



Helicopter Safety and Landing Zone Training



INTRODUCTION

The 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.



OBJECTIVES

- Identify landing zone requirements.
 - Identify safety practices and security around an aircraft and within the landing zone.
 - Know what “helicopter shopping” is and how to mitigate the associated risks.
 - Understand the differences between VFR vs IFR.
 - Be able to utilize proper aircraft communication.
 - Recognize additional considerations during night operation.
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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.

REQUESTING AN AIRCRAFT

Requesting process may vary slightly between agencies, but a few things are consistent.

Patient info

Provide pt condition/injury, pt weight (if known)
Interfacility transfer specific: any needed equipment and/or medication.

Scene details

Provide city, county, and state, an address, major cross streets, or location relative to an easily identifiable area/site, ground contact, frequency, requestor name and callback number. In some circumstances, GPS coordinates may be beneficial.

Has any other air medical provider declined this flight?

If so, why (weather, LZ concerns, etc.)?

Are any other aircraft responding to this location?

Be honest when asked about previous turndowns. Helicopter shopping can be a dangerous practice, and honest reporting can help mitigate the risk.

LANDING ZONE REQUIREMENTS

- Area should be a minimum of 100'x100' with no overhead obstructions.
- Area surrounding LZ should also be as free as possible from obstructions/hazards.
- Area should be a flat and level surface – 3-degree grade or less with little to no slope.
- Landing area can be paved, dirt, or short grass and needs to be a firm surface with no hidden obstacles.
- Area can be marked with strobes, cones, or vehicle/personal lights.
NEVER USE ROAD FLARES!

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. Ground crew or 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

The number one priority for any air medical operation!



- 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 photography or videography during the landing and departure of the aircraft.

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.
- If you observe one in the vicinity of the LZ, immediately notify the helicopter pilot and if applicable, request the drone operator to shut down the drone until the helicopter has safely departed the area.



PREPARING YOUR PATIENT

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
- 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.



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 the landing area.
- Walk the area and remove any debris such as trash or any other items that could be easily blown around when the aircraft arrives.
- Observe for any possible obstructions around the landing area.
- Consider parking emergency vehicles under power lines.

OBSTRUCTIONS/ HAZARDS

Power lines can be difficult to see from the air and create a safety concern for air medical operators. Keep all LZ markers away from power lines to avoid confusion and potential conflict during landing and takeoff.

Reminder that parking emergency vehicles under power lines helps air medical crews operate in a safe manner.





COMMUNICATION

Be clear and concise

Ex: LZ is a large open field North of the accident. We will be landing you in the grass, ground is firm and level. Winds are out of the NW (if known). LZ will be marked with flashing cones on all 4 corners. You have power lines along the road to the West and trees to the South. No other obstructions.

- Advise of any known obstructions or obstacles.
- Pt info is welcome, but not expected during pre-arrival instruction. LZ info is the priority.

COMMUNICATION – RADIO FREQUENCY

Radio frequency is traditionally agreed upon during the aircraft request and is based upon the preferred frequency of the ground unit, if available by the air medical provider.

Label (Channel Name / Trunked Radio System Talkgroup)	RX Freq	RX Tone/NAC	TX Freq	TX Tone/NAC	Mode (A, D, M)	Use
VMED28	155.3400	156.7	155.3400	156.7	A	Medical Tactical & Air-to-Ground with Medical Aircraft

The Texas Statewide Interoperability Channel Plan states:

“VMED 28, in addition to being a medical tactical and mutual aid channel, is also designated for Ground-to-Air communications with EMS helicopters and other aircraft that may be assigned to an incident or event.”

