

Introduction

Postpartum Haemorrhage (PPH) is defined as the loss of 500mls or more of blood from the genital tract in the first 24 hours after delivery. It is the most common form of major obstetric haemorrhage [1]. PPH is the leading cause of maternal death worldwide [2]. Atonic uterine muscle accounts for 80% of PPHs. Prophylactic use of uterotonics at vaginal and caesarean section (CS) deliveries can reduce blood loss and frequency of PPH.

There are several risk factors for PPH (*tables 1,2*). The RCOG advises identification of women at high risk of PPH and escalating uterotonic choice to minimise PPH incidence.

In Forth Valley Royal Hospital (FVRH) there was observational evidence that PPH rate was high. We observed that whilst guidance at FVRH advising syntometrine for third stage for all women unless blood pressure concerns, that this was not being used at CS, with most women getting a single bolus of oxytocin. Therefore, there was an unmet need to improve management of third stage of labour.

Aims

- 1.To implement a new PPH risk assessment tool and create individualized recommendations for managing third stage.
- 2.To audit PPH rates and uterotonic choice before and after this change
- 3.Determine frequency of use of the risk assessment

Methods

In February 2021 a new electronic PPH risk assessment tool was implemented at NHS Forth Valley. The tool used risk factors for PPH according to RCOG and NICE guidance [1,3]. Women were classified as low, moderate or high risk depending on risk factors (*tables 1,2*). Choice of uterotonic differed depending on level of risk (*table 3*). All births >24 weeks delivery in FVRH Maternity Unit were identified from the local “Badgernet” System in July 2020 and July 2021, before and after the new PPH risk assessment tool. Patient unique chi numbers were used to manually seach badgernet to determine estimated blood loss (EBL), PPH grade, choice of uterotonic and whether a PPH risk assessment was carried out. Data presented as percental, median (+/- range) and Mann-Whitney U-Test for significance.

Antenatal	
BMI > 35	1
Hb 90-100	1
Hb <90	2
Parity > 3	1
Suspected of proven placental abruption	3
Abnormal Placental Implementation	3
Pre-eclampsia / gestational hypertension	1
Intrauterine death	3
Large for Dates / Polyhydramnios	2
Multiple pregnancy	3
Maternal clotting disorder	3
Asian Ethnicity	1
Prev. PPH/Previous Retained Placenta	2
Prev. uterine surgery	1
Blood or blood products declined	3
Uterine Fibroids	3
Age ≥ 40 years	1

Table 1: Antenatal Risk Factors for PPH (RCOG / NICE) [1,3]

On Admission	
Elective Caesarean section	1
Intrapartum Risk Factors	
Suspicion of sepsis/pyrexia in labour	1
Augmentation of labour	1
Prolonged 1 st stag >12 hours	1
Prolonged 2 nd stage >4 hours	3
Prolonged 3 rd stage >1 hour	3
Retained Placenta	3
Instrumental Vaginal Birth	1
Emergency Caesarean	1
Emergency caesarean in 2 nd stage	3

0 – Low Risk	Vaginal - 10 IU Oxytocin IM
1 - 2 Moderate Risk	Vaginal - Syntometrine IM Caesarean Section - Oxytocin 5 IU and Oxytocin Infusion (30 IU)
≥ 3 High Risk	Vaginal - Syntometrine if BP allows or Oxytocin 10 IU & Oxytocin Infusion (30IU) Caesarean Section - Syntometrine if BP allows or Oxytocin 10 IU & Oxytocin Infusion (30IU)

Table 2: Intrapartum Risk Factors for PPH (RCOG / NICE) [1,3]

