

Name: Lee Collier	If you are answering on behalf of an organisation please state: N/A
General comments: Excellent guideline and very	Working Group Response:
much needed. Thank you for all the hard work that has gone into this.	Thank you for your kind comments.
Specific comments: Regarding exhaled CO2 detection, the guideline incorrectly uses the term "calorimetric" throughout. A calorimeter measures heat. The Pedi-Cap is a colorimetric device which uses colour (or US color) change to indicate the presence of CO2. A minor typo but worth getting it right I think.	Excellent point and well spotted. Checked correct spelling throughout all documents.



Name: Amitava Sur If you are answering on behalf of an organisation please state: N/A **General comments:** Comprehensive document **Working Group Response:** with well laid out framework Thank you Specific comments: Page 6: "Non-invasive Cochrane review 2022 showed primary nHFT in preterm infants 28wks+ was equivalent to CPAP respiratory support (CPAP or nHFT) should be or NIPPV in relation to BPD or death and did first line respiratory support at not increase ventilation rates. nHFT caused less birth for preterm babies who establish regular respiration"- Is there sufficient evidence or trauma or pneumothorax compared CPAP. More difficult to be conclusive <28 weeks. published data on use of nHFT at brith for The working group decided it was appropriate delivery room stabilisation and can this be routinely recommended? to leave nHFT in the guidance – reference added. Page 7: "Nasal High Flow Therapy during the intubation procedure is strongly recommended Correct. This is based on the SHINE trial which "- This recommendation is based on the SHINE is a high-quality trial showing significant trial which is one RCT but not implemented benefit. Given the high incidence of adverse routinely across UK. Also the use of HFNC would events and high rates of multiple intubation attempts we feel it is important to highlight this mean using single circuit for only the intubation intervention to support more successful safe preparation - how cost effective is that? intubation.

for a specialised transfer team is not suitable for

the caseload of most transfer services.



Name: Nandiran Ratnavel	If you are answering on behalf of an organisation please state: N/A
General comments: -	Working Group Response:
Specific comments: Table 1 pg 5. LNU's should	
have immediate access to a clinician with	
intermediate skills with back up from a	The working group has reviewed the minimum
practitioner with advanced skills. SCU's should	standards and increased expected standards
have standard skills available with advanced as	for LNUs, SCUs and transport services in
back up. My rationale is that unless there are	response to stakeholder feedback.
agreed arrangements for frontline ambulance	
services to transfer infants in SCU's/LNU's to	
higher level settings for definitive airway	
management (as exists for standalone MLU's to	
hospital), these sites need to be able to	
intubate. Transfer services are not regional	
airway teams & won't be in a position to rescue	
these situations. the infant needs a local	
responder with adequate intubation skills.	
ICU transfer teams should have a practitioner	
with a minimum of advanced skills and a	
difficult airway SOP. Without this the skill level	



Name: Adam King

If you are answering on behalf of an organisation please state: N/A

General comments: It is obviously a very comprehensive and therefore lengthy document (over 60 pages), which did make it rather hard to access. Repetition of content, and variable use of typesetting (eg bold and caps lock for some important considerations; but not for others) doesn't help with this.

Given that the overall message seems to be firmly "don't intubate", it felt that a lot of the document then corresponds to "how to intubate", and that the narrative flips back and forth between these two.

Working Group Response:

Thank you for these comments.
We have significantly reduced the Executive
Summary to avoid duplication and shortened
the document and aimed to correct formatting.

The overall message is intended to be don't intubate if you are not trained or if it is not needed. If you do need to intubate, how can you do this safely and to learn this skill as efficiently as possible. We hope that the final document reflects this view.

Specific comments: Regarding audit (Page 5 - final bullet point, Page 7 - final bullet point of "Patient Safety During Intubation"), it feels that there should be mention of other parameters for audit, such as LISA failure; use of LMA outside of manufacturers' guidance; accidental LMA dislodgement; and long term outcomes in these groups.

Regarding LISA:

Page 21 - The document states that it is anticipated that you could start doing LISA when attaining intermediate capability; which I suspect is not going to be achieved for the vast majority when neonatologists and ANNPs are prioritised for procedures (p17, final bullet point in "Implications for Training"), and so it is hard to see how LISA will be able to be implemented 'as a preference' in settings where the expected skill level is "Standard" - and therefore below the level at which LISA should be learned. Given that this is a skill which cannot be taught with simulation (page 6, penultimate bullet point in "Skills and simulated training"), what is BAPM's recommendations regarding appropriate LISA administrators?

Changed to "Units should audit success rates for intubation and LISA and rates of adverse events related to airway management ..."

Training in LISA technique using videolaryngoscopy can begin when working at intermediate level provided there is appropriate support from an advanced practitioner. Capability at Advanced changed to ensure competency (>80% success in 2 attempts)

The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.

Given that with Intermediate skills, the document acknowledges that it is anticipated 20% of LISA events will not result in surfactant being administered to the lungs, does the working group have any recommendations regarding repeated attempts at LISA, or repeated doses of surfactant if intubation becomes necessary?

In Appendix A, there is no mention of suction on the list of equipment required for tracheal intubation (pages 12-13).

In Appendix A, page 6, one of the potential risks of laryngeal mask airways should state oesophageal administration of surfactant.

Added "LISA should be done via videolaryngoscope where possible to improve likelihood of success" and "multiple attempts to insert LISA catheter should be avoided to reduce risks of adverse events?" Recommendations on repeat doses of surfactant are outside the scope of this framework.

Added suction – thank you.

Added oesphageal administration – thank you.

Specific comments: -



Name: Jennifer Loughnane	If you are answering on behalf of an organisation please state: Countess Of Chester Hospital
General comments: At our current designation the suggestion is that none of us would be required to maintain intubation competencies (currently SCBU, with hope to go back to LNU) As an LNU; reg's would need 'standard' airway (no intubation competencies) and we would need 'intermediate' ability to intubate in optimal conditions. The transport service would also be 'intermediate'. Obviously there is a change in practice which means less intubations; this document feels like concentrating intubation training skills to tertiary sites and neonatologists with no recognition that babies are born in non tertiary units, who are unexpectedly in poor condition at term, or pre-terms who just come in and deliver with no time for IUT, and inherently are less well optimised. It would appear that there would be no requirement for any non GRID trainee to ever achieve intubation competencies – so not sure how this will impact the DGH with neonatal unit new Consultants of the future. There is no suggestion to what local escalation plans should look like for babies who need intubating in a SCBU or difficulties in a LNU. We work well along side our anaesthetists; but they state they have very little experience of preterm babies-even after their training time in children's hospital; as those babies usually are	We fully recognise your concerns, and this document is trying to provide a more formalised structure around airway training to hopefully optimise how quickly people can gain skills, but also to be clearer about people's strengths and weaknesses and to fully utilise non-intubation techniques which are safe and effective where possible. The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback. We have also clarified the capability expectations in table 3.
already intubated when they come for NEC surgery for example. We're aware there is no easy answer to this; and we have to acknowledge exposure is much less but feels like we will just end up more de-skilled. The competency assessments, intubation logs and teaching material are really useful; and we will be implementing them into our training.	The guidance, assessments and teaching materials will hopefully improve the speed of attaining competency.



Name: Aleksandra Reszka	If you are answering on behalf of an organisation please state: N/A
General comments: As an anaesthetist working in a District General Hospital with a Neonatal Unit, I would like to express my serious concerns about this draft guideline. I feel that the suggested standards for Airway Capability in neonates are to low and very unsafe, particularly in units that do not have the support of anaesthetists skilled in managing neonatal airways. Our hospital does not anaesthetise children under the age of one. Both me and my consultant colleagues do not, therefore, have recent skills in neonatal airway management. As a UK trained consultant anaesthetist I have never intubated a pre-term neonate and I believe this is also true of most of my colleagues. Creating local escalation pathways in units similar to ours is likely to be extremely difficult. Lack of local skills will lead to multiple attempts at intubation of delicate airways and airway trauma, particularly in cases of pre-term neonates to small for the use of laryngeal masks. In cases of failed intubation, escalation to neonatal transport services is likely to be the only option. I would like to suggest that rather than lowering the standards for airway management skills, the focus should be on improving training by posting neonatologist in adult and paediatric theatres. Specific comments: -	We have not specifically mentioned anaesthetic lists in the document as the working group felt that exposure to neonatal patients was limited in this setting.



Name: Angela Hayward	If you are answering on behalf of an organisation please state: N/A
General comments: In general I support the	Working Group Response:
document, although it will likely mean that all neonatal consultants will become resident on call.	Thank you for your positive comment.
Specific comments: Page 5, Table 1: Neonatal transport services should have intermediate airway skills. This in my view is inadequate, at the very least, they should have advanced skills. The transport environment never provides optimum conditions for intubation and whilst the transport team is not commissioned to provide "an airway service", it is increasingly common to be called to a situation where there have been multiple attempts at intubation. I also do not understand why there would be an even lower skilled person available in 30 mins, this should probably just be removed. It is not possible to ensure that anybody would be available to assist the transport team in 30 mins (hence the need to ensure they have advanced skills at the very least) Page 16, Table 3: I agree that neonatal transport nurses should have standard skills. Please can a section be added to identify neonatal transport doctors and I believe that they should have advanced skills. I am not sure that the shading is terribly helpful, it would be easier to	The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback. We have made it clearer in table 1 that for transport the categories are ICU and Non-ICU rather than immediate availability and within 30 minutes. Table 3 has been modified to remove other teams and both neonatal nurses and neonatal transport doctors/ANNPs are included. The shading has been changed to make it clearer.
understand the minimal standards required.	