COMMUNICATION – RADIO FREQUENCY

Interop Radio Communications

Aircraft Responding to a scene or MCI prior to EMTF being in place, should follow this Aircraft Radio Comms Interop plan:

- 1st / preferred - Local established emergency air ground channels, if the aircraft is local (if a Network is in place, aircraft should have access to network designated Air Channel)
- 2nd – Out of network aircraft responding – use Air Channels per interop plan for conventional radio systems in the below table (UHF, VHF, 700, & 800)
- 3rd - Patch

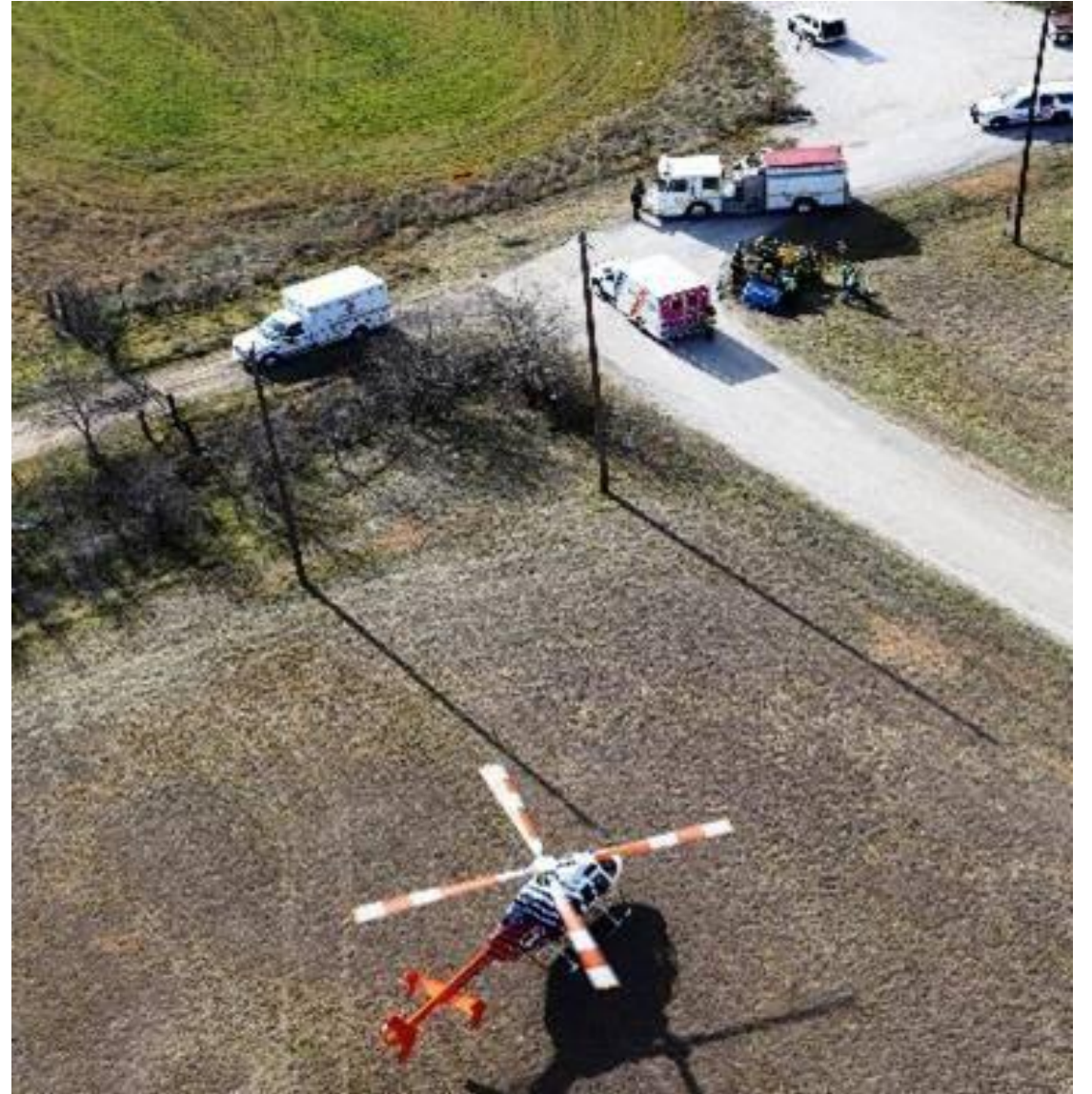
Once EMTF is in place, radio communication directed by EMTF (UHF, VHF, 700, 800, WAVE, or patch)

COMMUNICATION - RADIO FREQUENCY

This table contains the radio frequencies that each helicopter will have for radio communication (when not in the local network/talkgroups).

