

Potential error in the use of AEDs during an in-flight emergency

To the Editor: In their recent case report regarding the use of an automated external defibrillator (AED) on a transatlantic flight, Katis and Dias¹ illustrate several important issues relating to the use of AEDs that educate us about this emerging trend of AED implementation on aircraft, in shopping malls and even at golf courses.

I feel it is important to clarify one important point, however. In the in-flight emergency case documented, the authors suggest that a potential error in the use of the AED led to "inappropriate intentions to start CPR in a spontaneously breathing patient with a pulse." This inappropriate action resulted from a message on the AED display screen. The problem is, there was no indication to use the AED device. In the case described the machine performed correctly, but the operators did not.

AEDs currently deployed on aircraft in North America are not approved for use on a patient with a pulse, breathing or with other signs of life. In fact, given that this patient is described as having a pulse of 55 beats/min, a blood pressure of 90/60 mm Hg and a respiratory rate of 12 breaths/min shows that there are contraindications to placing the device on the patient or to even powering on the device. The guiding principle of AED use is that they are only designed to shock rapid, unstable rhythms such as ventricular fibrillation or ventricular tachycardia, neither of which would be present as described in this case.

As the deployment of these lifesaving devices becomes more common in our community centres and shopping malls it is the responsibility of all physicians, regardless of area of practice, to be current in CPR and the use of AEDs. In fact, many aircraft now carry

a fully stocked medical kit, which includes a hand held rhythm monitor and a full ACLS drug complement.

Although I commend every physician for assisting during in-flight emergencies, be aware that flight crews naturally assume the physician will be knowledgeable in all facets of emergency response. I do agree with the authors, who recommended larger screens and universal voice prompts, but I would add one stronger recommendation. Peer into your wallet and answer the following questions: Are you current in your CPR? and Have you received an orientation to the use and limitations of an AED? If not, I suggest you familiarize yourself with these devices and download the latest ACLS algorithms to your PDA so the next time you hear, "Is there a doctor on board?" you are not surprised when an AED and fully stocked medical kit arrive at your side.

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Reference

1. Katis PG, Dias SM. Potential error in the use of an automated external defibrillator during an in-flight medical emergency. *Can J Emerg Med* 2004;6(1):45-7.

Considering air embolism

To the Editor: I would like to commend Dr. Tang for her excellent discussion of paradoxical embolism consequent to arterialization of venous thrombi through a right-to-left shunt.¹

A related phenomenon, paradoxical air embolism, has been of interest to the diving medicine community, since it may account for at least some cases of "undeserved" neurological decompression sickness occurring on relatively conservative dives within the limits of

standard dive tables.^{2,3} Venous gas bubbles forming after normal dives are usually filtered and eliminated harmlessly in the pulmonary vasculature; however, there remains a chance that bubbles can pass across a patent foramen ovale, present in perhaps 28% of the general population, into the arterial circulation.⁴ This is a separate mechanism from cerebral air embolism, occurring secondary to pulmonary barotrauma in divers who breath-hold on ascent from scuba dives.

There have also been many cases of iatrogenic arterial air embolism reported in the literature following inadvertent air injection at central line placement, vascular interventions in the catheterization lab, or surgery.⁵

It is important that emergency physicians consider the possibility of air embolism whenever neurological symptoms present after any dive or potential vascular misadventure. The treatment for suspected arterial air embolism, regardless of cause, is prompt hyperbaric oxygen therapy.

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References

1. Tang CE. Paradoxical embolism: a rare life- and limb-threatening emergency. *Can J Emerg Med* 2004;6(1):40-4.
2. Wilmshurst PT, Byrne JC, Webb-Peploe MM. Relation between intra-atrial shunts and decompression sickness in divers. *Lancet* 1989;2:1302-5.
3. Bove AA. Risk of decompression sickness with patent foramen ovale. *Undersea Hyperb Med* 1998;25(3):175-8.
4. Hagen PT, Scholz DG, Edwards WD. Incidence and size of patent foramen ovale during the first 10 decades of life: an autopsy study of 965 normal hearts. *Mayo Clin Proc* 1984;59:17-20.
5. Blanc P, Boussuges A, Henriette K, Sainy JM, Deleflie M. Iatrogenic cerebral air embolism: importance of early

hyperbaric oxygenation. *Intensive Care Med* 2002;28(5): 559-63.