Name: Nancy Cox	If you are answering on behalf of an organisation please state: N/A
General comments: Needs further work and understanding of the skill mix and capability of staff. The theme that anaesthetists should take over the airway management of a sick neonate in non-NICU centres is concerning, showing a lack of understanding of anaesthetic practice. I have been an anaesthetist for 12 years and have never intubated a neonate. Specific comments: Table 3 page 16 table on expected skill set I would not agree with. I would not agree that "Laryngeal masks may often safely avoid the need for emergency intubation". page 20.	Working Group Response: The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback. Anaesthetists have been removed from table 3. We have reviewed the statement regarding laryngeal masks and emergency intubation and feel this should remain.



Name: Parag Shastri	If you are answering on behalf of an organisation please state: N/A
General comments: My main comment is about transferring the responsibility of neonatal intubation to anaesthetist.	Working Group Response:
Specific comments: I have been working as a Consultant Anaesthetist for 14 years and in 14 years, I have not intubated neonate enough to consider myself as an experienced in neonatal intubation. We also have trainees, both senior and junior covering emergency duties and they may not have experience to intubate neonates.	The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.
So, in my opinion, neonatal and paediatric team should be responsible for airway management and not anaesthetist. Thanks.	Anaesthetists have been removed from table 3.



Name: Tahir Saeed	If you are answering on behalf of an organisation please state: N/A
General comments: I understand the implications the proposed document would	Working Group Response: The working group has reviewed the minimum
have on routine practice across the neonatal	standards and increased expected standards
acute care as a whole. However implementing it across the board with little consideration of	for LNUs, SCUs and transport services in response to stakeholder feedback.
staffing/ training requirements / expertise at	response to stakenoider reedback.
smaller and medium sized DGH hospitals in my	We have tried to provide as much
view is flawed.	implementation material as possible to support
Specific comments: -	this change. We have also suggested that networks will need to be involved in supporting training and development of escalation plans in smaller LNUs and SCUs. We also acknowledge that resources will be required to support implementation.



Name: Lucinda Winckworth	If you are answering on behalf of an organisation please state: N/A
General comments: -	Working Group Response:
Specific comments: Page 21, final section states:	Very well spotted thank you – checked to
"most commonly Pedi-Cap® (Nellcor/Medtronic,	ensure 250g is shown in all documents.
Minneapolis MN) (1-15kg) and Neo-StatCO2®	
(Mercury Medical, Clearwater FL) (2.5-6kg) can	
be used with both LMs or tracheal tubes"	
I think this is a typo as the Neo-Stat goes down	
to 0.25kg so is better in the smaller babies as	
Pedi-Cap only goes to 1kg	



Name: Andrew Elliot-Smith

If you are answering on behalf of an organisation please state: N/A

General comments: Well done on a large piece of work, pulling together various strands. As a general comment, however, although it is undeniable that intubation opportunities are decreasing, is simply decreasing the expectation of competence the correct approach? I feel we're moving the goalposts to align with reality, rather than promoting what is perhaps an aspirational view that these skills should be maintained by those working in neonatology. Some of the expected levels strike me as potentially creating situations where there won't be the necessary skillsets around (especially in SCBUs). Relatedly, it should be acknowledged that confidence +/- competence of intubating neonates in anaesthetic colleagues will not be universal either, despite them generally featuring higher up in escalation policies, i.e. in district general hospitals that do not provide paediatric surgery (which will generally be where SCBUs are located). There could be techniques promoted to improve training exposure, i.e. recommending attendance at paediatric surgery lists to gain experience with anaesthetic colleagues; prioritisation of clinical exposure to those most in need of the experience, i.e. flagging at handovers/use of procedure star charts etc. Further to the above, on reviewing the document, I did identify a number of spelling and grammatical errors, as well as inconsistent formatting points within and between sections. I appreciate that these may be considered small fry, but they may still be of interest to ensure the first edition is as accurate and consistent as

Specific comments: RE: Table 1, it stands out to me that for ICU transfers, only intermediate level is required. If a baby did need re-

possible. It is, however, tedious to highlight these comments via this format, but I would be happy to add them to a Word document using

the review feature, if desired.

Working Group Response:

The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.

Anaesthetists have been removed from table 3.

We have not specifically mentioned anaesthetic lists in the document as the working group felt that exposure to neonatal patients was limited in this setting.

Thank you – we have aimed to correct these as much as possible.

intubation in an ambulance, that would be by it's very nature, an emergency situation. I note that later in the document it does specify that some transfers may warrant more advanced airway experience; perhaps it would be worth including this as a footnote to the table? Relatedly, given that extreme preterm infants may well deliver in SCBUs, should there not be an expectation of at least intermediate support within 30 minutes (rather than standard)?

On page 7, under the patient safety section, it discusses confirmation by CXR. However, I would advocate for a specific point here (as well as elsewhere in the documents when discussing the process of intubation) that, following securing the tube by whichever method is used locally, that the target depth of the ETT is reconfirmed to ensure it has been maintained at the target length. From personal experience of intubating and supervising colleagues, it is not uncommon for the ETT to move slightly once all the support structures are tightened etc. This extra little stop check can minimise harm of an incorrectly position tube, whilst waiting for CXR confirmation.

Now covered in the revised unit and transport standards.

Added sentence regarding reconfirmation of tube target length.

"Airway fixation should be secure and according to local guidelines. Re-confirm target insertion depth has been maintained following fixation."



Name: Simon Crighton

If you are answering on behalf of an organisation please state: N/A

General comments: It is clear that the document assumes that paediatricians responsible for SBUs and LNUs will be able to call on the duty anaesthetist to intubate babies in an emergency. Table 3 [Pg 16] shows that an Adult Anaesthetist would be expected to have a higher level of neonatal intubation experience and skills than an SCU consultant. The suggestion is that Consultants in charge of SBUs and LNUs should abdicate responsibility for intubation of sick and preterm neonates and expect the anaesthetic teams to take this over Quite why the authors imagine that anaesthetists in hospitals other than specialist paediatric centres or larger general hospitals with NICUs are likely to possess and be able to maintain these skills if their paediatric colleagues responsible for the SCU/LNU cannot, is not addressed. Many smaller and medium size hospitals do not offer any elective surgery in infants under 1 year and even in those that do, the skills are usually concentrated in a small number of anaesthetic consultants who cannot provide a separate tier of continuous paediatric anaesthetic cover.

To use myself as an example...I developed an interest in paediatric anaesthesia and had a 3 month attachment at a tertiary centre in my penultimate year of training. During that time I had the opportunity to intubate 32 infants under 1 year of age, of which 6 were under 1 month and none were preterm.

I have now been a consultant anaesthetist in a small/medium DGH for 24 years and took on the role of Lead for Paediatric Anaesthesia 13 years ago. Until recently my job plan was such that I anaesthetised more children than most of my colleagues. We perform elective surgery down to one year of age (which is lower than a lot of similar sized hospitals – I believe many have a cut off of 2 or even 3 years).

Working Group Response:

The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.

We have removed anaesthetists from table 3. Whilst anaesthetists may not have intubated neonates, they do nonetheless have a wealth of airway skills experience which may help in difficult situations and we thank you for your help in these circumstances.

During that 24 years I have anaesthetised 58 children aged between 1 and 2 years and only intubated 2 of them (as our surgery in one year olds is usually minor). I have not intubated any children under the age of 1 year (even during a week-long attachment at our regional tertiary centre). Whilst I have some transferable intubation skills and am always happy to try to help and support a colleague, should the consultant paediatrican covering SCU really be looking to me for assistance in anything more than a "Good Samaritan" role, well outside my area of usual practice? Current anaesthetic training is also reducing the amount of paediatric exposure and most newly appointed consultant anaesthetists have considerably less experience than I did when finishing training, unless they have undertaken stage 3 training as a "special interest area".

In summary, I am afraid that the implications of the document's proposals have not been properly thought through for small and medium sized hospitals without an NICU and a separate Paediatric Anaesthetic rota. The suggestion that the paediatricians responsible for SCUs and LNUs should not maintain their skills and shift responsibility for intubating neonates to the anaesthetic team is ridiculous. To maintain that level of expertise throughout the anaesthetists would require a massive restructuring and extension of Paediatric Anaesthetic training and would still leave the problem of maintaining skills whilst working in a job with zero routine contact with infants.

Whilst it is clearly difficult for paediatricians to acquire and maintain skills in these days of reduced hours of training and experience, suggesting that the staff who are employed to cover SBUs and who deal with neonates on a daily basis should be encouraged to abdicate responsibility for intubation and pass it onto those may not have seen a neonate for several years is fundamentally flawed.

