

A Service Evaluation of Postpartum Haemorrhage Risk Factors and Management in a District General Hospital

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1. BACKGROUND AND RATIONALE

Primary postpartum haemorrhage (PPH) is defined as **blood loss of ≥ 500 ml** within 24 hours of delivery, with major PPH classified as ≥ 1000 ml. It remains a **leading cause** of maternal morbidity and mortality worldwide, necessitating timely recognition and management.

Despite established clinical guidelines, variation in practice persists in areas such as early recognition, escalation, and adherence to major haemorrhage protocols.

At our district general hospital, concerns were raised regarding:

- Inconsistent **documentation** of blood loss
- Variable **escalation** to senior multidisciplinary team (MDT) members
- Potential **delays** in initiating management

This service evaluation was undertaken to assess current practice and identify areas for improvement.

2. AIMS

- ✓ To identify key **risk** factors associated with PPH
- ✓ To describe the demographic and obstetric **characteristics** of patients with PPH
- ✓ To evaluate the **medical** management of PPH
- ✓ To evaluate the **surgical** management of PPH
- ✓ To assess clinical **outcomes**, including the requirement for blood transfusion and length of hospital stay

3. METHODS

Setting and Data Source

- Study design: **Retrospective** service evaluation
- Setting: District General Hospital maternity unit
- Data source: BadgerNet (electronic maternity record system)

Time Period and Sample

- August 2024 - February 2025
- **93 patients**

Data Collection

- Patient & Obstetric Characteristics: Patient background; risk factors for PPH; type of delivery; time of delivery
- Recognition & Escalation: Documented time of PPH; escalation of PPH; activation of major obstetric haemorrhage (≥ 1500 ml)
- Management & Outcomes: Active management of 3rd stage of labour; time of intervention; type of intervention; need for blood transfusion

4. LIMITATIONS

- Retrospective design reliant on accuracy of electronic documentation
- Visual estimation of blood loss may have **underestimated** severity
- Small sample size (n = 93) limiting statistical power
- Single-centre study **limiting generalisability**
- Lack of comparison group without PPH
- Potential unmeasured **confounding variables** (e.g. BMI, labour duration)

