Postpartum Hemorrhage (PPH)

Site Applicability

SPH – Pregnancy, Birthing, and Newborn Centre

Practice Level

Specialized: Physicians (with perinatal privileges, Anesthesiologists), Registered Midwives, Perinatal, Perioperative and Critical Care Registered Nurses and Clinical Support Clerks

Need to Know

Postpartum hemorrhage (PPH) is life threatening and remains the leading cause of death for birthing persons globally. Early recognition, prompt intervention and multidisciplinary teamwork are required.

PPH is defined as:

- Blood loss greater than **500 mL during a vaginal birth**, or
- Blood loss greater than **1000 mL during a Caesarean birth**, or
- Any blood loss that contributes to a major physiological change or produces hemodynamic instability as determined by pre-existing conditions (e.g. anemia, decreased blood volume, etc.)
  Severe PPH: blood loss greater than 1500 mL for either vaginal or Caesarean birth
  Early/Primary PPH: Typically occurs within the first 24 hours (hrs) after delivery
  Late/Secondary PPH: Occurs between 24 hrs after delivery and six weeks postpartum

The primary goal of treatment is to identify and correct the source of bleeding, restore blood volume and stabilize both vital signs (VS) and level of consciousness (LOC) of the birthing person.

Active management of the 3rd stage of labour (AMTSL) is standard of care for all births. AMTSL decreases the incidence and severity of PPH through administration of **oxytocin** with delivery of the fetal anterior shoulder at spontaneous vaginal delivery (SVD), or administration of **carbetocin** at Caesarean births or in presence of risk factors for PPH at SVD.

Delayed cord clamping, when appropriate, has not been shown to increase the likelihood of PPH.

Due to the normal physiologic changes of pregnancy, the pregnant person demonstrates an initial heightened compensatory response to blood loss. Vital signs may be within normal parameters until significant blood loss has occurred without the birthing person displaying signs and symptoms of shock.

The amount of blood loss required to cause hemodynamic instability depends on the individual's pre-existing health status. The blood flow to the placental bed varies with gestation but is approximately 750 ml/min at term.

Risks and causes of PPH may be categorized into one of the four following groups (4 T's) (Appendix A):

- Abnormalities of uterine contraction (**TONE**)
- **TRAUMA** to reproductive structures/genital tract
- Retained products of conception or blood clots (**TISSUE**)
- Abnormalities of coagulation (**THROMBIN**)

(Continued page 3)

Algorithm - PPH – Initial Response (see also Appendix F for list of medications)

See Appendix F for Cautions & Contraindications for Uterotonics

Always double check with complex care plans/OB/ anesthesia whether patient diagnosis is compatible with usual uterotonics.

PPH is Identified

CALL FOR HELP
Remain with patient
Notify PCP/OB on-call
Keep NPO

If patient is unresponsive, apneic, asystolic call a
CODE BLUE
Initiate CPR

IN ALL SITUATIONS

- Initiate VS monitoring – maintain normothermia
- Initiate 100% oxygen at 10 L/min - Maintain SpO_2 greater than or equal to 95%
- Initiate monitoring of LOC and sedation
- Initiate 18G IV access x 2 with Normal Saline (NS) 125 mL/hr
- Initiate oxytocin continuous infusion (with appropriate concentration and rate)
- Provide bimanual uterine massage
- Empty bladder
- Weigh saturated sponges/pads/linens and calculated blood loss (1g = 1mL)
- Anticipate blood work (i.e. Group & Screen, CBCD, PTT/INR, fibrinogen)
  - Additional labs may include: ABG, lactate, extended electrolytes, renal profile, ionized calcium
- Encourage breastfeeding/breast pumping if patient is willing/able
- Provide support to patient and family

PCP/MRP NOT PRESENT

Until PCP/MRP is present :

- **Initiate NIP OB Postpartum Hemorrhage orders**
- VS every 15 minutes
- May administer IV NS 500mL bolus x2 (program pump to 999 mL/hr)
  → Be cautions in the context of certain medical conditions (e.g. gestational hypertension and cardiac diagnoses
- Initiate oxytocin infusion 20 units in 1 L NS; infuse at 150 to 250 mL/hr (50-83 mu/min)

PCP/MRP PRESENT

Upon receipt of orders:

- **Initiate OB Postpartum Hemorrhage orders**
- VS every 5 minutes
- NS bolus as per orders (program pump to 999 mL/hr)
- Initiate oxytocin infusion 40 units in 1 L NS – Starting rate 250 mL/hr; range 150 to 400 mL/hr (83 mu/min; 50 to 133 mu/min)
- Consider and administer additional medications as ordered (i.e. uterotonics, fibrinolytic inhibitors, analgesia, antidiarrheal agents,etc.) (see Appendix F)
- Consider/Discuss early transfer to the OR if bleeding is on-going
- Consider/Discuss if patient should transfer to higher level of care post-resuscitation (e.g. transfer to HAU/ICU)

NIP = Nurse Initiated Protocol

A PPH risk assessment risk level should be completed and documented for every birthing person upon arrival to the birthing centre, at specific intervals during antepartum and intrapartum periods, on transition to postpartum care and any time the patient's condition changes (see 'Routine Assessment' section).

