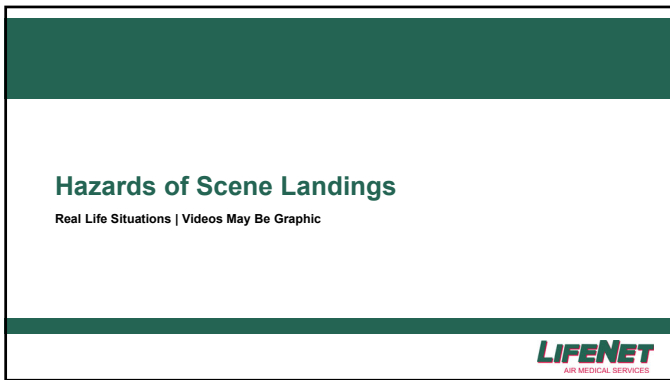
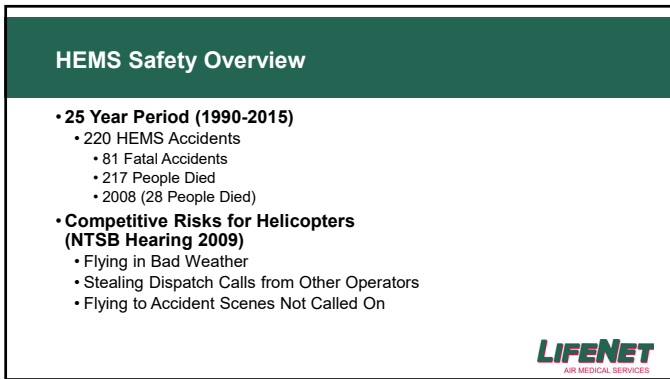




1




2




3

Brownout or Whiteout



- **What is brownout/whiteout?**
- In-flight visibility restriction due to dust/sand/snow in the air
- Chicken feathers create a similar problem (truck accident)
- **How can you help?**
- Caution picking LZ
- Put water on dirt




4

Wire Strike




- **About the Incident**
- British Columbia
- Scene Flight
- Patient On Board
- **Outcome**
- Helicopter Grounded For New Blades
- Patient Transported Via Ground




5

Approach Speed

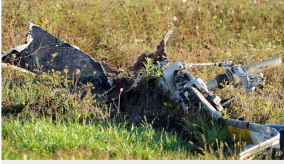


- **About the Incident**
- November 2001
- Agusta A119 Helicopter
- Ogden, Utah
- Ground Survey of New Hospital Helipad
- **Outcome**
- Helicopter Destroyed
- 3 Minor Injuries




6

Wire Strike



Helicopter wreckage lies near to the road after a medical helicopter drops a cable tower pole onto and crashes, killing four people in Aurora, Illinois on October 11, 2008. The helicopter was headed for Children's Memorial Hospital in Chicago from Valley View Hospital in Danvers when it went down minutes before midnight.

- **About the Incident**
 - Bell 222 Helicopter
 - October 2008
 - Aurora, Illinois
 - Interfacility Patient Transport
- **Outcome**
 - Helicopter Destroyed
 - 4 People Killed
 - Pilot, Flight Nurse, Flight Medic
 - 14 Month Old Patient



7

Multiple Aircraft on Scene






- **About the Incident**
 - Bell OH-58 Police Helicopters
 - Pasadena, California
 - 1 Landing, 1 Ready for Takeoff
- **Outcome:** 6 People Injured (1 On Ground)




8

Multiple Aircraft on Scene




- **About the Incident**
 - Army Blackhawk Helicopters
 - June 1996
 - 101st Airborne Division
 - Fort Campbell, KY
 - Mock Medical Evacuation
- **Outcome**
 - 6 People Killed, 30+ Injured




9

Bird Strike





- **About the incident**
 - Bell 407
 - November 2017
 - Stuttgart, AR
 - Impacted Reservoir Bank
 - Postimpact fire consumed a majority of the fuselage.
 - Multiple Snow Geese in the cockpit
- **Outcome**
 - 3 People Killed



10

Weather

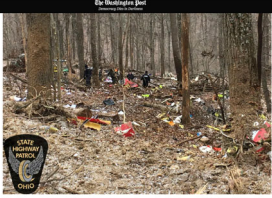
- **VFR vs. IFR Conditions**
 - Visual Flight Rules
 - Instrument Flight Rules
- **Helicopter Shopping**
- **Weather Related HEMS Accidents**
 - 1998-2008 NTSB Study
 - 19% of All Accidents - Weather


11

Weather

Two air ambulances turned down a flight because of the weather. A third agreed, then crashed.





- **About the Incident**
 - Bell 407
 - January 2019
 - Zaleski, OH
 - VFR Rated
 - Inbound for Interfacility Transport
- **Outcome**
 - 3 People Killed
 - 600 Ft Wreckage Path



12

Is HEMS Really Safe?


