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SPECIAL ARTICLE

Airway management outside the operating room: how to better prepare

Gestion des voies aériennes en dehors de la salle d'opération: comment mieux préparer

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Abstract *Airway management outside the operating room is associated with increased risks compared with airway management inside the operating room. Moreover, airway management—whether in the intensive care unit, emergency department, interventional radiology suite, or general wards—often requires mastery of not only the anatomically difficult airway but also the physiologically and situationally difficult airway. The 2015 Difficult Airway Society Guidelines encourage the airway team to "stop and think". This article provides a practical review of how that evidence applies during emergency airway management outside of the operating room. To counter the challenges of airway management outside the operating room, we offer a mnemonic that combines both technical and non-technical insights summarized using the seven letters of the word PREPARE (P: pre-oxygenate/position; R: reset/resist; E: examine/explicit; P: plan A/B; A: adjust/attention; R: remain/review; E: exit/explore). We hope it can unite potentially disparate personnel with a structure that allows them to make acute decisions, coordinate action, and communicate unequivocally. This multidisciplinary publication also hopes to encourage common understanding and language between anesthesiologists and non-anesthesiologists about the perils of airway management outside the operating room and the importance of airway teamwork.*

Résumé *La gestion des voies aériennes en dehors de la salle d'opération est associée à une augmentation des risques, comparativement à leur gestion à l'intérieur de la salle d'opération. De plus, la gestion des voies aériennes — que ce soit en unité de soins intensifs, aux urgences, dans une unité de radiologie interventionnelle ou dans un service général — nécessite souvent une maîtrise face, tout d'abord, aux voies aériennes compliquées sur le plan anatomique, mais aussi face aux voies aériennes difficiles à gérer sur le plan physiologique et en situation. Les lignes directrices 2015 de la DAS (Difficult Airway Society) encouragent l'équipe de prise en charge des voies aériennes à « faire une pause et réfléchir ». Cet article fournit une synthèse pratique de l'application des données probantes au cours de la gestion des voies aériennes en urgence, en dehors de la salle d'opération. Pour faire face aux défis de la gestion des voies aériennes en dehors de la salle d'opération, nous proposons un moyen mnémotechnique qui combine des points techniques et non techniques, résumés dans les sept lettres du mot PRÉPARE (P : préoxygéner/position; R : reprendre/résister; E : examiner/expliquer; P : plan A/plan B; A : adapter/attention; R : rester/revoir; E : explorer/quitter). Nous espérons que cela peut rassembler des personnels potentiellement disparates dans une structure qui leur permette de prendre des décisions, coordonner leurs*

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actions et communiquer de façon non équivoque. Nous espérons encourager une compréhension mutuelle et un langage commun entre des anesthésiologistes et des non-anesthésiologistes sur les dangers associés à la gestion des voies aériennes en dehors de la salle d'opération et sur l'importance du travail d'équipe pour ce qui concerne les voies aériennes.

Background

Airway management *outside* the operating room (OR) is associated with increased risks compared with that *inside* the OR.[1-6] The Oxford Dictionary defines "ectopic" as "an abnormal place or position", which for anesthesiologists is outside the OR. As a result, airway management outside the operating room could also be known as "ectopic", "satellite", or "remote" airway management. Regardless of the term used, this situation can be especially perilous because it typically requires concurrent mastery of *anatomically*, *physiologically*, and *situationally* difficult airways.

Comparatively little has been written about how to optimize conditions for urgent airway interventions in out-of-OR locations such as the intensive care unit (ICU), emergency department, interventional radiology suite, or general wards.[7-10] This article aims to promote interdisciplinary understanding, encourage better crisis management, and demonstrate how existing airway guidelines can be practically applied outside the OR.[11-14] Specifically, we offer a practical mnemonic-based checklist that combines technical and non-technical factors. We hope to better "PREPARE" the entire team for the many concurrent steps that are required during out-of-OR airway interventions (Fig. 1).

