



Controlling What You Can't:

Airborne Medical Emergencies

by Amy Laboda

It is a nightmare scenario for any flight crew, charter operator or owner on an intercontinental flight with no easy divert point: a passenger is suddenly taken ill. Crews might train for it once in a blue moon, and operators might provide for it with a first aid kit or even with an automated external defibrillator (AED) onboard, but, one must ask, is this scenario a part of their Safety Management Systems (SMS) that all quality flight departments fly by? If not, it should be.

Charters operating under a European Aircraft Operating Certificate (AOC) or the US Federal Aviation Administration's (FAA) Part 135 or Part 121 rules are required to have an SMS plan as part of their operational specifications. Any first aid kit carried onboard must meet or exceed Joint Aviation Requirements (JAR) 1.745 or the Federal Aviation Regulations (14 CFR) Part 91, 121 and 135. It must also comply with relevant occupational health and safety standards for blood-borne pathogens.

And the defibrillator? Despite seeming to be ubiquitous on aircraft, it is a prescriptive device and requires a doctor's permission to purchase (and a product orientation course to use).

Certified Crew

"Without a certified, trained flight attendant or third crew member in the back of the aircraft with the passengers, it is impossible to say what the outcome of an inflight medical emergency will be," says Susan C. Friedenber, a veteran corporate flight attendant who runs Corporate Flight Attendant Training. "No one defibrillates themselves!" she points out. "And if the crew is up front behind closed doors, how are they going to know unless a passenger tells them that there is someone in distress?"

A passenger in cardiac arrest has a maximum of just ten minutes to be shocked into a normal heart beat again. For every minute that goes by once the patient enters ventricle fibrillation, the survival rate drops ten percent.

With only two flight crew on board, it might not be possible for one of them to safely come back into the passenger compartment to assess and manage the distressed passenger.

Concierge Medical Services

Friedenberg points out that, even with a third crew member onboard, without the proper equipment and training, that person may be unable to help in a true medical emergency. "A satellite phone connection, such as Iridium should be a mandatory safety item," recommends Friedenber. With it the crew can contact a land-based doctor from anywhere in the world. If they have a contract with a land-based doctor or a concierge medical service, then the crew should know the level of expertise they can expect. If they do not, then it is location and luck that will determine who answers the emergency call. >>

That's when telemedicine, an innovation first brought to market by International SOS in the 1980s, comes into to play. In 1985, MedAire, Inc. was established as a global emergency response centre dedicated to providing immediate, real-time medical assistance to people in remote locations, including onboard aircraft. The company's Medlink™ Global Response Center offers far more than just a concierge medical service. "Together, MedAire and International SOS have access to 68,000 medical providers. When our members become ill, we can make appointments, get them medication refills, provide cashless services, and if necessary, get them evacuated," explains Jill Drake, Director of Marketing and Communications.

With offices in Singapore and Arizona, MedAire has grown from one flight nurse's vision of how all aircraft should be equipped for medical emergencies, into the world's largest healthcare, security and concierge services company for maritime and aviation use.

Joan Sullivan Garrett, Founder and Chair of the Board for MedAire, was that flight nurse. Her first mission, in the 1980s, was to get a modern, simple-to-use and comprehensive first aid kit to be required equipment on airliners. "I responded to a Notice of Proposed Rulemaking by the FAA in 1985 with a design for a proper medical kit," Garrett explains.

Seconds to React

Garrett designed the first kits with gloves to protect crew members from blood and airway shields for safe mouth-to-mouth; both important to ensure people are comfortable and therefore more proactive in an emergency. The kits are also colour-coded, with each section clearly labelled. "As a flight nurse, I had seconds, sometimes milliseconds to respond to the needs of my patient on an Emergency Medical Service (EMS) flight. We all had our equipment organised in colour-coded pouches. We knew where everything was at a seconds' notice."