The absence of staff with such skills will have serious knock-on effects on the ability to maintain a safe obstetric service and to run an Emergency Department and a children's ward that accepts sick infants.

Simply having a policy of "call the anaesthetist" is not an option.

Specific comments: I am consultant anaesthetist (and joint lead for paediatric anaesthesia) working in a small/medium sized Trust with an obstetric unit that hosts over 3500 deliveries/year and a SBU that accepts neonates down to 32 weeks. We do not manage ventilated babies other than to stabilise and transfer out within 4-6 hours. On average we would intubate 1-2 babies per month.

I am alarmed at the proposal that such a unit need only be covered by paediatricians with "Standard" airway capabilities, defined as "has limited or no intubation experience". [Table 2, Pg 13]

The document goes on to say that "unsupervised intubations should be performed by intermediate intubators as a minimum, but where possible by advanced intubators" [Pg 19] . Even if an individual with "Intermediate" airway capability is available, this is defined as "can intubate the trachea under optimal conditions but not able to consistently intubate in urgent/emergency settings and/or across all gestations" – i.e. if called on to deal with a child as an emergency, they would not necessarily be expected to be able to intubate them.

It goes on to point out that "Laryngeal masks may often safely avoid the need for emergency intubation". "Often" is probably an appropriate choice of word and correctly implies that, not infrequently, this will not be an adequate/safe intervention and intubation WILL be required. So who will intubate?

The Executive Summary (pg 5) declares "...whilst formally recognising that maintaining universal intubation competency in all neonatal units is not possible and that initiation of the local difficult airway pathway may be needed to support intubation in some units."

On page 10 we read ... "Escalation of support beyond "Standard" in Special Care Units will often require activation of the difficult airway pathway for extra support according to local protocols".

The implication being that, as part of this pathway, a more experienced neonatal intubator will be available. This is simply not the case in most hospitals.

As the draft document so rightly points out, "The number of intubations required to maintain skills will be highly variableThose

whose highest capability is Intermediate are unlikely to maintain this over several years unless they had previously achieved Advanced capability (Defined in the previous paragraph as "successful intubations is likely to be in the region of 10-40 including at least 5 in babies <28 weeks). Those whose highest capability is Intermediate are unlikely to maintain this over several years unless they had previously achieved Advanced capability. [Pg 12] In our Trust, responsibility for airway management in critically ill children under one year of age is jointly shared between paediatricans and anaesthetists We work together to provide mutual support and in any given situation the person who feels most comfortable/experienced will attempt intubation if required. In practice this is usually the anaesthetist in later infancy, but the younger the child, the more likely we are to expect the paediatrician to take on the airway. Certainly under 4 weeks of age, we would expect them to do so, precisely because they are the ones with regular neonatal experience whereas we never anaesthetise children under the age of one year.

transfer teams). I think input from PICU and



Name: Anna Barrow If you are answering on behalf of an organisation please state: N/A **General comments:** This is a really useful **Working Group Response:** document to have and is an excellent summary of the challenges both in caring for critically ill Thank you for your comments and letting us neonates and in maintaining skills and know about your work. We agree it would be useful to link up with you and PCCS. competence in airway management and in supervision of provision of airway management. I am currently working with the Paediatric Critical Care Society on a study called PANDA-PIC - Paediatric National Database of Airway Management in Paediatric Intensive & Critical Care Areas) which is a National Service Evaluation project looking at complications of airway management (covering PICU/ paediatric HDU, paediatric transfer and retrieval teams. Paediatric and neonatal critical areas were difficult to systematically cover in NAP-4 so we are hoping to gain specific information about safety of airway management in areas where critically ill and injured children are managed. We would be very keen to work with BAPM on a similar project focusing on Neonatal Intensive Care Areas (NICU/ neonatal transfer services/ delivery suites). We also hope to run similar project looking at pre-hospital care teams who also provide advanced airway management for critically ill or injured children, including occasionally neonates. In terms of international research, currently, I believe Glasgow is the only UK unit to contribute to NEAR4Neos. There are no paediatric centres currently contribution to NEAR4Kids but Cardiff have joined and will hopefully start submitting data early next year. I appreciate that there is a lot of crossover between different clinical areas and I am really interested in how we can learn from variations in practice for neonates and infants undergoing advanced airway management in 'neonatal areas' (NICU, delivery suite, neonatal transfer teams) compared to 'paediatric areas' (theatres, in PICU and outside of hospital by retrieval and

paediatric transfer services who also care for neonates would have been useful and is crucial going forwards to avoid wide variations in practice and to allow more systematic research.

Specific comments: 1. Intubation Checklist: I think there could be more emphasis on calling for help early - ideally for intermediate or advanced providers. It could also specify who should be called and how (for local adaptation) eg call/ fast bleep neonatal consultant/ paeds anaesthetist/ ENT consultant

- 2. BAPM Difficult Neonatal Guidelines state that a difficult airway situation should be declared after 2 or more failed attempts at intubation so it would be good to emphasise at this point in the intubation checklist that a difficult airway situation is being declared. It might also be good to include a paragraph defining difficult airway management as not just being anatomical, but also physiological or situational.
- 3. p6 states someone with intermediate compentencies could intubate unsupervised given the description of competence as "not consistently able to intubate under emergency or urgent settings or across all gestations", this seems like an unnecessarily high risk. If the intubation was not an emergency then arguably it would be safer to wait for direct supervision from someone with advanced airway competence. p9 describes high rates of complications of advanced airway management and low first pass intubation rates in neonates. NAP7 shows neonates to be a high risk group.
- 4. In general the numbers of intubations required to gain intermediate and advanced competence is a low lower than the equivalent for adults and older children, despite neonates being highlighted a high risk group.
- 5. Capnography colorimetry is listed first not waveform capnography. Capnography is now obligatory in almost, if not all PICUs and paediatric transfer services who also transfer neonates and small infants. Personally I think there should be more emphasis on its use and on seeking confirmation of endotracheal (as opposed to oesophageal) intubation should no CO2 trace be present ie use of VL to reconfirm tube through the cords, USS double bubble/ lung slide, rather than assuming no trace present because the patient is a neonate. It would also be good to mention "no trace wrong

Have changed Intubation checklist to include:

Pause before 3rd attempt.

Need most experienced intubator available.

Do you need help?

Who will activate Difficult Airway Pathway

Who will you call and how will you do this?

Included in Difficult Airway Framework. Added definition as per Difficult airway framework to the glossary.

We agree that more advanced skills are advised wherever possible and have changed text to

- "Whenever possible, unsupervised intubations should be performed by advanced intubators.
- Unsupervised intubation should not be undertaken by those at standard competence or below.

We have not set a number of intubations given published literature demonstrates that to achieve skill acquisition is highly variable and can be as low as 8 intubations.

Capnography - We recognise that this is a standard in paeds and adult services and not yet in neonates. The technology has been challenging for the extreme preterm infant and the evidence of superiority of capnography is not proven in this group. We cannot yet include it as a standard but do include it along with

place". If there is a significant leak, the ETT would need upsizing, a trace of some sort is usually possible and it is unlikely with such a leak that it would be easy to ventilate without having to upsize the tube. I understand that there are caveats for neonates and small TV/ dead space/leaks etc make capnography less reliable, however coroner recommendations for preventable have highlighted its importance as well of correct interpretation. This is an area where future research would be really useful. I work in a centre with a NICU attached and we frequently have neonates on PICU and through the transfer service - I have only had one occasion where no capnography trace at all was present and this was for a baby in cardiac arrest and this was discussed at length in clinical governance. Aside from that case, I have always been able to get a capnography trace and I think it should be emphasised as a standard to aim for.

- 6. Where colourimetry is mentioned, there is no caveat for gastric acid (ie regurgitation from oesophageal intubation) causing colour change to ph<5.5, noting that gastric acidity increases from birth but is likely to be much lower than 5.5.
- 7. Ref 21 and 22 missing. Would be good to include first pass intubation rates for ref 21.
 8. Intermediate level competence for ICU level transfers seems inadequate as advanced airway assistance could be >30 mins away.

hints and tips on use. We have added "no trace wrong place to Hints and tips appendix and included VL confirmation as example.

We have updated information on alternative ET confirmation when no CO2 trace present included VL and lung ultrasound as methods of confirmation in low output states.

We include the following statement

"Where other teams such as anaesthetists, ENT surgeons or paediatric intensivists might be asked to support further airway management as part of the difficult airway framework, the neonatal airway lead should agree with the relevant departments the processes and actions to ensure appropriate equipment to support them is available in a timely fashion. These discussions must include laryngoscopes (including videolaryngoscopes), blades, and waveform capnography monitoring as well as more specialist equipment for ENT intubation and/or surgical airway."

We have included research on capnography in the New Horizons section of the document.

Added gastric contents.

References - Good spot – formatting issue. Missing references added.

Competence for transport increased in response to stakeholder feedback.