- **2009 NTSB Hearing - HEMS**
 - 29 Year Study
 - 4.5 Million HEMS Patients
 - 34 HEMS Patient Deaths Over 29 Years
 - 1.17 Patient Deaths Annually
- **2014 NHTSA Report**
 - 20 Year Study (1992-2011)
 - 6500 Traffic Crashes Involving an Ambulances (Per Year Average)
 - 140 Patient Deaths Over 20 Years (Roughly)
 - 7 Patient Deaths Annually

13

Reporting HEMS Accidents


Who You Gonna Call?




14

Accident Scene Command & Control


- **Incident commander**
 - Responsible until NTSB arrives
 - Law enforcement & fire department establish control and manage immediate problems until FAA and NTSB arrive
- **Local law enforcement is crucial in**
 - Security
 - Bystander safety
 - Evidence protection
 - BUT ... must relinquish control authority to the federal investigator in charge per federal law
- **NTSB has jurisdiction at ALL aircraft accident sites**
 - NTSB responsibility can be assigned to the FAA and then to local authorities




15

NTSB 


- **Response Operations Center (ROC) – 1-844-373-9922**
- **Immediate Notification (Operators of the Aircraft)**
 - Type, nationality, and registration marks of the aircraft
 - Name of owner and operator of the aircraft
 - Name of the pilot-in-command
 - Date and time of the accident
 - Last point of departure and point of intended landing of the aircraft
 - Position of the aircraft with reference to some easily defined geographical point
 - Number of persons aboard, number killed, and number seriously injured
 - Nature of the accident, the weather, and the extent of damage to the aircraft
 - A description of any explosives, radioactive materials, or other dangerous articles carried.
- www.NTSB.gov/Pages/Report.aspx




16

NTSB 


- **Remove Wreckage?**
- Preservation of aircraft wreckage, mail, cargo, and records, requires that operators preserve aircraft wreckage, recorders, documents, etc. following an aircraft accident until such time as the Board or its authorized representative takes custody of such items.
- **The wreckage may be disturbed to remove persons injured or trapped; to protect the wreckage from further damage; or to protect the public from injury.**
- After being notified of an accident, the NTSB may or may not take custody of wreckage, and at the discretion of the investigator-in-charge, may immediately release some or all of the wreckage for transport/recovery from the accident site.
- If you have any questions about whether or not it is appropriate to move wreckage, contact the NTSB investigator assigned to the case or the NTSB ROC.



17

NTSB 

- **Statement of Observations**
 - Prepare a Statement
 - Include Phone Number
 - Investigator may contact you
 - Email it to: witness@ntsb.gov



18

FAA Contact Numbers
Flight Standards District Officers (FSDO)

- **Contact a FSDO for**
 - Low-flying aircraft
 - **Accident reporting**
 - Air carrier certification and operations
 - Aircraft maintenance
 - Aircraft operational issues
 - Aircraft permits
 - Airmen certification (licensing) for pilots, mechanics, repairmen, dispatchers, and parachute riggers
 - Certification and modification issues
 - Enforcement of Airmen & Aircraft Regulations

Little Rock FSDO
501-918-4400


North Texas FSDO
214-277-8500



19

Witness & Wreckage Documentation


What to Preserve



20

3 Reasons to Enter a Scene


- **First responders should only enter the site on aviation crash to:**
 - Remove persons injured or trapped
 - Protect the wreckage from further damage
 - Protect the public from injury
- **If first aid or rescue is not needed or cannot be rendered, move to a safe distance and keep others out.**



21

Secure the Scene


- **Treat it like a crime scene**
- **One way in, One way out**
- **May have multiple "scenes" depending on debris**
 - Primary impact site
 - Debris field
 - Wreckage, ground scarring, occupants may not be at the main accident site, but spread out over a large area
- **Vehicles away from scene to avoid disturbance**



22

Secure the Scene


- **Personnel Authorized Access:**
 - FAA
 - Police/Fire/EMS
 - Medical Examiner/Coroner
 - Other Emergency Services Agencies
 - NTSB
- **Admit public safety personnel access to the wreckage:**
 - To the extent necessary to preserve life and/or stabilize HAZMAT
- **Maintain a record of personnel who enter the accident site**
- **After NTSB arrival, no access without NTSB authorization**



23

Secure the Wreckage

- **Secure the wreckage, only disturb to:**
 - Remove injured or trapped people
 - Protect the public from injury
 - Protect wreckage from further damage
- **Document any part of the scene prior to it being disturbed:**
 - Switch positions
 - Instrument/gauge readings
 - Cuts in structure



