



Welcome to Memorial Hermann Life Flight's new quarterly newsletter for first responders. We hope you find the information contained within this publication interesting and informative. Our goal is to provide you with helpful articles about our services, case studies relevant to clinical protocols practiced on a daily basis, information about available educational opportunities, and any other updates that you as a first responder may find useful. We value the work you do and are grateful for your partnership as we work together to serve the people of Houston and its surrounding communities. Thank you.

Memorial Hermann Life Flight's Advanced Capabilities:

- Pre-hospital blood product administration
- LVAD
- ECMO
- Intra-aortic balloon pump
- Portable blood warmers
- Ultrasound diagnostics
- Double-load capability
- Larger cabin (allows for CPR in the aircraft)
- Clot-busting agents for STEMI
- Direct access to Cath Lab for STEMI
- Direct access to CT for strokes
- ISTAT portable blood analyzer
- Video-assisted intubations
- Hemostatic agents for blood clotting
- Direct contact with physicians
- Night vision goggles for all crew members during flight to improve safety
- Twin-engine aircraft for patient and crew member safety and extra weight loading capabilities
- Pediatric and neonatal transport services

Memorial Hermann Life Flight: MYTHS VS. FACTS

By Joel Benavides, R.N., C.F.R.N., L.P.



How much do you really know about the services offered by Life Flight®? Find out below with our list of common misconceptions and their corresponding truths. Do you have any other “myths” or questions you’ve been curious about? Email us at lifeflight@memorialhermann.org and we’ll address them in upcoming issues.

MYTH: Life Flight only transports trauma patients.

FACT: While Life Flight is known for its excellence in trauma care, Life Flight often deploys specialty flights carrying perfusionists equipped with intra-aortic balloon pumps, neonatal nurses and other specialty nurses. In addition, Life Flight can transport high-risk or active-labor OB patients and has access to leading maternal-fetal medicine and OB physicians. Every flight is staffed by highly skilled medical personnel with years of experience in emergency medicine and critical care.

MYTH: Rear stretcher loading of an aircraft is dangerous and can place patients in danger.

FACT: Rear stretcher loading onto an aircraft is safe and considered best practice in the industry. The main rotor blades of the aircraft are 12 feet from the ground, and the tail rotor is elevated. The crew is trained to place a crew member by the rear to ensure safety. The aircraft itself is extremely safe and it serves as the industry standard for multiple services.

MYTH: Blood products cannot be safely administered in the pre-hospital setting.

FACT: Life flight has proven that not only can blood products be safely administered to patients in-air, but that doing so improves clinical outcomes. Life Flight has developed procedures for proper storage and refrigeration of blood products in the aircraft and at satellite bases. For more information on blood products in-air, see pages 3 and 5.

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Memorial Hermann Life Flight Completes First In-Air ECMO Transport

After a year and a half of collaboration, preparation and planning between the Memorial Hermann Life Flight® team, the Center for Advanced Heart Failure at Memorial Hermann Heart & Vascular Institute-Texas Medical Center and UTHealth Medical School, Life Flight transported its first-ever patient on extracorporeal membrane oxygenation (ECMO).

“This is a tremendous accomplishment and our team would like to thank Igor Gregoric, M.D., for making this vision a reality,” said Igor S. Banjac, C.C.P., L.P., director of perfusion services at the Center for Advanced Heart Failure. “Additionally, I want to congratulate each team member on their exemplary work in safely transporting the patient in cardiogenic shock from Memorial Hermann Memorial City to Memorial Hermann-Texas Medical Center. We are very pleased to say that the patient was successfully weaned off ECMO and has since been discharged and is doing well.”

Extracorporeal membrane oxygenation is used to temporarily support patients who are not responding to other treatment modalities and have acute, life-threatening failure of the heart or lungs. Its purpose is



to provide enough oxygen to the patient while allowing time for the lungs and heart to heal. The ECMO machine is similar to a heart-lung bypass machine used during open heart surgery, but can be used for a longer treatment period. An oxygenator does the work of the lungs, adding oxygen to the blood, and an arterial pump helps the heart pump blood through the body. As the patient’s condition improves, the ECMO flow will be decreased so that the heart or lungs can resume their work.

