RCoA
Royal College of Anaesthetists

Assessment of the RCoA Quality Network through a national 'Prep, Stop, Block' survey

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Introduction

The Royal College of Anaesthetists' (RCoA) Quality Network (QN) was formed to 'share successes and lessons learned from quality improvement (QI) work, help fellows and members to develop their QI knowledge and increase their confidence to undertake improvement projects'.[1]

The network's regions are based on Schools of Anaesthesia[2] (SoA) with appointed leads for each region. These Regional Leads (RL) collaborate with departmental leads in their region to facilitate local QI. During the pandemic, the network's focus shifted to improving COVID-19 care by sharing guidelines and learning resources. Following the height of the pandemic, the Quality Improvement Working Group's (QIWG) aim was to use a national project to re-evaluate and re-invigorate the QN.

'Prep, Stop, Block'[3] (PSB) was created in 2021 to enhance the message of 'Stop Before You Block' (SBYB), as wrong site blocks continue to be the most commonly occurring never event across the United Kingdom (UK).[4-7] The main aim of PSB was to standardise national regional anaesthetic practice and prevent wrong site block.

PSB was chosen by the RCoA QIWG as an ideal topic for a project to both assess the links between the QN and identify 'gaps', as well as gather valuable information on an important national patient safety initiative. The objective of this project was to collect information on current practice and feedback on the successes and challenges of implementing PSB at a local level, rather than asking hospitals to undertake a QI project or introduce new learning material. Learning and reflection could then be shared to help hospitals implement PSB. This report uses the terms 'hospital' and 'department' interchangeably.

As part of the survey, documents detailing departmental resources and the work done locally were shared and will be made available to other network members.

Methods

A simple survey was devised by the RCoA QIWG and sent out to the QN RLs in January 2023, with a short 3-week deadline. The process was designed to be short and simple, with the aim of returning useful information to participants quickly, and so reinforce the benefits of participation. RLs then disseminated this survey to the anaesthetic departments within hospitals within their geographical region. Primarily, this was achieved by contacting those responsible for QI within the department, referred to as local leads within this report, but in some cases department safety leads were contacted. The deadline was subsequently extended to the end of February 2023 to gather more responses. The survey questions are listed below with the term 'department' referring to individual hospitals.

1   Has your department implemented any improvement approaches as a result of the Prep Stop Block project?
2   Please attach any resources that your department has developed that you are happy to be shared with other departments.
3   Were there any measures or practices that were implemented that worked particularly well? Do you have any tips to share with other departments?
4   Equally, were there measures that did not work well? Were there challenges that your department encountered whilst implementing changes?

Local results and accompanying documents were returned via the RL to the QI team at the RCoA. Data was then analysed, and a report created for distribution to network members and other relevant parties. Some multisite hospitals share a single QI or safety lead. Where local leads responded with board or trust-wide data, all hospitals represented by the response were assumed to be following the practice described.

The measures chosen were selected based upon the two aims of this study – to assess gaps in the QN and to share practice around the implementation of PSB. In relation to the QN, the RCoA's QI team recorded the number of RLs who participated in the study and the number of hospitals that responded to a RL's requests for information. This was compared to the number of hospitals within regions from the SoA list.

As part of this project, comments were also collected to understand the enablers or barriers to communication within the network. Informal feedback on RLs experiences was also gathered at the recent QN meeting, held on 7 February 2023.

