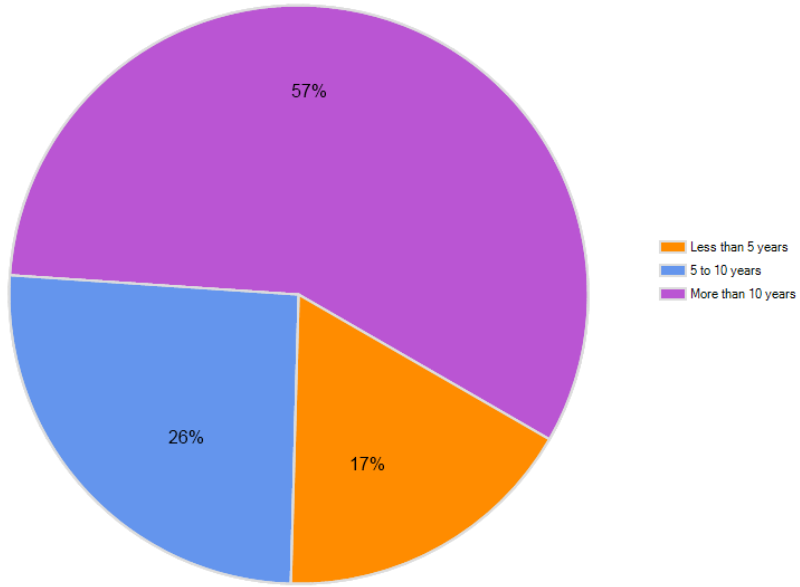
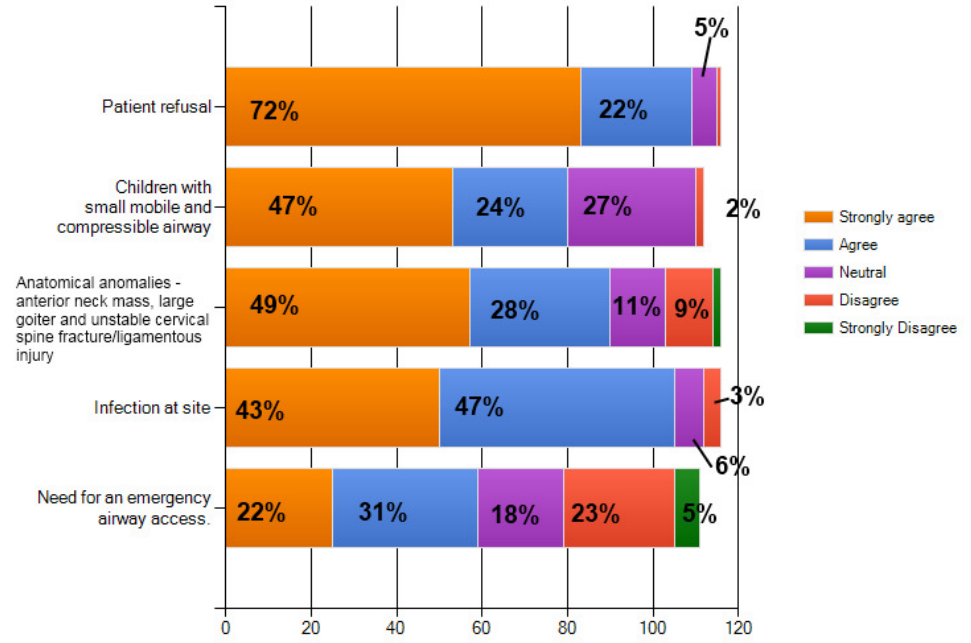


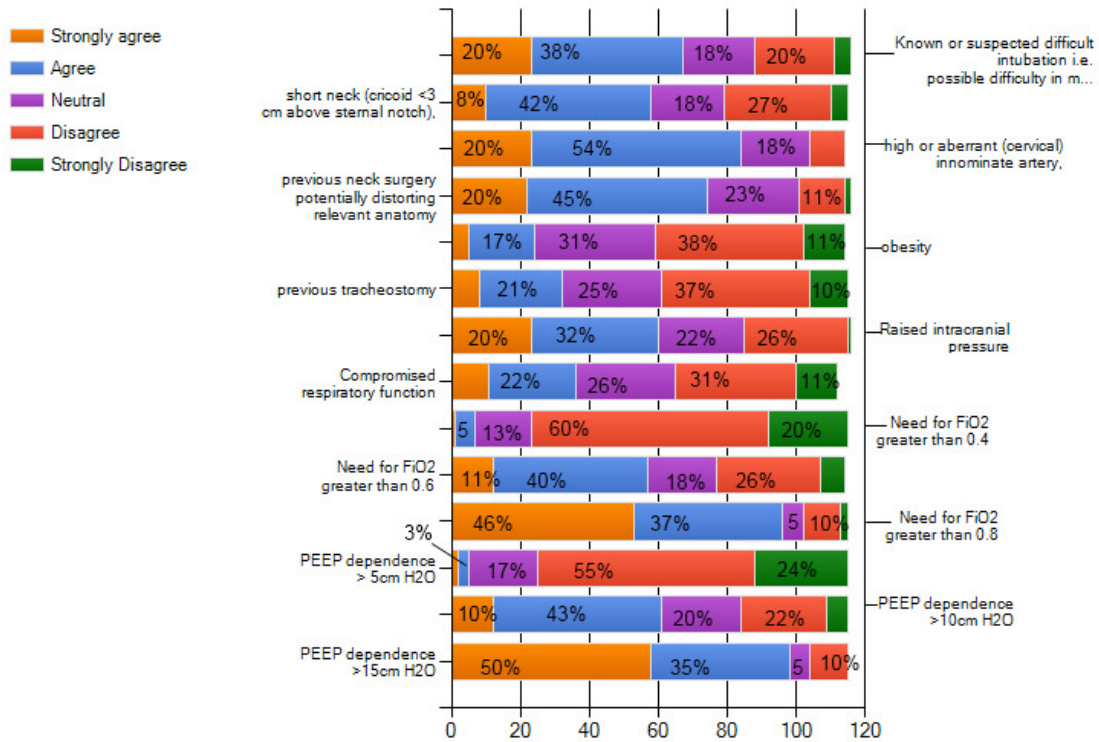
How many years have you been an intensive care clinician