Name: Nigel Gooding	If you are answering on behalf of an organisation please state: Neonatal and
	Paediatric Pharmacist Group (NPPG)
General comments: The document has been	Working Group Response:
really well considered and well written - it will	Thank you for your kind comments.
be a great resource.	
Specific comments: Page 20: premedication	
drugs. Might be useful to add the following: -	
- Where available, pre-filled syringes of	All Added – thank you
premedication drugs should be used.	
- Availability of local drug calculators and some	
e-Prescribing systems can allow doses of pre-	
medication drugs to be calculated in advance of	
any intubation to allow drugs to improve safety	
around prescribing and administration of these	
drugs	



Name: Jennifer Birch

If you are answering on behalf of an organisation please state: N/A

General comments: I apologise that my feedback and comments are going to seem quite harsh and negative, but I do not believe this has been fully considered in terms of all of its implications. As some of the authors know, I am passionate about improving neonatal care and safety and therefore whilst I support what I think are the underlying intentions of this document, I think it has unfortunately not achieved what it has set out to do and will result in greatly increased workload, but without a greatly improved standard of care for babies born outside of hospitals with NICUs.

I have huge concerns about this framework and

the capability standards within the document. Do we really believe that it is acceptable for a baby to be delivered in a unit where no-one, even someone not immediately available has limited or no intubation experience? Would we accept that for adult patients? Why are we not pushing for improving standards of care for neonatal patients so that they are more equitable to that available for adults and not less so? This holds the risk of creating a postcode lottery for parents. There does not appear to have been any co-production of this document with a parent representative? I would argue that the smaller, DGH type hospitals with SCUs or LNUs are even less likely to have the appropriate difficult airway support from anaesthetists or ENT than NICUs. One of the main justifications for this guidance and the standards seems to be the challenges around acquiring and maintaining competency, especially given changes in training and competencies as defined by RCPCH, rather than being based on what we aspire to in terms of standards of safe care for babies.

I support the annual skills training to the required competency level as well as the assessment - but this is going to equate to a

Working Group Response:

The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.

We agree that there will be some additional workload associated with this guidance but consider that this will be needed to improve safety.

BAPM parent members and BLISS have given input to the document and the text has been changed in accordance with their wishes.

need for significant time and resource for training - both for those being trained and the trainers. I haven't managed to review the appendices - but I am assuming this comes with a set of training packages so that all units in the country will be teaching using a standardised approach and set of resources?

If not, I think it irresponsible of BAPM to put this out there without such a set of resources as the time implications for units to develop such training packages and competency assessments is huge, and a complete waste of NHS resource as we will all be duplicating the same work across the system.

Specific comments: Table 1 on page 5 and 10: It is my view that the standard for LNUs should be intermediate immediately available and advanced available within 30 minutes (or the definition of intermediate should be amended to relate to a higher level of competence). For SCUs it should be standard immediately available and intermediate within 30 minutes. For transfer of ICU babies I think advanced should be the minimum requirement.

intermediate/advanced capability is required for all intubations of <27/40 and <4 days and in emergency situations, I wonder how NICU staff will manage to attain competency in the first place. I believe that as long as such intubations are performed under appropriate senior supervision, a single attempt in such situations would support them to develop appropriate skills and competencies.

Pg 7 - LISA is recommended as preferred method of delivering surfactant - but this will be made more challenging with reducing competence at intubation (which I believe will be the unintended consequence of this guidance).

Pg 10 - ALL ICU transfers should either be be supported by someone with advanced skills, or the definition for intermediate skills and required number of successful intubations should be altered.

Pg 11 - I am concerned by the comment that "local teams must ensure that there are appropriate escalation processes on site" - local neonatal teams are often a very small voice in a trust that is very highly focused on the highest volume service users (adult patients) and

Yes- training resources are included.

The document has been changed to reflect these standards.

The working group did not agree that it was appropriate for someone working below intermediate competence to attempt supervised intubation in these high-risk infants due to the higher risk of IVH.

Transport competencies changed to advanced.

Escalation for a difficult airway is part of the difficult airway framework. We did not think this should need to be outlined at trust board level. Networks should support local trusts with escalation pathways.

therefore local neonatal teams may unfortunately lack the power/influence to ensure this support is available from services that that they do not manage. I think it should state that "it is the responsibility of the board of the provider trust to ensure that there are appropriate escalation processes, skills and support available onsite"

pg 16 - Table is not clear. Most SCUs and in some LNUs there may be limited or no paediatric anaesthetists and there will not be paediatric intensivists - so who will they escalate to if adult anaesthetists are also only trained to intermediate level? As far as I am aware BAPM has no mandate to set standards for other specialties - has this been consulted on with royal colleges of anaesthetists and ENT surgeons - or are these already recognised competency requirements for them?

pg 17 - "BAPM recognises that implementation of this framework may(???) require additional resource for training and assessment" needs changing to - This framework WILL require SIGNIFICANT additional resource for training and assessment - where is the funding for this coming from? BAPM don't commission services and yet this document states that "all units... need a neonatal airway lead with funded supporting PAs, as well as a resuscitation officer and/or nursing lead with funded time to support training and assessment." - where is the money for this coming from? Who is funding this? I totally agree it is important and needed but I don't even know if smaller units will necessarily have staff able to take on these roles and even NICUs may struggle to find someone with time to take this on and to access the required funding. Resusc officers in many trusts are so stretched that they don't have much time, resource, or knowledge and experience to support neonatal training.

Table 3 has been revised to reflect those working in maternity and neonatology, and other teams have been removed to avoid confusion.

Yes, BAPM has consulted with appropriate anaesthetic and ENT professional organisations and an adult, and a paediatric anaesthetist were involved in the development of the guidance.

"may" changed to "is likely to". We understand there will be resource implications. However, we believe these are needed to maintain safe services. BAPM sets standards but does not have any jurisdiction over funding arrangements.



Name: Sam Oddie 1	If you are answering on behalf of an organisation please state: N/A
General comments: The document is not sufficiently aspirational. BAPM has a long history of describing standards that are higher than existing levels of care. One obvious example of this is the neonatal staffing standard. This has supported improvement in staffing, and created an aspiration for more.	Working Group Response:
an aspiration for more. In contrast, this document's aspirational standard setting is only really focussed on NICUs, where the authors admit to setting a standard that is challenging for NICUs. For LNUs and SCUs the document describes standards that are well below the standard of care currently met or aspired to by many LNUs and SCUs. This is an important error. I have given detailed thought as to whether, in describing standards, this BAPM group have really set an aspirational standard, or whether they have responded to a perceived delivery challenge. It seems possible to me that, having considered the undoubted difficulties in maintaining airway skills in some environments, the authors have prioritised solutions, and allowed their impression of the imitations of these to affect what level of care they really believe can or should be delivered to the very large number of babies born outside NICU hospitals. This leads me to question whether there is real merit in setting standards at all – perhaps describing what can be done to support airway management (use of LMAs, training etc) is a separate, and more useful piece of work that BAPM could deliver. BAPM runs the risk of being seen to have 'given up' in response to the challenge of providing adequate airway management in LNUs and SCUs - no aspirational standard is described for these units. Rather the standards of airway support that are described for LNUs and SCUs may quickly result in wholesale retrenchment from	The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.
intensive care in LNUs and SCUs, with attendant serious harm to patients. This system change	

will be irreversible, and could be expected to affect some ODNs (those with fewer NICUs and more LNUs) than others.

This 'underaspiration' on airway skills is in stark contrast to the strictures to which neonatal services operate with respect to vascular access. In a way that seems distinctly odd to many of us, it appears that it is considered reasonable to hold neonatal services to a standard derived from RCUK that suggests that vascular access can, and should, be obtained by use of an IO needle during immediate postnatal resuscitation. I have significant neonatal experience, but have heard few if any accounts of the use of an IO needle at resuscitation of the newborn. Still less convincing than the practical applicability of this advice, is the evidence that drugs given in newborn resuscitation are of key benefit. Yet, despite this, units are told they must be able to deliver IO as part of newborn resuscitation.

In contrast, proposed BAPM standards do not suggest that advanced airway management skills beyond the use of an LMA is considered necessary for the very large number of term and preterm deliveries that occur in LNU and SCU associated hospitals. There is a wide body of expert opinion (which I share) that intubation is useful and indeed essential, for the safe care of at least some of the sick and preterm babies who deliver in LNU and SCU hospitals. Instead, the authors promote the narrative that teaching airway skills to those who use them infrequently is too hard, and suggest its OK to aim not to have intubation competency sufficiently available to LNUs and SCUs to support immediate life support. This is in the face of what has been shown to be the case in UK neonatal units over decades, where benefits have accrued to babies from these skills. By 'shown' to be the case, I assert that major health gains have been achieved through advanced airway management (specifically intubation) in units without onsite NICUs. If the authors assert that this is actually impossible, rather than hard, they should say more clearly why this is the case, rather than speculating pessimistically that there is no prospect of benefit to aiming to deliver advanced airway competence in SCUs and LNUs. My preference

would be that, if it transpires that it is truly

The working group does not seek to minimise the importance of intubation as a skill but does seek to ensure that the potential harms of intubation in unskilled hands are outlined and that other ways to support the airway are given for when intubation is very challenging or where clinicians do not have the skills to undertake the procedure.