Patients can now be transported via ground or air while receiving ECMO treatment thanks to the Center for Advanced Heart Failure’s acquisition of transportable ECMO devices, which do the same work as the traditional machines but are specifically designed for smaller spaces and transport. Because of these portable ECMO machines, Memorial Hermann Life Flight now has the ability not only to transport patients already on ECMO, but also to initiate ECMO and bring the patient back to Memorial Hermann-TMC to receive further treatment.

During the inaugural ECMO flight, the patient was successfully initiated on veno-arterial (VA) ECMO by Biswajit Kar, M.D., and Pranav Loyalka, M.D., who are respectively chief and associate chief of the Medical division of the Center for Advanced Heart Failure and both on the faculty of UTHealth Medical School. Life Flight crew members Joel Benavides, R.N., Tracie DeVall, R.N., and pilot Hank Bigger were part of the groundbreaking transport. The ECMO team included perfusionists Lisa Janowiak, C.C.P., and Michael Arcaro, C.C.P. Since this initial transport, Life Flight has transferred a second patient on ECMO, and the numbers are expected to grow.

“Memorial Hermann Life Flight is the only air-medical transport service in Houston – and one of just a few in the nation – with balloon pump and LVAD capabilities,” said Eric von Wenckstern, director of aviation and administrative director of Life Flight. “Adding ECMO to this list is an enormous achievement and allows us to improve clinical outcomes for a substantial portion of our patient population.”

Memorial Hermann Life Flight Celebrates Two-Year Anniversary of Blood Products In-Air

Since Memorial Hermann Life Flight® began utilizing blood products in-air two years ago, the team has administered transfusions to over 250 patients and counting. According to Col. (Ret.) John B. Holcomb, M.D., F.A.C.S., director of the Texas Trauma Institute at Memorial Hermann-Texas Medical Center, chief of the division of Acute Care Surgery and professor of surgery at UTHealth Medical School, the new protocol appears to be life-saving. “Performing transfusions in-flight has been associated with improved outcomes these past two years,” Dr. Holcomb said. “We’re still working on initiating a clinical trial to study the exact efficacy of earlier intervention, but it appears to be undeniably beneficial to our patients.”

Dr. Holcomb’s quest to make blood products available on Life Flight began a few years ago after seeing promising results when they were made readily accessible in the Emergency Department. “We were seeing

that having these products available immediately for our sickest patients produced better clinical outcomes. It just made sense to make them available pre-hospital as well,” he said.

After funding for the project was initially secured thanks to a private donor three years ago, Life Flight set up a multidisciplinary team to develop a process and protocol for utilizing blood products in-air and to order the necessary equipment for in-air blood transfusion. Specialized refrigeration equipment, as well as blood-warming equipment for administering the products, was installed in each Life Flight helicopter and base. Every flight nurse underwent intensive training for administering the products, and protocols were put in place for getting

“We’re still working on initiating a clinical trial to study the exact efficacy of earlier intervention, but it appears to be undeniably beneficial to our patients.”

JOHN B. HOLCOMB, M.D.

the products back and forth from the Blood Center. Strict storing guidelines were also implemented, including processes for rotating the stock so products don’t expire, ensuring nothing is wasted.

Originally the crew used frozen-then-thawed liquid plasma, but last year, Life Flight began stocking FDA-approved fresh liquid plasma, adding an estimated 20 days to the shelf life of the blood

product. Very few air ambulance programs carry plasma, and even fewer carry fresh plasma that has never been frozen, which seems to be even better than thawed plasma in terms of hemostatic potential. Now, each helicopter base keeps two temperature-controlled units each of packed red blood cells and fresh liquid plasma, which are placed in special coolers before each flight.

Dr. Holcomb is confident that even further advancements will be made to extend the shelf life of blood products. He is hopeful about the development of dried powdered plasma, which wouldn’t require refrigeration and could be stored at room temperature for up to two years, thus further extending its shelf life. “We’ve been able to add several things over the last few years to increase the level of care on the helicopters, like providing tourniquets, hemostatic dressings and ultrasound,” he said. “It’s taken an incredible team effort, and I look forward to what’s on the horizon.”



