
Air Ambulance Operations
FOR EMS PROVIDERS

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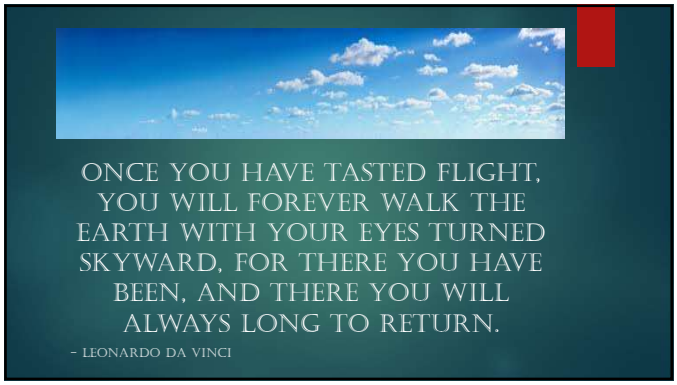
ONCE YOU HAVE TASTED FLIGHT, YOU WILL FOREVER WALK THE EARTH WITH YOUR EYES TURNED SKYWARD, FOR THERE YOU HAVE BEEN, AND THERE YOU WILL ALWAYS LONG TO RETURN.
- LEONARDO DA VINCI

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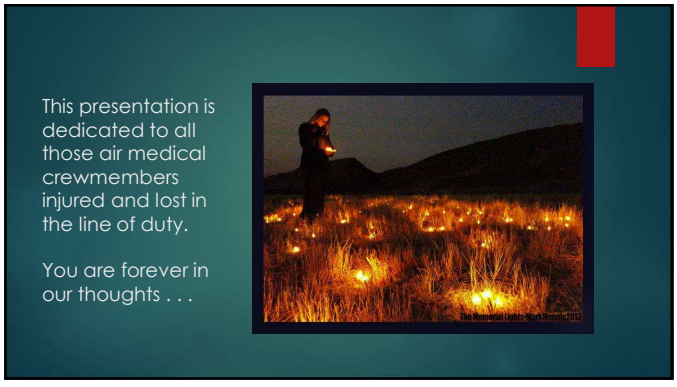
This presentation is dedicated to all those air medical crewmembers injured and lost in the line of duty.
You are forever in our thoughts . . .

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Objectives & Disclaimer

At the conclusion of this presentation, you will be able to:

1. Recognize that air medical transport is a vital part of many healthcare systems.
2. Explain the importance of landing zone preparation, placement, and safety.
3. Identify how specific time sensitive patients benefit from the use of air medical RW/FW services.

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WL1

Education
Awareness
Vigilance

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A *Brief* History of Air Transport

- All historical information obtained from: Critical Care Transport Core Curriculum, Donna York Clark, et al Air & Surface Transport Nurses Association, 2017

- **19th Century** – first civilian ambulance services established in Cincinnati and New York, New York. In 1864 the Red Cross is founded by Clara Barton.
- **20th Century** – first successful air evacuation of patients by the French (1915), and the first French air ambulance, a Dorand AR II biplane (1917).
- **1928** – The first Royal Flying Doctors Service flight is completed.

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Slide 5

WL1 William Landon, 9/28/2020

- **1942** – the first flight nurse training program is established in Louisville, KY at the 349th Air Evacuation Group. It is a 6-week program and includes flight physiology education

- Improvements in mortality and morbidity decrease substantially after air evacuation in WW I, WW II, and the Korean and Vietnam Wars.

- Korean War – approximately 20,000 injured servicemen are transported by helicopter with only a pilot as crew.

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Approximately 20,000 injured soldiers are transported by helicopter during the Viet Nam War with crews consisting of pilot and "corpsmen" paramedics.