24

Secure the Wreckage


- Establish inner and outer perimeter
- Protect and preserve aircraft ground scars and marks
- Evaluation of remaining structure will help determine cause
- Use best judgment to obtain:
 - Aircraft registration number (N number)
 - Number of casualties
- Emergency Locator Transmitter (ELT)
 - Looks like an orange plastic box
 - About 12 inches long
 - Located in the nose or tail of the aircraft




25

Secure the Wreckage



- Photograph or video the overall wreckage
 - Include the cockpit
 - Start the initial point of impact if possible
- Photograph everything
 - Get photographs as soon as possible
 - Rain or snow can change the scene
 - Washing away or obscuring evidence



26

Fatalities


- Coordinate with the NTSB prior to removing fatalities
- Prevent photography of victims by media or bystanders
- Inform coroner/medical examiner the victims should not be embalmed prior to obtaining toxicological samples
 - FAA provides a "Tox-Box"
 - Call 405-954-6254 to request the Tox Box
 - Coroner/medical examiner receives Tox Box after incident and usually does not have as part of their materials.

27

Witness Documentation


- **Obtain the Following from Witnesses**
 - Name/address/phone numbers (home & work)
 - Their location relative to the accident site
 - Description of what they observed or heard
 - Name of person reporting accident (911 tapes)



28

Media Relations



"The NTSB will release an official statement when they are ready."



29

Media Relations


- **Limit contact with media**
- **Do not speculate**
- **NTSB, FAA will release accident or incident information**
- **Shared information should be limited to:**
 - Aircraft make/model/registration number
 - Nature of the flight
 - History of the flight, departure point, destination, flight route
 - Contents of pertinent recorded weather observations
 - Number of occupants on board
- **Local authorities usually release victim's names**
 - Share anything you tell the media in the NTSB/FAA debrief

30

Extrication Hazards


- **Injuries can occur through:**
 - Lacerations
 - Crushing
 - Fire
 - Explosion
 - Asphyxiation
- **Extrication Hazards**
 - Know what you're cutting through
 - Access through windows not recommended
 - Designed to resist impact (bird strikes)



34

Onboard Hazards

- **Batteries**
 - Disconnect the battery
 - Removing from the wreckage is difficult
 - Sparks from a battery can ignite spilled fuel/flammable materials
- **Oxygen**
 - Can create explosion hazards if leaking from impact
 - Oxygen will cause combustible materials to burn more intensely
- **Videos later of how to remove/access these things**



35

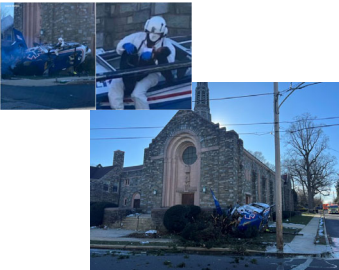
Onboard Hazards

- **Sharps Containers**
 - Biohazardous Materials
 - Bloodborne Pathogens




36

Churches




- **About the Scene**
 - EC 135
- **Things to Consider**
 - Crowd Control
 - Possible MCI – Triage

• Officials described the incident as a "controlled landing" as the pilot managed to avoid utility lines and other hazards on the way down.

• The helicopter hit the street and bounced, then toppled over, sliding into some bushes near the church, witnesses said. A stop sign on the corner of the street was broken in two, according to the Associated Press.

• When emergency workers arrived, the passengers had already gotten out of the downed helicopter, and authorities said the pilot helped the nurse with the infant to get out of the wreckage.



40

Sporting Events




- **About the Scene**
 - August 2008, Mountain Valley Golf Course
 - Bell 206
 - Charity Fundraiser – Golf Ball Drop
 - Pilot's 3rd Time to Drop Golf Balls
 - Helicopter Prior Flew 425 Medical Missions for FREE
 - Tail Rotor Problems Caused Accident
 - 2 Onboard Airlifted for Medical Attention
- **Things to Consider**
 - Crowd Control
 - Possible MCI - Triage




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Sporting Events

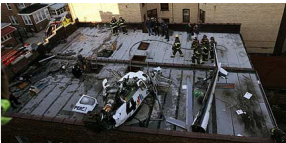


- **Deliver Game Day Ball?**
 - Is it worth the risk?
 - Some programs do it.
 - LifeNet Air will not.
- **Other Things Related to Game Day**
 - How to Ruin "Friday Night Lights":
 - Check Engine Light – Grounded on Field
 - Accident – NTSB/FAA Recovery Time




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Rooftops



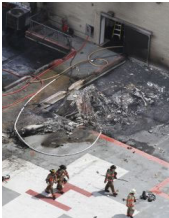
- **About the Scene**
 - News Helicopter
 - Hit 4-Story Apartment Bldg.
 - Crashed on Roof of 2-Story Bldg.
 - 2 Pilots, 1 Report, Minor Injuries
 - 80 gallons of fuel
- **Things to Consider**
 - Structural Integrity of Roof?
 - Is the Building on Fire?
 - Evacuate People?
 - How to Get the Survivors Out?