VHF 150 MHz Simplex Interoperability Channels (12.5 kHz)							
Ch#	Label	RX Freq	RX Tone/NAC	TX Freq	TX Tone/N AC	Mode (A, D, M)	Use
1	VCALL10	155.7525	156.7	155.7525	156.7	A	Calling Channel
6	VFIRE21	154.2800	156.7	154.2800	156.7	A	Fire Tactical
10	VMED28	155.3400	156.7	155.3400	156.7	A	Medical Tactical & Air-to-Ground with Medical Aircraft
UHF 450 MHz Interoperability Channels (12.5 kHz)							
Label	Receive	Transmit	Station Class	CTCSS RX/TX	Use		
UCALL40	453.2125	458.2125	FB2T / MO	156.7 / 156.7	Calling Channel (Repeater)		
UCALL40D	453.2125	453.2125	FBT / MO	156.7 / 156.7	Calling Channel (Direct)		
700 MHz Interoperability Channels (12.5 kHz)							
Label	Receive	Transmit	Station Class	Use			
7CALL50	769.24375	799.24375	FB2T	Temporary Calling Channel Repeater			
7CALL50D	769.24375	769.24375	FBT / MO	Calling Channel (Direct)			
700 MHz Interoperability Channels (12.5 kHz) Air-to-Ground							
Label	Mobile RX	Mobile TX	Use				
7AG58	769.13125	799.13125	Air-Ground				
7AG58D	769.13125	769.13125	Air-Ground				
7AG60	769.63125	799.63125	Air-Ground				
7AG60D	769.63125	769.63125	Air-Ground				
7AG67	770.13125	800.13125	Air-Ground				
7AG67D	770.13125	770.13125	Air-Ground Landing Zone# within 70 miles of US/Mexico border				
7AG68	770.63125	800.63125	Air-Ground				
Channels in RED and "+" are primary to Mexico and should NOT be used within 70 miles of the US/Mexico Border							
7AG78	773.11875	803.11875	Air-Ground+				
7AG78D	773.11875	773.11875	Air-Ground+				
7AG80	773.61875	803.61875	Air-Ground+				
7AG80D	773.61875	773.61875	Air-Ground+				
7AG85	774.11875	804.11875	Air-Ground+				
7AG85D	774.11875	774.11875	Air-Ground+				
7AG88	774.61875	804.61875	Air-Ground+				
7AG88D	774.61875	774.61875	Air-Ground Landing Zone*+				
#7AG67D is recommended for Landing Zone use within 70 miles of the US/Mexico border							
*7AG88D is recommended for Landing Zone use in the NIFOG (National Interoperability Field Operations Guide)							
800 MHz Nationwide Interoperability Channels (20 kHz)							
Label	Receive	Transmit	Station Class	CTCSS RX/TX	Use		
8CALL90	851.0125	806.0125	FB2T / MO	156.7 / 156.7	Calling Channel (Repeater)		
8CALL90D	851.0125	851.0125	FBT / MO	156.7 / 156.7	Calling Channel (Direct)		
8TAC95D	851.5500	851.5500	MO	156.7 / 156.7	Incident Control Channel (Direct)*		
8TAC96D	853.0500	853.0500	MO	156.7 / 156.7	Incident Control Channel (Direct)*		
8TAC97D	853.3500	853.3500	MO	156.7 / 156.7	Incident Control Channel (Direct)*		