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1970's

Loma Linda University Hospital, CA
May1972

St. Anthony's Hospital, Denver, CO
Oct 1972

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Care Flight Begins Regional Air Ambulance Service in 1981-2 prior to REMSA

7 RN's and 3 Pilots

Consortium between St. Mary's and Washoe Medical Ctr

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Care Flight 2020

1 - FW Base 4 - RW Bases 1 - Critical Care Ground Ambulance

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Care Flight Pilatus PC-12/45

- Single Engine Medium Turboprop / IFR capable
- Max Altitude: 27,000 feet
- Co-pilot capable
- Cabin: 330 cubic feet
- Pressurized cabin
- Max Speed: 313 mph
- Range: 1742 miles
- Fuel Burn: 63 gph
- Medical Crew: 2 (RN/CCP/RN)
- Patients: 2

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Care Flight FW Service Area

- Primarily interfacility transport across 7 states
- Scene call rendezvous to airports within the Care Flight service area
- Average transport time is 4-6 hours.

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Care Flight Critical Care Ground Ambulance

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Care Flight Victor-50

- Dodge RAM 5500 chassis
- Critical Care RN / Paramedic
- EMT-B / EMT-I Driver
- Based at Renown Regional Med Ctr
- Same advanced critical care services as the helicopter
- Available for 911 calls and transfers requiring advanced critical care
- 24/7 service
- Supplements RW/FW during "no-fly" weather

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Care Flight Rotor Wing (RW)

- Airbus AS-350 B3/B3e
- VFR primarily – IFR capable
- Single turbine-powered engine
- Max Altitude: 20,000 ft *
- Single pilot
- Single patient
- Crewmembers: RN/CCP or RN/RN
- Non-pressurized cabin
- Avg Speed: 137 mph ~ 2 mi/min
- Range: 300 miles before refueling

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Care Flight RW Service Area

- 55,000+ square miles of north central NV and northeast CA
- 150 miles from each base
- 24/7 bases
  - **Beckwourth** (Nervino Airport)
  - **Fallon** (Banner Churchill Hospital)
  - **Gardnerville** (Carson Valley Med Ctr)
  - **Truckee** (Truckee Airport)

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Care Flight RW Operations

- VFR flight acceptance
- 24/7 operations
- Operates under Title 14 Code of Federal Regulations, Part 135
- Partnered with Med-Trans Corp.
- Pilots governed under Part 135 regulations
- Medical crew are CF employees

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Why Request an Air Ambulance?

- Speed of transport
- Specialized training of the flight crew
- Advanced critical care therapies and equipment at the patient side quickly
- Backcountry access
- Organ donor / team /organ transport
- Specialized neonatal team transport
- Search & Assist / SAR capabilities
- Disaster response



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Care Flight Request Procedure

- 911 is contacted and a helicopter response is requested
- ACS obtains specific information, tones out appropriate, *closest* helicopter (Care Flight or other)
- Care Flight helicopter responds with acceptance or turn-down*
- Airborne within 10 minutes to your location
- ACS provides location, ground contact, comm frequency to helicopter
- You establish landing zone (LZ)

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Requesting Care Flight Helicopter Be Prepared with the Information

- Who is requesting the aircraft?
- What is your location? LZ?
- What is the patient complaint?
- Age, sex, PATIENT WEIGHT ESTIMATED (if possible)
- **ABSB vs GO request?**
- Ground contact and frequency
- NEVCORD 1 will be usual in NV
- Refer to your LZ information

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The Rest of Today Will be Helicopter Landing Zone Operations

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Requesting a Care Flight Helicopter is Left to 1st Responder Judgement

Helpful Guidelines:
- EMS availability / patient location
- Your assessment of patient need
- Multiple patients / severe injury
- Time sensitive

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Types of Request

- **Airborne Standby (ABSB)**
- **"GO" request**

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Airborne Standby Request

- CALL EARLY! **You don't need to be with the patient.**
- Consider requesting > 1 helicopter if there are multiple patients
- Care Flight will respond immediately. Average lift time is 10 minutes
- All we need initially is an approximate location and if remote, distance from known landmarks or mile markers for calculating fuel load, etc.

