- Landing will almost always be done with the helicopter approaching into the wind.
- Maintain security within and around the landing area.
- A tail rotor guard is essential when the helicopter is on the ground and running.
- **DO NOT** approach the aircraft while it is running unless accompanied by the flight crew and/or only when directed to do so.

APPROACHING THE AIRCRAFT

- **DO NOT** enter the area unless accompanied by the flight crew and/or only when directed to do so.
- Utilize minimal amount of personnel needed to safely load or unload.
- Remove any hats or loose items from your person.
- Enter/exit in the area shown in green after receiving approval from the pilot or flight crew.
- **NEVER** approach from the tail!



APPROACHING THE AIRCRAFT

If you must approach the aircraft, follow the steps below:

- First obtain permission from the flight crew.
- Confirm the pilot is aware of your approach.
- Wait to approach until the pilot indicates it is safe to do so (make eye contact with the pilot and wait for approval, i.e. thumbs up).

SITUATIONAL AWARENESS

Look first!

- Think through **what** you are about to do.
- Think through **where** you are about to go.
- Move slowly and intentionally.
- Always be aware of what the aircraft is doing and is about to do.

LOADING/ UNLOADING

Assisting the flight crew with loading/unloading a patient will always be at the discretion of the flight crew. If requested to assist, all stretcher/sled movement will be directed by flight crew.

Cold Loading/Unloading

- Loading/Unloading is done when the engine is shut off and the blades have **completely** stopped turning.
- Safer, more controlled

Hot Loading/Unloading

- Loading/Unloading is done while the aircraft is running
- More common during scene responses
- Will always be at the flight crew's discretion as there are multiple factors involved in this decision

SAFETY NOTE

- Rotor droop is caused when an aircraft is shut down, but the main rotor is still slowing/spinning to a stop. In this situation, the rotor blade tips can drop dangerously close to the ground.

- **NEVER** approach a shut-down helicopter whose main rotor is not completely stopped. Wait until the flight crew marshals you, indicating it is safe to approach the aircraft.

LOADING/ UNLOADING

Aircraft Doors and Equipment

- Doors are light and fragile – Do not attempt to open, close, or secure the aircraft doors. Leave that to the flight crew!
- Do not rest hands on or lean against the aircraft – burns can occur from unsuspected hot surfaces (pitot tubes, cowlings, etc.).
- Antennas and sensors accidentally bumped can damage the aircraft and cause out of service time.
- Do not touch or move any aircraft support gear (land lines, chocks, foxcarts, etc.)

LOADING/UNLOADING

Side Load

Rear Load

LOADING/UNLOADING

Loading - Bell 407

Click to view the following videos of loading and unloading various airframes.

https://www.youtube.com/watch?v=SVrgnQI_Pj8&t=6s

LOADING/UNLOADING

Loading - Bell 429

https://www.youtube.com/watch?v=ph9f5zxkG8w

Unloading - Bell 429

https://www.youtube.com/watch?v=YJQD-sK-yDs&t=7s

LOADING/UNLOADING

Loading - EC 145

https://www.youtube.com/watch?v=xzGMBlTUXSQ

Unloading - EC 145

https://www.youtube.com/watch?v=A5MWWHvULZw

AIRCRAFT DEPARTURE

- Ensure area is secure and clear before start up.
- During start-up/take-off, ensure you are completely clear of the rotor system.
- Leave the area the same way you entered.
- Keep the tail rotor guard/LZ safety officer in place until the aircraft is clear of the area.
- Anticipate extremely high winds!

EMS PATIENT HANDOFF

AKA

"The EMS Timeout"

- Good patient care handoffs lead to better communication, fewer errors, and easier transitions in the hospital setting.

- It is imperative that all receiving team members take time to listen to the handoff, which should ideally occur ONCE at the bedside and involve key members of the team accepting the patient, including the treating physician.