*Police Officer on Scene Described It:
The helicopter's engine was still running, though its rotor was no longer spinning. The pilot who had been at the controls was stuck inside, his legs pinned, the officer said. The two others were sitting on the roof when rescuers arrived. The pilot "told us to shut it off," Officer Colangelo said. "He told us how to shut it off. He was telling us, 'Pull the red levers, pull the red levers.' He really had to yell. It was loud up there."*




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Rooftops

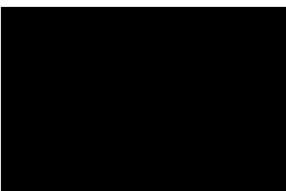


- **About the Scene (May 2008 - Michigan)**
 - Experienced Pilot, Check Ride with FAA Inspector
 - Helipad on top of 10-story hospital
 - Tail rotor hit a tower
 - Fire started on impact, consumed whole helicopter shortly thereafter
 - Both men escaped the aircraft
- **Things to Consider**
 - Means of egress / access to helipads
 - Changed standards to two means of egress




44

Water




- **About the Scene**
 - February 2016, Honolulu, HI
 - Commercial Tour Flight
 - Bell 206, No Emergency Float System
 - Submerged 40 ft under water
 - Located 20 ft from shoreline
 - 1 Fatality (Drowning), 3 Injured
- **Things to Consider**
 - 3 people dove in to rescue trapped 16 year old
 - 2 people took turns diving to cut seatbelt
 - Life preserver was tangled w/ seatbelt hindering rescue efforts




45

Roadways



- **About the Scene**
 - April 2019 (Tampa, FL)
 - 2019 Robinson R44 II
 - "Engine Lost Power"
 - Rotor Blade Piece Killed Man in a Pick-Up Truck
- **Things to Consider**
 - Traffic Control
 - Preserve life, recover the fatally injured, and stabilize hazardous materials.
 - Prevent disturbance of the accident scene and the wreckage.





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Airports

Medical helicopter crashes in Ponca City

Posted 4:57PM MDT 2019 Updated 4:57PM MDT 2019





- **Photo**
 - January 2019 (Ponca City, OK)
 - Rollover on Landing
- **Video**
 - Sept. 2017 (Clearwater, FL)
 - Robinson R22 helicopter
 - Student Training
 - Piper PA-28R-201 airplane
 - Didn't radio traffic
- **Things to Consider**
 - Scene Control
 - Other Flight Traffic
 - Access to Location




47

Rough Terrain




- **About the Scene**
 - April 2018 (Hazelhurst, WI)
 - EC AS350 B2
 - Returning from patient drop off
 - Nighttime crash (22:50 CST)
 - Crashed in wooded area, 12 miles south of destination
 - 3 Fatalities
- **Things to Consider**
 - Snow or rain
 - Access to scene
 - Securing the wreckage



48

Bell 407 Recovery Information



49

How to Open the Door on a Bell 407 Helicopter

50

How to Turn Off the Bell 407 Helicopter

51

How to Turn Off Rotar Blades
on the Bell 407 Helicopter

52


How to Access and Disconnect the Battery
Compartment on a Bell 407 Helicopter

53

How to Access the Oxygen
System on a Bell 407 Helicopter

54


Additional Training
Never Stop Learning...



55

Office of Airport Safety & Standards - Airport Engineering Division


- **Advisory Circular (July 2004)**
 - Aircraft Fire Extinguishing Agents
 - www.faa.gov/documentLibrary/media/Advisory_Circular/AC_150_5210-6D.pdf
- **Advisory Circular (2009)**
 - First Responders' Responsibility for Protecting Evidence at the Scene of an Aircraft Accident/Incident
 - www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentNumber/150_5200-12



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Additional Training Courses

- **The FAA has created a training for First Responders**
 - Some information in this presentation was taken from their training
 - Training also covers information related to other aircraft recovery
 - Access training for free www.FAA.gov/aircraft/gen_av/first_responders/
- **Formal ARFF Training Programs**
- **Landing Zone Class**
- **Other Classes Available Upon Request**



57



Recovery Supplies
 Things for Non-ARFF Fire Departments to Consider



58

Gasoline vs. Jet Fuel


<p>Gasoline</p> <ul style="list-style-type: none"> Hydrocarbons <ul style="list-style-type: none"> 7 to 11 carbon atoms 	<p>Jet Fuel</p> <ul style="list-style-type: none"> Hydrocarbons <ul style="list-style-type: none"> 12 to 15 carbon atoms Mostly of kerosene Similar to diesel Flash point over 100 degrees Specific gravity is 0.87, and it is not water soluble
---	--


59

AFFF (Jet Fuel)

- AFFF concentrates consist of perfluorinated surfactants(s) with a foam stabilizer and viscosity control agents.
- AFFF acts both as a barrier to exclude air or oxygen and, in addition, produces an aqueous film on the fuel surface capable of suppressing the evolution of fuel vapors.
- The foam blanket produced by the AFFF should be of sufficient thickness so as to be visible before fire fighters rely on its effectiveness as a vapor suppressant.





