

LIFE STAR LINES

A Hartford Hospital publication addressing articles of interest to emergency and critical care personnel

Vol. XV No. 7, Fall 2005

 HARTFORD HOSPITAL

Case Study: AVON MCI

By Lisa Duquette, Flight Nurse

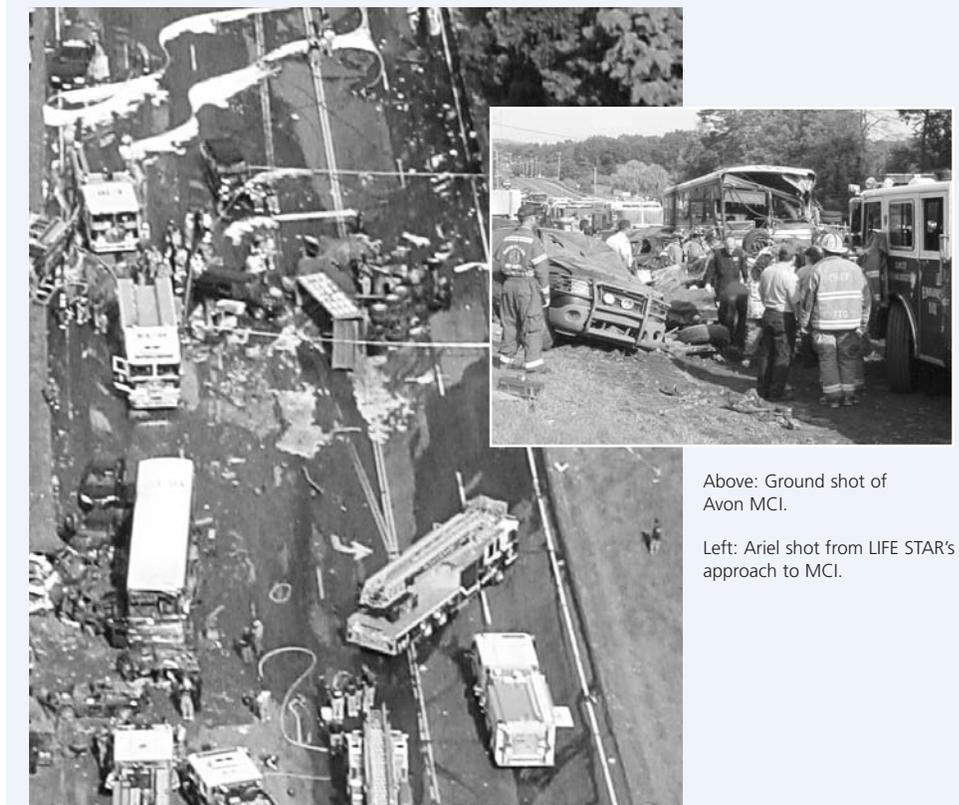
A loaded tri-axle dump truck careened out of control down Avon Mountain during the morning rush hour on July 29, 2005. When the truck finally came to a stop, 18 vehicles, dozens of injured patients, and a fire lay in its wake. There were numerous walking wounded, several patients trapped and more severely injured, and two fatalities on scene. Avon Fire Chief Jamie DiPace declared a mass casualty incident (MCI) and assumed Incident Command while Tom Clynch from the UCONN Health Center Fire Department took the lead as the Medical Incident Commander and began to triage and assign medical resources.

Numerous ambulances and both LIFE STAR aircraft responded to the scene. UCONN Health Center, the closest facility to the crash, received many of the walking wounded. Three critical patients were transported by air to Hartford Hospital and several other severely injured patients were brought to St. Francis Hospital and Hartford Hospital by ambulance. Smart triage and good utilization of resources was used to allow all patients access to the appropriate level of care for their injuries without overwhelming one hospital.

Discussion:

Large-scaled tragedy can strike anywhere in an instant. Typical EMS strategies of utilizing internal resources (such as dispatching additional units from the same company) and/or external resources (accessing basic mutual aid patterns) to cope with drastic spikes in patient volume can become quickly exhausted in a mass casualty incident (MCI). Planning, communication, organization and timely mobilization of additional resources are key to saving lives in an MCI. Here are a few ideas of how LIFE STAR can contribute.

