



Immediate Actions

- Call for help and escalate as necessary
- Initiate fundal massage
- Focus on maternal resuscitation and identifying cause of bleeding
- Determine if placenta still insitu
- Tailor pharmacological management to causation and maternal condition (see orange box).
- Complete a SAS form when using carboprost.

Pharmacological regimen (see [flow sheet summary](#))

- Administer third stage medicines if not already done so.
- Administer ergometrine 0.25mg both IM and slow IV (contraindicated in hypertension)

If cause is uterine atony- administer carboprost 250 micrograms (1mL) by deep intramuscular injection

- Administer loperamide 4mg PO to minimise the side-effect of diarrhoea
- Administer antiemetic Ondansetron 4mg IV, if not already given

If cause is cervical, vaginal or perineal trauma- administer Tranexamic acid- 1G IV in 10mL via syringe driver set at 1mL/minute administered over 10 minutes OR as a slow push over 10 mins.

Once bleeding is controlled, administer misoprostol 600microg buccal and initiate an infusion of oxytocin 40U in 1L Hartmann's at a rate of 250mL/hr for 4 hours.

1. Purpose

This document outlines the guideline details for managing primary postpartum haemorrhage at the Women's. Where processes differ between campuses, those that refer to the Sandringham campus are differentiated by pink text or have the heading **Sandringham campus**.

For guidance on postnatal observations and care after a major PPH, please refer to the procedure [Postpartum Haemorrhage - Immediate and On-going Postnatal Care after Major PPH](#)

2. Definitions

Primary postpartum haemorrhage (PPH) is traditionally defined as blood loss greater than or equal to 500 mL, within 24 hours of the birth of a baby (1).

Secondary PPH is defined as a blood loss of more than 500mL after 24 hours and up to 12 weeks postnatally (1).

A major PPH is defined as such when there is continued bleeding and failure to respond to first-line management and cases where blood loss is approaching or exceeding 1000mL (1).

DIC- Disseminated intravascular coagulation.

3. Responsibilities

Obstetric and midwifery staff are responsible for recognising and promptly managing postpartum haemorrhage, for collaborating with other clinicians necessary for the woman's care, escalating to senior clinicians in cases of major PPH.

Senior medical staff (on-call Obstetric Consultant) are responsible for attending all cases of major PPH or on request.

Anaesthetic staff are responsible for providing and advising on clinical care in cases of major PPH when intensive monitoring and resuscitation are required.

The **Haematology Consultant** should be consulted early to co-ordinate the provision of blood products and provide advice regarding transfusion support and management of coagulopathy.

Other available specialists such as Gynae/ Oncology Consultant should be consulted early when bleeding is intractable, where hysterectomy or ligation/ embolisation of uterine arteries are being considered.

Sandringham - Blood product support for bleeding patients is provided by the Alfred Pathology Service. Consider notifying major PPH to the Alfred Hospital Blood Bank and the Laboratory Haematologist on call (03 9076 3100).

4. Guideline

4.1 Principles of care

PPH is recognised early and prompt treatment initiated in order to reduce the associated morbidities and mortality.

Effective teamwork and communication is essential with resuscitation, monitoring, investigation and directed treatment conducted simultaneously .

Management includes addressing the 4 causes of PPH; uterine atony, retained tissue, genital tract trauma and clotting disorders. These are commonly known as the '4 T's'; tone, tissue, trauma and thrombin.

Active management of third stage is recommended to all women as this reduces the risk of PPH and the need for blood transfusion .

4.2 Assessment

Assessment includes effective team management, recognition, communication, resuscitation, monitoring and investigation as well as directed management. Whilst uterine atony is the leading cause of PPH, all causes of should be considered: tone, trauma, tissue and thrombin.

Recognition: visual estimation of blood loss has been recognised as unreliable. Where possible blood loss should be estimated by weighing linen, drapes, pads and swabs. It is important to remember that the clinical signs of haemorrhagic shock are delayed in the newly parturient woman due to the increased blood volume of pregnancy.

Communication: includes communication between all members of the multidisciplinary team with timely escalation to senior obstetric and midwifery staff, the involvement of haematologists and anaesthetists in clinical care. The woman and her support people must be included in the communication.

