

Cell salvage baseline confidence and knowledge survey

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Introduction

With national blood product supplies becoming more scarce, Intraoperative Cell Salvage (ICS) is fast becoming a crucial tool in management of intraoperative haemorrhage and contributes significantly to Blood conservation strategies. We conducted a survey at both University Hospital Coventry and Warwickshire (UHCW) and Heartlands Hospital in Birmingham (BHH) to assess baseline knowledge and confidence amongst Anaesthetists in the use of ICS.

Methods

Between September 2022 and October 2022 for UHCW and in January 2023 for BHH, using the SurveyMonkey online surveying tool, 10 questions were sent out to the Anaesthetics Department of both Trusts. These were formulated from the, UK Cell Salvage Action Group's Intraoperative Cell Salvage Education Workbook [1].

The Following Questions were asked:-

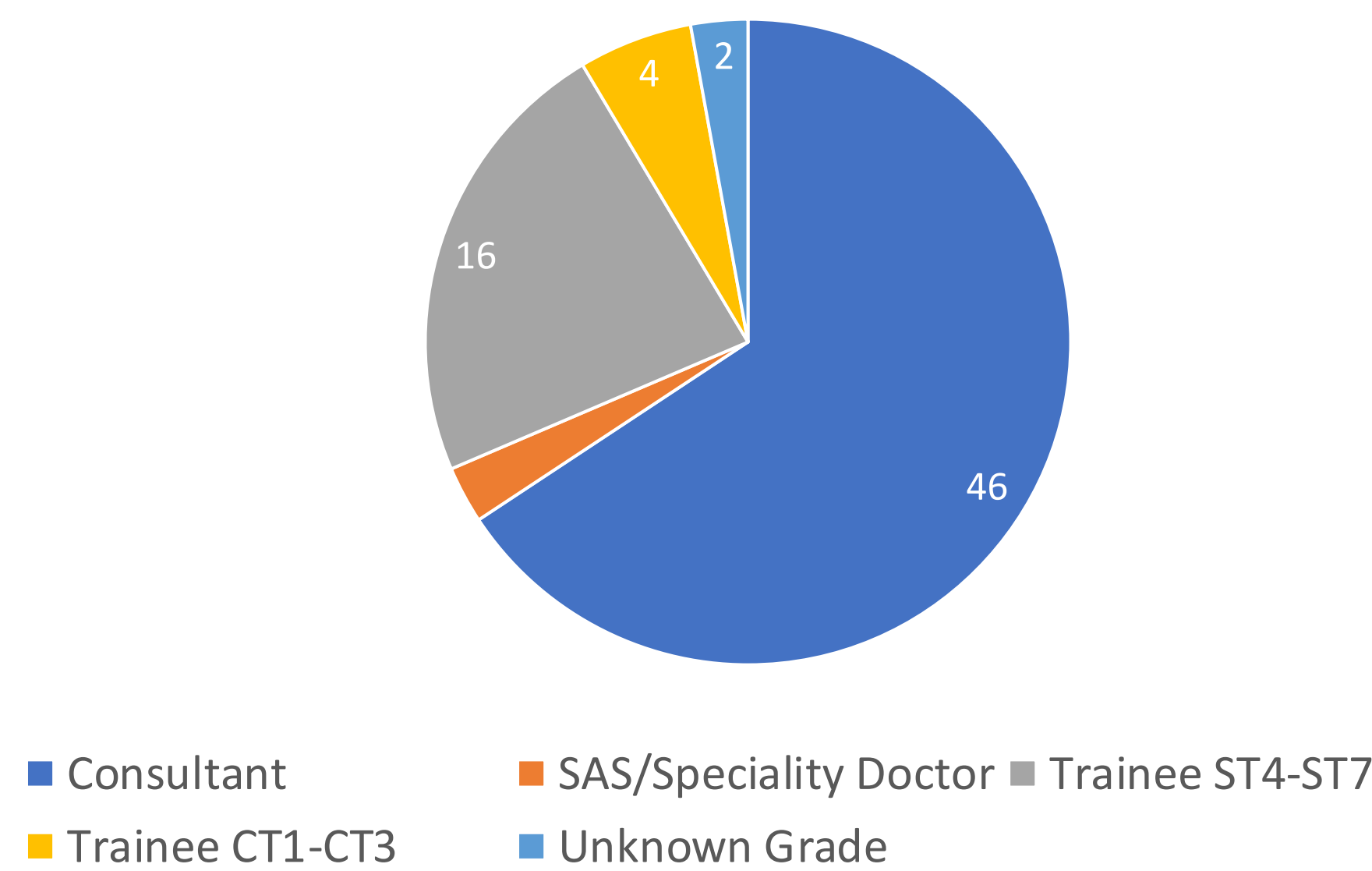
- Grade
- Which of the following apply to you:
 - I have had formal training in use of cell salvage and am confident in taking consent for and using cell salvage in practice.
 - I have had formal training in use of cell salvage and am NOT confident in taking consent for and using cell salvage in practice.
 - I have NOT had formal training in use of cell salvage and am confident in taking consent for and using cell salvage in practice.
 - I have NOT had formal training in use of cell salvage and am NOT confident in taking consent for and using cell salvage in practice
- Are you confident about the indications and contraindications for use of cell salvage?
- Intraoperative cell salvage is appropriate for use in (Tick all that apply):
 - Penetrating abdominal visceral trauma.
 - Major Upper GI Haemorrhage
 - Open abdominal aortic aneurysm surgery
 - Caesarean Section
 - Meningioma Resection
 - Revision hip replacement surgery
 - Radical prostatectomy
- The following are absolute contraindications to cell salvage use (Tick all that apply):
 - Penetrating bowel injury
 - Abdominal aneurysm rupture
 - Patient refusal
 - Sickle cell disease
 - Sickle cell trait
 - Patient refusal of allogenic transfusion
 - Patient on sepsis pathway
- If collection of blood for cell salvage commences at 13:00 hours. What is the latest time the infusion must be completed by?
 - 15:00
 - 16:00
 - 17:00
 - 18:00
 - 19:00
- In the obstetric setting, which specific test must be done after delivery in a rhesus negative mother after receiving autologous blood?
- With reference to Q7, when should this test be done?
 - 6 hours post delivery
 - The following morning
 - 1 hour post reinfusion
 - Immediately upon reinfusion
 - 12 hours post reinfusion