- Aircraft Rescue and Fire Fighting (ARFF) station



60

Purple-K vs. ABC Dry Chemical


- **Purple-K**
 - Not endorsed by airframe manufacturers
 - Level of cleaning and downtime required.
 - Can be cleaned whereas the
- **ABC Dry Chemical**
 - May result in a significant loss
 - Corrosive nature to aircraft components

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Purple-K



- Purple-K (potassium bicarbonate) dry chemical took the forefront in the 1960's because of its superior effect on flammable liquid fires, when compared with regular dry chemical.
- Still has the best "knock-down" on a spill fire compared with any other agent, but concerns regarding the powder residue, and detrimental effects on jet engines left many users looking for an alternative.
- ABC or multi-purpose dry chemical became available in the 1960s, but since, has not been used around aircraft because of its corrosive nature to aircraft components.



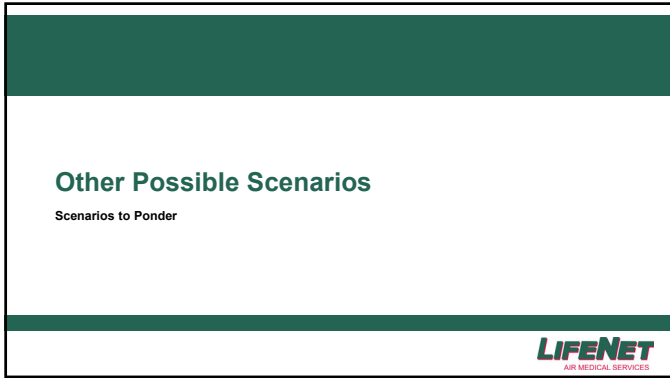
62

Partner K950 Rescue Saw

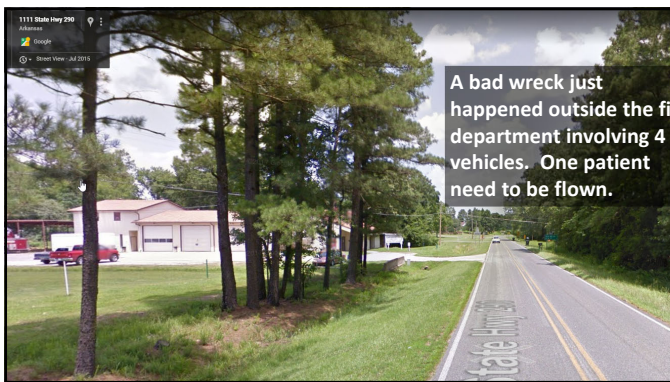
- **Know what you're cutting through**
 - Fuel Lines

63



64



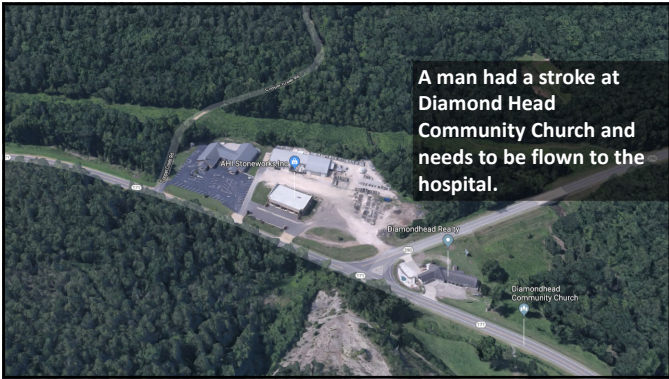
65



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Disclosures

- **Successful Completion**
 - Participants must complete an evaluation form to receive a certificate of attendance
- **CE Hours**
 - CE hours are available to those who meet the successful completion requirements
- **Sponsorship and Commercial Support:**
 - This activity has received no sponsorship or commercial support.
- **Conflict of Interest**
 - No conflicts of interest were identified.
- **Non-Endorsement**
 - Accreditation approval refers only to continuing education activities and does not imply ANCC Commission on Accreditation endorsement of any commercial products.
- **Off Label Use**
 - There will be no discussion of uses of products other than what is approved by the FDA.