Regarding PSB, the resources produced and implemented by hospitals were categorised and quantified. Qualitative data was analysed and thematically summarised. Resources shared by local leads were grouped in regional folders on an RCoA Microsoft Teams channel and will be shared with other network members.
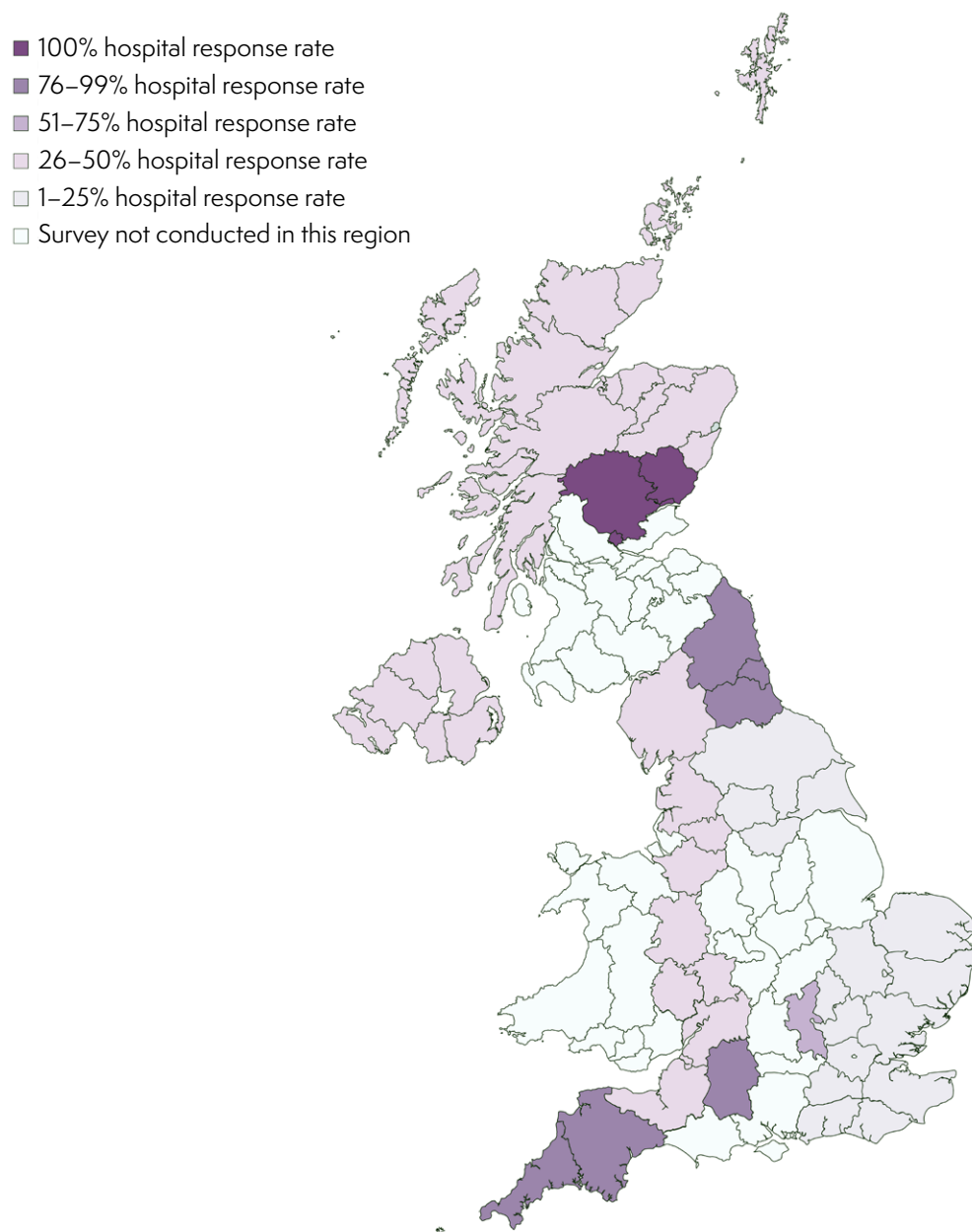
Results

Network results

The QN is made up of 25 regions. At the time of the survey being distributed, six regions did not have an appointed RL. Out of the 19 remaining regions, 16 responded (84%), although three responded advising that they did not take part in the survey. Therefore, data was collected in 13 regions (68%).

Figure 1

This map demonstrates the hospital response rate across the UK to the QN's Prep Stop Block survey. The counties in the UK have been mapped to their best-fit regions in the QN. The percentage rate has been calculated based on the number of responses received from the hospitals listed in the SoA list only.