Garrett quickly saw that the problem with medical emergencies onboard aircraft wasn't just an equipment issue, it was a crew training issue. "I had to figure out how to make a business work from that. I had the training background, so I knew I could teach," she says. By 1988 Garrett was training business aviation crews on how to respond to medical emergencies, and equipping their aircraft with her lightweight, comprehensive first aid kits.

It wasn't an easy sell, though. "I had to get on the speaker circuit and educate the market so that they would understand why they needed to buy my company's services," she remembers. It didn't take long for the feedback from the crews she trained to come in. "They'd say: 'I saved my father-in-law's life when he was choking in a restaurant, I saved my child' ...the stories kept coming. This is the only training in aviation you can actually take home with you," says Garrett. And she believes it

should be required training, but the reality is that it is not. The training is listed as a best practice in the International Standard for Business Aircraft Operations (IS-BAO) and safety auditors look for it in an SMS plan. That is a start.

The comprehensive first aid kits produced by MedAire are now standard equipment for many business aircraft makers including Boeing, Bombardier, Cessna, Embraer, Gulfstream and Hawker-Beechcraft among others.

Link to Ground

"But we take it further," says Garrett. "So many of our customers fly into developing countries, and it is hit or miss whether you can get great medical care. So, we developed a more expansive emergency medical kit to go with them."

The medical kits include prescription drugs, intravenous solutions, antibiotics; virtually everything one might need to take to a trained physician who might not have the equipment, but has the knowledge to help an injured or ill person. There is even a kit that contains a revolutionary device – the Tempus IC, manufactured by RDT, which provides a comprehensive remote monitoring and diagnostic tool in a compact, lightweight, battery-powered package. The Tempus IC enables crew to send the ill person's vital signs to a ground-based medical expert. That expert has access to the patient's blood pressure, oxygen and blood glucose levels, temperature, and even a readout from a full 12-lead electrocardiogram. Both video and audio feed can be sent using satellite technology, a mobile phone or a landline.

That is where Medlink comes in. The successful conclusion to a medical emergency requires the integration of that skilled doctor right into the aircraft, where they can direct diagnostics and treat the emergency. Yet, not everyone has the means to travel with a full-time medical staff. Garrett's Medlink service provides that third, key component to her customers.

"Our Medlink service evolved, again, from my experience as a flight nurse," says Garrett. "When I had a patient that I thought wasn't doing what they should, and I was doing everything I was trained to do but it wasn't working, I called the emergency doctors at the hospital and asked for their advice. I called, even if it was just to tell them what was coming and to have them bring the trauma team in. It was a link that allowed us, the EMS, to increase survival even in a remote environment. We integrated that direct link to our own doctors." Medlink will coordinate with the nearest, most reputable medical facilities, accessing its proprietary database of worldwide medical providers that includes 15,000 hospitals and clinics in more than 5,000 cities. Medlink's Global Emergency Response Centers managed more than 40,000 medical cases in 2010 (that's 93,000 calls) from all corners of the globe – on land, at sea and in the air.

Three-prong Approach

A link to a live, qualified emergency doctor can make all the difference in determining whether a passenger is having a true medical emergency that requires an emergency diversion, or whether the passenger's symptoms can be eased from the extensive first aid kit onboard the aircraft.

The Tempus IC diagnostic tool is much more than just a voice and video link to a concierge doctor on the ground. It can tell that doctor whether a passenger's chest pain is a heart attack or just indigestion, and whether a fainting spell is low blood sugar, cured with a bit of juice or candy, or a full-on illness that demands immediate hospitalisation.

But a tool is only as good as the people operating it, and the diagnostics are only effective if the crew and first aid equipment onboard the aircraft can accommodate the needs of the ill passenger.

Like so much of aviation, one must think of solutions that provide for all three dimensions in order to maintain control. In this case, those three dimensions are well-equipped first aid kits, trained crew and access to a dedicated emergency response centre.

When it comes to medical emergencies in flight, only a three-prong approach to safety in the sky can make sense for passengers and crew alike. ■



Emergency Medical Kit



MedAire Defibrillator



Tempus IC with case

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