- A leukocyte depletion filter must always be used for re-infusion of salvaged blood in the following clinical situations (Tick all that apply).
 - Caesarean section
 - Revision hip replacement
 - Radical prostatectomy
 - Open aneurysm surgery
 - Major pelvic surgery
- Please indicate which aspects of cell salvage you feel should be included in a future training package aimed at clinicians.

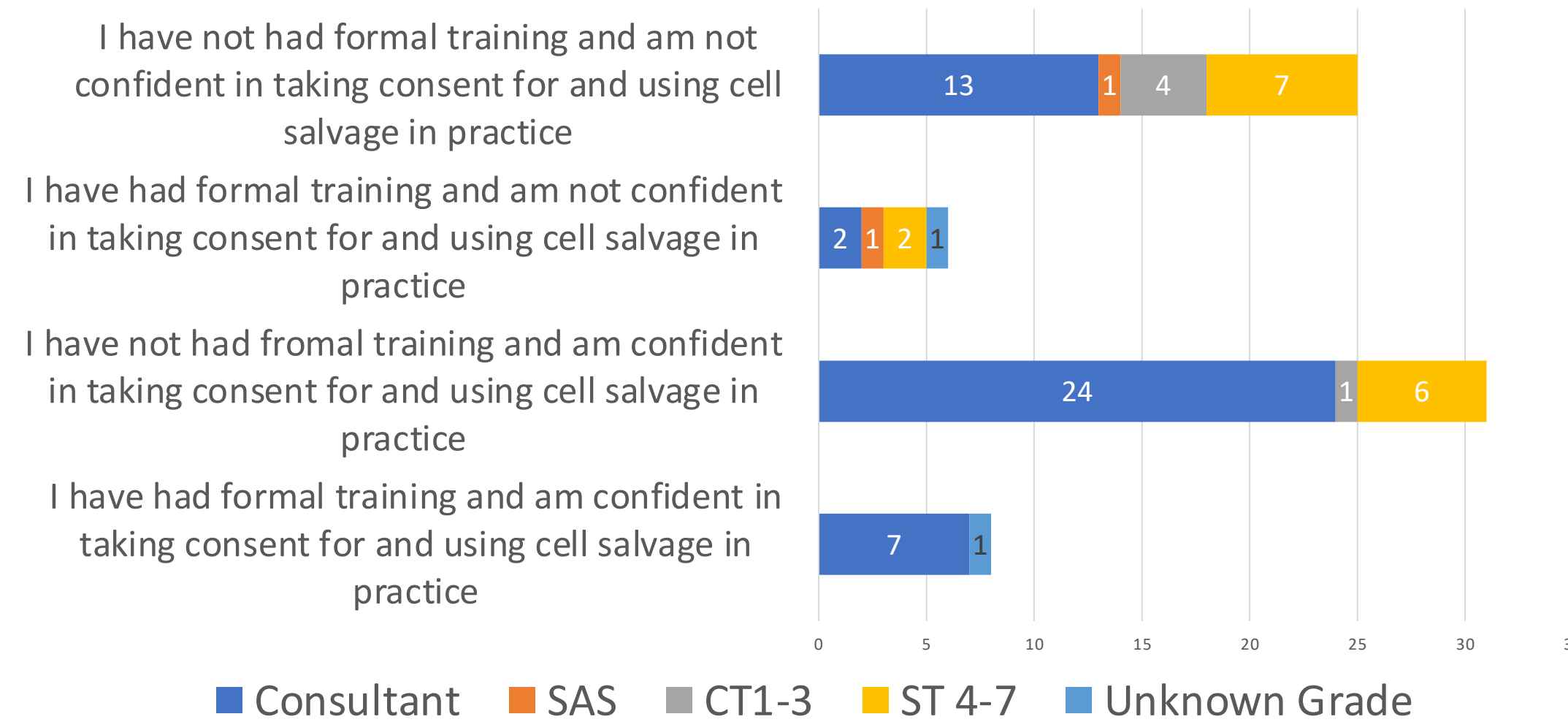
Results

In total there were 70 responses across all grades. 81 % had not received formal training in cell salvage use. 43% of respondents did not feel confident in taking consent for and using ICS. 67% of respondents felt confident about indications and contraindications of ICS.

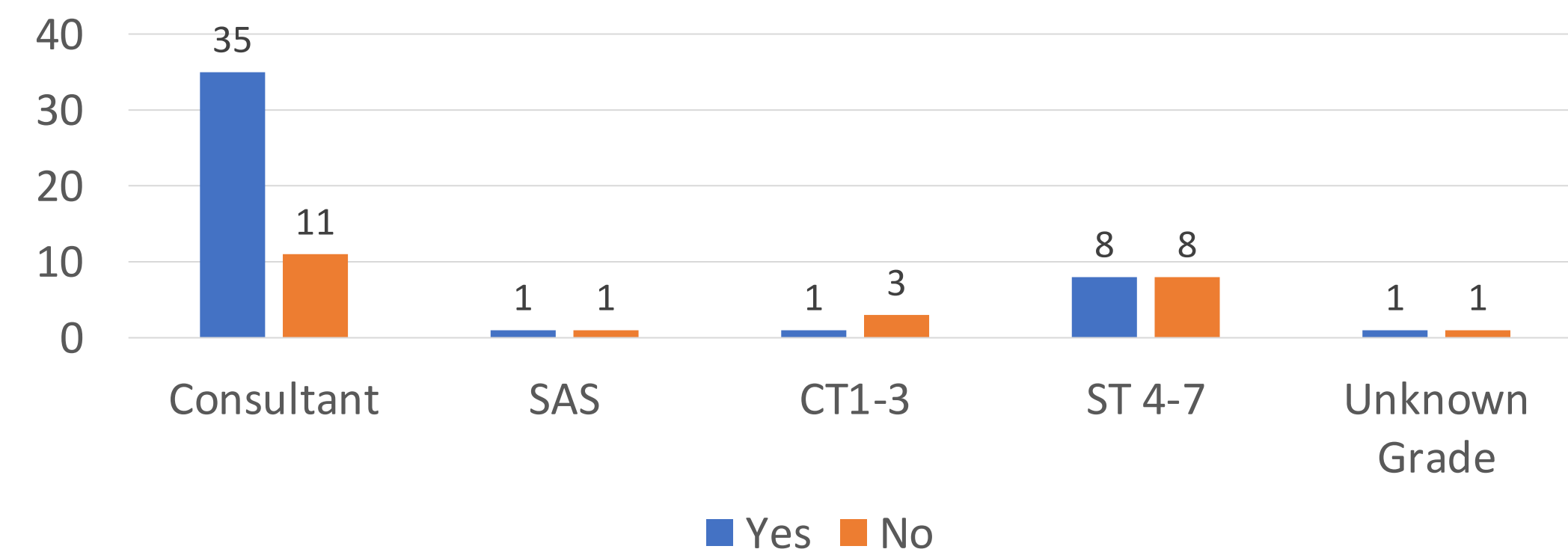
Q1. A Pie chart showing the spread of survey respondents