5. RESULTS

Figure 1 - Distribution of Estimated Blood Loss in PPH Cases

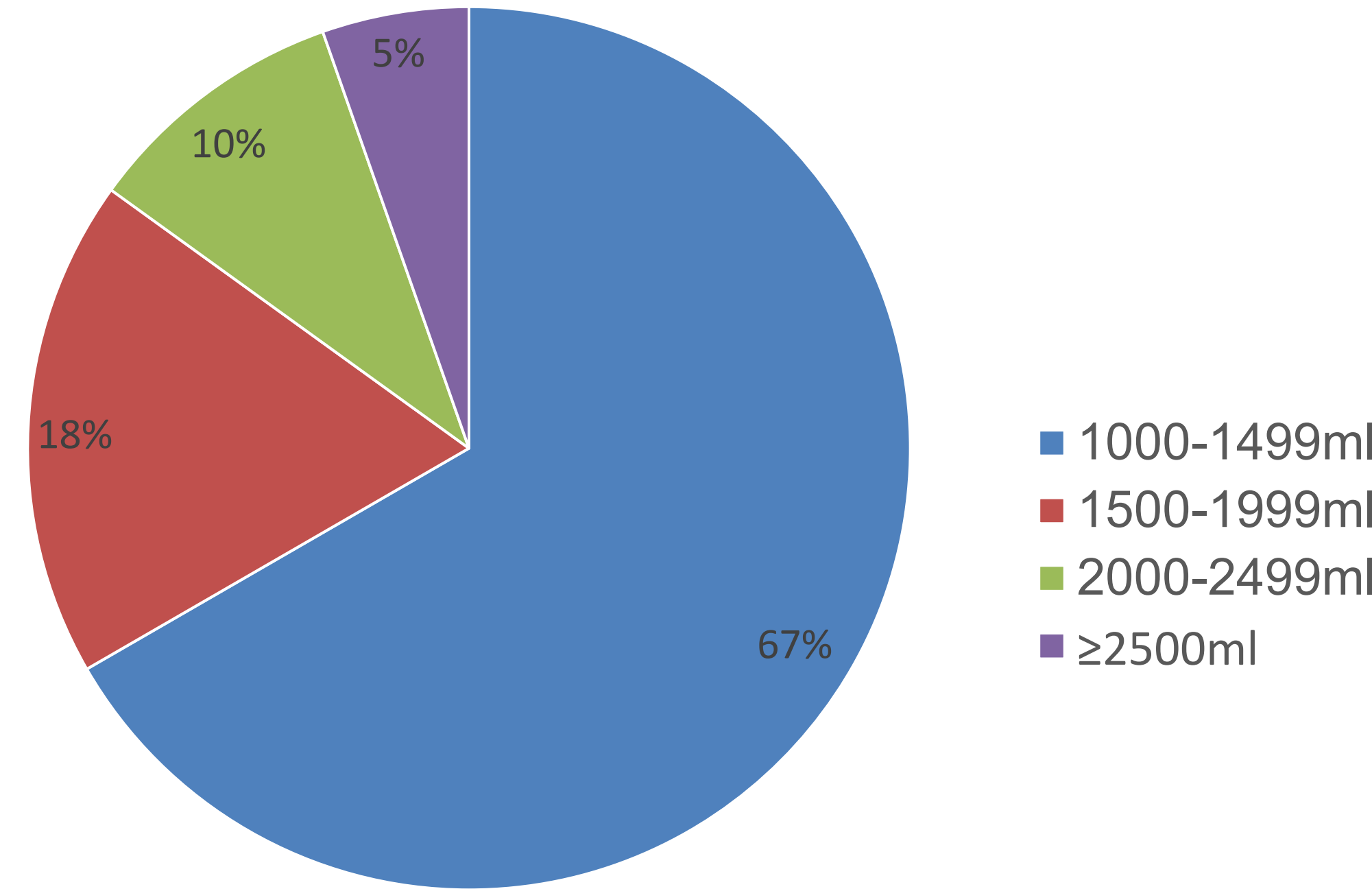


Figure 2 - Identified Risk Factors in PPH Cases