Severe PPH management should be multidisciplinary (e.g. obstetrics, anesthesia, nursing, and transfusion medicine) and coordination of care assisted through use of massive transfusion protocol.

In the event that pharmacological interventions do not adequately control bleeding, prompt surgical intervention should be undertaken.

When Caesarean birth is indicated for persons in labour, and the situation permits, allow for oxytocin infusions to be stopped for as long as possible (ideally 1 hour) to permit dilution of oxytocin systemically. This improves oxytocin response at the time of delivery which decreases blood loss.

Equipment and Supplies

- Equipment to measure vital signs: maternal blood pressure, heart rate, oxygen saturation (O_2 sat) and temperature (e.g. BP monitor, pulse oximeter, thermometer, stethoscope)
- Equipment for airway and resuscitation: (e.g. suction with tubing and Yankauer catheter, oxygen mask, etc.)
- Equipment to treat the underlying cause, stop ongoing blood loss and initiate volume resuscitation (e.g. Obstetrical Emergencies Cart, Epidural Cart, etc.)
- Delivery Cart with instrument tray and surgical sponges
- Lighting (e.g. room lighting and portable stand light)
- Absorbent linen/pads
- Scale
- Medications and fluids as ordered for pain management and hemostasis (e.g. Entonox, fentanyl, uterotonics, tranexamic acid, volume expanders, etc.)

Guideline

Routine Assessment

To aid in early recognition and prompt intervention:

1. The nurse will conduct a safety check of the patient care space each shift to ensure that the supplies and equipment required to respond to a PPH are present and/or accessible
2. The nurse together with the provider will review the patient's health care record to:
    - Identify and document pre-existing risk factors for PPH and risk level (see Appendix B)
        i. On admission
        ii. Antepartum – every shift
        iii. Intrapartum:
            - 1st stage – every 6 hours
            - 2nd stage – every 1 hour
        iv. On transfer to/initiation of postpartum care
        v. Any time the patient's condition changes
    - Identify any contraindications to uterotonic medications (see Appendix F)

3. If risk factors are identified, the team should consider the following based on risk level (see Appendix B):
    - Ensure IV access is present and patent (i.e. 18G cannula)
        - If unable to initiate an 18G, call for help (e.g. more experience team member, IV Therapy, anesthesia, etc.)
        - Care may require 2 IV sites depending on IV cannula size, medications being administered, additional treatments ordered, etc.
    - Ensure appropriate bloodwork has been collected and sent as soon as possible (e.g. CBC, Group and Screen [not hold], Crossmatch, etc.)
        - Some patients may have antibodies that require additional time for Transfusion Medicine to complete the Crossmatch
    - Discuss with the provider, and consider administration of carbetocin IM instead of oxytocin for management of 3rd stage:
        - Carbetocin may be administered after delivery of the infant, or after delivery of the placenta (regardless of mode of delivery)
        - If an oxytocin infusion is running, stop the infusion once carbetocin has been administered
    - Consider whether it is appropriate for the patient to be NPO
        - Note: Discuss with the team whether continuing a clear fluid diet is acceptable

<table>
<tr><th>Mode of Delivery</th><th>Frequency of Assessment</th><th>Other Patient Education & Instructions</th></tr>
<tr><td>Spontaneous Vaginal Delivery (SVD)</td><td>• Every 15 minutes x 4
• At 2 hrs post delivery
• Every shift thereafter
• PRN based on clinical presentation</td><td rowspan="2">Nursing Instructions:
• Increase frequency of assessment if risk factors are present
• Ensure that IV is patent and infusing appropriately, if present
• Ensure oxytocin is infusing as per Provider’s Orders, if ordered
• Instruct patient to call for assistance:
  ○ With ambulation
  ○ If increased bleeding and/or clots are noted

Patient Education:
• Frequent breastfeeding stimulates the release of patient’s own natural oxytocin causing uterine contractions
• Frequent voiding (every 2 to 4 hrs) prevents bladder distention which may cause uterine atony and increased bleeding</td></tr>
<tr><td>Caesarean Section (C/S)</td><td>In Recovery (Phase 1 Post-Anesthetic):
• On admission to Recovery
• Every 15 minutes x 2 hours, then*
• Every 30 minutes x 2 hours, then*
• Every 1 hr* until discharge from Recovery
• PRN
* If patient does not meet the criteria for discharge from Recovery
In Postpartum:
• On admission to Postpartum
• Respiratory rate every 1 hr for 12 hrs
• Every 4 hrs for 24 hrs
• Every shift thereafter
• PRN based on clinical presentation</td></tr>
</table>