impossible to maintain airways skills over time in LNUs and SCUs, then the issue is regularly revisited, and that BAPM asks itself at that future point if setting standards or some other measures will help develop or maintain skills. Of course neonatal intubation skills and practice can be improved in LNUs and SCUs (and NICUs), but BAPM should aspire to a service where life saving treatment can be provided to those very preterm and extremely preterm infants who present and deliver in LNUs and SCUs (some of which are very remote). Can the level of intubation avoidance promoted in the guidance be safely delivered? It is fallacious, and unsurprisingly extremely poorly evidenced, that a large number of sick and preterm infants who currently get intensive care in LNUs and SCUs can in future have this care provided via LMAs and non invasive airway support. BAPM should aim to describe ways in which the care that is needed, based on current scientific medical understanding, can be delivered. BAPM should not 'lower the bar' unless there is evidence that neonatal intubation does more harm than good in LNUs and SCUs as it is currently practised. Specifically "Whilst currently, tier 3 paediatricians working in Special Care Units may have Intermediate or Advanced capabilities, this is unlikely to continue to be the case in the future. Escalation of support beyond Standard in Special Care Units will often require activation of the difficult airway pathway for extra...." is speculation and may be untrue. If BAPM hold this to be true, then it may well become true as a result. On the other hand, BAPM could describe some aspiration – and like its position on airway competence in NICUs, accept that not all units will immediately meet standards. Recent changes to training for paediatricians are held to be the main problem for this dire prognostication about future intubation competence in non NICU units. Rather than accept that these issues will cause the harm (paediatricians without the relevant skills starting consultant careers in LNUs and SCUs) we fear, an alternative approach would be to promote training – and to measure and review the extent to which this anticipated problem develops. Risks of system change

P11, first bullet. Implementation of this guidance might be expected to lead to a need for wholesale reorganisation of neonatal services, as clinicians review this guidance, and declare their services unable to meet these standards, whether that is in line with the needs of their population or otherwise. There is a risk of destabilisation of a delicate equilibrium. Are the authors aware of the high proportion of babies cared for in LNUs under current guidance, who get intubation as part of currently agreed protocols? If LNUs are encouraged to provide services without intubation competence, then there will be large (and hard to meet) demand for intensive care services for the high proportion (half) of babies under 32 weeks who get intubated in first week of life, many of whom start life in LNUs. There is currently grossly insufficient evidence that equivalent care can be provided without intubation competence, not least in remote units.

Put simply this is a turning point for neonatal care in the UK —either we can aim to continue to deliver intensive care in the large number of non NICU units currently delivering it, or we can (admittedly slowly) turn away from this care pathway, in a turn that will rapidly become irreversible. There are enormous implications for the delivery model in the UK, both figuratively and literally.

Videolaryngoscopy and caffeine P20 first bullet Many of us would agree that VL is a good thing to train intubators, and encouraging all units to have a VL seems a reasonable standard. However, in the current environment where VL is not ubiquitous (and it never will be truly so) its important to ensure that VL is used to facilitate training in use of standard scope. Otherwise, we risk only training people to use a scope that may well not be available to them on a subsequent attempt at intubation.

P20 a point is made about caffeine. We all know caffeine improves outcome. However, the references are not relevant and there is no evidence that caffeine improves oxygenation and prevents a need for acute intubation. Rather than trying to be a holistic manual of neonatology, this document should describe standards for airway management.

Added point to reflect VL should be used to facilitate training in direct laryngoscopy to ensure clinicians are able to intubate where a VL is not readily available

The working group considers the point about caffeine to be relevant.

Specific comments: Introduction

Thanks very much to BAPM for considering this important issue. I appreciate the document has had a lot of thought, but I have been made aware of a lot of concerns about the content from clinical colleagues — in particular the danger that implementing this standards document will result in a lower perceived necessity for or delivery of intubation in LNUs and SCUs. I have consulted specifically with LNU colleagues, and am aware that the described standards for intubation in LNUs and SCUs hold by no means universal support. The opinions that I have shared are my own, but I am aware of concerns that others hold.

Process

The document describes a "modified Delphi" process. I wonder if, reading the process adopted, this rather overstates the formality of the approach used. If so, it might rather devalue the meaning of a true "modified Delphi process" to describe consensus decisions thus. Was the Delphi process protocolised? Parents being with their baby at intubation p7: The line that says: "Units should strongly consider asking parents whether they wish to remain with their baby during elective or semielective intubation as part of maintaining a family centred approach to care. Where parents choose to remain, they should be supported by a member of staff who is not involved in the procedure itself." is unreferenced, and probably unevidenced. Later in the document, there is some limited evidential basis for this, but it is thin, to say the least.

This fundamentally 'opinion based' assertion may well result in net harm, and there is insufficient justification via potential benefit to the baby. Harms may accrue to the parents through the anxiety they may experience through witnessing what is not a subtle procedure, particularly if units feel pressurised into facilitating parental presence without adequate preparation.

In contrast to this recommendation, when children get anaesthesia, parents are facilitated to remain with their child in order to maintain a sense of calm for the child up to point of loss of consciousness, but are then ushered away in order that anaesthesia can safely procede.

Removed modified delphi as not formalised.

BAPM parent members and BLISS have given input to the document and the text has been changed in accordance with their wishes.

Extending this analogy, neonatal intubation is actually more like appendicectomy - a brief and comparatively minor procedure at which parents are currently never encouraged to remain present. Parental presence at appendicectomy would be prioritising parental interests over those of their child. Why is neonatal intubation different?

The second obvious harm that may accrue from parental presence during intubation is that parental presence could reasonably be hypothesised to impact on the success of the procedure, mediated by effect on the personnel intubating the patient.

The precautionary principle should apply to neonatal intubation, and the presumption should be that the safe conduct of the procedure, and the well being of the parents, should be protected until there is firm evidence that neither are impacted by facilitating parental presence at intubation, in a way that is not normal for older children.

Lack of description of benefits of intubation A casual read of this document does not show the enormous benefits of intubation as part of neonatal intensive care. Even the most zealous proponents of airway support without intubation accept the benefits of intubation, but rather than place intubation in this context, the authors allow a potential inference (eg p9 3rd para) through loose use of the word "associated" that intubation may cause patient harm. Such a causal inference may be unjustified, and actually the condition leading to intubation may be the route to harm in some of the references.

It should be recognised and discussed that intubation typically leads to major health gains - this document lacks balance, and might reasonably lead parents to fear intubation, which is a key life saving procedure.

LISA

Table 2

The authors of this guidance assert that LISA proficiency is a key attribute of an 'advanced' intubator. This reflects what I perceive to be their bias that LISA is easier than intubation – a view that relevant drug companies are keen that we endorse. Many neonatologists have had significant exposure to, or even payment by, drug companies (I include myself – I have had

We have changed the wording through the document with consideration to the necessary benefits of intubation for some babies.

We do not think that LISA is easier than intubation. Competency in LISA is considered an advanced airway skill, as is competency in intubation. We have added further wording to the table to clarify competency for this skill at advanced level.

LISA proficiency is not considered a prerequisite to advance intubation competency but to achieve an airway competency level of advanced you must achieve all the competencies within the advanced airway framework.

hospitality). However, many experts in the field assert that the benefits seen in LISA are accrued only through a very gentle and expert LISA surfactant administration. I am neither a novice at intubation nor LISA, and I agree with those published experts. To do LISA well requires more expertise than intubation. Why should LISA proficiency be seen as a prerequisite to 'advanced' intubation competence? A specific plea for more aspirational true "standard"

Fundamentally, for a document heavy with opinion, I think it is surprising, and also rather disappointing, that the authors have not chosen to nominate a number of procedures that denotes competence at the 'advanced' level. BAPM standards should be aspirational. Rather we have a vague statement about "aptitude", which is unhelpful.

New Horizons

"New Horizons" section. Many of us are interested in this, but surely this sort of wish list has no place in what should be a much shorter, and more focussed standards document.

The working group does not consider it appropriate to nominate a number of procedures and considers attaining a competency of 80% or more in 2 goes as appropriate (we give reasons for this in the framework).

We have shortened the document by removing the duplication in the executive summary. We think the New Horizons section is important.



Name: Jane Gill

If you are answering on behalf of an organisation please state: East Midlands
Neonatal Operational Delivery Network

General comments: As a neonatal network we have serious concerns about the content of this document. These primarily focus on equity of care for babies born within our neonatal network. As an example a 24 week gestation baby born in any of our network hospitals deserves a right to equitable airway management regardless of their place of birth. If this document were to be implemented in its current form we do not believe this would be preserved.

Specific comments: Page 10 Table 1
Reviewing current staffing for the NICUs in our region we would recommend that the immediately available support should have intermediate airway skills (reflecting current tier 2 cover.) If there is an aspiration for 24 hour a day resident consultant cover i.e. those with specialist airway skills for our NICUs then this needs to be modelled and funded.

Tertiary neonatologists have specialist airway skills and as such the document should reflect this and mention those being available within 30 minutes of a NICU.

LNU and SCUs should have intermediate skill available immediately and advanced skills within 30minutes. Without this standard being reflected in the document no form of equity can be maintained.

Transport services must have staff who have advanced skills to maintain safety often in more challenging situations.

