

Introduction:

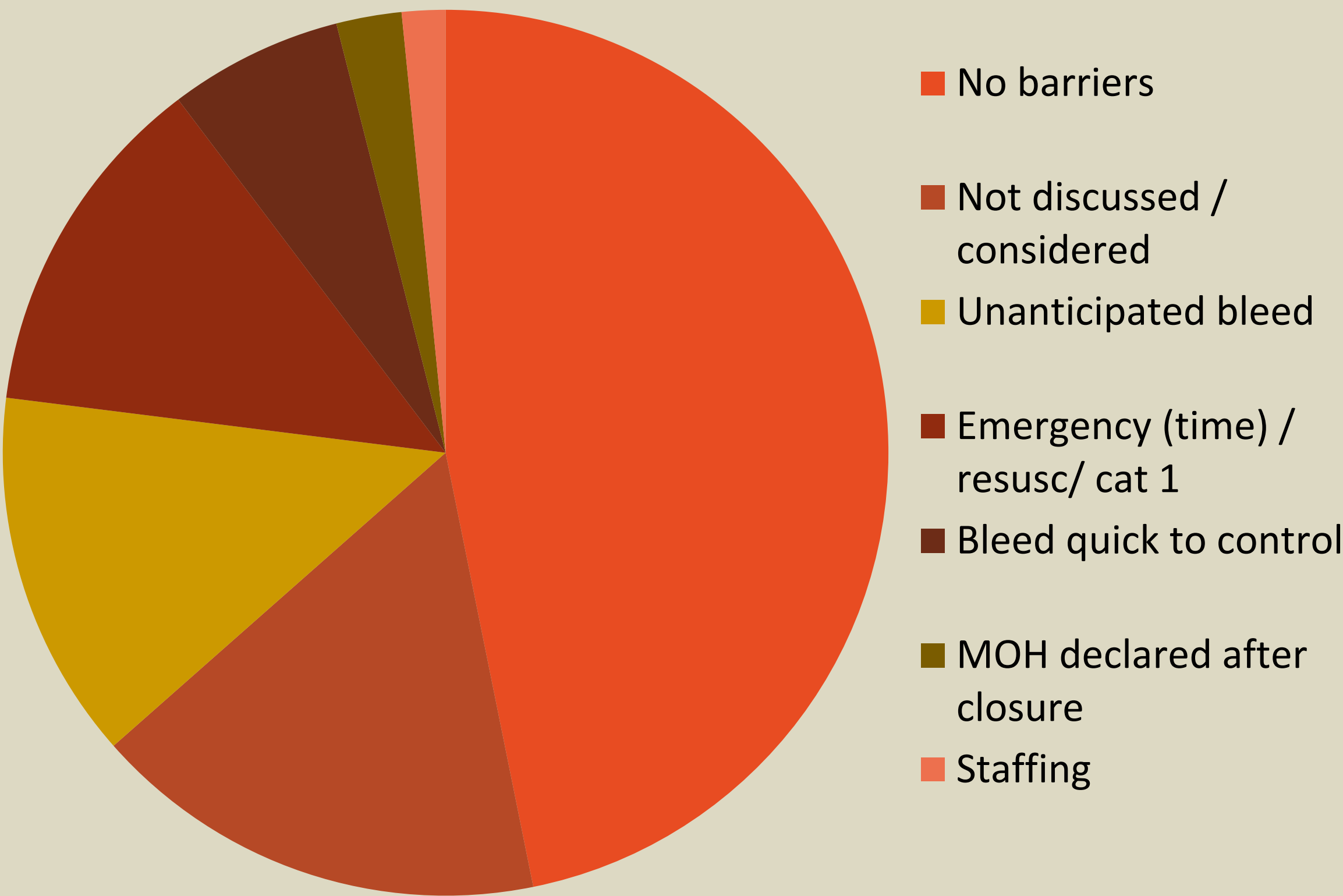
- Post Partum Haemorrhage remains one of the leading causes of maternal morbidity and mortality.
- One of the key components in the management of a Major Obstetric Haemorrhage (MOH) is a blood transfusion.
- Allogenic blood transfusion is a scarce resource, associated with risks of adverse transfusion reactions.
- Intraoperative Cell Salvage (ICS) is an effective and efficient way of reducing the need for allogenic transfusions during operative delivery [1].
- Using ICS in Caesarean delivery has been shown to significantly shorten duration of inpatient stay and lower incidence of transfusion-related complications [2].
- There does not seem to be a consistent approach to cell salvage use in current practice.

The aim was to assess the current practice in cell salvage use in MOH and determine whether there are any specific barriers to use.