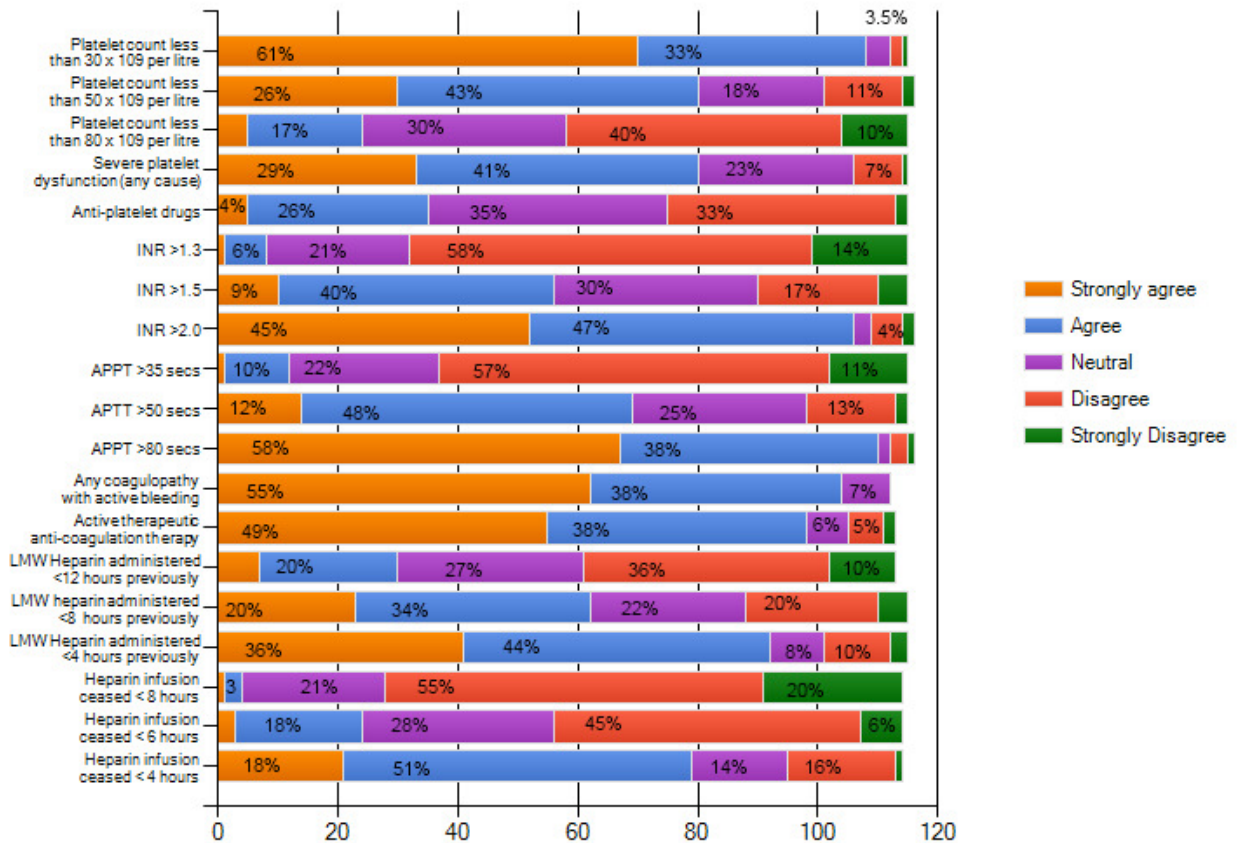
Please rate the following statements based on how strongly you agree or disagree with them: Absolute contraindications for percutaneous tracheostomy include



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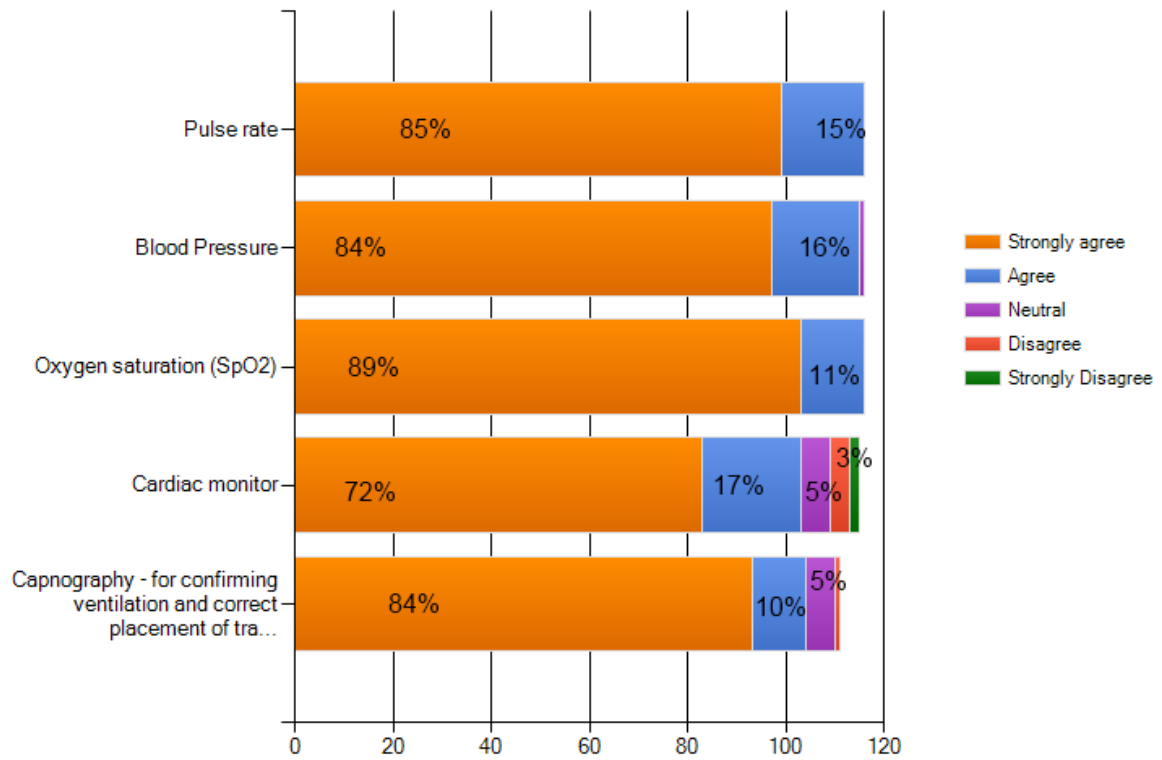