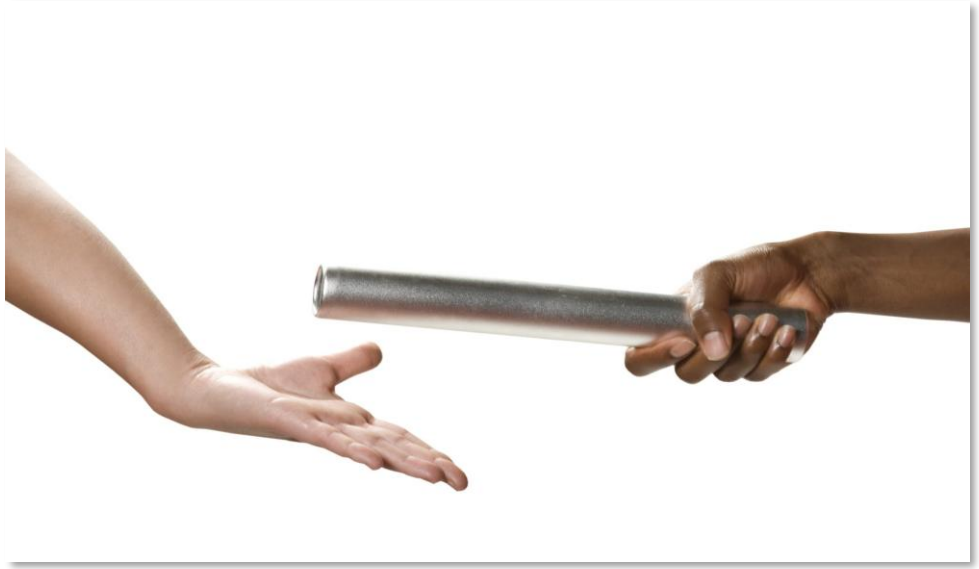
Consider the following during the EMS patient handoff:

- The handoff should occur during the EMS timeout, which should last no more than 15-30 seconds.
- All personnel in the room should remain quiet during the timeout to receive the EMS report
- Questions or clarifications should be requested at the conclusion of the report.
- Except for those who are in extremis or arrest, the patient can wait on the EMS stretcher for 30 seconds without harm!

At a minimum, a good EMS patient handoff should include:

- Demographics – age, gender, weight
- Chief complaint or mechanism of injury with associated s/s
- Description of the scene or environmental factors that may have contributed to the illness or injury
- Trauma/Medical assessment findings highlighting life threats

At a minimum, a good EMS patient handoff should include:



- Vital signs – first set on arrival and repeat/trend if change in status
- Summary of patient care interventions and responses
- Any critical interventions not yet performed or achieved that should be addressed by accepting team on arrival

Consider utilizing the *MIST Format* handoff

M	**M**echanism or **M**edical Complaint
I	**I**njuries/Illness Identified
S	**S**ymptoms and most recent Vitals
T	**T**reatments, **T**ubes/lines

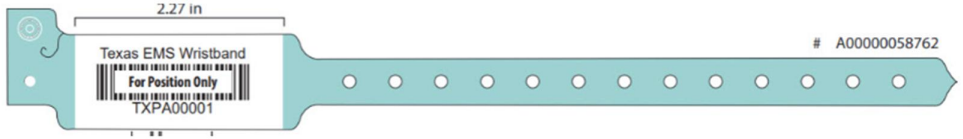
Texas EMS Wristband Project

The "Why"

- To track patients during mass casualty incidents (MCI), evacuations, and disasters
- To link pre-hospital and hospital records across disparate electronic medical record systems and throughout the continuum of care
- Increase the ability to collect accurate patient information
- Expedite record reconciliation and matching across various agencies/systems
- Facilitate outcome sharing between prehospital and hospital agencies
- Provide time and cost savings in locating and accessing records across multiple systems

The Texas EMS Wristband is for EVERYDAY USE by EMS and HOSPITALS
EVERY patient, EVERY day!

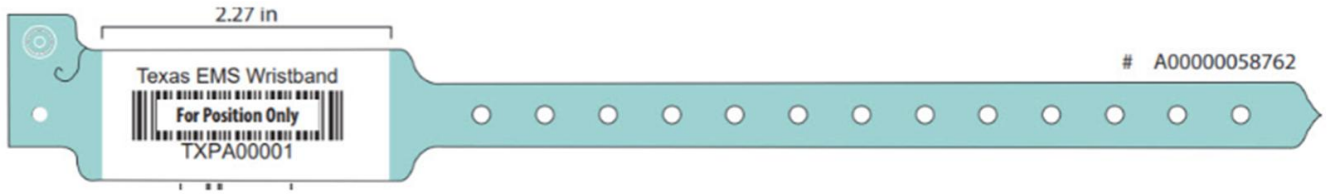
Texas EMS Wristband Expectations
Incoming EMS Patients



When patients are received into a facility with either a Texas EMS Wristband or an EMS Triage Wristband:

- Leave the wristband in place and DO NOT REMOVE
- Enter the wristband's unique identifier into a pre-identified query-able field within the facility's electronic health record
- If a wristband is accidentally removed – place a new wristband on the patient, cover or cross out the new barcode & unique identifier, and write the previous wristband's unique identifier on the new wristband using a permanent marker.