Q2. Training and confidence in using cell salvage by grade

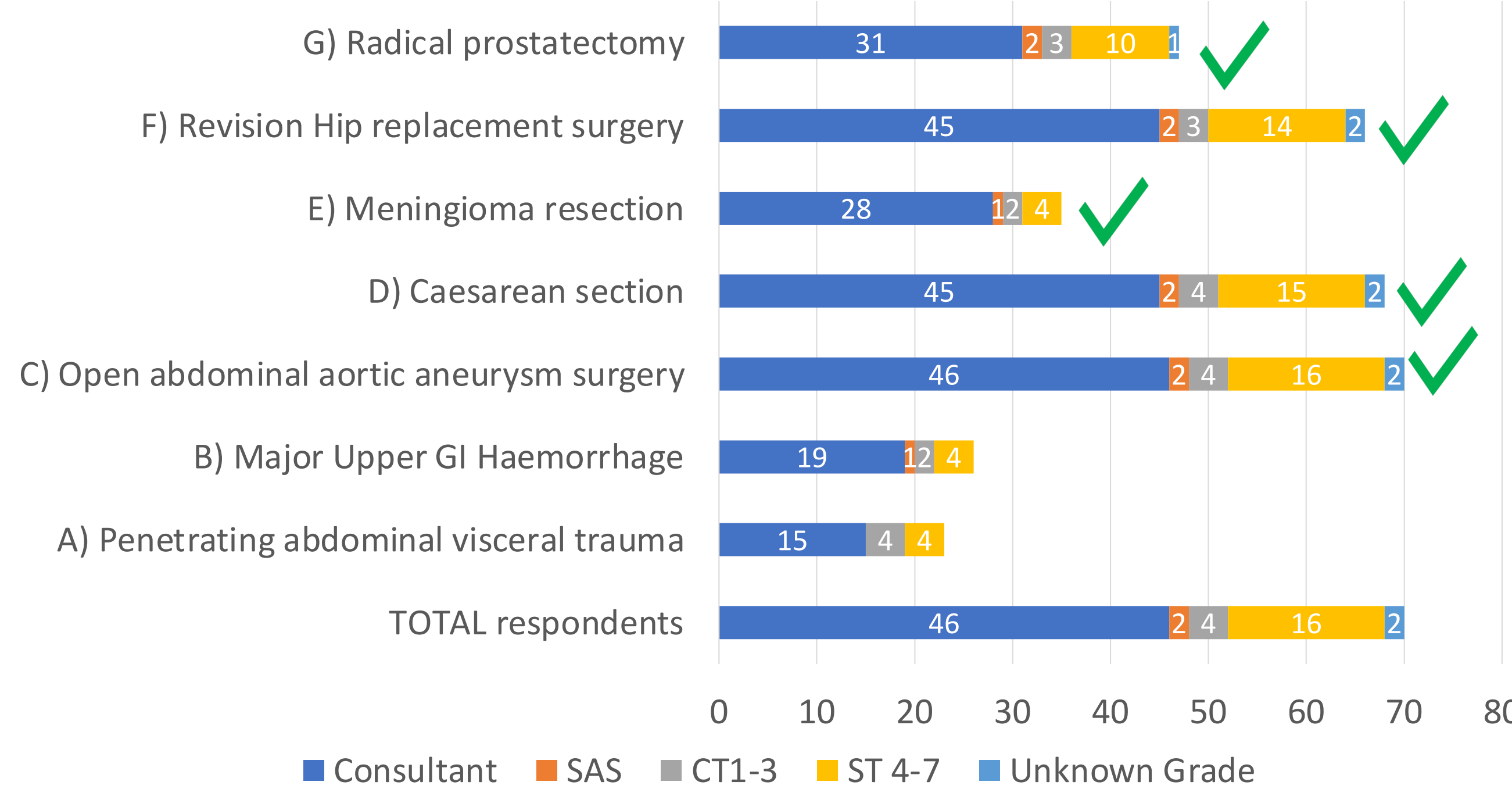


Q3. Confidence about indications and contraindications of cell salvage by grade.