Achieving better airway management outside the operating room

Regarding anatomical difficulty, practitioners may benefit from reminders to: i) rapidly examine the airway for overt predictors of airway management difficulty and ii) optimize both patient and practitioner positioning. Regarding physiological difficulty, the following are most likely to be encountered: i) hemodynamic or metabolic instability (e.g., shock, hypovolemia, acidemia); ii) poor cardiovascular reserve (e.g., chronic illness/physiologic exhaustion); iii) rapid oxygen desaturation; iv) right heart pathology (i.e., the four p's: pulmonary embolus, pneumothorax, pericardial effusion, pulmonary hypertension); and iv) a full stomach. Regarding situational difficulty, even with an experienced airway manager present, there is usually a greater need to: i) manage helpers who do not always work together; ii) explicitly delegate roles and tasks; iii) coordinate staff who are less familiar with airway management; and iv) control

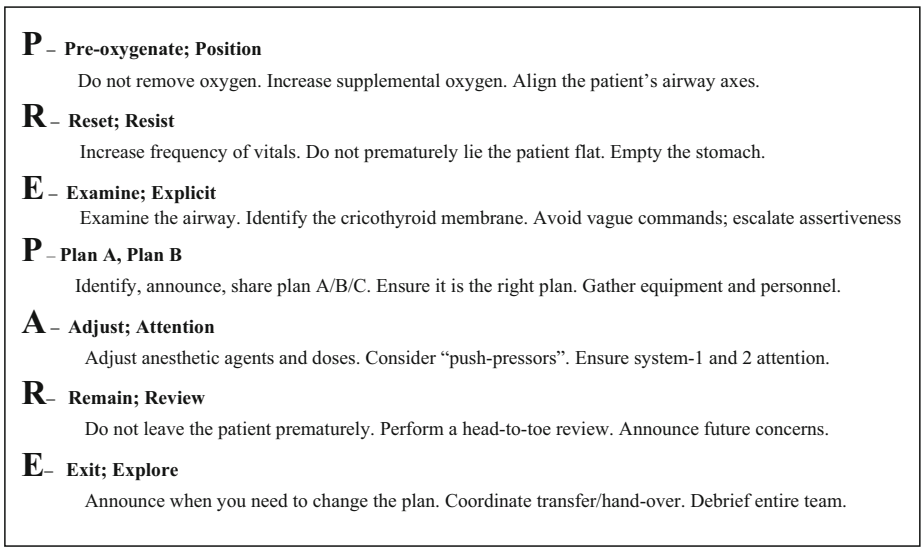

Fig. 1 Mnemonic checklist for airway management outside the operating room*

- ❖ This mnemonic is not intended to order the interventions from first to last, or from most important to least.
- ❖ This mnemonic is intended to facilitate concurrent airway management not a step-by-step algorithm
- ❖ Different airway scenarios will require that leaders prioritize different aspects of this template