CASE STUDY

Permissive Hypotension in the Trauma Patient

Submitted by Kyle Scarbrough, E.M.T.-P., Flight Paramedic and Rudy Cabrera, R.N., E.M.T.-P., Flight Nurse

On October 27, 2012, at 0150, a 32-year-old male was run over by a vehicle. Police officers on scene witnessed the accident and activated EMS promptly. EMS arrived at 0201, performed an initial assessment and then proceeded with spinal precautions by back-boarding the patient. EMS immediately recognized that the patient had suffered substantial trauma and would require treatment at a Level I trauma center. EMS opted for air medical transport as they were 45 minutes from the Level I hospital by ground. The patient was then secured on the stretcher and loaded in the ambulance where secondary assessment was performed, clothing was removed, high-flow oxygen was applied, vital signs acquired and IV access initiated. The EMS physical exam revealed intact patient airway, clear and equal lung sounds, intact chest wall, abrasions to the abdomen and left flank, as well as multiple abrasions to the right and left legs. The left ankle was found to be deformed and externally rotated. Vital signs showed the patient to be hypotensive and tachycardic, prompting paramedics to initiate a fluid bolus. The crew administered 200 mL of normal saline and stopped the bolus to maintain a systolic blood pressure of 90 mmHg.

The air medical flight crew arrived at the patient's side at 0222, 32 minutes after the initial insult. At 0224, the patient was tachycardic at 136 BP 80/p, a respiratory rate of 18, oxygen saturation of 98 percent on a non-rebreather at 15 LPM. The flight crew received the report from the paramedics on scene and performed their



initial assessment to find the same. The patient was transferred to the flight stretcher and loaded into the aircraft. The helicopter departed for the trauma center at 0227, five minutes after arriving. In flight, the crew members performed an ultrasound extended focused assessment with sonography for trauma (eFAST) exam, while the nurse initiated a second IV. The paramedic identified free fluid in the RUQ (Morrison's pouch). With the positive eFAST exam and the persistent tachycardia, the patient met criteria for blood administration (see chart, page 5). The crew then initiated one unit of fresh frozen plasma (FFP) with a pressure infusing bag running through a blood warming system. Through the second IV, one unit of packed red blood cells (PRBCs) was initiated in the same manner. At 0241 the flight crew landed at the trauma center with the patient receiving a total of two

units of FFP and two units of PRBCs. At 0245 the patient was transferred to the Emergency department bed and the report was given to the awaiting trauma team with vitals 90/palpated, heart rate 102 and sats 100 percent. The total time from insult to arrival at the Level I trauma center was 55 minutes.

The Emergency department staff performed a primary assessment to find the patient to be hemodynamically stable and confirmed the paramedics' positive eFAST exam. X-rays at the bedside revealed multiple rib fractures, a left hip dislocation and fracture to the ankle. Both hip and ankle were reduced at the bedside and treated accordingly. A CT exam showed right-sided rib fractures with adjacent pulmonary contusion, pneumothorax and hemothorax with associated sub Q emphysema, grade 2 liver laceration, and intraperitoneal air was found with suspicion of diaphragm injury. The patient was then transported to the operating room where an exploratory laparotomy was performed. In surgery, a right 5-cm hemidiaphragm laceration was repaired and closed and a right chest tube was inserted.

The patient was admitted to the ICU, not intubated, for monitoring and recovery, where he was treated with antibiotics, pain management and further evaluation of his injuries. Rehab began three days into his ICU stay and he was transferred to a step-down unit on Nov. 4. The patient was discharged home on Nov. 14 with orders to follow up with the trauma clinic and scheduled rehab services.