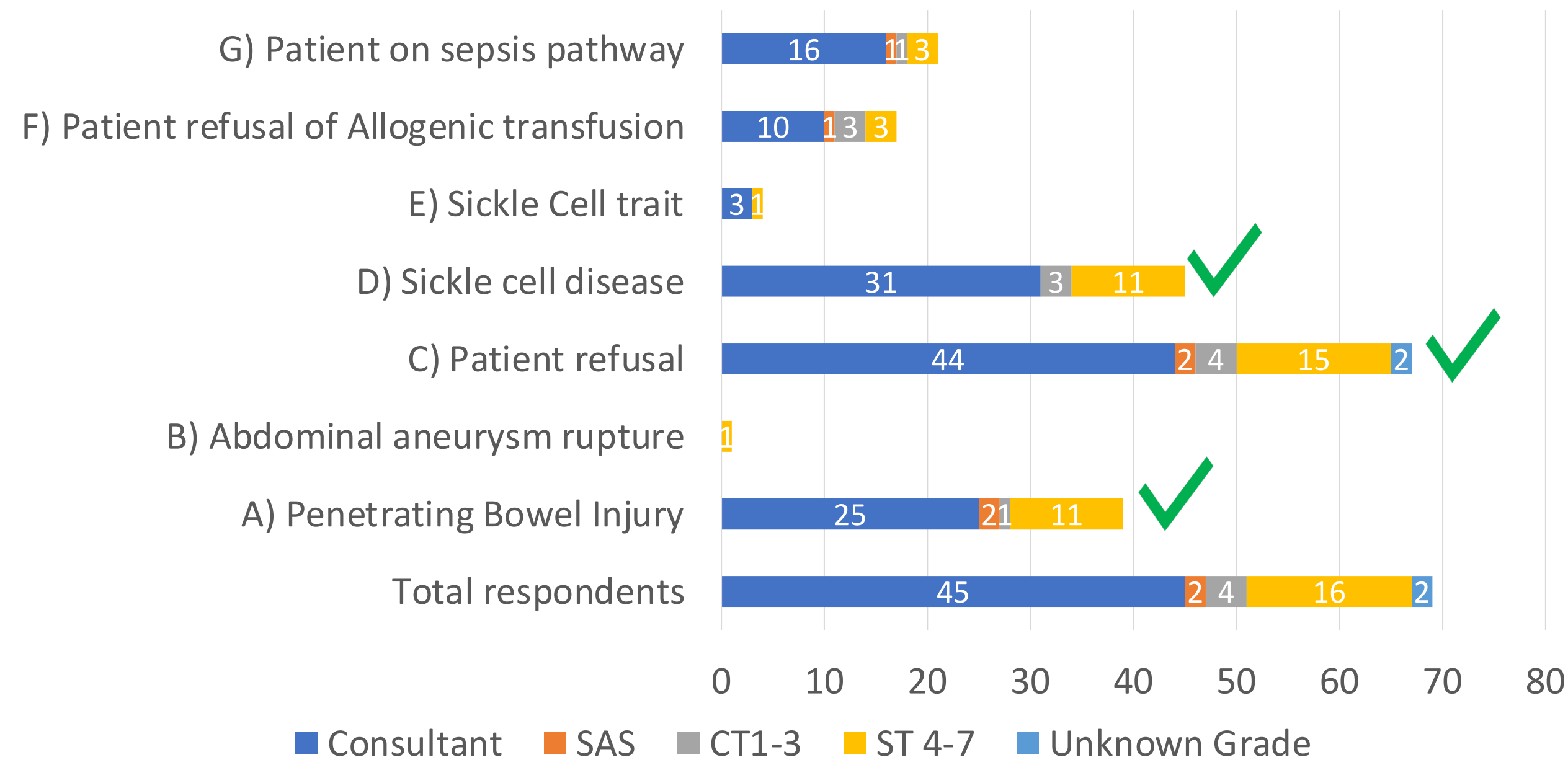


The survey showed that the confidence respondents had did not always correlate with knowledge base.