After delivery, the patient is regularly assessed for signs and symptoms of PPH:

- Assessment includes:
  - Vital signs (BP, HR, RR, O_2 sat)
  - Temperature once in the first hr, then with regular postpartum assessments and PRN
  - Level of consciousness (LOC), sedation scale and pain
  - Fundal tone, height and position
  - Lochia colour and amount (see Appendix D/Appendix E)
  - Perineal bruising, swelling and pain, and approximation of sutures
  - Incisional bruising swelling and pain, and condition of dressing
- Quantitative Blood Loss (QBL) Measurement
  - Once neonate is delivered, place additional sterile drape under birthing person's buttocks to separate linens previously saturated with amniotic fluid which should not be included in QBL measurement
  - In a low risk delivery, weighing of sponges, pads and linens may be deferred until patient has been settled
  - In an evolving situation, work with Provider to regularly calculate QBL
- If risk factors for PPH have been identified:
  - Frequency of assessment may be increased based on risk level
  - Consider administration of continuous oxytocin infusion or carbetocin

Signs And Symptoms of PPH Include:

- Fundal Assessment:
  - Poor tone, boggy or uncontracted uterus
  - Fundal height/position - high or deviated to right or left
- Lochia:
  - Amount: Increased volume of vaginal bleeding (e.g. greater than 1 pad per hour)
  - Consistency: Numerous and/or large clots (greater than a Loonie size)
  - Pattern: Sudden gushes, slow constant flow or trickle
- Trauma/Lacerations:
  - Consistent lochia trickle with firm fundus
  - Discoloration or excessive swelling in the vulvar area
  - Increasing abdominal pain and/or girth
  - Persistent, severe perineal pain or pressure
- Changes in VS:
  - Tachycardia, weak or irregular pulse
  - Hypotension -decreased systolic blood pressure
  - Tachypnea
- Hypovolemic shock:
  - Changes in level of consciousness, restlessness, anxiety
  - Cool, clammy, pale skin
  - Decreased urine output

Note: Nausea and vomiting may be an early sign of cerebral hypo-perfusion secondary to low blood pressure. When a patient is nauseous and/or has vomited, pay close attention to their BP to ensure it is stable.

Interventions

In the event that a PPH is identified, timely and effective communication is essential in order to provide well-timed care and intervention. (See Appendix C/Appendix G)

- **CALL FOR HELP** and initiate management of PPH (See Algorithm: **PPH – Initial Response**)
  - Use the **patient call bell** and/or **Staff Alert button** to bring additional supports and resources to the patient bedside
  - Notify primary care provider (PCP)/most responsible provider (MRP)
    - If PCP/MRP is not immediately available, call OB/resident on-call
    - Provider may consider consulting Anesthesiology
  - **CODE BLUE** - If patient is experiencing:
    - Cardiac and/or respiratory arrest, acute respiratory distress, choking, anaphylaxis, or seizures
  - **Massive Transfusion Protocol (MTP):** (see 'Related Documents')
    - When provider requests activation of MTP:
      - Designated liaison person from the clinical team is identified to communicate with Transfusion Medicine and Laboratory
      - Transfusion Medicine (TM) is called and informed of:
        - Patient location
        - Patient name, MRN, gender, age
        - Required blood products
      - Ensure lab orders are placed as STAT and that lab has been called to escalate blood work orders
- **Initiate monitoring & measure blood loss** (see Appendix D, Appendix E)
  - If PCP/MRP not present – initiate **"NIP OB Postpartum Hemorrhage"** order set
  - If PCP/MRP present – initiate **"OB Postpartum Hemorrhage (Module)"**
  - Anticipate need for bloodwork
- **Assess possible sources of bleeding**
- **Intervene to decrease/stop bleeding** & anticipate need for blood and/or Operating Room

Ongoing Assessment & Management AFTER PPH:

Once a PPH is resolved, the patient should continue to be closely observed for signs and symptoms of recurring PPH.

Monitor for side effects from treatments and administer comfort measures and additional medications as prescribed.

Consider the psychosocial effects of the experience of PPH on the patient, partner and family.

- Frequently offer an opportunity to express questions and concerns about events with nurse, physician/midwife and/or social worker

- Consider Psychiatry and/or Reproductive Mental Health consult if appropriate

Assessments (as outlined above) should occur, at a minimum:

- Every 15 minutes x2, then (if stable* [no further on-going abnormal bleeding])
- Every 30 minutes x2, then*
- Every 1 hour x2
- Consider increased frequency of monitoring for 24hrs (i.e. every 4 hours)
- PRN

Consider obtaining ECG

If signs and symptoms of a recurrent PPH are present, call for help and initiate PPH management.