DISCUSSION

This case study demonstrates an excellent job done by Dickinson Central Fire Station No. 1, who chose to follow what is quickly becoming a new standard protocol in emergency medicine: maintaining a permissive hypotensive state is considered ideal for this type of trauma in order to avoid damage-control resuscitation. After checking the airway, emergency medicine protocol directs us to look at a patient’s circulation. In this case, vital signs showed the patient to be hypotensive and tachycardic, and the crew members chose to administer just enough crystalloids – in this case normal saline – to raise the patient’s blood pressure to 90 mmHg systolic, a hypotensive measurement. Although traditional fluid resuscitation strategies recommend raising the blood pressure to a “normal” range in order to address traumatic shock, studies are increasingly showing that this is not always the best practice. In this case, a pressure of 90 mmHg systolic with good mentation was ideal.

The reasoning behind this is that the patient is losing all of blood’s essential components, such as plasma, water, red and white blood cells, electrolytes, clotting factors, glucose, etc. Because normal saline cannot replace all of these components, infusing a large amount of crystalloids will dilute the circulating blood, which alters the effectiveness of the body’s compensatory mechanisms, including clotting factors.

The patient’s systolic blood pressure remained high enough to keep the patient stable until Life Flight arrived on the scene. In-air, the patient met two of four criteria for blood administration with a positive eFAST exam and persistent tachycardia (see point system, below). Each Life Flight helicopter carries 2 units of packed red blood cells and 2 units of liquid plasma, so the crew administered both units of each while transporting the patient to the Level I trauma center for further treatment.

Life Flight’s Protocol for the Administration of Blood Products In-Air

Life Flight patients who need blood products administered in-air rely on the fast action of the program’s flight nurses. When a patient presents with any two of the following, they receive blood products.

TRANSFUSION PROTOCOL FOR ADULTS 12 AND OLDER	
Transfusion Scoring System: Two or more points = positive prediction for Massive Trauma	
Heart Rate > 120 bpm	1 point
Systolic Blood Pressure ≤ 90	1 point
Penetrating Injury	1 point
Positive FAST (intra-abdominal fluid by ultrasonography exam)	1 point

TRANSFUSION PROTOCOL FOR PEDIATRICS 1-11 YEARS	
Transfusion Scoring System: Two or more points = positive prediction for Massive Trauma	
Heart Rate > 120 bpm	1 point
Hypotension defined as systolic blood pressure <70 mmHg + child’s age in yrs x 2	1 point
Penetrating Injury	1 point
Positive FAST (intra-abdominal fluid by ultrasonography exam)	1 point

If the patient doesn’t meet the criteria but the flight nurse feels the patient needs blood products, the nurse then calls the hotline in the emergency center to ask the attending physician for orders. For transfer patients, the sending or receiving physician can give the orders for the administration of blood products.

Physicians at the Texas Trauma Institute Develop Innovative New Tourniquet for Combat and Civilian Use

In the fall of 2010, 3rd Battalion 5th Marines, known as 3/5, deployed to the Sangin Valley in the Helmand province of Afghanistan. The valley, dubbed a death trap for the number of lives its battles have claimed, is surrounded by steep inclines covered in lush green poppy plants. Infamous for their use in the production of heroin, the plants served a second, more strategic purpose in the region – abundant coverage for burying large containers full of powerful homemade bombs, known as improvised explosive devices or IEDs.

Memorial Hermann-Texas Medical Center emergency medicine physician and United States Navy Reserve Lt. Keith Gates, M.D., who was serving as a battalion surgeon there at the time, describes these IEDs as a new breed of explosives: “The insurgents wanted to engineer a device

that would be as emotionally devastating and demoralizing as possible,” he said. “They knew we carried tourniquets on the field that were capable of saving lives when their explosives would take off part of an arm or a leg. So they designed these bombs to hit higher, all the way up to the pelvis, rendering a traditional tourniquet useless. Those who were hit would often bleed to death in the field within minutes.”

Traditional tourniquets work by applying pressure to a limb circumferentially. The pressure on the skin and tissues is transferred to the walls of blood vessels, causing them to become temporarily occluded, which is effective in stemming the flow of continuous bleeding from a trauma. But these IEDs were causing high-level, bilateral amputations, with legs being blown off at the hips, so medics were unable to wrap a tourniquet around them. These injuries typically presented with multiple pelvic fractures in addition to the uncontrolled bleeding of the femoral arteries, which dive upward

at the pelvis and sit vulnerable in this region.