- ■ 100% hospital response rate
- ■ 76–99% hospital response rate
- ■ 51–75% hospital response rate
- ■ 26–50% hospital response rate
- □ 1–25% hospital response rate
- □ Survey not conducted in this region

Based upon the SoA data,[2] there are 142 hospitals within the 13 regions that responded to this survey. Data was received from 53 local leads, representing 62 (44%) hospitals. The SoA listing includes 257 hospitals across the UK, producing a national hospital response rate of 24%. Notably, this SoA list includes only NHS anaesthetic departments that have trainees and assigned RCoA College Tutors.

It was highlighted by three leads that there were additional hospitals within their regions that were not included in the SoA listing.[2] Where hospitals not included in the SoA listing contributed data, they were added to the number of hospitals in that region.

There was significant variance in response rates between countries of the UK. In England, 47 (23%) hospitals returned surveys, in Scotland results were received from seven (26%) hospitals and in Northern Ireland a response was received from eight (73%) hospitals. Wales did not take part in the survey.

Three regional responses included details describing their experience of contacting local QI leads. Two of these responses found identifying QI leads across their regions challenging, with some hospitals not having a named QI or safety lead in their anaesthetic department. Conversely, one lead found contacting the appropriate leads straightforward due to the links they had established within the region and the fact that they lead a geographically small region.

PSB results

The implementation of PSB is presented in Table 1 below.

Table 1

Have PSB improvement measures been implemented locally?	No. of hospitals
Yes	39 (63%)
No	23 (37%)
If not, is SBYB being used?	
Yes	8 (13%)
No	15 (24%)

PSB, Prep Stop Block; SBYB, Stop Before You Block.

The use of PSB varied significantly across the UK. In England, 79% (37) of hospitals that responded to the survey were using PSB. In Scotland, none describe using PSB, although three utilise SBYB. In Northern Ireland, two out of the eight (25%) hospitals that took part in the survey use PSB.

Improvement approaches introduced in response to PSB

There were a variety of measures implemented regarding PSB. The survey responses were analysed and categorised to illustrate the approach used. The number of hospitals implementing each measure is also displayed in the following table.

Table 2

PSB resource implemented	No. of hospitals
Displaying RA-UK/SALG PSB poster	23
Presentation at departmental meeting (governance/audit)	19
Training of theatre staff/ODPs	11
Local audit of PSB	11
Circulating departmental information via email	7
SALG PSB video resource	4
Disseminated SOP to staff members	4
Development of local safety standards (LocSSIP)	4
Use of specific equipment eg Yellow trays	4
Locally produced video resource	3
Stickers or specific documentation in notes	3
Locally developed resource eg adaptation of WHO sign-in	2
e-learning module	1
No PSB measures implemented	15
No PSB measures implemented but using SBYB	8

PSB, Prep Stop Block; RA-UK, Regional Anaesthesia UK; SALG, Safe Anaesthesia Liaison Group; ODP, Operating department practitioner; SOP, Standard operating procedure; WHO, World Health Organisation; SBYB, Stop Before You Block.

Improvement approaches that worked well

Responses provided were analysed and refined, creating themes. The themes, measures and their frequency are combined in the table below.

Table 3

Improvement approach	No. of hospitals
Theatre staff	
Empowering and encouraging awareness amongst ODPs	7
Shared MDT teaching and learning with ODP/theatre staff	3
Regular education	
Regular audit presentations/reminders to help educate colleagues	2
Inclusion of PSB at induction for new staff	2
Regular block teaching, including re-enforcement of PSB	1
Front line 'tea trolley training'	
Resources	
Locally produced video resource circulated to staff and in teaching	2
SALG PSB video resource	1
Using local examples and context within teaching	1
Equipment	
Utilising specific equipment – yellow trays and clear drapes to visualise mark	3
Implementation	
Implementation of PSB at community sites across trust	1
Survey of practice before introduction to assess practice and encourage buy-in from department members	1
External	
Support from Medical Director	1

ODP, Operating department practitioner; MDT, Multi-disciplinary team; PSB, Prep Stop Block; SALG, Safe Anaesthesia Liaison Group.

Measures that did not work well or challenges to implementation

As above, survey responses regarding measures that did not work or challenges encountered were analysed, refined and thematically grouped producing the table below.