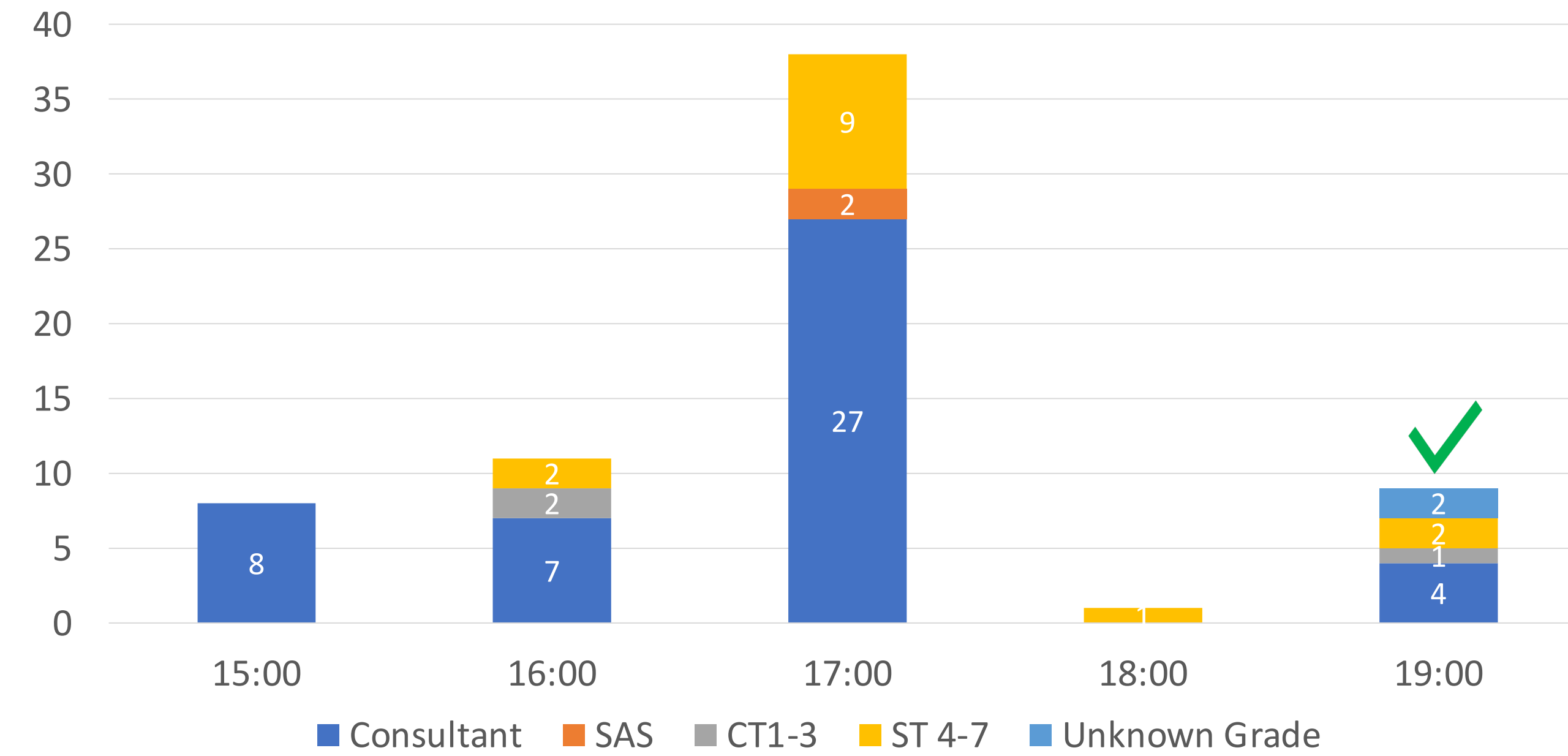
Q4. Intraoperative Cell Salvage is appropriate for use in (select all that apply).



Q5. The following are absolute contraindications to Intraoperative Cell Salvage (select all that apply).