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Disclosures




- This presentation includes information only for our aircraft and should not be used as a substitution for instructions for another company or their aircraft

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Agenda for Today

- **LZ Class**
 - About the Aircraft
 - Onboard the Aircraft
 - Requesting Air Transport
 - Setting up a Landing Zone
 - Accident Causation
 - Helicopter Arrival & Practice
- **AR Class**
 - Reporting & Investigation Insights
 - Media Relations
 - Witness & Wreckage Documentation
 - Scene Hazards
 - Accident Causation
 - Bell 407 Recovery Information



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About the Aircraft
N407LN and N408LN



74

Bell 407



- Cruise speed of 155 mph
- Side loading sled
- Full glass cockpit with autopilot
- Can accommodate 3 medical crew members

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Safety Features

- State of the art GPS system
- Night Vision Goggles (NVGs)
- HTAWS
 - Terrain and Obstacle Avoidance Systems
- Satellite Tracking
- Air Conditioning
 - Patient Safety

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Onboard the Aircraft
N407LN and N408LN


77

Pilot Requirements

- Commercial and instrument pilot license from FAA
- 2000 flight hours with 1500 in their category
- 1000 hours as Pilot in Command
- 500 hours at night
- Continuous practice and instruction in
 - Aircraft's systems
 - In-flight emergencies
 - EMS procedures

78


Flight Paramedic Requirements 

- 3 years of ALS experience in a busy 911 system
- Paramedic license
- ACLS, PALS, TNCC, ITLS, NRP, BLS
- NIMS Training ICS 100, 200 and 700

• Complete annual continuing education & skills tests

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Flight Nurse Requirements 

- RN License
- 3 Years experience in ER or ICU
- ACLS, BCLS, NRP, TNCC, ITLS/PHTLS, PALS/PEPP, ENPC
- Current EMT and /or Paramedic certification
- NIMS Training ICS 100, 200 and 700

• Complete annual continuing education & skills tests

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Setting Up the Landing Zone
Space, Obstacles, and Other Dangers

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LZ Selection

- Adequate Size - 100x100
- Avoid flight over scene
- Avoid brush taller than knee high
- Avoid high dust areas
- Walk the LZ in a grid
 - Check for obstructions
 - Look down going one way
 - Look up coming back

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82

LZ Selection

- Firm/Flat Surface
- Avoid more than 5% slope
- Paved roads are ideal
- **ALL TRAFFIC MUST BE STOPPED IN BOTH DIRECTIONS EVEN IF THE AIRCRAFT IS SHUT DOWN!**
- Approach path should be clear of obstructions

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LZ Coordinates

GPS Location
Utilities
\$0.99

• **Degrees, Decimal Minutes**

- Add a ZERO for single digits
- 2 Decimal Places
 - 33-27.24
 - 94-07.54

2019-06-21 12:52:07 GMT

33°27'14.6" -94°07'32.6" 100m

33°27'24.3" -94°7'54.4" 328ft


33.45405° -94.12574° Heading: 015°

84

Communication


- Designate 1 person to communicate with the aircraft
- When the aircraft calls:
 - Relay LZ information
 - Relay any obstructions
 - Relay any scene hazards

DON'T ASSUME WE SEE THE OBSTRUCTION
 NOTIFY US IF THERE ARE MULTIPLE AIRCRAFT ON SCENE




85

Communication




- Be precise
- Use compass directions or the clock method (the nose being 12 o'clock)
- Orientation is always to the aircraft.



86

LZ Preparation



- Illuminate obstructions at night
 - Wires, trees, poles, etc.
- Outline LZ with cones (Day) or strobes (Night) if available
 - Secure well, rotor wash will blow them away
- If flares are used, secure well to prevent drifting
 - Special Considerations (drought)
- At night, (if no LZ Lights are available) keep vehicle emergency lights on and illuminate LZ by crossing the headlights of 2 vehicles
- At night some LED lights can not be seen under night vision
 - Avoid green, blue and some red
 - Yellow are best lights to use



87



LZ Preparation

- **Ensure that LZ is clear of debris**
 - Beer Bottles
 - Car Parts
 - Glass
 - Trash
 - Street Signs
 - Protruding posts
 - Fences
 - Sheets used on patient
- **Remove hats, sunglasses**
- **Secure long hair**
- **Don't chase it if it blows away...**

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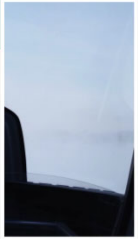

Debris Dangers

89


LZ Preparation

- **White-out/Brown-out conditions**
- **Clear snow or sand if possible**
- **Manned fire hose ... put water on it!**





90

Brownout or Whiteout




- **What is brownout/whiteout?**
- In-flight visibility restriction due to dust/sand/snow in the air
- Chicken feathers create a similar problem (truck accident)
- **How can you help?**
- Caution picking LZ
- Put water on dirt




91

Wires




- **Report all Wires and park vehicles under them if possible**
- **Night time will see poles, harder to spot wires under NVG**




92

Wire Strike





- **About the Incident**
- British Columbia
- Scene Flight
- Patient On Board
- **Outcome**
- Helicopter Grounded For New Blades
- Patient Transported Via Ground