Texas EMS Wristband Expectations
Outgoing EMS Patients



When transferring patients out of the facility:

- Place a Texas EMS Wristband on the patient (if one is not already in place)
- Enter the wristband's unique identifier into a pre-identified query-able field within the facility's electronic health record prior to patient transfer
- If a wristband is accidentally removed – place a new wristband on the patient, cover or cross out the new barcode & unique identifier, and write the previous wristband's unique identifier on the new wristband using a permanent marker

Texas Department of State Health Services

Texas EMS Wristband Expectations
DSHS Rules Requirement

There is expectation that both the Texas EMS & EMS Triage Wristbands will be referenced within the Texas Department of State Health Services (DSHS) Rules, primarily within the revised Trauma Rules, as shown below:

REVISED TRAUMA RULE §157.125: REQUIREMENTS FOR TRAUMA FACILITY DESIGNATION

- Section 19, subsection (A); integration of the EMS patient care records, to include the EMS wristband tracking number.
- Section 27, subsection (E); The EMS wristband tracking number must be included in the registry abstraction and submission to the State Registry. If a wristband is accidentally removed – place a new wristband on the patient, cover or cross out the new barcode & unique identifier, and write the previous wristband's unique identifier on the new wristband using a permanent marker

EMERGENCY MEDICAL SERVICES (EMS) RULE §157.11: REQUIREMENTS FOR AN EMS PROVIDER

- Subsection (k); Paragraph (7): EMS vehicles must also have: each vehicle will carry 25 triage tags in coordination with the Regional Advisory Council (RAC).

SPECIAL CONSIDERATIONS

Night Operations

NIGHT OPERATIONS CONSIDERATIONS

- Decreased visibility
- Night Vision Goggles (NVG's)
  - Improve vision
  - Can impair depth perception
  - Can cause difficulty in differentiating terrain
- Light control
  - Do not shine light directly into the cockpit or towards the aircraft
  - Excessive overhead lights may be problematic
- LZ/Helipad lighting is of increased importance

SPECIAL CONSIDERATIONS

Specialty Aircraft

SPECIALTY AIRCRAFT CONSIDERATIONS

- Regions around Texas may need to consider LZ modifications to accommodate specialty aircraft (MH-65, UH-60, etc.).
- Each aircraft/organization may require different LZ and frequency considerations. It is recommended that you consult with applicable departments to best prepare for these specialty aircraft.

LET’S PUT IT ALL TOGETHER

[Illinois DOT Hospital Heliport Safety Training - YouTube [youtube.com]]

Video utilized with the written permission of the

Illinois Department of Transportation

SUMMARY

- **SAFETY IS PRIORITY NUMBER 1!**
- LZ should be at least 100’x100’, on a flat firm surface, and as free of obstructions/hazards as possible.
- A tail rotor guard is essential when the helicopter is on the ground and running.
- Clear and concise communication is imperative.
- Keep landing areas free of debris.
- Anticipate high winds!

SUMMARY

- Never approach a running aircraft unless accompanied by the flight crew and/or only when directed to do so.
- Stay clear of rotor system during start-up and shutdown.
- Secure/remove any loose items.
- A good patient care handoff, or “EMS Timeout”, leads to better communication, fewer errors, and easier transitions in the hospital setting.
- See a Texas Wristband? SCAN IT!
- See a patient without a Texas wristband? PUT ONE ON and SCAN IT!
- Risks increase when operating aircraft at night.

EVALUATION

Questionnaire Instructions to Receive Nursing Continuing Professional Development hours:

1. Use the QR code at left to access the feedback survey.
2. Complete your survey at the end of this learning event, completing only one survey per participant. The survey completion deadline is August 1, 2027.

Certificates will be emailed to the email you provide on the feedback survey.

