5 NAP7 main recommendations


Tim Cook


Jasmeet Soar


Andrew Kane


Richard Armstrong


Emira Kursumovic

This chapter includes the top 20 recommendations made by the NAP7 panel after a voting and ranking process. There are also topic specific recommendations and suggestions for future research at the end of each chapter. When selecting and ranking recommendations the panel considered:

- the recommendation must come from NAP7 data
- there should be a problem that the recommendation aims to solve
- the recommendation should plausibly lead to sustained positive change
- the risks of the recommendation
- if the recommendation is already part of existing guidelines, the panel could still make a similar recommendation on issues they considered important.

Organisation of services

1. Resuscitation equipment, that is age appropriate, should be standardised and available in every main and remote site where anaesthesia takes place, including advanced airway management equipment and a defibrillator.
2. Hospital guidelines and individual practice should recognise the following high-risk cardiovascular settings:
    - hypovolaemic and cardiovascularly unstable patients
    - the frailer and older patient
    - patients presenting for vascular surgery
    - patients with bradycardia and those undergoing surgery with vagal stimuli.

    In these cases, there should be consideration of the choice, dose and speed of administration of induction drugs. Induction technique may require modification, such as using ketamine instead of propofol or by co-administering vasopressor medication to counteract hypotension. High-dose or rapidly-administered propofol, in combination with remifentanil, should be avoided. Similar considerations apply to the modification of doses of intrathecal drugs. In all high-risk patients, blood pressure should be monitored frequently at induction, whether invasively or non-invasively (eg every 30–60 seconds).
3. All institutions should have protocols and facilities for managing predictable perioperative complications occurring during anaesthesia both in main theatres and remote locations, including:
    - haemorrhage
    - anaphylaxis
    - airway difficulty
    - cardiac arrest.

    All clinical staff who deliver anaesthesia autonomously should be trained, skilled and practiced in the management of these emergencies.
4. Each organisation providing anaesthesia and surgery should have a policy for the management of an unexpected death associated with anaesthesia and surgery. Such a policy should include the allocation of a senior individual to oversee care. The policy should include care of the deceased patient, communication with family and provision for staff involved to be relieved from duty and subsequently provided with appropriate support mechanisms.
5. The Independent Healthcare Provider Network (IHPN) and Private Healthcare Information Network (PHIN) should work with commissioners of care, regulators and inspectors to improve engagement with safety-related national audit projects in the independent hospital sector to assess the quality and safety of care delivered.
6. There should be greater clarity in cardiac arrest guidelines for adults and children relating to the closely monitored patient (eg during perioperative care) regarding:
    - when to start chest compressions
    - dosing of adrenaline
    - indications for use of calcium and bicarbonate in cardiac arrest

- indications for extracorporeal cardiopulmonary resuscitation (eCPR).

Before

7. Risk scoring, using validated tools, should be a routine part of preoperative assessment and shared decision making. It should be considered both before and after a procedure to ensure patients receive the appropriate level of postoperative care.
8. As part of early preoperative information provision, patients should be provided with a realistic assessment of likely outcomes of their treatment. The information provided should routinely include important risks, including the risk of death during anaesthesia and surgery.
9. Where practical, treatment escalation, including but not limited to do not attempt CPR (DNACPR) recommendations, should be discussed and documented before arrival in the theatre complex in any patient having surgery with any of:
    - Clinical Frailty Scale score of 5 or above
    - ASA 5
    - objective risk scoring of early mortality greater than 5%.

    Discussions should take place as early as possible preoperatively, with the involvement of an anaesthetist, so that there is a shared understanding of what treatments might be desired and offered in the event of an emergency, including cardiac arrest.
10. Infants and neonates should be recognised as at high risk of airway difficulty during and after surgery and, when critically ill, of cardiovascular collapse soon after induction of anaesthesia. Departments should make provision for senior and expert care of these patient groups at all times of day and night.

During

11. Regardless of location, anaesthesia should not be performed unless appropriate preoperative observations, investigations, risk assessment and team brief have been performed.
12. Robust supervision processes should be in place for anaesthesia care delivered by those in training or who do not work autonomously. There should be clear processes for contacting appropriate expert assistance during an emergency and both parties should be aware of these processes. This applies particularly when caring for children and when working in remote locations.
13. A standard procedure to effectively call for help, which includes an audible alarm, should be provided across all locations where anaesthesia takes place.
14. Monitoring should be consistent with published guidelines and continuous throughout the perioperative patient journey, including during transfers. Disconnections in patient monitoring should only occur exceptionally.
15. The level of monitoring should match patient risk. The majority of NAP7 reviewers advocated a lower threshold for continuous invasive arterial blood pressure monitoring in theatre and recovery. Research to inform national guidelines would be of value.
16. High-risk or deteriorating patients should be anaesthetised in theatre on the operating table.
17. All clinical staff who deliver anaesthesia care should be trained and competent in the administration of intravenous adrenaline, both as a low-dose bolus and infusion.
18. In monitored patients in early cardiac arrest or a severe low flow state, initially give small doses of intravenous adrenaline (eg 50 µg in adults or 1 µg/kg in children) or an infusion of adrenaline, and if return of spontaneous circulation (ROSC) is not achieved within the first 4 minutes (about two 2-minute cycles of CPR) of cardiac arrest, give further adrenaline boluses using the standard cardiac arrest dose (1 mg in adults or 10 µg/kg in children).

After

19. Due to the severity of its nature, all cardiac arrests should be reviewed to understand the cause, discover potential learning and support staff. Learning should be shared across the whole perioperative team.
20. All cases of cardiac arrest should be communicated to the patient, next of kin, or parents if the patient is a child, as part of the duty of candour.