93

LZ Safety



- **DO NOT** point spotlights up
- Close doors to vehicles
- Roll windows up
- Bystanders should be kept 100 feet away from LZ
- Crew members have to open and shut the doors & maneuver stretcher

94

LZ Safety



- **Never** approach a running helicopter or enter the rotordisk until the pilot signals it is ok
- Enter the rotor disk at the 9 or 11 o'clock position
 - The side the patient is loaded on
- **NEVER** approach from the tail or uphill side

95

HAZMAT


- FAA prohibits transport of hazardous materials. This includes patient clothing.
- Flight crew does not have protective gear or breathing apparatus
- LZ should be upwind at least 1 mile or in the cold zone
- Flight crew will NOT enter the hot zone and the patient must be brought to them

96



LZ Acceptance

- The pilot makes the final decision whether or not to use the LZ
- Pilot may suggest alternate LZ
- Don't be offended, it can be for multiple reasons you can't see:
 - Wind directions
 - Obstructions
 - Comfortability




97


From the Air



98



Requesting Air Transport
What's Required & Who Can Call?



99

Who Can Request An Aircraft


- EMS Agencies
- Fire Service Agencies
- Law Enforcement Agencies
- Industrial Safety Officers
- Nurses
- Doctors, NP, PA
- Hospitals




100

When To Call


- Patients that require rapid transport to a Level-I or II trauma center
- Patients that require transport to tertiary care centers
 - STEMI, Stroke, etc...
- Scene location inaccessible by ground
- EMS system is overtaxed
- Rural areas
 - Early activation of aircraft
- Lack of ALS personnel on the scene
 - Most important and least used



101

Criteria for Launch Without Direct Scene Observation


- Traumatic Unconsciousness
- Ejection from vehicle at highway speed
- Pedestrian struck at highway speed
- Motorcycle crash (rider/bike separation) at highway speed
- Crush/pinning of head/torso
- Stroke
- Sepsis
- Entrapment with significant history
- GSW to head/neck/torso
- Falls >20 feet
- Severe burns to the face
- Amputation of extremity
- Circumferential burns



102

Criteria for Launch Without Direct Scene Observation

<p>• Physiologic Criteria:</p> <ul style="list-style-type: none"> • GCS <11 • SBP <90 (<80 in pediatrics) at any time • Respiratory Rate <10 or >29 	<p>• Anatomic Criteria</p> <ul style="list-style-type: none"> • Penetrating injury to head/neck/torso • >20% TBSA burn with traumatic injury • Chest wall instability • TBI with LOC >5 min, seizure activity, posturing, or unilateral dilated pupil • 2 or more proximal long bone fractures • Pelvic Instability • Spinal Injury paralysis
--	---





103

How to Launch

• Information Needed:

- Nature of call and location
- Agency ground contact and frequency
- Number of patients to be transported
- CALL BACK NUMBER

• What Problems Have You Had?

104


Won't Land Without Ground Communication




105

Stand-by


- **If you need us, LAUNCH US!**
 - It gets us to the patient faster.
- **Ground or Air Standby Available**
- **Aircraft is dedicated to requesting agency for 20 minutes until:**
 - Launched
 - Extended
 - Canceled
- **THERE IS NO CHARGE TO THE PATIENT TO PLACE AN AIRCRAFT ON STANDBY OR TO CANCEL THEM ONCE THEY ARE IN THE AIR.**



106

Patient Preparation


- **Continue all possible ALS care**
- **Be prepared to give a quick report to the flight team**
- **Flight crew will get report while doing multiple things**
 - They are not ignoring you, they are listening at the same time as doing multiple tasks in order to speed transport to higher level of care
- **Ever have a problem with our crews on scene?**
 - Let us know
 - Call 903-556-0301



107

Patient Destination


- **When selecting the destination of a patient, LifeNet Air adheres to the following priorities of consideration:**
 1. Patient care and safety
 2. Patient or family choice
 3. Fairness in distribution of patients among hospitals
- **Nearest appropriate facility**



108

Special Considerations


- **DNRs**
 - We do transport
- **Family members**
 - Case-by-case
 - Pilot has final authority
- **Extremely obese or tall patients**
 - Stretchers have 400lbs weight restriction
 - 6'5 and 400lbs vs. 5'1" and 400lbs



109

Hazards of Scene Landings


Real Life Situations | Videos May Be Graphic



110


HEMS Safety Overview

- **25 Year Period (1990-2015)**
 - 220 HEMS Accidents
 - 81 Fatal Accidents
 - 217 People Died
 - 2008 (28 People Died)
- **Competitive Risks for Helicopters (NTSB Hearing 2009)**
 - Flying in Bad Weather
 - Stealing Dispatch Calls from Other Operators
 - Flying to Accident Scenes Not Called On