LANDING ZONE PRACTICE



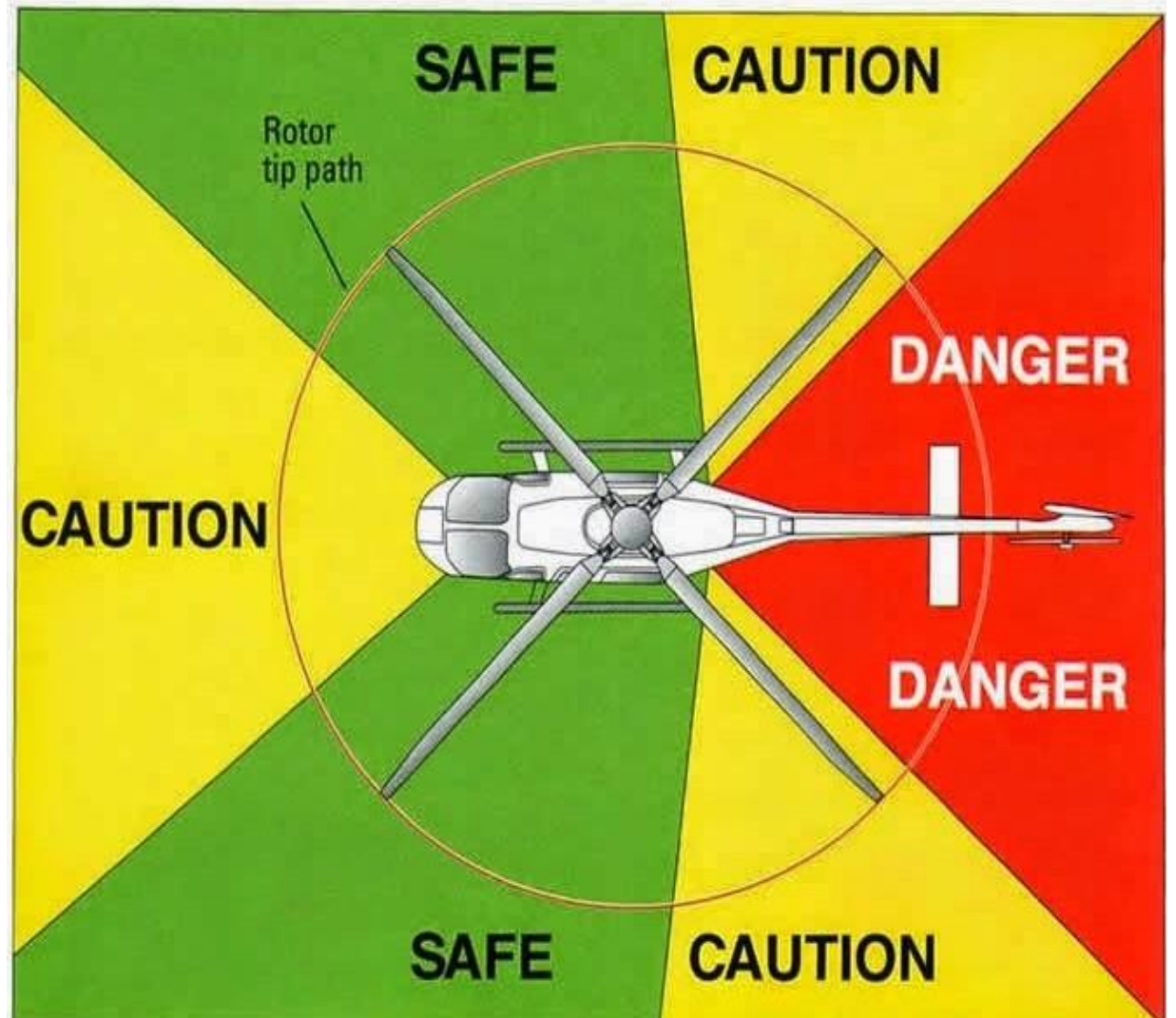


LANDING

- Anticipate extremely high winds!
- Landing will almost always be done with the helicopter approaching into the wind.
- Notify the helicopter crew of any known obstructions.
- 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.
- Remove any hats or loose items from your person.
- Enter/exit in the area shown in green after receiving approval from the pilot.
- **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).



