Table D-4. Evidence table for studies addressing management of PPH (Einerson 2014)

| **Study**  **Description** | **Intervention** | **Inclusion/Exclusion**  **Criteria & Population** | **Outcomes** |
| --- | --- | --- | --- |
| **Author:**  Einerson et al.,  20145  **Country:**  US  **Enrollment period:**  August 2007 to December 2011  **Birth setting:**  Hospital  **Facility characteristics:**  Tertiary care  **Funding:**  Grant from Kenneth and Anne Griffin Foundation  **Design:**  Pre-post (Systems level) | **Intervention:**  Training program for perinatal nursing, residents, fellows, midwives and physicians in OB and anesthesia departments in early diagnosis and management of PPH.  Program d: 1) mandatory educational sessions to improve EBL assessment, 2) multidisciplinary checklist for PPH management, and 3) institution if universal active management of 3rd stage of labor.  **Groups:**  **G1:** pre protocol  **G2:** post protocol  **N:**  **G1:** 592  **G2:** 2513  **Duration of treatment:** NR  **Timing of treatment:** NR  **Order of treatment:** NR  **Length of follow-up:** NR | **Operational definition of PPH:**  Estimated blood loss greater than 500 mL for vaginal delivery and > 1,000 mL for cesarean delivery or if received a blood transfusion or uterotonic medications for obstetric hemorrhage  **Definition of success of treatment**: changes in patient care and outcomes  **Method of blood loss measurement:** NR  **Severity:** NR  **Inclusion criteria:**  Query electronic records to identify women with PPH defined as EBL of > 500 mL for vaginal delivery or > 1000 mL for cesarean or if received a blood transfusion or uterotonic medications for obstetric hemorrhage  Records identified electronically were individually reviewed to confirm diagnosis of PPH  **Exclusion criteria:** NR  **Maternal age, yrs, mean ± SD:**  **G1:** 31.5 ± 6.1  **G2:** 32.0 ± 5.6  p=0.038  **Parity, n (%):**  Nulliparous  **G1:** 378 (63.9)  **G2:** 1543 (61.4)  p= 0.265  **Gestational age, mean weeks ± SD:**  **G1:** 38.6 ± 2.8  **G2:** 38.6 ± 2.7  p=0.879  **Single pregnancy, n (%):** NR  **Multiple pregnancy, n (%):**  **G1:** 75 (12.7)  **G2:** 309 (12.3)  p=0.802  **Race/ethnicity:**  Caucasian  **G1:** 307 (51.9)  **G2:** 1379 (54.9)  African-American  **G1:** 72 (12.2)  **G2:** 282 (11.2)  Hispanic  **G1:** 107 (18.1)  **G2:** 444 (17.7)  Asian  **G1:** 19 (3.2)  **G2:** 185 (7.4)  Other  **G1:** 87 (14.7)  **G2:** 220 (8.8)  p< 0.001  **BMI**  **G1:** 30.4 ± 5.9  **G2:** 31.4 ± 6.5  p< 0.001  **Baseline hemoglobin:** NR  **SES:** NR  **Mode of birth, n:**  Spontaneous vaginal  **G1:** 271 (45.8)  **G2:** 1084 (43.1)  Operative vaginal  **G1:** 63 (10.6)  **G2:** 215 (8.6)  Cesarean  **G1:** 258 (43.6)  **G2:** 1215 (48.3)  p= 0.067  **Risk factors, n (%):**  History of cesarean  **G1:** 71 (12)  **G2:** 362 (14.4)  p=0.13  Labor induction  **G1:** 158 (26.7)  **G2:** 793 (31.6)  p=0.021  Preeclampsia  **G1:** 54 (9.1)  **G2:** 269 (10.7)  p=0.26  Placenta previa  **G1:** 20 (3.4)  **G2:** 73 (2.9)  p=0.54  Use of oxytocin  **G1:** 378 (64.2)  **G2:** 1659 (66.3)  p=0.32  Chorioamnionitis  **G1:** 65 (11)  **G2:** 300 (11.9)  p=0.52  **Primary etiology of PPH, n (%):** NR | **Blood loss, estimated mL**  **G1:** 1,168 ± 688  **G2:** 1,265 ± 905  p= 0.014  EBL > 1,500 mL, n (%)  **G1:** 127 (21.5)  **G2:** 669 (26.6)  p= 0.01  **Transfusion, n (%):**  Packed red cells  **G1:** 63 (10.6)  **G2:** 134 (12.5)  p= 0.21  Fresh frozen plasma  **G1:** 18 (3.0)  **G2:** 64 (2.6)  p= 0.50  Cyroprecipitate  **G1:** 11 (1.9)  **G2:** 94 (3.8)  p= 0.02  Platelets  **G1:** 7 (1.2)  **G2:** 39 (1.6)  p= 0.50  More than 2 units pRBCs  **G1:** 27 (4.6)  **G2:** 113 (4.5)  p= 0.94  More than 2 units FFP  **G1:** 9 (1.5)  **G2:** 36 (1.4)  p= 0.87  More than 2 units cryoprecipitate  **G1:** 1 (0.2)  **G2:** 22 (0.9)  p= 0.07  More than 2 units platelets  **G1:** 1 (0.2)  **G2:** 11 (0.4)  p= 0.34  4 or more units total blood products  **G1:** 22 (3.7)  **G2:** 106 (4.2)  p= 0.58  ICU admission  **G1:** 14 (2.4)  **G2:** 57 (2.3)  p= 0.93  **Anemia:** NR  **Length of stay:** NR  **Mortality:** None  **Uterine preservation, n (%):**  Embolization via interventional radiology  **G1:** 4 (0.7)  **G2:** 45 (1.8)  p= 0.05  Hysterectomy  **G1:** 7 (1.2)  **G2:** 43 (1.7)  p= 0.36  **Future fertility:** NR  **Breastfeeding:** NR  **Psychological impact:** NR  **Harms of intervention:** NR  **Confounders:** NR  **Effect modifiers:** NR  **Uterotonic used, n (%): G1:** 278 (47.0) **G2:** 1628 (64.8) p<0.001  **Intrauterine balloon tamponade, n (%):** **G1:** 17 (2.9) **G2:** 155 (6.2) p=0.002  **B-Lynch, n (%):** **G1:** 23 (3.9) **G2:** 151 (6.0) p = 0.042  **Curettage, n (%):** **G1:** 29 (4.9) **G2:** 127 (5.1) p = .875  **Use of >2 uterotonics, n (%): G1:** 125 (21.1) **G2:** 1064 (42.3) p<.001 |

**Comments:** See also Lappen et al., 2013 for earlier report on same intervention