Page 16 Capability GRID

This should be reviewed in light of our comments on table 1. For example LNU consultants should have advanced airway as a prerequisite for holding this post. Every LNU/SCU consultant must be able to intubate the 24 week gestation baby who delivers in their unit Page 20

Working Group Response:

(EMNODN)

The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.

The NICU standard of advanced skills immediately available is felt to be appropriate for safe care given that mothers of high-risk babies who will definitely require intubation are being electively moved to these facilities.

Our document is based on providing competencies appropriate to the level of care provided but does not determine what grade of staff is required to do this. Expected competency levels are set out in Table 3 which has been revised to exclude other specialities outside of maternity and neonatology and we hope makes it clearer what is the expected competence level and what the range might be. Not all tertiary neonatologists will have specialist airway skills.

Table 3 has been revised.

The recommendation to use high flow for all intubations may have unintended consequences. Delay in intubation while the high flow is set up and the cost of the high flow disposables are two such such examples of these. There may also be medicolegal implications of such a strong recommendation in a BAPM document. We would support this recommendation being reviewed.

The working group has considered this and still feel that this statement should remain.



	T
Name: Elizabeth Pilling	If you are answering on behalf of an
	organisation please state: Yorkshire and Humber ODN
	Hulliber ODN
General comments: welcome the	Working Group Response:
recommendations for logging intubation/airway	
expertise and the competency packages	
Specific comments: 1. There is some concern	
about the strength of recommendation of LMA	
surfactant, as this is not currently supported	We have carefully outlined and referenced the
with research evidence of efficacy and for the	evidence that is available. We do not make this
smaller babies, the LMAs are not small enough	a BAPM recommendation but for local
(as acknowledged in the document)	decision-making.
2. Concern regarding the acceptance of	
"standard" airway competence for SCU which	The working group has reviewed the minimum
may expose a sick term baby who will require	standards and increased expected standards
intubation to increased risk/harm (eg meconium	for LNUs, SCUs and transport services in
aspiration syndrome)	response to stakeholder feedback.
3. Concern regarding the ability of all NICUs to	
provide onsite "advanced" airway competence-	The NICU standard of advanced skills
this is likely to require resident consultants or	immediately available is felt to be appropriate
neonatal specialist trainees, however from some	for safe care given that mothers of high-risk
colleagues, this is felt to be an appropriate	babies who will definitely require intubation
recommendation (but will require financial	are being electively moved to these facilities.
support) 4. P 19- contains the following "The following	
are not considered suitable for practitioners	
below Intermediate	
capability and Advanced capability is highly	
desirable:	
② Extremely premature babies <27 weeks	
gestation <4 days old.	
□ Unstable babies requiring emergency	
intubation."	
From this sentence I would be concerned that a	
SCU with only "standard" competency doctors,	
this suggests no-one should attempt to intubate,	
however in both of these situations, the baby	
may require intubation before arrival of a	
transport team.	



Name: Victoria Davies

If you are answering on behalf of an organisation please state: Derby Neonatal Unit

General comments: As a consultant group from

Working Group Response:

General comments: As a consultant group from Royal Derby Hospital we would like to feed back our significant concerns around his draft guidance. This will degrade standards within LNUs and SCUs and is also unachievable for some NICUs. The guidance will create a further 'postcode lottery' in which if your preterm baby is born within a SCU or LNU their chances of a good outcome are poorer. Equally, moderate preterm or term babies who need significant resuscitation will not have a secure airway again compromising their care. The specific concerns are detailed below.

The working group has reviewed the minimum

The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.

Specific comments: Response 1

Table 1 BAPM minimum airway capability safety standards

1. Immediately available NICUs - advanced At present a significant proportion of L3 NICUs do not have immediate advanced airway skills available.

This would require 24/7 on site neonatal consultant cover or 24/7 on site consultant paediatric anaesthetic / paediatric ENT consultant cover on site. This would mean a restructure of the way L3 NICUs are staffed in order to provide immediate advanced airway skills as described.

Response 2

Table 1 BAPM minimum airway capability safety standards

2. LNUs

The airway capability safety standard of immediate attenders does not require any intubation experience. This is not reflective of current standards and expectations. Some LNUs have units with between 20 and 30 beds and greater than 6000 deliveries a year. Tier 2 medics and ANNPs should have at least intermediate capability.

Within 30 minutes should be a consultant who

can intubate most babies, in most

The NICU standard of advanced skills immediately available is felt to be appropriate for safe care given that mothers of high-risk babies who will definitely require intubation are being electively moved to these facilities.

circumstances, at most gestations ie. Advanced capability.

Response 3

Table 1 BAPM minimum airway capability safety standards

3. SCUs

The airway capability safety standard either immediately or within 30mins (i.e. consultant) does not require ANY intubation experience. This is not reflective of the current existing airway capabilities of consultants already in these posts. LNU and SCU consultants and would have been expected to have obtained intermediate airway skills after paediatric training (or Caesar equivalent) as per the RCPCH paediatric curriculum.

I believe the senior clinician at SCU or LNU should at a minimum be expected to perform what is described as advanced airway capability. The senior clinician should be expected to be able to provide advanced neonatal resuscitation. Whilst there are benefits to using LMAs, it is not superior to tracheal intubation or the gold standard, why should there be a move away from what is best practice. LMAs are also currently only of use in bigger, more mature babies.

"Tracheal intubation is a gold standard method to achieve and maintain secure airway and in some circumstances, is the technique of choice. Intubation may be useful in a prolonged resuscitation and in preterm infants for the administration of surfactant. Early and elective intubation of babies with an antenatal diagnosis of congenital diaphragmatic hernia is recommended as this minimises air insufflation of the stomach or bowel contained within the chest. Intubation may be helpful if the airway is blocked with inhaled material."

ARNI 2nd Edition 2021

In an ideal world, neonates with anticipated airway difficulties or other indications for likely tracheal intubation should be delivered in their nearest NICU but this has not always been the case. We will continue to have babies for which we cannot predict or prevent from being delivered or deteriorating at a LNU or SCU. For that reason, it is important that consultants in both LNUs and SCUs continue to maintain as much as possible high standards of neonatal airway safety for best possible care to all infants.

The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.

We do not disagree that intubation is desirable and necessary in some infants. There is an emphasis on how to improve chances of successful intubation throughout the document. However, we also recognise that intubation can be unsafe in inexperienced hands and alternative methods of supporting the airway can improve stability and increase the chance of subsequent intubation if required.

To set the basic minimum airway standard to not require tracheal intubation would be setting the bar too low (moving away from gold standard / best practise) and may endanger loss of engagement with ongoing professional development and maintenance of clinical skills as they are felt to be "not needed". This also creates expected standards of care that are significantly different depending upon where you are born. Widening this 'postcode lottery' is not an acceptable thing to do.

Response 4

The recent removal of neonatal intubation as a core competency for paediatrics trainees is raising concerns among the neonatal community on how we train workforce and safeguard future infants. By reducing expectations of airway competencies in senior clinicians at SCU and LNUs will in the long-term result in fewer trainers and learning opportunities for paediatric trainees which is already a cause for concern.

What impact will this framework have on paediatric skills training?

Response 5

Table 2 - BAPM neonatal airway capability framework

for maintenance of capability the table suggests "BAPM basic capability simulation training every 1-4 years" -

"BAPM intermediate simulation training every 1-4 years"

Apart from NLS and ARNI, are there examples of existing UK based courses for clinicians to attend – if so, could these be listed in the framework.

"Use of skills in clinical practice with feedback and assessment from more advanced practitioners"

Could you provide some examples of how this might occur?

We hope this feedback is constructive and will lead to consideration to adapting the current guideline in a second draft.

The Consultant Team Royal Derby Hospital

We have revised the skills competencies for neonatal and paediatric clinicians in table 3. The working group includes RCPCH training advisor to ensure we are working with paediatric training in mind.

We do not know of other national courses. Networks often run courses at regional level on airway and ventilation competency. We have included skills and scenarios in the training packages in the appendices.

Examples would include the supervisor giving feedback and assessment for a trainee after an intubation or LISA attempt, or after observing correct insertion of a laryngeal mask.



Name: Sankara Narayanan	If you are answering on behalf of an organisation please state: N/A
General comments: The framework is very informative and helpful, will go a long way towards improving safety of perinatal services.	Working Group Response:
Specific comments: I don't agree fully with your comments on standards set out in Tables 1 & 2. Most LNUs & some SCUs do regularly encounter babies who require airway interventions across the gestational range including extreme preterms (NNAP 2022, birth outside NICU – 21% = 420 babies). I am concerned that the framework fully acknowledges the complexity and scope of the work undertaken in LNUs/SCUs, thereby denying many vulnerable newborns the standard of care they truly need. Additionally, financially risk adverse managers might unintentionally misinterpret these recommendations, potentially hindering effective workforce planning. LNUs (& SCUs as well in my view) should have intermediate capability immediately available and advanced within 30 minutes. I would be grateful if this could be reviewed and revised.	The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.



