Objectives

1. Brief description of our aircraft, crew configuration and base locations
2. Identifying the need for an aircraft
3. Guidelines for choosing a safe landing zone
4. Role of the LZ commander
5. How to give a quick concise LZ description to pilot
6. Ability to identify all hazards related to landing zone
7. Physically perform hot load operations
Air Care Bases

• Air Care 1: Walton, KY
• Air Care 2: Butler County Airport
• Air Care 3: Mt. Orab, OH

Communication Center: Across street from UC. Two Communication Specialists on duty at all times. Dispatch Air and Mobile

Air Care and Mobile Care offices also across the street by PES
Daily Operations and Getting Airborne

Maintenance
• We have 7 mechanics
• Two at each base and a Lead Mechanic
• They inspect our aircraft EVERY DAY
• Very little OOS time
• Preflight check done by Mechanic and Pilot
Daily Operations and Getting Airborne

Weather Status: **GREEN** or **YELLOW**

Weather checks, OCC number, flight planning for longer flights

Weather Minimums:
- Local Area: 1000 ft ceiling and 3 miles
- Cross Country: 1000 ft ceiling and 5 miles

Weather conditions not conducive to Air Medical Operations:
- Fog
- Icing
- Thunderstorms/lightning/heavy rain
- Snow/whiteout conditions
Daily Operations and Getting Airborne

• Once we accept the flight, and receive our OCC number, we prepare aircraft for take-off:

  • Is aircraft hangared
  • Is the heater or A/C unit in the helicopter
  • Is it tied down for winds
  • Perform walk-around
  • Unplug shoreline
How Long Does it Take Us to Get Airborne?

• Regardless of tasks required before lift-off:

WE HOPE TO BE AIRBORNE WITHIN 10 MINUTES OF THE TIME OF CALL
Types of Aircraft

• Three Aircraft in service in our fleet and one back up aircraft
  • Two EC145 helicopters, brand new, in service for four years

• Two BK117 helicopters, one in service and one as back-up
EC145
EC 145 Features

• Two EC145 helicopters, identical.
  • Twin engines
  • Instrument (IFR) capabilities
  • 30 second shut down time
  • Can fly a family member or parent
  • Stretcher limit 600lbs
  • Aircraft designed for Air Medical Transport
• Two patient capability....????
Air Care 3 BK 117 and the Spare Aircraft
BK117 Features

- Two BK117’s, both identical aircraft except for paint scheme
- Twin engine
- Can fly a family member or parent
- Single patient capability
- The spare aircraft keeps all three Air Care bases in service during aircraft maintenance
- Stretcher has 400lb weight limit, however, we often use a weight limit of 350lbs due to girth limitations
Flight (Mission) Profile

- Complete approximately 1500 flights a year
- 60% Interfacility transfers
- 40% Scene flights
- CCHMC has contract with Air Care for limited stable hospital transfers
- UC Air Care still responsible for all unstable pediatric time sensitive transfers and all trauma related to pediatrics
Benefits of Helicopter Transport

- **Speed**, it takes us approximately 8-10 minutes to lift off of pad from the time of dispatch. Limiting factors: Weather checks and if we are hangared.

- We bring UCMC Emergency Department to the patient. It is at times beneficial to the patient to wait a few extra minutes for us than going into an outside ER with a critical unstable trauma patient. (unless there are airway issues)

- Traumatic Arrest...if we are close...let us continue. At times, we provide their only chance at survival.
When to Utilize the Helicopter for the Not so Obvious Patients and Scenarios

• Stroke symptoms
  • STROKES CAN BE CONFUSING!!
  • Only if you know the last known normal time and it is within four hours
    • Otherwise, they can go to local hospital
  • If you are not sure it is ok to call us!

Helicopters are expensive!

We must be conscientious and utilize aircraft responsibly for our patients

We will go by ground with ambulance
Transport Considerations

• Response area for scenes typically a 75 NM radius

• **Adult and Pediatric Trauma:** Obligated by State of OH Trauma Triage Guidelines: Transport to nearest Level 1 trauma facility

• Medical patients: We will transport to any facility

• We will fly anywhere we are requested, considering weather and refueling options
  • We have been to TN, West Virginia, Cleveland, Indianapolis, and have had requests from further away.

  Aircraft have about two hours of fuel depending on heat, winds and weight
Benefits of Helicopter Transport

• Speed is our greatest contribution to many of our patients

Approximate flight and ground times

<table>
<thead>
<tr>
<th>From</th>
<th>To UCMC via Air Care*</th>
<th>To UCMC via Ambulance*</th>
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<tbody>
<tr>
<td>Hamilton, OH</td>
<td>9 minutes</td>
<td>42 minutes</td>
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<tr>
<td>Brown County</td>
<td>16 minutes</td>
<td>63 minutes</td>
</tr>
<tr>
<td>Batesville, IN</td>
<td>17 minutes</td>
<td>48 minutes</td>
</tr>
<tr>
<td>Grant County</td>
<td>15 minutes</td>
<td>58 minutes</td>
</tr>
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</table>
Standby Procedures

• Please feel free to place Air Care on standby simply based off of dispatch information

• This will greatly reduce the time it takes for us to get to you

• What does standby mean?
Launch and Stage

• If the distance from aircraft responding is farther than 15NM (or about 7 minutes) away we will head towards the scene

• The aircraft will remain a distance of 5NM away from the scene until further notice
Choosing a Landing Zone

• Minimum of 100 feet by 100 feet
• Marked
  Cones
  Vehicles
  Flares
  Flashing lights
• Flat paved surface
• Clear of debris
• Clear flight path for entry and exit
• With a LZ commander just outside LZ at 12 o’clock position to aircraft which allows visual and radio communication with pilot
Choosing a Landing Zone (LZ)

- Try to select an LZ that is adjacent to the scene to avoid the need for ground transport that could prolong a patient's pre-hospital time.
- Select a landing zone that will allow for an angled approach from at least one direction. This approach and departure path should be clear of towers, poles, wires, trees, signs, and other obstructions.
• Select a LZ that is as flat as possible. The slope no more than 10 degrees.