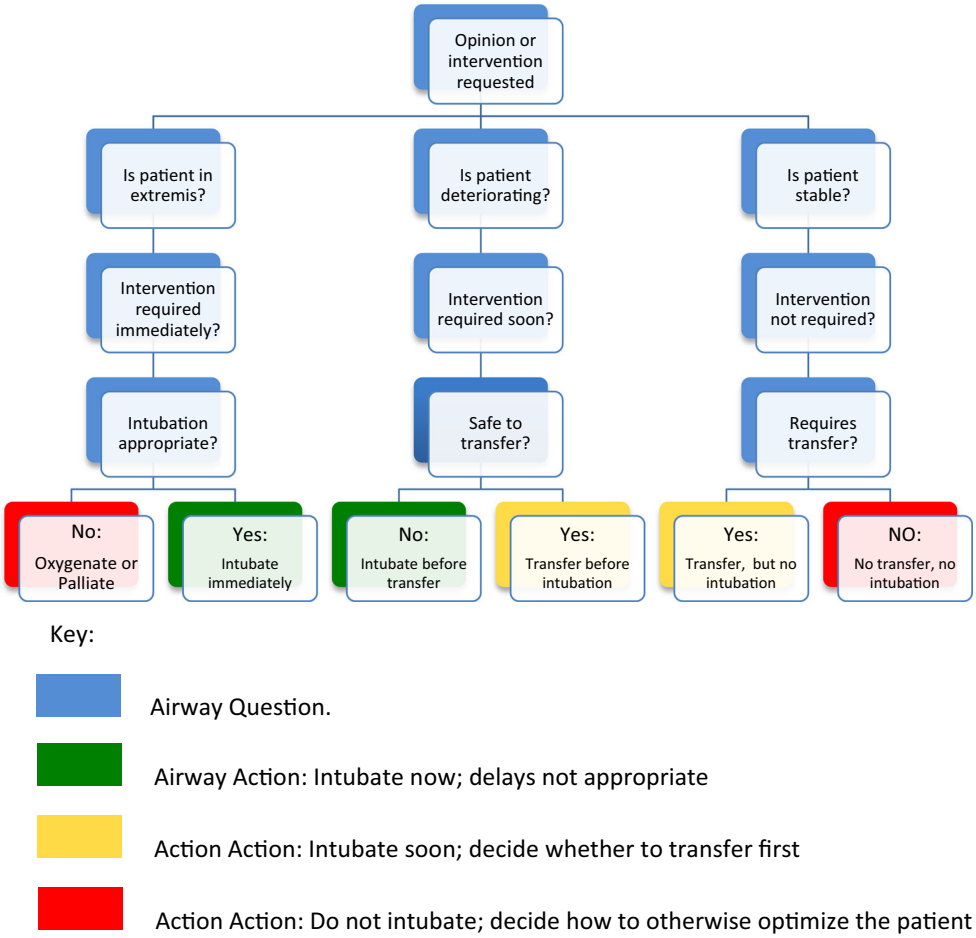

Fig. 2 Decision-making and tracheal intubation outside the operating room

background noise. Anesthesiologists are generally used to working with a small, quiet, efficient OR team, injecting drugs themselves, and having all monitors configured and visible according to their preference. Hence, the "ectopic" environment may be unfamiliar and stressful even for airway experts. For these reasons, a common framework and language may benefit both anesthesiologists and non-anesthesiologists. The goal is to improve individual performance along with team communication and cohesion.

Safe, predictable airway management requires experts who are comprehensively equipped, highly trained, and regularly drilled. Thus, time permitting, it may be appropriate to transfer patients with complex airway issues to the OR. This is especially pertinent if experienced personnel or specialist equipment cannot be readily deployed. Examples include OR management for complex airways (e.g., limited mouth opening, facial trauma), impending airway obstruction (e.g., tumour, epiglottitis, abscess), or when urgent open tracheotomy is likely required. However, not all acutely ill patients can or need to go to the OR to have their airways managed. Not infrequently, non-OR practitioners are required to intervene, with little choice but to achieve tracheal intubation on the spot. Our goal is not to divert patients away from OR intubation if that is the safest approach. Rather, we hope to offer a cognitive road map to help mitigate danger when the airway must be managed urgently away from the OR and where the situation might deteriorate and become uncontrollable.

Achieving better airway teamwork outside the operating room

The skills required to manage an airway and coordinate a team are not innate. Rather, these skills require practice and preemptive structure.[15-20] The science of crisis resource management emphasizes that a "team of experts is not always an expert team"[21] and that non-technical skills are key determinants of whether the team succeeds or fails. This is why, in addition to factual and procedural reminders, our proposed checklist aims to bolster each of five crisis resource management components.

"*Have we pre-oxygenated the patient?*"

"Do not remove the oxygen until I say so"

"We need to optimally position the patient"

"Have we reset our monitors?"

"Resist prematurely flattening the head of the bed".

