The place of goal-directed haemodynamic therapy in the 21st century

1. The high-risk surgical patient:
   (a). Is classified as such if their individual postoperative mortality risk exceeds 10%.
   (b). Accounts for over 80% of postoperative deaths.
   (c). Is routinely electively admitted to critical care perioperatively in the UK.
   (d). Includes patients with an anaerobic threshold (AT) of <11 ml O2 kg−1 min−1.
   (e). Is at greater risk of postoperative multiple organ failure.

2. Regarding goal-directed haemodynamic therapy (GDT):
   (a). Historically, haemodynamic goals for the patient have been set according to premorbid functional status.
   (b). GDT has been shown to improve long-term survival.
   (c). Haemodynamic variables are indexed according to body surface area. For men, the average body surface area is 1.9 m2.
   (d). Critical care admission is essential.
   (e). Sepsis is a relative contraindication.

3. Regarding haemodynamic monitoring:
   (a). A pulmonary artery catheter is the gold standard.
   (b). The Pulse Contour Cardiac Output (PiCCO) system requires lithium indicator dilution.
   (c). Oesophageal Doppler uses pulse contour analysis.
   (d). Use of the pulmonary artery catheter in critical care is associated with improved patient outcome.
   (e). The Non-invasive cardiac output monitor (NICOM) system uses bioreactance.

4. Regarding goal-directed haemodynamic therapy:
   (a). Further fluid boluses are indicated if the stroke volume increases by ≥20% after a fluid challenge.
   (b). Fluid challenges can be undertaken with either crystalloid or colloid.
   (c). Increased inotropy and decreased afterload causes the Frank–Starling curve to be shifted down and right.

(d). Dopexamine is the most frequently studied inotrope in the GDT literature.
(e). A perioperative indexed oxygen delivery (DO2I) >600 ml min−1 m−2 should always be sought empirically for any surgical patient deemed high-risk.

Civilian aeromedical retrievals (the Australian experience)

1. In an aircraft, non-invasive ventilation (NIV) of the lungs:
   (a). Has high oxygen flow rate requirements.
   (b). Is easy to convert to invasive ventilation of the lungs.
   (c). Is useful for the treatment of pulmonary oedema.
   (d). Can be performed with low oxygen and air flow rates.
   (e). Does not risk expanding an underlying pneumothorax.

2. The following equipment/monitoring methods are recommended for retrieval of a ventilated patient:
   (a). End-tidal CO2 monitoring.
   (b). Pulse oximetry monitoring.
   (c). Auditory alarm monitoring.
   (d). Depth of anaesthesia monitoring.
   (e). Nasogastric tube.

3. Issues with flying at a sea-level cabin altitude compared with conventionally pressurized aircraft include:
   (a). Faster times.
   (b). More motion sickness.
   (c). More fuel consumption.
   (d). Interference with radio communication.
   (e). More noise pollution for the patient.

4. Indications for sea-level cabin pressure flights include patients with:
   (a). Septic shock.
   (b). Pneumothorax.
   (c). Intestinal obstruction.
   (d). The bends.
   (e). Preterm labour.
Human factors in complex airway management

1. In difficult airway scenarios, situational awareness can be maintained by:
   (a). Nominating a member of the team to monitor the oxygen saturation trace and inform the team leader if it drops below 94%.
   (b). The team leader maintaining usual roles in monitoring patient whilst completing intubation attempts themselves.
   (c). Minimizing the number of non-essential staff present during the intubation attempt.
   (d). Use of the theatre team briefing to review all cases on the list for that session.
   (e). Ensuring the nominated team leader is the most experienced member of the team.

2. A team briefing before calling any patients should include:
   (a). Allocation of roles within the team.
   (b). Gathering all difficult airway equipment that may be required.
   (c). Confirmation that the anaesthetic machine, drugs and any equipment have been prepared and checked.
   (d). Ensuring all members are familiar with the airway management plan and the decision point to move to plan B if required.
   (e). Checking the skill mix of staff present and ensuring any limitations are identified.

3. Concerning the management of the anticipated difficult airway:
   (a). Having a formal airway plan and subsequent options already decided is not essential as the Difficult Airway Society (DAS) guidelines for the unanticipated difficult airway can be used to manage problems as they arise.
   (b). It is important to consider how much time one has before intervening.
   (c). Nasendoscopy is of little value.
   (d). A detailed management plan should be used in the team briefing.
   (e). Extubation is not a problem as the surgeon has dealt with the problem at hand.