• Parking lots, roads, sport fields, and other locations are most desirable.

• **The pilot has the final say on the selection of the LZ.**

• Ensure the touchdown area is free of debris and obstructions.
Please Walk the Landing Zones
Landing Zone

Night LZ

• Larger if possible
  • Use a strong spot light to look for wires or other hazards
  • Make sure your spot lights are not pointed up in the air when we are flying in the vicinity!
    • Night Vision Goggles used as a safety tool

• The LZ commander needs to keep a constant watch on the helicopter during its descent into your LZ. Use your radio to warn us of obstacles you may see and remain outside the diameter of the LZ
Night Vision Goggles
Night Vision Goggles
Landing Zone Report

• **Where are we landing:** School, Church, Wal-Mart, highway, field, roadway (type of terrain, or slope)

• **Obstacles:** Water towers, cell towers, signs, fences, shrubbery, trees, dumpsters, port-o-lets 😊

• **Winds** (if possible)

• **Patient report:** Unresponsive or awake, adult or ped, obvious injuries, and vitals if possible

Pilot will read back verbatim, so please make corrections as needed
Communicating with Aircraft
WIRES, WIRES, WIRES!
Especially High Tension Wires

You can sometimes see more from the ground
Communicate!
Can you find the Landing Zone
Safe Operations

• General safety concepts
  
  • No one should be in the LZ anytime the rotors are turning
  • Special circumstances (hot loads)

  • Approach from the front or side in direct view of the pilot

  • Wait for pilot signal

  • Stay away from the rear of the aircraft unless assisting with a hot load
Safety First

- **Danger Areas**
  - Main rotor
  - Tail rotor
  - Exhaust
Stay Forward of White Fin on EC 145 and black dome of BK 117

Stay forward of vertical tail fins on both aircraft
Safe Operations

• General safety concepts

• Never touch any part of the aircraft except the body
• Doors are delicate and easily damaged
• Tail rotor height
• Never wear hats or something that could blow away
• There are many antennas, lights, and tubes that can get hot enough to burn you.
Safe Operations

- Danger area: Do not approach
  - Above
  - Below

Approach to load on this side
Patient Loading

• Hot Loads

  • We want to stay running at your scenes
  • It is always at the sole discretion of the flight crew
  • Factors we consider for a hot load:
    • Level ground
    • Manageable patient
    • Secure LZ
    • Severity of patient
    • Situational awareness of team
    • Parent ride-along
Patient Loading

- **Hot Loads-continued**

  - Procedure
    - Make assignments
      - Lifting help
      - Safety who will stand firmly under the black dome or the white fin and arms stretched out.

  - Walk toward helicopter with patient secured on cot
    - In direct visual field of the pilot
    - Stop outside of rotor diameter and await pilot hand signal to enter the hot zone
Helicopter Operations

• Hot Loads-continued

• Walk along side of helicopter
• Flight crew to operate the doors
• Assist with loading
• You will be directed out by a flight crew member
• Ground crew is to continue out of the LZ in a group in same manner they entered
Example: Hot Load Safety
Why worry about LZ safety?
<table>
<thead>
<tr>
<th>Year</th>
<th>Total accidents</th>
<th>Fatal accidents</th>
<th>Number of fatalities</th>
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<tbody>
<tr>
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<td>13</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>2007</td>
<td>12</td>
<td>2</td>
<td>7</td>
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<tr>
<td>2008</td>
<td>12*</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>2009</td>
<td>9</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>2010</td>
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<td>2014</td>
<td>8</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>2015</td>
<td>7</td>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

* Including a midair collision, there were 13 hull losses in 2008.
Duke Life Flight crash September 8, 2017
Pafford EMS Air 1 crash November 20, 2017
Rescuing the Rescuer
Rescuing the Rescuer

• Scene Safety

• Protect yourself and others

• Wait for the AC to stop moving including rotor blades!
Rescuing the Rescuer
In Case of a Fire

- Jet - A Fuel (less flammable than gas)
- Use foam suppression
  - Oxygen source on board (liquid O2 tank, D tanks)
- Small fire extinguishers on board
Emergency Procedures

Fuel shutoff valves

Power Disconnects
The “Air Care Difference”

• Crew Configuration:
  • Pilot
  • Critical Care Flight Nurse with either:
    • Flight Physician or
    • Flight Nurse Practitioner
“Air Care Difference” Cont’d

Blood Products
  Two units of Packed Red Blood Cells
  Two units of Plasma

Emergent Care Kits
  Peri-mortem C-section kit
  Field amputation kit
  Cyanokit
  Lateral canthotomy kit

Hypertonic saline and all ICU medications
We bring University Emergency Department to the patient

Outside hospitals not prepared for those types of trauma resuscitations:
- Hypovolemic shock resuscitation
- Finger thoracostomies
- Pericardiocentesis
- Ultrasound
- EPOC for Labs

If we achieve ROSC, then aircraft immediately available for transport to Trauma Center
“Air Care Difference” Cont’d

• We are the only company in the United States that has an EC145 simulator

• IFR capabilities in inclement weather to hospitals and airports

• Chase cars at all of our bases, we can rendezvous at hospitals

• Air by ground
Our Goal Everyday...

Is for everyone, including you, to go home at the end of the shift
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