Resuscitation: initial resuscitation is based on the ABC approach with advanced resuscitation guided by the clinical situation.

An increasing trend in the incidence of PPH has been noted and all maternity clinicians should remain alert to the possibility of PPH ⁴.

Minimum observations include vital signs at regular intervals, measuring on-going blood loss and awareness of total blood loss volume, oxygen saturation and establishing IV access. A designated 'PPH Box' is considered a good risk management approach as all necessary equipment is gathered in one area and quickly available. For suggested contents, see [Appendix 2](#).

Investigations: include basic haematological investigations. Further investigations are guided by the clinical situation.

4.3 Management of women at risk for PPH (2)

Planned vaginal birth

- Confirm labour management plan when the woman is diagnosed in labour
- Establish intravenous access (16 gauge cannula)

- Send sample for Blood Group and Antibody screen.

NOTE: women who have a red cell antibody should have a group and hold when she presents in labour or prior as blood provision takes longer in this circumstance. **All women birthing at Sandringham have a full blood count and 'group and hold' on admission.**

- Active management of the third stage with IM syntometrine ® 1mL, unless contraindicated
- This may include having 40 units oxytocin infusion available to commence when needed.

Planned caesarean section⁸

- May be associated with placenta praevia or other cases with a high risk of haemorrhage
- An experienced obstetrician should be physically present in theatre
- An experienced consultant anaesthetist should provide anaesthesia
- A valid blood group and antibody screen result should be available (within 72 hours of collection)

NOTE: women who have a red cell antibody should have a group and hold when she presents in labour or prior as blood provision takes longer in this circumstance

- Insert two large bore cannulae (at least 16 gauge)
- Intravenous fluids should be warmed (use temperature controlled fluid warming device e.g. blood warmer) to avoid hypothermia
- Ensure that devices to infuse fluid under pressure are in theatre
- Consider warming of the woman e.g. using a forced air warmer.

Suspected abnormal adherence of placenta

- Arrange the back-up of another experienced obstetrician, gynaecologist, urologist or vascular surgeon
- Preoperative consultation with an interventional radiologist to determine the availability and feasibility of embolisation should the need arise. **Note – not available at Sandringham.**
- Perioperative notification to the Women's blood bank must occur

4.5 With rapid PPH > 1500 mL (1, 3)

Sandringham – Activate [Massive Transfusion Guideline](#) and communicate with Haematology/ Anaesthesia.

Call for help – midwifery, obstetric and anaesthetic (MET call/ Pink Alert).

Ensure the 'massive transfusion' box is brought to the room.

Stop the bleeding – e.g. vaginal examination to exclude causes other than atony, remove any clots present, apply pressure to minimise bleeding.

Administer oxygen at 8-12 litres via re-breathing mask.

Intravenous access x 2 using 16 gauge cannulae.

Arrange urgent pathology testing for Blood Group and Antibody Screen, Full Blood Count (FBC), Coagulation Screen (INR, APTT, fibrinogen).

If emergency transfusion is required (before pre-transfusion testing is complete), emergency O Negative red cells should be requested by telephone from the blood bank.

In the case of massive blood loss, the senior obstetrician / anaesthetist should liaise with the haematologist to arrange further appropriate blood product support.

Lower head of bed, position woman flat (may remain with legs bent or in lithotomy).



Resuscitate with appropriate intravenous fluid, e.g. sodium chloride 0.9 %, Hartmann's solution (crystalloid) or colloid volume expander (Albumin 4% or 20%). When using crystalloid, the ratio of resuscitative intravenous fluid required to blood lost is 3:1.

To resuscitate more quickly, administer intravenous fluids using a pressure infusion device.

Transfuse blood as soon as possible if clinically required. The decision to transfuse is based on both clinical and haematological assessment (1).

Until blood is available infuse up to 3.5L of warmed clear fluids. Initially 2L of warmed isotonic crystalloid. Further fluid resuscitation can continue with additional isotonic crystalloid or colloid.

Hypothermia increases the risk of disseminated intravascular coagulation and other complications. This may be prevented by pre-warming resuscitation fluids, e.g. use [temperature controlled blood warmers](#) and warm air blankets.

Avoid hypotension by adequate fluid replacement in relation to ongoing measured blood loss.

Administer second bolus dose of oxytocin 10 units intravenously.

