



Photo courtesy of Metro Life Flight

Hospital-Division Operations: Metro Life Flight

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Civilian air ambulance operators are organized in various forms of legal ownership. The organizational structures for air ambulances include hospital division, hospital consortium, government operation (police, fire, forest service), community organization-based nonprofit, and commercial for-profit corporation. A flight program's form of corporate organization seems to be a result of interplay between the social/political atmosphere at the time of its founding and the will of the primary players. Experience has shown that each of these forms can provide excellent patient care.

Cleveland Metro Life Flight in Ohio—a division of the department of surgery at MetroHealth Medical Center, a 700-bed county public hospital—is an example of a mature, hospital-affiliated air ambulance operation with a reputation for excellent patient care. This article reviews its operations as a representative of this type of governance and the success the service has enjoyed for 2 decades.

Cases in Point

How does Metro's uncommon combination of aircraft and medical crew configuration bring the "hospital to the patient" and benefit the citizens of Ohio? One example involves a girl in respiratory distress at a local high school. Upon arrival, the medical crew promptly established a definitive airway. But instead of leaving immediately in a "scoop-and-run" approach, the medical crew asked more questions of bystanders, including the patient's mother. They discovered that the patient had a nut allergy and had unknowingly eaten hazelnut cream. She was promptly treated for her anaphylactic reaction.

On routine follow-up with the patient at the receiving facility, a Metro crewmember learned that the girl's condition had deteriorated. Her cardiac output was very low, and she required powerful drugs to maintain her cardiac output, and she even was being considered for a cardiac transplant. The flight nurse then asked if she was being treated for the anaphylaxis. When the flight record was reviewed, the patient subsequently was treated for anaphylaxis, and she fully recovered with her own heart intact.

In a second example, Metro was called to the scene of an industrial accident to aid a 38-year-old man whose arms were trapped in an auger. His left arm was crushed with multiple complex, deep lacerations. His right hand was involved but appeared to be viable. After the local fire department had worked unsuccessfully for 3 hours to extricate him, Metro's crew requested that a surgical team be flown to the scene to amputate the left arm.

A second aircraft arrived with the surgical team and the amputation was completed. The patient then was flown to MetroHealth Medical Center, where he underwent a long and complex surgical procedure to preserve his right hand. Discharged after 4 days, the patient recovered well with good use of his right hand.

Flying Emergency Departments

The helicopters and medical staff of Metro essentially are airborne emergency departments. The fleet of 4 medically configured Sikorsky S-76 helicopters flies with 2 pilots and a medical crew of a physician and a critical care nurse on every mission.

Metro was established in September 1982 as a component of the department of surgery at MetroHealth Medical Center, the Cuyahoga County Hospital. It was the first critical care helicopter transport service in northeast Ohio. In recent years, Metro has flown an annual average of more than 3000 critically ill patients from referring hospitals (70%) and accident scenes (30%). The program also provides critical care ground transport for some 500 to 600 patients each year.

Metro's senior leadership was instrumental in lobbying the legislature to pass authorizing trauma legislation in 2000. That legislation is overseen by the Emergency Medical Services Office under the Department of Public Safety. Ohio trauma death rates have been relatively low as a result of voluntary cooperation among the rescue and medical communities in this densely populated state.¹

Financials

Metro receives the majority of its revenue from fees for services rendered, as do other parts of the MetroHealth System, a publicly subsidized county hospital. However, patient fees do not pay all the costs. A small part of the revenue comes from gifts and grants.

In addition, every year, the MetroHealth System leadership petitions the county government for operating funds, a process that has served the hospital in its 187-year history but is not the most efficient public process. A recent effort has been made to make the system a line item in the biannual budget for the county and not simply a negotiated yearly amount, thus helping support the system's mission of giving care to all. In fact, the MetroHealth System is the second largest provider of indigent care in Ohio.