“We needed a tool that would clamp down on these arteries to stop the bleeding and also hold the fractured pelvic bones in place,” Dr. Gates said. “Unfortunately, the military didn’t

have anything that could address these issues. There were a few devices on the market but they were heavy, confusing to assemble and cumbersome, so the Marines wanted nothing to do with them. Still, Marines were dying regularly from these injuries – 3/5 had suffered the highest casualty rate of any Marine unit during the past 10 years of war, with 25 dead, 184 wounded and 34 losing at least one limb over the course of the deployment.”

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LT. KEITH GATES, M.D.

Frustrated, Dr. Gates sat in his hut in Afghanistan and began jotting down notes and sketching his own ideas. Once satisfied, he faxed his vision to Col. (Ret.) John B. Holcomb, M.D., director of the Texas Trauma Institute at Memorial Hermann-TMC and chief of the division of Acute Care Surgery at UTHealth Medical School. Then, he waited.

The Prototype

Just two days after his tour of duty ended, Dr. Gates found himself sitting in Dr. Holcomb’s office admiring a prototype for the Junctional Emergency Treatment Tool, or JETT. He was pleased. Applied circumferentially around the body like a belt, the JETT can be tightened around the pelvic region to compress fractures in place and apply inward pressure to the area without impeding respiration. The device also includes two pressure pads that can be positioned directly over the vessels supplying the lower extremity and can be tightened to block blood flow from the femoral arteries of either or both lower limbs. The device is designed to allow for patient movement without dislodging or reducing pressure, which makes it ideal for use in a hostile or pre-hospital environment. Even more, it is compact, lightweight and durable – all necessary components for a device intended to be carried into combat.



Memorial Hermann-Texas Medical Center emergency medicine physician and United States Navy Reserve Lt. Keith Gates, who is also an assistant professor at UTHHealth Medical School, poses with Col. (Ret.) John B. Holcomb, M.D., director of the Texas Trauma Institute at Memorial Hermann-TMC and chief of the division of Acute Care Surgery at UTHHealth Medical School. The two hold a plaque commemorating the evolution of the JETT, from Dr. Gates' first sketches to the final product.

“As soon as I saw Dr. Gates’ sketches, I knew this was something worth looking into,” Dr. Holcomb said. “It was a relatively simple device that addressed a big problem, plus it was created by someone who was actually working in the field, treating these patients. He knew exactly what it needed to accomplish.”

With prototype in hand, Drs. Gates and Holcomb set off to see if it actually worked. They recruited professor and vice chairman Andrew R. Burgess, M.D., chief of Orthopaedic Trauma Services at UTHHealth Medical School, to help them recreate the injuries on cadavers, breaking pelvic bones and then running them through CT scans to ensure the fractures resembled real-life injuries. Dr. Burgess is so fluent in his field that an entire classification of pelvic fractures has been named after him: the Young-Burgess.

Satisfied that the fractures were representative of those suffered in combat, the team opened the cadavers’ chests and pushed water through the aortas, using a pump that mimics the flow of a living human heart – normal blood pressure and heart rate and all. Finally, they compared application of the JETT to other types of tourniquets to see which best stopped the bleeding and in what manner they addressed the pelvic fractures.

“It was clear we’d made something worthwhile,” Dr. Gates said.

A short 18 months after that first fax from Afghanistan, the JETT was officially FDA approved.

“It was a testament to how well the device worked – and how badly it was needed,” Dr. Holcomb said.

“Without a Doubt”

The JETT holds incredible promise in the business of saving lives. A limited number have already been deployed in combat in Afghanistan, and on June 11, it was “without a doubt” the reason one local Houston man is alive today.