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GO vs Airborne Standby

GO	Airborne Standby
• Confirmed patient that needs transport • Air ambulance is requested by EMS/Fire/LE responders on scene • Witnessed change in patient condition • No cost UNLESS patient is transported by Care Flight	• EARLY Request • You think you may need air medical response. You might not even be on scene yet. • You are frontloading resources. • Event sounds significant. • No cost UNLESS patient is transported by Care Flight

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Utilization Criteria to Consider

- Trauma / uncontrolled bleeding
- STEMI / Stroke / TBI
- Acutely ill / injured pediatrics
- Changes in level of consciousness
- Thermal / Chemical Burns
- Acute Coronary Syndromes
- Cardiac arrest with *convertible* rhythm: VT, VF, PEA, Tachy, Brady, etc.
- Entrapment/ extended extrication
- Backcountry responses
- Extended EMS response times
- Advanced airway management or ventilation therapies required

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Time – Benefit Consideration

EMS – Do what is best for your patient!

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Consider a rendezvous if your local weather is not flyable

Weather in northern CA and NV is variable and ever-changing. Isolated cells of activity are common. Report your local weather conditions at the time of request if you think it may influence helicopter operations.

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Coordinating LZ Ops

Landing Zone Coordinator:

- May be IC, EMS, Law enforcement or fire officer
- Must be familiar with HEMS LZ safety & procedures
- Delegates LZ placement, security, and tail rotor guard
- **Maintains radio comms till the helicopter has departed**

STAY IN YOUR POSITION UNTIL THE HELICOPTER HAS DEPARTED!

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Positioning the Landing Zone

Place the LZ and designate security assignments after evaluating **four criteria**:

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Landing Zone Criteria

1) LZ proximity and patient access
2) Necessary size of the LZ
3) Hazards around the LZ area
4) Surface and degree of slope

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LZ Proximity

- ✓ Unrestricted patient access for both helicopter staff and ground personnel.
- ✓ Minimum 50 ft from scene and/or obstacles.
- ✓ LZ easily secured and maintained.
- ✓ Care Flight may land closer if you can protect the patient and have confirmed radio communication.

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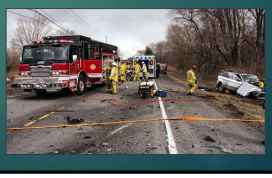
Landing Zone Hazards

- Wires and poles. Wires!
- Trees & bushes
- Debris
- Wires!
- People and vehicle traffic
- Animals / Livestock
- Wires!
- Other helicopters
- Drones / UAV's



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LZ Size and Security

- **100' x 100' and reasonably level.**
- No wires, trees, or obstacles within the LZ perimeter.
- Vehicles and pedestrians must be controlled prior to aircraft arrival.
- Working radio comms prior to helicopter arrival. NEVCORD 1 is the ground-air frequency in NV. CALCORD in California.

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Surface and Slope

- Firm and reasonably level
- Very light watering *ONLY* if needed
- No debris or loose material within the landing zone
- Slope less than 8 degrees or comparable to local mountain roads. Pilot will make final decision on all LZ's.

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Surface Conditions

Construction debris

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Slope

Evaluate slope. There is less ground clearance on the uphill side.

Always approach the helicopter in full view of the pilot's 10 – 2 o'clock position (nose is 12:00)

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Establishing Ground-Air Comms

- When the a/c is in sight, initiate communications on the assigned frequency and be prepared to talk the pilot into the LZ. Re brief.
- CF uses UHF/VHF. Ensure the LZ is obvious from the air. If you are standing in the LZ, be prepared to exit upon helicopter arrival / short final.

NEVCORD 1 or CALCORD

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The pilot has final authority to accept or deny any LZ

Be prepared with an alternate LZ if asked

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Communicating the LZ Location to the Pilot and Crew

- BE SPECIFIC
- MAKE IT SECURE FROM ALL VEHICLES, INCLUDING AMBULANCES
- WATCH FOR WIRES
- MAKE IT OBVIOUS FROM THE AIR
- USE VEHICLES WITH EMERGENCY LIGHTS ON, INTERSECTIONS, AND/OR PEOPLE TO MARK THE PERIMETER, DAY AND NIGHT.