Accreditation

Metro has valued accreditation from the Commission on Accreditation of Medical Transport Systems (CAMTS), considered by many to be the gold standard for safety and improved patient care, since the early 1990s. Because CAMTS requires documented continuous improvement, Metro has implemented a rigorous performance improvement standard and "loop closure." Issues that arise are documented, investigated, and then addressed as soon as possible. Later, each issue is reviewed during a bimonthly operations meeting for possible improvements in all aspects of the program.

Personnel

At the Helm

The flight crews are led and supported by a small administrative staff headed by Charlene Mancuso, RN, MPA, operations director for the past 11 years, and medical director Charles J. Yowler, MD. Their duties span not only Metro Life Flight but also the division of trauma, critical care, and

burns. Additional support and leadership are given by a lead pilot, chief flight physician, chief flight nurse, and 2 flight nurse specialists who act as clinical practice coordinators. The medical crews also are supported by 11 mechanics, 25 pilots, and 8 communication specialists.

The Transport Team

Metro has completed more than 53000 critical care missions while flying accident-free in its 22 years of operation. The leadership attributes the accomplishment to a culture emphasizing safety and strict adherence to federal regulations and CAMTS standards. In addition, any crewmember can call to abort a flight when weather conditions are marginal.

The 2 full-time pilots on each flight are instrument-flight rated and global-positioning trained. All pilots are required to take training flights each month and check rides every 6 months. Pilots work 12-hour shifts with 7 days on and 7 days off.

Experienced and well-trained medical crews are prepared with a full complement of skills and equipment to perform emergency, definitive interventions, starting at the patient's side and en route to the destination hospital. The transport team consists of a flight physician and a flight nurse specialist with an extensive emergency and critical care background. The physician is primarily proficient in the fields of emergency medicine, surgery, or anesthesia. All medical crew are certified in advanced trauma life support and advanced cardiac life support. Each physician is paired with a nurse specialist who is also a certified emergency medical technician (EMT) or EMT-paramedic. In addition, the flight nurse specialist is certified in pediatric advanced life support and as a neonatal resuscitation provider and is board certified in critical care, emergency, or flight nursing.

Metro's dispatch center is adjacent to the recently constructed 3-story, 150,000-square-foot critical care pavilion. It includes 3 dispatch stations identically equipped with computer touch screens that provide run reports and timely communication with all relevant parties, as well as a state-of-the-art computer-aided dispatch system. All dispatchers are EMT or EMT-P certified.

Interventions

The flight physician and nurse specialist start definitive care interventions as soon as they reach the patient. This care continues en route to the aircraft. Some interventions have been the focus of research: the use of Foley Airway Stylet Tool;² heart pumps; PolyHeme, a blood substitute; pediatric intubations and medications;³ and adult intubation drugs.

The Fleet

Metro owns 4 twin-engine, medically configured S-76 helicopters that are piloted and maintained by Keystone Aviation. One aircraft is based at Metro Health Medical Center; the second is at Highland Hills, a skilled nursing facility; and the third stays 60 miles away in Canton, Ohio, at Aultman Hospital. A spare ship is kept in a hangar at Burke Lakefront Airport for use when one of the others is down for maintenance. During 2004, each aircraft was given major refurbishment, retrofits, and upgrades.

In addition to the 2 pilots, each S-76 can transport 2 adult patients and up to 4 medical crewmembers. The aircraft are not kept in a hangar, so in the winter the engines are started every 2 hours to keep them warm and reduce the possibility of icing and inability to launch. Metro does not launch if weather falls below CAMTS' recommended minimums of 500-foot ceiling and visibility requirements for both night and day in the local flying area.

Conclusion

Metro is a viable success for its communities. Twenty-two years and more than 53000 critical care patient missions with zero accidents is an enviable record. The leaders believe they are fortunate to be a part of the county hospital. They are committed to providing safe flights with 2 pilots and an instrument flight rated twin-engine aircraft, continuing the requirement of a medical crew consisting of a physician and flight nurse specialist, and having an emergency department in the sky. The system works.

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