Documentation

- Document all assessments and interventions in the health care record (Cerner EHR or paper) contemporaneously (as close as possible to when the care was provided)
- Cerner PowerChart →
    - Interactive View and I&O →
        - Labour and Delivery band
            - Delivery Information Provider → Delivery EBL
        - OB Special Assessment →
            - Peripheral IV
        - OB Postpartum, Recovery, OB Systems Assessment bands
            - All appropriate sections (e.g. Vital Signs, Obstetrical Bleeding, Postpartum, etc.)
        - OB Education → Postpartum Education
        - Blood Product Administration
        - Intake and Output
    - MAR
    - Narrative Notes
- FormFast →
    - PHC Consent for Transfusion of Blood and/or Blood Products
    - Certificate of Need for Emergent Transfusion of Blood and/or Blood Products
    - Refusal to Accept Transfusion of Blood and/or Blood Products (PHC)
    - Consent for Treatment (PHC)
- AD HOC →
    - OB Triage and Assessment Form
    - Perioperative Preprocedure Checklist
- PHC PPH Clinical Record – located in Adult Resuscitation (PPH) Cart

Classification of PPH & Anticipated Care Team Response –

	Stage 0 (NORMAL)	Stage 1 (MILD)	Stage 2 (MODERATE)	Stage 3 (SEVERE)
Estimated Blood Loss	Less than 500 mL (SVD)/ 1000 mL (C/S)	Greater than 500 (SVD)/1000 mL (C/S) **(EBL may be normal but with VS Changes)**	Greater than 1000 mL	Greater than 1500 mL
Observed Vital Signs * Response	**Normal VS –** HR less than 100 bpm BP normal	**VS Changes –** HR less than or equal to 110 bpm SBP greater than 110 mmHg	**VS Changes –** HR greater than 110 bpm SBP 80 to 100 mmHg	**VS Instability–** HR greater than 120 bpm SBP less than 80 mmHg
Signs & Symptoms	Asymptomatic	Often asymptomatic, or may have signs of severe PPH	May be asymptomatic, or may have signs of severe PH	Diaphoresis Delayed capillary refill time Tachypnea Pallor Oliguria/anuria Decreased LOC Agitation **Cool extremities**
Anticipated Care Team Response	**Active Management 3rd Stage of Labour** Routine post-delivery assessment and monitoring	Call for help - Notify MRP Assess VS & LOC every 5 - 15 min Measure blood loss Administer O_2 (keep O_2 Sat greater than 95%) Initiate large-bore IV (18G) with NS Draw labs (i.e. CBCD, Coagulation panel, type & screen (run), etc.) NPO Position patient supine with HOB less than 30° Keep patient warm Assess fundal tone, perform fundal massage Empty bladder Assess source of bleeding, perform specific interventions (e.g. administer uterotonics, repair lacerations, evacuate clots, etc.)	Notify additional personnel (OB consult, consider anesthesia consult, inform OR) Consider subsequent doses of uterotonics Consider intrauterine balloon tamponade Initiate 2nd IV (if not already done) Continue IV fluid resuscitation Insert Foley catheter (if not already done) Consider D&C if retained POC suspected Consider prophylactic antibiotics Draw labs (if not already done) Consider blood administration (i.e. PRBC) as per clinical signs (regardless of whether labs are resulted)	**Uncontrolled Bleeding –** Transfer to OR Activate MTP Consider on-going use of uterotonics Consider use of tranexamic acid Surgical management **Controlled Bleeding –** Consider further blood and blood product administration (e.g. PRBC, Fresh Frozen Plasma, platelets, etc.) **Additional –** Consider a urometer for close monitoring of output

*** BP and HR may be variable**

Patient and Family Education

Review with patient and support person/family:

- The rationale for and frequency of assessments and interventions
- The role of the various health care providers involved
- The potential implications of treatment, medications, interventions (e.g. fatigue, loose stool, etc.)
- The need to call for assistance when ambulating
- The need to notify nursing if bleeding increases or clots are present
- How to self-check their own fundus
- The importance of frequent voiding to prevent bladder distension, or discuss need for Foley catheter
- Provide an opportunity for debriefing as necessary, offer a Social Work referral

Related Documents

(Back 'Need to Know'/back 'Intervention')

PHC:

- B-00-13-10228 – Massive Transfusion Protocol (MTP)
- B-00-12-10065 – Blood/Blood Product Administration
- B-00-16-10050 – Safe Work Procedure for Preparation of Parenteral Hazardous Drugs
- B-00-16-10049 – Safe Work Procedure for Preparation of Oral Solid Hazardous Drugs (Tablets or Capsules)
- Providence Health Care – Hazardous Drugs Control Matrix –Group 2

Medication Safety:

- Lexicomp:
  - Misoprostol
- Parenteral Drug Therapy Manual:
  - Carbetocin
  - Carboprost
  - Ergonovine
  - Oxytocin
  - Tranexamic Acid
- BC Provincial Hazardous Drug List

Provincial Support Tools:

- PSBC Registered Nurse Initiated Activities:
  - Decision Support Tool No. 5A: Administration of Nitrous Oxide in Oxygen
  - Decision Support Tool No. 7: Postpartum Hemorrhage

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Appendices

- Appendix A: Causes and Risk Factor of PPH (The Four T's)
- Appendix B: Risk Assessment and Recommended Preparations
- Appendix C: SPH PPH Roles & Responsibilities and Telephone Scripts
- Appendix D: Calculating Blood Loss
- Appendix E: Visual Representation for Estimating Blood Loss
- Appendix F: Uterotonic Doses and Administration
- Appendix G: PSBC DST – PPH (2011)

Appendix A: Common Causes and Risk Factors of PPH (The Four T's) – *(back 'Need to Know')*

	CAUSE	RISK FACTORS
Tone (Uterine atony)	Over-distended Uterus	Polyhydramnios Multiple gestation Macrosomia
	Uterine Exhaustion	Precipitous labour Prolonged labour Prolonged oxytocin use High Parity General anesthesia Anemia
	Intra-Amniotic Infection	Prolonged rupture of membranes Chorioamnionitis
	Dysfunctional uterine activity	Fibroid Uterus Placenta Previa
Tissue	Retained products	Incomplete placenta at delivery (e.g. Abnormal placentation, retained cotyledon or succinturiate lobe)
Trauma	Tears/lacerations of the cervix, vagina, perineum Ruptured vulvar varicosities	Precipitous delivery Operative/assisted delivery Episiotomy extension Malpresentation
	Extensions/Lacerations at Caesarean Delivery	Malpresentation Deep engagement Prolonged 2nd stage
	Uterine Rupture	Previous Uterine Surgery
	Uterine Inversion	Nulliparity with fundal placenta High Parity Fundal Placenta Excessive cord traction
Thrombin (Abnormalities of coagulation)	Pre-existing in pregnancy	History of hereditary coagulopathies (e.g. Hemophilia a, van Willebrand's disease, etc.) Idiopathic thrombotic purpura
	Acquired in Pregnancy	Preeclampsia Disseminated intravascular coagulopathy Fetal demise Sever infection Abruption Amniotic fluid embolism
	Iatrogenic	Therapeutic anticoagulation

(Adapted from SOGC [2022])

Appendix B: Risk Assessment and Recommended Preparations

(back 'Routine Assessment')

PPH Risk Assessment should be completed and documented on all perinatal patients:

i. On admission
ii. Antepartum – every shift
iii. Intrapartum:
   - 1st stage – every 6 hours
   - 2nd stage – every 1 hour
iv. On transfer to/initiation of postpartum care
v. Any time the patient's condition changes

	LOW RISK	MEDIUM RISK	HIGH RISK
Antepartum Risk Factors	No previous uterine incision Singleton pregnancy 4 or less vaginal births No known bleeding disorders No history of PPH	Prior Caesarean birth(s) or uterine surgery Multiple gestation More than 4 vaginal births Chorioamnionitis History of a single previous PPH Large uterine fibroids (Greater than 8 cm) Platelets 50 -100 000 Hematocrit less than 0.3 (Hgb less than 100) Polyhydramnios Gestational age less than 37 weeks or greater than 41 weeks Preeclampsia Prolonged labour/inductions (greater than 24 hours)	Placenta previa, low lying placenta Suspected/known placenta accreta, percreta or increta Abruption or active bleeding (greater than show [1 pad per hour]) Known coagulopathy (e.g. von Willebrand's, antibodies to Factor VIII, Factor X, XI, XIII deficiencies) Anticoagulation therapy Sepsis History of more than 1 previous PPH HELLP Syndrome Platelets less than 50 000 Hematocrit less than 0.24 (Hgb less than 80) Fetal demise 2 or more medium risk factors