Table 4

Challenges encountered	No. of hospitals
Anaesthetic staff	
Maintaining staff motivation to continue using PSB or clinicians preferring SBYB	3
SBYB and PSB being used concomitantly by staff	1
Individual's interpretation of PSB technique varying practice	1
Theatre staff	
Encouraging ODP empowerment using PSB	3
Some ODP staff being unaware of PSB SOP	1
System challenges	
Over-complication with additional paperwork	2
Using PSB whilst in other clinical areas of hospital	1
Difficulty using PSB whilst conducting sterile blocks	1
Human factors	
Multiple causes including list changes, distractions in the anaesthetic room and changes in staff	2

PSB, Prep Stop Block; SBYB, Stop Before You Block; ODP, Operating department practitioner; SOP, Standard operating procedure.

Accompanying resources

Nine regions included resources with their survey response, providing 29 resources in total. Within this there were 18 examples of locally produced resources, which included QI projects, departmental presentations and a PSB video demonstration. The other 11 resources received included RA-UK/SALG PSB posters/banners, WHO checklists and pictures of equipment.

Discussion

This project provides an important insight into both the functioning of the QN and the departmental responses to PSB across the UK. Surveys were returned from 24% of hospitals across the UK and describe the measures, successes and challenges encountered whilst implementing PSB at a local level.

Network learning

Currently, a complete list of hospitals providing anaesthetic services across the UK is not available. Therefore, in this report, the regions and the hospitals within them are defined using the RCoA SoA listing.[2] As a result, hospitals listed only include those with College Tutors and trainees which potentially leads to the omission of some hospitals that provide anaesthetic services. This is problematic for two reasons.

Firstly, results based upon the total numbers of hospitals will be inaccurate. Secondly, without an updated directory, hospitals will not be included in future projects and data will be incomplete. In this report, four additional hospitals were subsequently included after returning questionnaires, whilst two hospitals were highlighted by local leads as not being on the SoA list,[2] but did not return responses. For instance, Moorfields Eye Hospital NHS Foundation Trust is not included in the listings and contains multiple hospitals that could have returned data.

Producing an updated directory of UK anaesthetic departments would facilitate future QIWG projects and ensure comprehensive data collection.

The traditional model of one anaesthetic department covering one hospital site is no longer the case for some departments. Hospital mergers, group models and other collaborations mean that mapping activity to departments or hospitals is complex, as some anaesthetic departments cover more than one site, but in some hospital boards or trusts there are several anaesthetic departments. For future work we should be clear in the planning phase whether we intend to report by hospital department, site or organisation.

Out of 25 UK regions, data was collected from 13. Recruitment is ongoing in six regions that do not have RLs, which limited the maximum number of responses to the project. A further six regions did not return data. Factors affecting this are numerous. The project was designed to be conducted and reported upon over a short time period to ensure results and learning from the project remain relevant and to reduce the time burden on regional and local leads. This may have been too time pressured for some RLs, particularly those working within large geographical regions.

Furthermore, some regions have two RLs, although these are not necessarily the geographically larger regions. It is likely further support, particularly for large regions, will improve the ability of RLs to take part in future projects. Measures could include further recruitment of RLs or additional administrative support for leads in those regions.

At a local level, hospitals vary in relation to the presence of a QI lead. Feedback from RLs described difficulty identifying and contacting the relevant lead during data collection. Conversely, one RL found communication far less challenging due to their role conducting much of the local QI work and the contacts they had built through their work. This highlights the benefits of local and regional relationships, when considering data transfer throughout the wider network.

In addition, the process of conducting the survey was inefficient, as it required questions and their responses to be passed between local leads and the RCoA QI team via the RL. Passing survey responses between people may have also led to errors in recording within the dataset. Future projects might benefit from the use of a data collection tool that gathers information directly into a format that can be assessed and analysed. This would save time and reduce the workload for RLs.