Methods:

- Observational cohort study and survey to anaesthetists over a 4 month period (July-November 2023).
- Caesarean deliveries with an estimated blood loss above 1 litre included.
- Patient characteristics and trends in autogenic and allogenic blood transfusions studied.
- Concurrent survey to determine whether the MOH was anticipated or not in the anaesthetist's opinion and whether they encountered any specific barriers to not utilising ICS.

Intraoperative Cell Salvage Characteristics	Statistic
Total times utilised, n (%)	19 (16)
In hours n (%)	18 (95)
Out of hours n (%)	1 (5)
Consultant Anaesthetist	18 (95)
Non consultant anaesthetist	1 (5)
Volume Collected, but insufficient for transfusion, n (%)	6 (32)
Volume Collected, mean (range)	1135 (100-2644)
Volume Transfused, mean (range)	333 (58-1536)



Reasons for not utilising ICS

Patient Characteristics	Statistics
N	121
Age in years, mean (SD)	34.64 (5.74)
BMI, mean (SD)	27.6 (6.10)
Parity, n (%)	
Primiparous	54 (45)
Multiparous	67 (55)
ASA, n (%)	
I	13 (11)
II	103 (85)
III	5 (4)
Category of Caesarean Delivery, n (%)	
1	9 (7)
2	60 (50)
3	14 (13)
4	38 (31)
Mode of Anaesthesia, n	
Spinal	61 (4 following failed epidural top up)
Epidural	42
Combined Spinal Epidural (CSE)	15
General Anaesthetic	7
	(6 of which conversions from neuraxial)
Risk factors for MOH, n	
Fibroids	19
Placental disorders	17
Suspected sepsis/ chorioamnionitis	10
Previous MOH	10
Grand Multiparity (>5 births)	7
Haematological Disorders	7
Prolonged labour	6
Multiple pregnancy	3
Blood product transfusions, n	
Red blood Cells	97
Fresh Frozen Plasma	42
Platelets	8
Cryoprecipitate	4
Duration of hospital stay, hours, median (range)	71 (23-678)
HDU/ICU admission, n (%)	4 (3)

Results:

- 121 cases of MOH analysed.
- Mean estimated blood loss was 1833ml (range 1000-8000ml).
- At least 1 risk factor for MOH in 67% of cases;. However, only 33% of MOHs were deemed to be ‘anticipated’ by the anaesthetist.
- 30 patients received allogenic red blood cell transfusions, totalling 97 units.
- 66% of patients who received allogenic blood transfusions did not have ICS set up.
- Intraoperative cell saver was used in 19 cases, by the consultant anaesthetist during daytime hours in all cases except one case.
- A mean of 1135ml autologous blood was collected, and 333ml transfused
- 6 instances where blood was collected but volumes were insufficient for transfusion.
- The anaesthetist did not perceive any specific barriers for ICS use in 60% of cases. Reasons for not using ICS are shown in the pie chart.

Discussion:

- Current guidance is to consider cell salvage use for procedures with an expected blood loss of above 500ml and when postoperative anaemia or transfusion seems likely
- ICS was utilised in 15.7% of our MOH associated with CD, which is significantly higher than that reported in other studies [3]. However, there is still an opportunity to enhance patient safety by improving ICS uptake.
- Although ICS is a cost-effective blood conservation strategy, in a third of our cases, volumes rendered were insufficient for transfusion.
- Studies estimate that 40% of MOH occur in women with no risk factors [4]. Our study findings were that 67% of patients had at least a risk factor, however less than half of these MOHs were deemed to be anticipated in the anaesthetists’ opinion.
- Given that most our cases had at least 1 risk factor for MOH, we hope to incorporate consideration of ICS as part of our WHO Checklist Team Brief and Time Out.

1. Geoghegan J, Daniels JP, Moore PA et al., Cell salvage at caesarean section: the need for an evidence-based approach. BJOG. 2009 May;116(6):743-7.

2. Obore N, Liuxiao Z, Haomin Y, et al., Intraoperative Cell Salvage for Women at High Risk of Postpartum Hemorrhage During Cesarean Section: a Systematic Review and Meta-analysis. Reprod Sci. 2022 Nov;29(11):3161-3176.

3. Neef, Friedrichson, Jasny et al., Use of cell salvage in obstetrics in Germany: analysis of national database of 305 610 cases with peripartum haemorrhage. Br J Anaesth. 2024 Jan 23:S0007-0912(23)00730-4

4. Hofer, Blaha, Collins et al., Steiner K, Van de Velde M. Haemostatic support in postpartum haemorrhage: A review of the literature and expert opinion. Eur J Anaesthesiol. 2023 1;40(1):29-38.