4. Concerning human factors and intubation:
   (a). The team leader should ideally assume a hands-off approach.
   (b). The team leader may become task-focused during the intubation.
   (c). The scrub team are not required for the airway part of the team briefing.
   (d). Team members should be encouraged not to speak out during the intubation as they may distract the operator.
   (e). The anaesthetic room is the best place to manage a critical airway.

Ventilator-associated pneumonia

1. In the diagnosis of ventilator-associated pneumonia (VAP):
   (a). A combination of clinical, radiological and microbiological criteria are used.
   (b). A bronchoalveolar lavage (BAL) culture of >10^4 colony-forming units (CFU) /ml is a very sensitive test.
   (c). The United States Centre for Disease Control (CDC) definition has high sensitivity and positive predictive value.
   (d). A chest X-ray is a very useful investigation.
   (e). The new surveillance definition does not use radiological criteria.

2. In the pathogenesis of ventilator-associated pneumonia (VAP):
   (a). Pooling of secretions and microaspiration are important factors.
   (b). The presence of a tracheal tube does not interfere with upper airway reflexes.
   (c). A bacterial biofilm forms on the inner surface of the tracheal tube and is easily penetrated by antibiotics.
   (d). Nursing in a supine position increases the risk of VAP development.
   (e). Bacterial colonization of the oropharynx is increased in critical illness.

3. Tracheal tube modifications to reduce the incidence of ventilator-associated pneumonia (VAP) include:
   (a). Subglottic secretion drainage.
   (b). High-volume low-pressure cuffs made of polyvinyl chloride PVC.
   (c). Silver coating of the tracheal tube to reduce the duration of ventilation of the lungs.
   (d). Tracheal tube cuff pressure control.
   (e). Evidence of mortality benefit.
4. With reference to the new surveillance definition of ventilator-associated complications (VAC) and infection-related ventilator associated complications (IVAC):

(a). It encompasses common conditions that lead to a deterioration in respiratory status.
(b). Comparative studies have shown good correlation between VAC, IVAC ventilator-associated pneumonia (VAP).
(c). A patient with urinary tract sepsis and basal atelectasis requiring increased positive end expiratory pressure (PEEP) may be diagnosed as having an IVAC.
(d). A chest X-ray contributes to the diagnosis of possible pneumonia.
(e). Positive legionella antigen contributes to probable VAP.

Medical leadership in perioperative practice: 1

1. Leadership can be described as:

(a). Supervision of processes such as rota writing.
(b). Having followers.
(c). A set of character traits.
(d). Distributed between many people in a team.
(e). Owned only by those in position of authority.

2. Belbin team roles describe the behaviours and contributions of members of a team. The defined team roles include:

(a). Implementer.
(b). Scribe.
(c). Completer/finisher.
(d). Leader.
(e). Specialist.

3. Your department is planning a leadership development course for anaesthetists in your region:

(a). The course should focus on classroom-based theory, developing skills for the individual rather than practical team pursuits.
(b). There is very little guidance on what doctors should cover in leadership curricula to help set the course learning objectives.
(c). There are NHS-approved free online learning resources for leadership skills.
(d). There is evidence that spending money and time on leadership training will have benefits for patient care.
(e). Doctors will be motivated to attend the course as they view holding a leadership position as adding to their career progression.

4. The characteristics of a successful leader in healthcare may include:

(a). Always stops their team from getting into conflict.
(b). Has good communication skills and understanding of others.
(c). Can perform tracheal intubation on the most challenging patients in the service.
(d). Has a strong ambition to improve the service and can inspire others.
(e). Has a fixed set of leadership traits that will enable the person to lead both their own colleagues and a whole organization.

Medical leadership in perioperative practice: 2

1. In trying to develop a basis for change, a leader (or change agent) should:

(a). Attempt to enact a change determined by their own vision.
(b). Conduct a period of investigation before developing a strategy for change.
(c). Rely on organizational policies to understand how things are done.
(d). Look outside the immediate boundaries of where the change is going to take place.
(e). View financial benefits as the main way to reward employees.

2. When enacting change, the following characteristics are needed to be a successful leader:

(a). An authoritarian manner.
(b). An understanding of different viewpoints.
(c). Credibility.
(d). Personal experience of the desired outcome.
(e). Resilience.

3. The process of change:

(a). Is usually very rapid.
(b). Can occur while still maintaining normal business.
(c). Can be futile.
(d). Can have profound emotional effects for those undergoing the change.
(e). After initial agreement and success is likely to continue.
4. People undergoing change:

(a). Relate more to the desired outcome than the status quo.
(b). Will follow the agreed change process.
(c). Are a source of information before and during the change process.
(d). Will, at the end of the change process, undertake tasks in the new way, to which they have been changed.
(e). Can be a significant source of resistance.