The CAEC is removed and ventilation commenced. The EC is now typically visualized within the ETT and should be pulled out if the intubation is deemed successful. The RI can be performed in less then two minutes using this technique.

Retrograde intubation is an invasive technique that can be used to secure a difficult airway, but is not without limitations.[2] The success rate is variable and may depend on the operators' skill and technique.[2] The failure to pass the ETT over the guide into the trachea or accidental extubation during removal of the guide are recognized problems. Alternative retrograde techniques utilize infracricoid puncture, a bronchoscope, a light wand or a multilumen catheter over the guide.[3–5] Another frequent problem is the limited availability of guide wires of sufficient length and other equipment mentioned above.

The described technique utilizes equipment that is commonly found in the anesthesia workplace and is therefore readily available. Shortening the CAEC by 20 cm facilitates RI, since the EC is thus long enough to be easily retrieved and secured at the rostral end of the CAEC. The high success rate, speed and equipment availability make this technique an important tool for difficult airway management.

Kay B. Leissner MD PhD
Massachusetts General Hospital & VA Boston Healthcare Service
Harvard Medical School, West Roxbury, USA
E-mail: kbleissner@yahoo.com
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"Code blue" in the air: implications of rendering care during in-flight medical emergencies

To the Editor:

It has been estimated that nearly 2 billion people travel on commercial airlines each year.[1] As more elderly people (often with preexisting disease) take to the air the incidence of in-flight illnesses/medical emergencies is expected to increase. The management of in-flight medical emergencies requires an integrated emergency response system that ensures rapid notification of medical ground personnel (many airlines in the USA provide around-the-clock air-to-ground radio consultation either with their own medical department personnel or contracted medical consultants), assistance from appropriately trained flight crews (it is not uncommon for the flight attendants to receive training in first-aid, cardiopulmonary resuscitation, and operation of automated external defibrillators) and on board passenger volunteers (if available).[1–3]

Although serious life-threatening in-flight medical events and deaths are uncommon, it is becoming increasingly common that physician passengers on board are called to assist the flight crew if the medical emergency arises. The anesthesiologist's unique skills in acute resuscitation combined with experience in critical care make members of our specialty particularly valuable in management of in-flight medical emergencies. However, there are a number of medico-legal and logistic concerns [about which passenger physicians (including anesthesiologists) might be concerned, but not fully informed] involved in caring for patients with in-flight medical emergencies. Having recently provided care to two fellow passengers during two in-flight (on board) medical emergencies in two different countries the author of this communication would like to share some of his findings on implications of participating (as an accidental medical care provider) in such events.

Most in-flight medical events are not serious with fainting, near-fainting, hyperventilation and dizziness accounting for the majority of such events.[1] Cardiovascular events account for the majority (46%) of medical diversions.[1] Cramped conditions, difficult access to the victim, lack of privacy, language barrier and cultural differences, noise and vibration all compound to increase the difficulties in the management of in-flight medical emergencies.[1,4] In the United States, Canada and Great Britain physician passengers do not have a legal duty to render assistance to the victim/s of in-flight medical emergencies. In

contrast, in Australia and many countries in Europe physician passengers do have such an obligation.[1] To date no litigation has been brought against a passenger physician who has rendered assistance during an in-flight medical event. By international law, the country in which the airplane is registered has legal jurisdiction.[1,4,A] However, the country of citizenship of the plaintiff or defendant or the country in which the incident occurs can also have jurisdiction.[1,4,A] In the United States the Aviation Medical Assistance Act (an important step that reduces passenger physician's concerns about medical liability) was signed into law in 1998.[A] The act provides limited "Good Samaritan" protection to any medically qualified passenger who provides medical assistance aboard an aircraft.[A]

In conclusion physicians (including anesthesiologists) rendering care during in-flight medical emergencies should be aware of the logistic and medico-legal implications of their involvement in these events.

Krzysztof M. Kuczkowski MD
University of California San Diego, San Diego, USA
E-mail: kkuczkowski@ucsd.edu
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Isovolemic hemodilution in a patient with polycythemia vera undergoing deep hypothermic circulatory arrest

To the Editor:

Polycythemia vera (PV) is a disorder of the multipotent progenitor hematopoetic cell, characterized by increased production of erythrocytes, white blood cells and platelets.[1] Patients with PV present with ischemic attacks to various organs related to blood hyperviscosity and decreased blood flow.[1] Deep hypothermic circulatory arrest (DHCA) further increases the risk of thrombotic complications.[2] A patient with PV requiring DHCA has never been reported. We describe the management of a patient with PV undergoing cardiac surgery requiring DHCA using isovolemic hemodilution.

A 61-yr-old male presented for replacement of the aortic valve, ascending aorta and coronary artery grafting. Preoperative investigation revealed a bicuspid aortic valve with mild insufficiency and moderate stenosis, a 5.4-cm ascending aortic aneurysm and moderate obstruction of the right coronary artery. Past medical history was significant for PV and hypertension. Diagnosis of PV was based on the history of elevated hematocrit values, between 50–53%, associated with a history of transient ischemic attacks with normal platelet and white cell count. Smoking and pulmonary disease were excluded as a cause of erythrocytosis. Diagnosis of PV was supported by a normal serum erythropoetin level of 13 $MIU \cdot mL^{-1}$ and bone marrow biopsy findings of increased cellularity and absent iron stores.

Routine monitors, left brachial arterial and right internal-jugular pulmonary artery catheters were placed. Anesthesia was induced with iv etomidate, fentanyl and succinylcholine and maintained with isoflurane, fentanyl and pancuronium. Aminocaproic acid was administered by bolus and continuous infusion. Baseline arterial blood gas revealed a hematocrit level of 51%. To decrease blood hyperviscosity, prior to DHCA, the technique of isovolemic hemodilution was performed. Two sterile citrate-phosphate-dextrose-adenine containing bags were filled by gravity with 944 mL of blood and stored in the operating room. Blood was replaced by 3000 mL of lactated Ringer's solution. Post-hemodilution hematocrit was 44%. After heparinization and initiation of cardiopulmonary-bypass (CPB), hematocrit decreased to 31%. Systemic cooling was begun and circulation arrested (duration of 8 min) at a nasopharyngeal temperature of 18°C, while the aortic graft was sewn. While re-