Please rate the following statements based on how strongly you agree or disagree with them: Contraindications to percutaneous tracheostomy related to coagulopathy



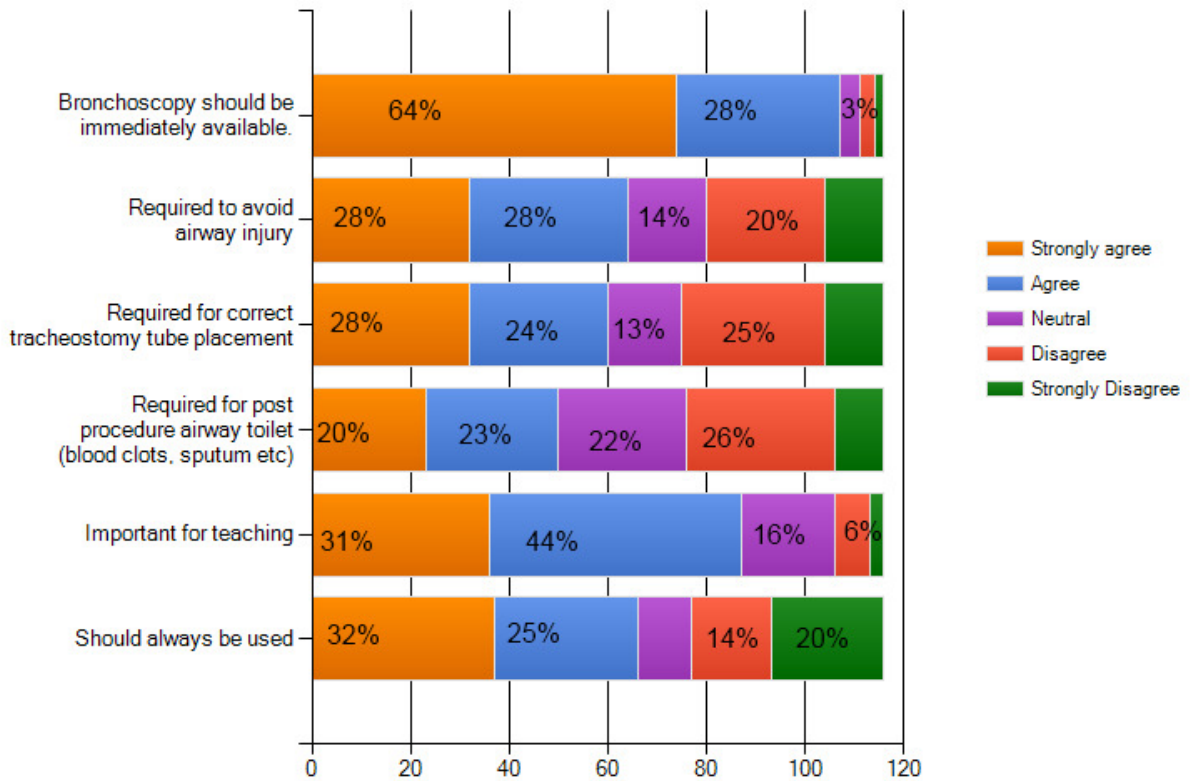
Please rate the following statements based on how strongly you agree or disagree with them:

Monitoring during percutaneous tracheostomy must include



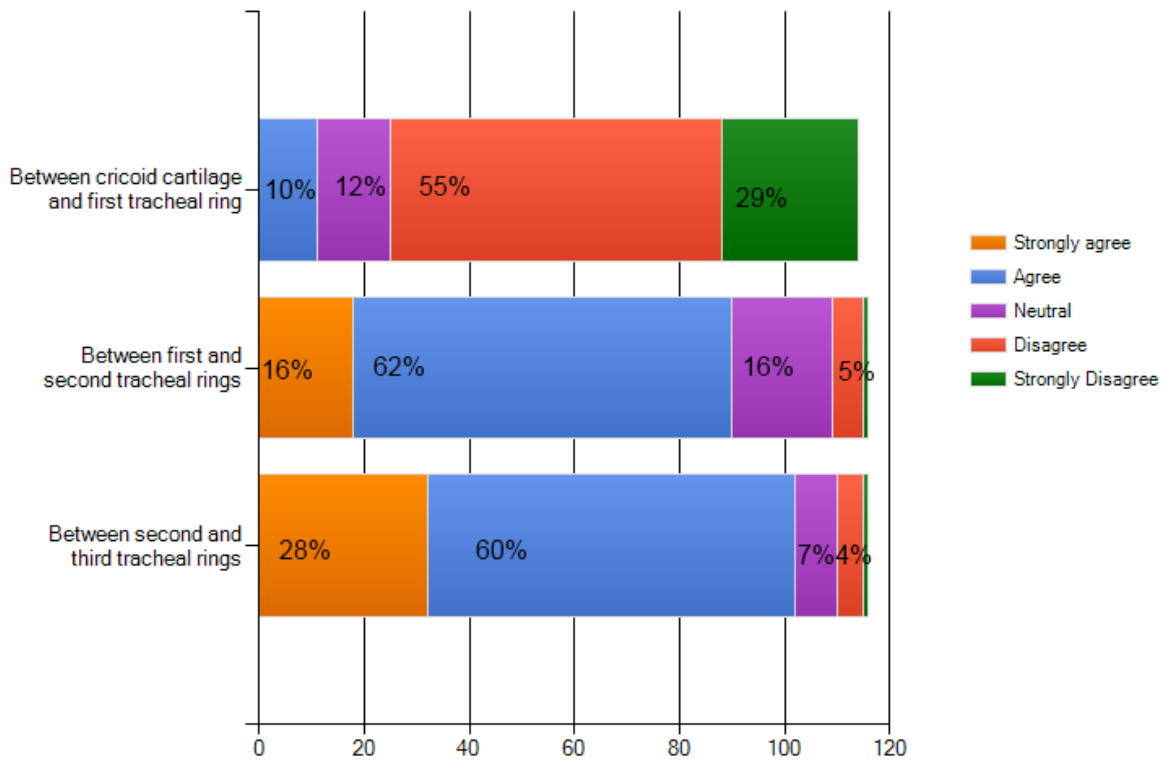
Please rate the following statements based on how strongly you agree or disagree with them:

Bronchoscopy related to percutaneous tracheostomy



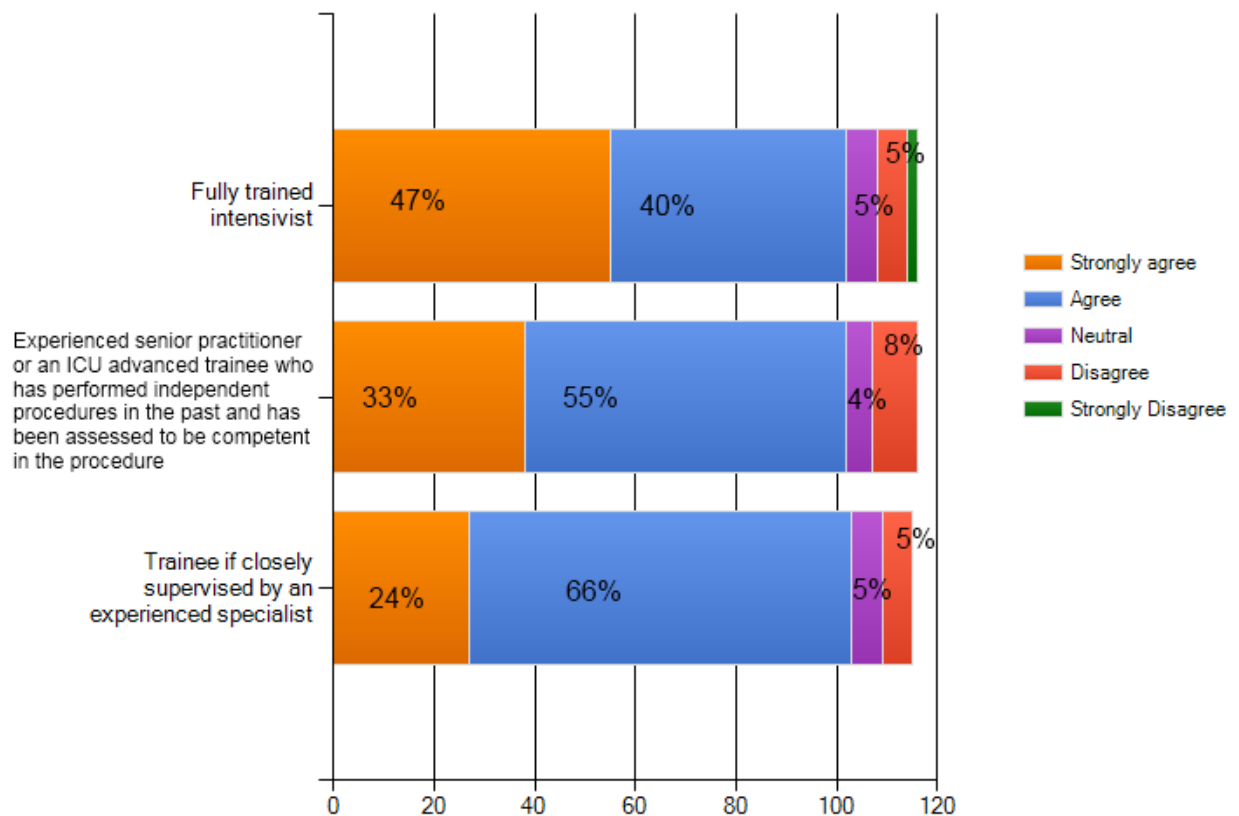
Please rate the following statements based on how strongly you agree or disagree with them:

The placement of the tracheostomy should be



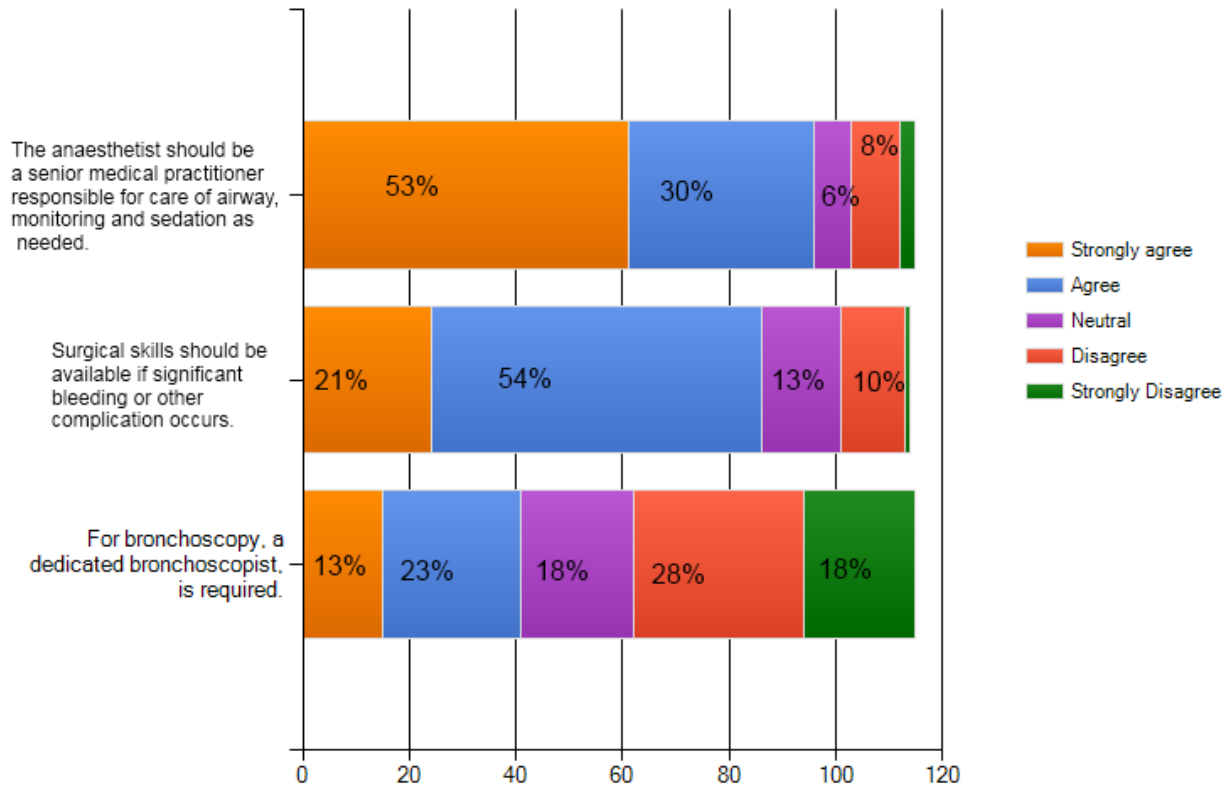
Please rate the following statements based on how strongly you agree or disagree with them:

Tracheostomy should be performed by



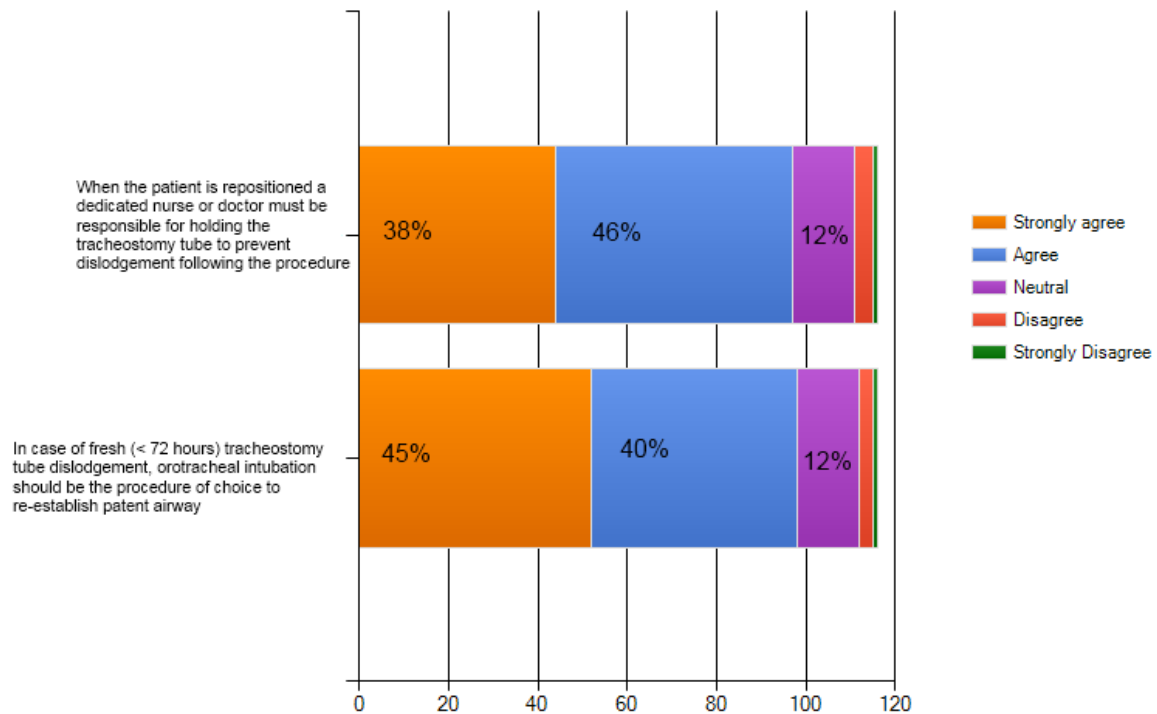
Please rate the following statements based on how strongly you agree or disagree with them:

Other personnel involved in percutaneous tracheostomy include



Please rate the following statements based on how strongly you agree or disagree with them:

Post Procedure Care



Comments from Percutaneous Tracheostomy Survey

Are there other contraindications related to coagulopathy not mentioned? Please list