Twenty-eight-year-old Terry Light was using a circular saw when he lost control of the tool. It hit his thigh and severed a large artery near the pelvic region. Local paramedics applied a regular tourniquet to the wound which helped temper the bleeding, but it was unable to block it completely. Memorial Hermann Life Flight® was called and Life Flight nurse-paramedic Rudy Cabrera, R.N., B.S.N., C.F.R.N., E.M.T.-P., who’d been trained to use the JETT by Drs. Gates and Holcomb

personally, applied it on the scene. The bleeding stopped immediately.

“We were told by the operating surgeon that without a doubt, had the JETT not been applied, the patient would have bled to death while being transferred to the trauma center,” Dr. Gates said.

Injuries such as these are uncommon in the civilian world, but when they do occur, the associated fatality rate is alarmingly high. “There just aren’t reliable tools available to first responders for these injuries,” Dr. Gates said. “If Rudy hadn’t had access to the JETT, he would have had to use his fists to plug the artery. With the bumps from the helicopter and the practical challenge of transferring the patient between stretchers, it would have been all but impossible.”

As Advertised

To date, feedback regarding the JETT is that it “worked as advertised,” meaning it stopped

the bleeding immediately and entirely. The device has undergone multiple internal reviews by the Department of Defense and was recently selected as one of the Top 20 Innovative Products for 2013 by the EMS World Training Conference. It is now carried on all Memorial Hermann Life Flight helicopters, and Drs. Gates and Holcomb hope to see it broadly deployed in Afghanistan soon.

“We have a few out there, but we need it to become standard use,” Dr. Gates said.

A recent report regarding the use of these types of tourniquets in Afghanistan revealed that since mid-July, there have been eight reported uses of a junctional tourniquet device and all of those were JETTs.

“We’ve determined that if you get a tourniquet in the field – you’ve got a 95 percent chance of survival. If you get it in the ER, you’ve got an 80 percent chance of survival. If you don’t get one and it is indicated, you have a zero percent chance of survival.”

LT. KEITH GATES, M.D.

Of those instances, six patients survived and two died. One of the fatalities was in shock before the device was applied.

The importance of a tool like the JETT for a war like Afghanistan cannot be underestimated.

Dr. Gates illustrates it this way: “We’ve determined that if you get a tourniquet in the field – you’ve got a 95 percent chance of survival. If you get it in

the ER, you’ve got an 80 percent chance of survival. If you don’t get one and it is indicated, you have a zero percent chance of survival.”

Now, imagine all the devices like this that aren’t even invented yet.

The Texas Trauma Institute is built on a foundation of a long-term collaboration between the Memorial Hermann-Texas Medical Center Campus and UTHealth Medical School. The Institute is a Level I trauma center for both adults and pediatrics and is the only verified burn center in the city. The Institute brings together a world-class team of clinicians, researchers and educators armed with the latest in research and technology to deliver comprehensive, life-saving services.

Nurse-paramedic Rudy Cabrera, R.N., B.S.N., C.F.R.N., E.M.T.-P., applied the JETT to a civilian patient in June, a move that undoubtedly saved the patient’s life.



HVI Becomes an American Heart Association-Accredited STEMI Receiving Center

The Memorial Hermann Heart & Vascular Institute-Texas Medical Center has become an Accredited STEMI Receiving Center by the American Heart Association (AHA) and Society of Cardiovascular Patient Care, making it one of only two hospitals in the Greater Houston area and one of 26 nationwide to achieve this accreditation. The accreditation recognizes the Institute's compliance with heart attack treatment criteria set forth by the AHA's Mission: Lifeline program, and its commitment to continually improving STEMI care.

In concurrence with the accreditation, the HVI was also awarded the American Heart Association's Mission: Lifeline Gold Quality Achievement Award for heart attack care, which recognizes the Institute's commitment and success in implementing the highest standard of care for heart attack patients.

"Our physician partners and staff are constantly working to improve the outcomes of our cardiac patients, and we are proud to be recognized by the American Heart Association for our excellence in cardiac care," said Paul O'Sullivan, chief executive officer of Memorial Hermann Heart & Vascular Institute-TMC.