111

Brownout or Whiteout




- **What is brownout/whiteout?**
- In-flight visibility restriction due to dust/sand/snow in the air
- Chicken feathers create a similar problem (truck accident)
- **How can you help?**
- Caution picking LZ
- Put water on dirt




112

Wire Strike




- **About the Incident**
- British Columbia
- Scene Flight
- Patient On Board
- **Outcome**
- Helicopter Grounded For New Blades
- Patient Transported Via Ground




113

Approach Speed

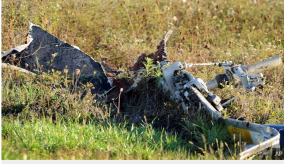


- **About the Incident**
- November 2001
- Agusta A119 Helicopter
- Ogden, Utah
- Ground Survey of New Hospital Helipad
- **Outcome**
- Helicopter Destroyed
- 3 Minor Injuries




114

Wire Strike



Helicopter wreckage lies near to the road after a medical helicopter dropped a cable tower pole onto and crashed, killing four people in Aurora, Illinois on October 11, 2008. The helicopter was headed for Children's Memorial Hospital in Chicago from Valley View Hospital in Danvers when it went down minutes before midnight.

- **About the Incident**
 - Bell 222 Helicopter
 - October 2008
 - Aurora, Illinois
 - Interfacility Patient Transport
- **Outcome**
 - Helicopter Destroyed
 - 4 People Killed
 - Pilot, Flight Nurse, Flight Medic
 - 14 Month Old Patient



115

Multiple Aircraft on Scene






- **About the Incident**
 - Bell OH-58 Police Helicopters
 - Pasadena, California
 - 1 Landing, 1 Ready for Takeoff
- **Outcome:** 6 People Injured (1 On Ground)




116

Multiple Aircraft on Scene




- **About the Incident**
 - Army Blackhawk Helicopters
 - June 1996
 - 101st Airborne Division
 - Fort Campbell, KY
 - Mock Medical Evacuation
- **Outcome**
 - 6 People Killed, 30+ Injured




117

Bird Strike





- **About the incident**
 - Bell 407
 - November 2017
 - Stuttgart, AR
 - Impacted Reservoir Bank
 - Postimpact fire consumed a majority of the fuselage.
 - Multiple Snow Geese in the cockpit
- **Outcome**
 - 3 People Killed



118

Weather

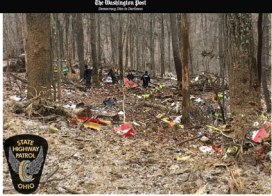
- **VFR vs. IFR Conditions**
 - Visual Flight Rules
 - Instrument Flight Rules
- **Helicopter Shopping**
- **Weather Related HEMS Accidents**
 - 1998-2008 NTSB Study
 - 19% of All Accidents - Weather


119

Weather

Two air ambulances turned down a flight because of the weather. A third agreed, then crashed.





- **About the Incident**
 - Bell 407
 - January 2019
 - Zaleski, OH
 - VFR Rated
 - Inbound for Interfacility Transport
- **Outcome**
 - 3 People Killed
 - 600 Ft Wreckage Path



120

Is HEMS Really Safe?


- **2009 NTSB Hearing - HEMS**
 - 29 Year Study
 - 4.5 Million HEMS Patients
 - 34 HEMS Patient Deaths Over 29 Years
 - 1.17 Patient Deaths Annually
- **2014 NHTSA Report**
 - 20 Year Study (1992-2011)
 - 6500 Traffic Crashes Involving an Ambulances (Per Year Average)
 - 140 Patient Deaths Over 20 Years (Roughly)
 - 7 Patient Deaths Annually

121

Safety Around Running Aircraft

- Only enter the rotordisk if your assistance is requested
- Nothing above the level of the shoulder (IV poles)
- No loose articles (sheets, hats, blankets, etc...)
- Fire Dept – Helmets on with chin straps secured
- Only crew members should secure the doors



122

Bell 407 Safety



- Never go past the "Star of Life"
- Blades dip during winds

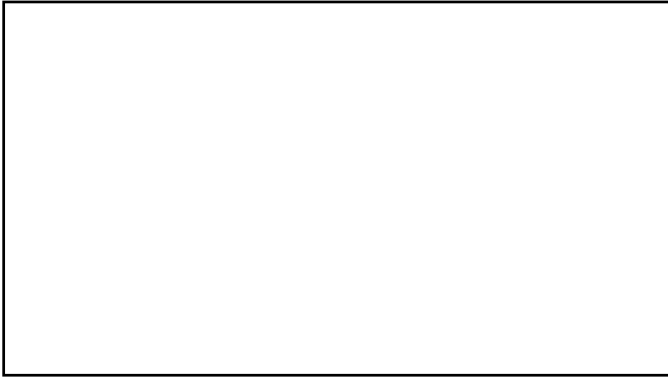


123

Where Would You Land LifeNet Air?
Scenarios to Ponder



124



125