- A combination of the above factors is also needed to consider the risk to benefit ratio of delaying the tracheostomy or having a surgical tracheostomy.
- These questions are poorly worded. Coagulopathy is dangerous irrespective of whether or not there is active bleeding at the time. The important point is whether the coagulopathy/platelet problem can be adequately corrected with product or not
- Anticoagulant issues are rather dose and urgency related. Longer intervals are better for purely elective procedures especially where doses are higher. Not so fussed about low dose anticoagulant especially where deferral of procedure may have some adverse implications
- these contraindications clearly depend on the experience of the practitioner. For heparin therapy: measure aPTT! For LMW heparin depends on dose used: 8-12 h for therapeutic, no problems with prophylactic dose
- with stopping of heparin I would like to see an APTT and also want to know why the heparin was stopped ie was it for HITTS?? With antiplatelet drugs, some are worse than others ie clopidogrel etc. Small does aspirin does not necessarily cause too much of an issue.
- uraemia but I wouldn't consider it a contraindication
- Low Fibrinogen Factor deficient states / Hemophilia
- Yes, I know I'm "making things up" with regard to my comfort zone. Protamine is the main reason I disagree with the heparin recommendations. The LMWH recommendations are harder and depend on dose and renal function, I would say; 1.5mg/kg enoxaparin is a problem for 12 hours if there's any likelihood of reduced clearance, in my view, but fondaparinux 2.5mg is not even at 4 hours.
- dumb questions as usual are these levels treated or not treated is it day 5 or day 25
- Again, these are all very relative and depend on the experience and surgical skills of the operator
- Need to mention unfractionated heparin injections
- The questions are impossible to answer correctly !! Obviously an INR of 10 (which is greater than 1.3 is an almost absolute contraindication but an INR >1.3 BUT < 1.5 is not . This goes for all the coagulation disorders described. The questions need to be reworded to
- These answered as "relative contraindications" and NOT "absolute contraindications".

Please list other monitoring requirements

- Bronchoscopy (x2)
- Unsure what is meant by cardiac monitoring.
- Clinical observation by somebody other than the operator
- What type of cardiac monitor ??? Do you mean Cardiac Output? (x2)
- With modern ventilators and pressure and flow curves, capnography is not essential. And it can be a bit of a bulky nuisance.
- Airway pressure and tidal volume
- One of bronchoscopy or capnography is essential. I would have both on hand and probably use both as standard, but I can understand the old school who would not.
- Bronchoscopic check of wire when in-situ
- Could you please define 'cardiac monitor' better. I assume you mean 'ecg monitor' (x2)
- arterial line for BP highly desirable.
- Video bronchoscopy. Our unit is also considering simultaneous video laryngoscopy using video laryngoscope.
- if bronch is used capnograph redundant capno for PCO2 sensitive patients eg TBI
- Invasive, not non-invasive BP.
- AS3 monitoring required,

Please list other issues related to bronchoscopy

- I have used this as an opportunity to teach upper airway bronchoscopy after the tracheostomy for my senior trainees.
- 1) Reduced airway calibre -- potential for airtrapping, hypercarbia, hypoxia 2) "Lethal" damage to bronchoscope during procedure, especially from needles
- Is unnecessary in patients with well defined airway anatomy, eg young thin men, and can unnecessarily make procedure more difficult in these patients ie risk>benefit. Most useful in those patients where midline is difficult to identify, in these patients it can ensure needle and wire position is midline within trachea ie benefit>risk. I do not support mandatory use in all patients.
- Ultrasound is also useful for correct placement and identification of adjacent structures.
- It should not be used as a 'standard', but used as appropriate.
- Always used if available.
- For many procedures, certain location of the airway is easily achieved and bronchoscopy unnecessarily complicates the procedure. It should nevertheless be immediately available where certain location cannot be easily achieved.
- Use of LMA is not mentioned in the guideline but is a well accepted alternative to withdrawing the ETT.
- The mandating of bronchoscopy is unsupported with any quality evidence, and anecdotally is itself dangerous. It is useful in special circumstances but should not be made a recommendation of these guidelines.

Other placement option?

- Case specific depending on patient morphology and presence of surrounding structures eg aberrant vessels etc.
- Post Decanulation ENT assessment should be recommended if available.
- preferred option between 2nd and 3rd tracheal ring second best between 1st and 2nd tracheal ring
- 2nd or 3rd is best, but sub-cricoid acceptable, despite historical ENT dogma that this is a no-no (not evidence-based)
- Through a previous or relevant recent tracheostomy
- ideally 2nd and 3rd, but not always possible
- optimal versus safety
- ?? Does it matter!!
- 2nd and fourth tracheal rings.

Other clinician options? (Tracheostomy should be performed by)

- nil
- these are not mutually exclusive so not sure how you interpret the answers
- "Trainee" might include trainees in other training schemes (especially surgery, perhaps anaesthesia) if it is likely that their professional practice will require them to be competent in this procedure.
- For the inexperienced trainee 'double scrub' with an Intensivist performing the procedure so that preparation, identifying anatomy and handling of equipment is mastered before performing of cannulation and percutaneous dilatation.
- Surgical staff competent in the technique.
- ENT or General Surgeon - who will be performing enough to maintain competence.
- Must have one consultant intensivist present, most senior/experienced person should manage airway and bronchoscope
- Unclear question!

- "Closely supervised" should be specified more precisely i.e. supervision should be by an intensivist who is physically present and not acting as anaesthetist at the same time
- Not necessarily only Intensivists. A number of ENT and other surgical colleagues (non-ICU) are adept at percutaneous tracheostomy.
- Q1 is ambiguous. If the intent is should only be performed by a fully trained intensivist I would disagree. Only Senior trainees should be actively involved and should then be closely supervised. I don't think the operator has to be an Intensivist but a trained and experienced senior specialist should be present and should take responsibility for every procedure.
- ENT, General surgery
- The airway should never be delegated to a nurse or inexperienced clinician, particularly not to allow the trained operator to fiddle around with a bronchoscope.
- Some of our surgeons now use the PCT technique as their preferred option in theatre. Good choice, but they should probably learn it properly from us!
- Should be 2 experienced operators - 1 with scope and one for procedure PLUS good assistance
- Surgical. The need for PT is over-emphasised and a safe surgical option should always be available. It should never be see one do one teach one.
- close supervision means gowned and gloved.
- I read the wording of the draft statement and could hear the leathery rubbing of Fault Lawyers' hands. We have to be able to train people - if this includes double scrubbing for the first five and observation until signed off, that's fine. But we have to allow trainees access. (I want mine done by an intensivist, of course)
- For trainees, supervising experienced specialist must not be providing any other aspect (e.g. anaesthesia)
- all trainees should be supervised by an experienced specialist