It is acknowledged that several of recommendations within this section, namely creating an updated directory of hospitals, offering additional support for RL and using survey software, may be beneficial, not only for the QN but for many other RCoA initiatives that communicate and work with departments across the UK, but their implementation would need to consider the cost and resource implications.

PSB learning

The survey began by asking whether improvement approaches had been implemented in response to PSB. This metric aimed to understand how many hospitals use PSB and how they have implemented it. It is possible that hospitals use PSB but had not undertaken 'improvement approaches' so were wrongly counted as not using PSB by this survey. In all such cases, their other survey responses were reviewed to ensure there was no evidence of a false negative result.

63% of hospitals had implemented improvement approaches in response to PSB. Out of the 23 hospitals not using PSB, eight were using SBYB. In five of these hospitals, SBYB was assessed to be working well, so there was no intention to implement PSB. 15 hospitals (24%) therefore did not describe using a regional anaesthesia safety procedure at the time of the survey.

Implementation of PSB across the UK varied significantly. Of the hospitals that responded to the survey, 79% in England describe using PSB compared to 25% of those in Northern Ireland and none in Scotland. Whilst the use of PSB is not mandated in any UK country, NHS England has listed SBYB as a 'national safety requirement' in its Never Events list 2018,[8] which was last updated in February 2021. Although publication predates the introduction of PSB, the presence of this safety requirement may explain the disparity in uptake of PSB across the UK.

Improvement strategies

The approaches introduced in response to PSB are listed in Table 2. The most used methods were displaying the RA-UK/SALG PSB poster (24% of all interventions), presentation at departmental meetings (20%), training of other theatre staff (11%) and audit (11%). Also of note, video resources were described being used seven times, including both the SALG PSB video and locally produced resources. This demonstrates the value of multimedia resources when communicating to a wider audience.

The proceeding survey questions focussed on methods that had worked particularly well during PSB implementation and whether there had been any difficulties encountered, displayed in Tables 3 and 4 respectively. Several themes arose during analysis of results.

■ Empowering theatre staff

Empowering and educating other theatre staff, particularly ODPs, was a key message from the survey and accounted for 38% of the measures that worked well in PSB implementation. Conversely, several hospitals listed ODPs being unaware of PSB or not feeling empowered to be part of the process, as a challenge to implementing PSB. This underlines the importance of multidisciplinary teaching, and the key role other theatre staff play in patient safety.

■ Encouraging staff

Challenges maintaining staff engagement made up 33% of difficulties quoted by local leads. Factors included within this were clinicians preferring SBYB and individual interpretation of PSB varying their technique. One hospital also described clinicians using a mixture of SBYB and PSB.

So how do we ensure team buy-in? In one response, they felt a survey conducted beforehand to gauge current practice and gather implementation suggestions improved staff participation. They also displayed PSB teaching material and gave departmental audit presentations to raise awareness and allow questions to tackle these issues. Finally, the support of the Medical Director was felt helpful for one trust following earlier wrong site block.

■ Education

23% of measures that worked well to implement PSB shared the theme of regular education. Specific points made were regular audit and reminders to help educate colleagues, inclusion of PSB teaching during staff induction and regularly reinforcing PSB in regional anaesthesia teaching.

■ Human factors

Human factors, including staff changes and alterations to operating lists, were quoted as challenges to PSB implementation in two survey responses. The importance of human factors was recently highlighted in guidance published by the Association of Anaesthetists.[9] These recommendations provide insight and strategies to reduce the impact of human factors, which is relevant to the safe conduct of regional anaesthesia.

■ **Equipment**

Four hospitals described the use of specific equipment when conducting regional anaesthesia. This included using yellow trays for equipment and clear drapes to visualise the surgical mark. Three of these hospitals then listed this equipment as being a measure that worked well in the implementation of PSB, as it prompted theatre staff and embedded behaviour.

Several respondents also mentioned difficulty using visual prompts on regional trolleys or equipment trays during regional catheter insertions. This was due to the opaque packs and additional equipment used in these sterile procedures. Similarly, the proceduralist handing the block tray to an assistant during the 'Stop' phase is not possible for sterile blocks. This was overcome in one hospital by the ODP moving the regional trolley out of reach during the 'Stop' and back to the clinician for the 'Block'.

