Handling In-Flight Medical Emergencies

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Every year, more than 500 million Americans travel by air in the U.S. (1) Medical emergencies aboard aircrafts are inevitable, and an estimated one per 10–40,000 passengers will experience one. (2) With commercial air traffic increasing, these emergencies are expected to become more frequent as the percentage of older passengers increases. (3) Although flight attendants are required to undergo initial and recurrent training on aviation medicines, first aid, CPR and automated external defibrillator (AED) usage every 24–24 months, EMS providers, paramedics and other medical professionals can still provide valuable assessment and treatment to passengers who become ill in flight. (4,5) EMS providers should be aware of the legal protections afforded to them as Good Samaritans of the sky, along with equipment and technologies that will assist in providing patient care.

Aviation portable oxygen bottles (POBs) are available to them on a commercial aircraft. The contents and quantity of equipment is regulated carefully by the Federal Aviation Administration. As such, the equipment carried by different air carriers is fairly universal. Although the first aid kit contains only basic equipment, such as bandages and antacids, the EMS, which was envisioned by the FAA to be more of a doctor’s kit, provides a considerably larger range of emergency pharmaceuticals and devices that most EMT-Intermediates and paramedics would be familiar with. These items include a stethoscope, blood-pressure cuff, syringe, resuscitation (one required, child/infant optional), oral, intravenous (three sizes required); nitroglycerin (at least 10 tablets); aspirin (at least four tablets), abscetin (one metered-dose inhaler required); doxylamine 50mg (at least 25 grams); intravenous 1:1000 epinephrine for an allergic reaction (at least 2 mg); oral antihistamines (at least four tablets); IV antihistamines (at least two ampules) and cardiac resuscitation drugs, including IV 1:10,000 epinephrine (at least 2 mg total), atropine (at least 1 mg total) and lidocaine (at least 200mg total). Five-hundred milliliters of normal saline, an IV drip set and a variety of needles and syringes are also to be equipped. However, much of these advanced devices and drugs not required to be in the EMK are reserved for air carriers travelling on intercontinental flights. The EMS provider in most aircraft medical emergencies may quickly realize the limitations of the medical equipment provided onboard.

Limitations of Equipment & Alterations to Care

The biggest challenge is the tight space in which a patient may be located, particularly in such areas as coach or lavatories. Aircraft in the U.S. with 60 or more seats are required to carry an on-board wheelchair, which is designated to allow access into the aisle and lavatory. (24) Some airlines carry mobility aids, such as transfer slings for short moves, but this equipment isn’t mandated aboard aircrafts. Flight attendants are typically trained to assist in manually moving the patient into the aisle or the galley area where the patient can be more easily managed. Flight attendants are also specially trained on how to open a locked lavatory door (if a passenger becomes unconscious inside). Here are some equipment challenges that EMS providers may face, some of which are the result of peculiarities in Federal Aviation Regulations:

• During patient assessment and evaluation, auscultation in an aircraft using a stethoscope can be difficult due to ambient engine noise and instead require that systolic blood pressure be palpated.
• Administration portable oxygen bottles (POBs)

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generally have only one of two fixed settings: “low flow” (2 lpm) and “high flow” (4 lpm) for first aid purposes and decompression emergencies, which is far lower than what is normally used in EMS settings. Even more unusual, oxygen tubing for the bag-valve mask resuscitations aren’t required to be compatible with these on-board oxygen bottles.

- The AEDs on board aren’t required to have ECG screen even though ACLS medications are provided; without an ECG screen, it may be more difficult for the EMS provider to determine which cardiac resuscitation algorithm and drug to use during a prolonged cardiac arrest. If an AED does have an ECG screen, it’s typically limited to a leads II/paddles view.

- Glucometers aren’t mandated in EMKs, despite the requirement to have dextrose 50%, which may make it difficult to identify hypoglycemic emergencies. These limitations may require creative thinking by the EMS provider, such as consulting the ground-based physician for ACLS medication orders, or, for example, using the public announcement system to ask if any passenger on board the aircraft would be willing to share their personal glucometer for the medical emergency.

**Conclusion**

Despite being in a pressurized metal container at 30,000 feet, U.S. commercial aircraft have well-trained crews with considerable equipment the EMT and paramedic can utilize in a medical emergency. EMS providers are well suited to being first responders of in-flight emergencies because the creativity and innovation they use every day at work will assist in providing appropriate patient care.