Name: Sarah Bates	If you are answering on behalf of an organisation please state: N/A
General comments: I commend the working group for producing this very helpful and practical document. There are so many useful things I know will be of immediate use in my own (and so many) units. However, I have very significant concerns about LNU and SCU standards - see below.	Working Group Response:
Specific comments: Tables 1 & 2 - Whilst it is clear that these are 'minimum' standards, I feel very concerned that the actual interpretation will not reflect that. When thinking of examples such as future maternity incentive scheme safety actions, and when thinking of LNUs and SCUs trying to provide adequate medical cover, I can see this document potentially undermining LNU and SCU services.	The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.
I propose LNUs have 'Intermediate' immediately available and 'Advanced' within 30 minutes. This would reflect trainee and ANNP capabilities (intermediate). Consultants who cover LNU services (available within 30 minutes) should fulfil advanced. And if not, they should be able to use this framework as a way to argue for the training and reciprocal NIC experience (which is such a feature of national reviews).	
I propose SCUs have 'standard' immediately available and 'Intermediate' within 30 minutes. BAPM has always been an organisation that is aspirational about improving standards of perinatal care. With the current LNU & SCU proposals within this airway document, I fear this is a significant backward step. I would welcome a revision of these tables.	

Name: Sharon Drake

If you are answering on behalf of an organisation please state: on behalf of RCoA

General comments: Firstly, we felt that the group should have had additional anaesthetic input to support Professor Tim Cook as Tim could only advise from the adult perspective. There was only one paediatric anaesthetist on the group. There should be more input from centres with large neonatal caseloads.

We would very much welcome the opportunity to meet with the BAPM to discuss the above as we believe this presents a great opportunity for change and to explore how can we help paediatricians and neonatologists to implement the use of capnography for intubation.

We have sympathy for neonatal units being able to provide expert airway cover 24/7 and welcome standardisation of teaching, equipment and assessment of airway skills, but we cannot recommend or even support this document at the moment.

Specific comments:

- "Simulation training for LMA/iGel insertion is robust". This was not the experience of one of our reviewers who advised that based on their experience, they never slide properly into the airway of mannequins, there is too much friction between the plastic surfaces. Simulation training is not a substitute for supervised clinical training.
- The document states that colorific CO2 monitoring is useful to detect correct placement of an LMA: whilst this might be true for insertion, the main problem with a supraglottic airways in a unanaesthetised patient is that they move and become displaced, only continuous CO2 monitoring in the form of capnography will detect this. Therefore it should be used from the outset.
- We are concerned by the absence of outright recognition that colorific CO2 detection should be replaced by capnography in all settings where

Working Group Response:

We had excellent guidance from Tim and Arnie and were pleased to meet with further colleagues from RCoA and APAGBI to agree changes. The main changes are summarised below.

Capnography v colorimetric CO2:

It was agreed that although this is standard practise in adults and older children the evidence for superiority over colorimetric devices in smaller neonates is lacking. The following changes have been made:

- research on capnography in neonates has been included in New Horizons
- Added the following to recognise the need for familiar and standard equipment for anaesthetists where they are asked to support neonatal colleagues "Where anaesthetic colleagues might be asked to support further airway management (as part of the difficult airway framework), the neonatal airway lead should agree with the local anaesthetic department the processes and actions to ensure appropriate equipment is available to support them in a timely fashion. These discussions must include suitable laryngoscopes (including Video Laryngoscopes), blades and waveform capnography monitoring."
- Added the following: "where prolonged laryngeal mask/tracheal tube ventilation is required, changing colorimetric monitoring to waveform capnography should be considered".

Other changes:

• We have removed anaesthetists from table 3 as their skills do not directly match those in the tables and instead added a bullet point "Most adult and paediatric anaesthetists/intensivists and ENT surgeons have other additional airway and ventilation skills that may help when managing a difficult airway"

- neonates are intubated and ventilated. So many other areas of medical practice has accepted this as the gold standard.
- Another clear reason why we cannot currently support this document is that while we agree that anaesthetists have a role to play in "difficult airway pathways" in smaller units (and in tertiary NICUs where we are frequently called), anaesthetists rightly expect capnography to be there for ALL intubations, and as the expert called in to assist, this standard of care must be respected in this document. All of our paediatric ENT surgeons expect there to be capnography immediately available too.
- One of the papers referenced (64) explains the history of capnography very well, it clearly delineates the shortfalls of the colorific technique (low level of evidence, high false positive and negative rates) and makes a strong case to change to side stream capnography. It acknowledges the fact that historic equipment wasn't necessarily suitable for neonates but newer monitors have smaller dead space and lower sampling rates. It evidences lower rates of IVH, PVL and BPD in surviving neonates whose ventilation was supplemented with capnographic monitoring and feedback. The paper also acknowledges the benefits of capnography in monitoring chest compressions and ROSC in critical situations.
- There are a couple of minor syntax errors that cause confusion as they are already in use in our specialty and mean something completely different. Administration of drugs to sedate babies and produce muscle relaxation should not be described as "Premedication", a clearer term should be used to avoid confusion with pre-operative sedation and anxiolysis. Also, "cricoid pressure" is a specific manoeuvre to prevent reflux of gastric contents into the oropharynx and not a technique to

- In skills and simulation document we have included information on using manikin lubricant to support insertion of LMs and laryngoscope blades removed the use of cricoid and changed to airway manipulation and BURP
- We have clarified what we mean by premedication in glossary and in the text as this is a commonly used term for this purpose in neonatology worldwide

It was agreed that nomenclature around SGA and LMs needs to be standardised (currently BAPM is following Resuscitation Council UK terminology). R Tinnion is taking bringing this issue to the attention of RCUK.

improve laryngoscopic view, indeed it often makes it worse. What the document describes is laryngeal manipulation and it should be called that.

Name: Sian Hughes	If you are answering on behalf of an
	organisation please state: North of England
	Paediatric Anaesthesia Network (NEPAN)

General comments:

Specific comments:

Previously, we were aware that neonatal intubation was a skill acquired by all paediatric trainees prior to CCT. They all, to our knowledge, spent a significant portion of their training in NICUs which helped them gain this much needed skillset.

From what we can gather, the focus now appears to be more focussed on ensuring optimal hand mask ventilation, and/or progressing to supraglottic airway insertion. Whilst we do not deny that the former especially, is an essential, potentially lifesaving skill for all trainees, the reality is that this is not always effective, in ensuring adequate ventilation to neonates in rapidly deteriorating respiratory distress. In those with heavy secretion burden for example (from a variety of body fluid types), hand mask ventilation can well be inadequate. Similarly, supraglottic airway devices carry the same issue, in addition to potential poor fit/seal.

Whilst intubation of neonates in DGHs is thankfully rare, those that do require advanced ventilatory support, risk increased morbidity or worse, when faced with prolonged delays until a doctor with sufficient skillset becomes available to

Working Group Response:

The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.

address this. A rapid availability of someone with this skill we would argue, is the minimum expectation that any potential parent should expect when faced with such a traumatic situation.

This also raises the issue of who is best placed to intubate a neonate in emergency situations. Further dilution in training is not isolated to paediatrics alone. In anaesthetic training in our region, many of our trainees will only get a short rotation at our tertiary centre once throughout their training, this frequently being towards the end of their higher (stage 3) training.

Similarly, when many DGHs have reduced staffing out of hours- this may well be limited to one obstetric anaesthetist (of varying seniority) and one intensive care junior resident (who can be an adult medical trainee or core anaesthetic trainee with no neonatal experience). The anaesthetist covering obstetrics has a priority to the anaesthetised mother in his/her care- meaning their patient could well come to harm if they became involved in a neonatal resus (which is incidentally very much likely to be out of his/her skillset or experience).

This draft document suggests measures that potentially leave out of hours in DGHs throughout our region (with the exception of two larger DGHs with NICUs-James Cook University Hospital and Sunderland Royal Hospital) without anyone with neonatal intubation experience, from either paediatrics, anaesthesia or critical care. Even worse lies the prospect of this being an in-hours issue further down the line.

We look forward to your response on this urgent patient safety issue, as to how best

We have removed anaesthetists from table 3 but recognise that they have additional airway skills which may be helpful in the event of a difficult airway.

to take this forward. It is firmly our view
that rather than accepting the dilution of
training, we should be pushing for the
maintenance of sufficient training
opportunities in order to preserve this
lifesaving skill and competency.

Name: Sumedha Bird	If you are answering on behalf of an
	organisation please state: South Warwickshire
	University NHS Foundation Trust Anaesthetics
	team

General comments: Thank you for the opportunity to provide comments on this draft document.

Working Group Response:

Specific comments:

I am consultant anaesthetist (and joint lead for paediatric anaesthesia) working in a small/medium sized Trust with an obstetric unit that hosts 3500 deliveries/year and a SBU that accepts neonates down to 32 weeks. We do not manage ventilated babies other than to stabilise and transfer out within 4-6 hours. On average we would intubate 1-2 babies per month. I am alarmed at the proposal that such a unit need only be covered by paediatricians with "Standard" airway capabilities, defined as "has limited or no intubation experience". [Table 2, Pg 13]

The document goes on to say that "unsupervised intubations should be performed by intermediate intubators as a minimum, but where possible by advanced intubators" [Pg 19] . Even if an individual with "Intermediate" airway capability is available, this is defined as "can intubate the trachea under optimal conditions but not able to consistently intubate in urgent/emergency settings and/or across all gestations" – i.e. if called on to deal with a child as an emergency, they would not necessarily be expected to be able to intubate them. It goes on to point out that "Laryngeal masks may often safely avoid the need for emergency intubation". "Often" is probably an appropriate choice of word and correctly implies that, not infrequently, this will not be an adequate/safe intervention and intubation WILL be required.