■ **System challenges**

Several methods to prompt and record PSB were described in the survey, including local safety standards and stickers in notes or on equipment. The introduction of these tools must be balanced with over-complication of the PSB process and increasing the paperwork burden, as described by two hospitals in the survey. Of note, one response described using stickers on a patient's block site, which is not recommended by SALG or RA-UK as this has previously led to wrong site blocks.

This survey also emphasises the role of QI in improving engagement with guidelines. Although PSB was produced in 2021 creating a new standard operating procedure, our results demonstrate varied implementation across the UK. Many departments have used QI to test, listen and adapt processes and engage staff, improving local adherence to PSB.

Most of this project's limitations have been discussed above. Notably however, the hospital response rate across the UK was 24% with only 13 regions out of 25 returning data. Therefore, whilst the responses are likely to give an insight into local measures, they may not represent practice across the UK.

■ **Shared resources**

29 documents were returned by local leads, which included both nationally and locally produced resources. Hospitals shared excellent examples of work surrounding PSB including pictures of equipment used, departmental meeting slides and examples of quality improvement projects. Some examples are detailed below.

West Middlesex University Hospital, London, shared a short locally produced video which emphasised the key principles of PSB. This entertaining film was designed to improve retention of the PSB process and was shown to increase awareness within the department.

Finally, the phrase 'stop before you pop' has been incorporated into the PSB messaging at Royal United Hospitals Bath NHS Foundation Trust to emphasise that the 'Stop' moment should occur immediately before needle insertion. They also utilise 'tea trolley training' to provide multidisciplinary team teaching in the workplace.

Conclusion

This project was designed as a stand-alone review of the QN and PSB, completed and reflected upon quickly to improve the implementation of learning. It offers a constructive appraisal of the QN and aims to provide suggestions to improve the success of future QIWG work. Crucially, promoting and fostering connections between members of the QN will be an important tool to improve network cohesion in the future.

The other aim of this project was to review the implementation of PSB across the UK to share practice and key resources. Encouraging the use of PSB and empowering theatre staff were key messages from the survey with hospitals using regular education and a range of resources to achieve this. The learning from this work has wider implications for those in other healthcare networks and indeed, for those involved in the production of national guidelines and their implementation.

If you would be interested in becoming a QN RL, please visit the RCoA website for more information.

References

1   Quality Network. *RCoA, 2023*.

2   College Representatives. *RCoA, 2023*.

3   Haslam N, Bedforth N, Pandit JJ. 'Prep, stop, block': refreshing 'stop before you block' with new national guidance. *Anaesth* 2022;**77**:372–375 (https://doi.org/10.1111/anae.15647).

4   Provisional publication of Never Events reported as occurring between 1 April 2022 and 31 January 2023. *NHSE, 2023*.

5   Never events. Patient Safety Wales. NHS Wales Delivery Unit.

6   A national approach to learning from adverse events through reporting, review and the sharing of learning. A national approach to learning from adverse events. *Healthcare Improvement Scotland*.

7   Northern Ireland Adverse Incident Centre (NIAIC). *DHNI, 2021*.

8   Never events list 2018. First published January 2018 (last updated February 2021). *NHSE, 2023*.

9   Kelly FE et al. Implementing human factors in anaesthesia: guidance for clinicians, departments and hospitals. *Anaesth* 2023,**78**:458–478 (https://doi.org/10.1111/anae.15941).

Appendix A

We would like to extend special thanks to all regional and local leads representing the departments listed below that took part in this project. RLs are listed next to their SoA region.