"*Mark the cricothyroid membrane*"

"*Insert an additional intravenous*".

"Should we stay or go?"

"Do we have the required resources: equipment, oxygen, personnel?"

"What is our plan B?"

"Who will do what?"

"Please bolus a liter?"

"Callout if the systolic drops"

"Please don't leave until I say so"

"What investigations will we need?"

"Why did the patient deteriorate?"

"We need to transfer this patient"

"What did the team do well?"

"What could we have done better?"

"Do we need to update the airway cart?"

Fig. 3 Twenty possible questions/directives to assist with airway management outside the operating room

Fig. 4 Example of a distressed patient for whom you might be consulted to assist with airway management outside the operating room. Patient insists he cannot breath despite a non-rebreather mask at 15 $L \cdot min^{-1}$ oxygen flow. He is sweaty and tachypneic, and he refuses to either lie down or put the mask back on. His respiratory rate is 30 $breath \cdot min^{-1}$, and his tidal volume is large. Despite high oxygen delivery, his inspiratory flow rate is insufficient (photo courtesy of Dr. Richard Levitan; patient's permission obtained)

Better *situational awareness* should maximize the team's collective ability to identify cues, synthesize thoughts, and predict the next step. Fulfilling these goals should allow better *decision-making* by decreasing cognitive overload and increasing auditory space, thereby lessening the possibility of panic, paralysis, denial, or dithering.[17-22] Better *resource utilization* means that we have gathered the necessary equipment and experienced personnel to complete the airway intervention safely. Better *communication* means using recognizable expressions, promoting active listening, and encouraging others to speak up and make suggestions. Better *leadership* and *followership* relates to team leaders understanding they have *a priori* permission to give unambiguous directions and ask clear questions. Active followers should answer quickly, provide clear feedback, and not take easy offense. All of the factors leading to this complexity supports having a basic template.

Addressing all potential possible airway decisions within a single algorithm is difficult. Instead, there are three critical archetypal questions and possible responses (options) that most anesthesiologists and their teams could face outside the OR: i) intervene immediately—otherwise, the patient may come to harm; ii) intervene soon—decide whether to "stabilize, transfer, and then intubate" or "intubate, stabilize, and then transfer"; or iii) do not intervene now as indiscriminate ectopic intubation could be dangerous or inappropriate. These three options are summarized in Fig. 2 as: i) "react then think" (green box); ii) "think then react" (yellow/amber box); iii) "think but do not overreact" (red box).

Our template is also intended to reflect the evolution of airway management.[11-14] Specifically, the 2015 Difficult Airway Society Guidelines highlighted the need to "stop and think". In other words, comprehensive airway management includes not only procedural interventions but also cerebral aspects and verbal interactions.[14] Accordingly, we provide suggestions regarding pertinent questions to ask and directives to give (Fig. 3) because evidence shows that crisis management is too important to be left to chance. Without a basic template and/or checklist, junior practitioners may panic or freeze.[16-20]

A predetermined structure can also alleviate the lead clinician's responsibility to direct each step and make every decision. This structure may also decrease the risk of fatigue, which unchecked can lead to irrational trade-offs or decision avoidance at pivotal times. We have also outlined specific questions and directives because "active" checklists that pose questions and demand answers may be better than "passive" checklists that merely list key points.[15] Whether inside or outside the OR, our template aims to "PREPARE" not just the patient but the entire airway team. Our hope is that both anesthesiologists and

Fig. 5 Forceful use of video or direct laryngoscopy occasionally causes the esophagus to "impersonate" the glottis*. This is why relying only on visualization of the endotracheal tube passing through the glottis is insufficient to confirm successful tracheal intubation. Used with permission from: *Kovacs G, Duggan LV, Brindley PG*. Glottic impersonation. Can J Anesth 2017: DOI: 10.1007/s12630-016-0804-x.[46]

non-anesthesiologists will stop and think about airway management, no matter where it occurs.