Timely Mobilization of Resources: Most obviously, LIFE STAR can aid in patient transport from the scene. One phone call to LIFE STAR Communications Center can launch both our aircraft (each capable of taking two patients), and up to three additional helicopters (also able to take two patients each). Standard practice



Above: Ground shot of Avon MCI.

Left: Ariel shot from LIFE STAR's approach to MCI.

dictates that LIFE STAR take patients to the closest appropriate facility. But in an MCI, patients can easily be flown to outlying trauma centers to ease the burden on local facilities receiving large numbers of patients by ambulances. Traveling at 150 MPH directly, multiple flights to and from the scene are an option. LIFE STAR can also be requested to transport resources such as supplies or additional medical or specialty personnel to the scene.

Organization: Connecticut EMS has clear guidelines detailing the command structure of an MCI, including the medical component. The LIFE STAR crew will always recognize the Medical Incident Commander's authority and stands ready to help as directed with triage, treatment on scene, transport, or other appropriate tasks. Tom Clynch shined as the Medical Incident Commander that morning in Avon, providing direction and leadership to the LIFE STAR crews and the many other EMS agencies that responded.

Communication: LIFE STAR's dedicated communication specialists can coordinate the response of additional aircraft from surrounding services and assist with CMED MCI notification as needed. If CMED is busy, our communication specialists can gather accurate bed availability information from trauma centers and area hospitals and relay this info to the Medical Incident Commander so that patient flow from the scene can match each center's capability. In general, LIFE STAR can offer quick, reliable access to a wide variety of services and resources that may be needed during an MCI.

Planning: LIFE STAR is formally incorporated as a resource in disaster response plans across Connecticut and Rhode Island, and routinely participates in state and local MCI drills. If your service is interested in having LIFE STAR participate in an MCI drill, please contact us at (860) 545-4369 with the scheduled date and time.

"My How Time Has Flown"

By Rich Magner, Pilot

When first asked to write an article for 20th anniversary issue of The LIFE STAR Lines, all I could think of was "My how time has flown". I remember lifting on our first mission, a scene call in Canton, CT on June 18, 1985. Trained, equipped and completely prepared, time had come for action. Safe flight and expert patient care meshed seamlessly to complete the mission, setting the tone for the more than 20,000 LIFE STAR missions that have since followed.

Like the trees in the soil of Hartford Hospital's front lawn where we first landed on that bright sunny day so long ago, our roots are deeply grounded in the Connecticut consciousness. This is a legacy worth tending with extreme care. I seldom sense the elation of those first few flights, but the feeling of responsibility has not diminished one whit.

Much has changed since our beginning as the one-hundredth air medical program in the country. Our physical assets have grown to include two BK117 aircraft, a roof top helipad and hangar at Hartford Hospital (no more landing on the front lawn!), a remote base with full hangar facilities through affiliation with Backus Hospital, and a dedicated communications center. 'Golf Star', the cart used to transport patients across the street from the old ground pad into the hospital, is a relic of the past, as are the cotton uniforms with the crisscross ties the flight respiratory therapists once wore. Nomex flight suits and



helmets are standard issue now for all of the flight crew. Thanks to the media, the term "LIFE STAR'd" has become a well-understood verb. I've seen all of the crew faces change over the years,

that is, except for mine—the last original crewmember still with the program.

Some things have also stayed the same. While the program has maintained a patient centered focus, our commitment to safety is paramount. Only through training and determined vigilance by all is safety attained. To paraphrase a statement from a well-known



trauma surgeon concerning LIFE STAR: "To do the good medicine, we must first excel in aviation!" With continued support from Hartford Hospital the program continues to excel and grow in the industry.



It was 1985 when Rich Magner answered LIFE STAR's original call for pilots. Twenty years of service later, the fit continues to be just right.

New Crew Members



Communications Specialist, Pedro Deleon, EMT-B joined the LIFE STAR team in March, 2005.

Pedro has 13 years of active military service, Special Forces. He has emergency services experience from Pathways EMS in Massachusetts. Pedro is also a certified police officer for Hampshire College and a firefighter for Southwick Fire Department.