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Landing Zone Report

- Be prepared with simple info
- Be concise
  - LZ perimeter is marked with --------
  - We would like you --------
  - Poles, wires, hazards are --------
  - LZ is secure from vehicles / people
  - **CONFIRM IT IS.** NO ASSUMPTIONS!

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Landing the Aircraft

- Secure the perimeter from all persons & vehicles.
- Shelter your patient in the ambulance or cover him/her.
- Be prepared to give an LZ report if asked.
- **Leave emergency lights illuminated day or night.**

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Landing the Helicopter at Night

- Care Flight utilizes NVG's
- Inspect the LZ and identify hazards *before* aircraft arrival.
- **Account for ALL wires.**
- **Walk, scan, and illuminate** the LZ perimeter prior to aircraft arrival. Visually inspect the area outside of the LZ for obstacles.
- Have your emergency lights on prior to helicopter arrival.
- If you use vehicle headlights to mark the LZ, be prepared to turn them off if asked by the pilot.

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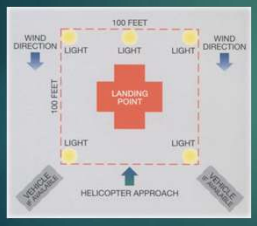
Landing Zone Summary



- 100 ft x 100 ft and reasonably level
- No wires or poles within or immediately next to the LZ
- 150 ft from vehicles/people unless marking the LZ perimeter
- All vehicles and people secured
- Clear flight path in and out of LZ
- No debris within the LZ
- Be on frequency NEVCORD1/CALCORD
- Only person talking should be the LZ Coordinator

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Preparing Your Patient for Transport

- Keep them warm and covered
- Protect them from blowing dirt or debris
- Put them in your ambulance if possible
- If using a backboard, have them sized and secured properly
- If able, let them know your transport plan
- Be their advocate!

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Many Care Flight Scene Calls Involve "Hot Loading" the patient

- Once landed, the flight crew will always come to you
- Secure all loose items
- If something blows, DO NOT chase it!
- Use **"STOP!"** to identify hazards during loading
- Walk the same route when approaching and leaving the aircraft.
- Remember slope!

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Hazardous Materials

- Care Flight does not land downwind or downhill of any Hazmat incident.
- Hazardous material must be contained and without danger of spreading.
- Patients must be completely decontaminated prior to transport. Discretion for transport by air rests solely with the flight crew.
- No LZ within one mile of any radioactive incident.

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When Things Don't Go as Planned

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Ensure Your Safety is Not Compromised!

- Maintain required LZ clearances
- **Life Safety is #1 – YOURS!**
- Do not approach till all machinery stops
- Medical crew vs aircraft
- No one enters the scene except for rescue
- All debris stays where it lays
- LEO – Coroner – NTSB has jurisdiction

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Oxygen Aboard the Aircraft - LOX

- Right side (pilot) side compartment
- 200# psi "pumpkin"
- Cryogenic liquid. Frostbite and burns with direct exposure
- Highly flammable

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Compressed Gas O2

- Right side (pilot) of aircraft
- 1800 – 2000# carbon bottle
- Highly flammable

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Walk, don't run.

Slow is smooth and smooth is fast.

NEVCORD 1 is the primary channel for Care Flight. We have all Med channels (UHF) and VHF channels programmed in the aircraft, and one 800 MHz handheld portable.

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- Call early. Airborne standbys are your friend!
- Landing zone 100' x 100' day or night.
- LZ clear of obstructions, reasonably flat, and firm surface. **NO OVERHEAD WIRES.**
- **For night ops, the LZ should be walked, scanned, and illuminated for unseen hazards, especially power lines!**
- All nonessential persons and vehicles need to be secured prior to the aircraft arrival and landing.

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Direct:
1-800-648-4888

CF Supervisor-on-Call
(775) 353-0746
24/7

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"When it Matters Most"

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Questions?

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Thanks For Your Attention!

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