East of England School of Anaesthesia – Dr Joanna Simpson and Dr Vishal Patil

- Colchester Hospital
- Princess Alexandra Hospital NHS Trust

Kent Surrey and Sussex School of Anaesthesia – Dr Mark Harper

- Worthing Hospital
- Royal Sussex County and Princess Royal Hospitals
- Royal Surrey County Hospital
- Queen Victoria Hospital, East Grinstead

London – Central School of Anaesthesia – Dr Edward Burdett and Dr Samantha Warnakulasuriya

- University College Hospital
- North Middlesex University Hospital

London – Imperial School of Anaesthesia – Dr Jennifer Illingworth

- Imperial College Healthcare NHS Trust which includes St Mary's, Charing Cross & Hammersmith Hospitals.
- Hillingdon Hospital
- Northwick Park Hospital
- West Middlesex University Hospital

London – St George's School of anaesthesia – Dr Maria Chereshneva

- Croydon University Hospital
- Kingston Hospital NHS Foundation Trust
- South West Elective Orthopaedic Centre

North East School of Anaesthesia – Dr David Laws and Dr Thomas Haigh

- North Tees & Hartlepool NHS Trust
- Northumbria Healthcare NHS Foundation Trust
- Cumberland Infirmary, Carlisle
- Sunderland Royal Hospital
- Queens Elizabeth Hospital, Gateshead
- Royal Victoria Infirmary
- Freeman Hospital
- Darlington Memorial Hospital

Northern Ireland School of Anaesthesia – Dr Laure Martin

- Altnagelvin Area Hospital
- Antrim Hospital
- Royal Victoria Hospital (Royal Group of Hospitals, Belfast)
- Ulster Hospital
- Southern Health and Social Care Trust which includes Craigavon Area Hospital, South Tyrone Hospital and Daisy Hill Hospital
- South West Acute Hospital

North West School of Anaesthesia – Dr Leanne Darwin

- Manchester Royal Infirmary and Trafford Theatres
- North Manchester General Hospital
- The Christie NHS Foundation Trust
- Royal Bolton Hospital
- University Hospitals Morecambe Bay which includes Royal Lancaster Infirmary
- Stepping Hill Hospital
- Northern Care Alliance which includes Salford Royal NHS Foundation Trust and Royal Oldham Hospital

Peninsula School of Anaesthesia – Dr Adam Revill and Dr Matt Hill

- Royal Cornwall Hospital
- North Devon District Hospital
- Royal Devon and Exeter Hospital
- Torbay Hospital
- Derriford Hospital

Scotland – North School of Anaesthesia – Dr Kate Arrow

- Aberdeen Royal Infirmary
- Raigmore Hospital
- Lorn & Islands Hospital
- Belford Hospital
- Caithness General Hospital

Scotland – Tayside School of Anaesthesia – Dr Sharon Christie

- Ninewells Hospital and Medical School
- Perth Royal Infirmary

Severn School of Anaesthesia – Dr Lesley Jordan

- Great Western Hospital
- Royal United Hospital Bath
- University Hospitals Bristol and Weston NHS Foundation Trust which includes University Hospitals Bristol and Weston General Hospital

Yorkshire and Humber School of Anaesthesia – Dr Ramya Somasekhar and Dr Phil Dickinson

- Bassetlaw Hospital
- Leeds Teaching Hospitals NHS Trust which includes Leeds General Infirmary and St James' University Hospital NHS Trust
- Sheffield Teaching Hospitals NHS Foundation Trust which includes Northern General Hospital and Royal Hallamshire Hospital

Appendix B

We would also like to particularly thank all departments and trusts listed below that provided resources as part of their survey responses.

East of England School of Anaesthesia

- Colchester Hospital
- Princess Alexandra Hospital NHS Trust

London – Imperial School of Anaesthesia

- West Middlesex University Hospital
- Hillingdon Hospital

London – St Georges School of Anaesthesia

- Kingston Hospital
- Croydon University Hospital

London – Central School of Anaesthesia

- University College Hospital

North East School of Anaesthesia

- Northumbria Healthcare NHS Foundation Trust

North West School of Anaesthesia

- Manchester Royal Infirmary and Trafford Theatres

Peninsula School of Anaesthesia

- Royal Devon and Exeter Hospital

Severn School of Anaesthesia

- University Hospitals Bristol
- Royal United Hospital

Yorkshire and Humber School of Anaesthesia

- Bassetlaw Hospital
- Leeds Teaching Hospitals NHS Foundation Trust
- Sheffield Teaching Hospitals NHS Foundation Trust