Flight Respiratory Therapist, Christopher Piccuito, RRT, EMT-B joined the LIFE STAR team in February

2005. Chris has experience in pediatric and adult care, including 5 years at Massachusetts General Hospital. Chris holds an Associates Degree in Respiratory Care from Massasoit Community College.



Flight Registered Nurse Michael Sahjian, FRN, EMT-P joined the LIFE STAR team in December,

2004. Michael has prior flight experience as a Flight Nurse with Careforce in South Carolina. He has experience in the emergency and critical care settings. Michael has a Bachelor's Degree in nursing from Quinnipiac University.

They're Going the Wrong Way!

By Jerry Mosimann, Pilot

The "Backup Takeoff". LIFE STAR pilots receive many questions about this topic. Anyone who has seen LIFE STAR respond to a scene or hospital will probably have noted that the aircraft departs vertically first, then backs up for some time, only speeding away after reaching an altitude of several hundred feet above the ground.

Our aircraft, the Eurocopter BK117 A4 model, traces its origins to a joint collaborative effort between MBB of Germany and Kawasaki Heavy Industries of Japan, resulting in production lines in both countries. The BK117 program replaced the independently developed BO 107 (German) and the KH7 (Japanese) design studies. The first flight of the BK117 took place in 1979, with the first deliveries taking place starting in early 1983. Interestingly enough, while designed for the utility and offshore helicopter markets, the BK never fully caught on in this capacity. However, the burgeoning civilian helicopter EMS industry soon made it the aircraft of choice for this sector.

As an added measure of safety and redundancy, the BK117 was designed as a multi-engine aircraft. Our helicopters are powered by two 550 horsepower Lycoming turboshaft engines. Engine failures today in tur-

bine-powered aircraft are very rare. However, because the possibility still remains, our pilots are trained to deal with these in flight emergencies. During a level flight, a power-plant failure will normally present little trouble to the aircrew. The pilot will reduce power on the remaining healthy engine while slowing the airspeed and pointing the aircraft towards the nearest suitable airfield for landing.

However, an engine failure during takeoff or landing has the potential to be a bit more tricky. This is where the "Backup Takeoff" comes into play. As mentioned earlier, the pilot must reduce demand on the remaining engine during single engine operations. An engine failure in close proximity to the ground might not leave enough altitude to reduce power, increase airspeed, and also provide for ground obstacle clearance. Therefore, to reduce risk in the departure profile, the pilot will first climb vertically above the landing zone (LZ) obstacles. After assuring obstacle clearance and determining adequate power is available for takeoff, the pilot will start a very slow, climbing, backwards departure. The goal, and also the key, during this phase of the takeoff is to constantly keep the LZ in view and at an angle that will allow for

safe descent and return to the LZ in the case of any power limiting event. The LZ that we just departed is then truly our 'safe harbor'. Only after backing up and climbing to an altitude that ensures single engine flyaway capability will the pilot increase forward speed and depart the area. This is also why it is imperative for ground crews to keep the helicopter landing area free of all vehicles and personnel until the aircraft has departed well clear of the area.

Additionally, our very slow takeoff and landing profile, while unlike what Hollywood has depicted for the last thirty years, has several other benefits. A slow rate of closure will give the pilot a more thorough chance for a final recon of the LZ. It will also give more reaction time in the event of something unforeseen while on the approach. These few extra seconds will also be put to good use as the pilot confirms necessary power available to make the approach and manually matches the power of the twin engines. A slow arrival descent will preclude the possibility of an aerodynamic condition known as "settling with power", where the helicopter settles into its own downwash.

HAZMAT Decon

By Tim George, RRT, NREMT, FF-II, Hazmat Tech

When is a decontamination station needed at an emergency incident? A chemical leak, an explosion, WMD are the most common answers. However, by today's terms a routine motor vehicle accident can be a Hazmat incident. Motor oil, antifreeze, battery acid, powder from an airbag are all contaminants to the human body. The first responders have the opportunity not to be exposed, by using their protective equipment. Patients usually do not have that option. A person who has been exposed to these agents needs to be cleansed prior to being transported, by land or by air, to a medical facility.