Mnemonic used to PREPARE for airway management outside the OR

P: pre-oxygenate, position

Adequate oxygenation is likely to be a key first step regardless of the airway scenario. Therefore, the team should ask themselves "*Have we pre-oxygenated the patient?*", and the leader should declare *"Do not remove the oxygen mask until I say so."* The latter command is important because supplemental oxygen increases oxygen reserves and extends apnea tolerance. Good pre-intubation oxygenation is associated with fewer hypoxic complications, particularly if more than one intubation attempt is required.[23] Typically, pre-oxygenation for three to five minutes is recommended.[24,25] There are several options for achieving pre-oxygenation: transnasal, humidified, rapid-insufflation ventilator exchange (THRIVE) (e.g., Optiflow®, Fisher-Paykel Healthcare Ltd., Auckland, NZ); a tight-fitting non-rebreather face mask; a C-Circuit (Water's circuit); a self-inflating bag. If patients are already on non-invasive positive-pressure ventilation, it can be continued up to the point of anesthetic induction. High-flow nasal prongs can be maintained throughout intubation attempts. If the patient is not breathing adequately, one may initiate manual assisted ventilation.

A high inspiratory flow requirement may not be met with a non-rebreather mask alone. If a patient is repeatedly removing the oxygen apparatus and trying to sit up, he or she may not be delirious or belligerent but trying to indicate that the mask is not meeting his or her inspiratory flow requirement. Traditional teaching focuses on meeting the minute oxygen requirements and maximizing the patient's oxygen reserve. The need to supply adequate inspiratory gas flow to the spontaneously breathing patient is increasingly recognized as an important, additional requirement.

For example, a hypothetical patient in respiratory distress (Fig. 4) may have a tidal volume of 600 mL, a respiratory rate of 30/min, and an inspiratory/expiratory ratio of 1:1, which would result in a required minute ventilation of 18 $L \cdot min^{-1}$ However, this level must be achieved in just 30 sec as the other 30 sec are required for exhalation. Therefore, the patient requires an inspiratory flow rate of at least 36 $L \cdot min^{-1}$ not 18 $L \cdot min^{-1}$ This is one for the principles behind using high-flow nasal prongs. Although most wall-mounted oxygen flowmeters can supply up to 15-18 $L \cdot min^{-1}$ the flowmeter can be increased to allow a higher level.

The team should be reminded to *"Achieve an optimal patient position."* Much like a mountain climber, spontaneously breathing patients may meet their oxygenation and inspiratory flow requirements only by sitting up or leaning forward. Insisting that the patient lie supine or semi-supine may result in increased respiratory distress. Thus, once the decision is made to induce the patient for endotracheal intubation, the patient does not always need to be supine.[26,27] Thus, practitioners should be comfortable intubating patients in the head-up position. If this is the plan, it should be announced to the team.

Aligning the oral, pharyngeal, and laryngeal axes facilitates successful direct laryngoscopy, which means flexing the lower cervical spine and extending the atlanto-occipital joint. Positioning before intubation is important because patients frequently slump in the bed, such that they are no longer in a "sniffing" position with their head at the top of the mattress. Ramping can be especially beneficial with morbidly obese or pregnant patients. It is confirmed by ensuring that the tragus of the patient's ear lines up horizontally with the sternal notch.[28] If positioning is problematic, video laryngoscopy using a hyperangulated blade may help. Even if optimal alignment is contraindicated (e.g., cervical spine injury or precautions), patients may benefit from a "ramped" position[29] using reverse-Trendelenburg (head-above-feet) positioning.[1]