	LOW RISK	MEDIUM RISK	HIGH RISK
Recommended Preparations	Evaluate for development of additional risk factors Routine care	Insert IV Ensure Group & Screen (not hold), CBC are drawn Review level of risk and anticipated care with the birthing person and the team Consider carbetocin IM at delivery Consider tranexamic acid for prophylaxis Have PPH cart at room	Notify OB of admission (if not PCP) Notify anesthesia of admission Ensure Group & Screen (not hold + Crossmatch 2 units PRBC), CBC, PT/INR, fibrinogen are drawn Review level of risk and anticipated care with the birthing person and the team Obtain consent for blood products Carbetocin IM at delivery Tranexamic acid for prophylaxis Ensure 2nd line uterotonics are in room at delivery and escalate early Have PPH cart at room
	Routine Postpartum Care	Increased Surveillance Postpartum Ensure MRP is aware	Increased Surveillance Postpartum Ensure MRP is aware

	Low Risk	Medium Risk	High Risk
Additional Birth & On-Going Postpartum Risk Factors		Caesarean birth during current admission – especially if urgent/emergent or occurring during 2nd stage Operative vaginal birth Genital tract trauma including 3rd and 4th degree lacerations Quantitative cumulative blood loss 500 to 1000 mL with a vaginal birth Precipitous delivery Prolonged 2nd stage (Greater than 3 hours)	Active bleeding (greater than 1 pad per hour or passing clot 6 cm or greater) Retained placenta Non-lower transverse uterine incisions for Caesarean birth Quantitative cumulative blood loss greater than or equal to 1000 mL, or treated for hemorrhage Received general anesthesia Uterine rupture

Appendix C: SPH PPH Roles & Responsibilities and Telephone Scripts

(back 'Intervention')

PCP/MRP/Resident	Primary RN	Secondary RN(s)/CNL/CN	Clinical Support Clerk (CSC)

Evaluate patient within 15 minutes of being notified
Identify severity of PPH
Stabilize patient:
• Fluid resuscitation
• Blood work (BW) –
  ○ PPH PowerPlan: Group & Screen, CBCD, PTT, INR, fibrinogen, Ca^{2+}
  ○ MTP PowerPlan: CBC, PT, PTT, fibrinogen, ionized calcium, lactate, electrolytes, ABG (q 60 min)
• Blood products
Treat – Medical Management of PPH
Plan Ahead:
• **OB Consult** (Stage 2 & 3)
• **Anesthesia Consult** (Stage 2)
• Alert OR
• Consider embolization
• OB backup (at discretion of primary OB)
❖ Identify whether Massive Transfusion Protocol (MTP) is needed outlining what products are needed (type and volume)
	Remain with patient and provide continuous support
	• Provide explanation of assessments and interventions
	• Identify role of various health care providers
	❖ **CALL FOR HELP** – alert the Nursing Station **("PPH in Room #)**
	Initiate patient stabilization and treatment:
	• Assess patient's ABCs
	• Initiate VS monitoring every 5 to 15 min
	• Patient is NPO
	• Position patient supine
	• Establish two (2) IV sites (18G)
	• Initiate IV NS at 125 mL/hr (may administer NS bolus with a Provider Order)
	• Administer oxytocin 20 units in 1L NS at 150 to 250 mL/hr (until further orders from PCP)
	• Provide bimanual uterine massage if uterus is not firm
	• Administer oxygen by face mask at 8 to 10 L/min to maintain O_2 sat at 94% or greater
	• Keep patient warm
	• Empty bladder (use a urometer if an order for indwelling catheter has been received)
	• Administer medications and blood products as per orders
	• Assist to breastfeed as appropriate
	Initiate Documentation (PPH Clinical Record)
	• VS
	• Input & Output (including EBL)
	• Fundus and lochia (assess whether blood is clotting)
	• Medications
	Prepare for transfer to OR as necessary
		Assist primary RN
		Gather equipment:
		• Obstetrical Emergencies Cart
		• Additional light source
		• Scale
		• Medications
		Provide newborn care
		Provide care and support to support person(s):
		• Support persons may need to be removed from the room in order to facilitate care/transfer of the patient – maintain communication
		Assist with documentation:
		• VS
		• Intake & Output (including EBL)
		• Fundus and lochia
		• Medications
		Assist with Order Entry:
		• **Medications**
		• **Blood work**
		• **Blood product (other than MTP telephone orders to TM**
		Assist with transfer to OR
		If MTP initiated:
		• Call TM Lab at 68003, state "Activating MTP"
		  ○ Reason "PPH"
		  ○ Patient (with MRN)
		  ○ Products required
		❖ **Identify the unit contact person to TM with their local**
		• Identify individual to pick up product from TM
			IN COLLABORATION WITH CNL/CN:
			Notify and inform of PPH:
			• CNL/Charge RN (CN)
			• PCP/MRP
			• Resident
			• OB on-call
			❖ **Ask for estimated time of arrival (ETA) and communicate this information to CN/CNL and primary RN**
			Identify one (1) contact person (i.e. CNL/CN or delegate) to manage flow of information at the Nursing Station
			Contact:
			• **Lab** – Identify priority BW, ask for an ETA of lab personnel - communicate this info to CNL and primary RN
			• **Transfusion Medicine (TM)** – Identify priority results and products, ask for an ETA on expedited results and blood products - communicate this info to CNL and primary RN
			Print Consents:
			• PHC Consent for Transfusion of Blood and/or Blood Products
			• Certificate of Need for Emergent Transfusion of Blood and/or Blood Products
			• Refusal to Accept Transfusion of Blood and/or Blood Products (PHC)
			• Consent for Treatment (PHC)

