**STATEMENT OF COMMITMENT AND POLICY**

Postpartum Hemorrhage (PPH) is defined as bleeding from the genital tract in excess of 500 ml for vaginal births and 1000 ml with Caesarean births. It is accepted that true blood loss always exceeds the clinical estimate of blood loss. Any blood loss that has the potential to produce hemodynamic instability should be considered a postpartum hemorrhage.

Primary postpartum hemorrhage occurs within the first 24 hours after birth. This is what we will be dealing with in this policy. The majority (70%) of primary postpartum hemorrhage is due to uterine atony, which is failure of the uterus to contract following delivery. Secondary postpartum hemorrhage occurs between 24 hours following the birth of an infant and 6 weeks postpartum. The causes of secondary postpartum hemorrhage are usually retained products of conception, infection or both.

Postpartum hemorrhage is the leading cause of maternal mortality worldwide. The purpose of this policy is to develop a unified, team approach to PPH, which allows for rapid recognition, assessment, and treatment of postpartum bleeding.

**ROLES AND RESPONSIBILITIES**

Physicians, Midwives, OBS R.N’s, Team-leaders

**OVERVIEW**

 **The common causes of PPH fall into the following categories called the “4 T’s”:**

**TONE**:

* Multiparity
* Prolonged labour
* Precipitous labour
* Anything that over distends the uterus: polyhydramnios, multiple gestation, large baby
* Induction or augmentation of labour
* Abruption
* Ruptured uterus
* General anesthesia
* Full bladder

**TRAUMA**:

* Lacerations of the genital tract: cervix, vagina, perineum, uterus
* Uterine rupture
* Uterine inversion

**TISSUE**:

* Retained placenta
* Retained blood clots

**THROMBIN**:

* Coagulopathy (preexisting or acquired in pregnancy)
* Therapeutic anticoagulation

**Note**: a previous history of **PPH** is a significant risk factor. If risk factors are present, anticipate and prepare for PPH.

 **Prevention: Active management of the third stage**

*(For women with risk factors, consideration should be given to extra precautions, such as IV access, coagulation studies, cross matching blood and anesthesia backup prior to delivery. This should be discussed in the antenatal period with the patient)*

* All women should be administered Oxytocin 10 units IM or 5 units IV push following delivery of the anterior shoulder. If a woman declines oxytocin there should be a detailed and documented discussion of the benefits and risks on her chart.
* Palpate the uterine fundus to ensure the uterus is well contracted
* Wait for signs of placental separation (vaginal bleeding or laxity of the umbilical cord). Maintain tension on the cord by pulling gently while at the same time applying suprapubic counter-traction on the uterus with the other hand.
* If the placenta is still retained after 15 minutes and there is no significant bleeding, start an oxytocin infusion of 20 units in 1 L of NS at 100-150 cc/hr.
* If the placenta is still retained after 30-45 minutes, and there is no significant bleeding, then consider draining placental cord blood or umbilical vein injection of misoprostol (see Appendix 1 for Pipingas Technique). If this is unsuccessful then manual removal of the placenta under anesthesia should occur.
* If there is any significant bleeding prior to delivery of the placenta, then manual removal of the placenta must take place.
* After the placenta is delivered, assess the uterine fundus to ensure it is well contracted. Next inspect the placenta for completeness after ensuring there is no ongoing, significant uterine bleeding. Note the number of cord vessels.
* Inspect the cervix, vaginal walls, and perineum for lacerations after expulsion of the placenta.

**PROCEDURE**

1. Management of Postpartum Hemorrhage (see Appendix 2 PPH Decision Tree)

1.1 Anticipate the patient at risk for PPH.

1.2 Talk to and observe the woman (including a set of vitals) regularly. Assess her uterine fundus and amount of bleeding. If evidence of a PPH then get help and notify the physician or midwife.

1.3 Massage the uterus and start a large bore IV (18 gauge).

1.4 Give Oxytocin 20-40 units/L of NS IV wide open. If the uterus feels atonic the nurse may start this prior to discussion with the MRP. The only contraindication would be a known hypersensitivity to oxytocin. The MRP must be informed if this occurs.

1.5 The MRP will assess and empty the uterus of any blood clots and ensure the uterus is not partially inverted. Uterine massage and bimanual compression will be applied if necessary. Consider giving entonox or fentanyl if bimanual compression is applied.