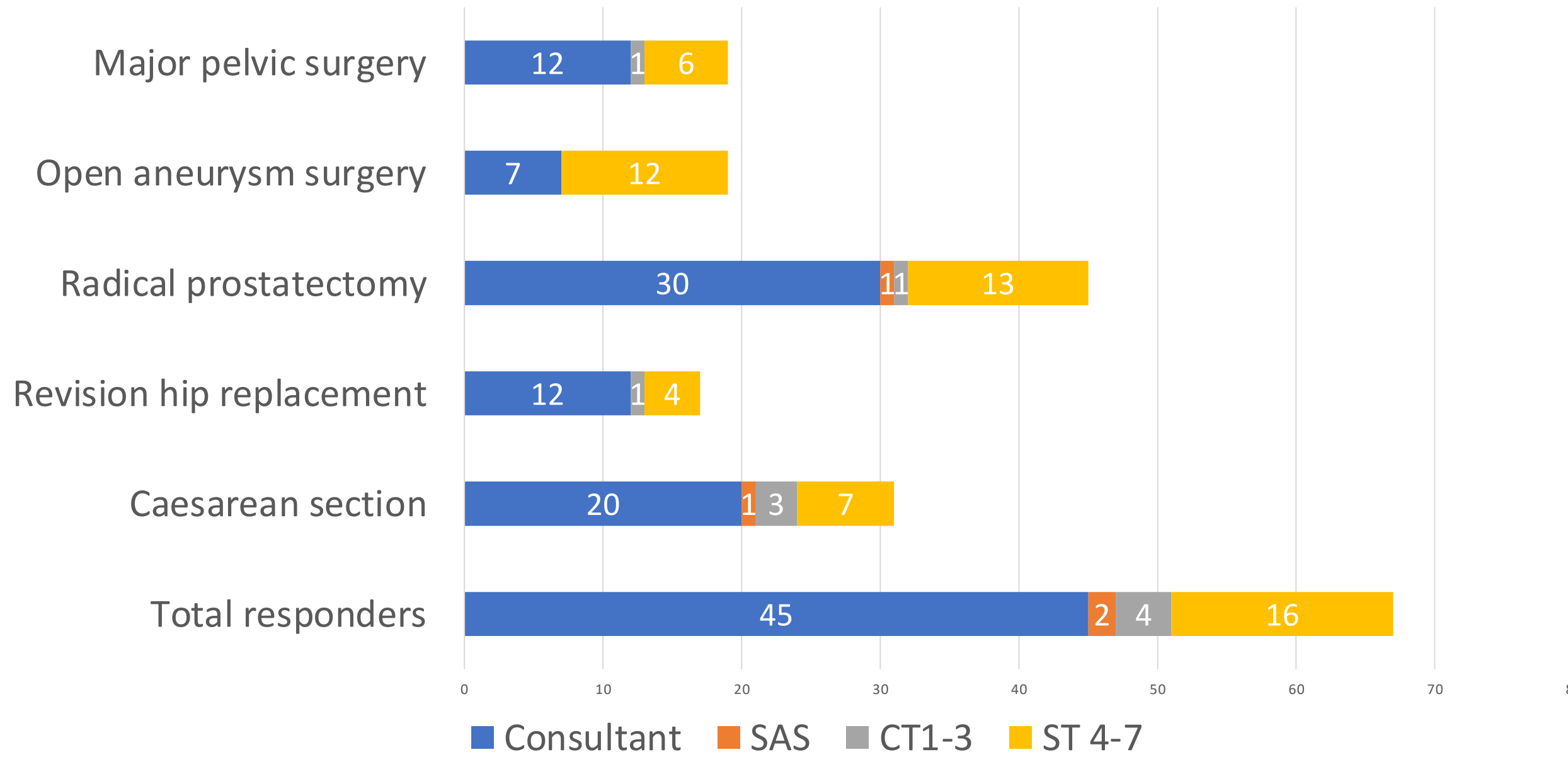
Q6. If collection of blood starts at 13:00, what is the latest time by which the infusion must be completed?