Other clinician options? (Other personnel involved in percutaneous tracheostomy include)

- Comments -- 1) The "anaesthetist" should be a person with the appropriate knowledge and skills to provide this function -- this might include (for example) a trainee in anaesthesia who might not be a "senior medical practitioner" but would have been required to provide anaesthesia for other procedures with similar "issues" to PDT. 2) My comment about a dedicated bronchoscopist is not an endorsement of bronchoscopy, only a comment that if bronchoscopy is done then it should be by a separate person than the "anaesthetist" or the "surgeon".
- Other competent clinicians with airway or surgical skills and sensible experience can be very helpful.
- Technique importance.
- 1. The anaesthetist can be a registrar but an intensivist should be present in all cases, either as operator, anaesthetise, or physically-present supervisor 2. What do you mean by "available"? If you mean physically present, I disagree. If you mean that perc should be done in a hospital that has surgeons on staff, I agree 3. The operator can have a peep at the guidewire with the bronchoscope if sufficiently skilled
- Using a dedicated bronchoscopist is not necessary. To require three senior medical practitioners (operator, anaesthetist, bronchoscopist) present for the procedure would preclude it being performed in many smaller ICUs. This should be an evidence based guideline, and to the best of my knowledge there is no evidence to support your position.
- "Surgical skills...available" means that there are surgical personnel available in the hospital if required.
- Horses for courses. A minimum of two medical practitioners should be present for all procedures. For predictably difficult tracheostomies, a minimum of two experienced specialists should be present. For more routine procedures, having a second specialist available if required is sufficient.
- overall 2 experienced (senior) medical practitioners are necessary: 1 to perform or supervise the tracheostomy; 1 to perform bronchoscopy and manage the airway
- PCT practitioners should acquire simple surgical skills to get them out of trouble, eg clipping & tying off a bleeder, dividing an ext.jugular vein which is in the way. I try to teach these to my trainees as opportunities arise. A 'semi-open' technique is often useful and safe in fat neck/low larynx situations, with blunt dissection and palpation in the wound for landmarks
- The bronchoscopist can be the anaesthetist, if another trained pair of hands is available to help the anaesthetist/bronchoscopist
- for availability of surgical skills if you mean in the hospital then 'yes' they are not required in the ICU during PERC trache
- Procedure should be performed during day time hours to ensure the availability of surgical back up if needed. Surgeons should be informed before proceeding with a likely difficult perc trachy.
- Additional airway specialist should be available

- There should always be surgical support
- Assistant (trained nurse or ODT) for procedure/bronchoscopy Assistant for emergency/unexpected events (CPR, call for assistance, getting additional equipment, etc.)
- There is no space for a dedicated bronchoscopist and it is the easiest part of the procedure as long as one is competent at airway management.
- Once upper airway is secured with dedicated person to hold ETT only one practitioner is required to run sedation and bronchoscopy
- Concerning the surgical skills question, any intensivist doing a tracheostomy should have sufficient surgical skills to manage acute bleeding up to and including dissecting out and ligating an anomalous anterior vein, controlling and ligating a bleeding vein, and controlling an arterial bleed while waiting for assistance.
- Not clear to me if it means surgical skills should be at the bedside (not necessary) or available on call if required (necessary). Not clear if it means a separate bronchoscopist to the operator and the airway doctor (not required) or a bronchoscopist who also manages the airway, separate to the operator (required).
- Does surgical skills mean surgeons needs to be present, or "in the building"... ie not doing out of hours PCT
- 2 Intensivists required but could also have 1 Intensivist and an Anaesthetist for the airway. The Bronchoscopist could be a doctor or ICU nurse as long as the Laryngoscopist is skilled in bronchoscopy and swops with the bronchoscopist (to hold the ETT in position) if bronchoscopist is having difficulties. Video laryngoscopy with a screen to see the top of the airway makes this easier.
- The staff member doing the anaesthesia should be able to use the bronchoscope without a third person necessary
- Anaesthetist needs dedicated assistant

Other care required?

- Tracheostomy tube should be sutured until tract well formed.
- Staff training to be certain that accidental early extubation is managed properly.
- It is the responsibility of the proceduralist to ensure that the tracheostomy tube is properly secured following the procedure.
- avoid change of tracheal canula for first 10 days after PDT; if necessary an experienced practitioner needs to be present
- I usually tie the tube in more tightly than usual in the first few hours, to aid haemostasis and minimise dislodgement. My post-op orders (I always write an operation sheet and postop orders - this is an operation) include no turns 1st 4 hours.
- Would still attempt immediate reinsertion if east, prior to abandoning traceostomy.
- Post procedure difficulties in ventilation action plan
- Unless there is a contraindication to intubation it should always be the first option.
- Look out for complications
- Although we would all have one good attempt at immediate recannulation if we were on hand.
- tracheostomy can be re-sited at a later time
- The Perc Trache can be reinserted once the upper airway is controlled
- Immediate trache ties before repositioning
- Secure tracheostomy tube with both sutures and neck tapes
- I think orotracheal intubations should be considered, but making a blanket rule one way or the other will disadvantage different groups of patients - those with very difficult oropharyngeal intubation or abnormal upper airway will be disadvantaged by repeated intubation attempts. A guideline should read something like 'consider relative risk vs benefit of orotracheal intubation vs tube reinsertion, with low threshold for orotracheal intubation if this is feasible'
- CXR not vital if bronch used, make statement about security of trachy ties being responsibility of operator.

Do you have anything to add?