Prepare woman for theatre for manual removal of placenta with anaesthesia after adequate pre-operative resuscitation.

Monitor maternal observations for clinical signs of shock (e.g. tachycardia, tachypnoea, decreased blood pressure, weakness, sweating, restless, nausea) and resuscitate if present.

Monitor oxygen saturation with pulse oximeter.

Consider prophylactic antibiotics in theatre.

Consider the possibility of an abnormally adherent placenta.

If at any time bleeding is rapid or the woman is haemodynamically unstable:

- Delegate two people (e.g. anaesthetist plus midwife or theatre nurse) to continue with resuscitative measures
- Bimanually compress the uterus by placing a fist in the anterior fornix of the vagina and the other hand rubbing up the uterine fundus (see diagram)
- If unsuccessful, perform aorto-caval compression.

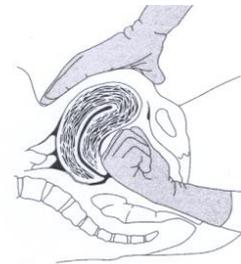


Diagram - Illustrating internal bimanual compression of the uterus

4.6 Management of PPH

Sandringham – If bleeding persists, early transfer to theatre and proactive communication. Refer to the guideline [Transfer to Tertiary - W@S](#), as necessary.

If the placenta is in-situ and cannot be delivered and there is no bleeding, management as for [retained placenta](#).

If there is bleeding, management is the same regardless of whether the placenta is in or out.

Ensure the uterus is contracted.

If the uterus is not contracted:

- Continue uterine massage to stimulate a contraction and expel any clots present. If the uterine fundus feels bulky and uterine massage does not expel clots, put on sterile gloves and perform vaginal examination to remove clots.
- Insert indwelling catheter.
- Administer bolus ergometrine 250 micrograms intravenously and/or 250 micrograms intramuscularly. Alternatively repeat bolus oxytocin 10 units intravenous and/or 10 units intramuscular (if concerned about maternal hypertension).

Guideline

Postpartum Haemorrhage



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- Administer antiemetic Ondansetron 4mg IV.
- Check that the placenta is complete.
Determine the principle cause if the bleeding.

If cause is TONE (uterine atony): Carboprost (Hembate®) 250 micrograms (1mL) by deep intramuscular injection repeated at intervals of no less than 15 minutes to a maximum of 8 doses (2mg).

- Administer loperamide 4mg orally to minimise the side-effect of diarrhoea
- Administer antiemetic Ondansetron 4mg IV, if not already given
- If more than one dose of Carboprost is required, the woman must be transferred to theatre for further management and the duty consultant must attend.

If cause is TRAUMA (to cervix, vagina, perineum): **Tranexamic acid-** 1G IV in 10mL via syringe driver set at 1mL/minute administered over 10 minutes OR given as a SLOW IV push.

Once bleeding controlled, administer misoprostol 600micrograms buccal and initiate an infusion of 40 units of oxytocin in 1L 0/9% NaCl at a rate of 250mL/hr over 4 hours as postnatal prophylaxis.

If bleeding continues despite a well contracted uterus look for other causes and escalate to the obstetric consultant before blood loss reaches 1L.

- Position the woman in lithotomy with adequate anaesthesia / analgesia
- Ensure adequate lighting, assistance and instruments to provide adequate exposure
- It may be necessary to take the woman to theatre to examine under anaesthesia
- Inspect vulva, vagina, cervix and perineum for trauma. Consider uterine rupture.
- Suture and repair as indicated
- Consider coagulation abnormalities
- In addition to full blood count, check D-dimer, coagulation studies including INR, APTT, fibrinogen
- Treat coagulation abnormalities with appropriate components which may include fresh frozen plasma (FFP), platelets and cryoprecipitate
- Consider underlying cause if disseminated intravascular coagulation (DIC) present
- Consult with haematologist regarding appropriate blood products supports
- If DIC is secondary to sepsis, also consult with microbiologist.

If bleeding persists despite treatment:

- Contact the theatre and anaesthetist if not already done
- Ensure adequate consultant obstetric / specialist support available
- Consider repeating ergometrine
- Transfer woman to theatre.