Each year in the United States alone, nearly 300,000 people suffer from an ST-segment elevation myocardial infarction (STEMI),



the most severe form of a heart attack. A STEMI occurs when a blood clot completely blocks an artery to the heart, and to prevent death it is critical to restore blood flow immediately, either by surgically opening the blocked vessel or by giving clot-dissolving medication.

To become an AHA-Accredited STEMI Receiving Center, the Institute had to meet the AHA's standards for quick and effective treatment of a STEMI.

Clinicians, nursing staff and the rest of the HVI team worked diligently to gather the necessary information to apply for this elite accreditation. The Institute is already an established Accredited Chest Pain Center by the Society of Cardiovascular Patient Care.

"Becoming an American Heart Association-accredited STEMI Receiving Center is a remarkable achievement and reinforces the HVI's place as one of the very best heart programs in Houston and the nation," said O'Sullivan.

Mischer Neuroscience Institute Awarded Advanced Certification for Comprehensive Stroke Centers



Earlier this year, the Mischer Neuroscience Institute (MNI) at Memorial Hermann-Texas Medical Center achieved a significant milestone after being recognized by The Joint Commission and the American Heart Association/American Stroke Association as meeting The Joint Commission's standards for Disease-Specific Care Comprehensive Stroke Center Certification. The certification solidifies MNI's place in an elite group of providers focused on complex

stroke care. Comprehensive Stroke Centers are recognized as industry leaders and are responsible for setting the national agenda in highly specialized stroke care.

"The Comprehensive Stroke Certification is many steps above the Primary Stroke Certification designation by The Joint Commission," said Nicole Harrison, R.N., administrative director of MNI. "There are very particular and exacting requirements, and to achieve this advanced certification

is something that very few stroke centers have been able to accomplish."

Comprehensive Stroke Center Certification recognizes those hospitals that have state-of-the-art infrastructure, staff and training to receive and treat patients with the most complex strokes. MNI underwent a rigorous onsite review earlier this year during which Joint Commission experts reviewed the Institute's compliance with the stringent Comprehensive Stroke Center standards and requirements, including advanced imaging capabilities, around-the-clock availability of specialized treatments, and staff with the unique education and competencies to care for complex stroke patients.

"The whole thrust of the certification is showing that you truly have an integrated program," said Harrison. "Each discipline must collaborate with the others – including the neurosurgeons, neurologists, nursing, social work, physical therapy and more – everyone is part of the decision tree." Harrison credits the team approach with making the difference in terms of MNI's ability to implement significant improvements to the program, changes which are already leading to better outcomes for patients.

"The Comprehensive Stroke Certification is heavily data-oriented, which allowed us to see evidence-based opportunities for making our stroke care even better," Harrison added. "We increased our focus to include both ischemic and hemorrhagic



stroke, we made significant improvements to our peer review process, and we also implemented a cognitive screening and depression screening process for every patient prior to discharge and post-discharge.”

According to Harrison, a stroke leadership committee was formed to help oversee and guide the processes necessary to achieve the certification. The committee was made up of physicians and other caregivers from across the Memorial Hermann-TMC Campus – including the Emergency

“It’s a two-year certification, but we have built the infrastructure to ensure that we will sustain and continue to do better. We are already seeing improvements in our outcomes, such as door-to-needle times for tPA administration in stroke patients.”

In order to ensure the stroke program had the necessary support to be considered a Comprehensive Stroke Center by The Joint Commission, several new team members were added, including additional



**American Heart Association
American Stroke Association
CERTIFICATION**
Meets standards for
Comprehensive Stroke Center

“By achieving this advanced certification, the Mischer Neuroscience Institute at Memorial Hermann-Texas

Medical Center has thoroughly demonstrated the greatest level of commitment to the care of its patients with a complex stroke condition. Certification is a voluntary process and The Joint Commission commends the MNI for successfully undertaking this challenge to elevate the standard of care for the community it serves.”

MARK R. CHASSIN, M.D., *president, The Joint Commission*

department, Interventional Radiology, Education and more. For the past six months, the group has held a weekly two-hour meeting to ensure that all standards of practice and protocols – both new and existing – are completely integrated across every discipline.