- no evidence bronchoscopy adds to reduction in complications
- Above Cuff PDT should ALWAYS be the preferred technique.
- Group and Hold? Fasting time? Issues related to gastric stasis, high gastric outputs, aspiration risks? Type of capnography? - preferably ETCO2 versus time waveform real-time pattern monitoring. Either in-line or side-stream ETCO2 acceptable with minimal response time. Calorimetric ETCO2 not acceptable.
- "Shoulds" and "musts" can be problematic. The wording of any document such as this must be carefully chosen so as not to impose silly conditions on everyone all the time in response to poor practice by a few some of the time.
- Strongly disagree with separate bronchoscopist and anaesthetist, these tasks are usually performed by one person. How widespread is the practice recommended in your guidelines of having 3 doctors do a trache? I've never seen it. A guideline is not a means to disseminate practice change that is not already widely accepted.
- having a dedicated airways practitioner AND a separate bronchoscopist is not required. the bronchoscopy is part of the airways management with one practitioner
- Mandating bronchoscopy is authoritarian rubbish. I have seen unsafe practice using a bronchoscope; I do not therefore presume to proscribe its use, but would simply leave it as an option which may be helpful in some instances, but adds nothing to good technique for most patients. Perhaps first we should try to ensure that all operators are properly trained before giving them a potentially dangerous toy to compensate for their inadequacies.
- Medical and nursing staff should be trained how to respond to (a) dislodged trachy tube (b) blocked trachy tube (c) delayed wound haemorrhage (d) removal
- Postop CXR to exclude pnx (though quite uncommon). Longer or adjustable-flange tubes are probably under-used. I suspect some of the disasters are because small fixed-length tubes in fat necks are only just in the airway. Position of trach tube on CXR should be regarded as just as important as ETT position. Clot obstruction is a very occasional life-threatening problem postop. Can be mistaken for tube dislodgement. When in doubt, take it out!
- I hope this survey isn't a way to bring in mandatory use of bronchoscopy for percutaneous tracheostomies. I believe that option should be left to the operator. Operator experience and the number of tracheostomies done should be the guiding principle. NO KNEE JERK RESPONSES PLEASE!
- PTD should be done in an elective environment with adequate support available if there are any complications
- Having performed the procedure for more than 20 years I am disappointed in our over the top enthusiastic application, and too early use of this safe and useful technique. My observation is that the problems are because we do not follow the original technical description of Ciaglia, ie never proceed unless each step is satisfactorily performed. We are not surgeons and now many of us are not trained anaesthetists with adequate airway skills.
- I use ultrasound including colour flow Doppler to examine the neck prior to insertion. This allows for clear delineation of the anatomy at the insertion site especially the location and size of blood vessels in the vicinity. This is a very useful but requires appropriate training and equipment.
- During procedure suggest ventilation with 100% O2 to give extra time in case of airway complication. Always check tracheostomy position with bronchoscopy before ventilation through tube is started. Perform procedure with patient relaxed using suitable muscle relaxant. Difficult airway patients should be done in theatre together with ENT. Local policy and procedure important and should be followed closely. Always remember that procedure can be abandoned at any stage, tube reinserted with cuff below area of puncture/dilatation.
- DO EACH AND EVERY ONE AS IF IT WAS YOUR FIRST. COMPLACENCY KILLS.
- 1) The question of whether PCT is suitable for 'emergency airway' needs further definition. PERC kits can be used for emergency cricothyroidotomies if needed (IMHO). The phrase 'PCT is rarely indicated in an emergency' is one I would like better. 2) The requirement for 'surgical backup' is not realistically met in a number of hospitals with level 3 ICUs (some of which I have worked at. Typically, 'generalist' ENT specialists and general surgeons are quite useless at managing a bleeding or obstructed airway emergency. Any hospital which does not have advanced ENT trainees probably does not have staff on site who would actually be of help in a real emergency. Conversely, I do not know of any occurrence of a bleeding or obstruction emergency in any hospital I am closely familiar with, when generally competent people were conducting the procedure.
- There is no mention of acceptable airways eg ETT inflated above cords/ below cords then deflated during procedure or LMA. I strongly disagree with a statement excluding Perc Trachy as part of management of emergency airway as I have seen and performed several in emergency situations and in my opinion saved lives.
- Current draft document does not allow for directly supervised trainees, but this must be permitted to ensure that PDT can learn. In New Zealand, "next-of-kin" cannot generally consent on behalf of an incompetent adult, but their views must be taken into account when deciding on the provision of services.
- Questions all need screening as they are not clear whether they are "exclusive" or Inclusive answers

- For a PCT in a thin, easy to feel anatomy patient, by a senior physician, bronchoscopy puts the patient at more risk and as such should not be recommended for all. Surely it depends on the experience of the operator.
- anatomical anomalies are relative contra-indications and whether to proceed should be a decision for an experienced ICU specialist. Unstable C spine is a relative CI and only where the procedure has the potential to worsen neurological deficit. we frequently perform PCT on patients with complete high C cord transection / quadriplegia
- bronchoscopist' would get in way if another dedicated airway carer present - perhaps the third compulsory person is a "dedicated tube holder" of unspecified rank - as 3 senior doctors are hard to gather in most ICUs outside Victoria or SA.
- It is great that ANZICS is doing this and I look forward to the guidelines. Good leadership.
- I prefer to do PT without paralysis and with a constant infusion of propofol 20-40ml/hr and therefore often noradrenaline at low level. I would wish to avoid mandated paralysis in your guideline as it appears in the Rockhampton document from Dave Austin. There is a conflict with the ANZCA college standard for sedation ps 9 where they therefore require a consultant anaesthetist to supervise the airway instead of ICU trainee by the definition of propofol as an anaesthetic and not as sedation for this procedure done under local and propofol sedation. I generally avoid opiates in order to maintain spont vent.
- We are conducting an ongoing audit of perc trach and I believe every unit should do so.