In theatre management:



- Consider Carboprost 500 micrograms (2mL) by direct intramyometrial injection (consider contraindications which include known cardiac, pulmonary, renal or hepatic disease) (1, 4, 5).

Note: The manufacturer does not recommend intramyometrial use. Therefore this method of administration is the responsibility of the administering clinician - in consultation with a consultant obstetrician. See procedure *Postpartum Haemorrhage - Carboprost (Hemabate®)*

- Consider exploration of uterine cavity under anaesthesia
- Consider uterine tamponade with the Bakri balloon
- Consider packing the uterus and vagina
- Bimanually compress the uterus by placing a fist in the anterior fornix of the vagina and the other hand rubbing up the uterine fundus
- If this controls the bleeding, maintain this compression for at least 30 minutes
- **If uterotonics and mechanical compression techniques are unsuccessful**, decide whether to perform
 - B-lynch brace suture
 - Hysterectomy
 - Angiography and embolisation
 - Ligation of the internal iliac vessels.
- Management of rapid PPH is as section 4.5

4.7 Documentation

Complete mandatory documentation including:

- Mandatory observations
- Date/time of Bakri balloon/uterine pack insertion
- Proposed date/time of Bakri balloon/uterine pack removal.
- Parkville campus- use of the PPH form within the Maternity Clinical Information System is encouraged to ensure contemporaneous documentation.

Sandringham Campus

Ensure contemporaneous documentation in Progress Notes MR/94.

4.8 Further Information

Incidence

The incidence of PPH within Australia and New Zealand is between 5-15% (6)

Risks

The table below outlines some common risk factors for PPH. These risks should be identified both antenatally and during labour. Other risk factors to consider are a previous history of PPH and any previous uterine surgery, including but not limited to caesarean birth, myomectomy, STOP, dilatation and curettage (D and C). However two thirds of women who have a PPH have no known risk factors (2).

Table 1 - Common Risk Factors for PPH (1)

Tone	Trauma	Tissue	Coagulopathy
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Postpartum Haemorrhage



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Prolonged labour	Operative delivery	Retained placental tissue	Pre-eclampsia
Precipitate labour	Cervical / vaginal lacerations	Abnormal placentation	HELLP Syndrome
Dysfunctional labour		Morbidly adherent placenta	Placental abruption
Grand Multiparity			FDIU>4/52
Multiple pregnancy			Amniotic Fluid Embolism
Polyhydramnios			Sepsis
Macrosomia			Bleeding disorders
Abnormalities: fibroids			Drugs (aspirin / heparin)
Intrauterine infection			
Uterine relaxing agents such as Magnesium sulphate / general anaesthetic/ tocolytics (terbutaline)			

Whilst major PPH is no longer the leading cause of maternal death in Australia, suboptimal care is persistently identified as a major factor for those who die. For every maternal death, it is estimated that there are around 80 instances of 'near-miss' where women experience a life-threatening complication, sometimes with continuing morbidity¹. Whilst most women with postpartum blood loss less than 1000mL suffer no significant morbidity, the percentage of women who suffer a major PPH at the Women's is comparable with local and international figures of 1-2%. Long term morbidity includes renal impairment, Sheehan Syndrome and the risk of blood-borne infections from blood transfusions (7).

It is recommended that all maternity staff should have a recognised procedure for managing PPH which is rehearsed on a regular basis (8). Training should be provided to all maternity care staff regarding assessment of blood loss (9).

Factors which contribute to maternal death have been reported (10); lack of routine observation in the postpartum period, failure to appreciate that bleeding was occurring, lack of optimal post-operative measurement of pulse and blood pressure or recognition of abnormal vital signs such as oxygen saturation and respiratory rate, even when it was known the mother had sustained a large bleed. Other factors that contribute to suboptimal care include (9):

- Lack of awareness of the signs and symptoms that could signal deterioration, and the role of vigilant monitoring in early detection
- Vital signs not monitored consistently, or not monitored at all
- Changes in vital signs not detected
- Lack of recognition of the implications of changes in vital signs
- Uncertainty about when to trigger assistance, resulting in delays in notifying medical staff of signs of deterioration
- Delays by medical staff in responding to notification, or provision of an inappropriate response
- Inconsistent skills of ward medical and nursing staff on how to manage the deteriorating patients
- A delay or not seeking supervision or advice in a timely manner
- Ineffective communication and handover of critically ill patients.