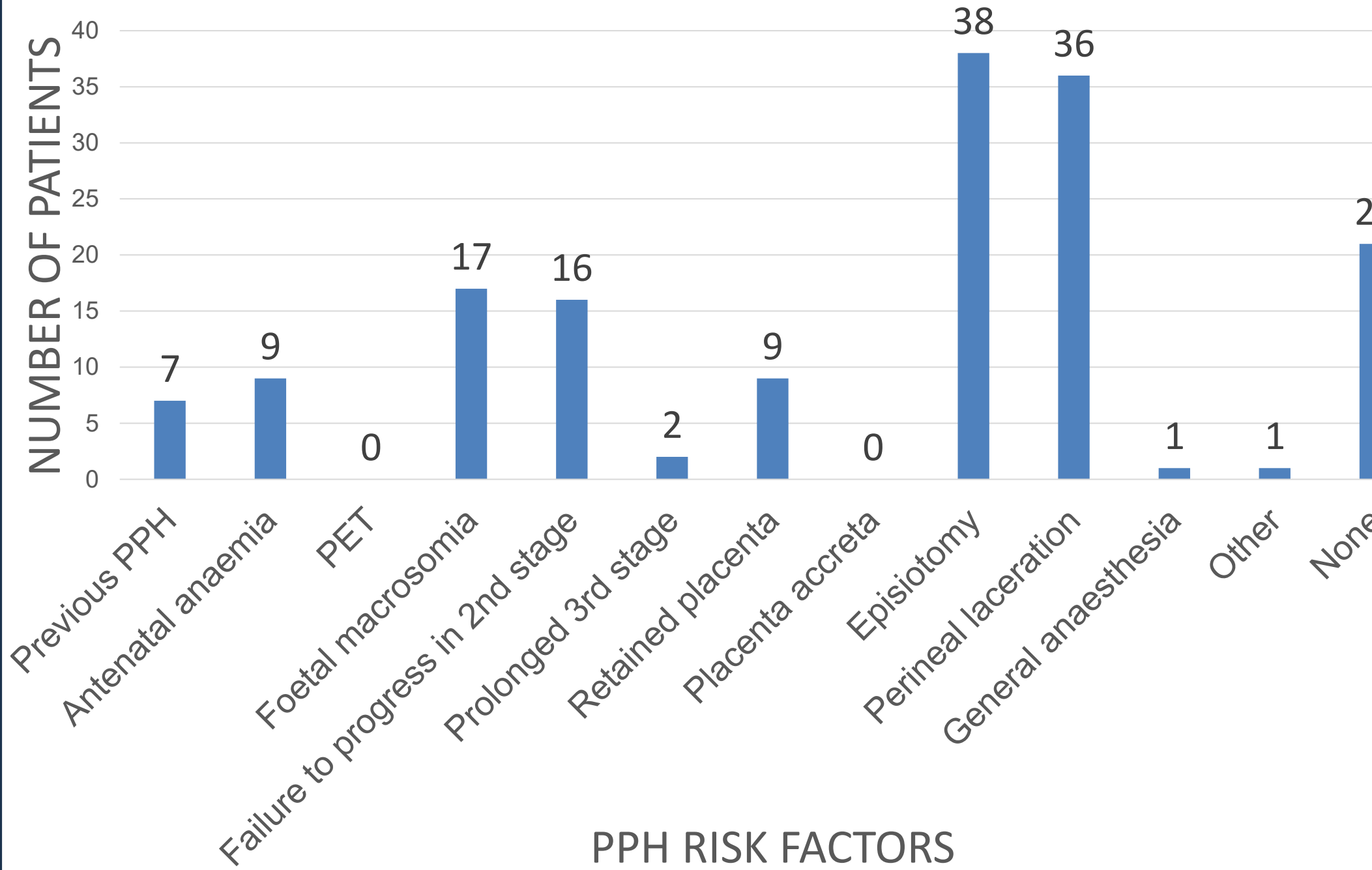


Figure 3 - Medical Interventions utilised in the management of PPH cases

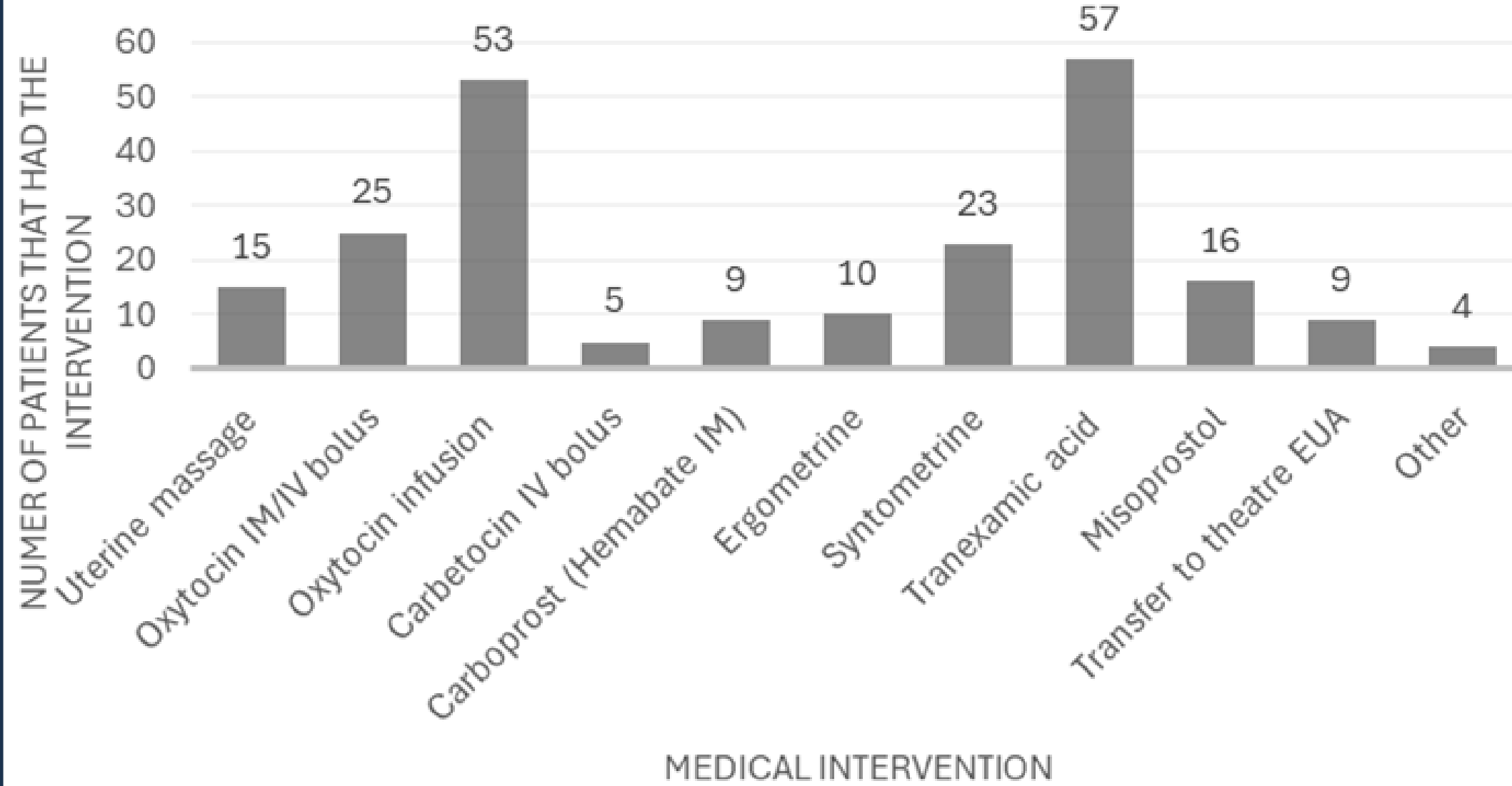


Figure 4 - Surgical Interventions