Waiting Room medicine

To the Editor: Winnipeg newspapers have recently picked up the battlecry that the current emergency care system does not work. It is now unacceptable and dangerous that patients wait hours to be seen and treated. In response, the Manitoba government has decided to do a 1-week audit of selected emergency charts to see what the problem is. It seems they have forgotten to talk to the frontline workers, who might have an idea about what the major issues are.

The primary issue, which has been documented extensively in the emergency medicine and health services literature, is outflow block and the resulting lack of available stretchers. The simple fact is, most emergency stretchers are filled with patients already admitted to other services and waiting for an inpatient bed.

As the government has promised the public, the days of *Hallway Medicine* are over. Fantastic! Let's move ahead into the new world of *Waiting Room Medicine*.

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Repeat of Jan.

Role of SARS screening clinic in the ED

To the Editor: Dr. Marcus Ong recently described an emergency physician's perspective on the "War on SARS" in Singapore.¹ Fortunately, the strategy and tactics detailed were effective at that time. We know from the recent appearance of sporadic cases in Guangdong, China, that SARS has returned.²

The SARS crisis has had one positive outcome: it highlighted many of the unique challenges emergency departments (EDs) face in dealing with contagious diseases. In addition, the economic costs of the SARS outbreak demonstrate the need to upgrade EDs to a comprehensive and national standard, as described in the recent CAEP position statement.³

Overcrowding is a key factor that increases the risk of infectious disease transmission in EDs. Overcrowding is increasingly common in urban EDs, where large numbers of patients, some with potentially lethal infectious illnesses, squeeze together in waiting rooms and on stretchers in hallways, exposing ED staff and other patients and increasing the risk of initiating a new infectious outbreak.

Previous ED infection control guidelines are not adequate.⁴⁻⁶ Significant ED retrofitting and redesign is necessary to address future infectious disease threats.⁷ These proved useful in the Singapore and Hong Kong outbreaks. We strongly propose establishing "SARS screening clinics" or "fever clinics" such as those developed in Hong Kong and Singapore¹ during the 2003 SARS outbreak. These units segregate and manage suspicious patients with fever, contact history, SARS or influenza-like symptoms, using a biohazard model that protects staff and patients.

Fever units should apply a universal and high level of protection by making use of redesigned triage areas, nega-

tively pressurized consultation and resuscitation rooms and full personal protection — especially when ED staff are performing high-risk procedures. Efficiency of screening is enhanced by designating senior physicians, protective equipment and resources to the clinic, and the chance of cross infection within the department is also reduced.

Also important is a reliable follow-up system to prevent "missed" cases from falling through the cracks.⁸ We cannot afford to lose a single staff member in the battle or to miss a single patient in the community.

We have adopted these principles and run such a "fever clinic" in our department. Realizing the threat of future infectious agents or bioterror events anywhere in the world, we think this is the right strategy to be instituted in other EDs. Because air travel makes these concerns global rather than local, cooperation between different departments, hospitals, nations and countries is critical.

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References

1. Ong EHM. Wars on SARS: a Singapore experience. *Can J Emerg Med* 2004;6(1):31-7.
2. WHO Update 3: Announcement of suspected SARS case in southern China. Investigation of source of infection for confirmed case begins tomorrow. Available: www.who.int/csr/don/2004_01_08/en/ (accessed 2004 Jan 16).
3. Ovens H, Thompson J, Lyver M, Murray MJ, Innes G, on behalf of the Canadian Association of Emergency Physicians (CAEP). Implications of the SARS outbreak for Canadian emergency departments [position statement]. *Can J Emerg Med* 2003; 5(5):343-7. Available: www.caep.ca/004.cjem-jcmu/004-00.cjem/vol-5.2003/vol-5.pff/v55-pf.343-7.htm (accessed 2004 Jan 16).
4. Canadian Association of Emergency