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

LOADING/UNLOADING



Side Load



Rear Load

LOADING/UNLOADING



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

Loading - Bell 407

LOADING/UNLOADING



Loading - Bell 429



Unloading - Bell 429

LOADING/UNLOADING



Loading - EC 145



Unloading - EC 145



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!

SPECIAL CONSIDERATIONS

Night Operations



NIGHT OPERATIONS CONSIDERATIONS

- Decreased visibility
- Night Vision Goggles (NVG's)
 - Improves 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

Icing





ICING CONSIDERATIONS

- Ensure landing areas and walkways are free of icing.
- A non-corrosive liquid de-icer is preferred if needed.
- Keep helipad status updated on local resource platform (EMResource, Pulsara, etc).
- Reminder that any substance used on a helipad may become a projectile when exposed to rotor wash. This may include sand, salt, or other substances applied to the landing area.

SPECIAL CONSIDERATIONS

Brown/Whiteout





BROWN/WHITEOUT CONSIDERATIONS

- A brownout is when dust, dirt, or sand obstructs the pilots' visual reference of the ground.
- A whiteout is the same as a brownout but is due to snow.
- Both can occur upon landing, and both are cause for aborting the landing attempt.
- If unable to wet the area (brownout) or blow the area out (either), the LZ will need to be relocated.
- Although the need for FD personnel to wet the area is uncommon, it should be done if there is a risk of a brownout or if it is needed to help identify the LZ.

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.

TYPES OF AIRCRAFT OPERATION

Visual Flight Rules (VFR)

Most common

Simply means that the aircraft is intended to operate in visual meteorological conditions (i.e. nice and clear weather). Low clouds, heavy precipitation, low visibility, and otherwise adverse weather conditions should be avoided under VFR.

TYPES OF AIRCRAFT OPERATION

Instrument Flight Rules (IFR)

Not all aircraft are capable

Implies that the flight may operate in instrument meteorological conditions (IMC, meaning increased cloud cover, low visibility, or otherwise adverse weather conditions).

Still has limitations and may require landing at a remote location (i.e. airport or helipad with IFR approach).

Could be associated with longer response times.



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.
- Risks increase at night.
- Be honest when asked about previous turndowns. Helicopter shopping can be a dangerous practice, and honest reporting can help mitigate the risk of the current request.

CE HOURS

- To obtain 1 DSHS CE contact hour for this course, please scan the QR code to complete the exam and evaluation.
- Alternately, the following link can be utilized: <https://bit.ly/TexasLZ> [bit.ly]