utilised in the management of PPH cases

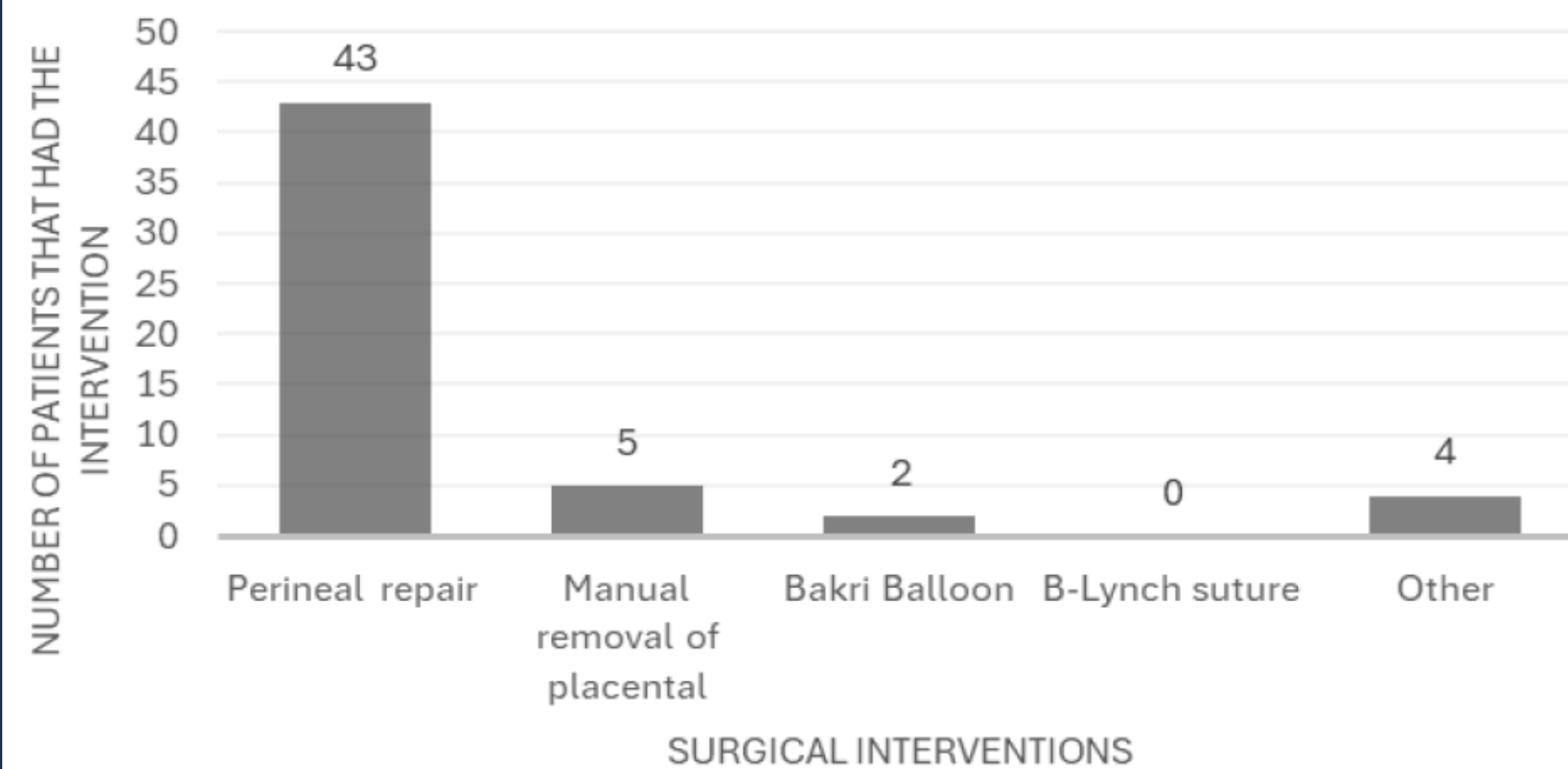


Figure 5 - Activation of the Major Haemorrhage Protocol in Cases with Blood Loss ≥ 1500 mL