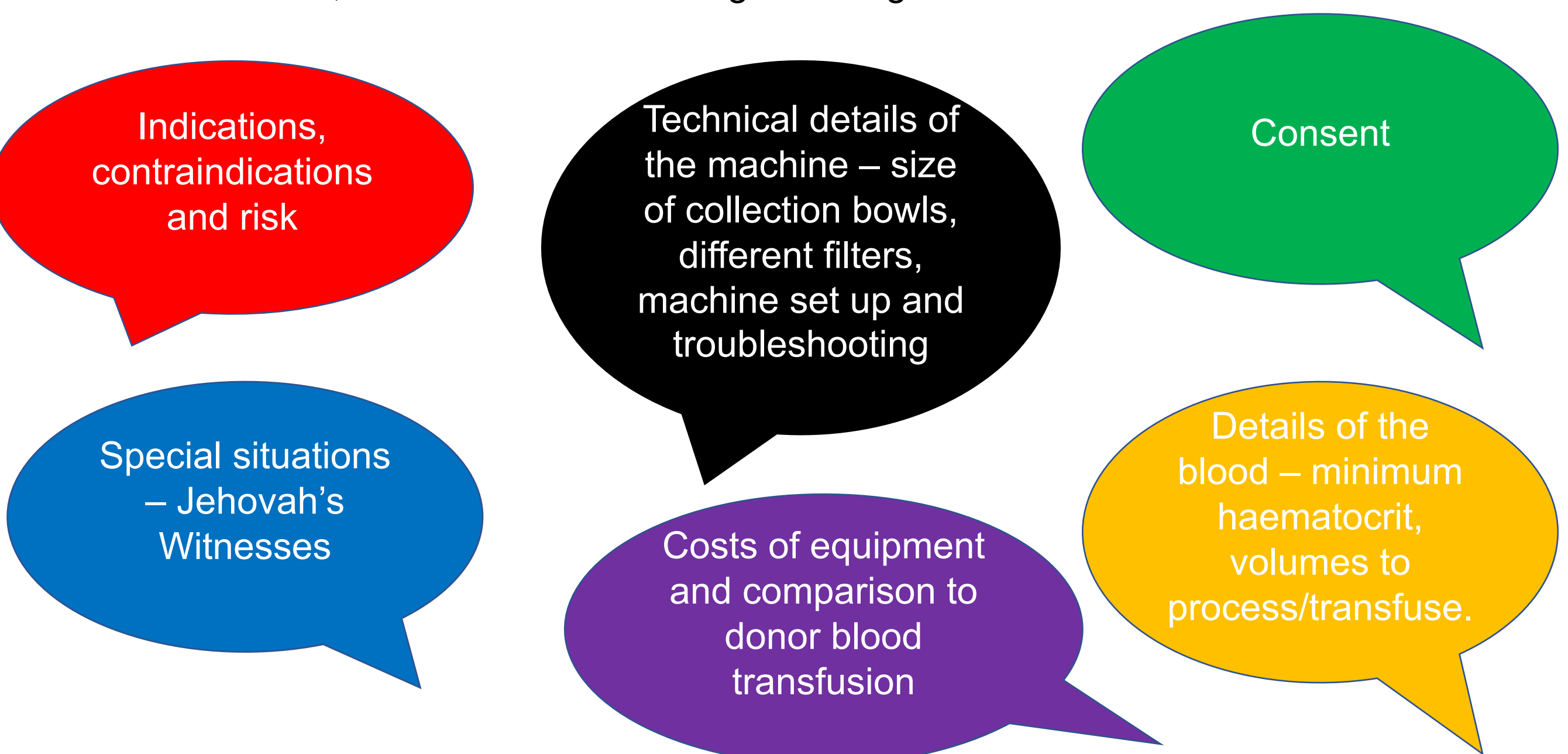
For Q7. and Q8. Only 28 respondents knew that Kleihauer testing was required in the rhesus negative mother after receiving autologous blood and of those only 15 knew that the sample should be taken 1 hour post reinfusion.

There was a huge variance in opinion when leukocyte depletion filter (LDF) must be used. Most guidelines recommend its use in malignancy. There is no robust evidence to suggest it must be used in Orthopaedic Surgery[1]. In clinical practice LDFs are not commonly used in obstetrics.

Q9. A Leukocyte depletion filter must always be used for reinfusion of cell salvaged blood in the following situations



When asked what aspects of cell salvage should be included in a future training package aimed at clinicians, there were the following recurring themes:



Discussion

A significant proportion of the respondents to this survey reported to have received no formal training in ICS. Despite this, many felt confident using it. There were significant knowledge gaps across all grades of anaesthetists in the use of ICS. The results of this survey indicate a need for a targeted teaching resource that can be used collaboratively within the Warwickshire school of anaesthesia. This will ensure that Trainees and Speciality Doctors of all grades are confident and competent to use of ICS. The ultimate aim is to increase the appropriate use of ICS, minimising the need for donor blood in areas such as Obstetrics.

Reference

1. Joint United Kingdom (UK) Blood Transfusion and Tissue Transplantation Services Professional Advisory Committee: UK Cell Salvage Action Group. Intraoperative Cell Salvage (ICS) Education Workbook. Complete Edition 2 (2018). Available at <https://www.transfusionguidelines.org/transfusion-practice/uk-cell-salvage-action-group/intraoperative-cell-salvage-education>. Accessed on 5th September 2022.