1.6 Empty the bladder and consider a foley catheter if the bleeding has not improved.

1.7 Crossmatch 2 units of RBC, CBC, INR/PTT, and fibrinogen (fibrinogen is not available in Walkerton at this time).

1.8 If the bleeding continues and the uterus is still atonic, then consider second line uterotonics:

**ERGONOVINE (Ergometrine) 0.25 mg IM/IV**

* May be given q 2-4 hours
* May inhibit subsequent exploration of the uterus due to titanic contraction.
* **Hypertension** is a contraindication to using ergot due to the risk of stroke and/or hypertensive crisis.
* Contraindicated with concomitant use of certain drugs used to treat HIV (e.g. protease inhibitors, non-nucleoside reverse transcriptase inhibitors)

**CARBOPROST TROMETHAMINE (HEMABATE) 0.25 mg IM/IMM**

* May be given q 15 minutes
* Maximum of 8 doses (2 mg total cumulative dose)
* May inhibit subsequent exploration of the uterus due to titanic contraction.
* Asthma is a relative contraindication.

**MISOPROSTOL (CYTOTEC) 400 mcg SL**

* May give 800-1000 mcg PR if unable to give SL.
* Onset of action is 30 minutes.

**TRANEXAMIC ACID (TXA) 1 gram IV**

* Give over 10 minutes
* May be repeated if bleeding persists after 30 minutes or restarts within 24 hours.
* Consider giving if other second line uterotonics are unsuccessful.

1.9 If the uterus is still atonic and bleeding persists then explore the uterus for retained products and remove if present. If bleeding continues consider tamponade with the Bakri Balloon (instructions with the kit). If unsuccessful consider embolization or surgery (which may require transfer to another facility)

1.10 If the uterus is firm and the bleeding continues:

* Get help and resuscitate the patient
* Use component blood products if required
* Explore the lower genital tract using appropriate analgesia and/or anesthesia (good lighting, exposure and assistance is essential to assess for lacerations).

1.11 If bleeding continues and is originating from the uterus:

* Evaluate for coagulopathy. If abnormal, or suspected abnormal, correct with fresh frozen plasma (FFP), cryoprecipitate, platelets and/or RBC’s.
* Take the patient to the OR to rule out uterine rupture or inadequate repair. Be prepared to ligate the uterine/ovarian arteries, perform uterine compression sutures (B-Lynch and Cho), or hysterectomy.

1.12 Patients who cannot receive blood require careful pre-labour assessment and transfer to a center more equipped to deal with a PPH should it occur. While respecting the woman’s desire for no blood products to be given, the clinician must employ all other treatment options for PPH to the fullest.

**DEFINITIONS**

Most responsible provider (MRP) is a regulated healthcare professional, who has overall responsibility for directing and coordinating the care and management of a patient at a specific point in time.

Intramuscular (IM) situated or taking place within, or administered into, a muscle.

Intramyometrial (IMM) within or into the myometrium the middle layer of the uterine wall.

**REFERENCES**

Society of Obstetricians and Gynecologists of Canada (SOGC), Advances in Labour and Risk Management (ALARM), 24th edition.

Prevention and Management of Postpartum Hemorrhage, SOGC Clinical Practice Guidelines, No 88, April 2000.

Postpartum Hemorrhage, More OB, 2018

Appendix 1: PIPINGAS TECHNIQUE

Appendix 2: PPH DECISION TREE

**APPENDIX 1: PIPINGAS TECHNIQUE**

This technique may be employed to try and promote separation of a retained placenta and hopefully avoid the need for manual removal of the placenta. This should be considered if the placenta has not separated within 30-45 minutes of birth and there is no significant bleeding.

* Explain the procedure and obtain consent from the patient.
* Prepare a syringe with the medication in 30 ml of normal saline. Crush and dissolve 4 x 200 mcg tablets of misoprostol in 30 ml of normal saline (forms a milky solution).
* Identify the umbilical vein. Recut the cord if necessary.
* Insert a size 10 nasogastric tube into the umbilical vein. If resistance is felt, retract the catheter by 1-2 cm, and then advance further, if possible.
* The tube has reached the placenta when the majority of the catheter is inserted and resistance is felt. (The lengths of umbilical cords varied from 30-47 cm in the Rogers’ study).
* Retract by 3-4 cm to ensure the tip is in the umbilical vein and not in a placental branch.
* Attach the syringe, inject the solution, and then clamp the cord with the catheter in place.
* Note the time of the injection.
* Wait 10-30 minutes for the placenta to deliver.

**APPENDIX 2: PPH DECISION TREE**

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