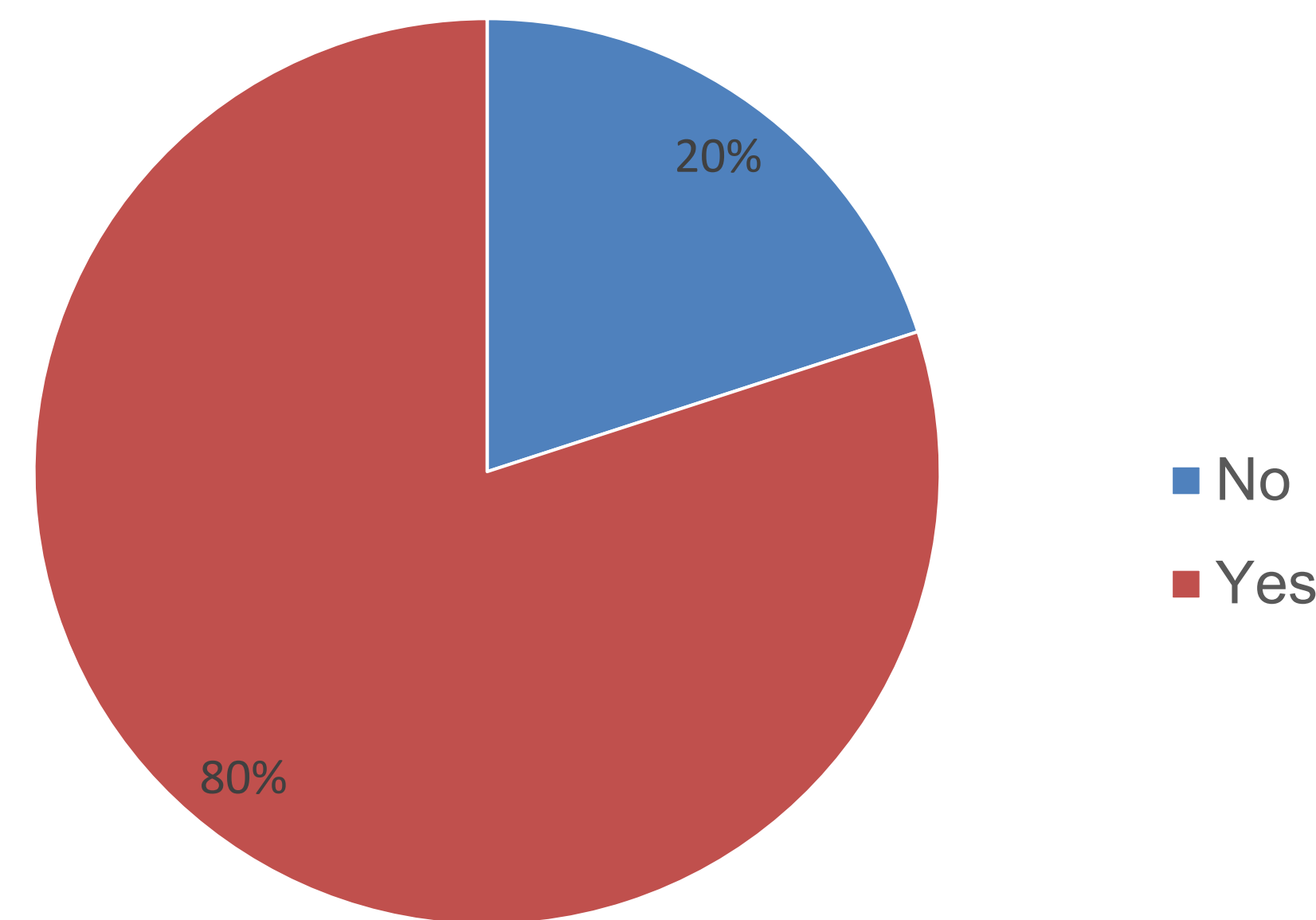