R: reset, resist

The team should ask themselves: "*Have we reset the monitors?"* Outside the OR, it is not uncommon for vital signs to be recorded only every 15-30 min. In contrast, obtaining minute-by-minute vital signs may be essential for guiding minute-by-minute decisions. It should be ensured that oxygen saturation and electrocardiographic monitoring are established, perhaps even using a defibrillator monitor if it is the only device that is immediately available. Alarm limits may need to be reset, capnography equipment should be readied, and invasive monitors such as an arterial line should be calibrated. The "STAT mode" on the non-invasive blood pressure (NIBP) machine measures only during one heartbeat of systole prior to deflating versus during three heartbeats in the automated mode. If the heart rate and cardiac output (individually or together) are highly variable, the STAT mode may be the only NIBP setting that works.[30]

The team should remind themselves to resist the temptation to proceed too hastily. For example, the event leader should remind the team to: *"Resist prematurely flattening the head of the bed"*. As outlined above, a modified sitting position of 20°- 30° of head elevation improves pre-oxygenation effectiveness, extends the time to desaturation, and can improve the laryngoscopic view.[31-33] Hemodynamics permitting, a sitting position can also ameliorate patient respiratory distress, reduce the risk of aspiration, and avoid complications associated with endotracheal intubation.[27] For patients with a nasogastric tube, airway intervention should be avoided until the stomach is emptied. If the nasogastric tube is not already present, placing one for this purpose should be considered.[1] The team should also ask themselves: "*Do we need to wait for equipment, or senior personnel, to arrive?"*[1]

The onset of medication effect can be prolonged in critically ill patients, and the stressed team could assume that time has passed faster than it really has. Therefore, the team should also resist the urge to proceed too quickly to intubation. We need to allow sufficient time for drugs to work, which could prevent vomiting and improve the first-pass success rate. Both doubling the usual dose of muscle relaxants and having a team member "clock" medication administration help ensure their full benefit.

E: examine, explicit

As outlined, compared with elective airway management in the OR, airway interventions elsewhere may be associated with impatience or with an urge to just "get on with the intubation". Accordingly, we should remind the team to invest precious seconds and preemptively examine the airway. Although not all emergency patients can comply with a full assessment,[34] many external signs of a potentially difficult airway can be ascertained from the end of the bed in less than 30 sec.[1] This brief risk assessment can help the team prepare cognitively. It may also be associated with a higher rate of first-attempt success and could prompt the team to prepare for contingencies such as indirect video laryngoscopy.

Fewer than 50% of anesthesia providers can correctly identify the cricothyroid membrane by external palpation.[35-37] Therefore, the use of ultrasonography can be considered if landmarks are obscured, although it could cause further distraction, delay, and crowding. Instead, marking the midline of the airway through a "laryngeal handshake"[14] and use of an open cricothyrotomy technique keeps both decision-making and fine motor skills to a minimum during a "cannot intubate, cannot oxygenate" emergency. This deliberate approach could be life-saving in those rare cases in which front-of-the-neck access is required and where panic and indecision might otherwise ensue. The team should also routinely examine whether the patient has adequate vascular access. Accordingly, the team leader should be ready to direct the team to: "*Mark the cricothyroid membrane*" and "*Insert an additional intravenous cannula*".

Healthcare professionals may feel unauthorized or untrained in how to be explicit communicators. In addition to the communication prompts that we have provided (Fig. 3), there is a technique, borrowed from aviation but applicable to airway management, that could help increase assertiveness politely but firmly. It is used to put the team through its "P.A.C.E.S" (probe, alert, challenge, emergency, stop).[38] Language that is vague or "hinting" is common during crises, especially when team members are unfamiliar with each other or when communicating with a healthcare professional of higher rank.[17-20] Just as team members need strategies to speak up, team leaders need to ensure that interruptions are focused on the task.[17-20] Airlines ensure a "sterile cockpit" environment by mandating only "operational chatter" by pilots during critical phases of the flight.[39] We can similarly ensure a "sterile" airway management scenario by treating the auditory space as a limited precious resource.[22]