“Education is an integral piece of this certification, and we are already seeing the benefits for our patients,” said Harrison.

stroke coordinators, data extractors and advanced nurse practitioners. Harrison credits hospital administration with ensuring MNI’s success throughout the certification endeavor. “Our administrative leadership team was crucial in securing the resources we needed to make this certification happen,” she said. “Without that support, we could not have achieved this significant milestone.”

Continuing Education

Memorial Hermann Life Flight offers the following classes and more. For a schedule, visit trauma.memorialhermann.org/ems-education. For more information or to register, contact Kelly Murphy, Life Flight education coordinator, at 713.704.6151 or Kelly.Murphy@memorialhermann.org.

- Advanced Burn Life Support (ABLS)
- Advanced Cardiovascular Life Support (ACLS)
- American Heart Association Heart Codes
- Aortic Aneurysm Management
- Blood Product Administration
- Cardiopulmonary Resuscitation (CPR) License Provider
- CPR-Heartsaver Non-license
- Emergency Nursing Pediatric Course (ENPC)
- Instruction on Difficult Airways
- Landing Zone classes
- 12-Lead Interpretation Course
- Metabolic Emergencies
- Multi-System Trauma Care
- Neonatal Resuscitation Program (NRP)
- Pediatric Advanced Life Support Course (PALS)
- Pediatric Airway Management
- Respiratory Emergencies
- STEMI Protocol Instruction
- Tourniquet Use
- Trauma Nursing Core Course (TNCC)

Memorial Hermann Life Flight: MYTHS VS. FACTS

continued from cover

MYTH: Transport by ground is just as fast as transport by air.

FACT: This can be true depending on location, traffic patterns and the time of day. A majority of our flights, however, are outside Beltway 8, and the few minutes spent waiting on an aircraft can make a significant difference for a patient in need of surgery or blood products. Air transport isn't always the best choice for the patient, and all options should be considered based on the patient's condition and how quickly he or she can be transported to a hospital.

MYTH: Flying in a helicopter is dangerous and places patients at unnecessary risk.

FACT: Life Flight's commitment to safety is paramount, and the organization's safety record proves that. Life Flight meets – and in some cases, exceeds – all of the national safety standards set by the FAA and CAMTS. All of Life Flight's aircraft are engineered with redundant systems, meaning they have two engines, two hydraulic systems, two electrical systems, two radios, two GPS systems, and more. If one system fails, another is in place, ensuring safety and reliability of all features.

MYTH: Life Flight only transports to Memorial Hermann-Texas Medical Center.

FACT: Life flight will transport to any appropriate facility. Trauma patients will be transported to a Level I trauma center, and the area's only Level I trauma centers with helipads are Memorial Hermann-Texas Medical Center and UTMB Galveston. Trauma patients will be transported to either of these two facilities based on distance and EMS request. Medical patients will be transported to hospitals both within and outside the Memorial

Hermann system. Factors considered when choosing the location of care include the patient's condition and the care needed, e.g., cath labs for cardiac patients, Neuro ICU and surgery for CVA, etc. Our goal is always to improve patient outcomes, not patient numbers.

MYTH: Life Flight does not perform CPR in the back of the aircraft and will not transport a patient in cardiac arrest.

FACT: Life Flight does transport patients in cardiac arrest, and CPR can be performed quite effectively in the back of the aircraft. Life Flight's policy is to never deny transport of patients in cardiac arrest, and all resuscitative measures will be performed in the air on any patient in cardiac arrest.

MYTH: Life Flight does not give patients pain medications.

FACT: Life Flight will give patients pain medication when appropriate. Pain control is often one of the most important things we can do for our patients as we transfer them to the hospital. There are times, however, when the administration of pain medications can be contraindicated and can potentially put patients at risk. Patient stability is always a factor when determining the need for pain medication. In many trauma situations, a patient's adrenergic sympathetic response is the only thing keeping him or her alive. Pain medications can dull the physiologic "fight or flight" response, rendering a patient unstable. Whether by ground or air, a good assessment of a patient's hemodynamic state is always essential.



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