The definition of HAZMAT is: Hazardous materials are chemicals, which if released, spilled or misused can pose a threat to health or the environment. Chemicals are used in industry, agriculture, medicine, research, and consumer products. Hazardous materials can come in many forms, such as liquids, powders, solids, gases. They can be explosive, flammable and combustible substances, poisons, and or radioactive materials.

How does anyone know what to do in a HAZMAT? The North American Emergency Response Guide book is a valuable resource. Placard colors and symbols, DOT number designation, and container shapes all will get one started on the right path to success. Other

resources include MSDS, NIOSH book, CHEMTREC, and truck drivers are very educated on the cargo they are carrying these days. The company the product came from is very valuable, most have response teams available to respond and help with the incident. All these resources can assist in keeping personnel safe in a HAZMAT situation. Common sense plays a role: if you do not want a substance on you, then you can be sure patients do not want it on them. Recently, LIFE STAR was requested to the scene of a dump truck vs. car accident. One patient who was involved in the accident was covered in brake fluid and hydraulic fluid. So what might be some of the hazards accompanying that patient?

Brake fluid: is a fluid under room temperature conditions has specific gravity of 1.0- 1.1 (depending on the manufacturer) so it will stay towards the surface of water. Its vapor density is 9.0; therefore as it off gases the vapor is heavier than air so it stays low to the ground. Standing in the street one might not notice an odor but now let's put that patient into the aircraft. That vapor has nowhere to go and lingers affecting all that are in that area, workers as well as the patient. Once in the ER setting, that odor then travels to other patient rooms and can upset already compromised individuals. That routine

MVA with one patient has now reached out and touched many not even remotely involved in the incident. A HAZMAT tech does not put on a Level A suit and purposely come in contact with a hazardous chemical.

How can this situation be resolved? Simple decontamination process can be removing clothing and using towels to clean the skin. Complex decontamination might mean setting up wash and rinse stations and controlling water runoff or having one of the State of Connecticut's decontamination trailers brought to the scene. Whatever the degree required, the key goal is to prevent harm to those involved and not spread the contamination. The LIFE STAR flight crew will request a patient be decontaminated at the scene, since the patient will be in an enclosed space for transport. Sometimes a person's medical condition warrants performing life saving medical procedures as soon as possible. Effective communication and teamwork can accomplish both goals quickly and efficiently.

Resources:

<http://www.pennzoil.com/products/technical/msds.html>
<http://www.imperialinc.com/msds0055180.shtml>
<https://www.valvoline-technology.com>
 2004 DOT Emergency Response Guide Book

Dedication Ceremony

The rest area on I91 North in Middletown, CT, was recently dedicated in memory of LIFE STAR Flight Nurse Jennifer Hodges. This was the first time in Connecticut history that a private citizen received this honor. During the dedication ceremony, a proclamation by Governor M. Jodi Rell was read that officially declared November 19th Jennifer Hodges Day.



News Briefs: FYI

Promotional Events

Are you interested in doing a drill or having a LIFE STAR safety presentation? Please call (860)545-4369 to schedule your event. Please give us three possible dates at least ONE MONTH in advance. Our crew needs ample time to accommodate your requests! Training is the key to safety.

LIFE STAR Alumni

We would like to keep in touch with you. Please email Steve Haemmerle at SHaemme@harthosp.org with your current mailing address and email. If you know anyone who has not received this current issue of LSL, please pass this information to them."

LIFE STAR Lines Staff:

Editor: Lisa Duquette, RN
Nicole Wilson, Communications Specialist
Medical Director: Kenneth Robinson, MD, FACEP
Advisory Board: Steve Haemmerle, RRT, Chief Resp. Therapist
Jim Marcelynas, RN, Chief Flight Nurse
Lee Monroe, Director of Public Relations
Printing Advisors: Reginald Leonard, Director of Printing Services
Sal DiNino, Graphic Designer

LIFE STAR

 HARTFORD HOSPITAL

80 Seymour Street
PO Box 5037
Hartford, CT 06102-5037

NON-PROFIT ORG
U.S. POSTAGE
PAID
PERMIT #4361
HARTFORD, CT