Appendix C: SPH PPH Roles & Responsibilities and Telephone Scripts (con't)

WHO TO CALL IN A PPH…

CNL/CN	Providers (OB, FP, MW)	Porter Ward Aide	Anesthesia/OR
Patient name: _____ in room #: _____ is having a PPH. We need you to come. When will you be able to come?	This is Maternity calling. Patient name: _____ in room #: _____ is having a PPH. We need you to come. When can we expect you?	We need you to come to the nursing station. There is a PPH and we may need you to go get or collect items. When will you be here?	This is Maternity calling. Patient name: _____ In room #: _____ Is having a PPH. OB is: • Asking that you come; • When can we expect you? or, • Wanting you to be aware in case the OR is needed.

WHEN MASSIVE TRANSFUSION PROTOCOL (MTP) IS INITIATED….

Call Transfusion Medicine (TM) (68003)	Call Laboratory (Accessioning) (62741)
This is Maternity calling. We are activating MTP for PPH. Patient Name: _____ MRN #: _____ Can you run the type and hold if not already done? We need the following blood products: • (e.g. 2 units PRBC) How quickly will they be ready? The PWA or nurse will come collect them. The Charge nurse's name is: _____ Our local is 62432.	This is Maternity calling. We are activating MTP for PPH. We are ordering STAT labs on the patient. Patient Name: _____ MRN #: _____ Can you please send someone right away? When can we expect them? The Charge nurse's name is: _____ Our local is 62432.

Appendix D: Calculating Blood Loss

(back 'Routine Assessment'/back 'Intervention')

The equation used to calculate blood loss of a blood-soaked item is:

WET item weight in grams (g) – DRY item weight in grams (g) = Milliliters (mL) of blood within the item

(Document in 'Quantitative Blood Loss' in 'Obstetrical Bleeding')

'Wet' – blood soaked
'Dry' – clean, unused
1g = 1mL

Level of Saturation	Average Weight
Dry Sponge	20g
Dry Blue Disposable Pad	15g
Dry Peri Pad	17g
Dry Soaker Pad	485g

Estimated Blood Loss = Estimation based on known comparisons and visual estimations of loss

Level of Saturation	EBL
1/4 Saturated Sponge	25 mL
1/2 Saturated Sponge	50 mL
3/4 Saturated Sponge	75 mL
Fully Saturated Sponge	100 mL
1/3 Saturated Peri Pad	100 mL
Fully Saturated Peri Pad	300 mL
1/4 Saturated Blue Pad	50 mL
1/2 Saturate Blue Pad	200 mL
Full Kidney Basin	500 mL
Fully Saturated Bed	1000 mL
Fully Saturated Bed with Spillage/Pooling on Floor	2000 mL

Appendix E: Visual Representation for Estimating Blood Loss *(back 'Routine Assessment'/back 'Intervention')*

Adapted from Pathfinder Toolkit (2010)

Appendix F: Medications Commonly Used in PPH – Cautions & Contraindications

(back 'Algorithm'/back 'Routine Assessment'/back 'PPH Classification')

Always refer to Provider Orders and the Parenteral Drug Therapy Manual (PDTM) for the most up to date recommendations as details are updated frequently