The working group has reviewed the minimum standards and increased expected standards for LNUs, SCUs and transport services in response to stakeholder feedback.

We have removed anaesthetists from table 3 but recognise that they have additional airway skills which may be helpful in the event of a difficult airway.

So who will intubate?

The Executive Summary (pg 5) declares "...whilst formally recognising that maintaining universal intubation competency in all neonatal units is not possible and that initiation of the local difficult airway pathway may be needed to support intubation in some units."

On page 10 we read ... "Escalation of support beyond "Standard" in Special Care Units will often require activation of the difficult airway pathway for extra support according to local protocols".

The implication being that, as part of this pathway, a more experienced neonatal intubator will be available. This is simply not the case in most hospitals.

It is clear that the document assumes that paediatricians responsible for SBUs and LNUs will be able to call on the duty anaesthetist to intubate babies in an emergency. Table 3 [Pg 16] shows that an Adult Anaesthetist would be expected to have a higher level of neonatal intubation experience and skills than an SCU consultant.

The suggestion is that Consultants in charge of SBUs and LNUs should abdicate responsibility for intubation of sick and preterm neonates and expect the anaesthetic teams to take this over. In fact, it seems the RCPCH has begun down this path already... From 2022, RCPCH has removed neonatal intubation from the mandatory list of assessments for core trainees (ST1-4). [Pg 9] Quite why the authors imagine that anaesthetists in hospitals other than specialist paediatric centres or larger general hospitals with NICUs are likely to possess and be able to maintain these skills if their paediatric colleagues responsible for the SCU/LNU cannot, is not addressed. Many smaller and medium size hospitals do not offer any elective surgery in infants under 1 year and even in those that do, the skills are usually concentrated in a small number of anaesthetic consultants who cannot provide a separate tier of continuous paediatric anaesthetic cover. The failure to consider this may be a result of the dearth of representation from such hospitals in the membership of the working group.

As a paediatrician and neonatal lead working in a DGH with a SCBU I am very concerned about the safety of this guidance for units like ours.

We have a mixture of junior staff covering our tier 2 (paediatric trainees and staff grades) and tier 1 (paediatric ST2s and GPVTS 1-2) who provide all the on-site care out of hours with a consultant at home available within 30 minutes. As a trust we have anaesthetic support for our paediatric service but our anaesthetic colleagues have relatively limited experience of intubating children (we do not operate on those under 2 years) and virtual no experience of stabilising neonates.

Most of the neonatal intubations carried out at our trust are on preterm infants (71% with 24% in extreme preterm infants in 2023) and we have a significant number of emergency intubations (18%). If our unit is covered by those with basic skills with support from those with standard skills these babies will be at risk as there would be no-one able to intubate them. These deliveries are unpredictable and cannot be planned for (because these are the babies we would have transferred in utero if able) so caveating the guidance with ensuring the right people are there will not work. Our difficult airways are currently managed by the paediatric consultants with support from anaesthetic team but with the new guidance the paediatric consultant body would no longer have the skills to manage airway issues. Our anesthetic team are already concerned about their ability managing these babies and doing it without the support of those with more advanced skills would be even harder.

In a unit our size we do not have the number of intubations to keep all out staff skilled, especially if including the anaestetic team. Although we can use simulation training (which we already use) this does not always translate to real life success.

In a unit our size the anaethetic team already provide emergency cover to all other specialties and so if the expectation is that they will be available as a "difficult airway team" that would need an uplift in staffing to ensure we have an

	T
available team at all times. This is a significant cost for something that occurs infrequently.	
Video larygoscopy needs funding to buy	
equipment and training to maintain skills for all	
those using it. For a smaller trust this is a	
significant financial cost for something that	
would be used infrequently.	
,	
Name: Esther Morris	If you are answering on behalf of an organisation please state: Torbay and South Devon NHS Trust
General comments: It is easy to read and	Working Group Response:
interesting to include different approaches such	
as surfactant via LMA.	The working group has reviewed the minimum
Consider comments Taylor has a CCII Table 1	standards and increased expected standards
Specific comments: Torbay has a SCU. Table 1 on page 5 suggests that 'standard' airway	for LNUs, SCUs and transport services in response to stakeholder feedback.
competencies are needed.	response to stakeholder reedback.
competences are needed.	
As a group of Consultant Paediatricians we	
disagree and think that this not safe. At a	
minimum intermediate airway skills must be	
available within 30 minutes if not before.	
Name: Richard Tozer	If you are answering on behalf of an
	organisation please state: Torbay and South Devon NHS FT
General comments: It is disappointing to see no	Working Group Response:
representation of SCBUs and remote units on the working group. I am my colleagues are	Dr Mehdi Garbash was the SCU representative
concerned that it is considered acceptable that	on the working group.
there could be no-one who can intubate onsite	S. S. C. WOTKING BLOWP.
or within 30 minutes. LMA is not something	LMAs are included in the RCUK NLS guidance,
that any of our team have done previously and	and we reference effective translation from
have not seen the evidence of the outcomes.	simulation to practise as well as referencing use in smaller patients.
Also, although uncommon extreme preterm	·
babies are sometimes born here despite optimal	The working group has reviewed the minimum
transfer out in utero practice. We are also at	standards and increased expected standards
least one hour by road from our nearest	for LNUs, SCUs and transport services in
least one hour by road from our nearest transport site (Plymouth) and sometimes our	·
least one hour by road from our nearest transport site (Plymouth) and sometimes our transport is covered by Bristol - nearly 2 hours	for LNUs, SCUs and transport services in
least one hour by road from our nearest transport site (Plymouth) and sometimes our transport is covered by Bristol - nearly 2 hours away plus delays before departure and if team	for LNUs, SCUs and transport services in
least one hour by road from our nearest transport site (Plymouth) and sometimes our transport is covered by Bristol - nearly 2 hours away plus delays before departure and if team already out we could be 3 hours or more	for LNUs, SCUs and transport services in
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least one hour by road from our nearest transport site (Plymouth) and sometimes our transport is covered by Bristol - nearly 2 hours away plus delays before departure and if team already out we could be 3 hours or more	for LNUs, SCUs and transport services in

Name: Jo Fawke

If you are answering on behalf of an organisation please state:

General comments:

Specific comments:

The RCPCH Progress+ curriculum¹⁷ changes mean more flexible training pathways tailored to training needs. Core trainees will need to develop capabilities in a neonatal setting and to step up to tier 2 rotas from ST3 onwards but may not have as much neonatal exposure as previously. This will mean that tier 2 rotas will include doctors in training who are less experienced in neonatal airway management, and most will not be competent at intubation. From 2022, RCPCH has removed neonatal intubation from mandatory list of assessments for core trainees (ST1-4). The new requirement is to demonstrate capability to maintain the neonatal airway up to the point of intubation (including use of laryngeal mask) In light of these challenges, it is timely to outline the standards expected to support safe airway management in maternity and neonatal services.

Whilst all of this is true, in subspecialty training (ST5-7) - which includes all general paediatric trainees - General Paediatrics Learning outcome 1, Key capability 2 says:

GLO 1 Key Capability 2 Maintains the airway of term and preterm neonates up to and including safe intubation attempt under optimal conditions. Recognises the risks of repeated intubation attempts and if intubation is unsuccessful maintains the airway with adjuncts including supraglottic airway. Can follow a difficult airway pathway with the support of other professionals.

I don't think this changes any of the messages in the framework but it might be worth including in the *Changes to Paediatric training* paragraph. The reason for suggesting this is that it is often incorrectly reported that intubation has come out of Paediatric training. Tier 2 general

Working Group Response:

Thank you – we have included the following additional information in the training section -"...From 2022, RCPCH has removed neonatal intubation from the mandatory list of assessments for core trainees (ST1-4). The new requirement is to demonstrate capability to maintain the neonatal airway up to the point of intubation (including use of laryngeal mask). For Specialty level trainees (ST5-7) on a general paediatric pathway it is still expected that they are supported to develop intubation skills and intubation is a key capability in the curriculum, although the emphasis is on safe airway management, recognition of the risks of repeated intubation attempts and working with colleagues to manage the difficult airway. In light of these challenges, it is timely to outline the standards expected to support safe airway management in maternity and neonatal services.

Changes have been made to Table 3 to reflect this.

paediatric trainees would at some point in that	
training level be expected to evidence the key	
capability above. This means that some, but not	
all, tier 2 trainees will have some intubation	
skills. This might translate into a light grey box	
for intermediate level airway skills for Tier 2	
trainee (not neonatal or paediatric critical care	
SPIN or GRID) in Table 3: Expected range of	
capability for different staff groups. Its inclusion	
reinforces the need for intubation training for	
these tier 2 trainees.	