P: plans A and B

It is not sufficient simply to intuit emergency airway management. The plan must be identified, declared, and shared. Key to the plan for "ectopic" airway management is asking: "*Should we stay or should we go?"* This is informed by establishing: *"Do we have the required resources, both equipment and personnel?"* If the patient needs transfer, *"Are portable monitors, equipment, and*

oxygen ready?" and *"Do we have staff to push the bed and to observe the patient?"* If, instead, the patient needs airway intervention on the spot, *"Is all necessary equipment ready: drugs, oxygen-delivery devices, airway devices, monitors, personnel?"*

We also need to answer the question, *"Is this the right plan?"* For example, not all patients in peril require tracheal intubation. Instead, they may be better served by non-invasive ventilation or by focusing on underlying diseases such as ventricular failure or on symptoms such as anxiety. For those who do require intubation, not all should be sedated/paralyzed prior to intubation. For example, awake intubation ± topicalization may be indicated in some situations, patient cooperation and circumstances permitting.[40]

Although neuromuscular blocking agents help optimize intubating conditions, non-anesthesiologists may be uncomfortable with their use. Many practitioners are fearful of "burning bridges" despite evidence that paralysis improves or does not worsen the ability to mask-ventilate and may improve first-pass intubation success.[41,42] The 2015 Difficult Airway Society Guidelines recommend pharmacological paralysis in the setting of difficult/impossible face mask ventilation.[14] Therefore, we must explicitly announce our neuromuscular plan (when and with which agent and dose). This can increase intubation success for the patient, and avoid further stress to the team.

It is also important to ask, "*What if our plan fails?" or "What is plan B?"* It is prudent to set up equipment for the plan B approach even if it is not ultimately required. At the very least, everyone should be aware of what extra equipment and staff would be necessary in the event of failure of the primary plan and how to obtain them.[1] Members of the team can further prompt the team leader by asking questions such as, *"Should we prepare for a surgical airway?"*

Once we have a plan, a team structure is required to carry it out. It includes asking, *"Who will do what?"*- i.e., that is, *"Who will intubate?"*, "*Who will give drugs?", "Who will assist?"* These questions should also elucidate who will pass devices, tubes, or laryngoscopes; provide cricoid pressure; and so on. This step should also establish, *"Who will call out the vital signs?"* and *"Who will decide when we move to plan B?"*

A: adjust, attention

Hypotension is common following induction of anesthesia and is increasingly associated with morbidity and mortality.[5,43] It results from both pharmacologically associated sympatholysis and the conversion from negative-pressure to positive-pressure ventilation. Thus, team leaders should expect to adjust anesthetic induction doses and approaches, including pre-treatment with lower doses of propofol, benzodiazepines, and opiates, each of which reduces the sympathetic drive. Changing the induction sedative/hypnotic drugs to ketamine or etomidate may be prudent in the hemodynamically compromised patient. We can stabilize hemodynamic changes using small doses of "push-pressors" (e.g., epinephrine, phenylephrine, ephedrine, metaraminol,) before or during induction by administering a low-dose infusion of vasoactive drugs or with administration of a fluid bolus. Directives could include the following: "*Please bolus a liter,*" "*Call out if the systolic blood pressure drops below 100.*"

A good team harnesses the benefits of emotional stress, including increased alertness and improved motor skills. A good team can also mitigate the downsides of emotional stress, which include excessive focus and worse fine motor skills. When stressed, we are more likely to restrict attention to key points and to function by reflexive "system-one" attention, akin to that used by predators.[44] This approach is beneficial unless there are multiple threats, in which case the team needs scanning vigilance and higher cognition "system-two" attention, akin to that required by prey.[44] By anticipating that we need to assign team members to cover both roles—those of "doers" and "thinkers"—we can focus on major threats while avoiding fixation errors.

We can also assign "giving instructions" to the coordinator's responsibilities, such as: *"Please watch the monitors," "Please announce any problems."* Although it is common for those not actively involved in this code to be asked to leave, the coordinator could ask qualified observers to take two steps back, stay, and pay attention. This measure increases the likelihood of useful observations and assistance if required.