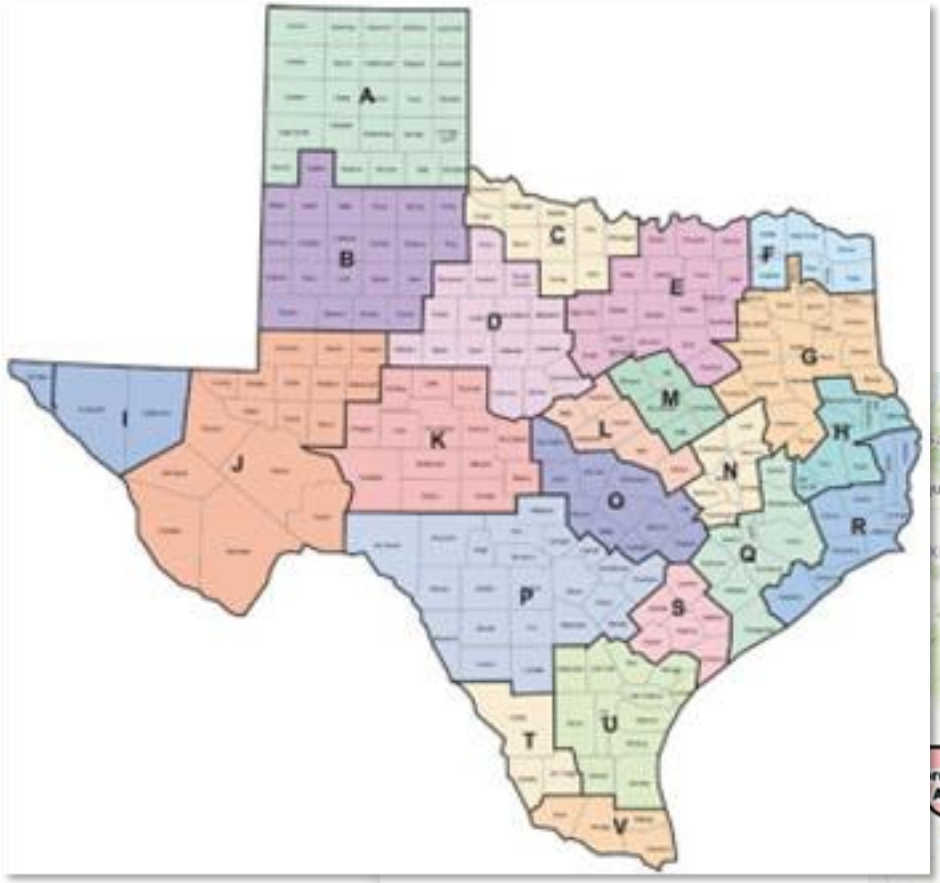
Questions? Contact us at education@tetaf.org

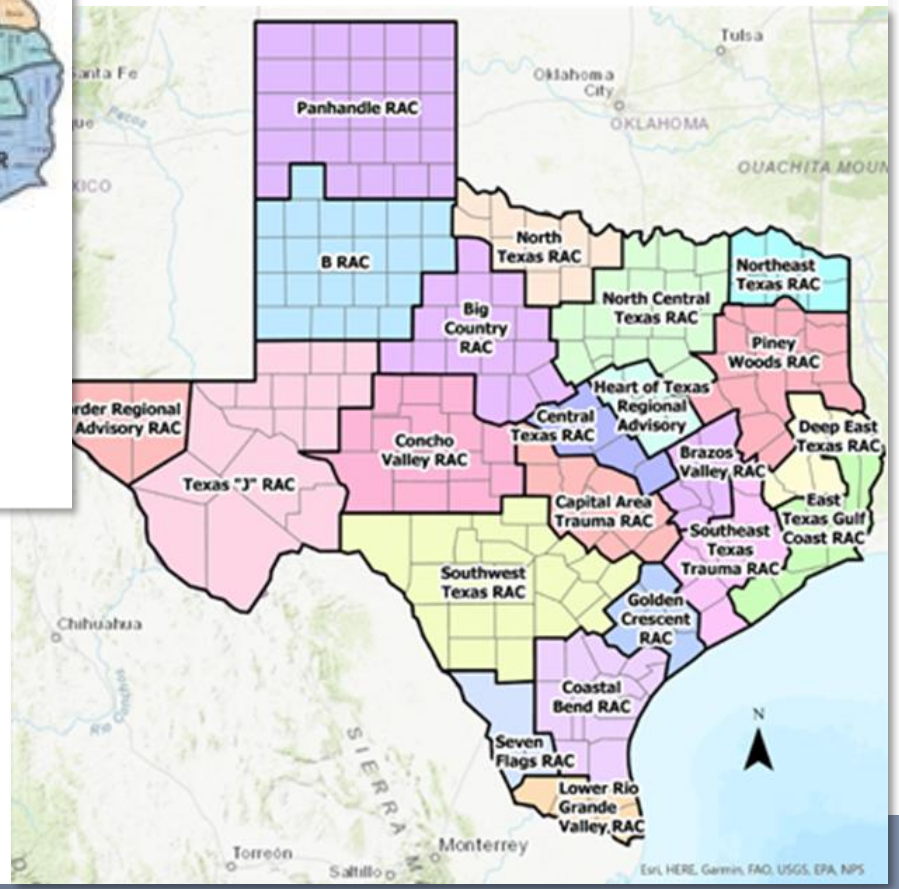
LOCAL PROVIDERS

As a reminder, this presentation is not meant as a substitute to in person training with your local providers. GETAC strongly recommends contacting your local air medical provider(s) to schedule that training.

If you require assistance in contacting your local air medical provider(s), please contact your RAC Chair.

Regional Advisory Councils





Special thanks to North Central Texas Trauma Regional Advisory Council for the presentation template and for their efforts to improve air medical safety.

For questions related to this presentation, please contact Lynn Lail at llail@CareFlite.org