Table 3: PPH Risk Assessment Scoring System and Uterotonic Choice

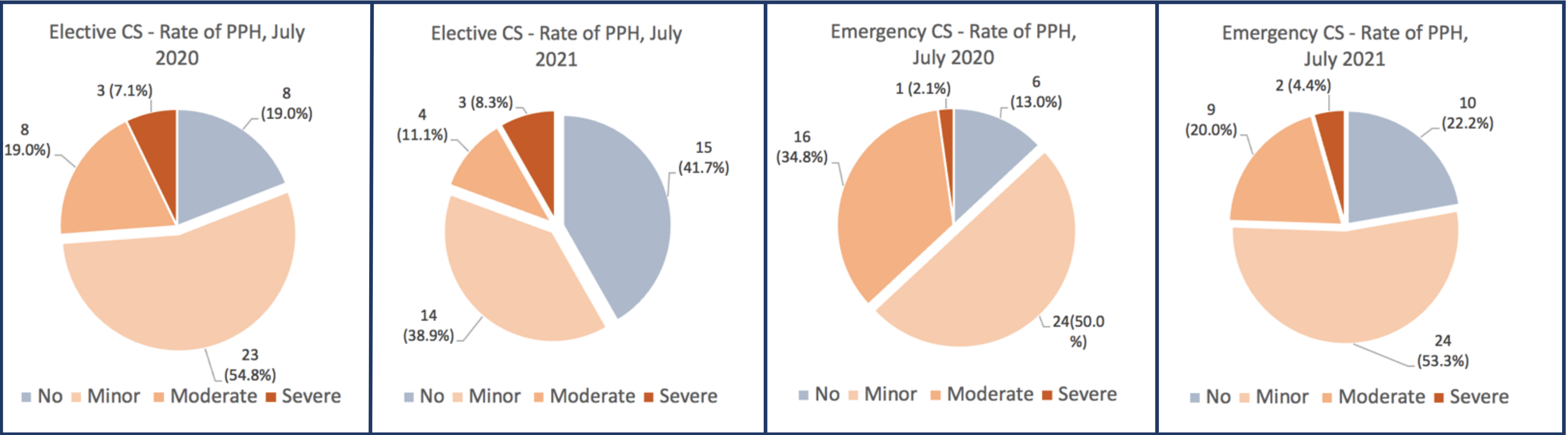
Results

There were 257 and 275 deliveries in July 2020 and July 2021 respectively. Age, parity, BMI and delivery methods were similar between the two populations. PPH rate was 47.1% in July 2020 and 45.5% in July 2021.

In vaginal deliveries the use of syntometrine was similar (55.8% vs. 51.3%) and an increase in women receiving prophylactic oxytocin infusions from 3.6% to 16.3%. In CS, there was an increase in syntometrine use (2.4% vs. 12.0%) and an increase in prophylactic oxytocin infusions (25.6% vs.90.3%).

PPH rate trended down from 47.1% to 45.5% for all deliveries. EBL across all CS was reduced (700mls [207-4000mls] vs. 650mls [200-4000mls], p<0.05). PPH rate >500mls at ELCS reduced from 81.0% to 59.3% and for EMCS from 87.0% to 77.8%. PPH rate >1000mls reduced at SVD from 8.3% to 6.3%, at ELCS from 26.1% to 19.4% and EMCS from 36.9% to 22.4%. PPH rate >2000mls reduced from 3.5% to 1.8% for all deliveries.

The number of women being risk assessed at least once during the antenatal and intrapartum period increased from 55.6% to 78.2%.



Graphs 1-4: Reductions in Rates of PPH at Elective and Emergency CS before and after implementation of new PPH Risk Assessment Tool

Discussion

- PPH rate at FVRH remains high at 45.5%
- We have increased the use of prophylactic oxytocin infusions for all deliveries, and increased syntometrine use at CS.
- We have increased the number of women being risk assessed for PPH.
- We have shown a significant reduction in blood loss at all CS after the implementation of PPH risk assessment.
- We have shown trend reductions in rate of moderate PPH at SVD, ELCS and EMCS and a trend reduction in rate of severe PPH for all deliveries using individualized PPH risk assessment.

Conclusion

- PPH remains an important morbidity in obstetrics
- High quality PPH risk assessment and individualized uterotonic choice can reduce PPH rate and import morbidity
- PPH rate remains high and more research needed to improve rates

References

[1] Royal College of Obstetrics and Gynaecology, *Prevention and Management of Postpartum Haemorrhage*, British Journal of Obstetrics and Gynaecology, 2017, Vol 124, Issue 5, <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/1471-0528.14178>

[2] World Health Organization. *WHO recommendations for the prevention and treatment of postpartum haemorrhage*, 2012, Geneva: WHO

[3] National Institute for Clinical Excellence, *Intrapartum Care for Healthy Women and Babies*, 2014 <https://www.nice.org.uk/guidance/cg190/resources/intrapartum-care-for-healthy-women-and-babies-pdf-35109866447557>