R: remain, review

Once the airway appears to be secured, team members may be tempted to leave and/or to focus on other patients. Instead, some should remain to manage post-intubation concerns such as hypotension and vasopressor support or the need for sedation. Those who remain can also help obtain better vascular access, deliver a family update, or debrief the team. Directives could include: *"Please don't leave until I say so."*

Pilots are taught to "think ahead of the plane".[45] The medical corollary is that airway complications should be addressed proactively whenever possible. By including a deliberate head-to-toe review, the team is more likely to pick up additional problems and preempt future concerns. This review could be initiated by asking: *"What investigations are we likely to need?"* "*Why did the patient deteriorate?*" A review also increases the likelihood that all team members have a shared mental model.[17-19]

Another reason not to leave prematurely is because post-intubation hypoxia is common. It is heralded by oximetry signals that are oftentimes limited to the patient's ear or lip (rather than finger). Inadequate oxygen saturation, which may be related to post-intubation hypotension, emphasizes the need for frequent patient reassessment. Right mainstem intubation is also not uncommon. Listening to breath sounds and checking for bilateral chest expansion is sometimes unreliable, especially in obese patients. Chest plain radiography, bronchoscopy, or the more recently introduced ultrasonography may be helpful in this regard.

Surprisingly, observing the endotracheal tube pass through the vocal cords is a *poor* determinant of successful intubation. In the NAP4 study,[1] three cases were presented in which esophageal intubation occurred although the anesthesiologist had "seen" the endotracheal tube go between the vocal cords. Lack of waveform capnography was attributed to bronchospasm in two cases and cardiac arrest in the third. This may be because we sometimes see what we want to see and/or posterior esophageal structures can imitate glottic structures (Fig 5).[46]

E: exit, explore

Every plan should include an exit strategy that includes prudent transfer to the next department, which necessitates a safe handover. To ensure that crucial information is transferred, a short handover checklist is useful, such as *IPASS*,: I, illness/severity; P, patient summary; A, action/to-do list; S, situation/summary; S, synthesis. This recognizable and deliberate approach includes having the recipient of the handover verbally repeat crucial points about the patient being transferred.[47] The exit strategy can also address questions such as: *"Who will speak with the accepting service?"* and *"Who will speak with the family?"*

Once the crisis has abated, a structured debriefing offers a chance to explore what went well and where the team could improve. Debriefing is also an opportune time to explore whether the current make-up of the airway cart is fit for the task by asking: *"Do we need to update the airway cart?"* Importantly, the debriefing also offers an opportunity to bolster the team's resilience and to emphasize the importance of non-technical skills. Debriefing is thought to improve future performance and patient care[48] in much the same way that mental rehearsal can improve an athlete's performance.[49,50]

Conclusion and limitations

There can be myriad challenges when individuals and teams are required to manage complex patients in remote locations. Therefore, it is challenging to provide a single mnemonic-based checklist that combines practical recommendations in both airway management and crisis resource management. Although data (as of yet) may be lacking to support this checklist, and our approach may not be a panacea for every conceivable challenge, we provide a practical tool that we believe is likely to improve performance. Importantly, airway management outside the OR is rarely a sequence of isolated steps, with one following logically from the next. Instead, critical illness requires concurrent, rather than linear, interventions.[17] This means, for example, that one team member could be applying pre-oxygenation as another concurrently prepares the equipment, and another notifies the ICU that a patient, once stabilized, will be transferred. Our mnemonic is not intended to order the interventions from first to last, or from most important to least important.

Instead, our template is intended to serve as an *aide memoire* that provokes collective action, initiative, and cohesion from all team members and disciplines. It is not a step-by-step algorithm because different airway scenarios require leaders to prioritize different aspects. Regardless, both the NAP4 audit of airway management-related morbidity and mortality[1] and the infamous Elaine Bromiley case[51] suggest that we must stop and think both inside and outside the OR.[11,14]

Conflicts of interest None declared.

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