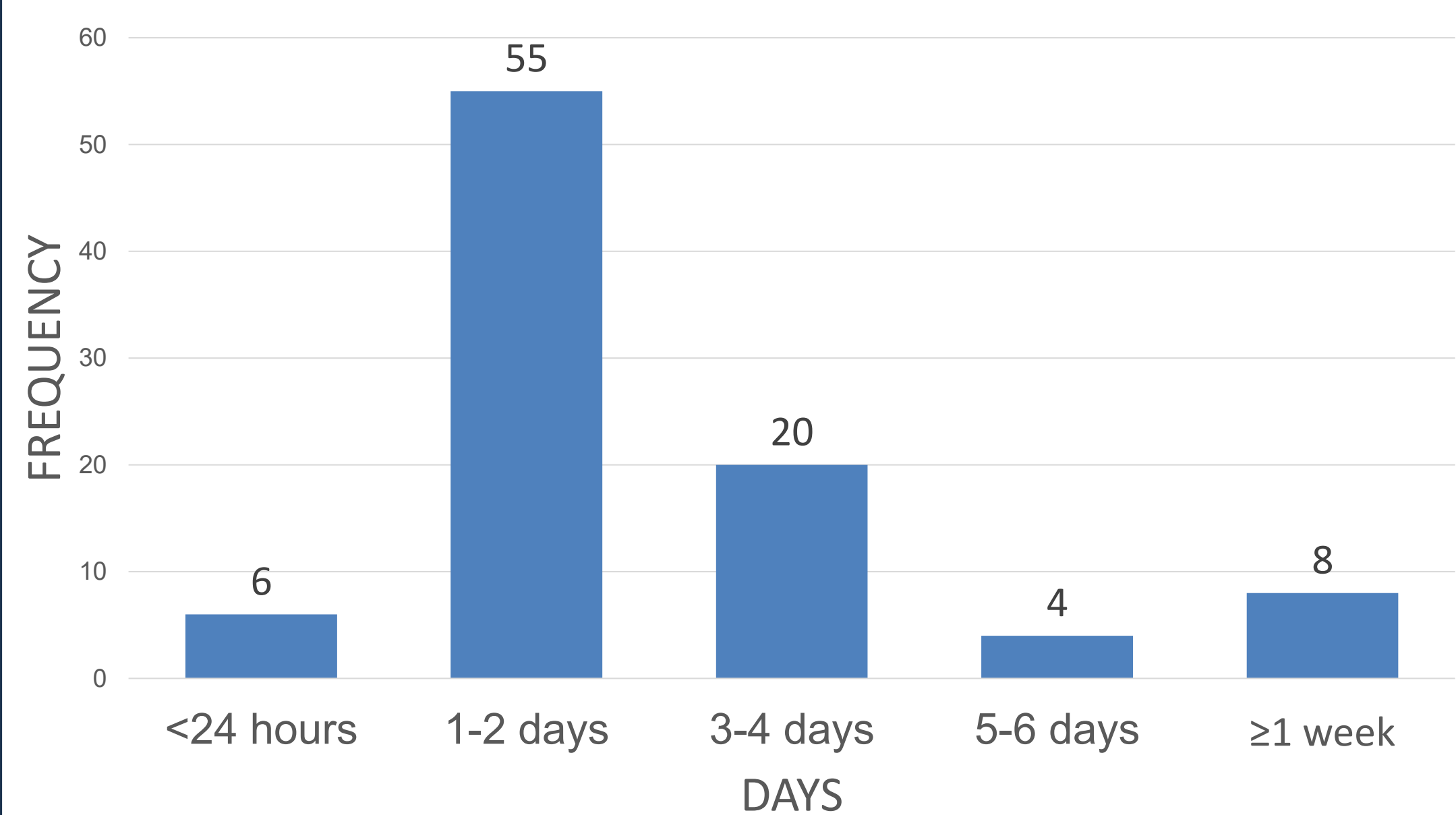