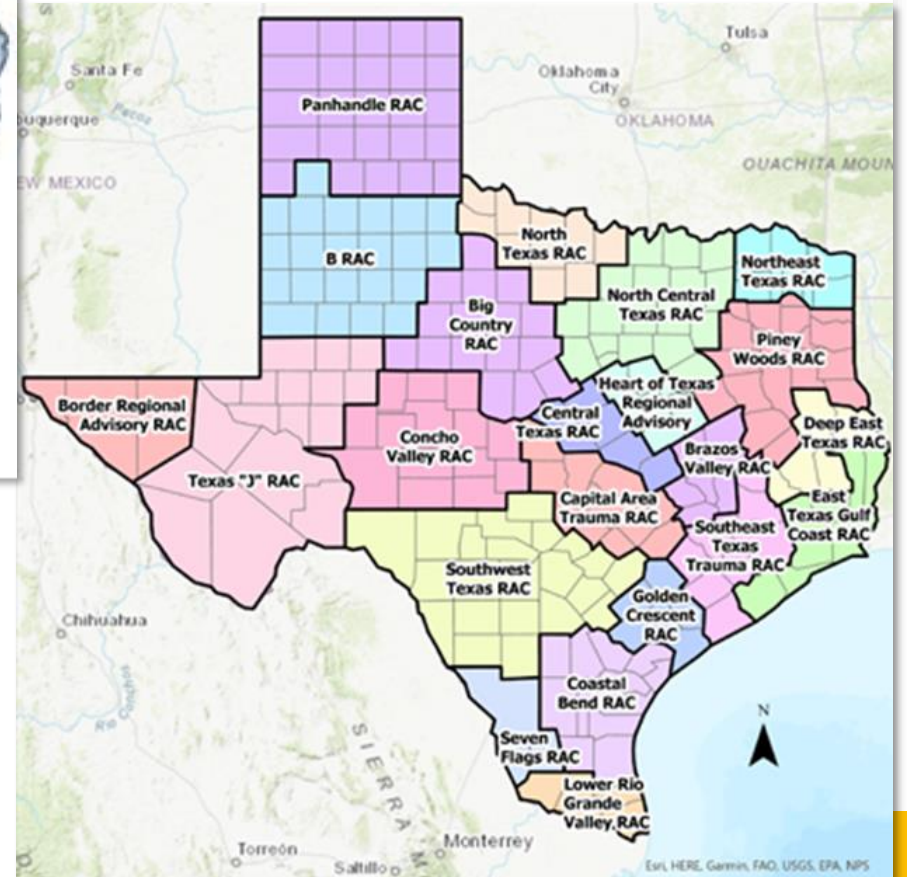
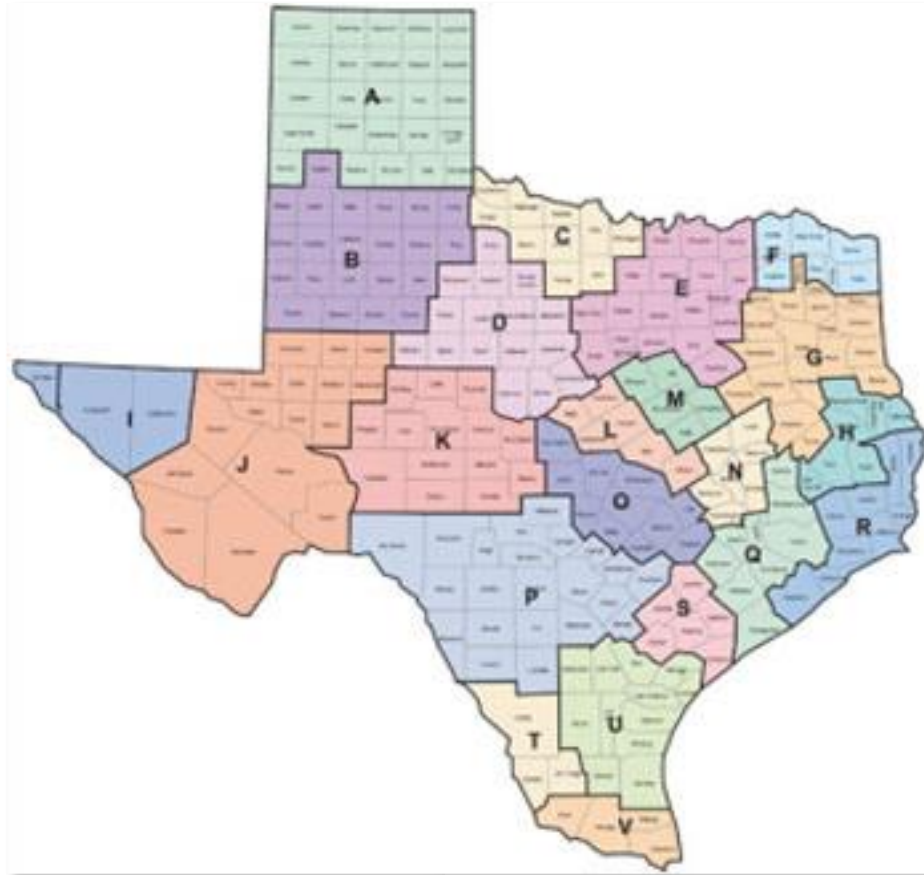
LOCAL PROVIDERS

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
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improve air medical safety.

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