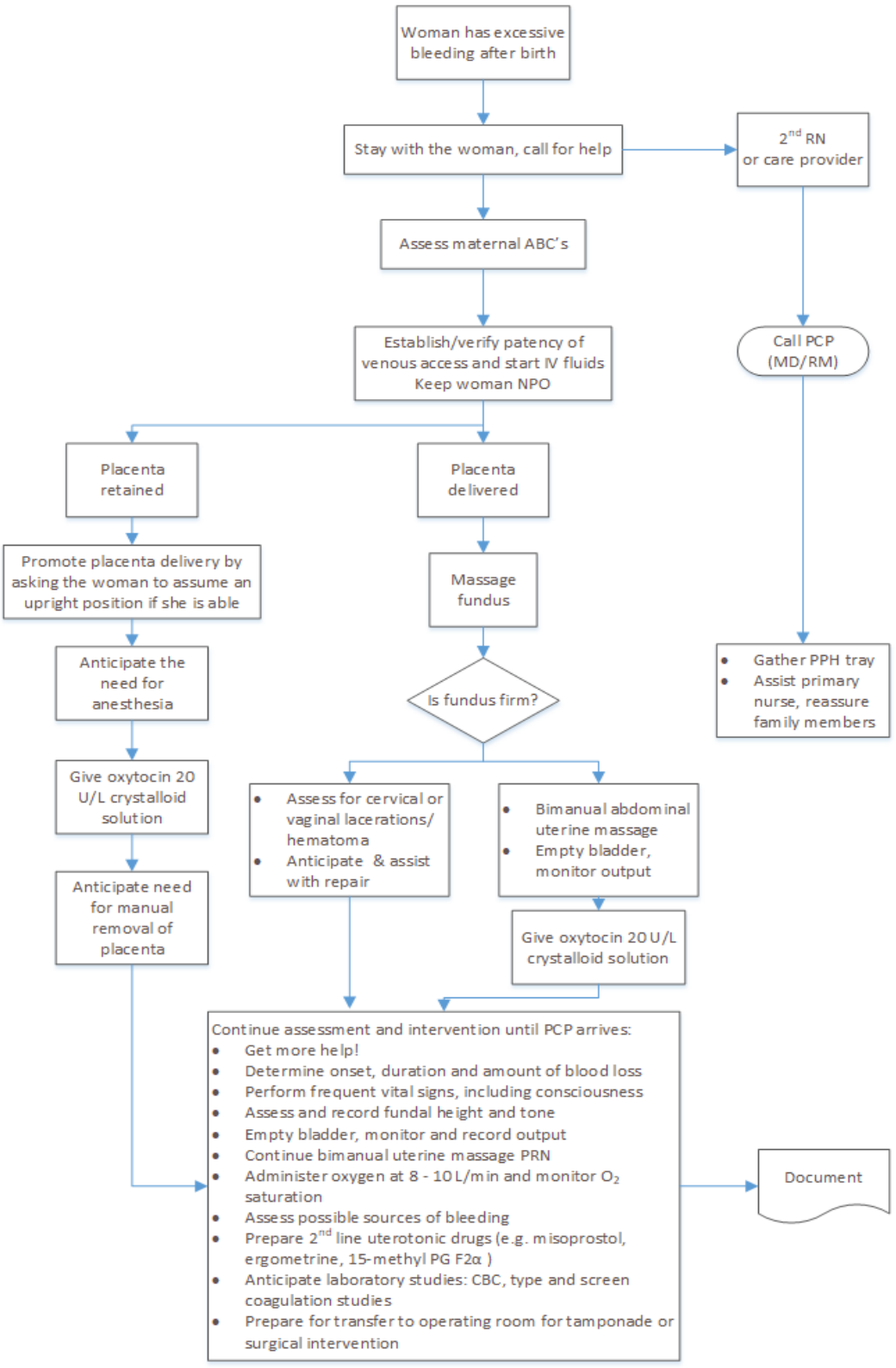
Below table adapted from SOGC 2022 PPH Guideline recommendations and PDTM

Uterotonic	Route	Side Effects	Contraindications/Cautions
Oxytocin *	IM/IV IV infusion	Hypotension, nausea, vomiting, water intoxication	Hypersensitivity to oxytocin, long QT syndrome (Caution)
Ergonovine * (Ergot)	IM	Hypertension, nausea, vomiting, tonic uterine contractions	Severe hypertension, cardiac disease, hypersensitivity to ergometrine, concomitant use of certain HIV medications (protease inhibitors) or macrolide antibiotics
Carboprost (Hemabate)	IM	Bronchoconstriction, hypertension, nausea, vomiting, diarrhea	Hypersensitivity, active cardiac, pulmonary, renal or hepatic disease, asthma
Misoprostol *	SL/PO	Nausea, vomiting, diarrhea, abdominal pain, pyrexia	Hypersensitivity to misoprostol
Carbetocin *	IM or IV	Hypotension, nausea, vomiting, headache, dizziness, flushing, pruritus	Hypersensitivity to carbetocin or oxytocin, vascular disease
Tranexamic Acid	IV intermittent (requires dilution) IV direct (by physician only) Not compatible with other medications routinely used in PPH	Hypotension, thrombosis	DIC without concomitant heparin therapy

* Hazardous Drug Group 2 – ensure use of appropriate PPE/exposure minimizing devices when drawing up and administering medication

Appendix G: PSBC DST – PPH (2011)

(back 'Intervention')



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Patient Care Manager – Maternity and NICU

Clinical Nurse Leader – Maternity

Clinical Nurse Educator – Maternity

Clinical Nurse Leader – NICU

Clinical Nurse Educator – NICU

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