Figure 6 - Length of Hospital Stay Following PPH



6. CONCLUSIONS AND INFERENCES

- **93 cases** of PPH ≥ 1000 mL was identified between August 2024 and February 2025
- **85% moderate** (1000 - 1999 mL) and **15% severe** (≥ 2000 mL) (*Figure 1*)
- Majority of patients were:
 - Aged 25 - 39 years (80%)
 - Nulliparous (67%)
 - Term deliveries (93%)
- **Induction** was the most common onset of labour (52%)
- **Caesarean section** was the most frequent mode of delivery (38%)
- **Trauma-related factors** were the most common risk factors (*Figure 2*):
 - Episiotomy (41%)
 - Perineal lacerations (39%)
 - Foetal macrosomia (18%)
- Medical management (*Figure 3*):
 - **Tranexamic acid** was used in **61%** of cases
 - **Oxytocin** most commonly used uterotonic
- Surgical management (*Figure 4*):
 - **Perineal repair** was the most common intervention (46%)
- The major haemorrhage protocol was activated in **80%** of cases with blood loss ≥ 1500 mL (*Figure 5*)
- Allogenic blood transfusion was required in **14%** of cases
- Length of hospital stay following PPH (*Figure 6*):
 - ≤ 2 days: 66%
 - ≥ 3 days: 34%

7. DISCUSSION

PPH remains a common obstetric emergency. Delays in recognition and escalation may contribute to increased severity. **Trauma-related factors** were the leading cause in this unit, highlighting the need to improve perineal care. PPH occurred across **all modes of delivery**, with no statistically significant associations identified. Induction of labour showed increased odds of PPH ≥ 1500 mL, although this was not statistically significant (p=0.20). Similarly, mode of birth was also not significantly associated with severe PPH (p=0.82). Rates of major haemorrhage protocol activation were suboptimal, suggesting **gaps in escalation**. The EMOTIVE trial provides strong evidence for the use of **calibrated drapes** and initiation of interventions at or even before blood loss reaches 500ml. Calibrated drapes have now been introduced in our unit to improve early detection and management of PPH.

8. RECOMMENDATIONS

- ☐ **Improve recognition of blood loss**
 - Introduce calibrated drapes for objective measurement
- ☐ **Enhance prevention of perineal trauma**
 - Training in perineal protection techniques
 - Review episiotomy practices
- ☐ **Strengthen escalation pathways**
 - Reinforce PPH protocols during labour ward handovers
 - Ensure timely involvement of senior MDT members
- ☐ **Education and training**
 - Regular MDT simulation training
 - Promote early use of tranexamic acid and uterotonics

Future directions:

- Re-audit following implementation of interventions
- Further evaluation of prophylactic uterotonic use
- Improve documentation practices

9. REFERENCES

1. Mavrides E, Allard S, Chandharan E, et al on behalf of the Royal College of Obstetricians and Gynaecologists. Prevention and management of postpartum haemorrhage. BJOG 2016 ; 124:e106–e149.
2. Gallos I, Devall A, Martin J, et al. Randomized trial of early detection and treatment of postpartum hemorrhage. New England Journal of Medicine. 2023 Jul 6;389(1):11-21
3. World Health Organization. Consolidated guidelines for the prevention, diagnosis and treatment of postpartum haemorrhage. InConsolidated guidelines for the prevention, diagnosis and treatment of postpartum haemorrhage 2025