Expanded definitions



- **Bakri balloon** is a balloon tamponade indicated for women not responding to uterotonics and uterine massage. It is used to control haemorrhage due to uterine atony in the upper segment of the uterus and to control bleeding in the lower uterine segment secondary to placental implantation in the lower uterine segment. Please see procedure '[Postpartum Haemorrhage - Bakri Balloon Tamponade](#)' for more information.
- **Hypovolaemic shock** is a life-threatening condition in which reduced circulatory volume results in inadequate tissue perfusion. In the early phases of haemorrhage, the body compensates for blood loss by raising systemic vascular resistance in order to maintain blood pressure and perfusion to vital organs. Clinically, this corresponds to a narrowing of the pulse pressure. As bleeding continues, however, further vasoconstriction is impossible, resulting in decreased blood pressure, cardiac output, and end-organ perfusion. Compensatory homeostatic mechanisms are activated, including vasoconstriction, increased cardiac activity, reduced fluid excretion and increased platelet numbers. Blood flow to the heart, brain and adrenal glands is optimized at the expense of other organs. When persistent, irreversible cell damage occurs, and falling myocardial perfusion leads to a vicious cycle of myocardial failure and death. The clinical signs are delayed in newly parturient women due to the increased blood volume of pregnancy. By the time these vital signs are abnormal the woman will have lost at least 1500mL.
- **B-Lynch suture:** uterine compression sutures running through the full thickness of both uterine walls (posterior as well as anterior) for surgical management of atonic PPH. The B-Lynch suturing technique (brace suture) is useful because of its simplicity of application, life-saving potential, relative safety and capacity for preserving the uterus and subsequent fertility. The adequacy of haemostasis can be assessed both before and immediately after application of the suture. This technique is an alternative to major surgical procedures for controlling pelvic arterial pulse pressure or hysterectomy. It has been shown, when applied correctly, to be successful with no problems and no apparent complications. Only if it fails, need other more radical surgical methods be considered.
- **Misoprostol** is a heat-stable prostaglandin analogue that can be administered orally, sublingually, vaginally and rectally.
- Shivering and pyrexia (> 40°C) are typical side effects and their severity is dose-related. These are generally transient (16).
- Misoprostol can cause gastrointestinal effects such as diarrhoea, abdominal pain, nausea and vomiting, which may occur and resolve within 2 to 6 hours (14).

Route of administration	Onset of action	Time to reach peak concentration (Tmax)	Duration of action
oral (swallowed)	8 minutes	7.5 to 30minutes (mean = 14.2 minutes)	~ 2hours
buccal	41.2 minutes	30 minutes	~ 5 hours
sublingual	11 minutes	26 +/- 11.5 minutes	~ 3hours
rectal	100 minutes	45 to120 minutes (mean = 71.7 minutes)	~ 4 hours
vaginal	20 minutes	45 to 120 minutes (mean = 65 minutes)	~ 4 hours



5. Evaluation, monitoring and reporting of compliance to this guideline

Compliance to this guideline will be monitored, evaluated and reported through the notification of clinical incidents on VHIMS and by monthly clinical audit of PPHs greater than 1500mLs.

6. References

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16. Hoj L, Cardoso P, Nielsen BB, Hvidman L, Nielsen J, Aaby P. Effect of sublingual misoprostol on severe postpartum haemorrhage in a primary health centre in Guinea-Bissau: randomised double blind clinical trial. BMJ. 2005;331(7519):723.



7. Appendices

Appendix 1: [Postpartum Haemorrhage Flow](#) chart and medicines summary

Appendix 2: [Contents of Postpartum Haemorrhage Box](#)

Appendix 3: Postpartum Haemorrhage Medication Guide

Please ensure that you adhere to the below disclaimer:

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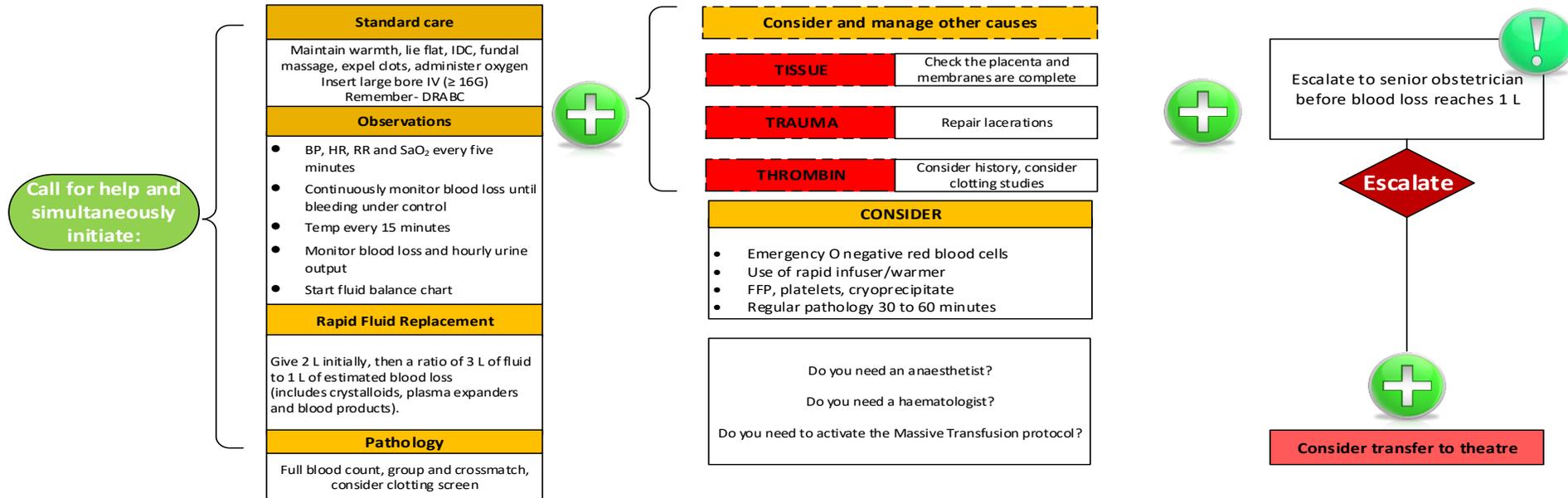
NOTE: Care should be taken when printing any clinical guideline from this site. Updates to these guidelines will take place as necessary. It is therefore advised that regular visits to this site will be needed to access the most current version of these guidelines.

Appendix 1

Postpartum Haemorrhage Flowchart



PPH Management



Pharmacological management			
1 First line	2a Second line-TONE	2b Second-line- TRAUMA	3 After immediate management
<p>If not already given for 3rd stage,</p> <ul style="list-style-type: none"> Oxytocin 10 IU IM/IV (slow over 3-5 mins) OR Syntometrine® 1mL IM THEN Ergometrine 0.25mg slow IV and IM and Ondansetron 4mg IV <p>(BP ≥ 140/90 – Syntometrine and ergometrine contraindicated)</p>	<ul style="list-style-type: none"> Carboprost 250microg/1 mL deep IM at no less than 15 mins intervals to a maximum of 2mg (8 doses) (First dose may be given in the Birth Centre) AND Ondansetron 4mg IV (if not already given) Loperamide 4mg PO 	<ul style="list-style-type: none"> Tranexamic acid 1 g in 10 mLs over 10 minutes via syringe driver at a rate of 100mg/minute OR Tranexamic acid 1 g in 10 mLs as a slow push, over 10 minutes AND Ondansetron 4mg IV (if not already given) 	<ul style="list-style-type: none"> Misoprostol 600microg buccal (or PR if maternal condition precludes this) Oxytocin infusion 40 units in 1 L of 0.9% normal saline, at a rate of 250ml/hr IV over 4 hours/as Oxytocin Administration procedure. <p style="text-align: right; background-color: #FF69B4; padding: 5px;">Consider transfer to ICU or Complex Care Unit</p>



PPH Management

Pharmacological management- summary

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ASK: has third stage mgt been administered?

- Oxytocin 10 IU IM/IV
 - Syntometrine® 1mL IM (unless contraindicated)
- OR
- If not already given,

(Hypertension – Syntometrine contraindicated)

1

STEP 1: Immediate management

- Ergometrine 0.25mg slow IV and IM (unless contraindicated)
- Ondansetron 4mg IV

2a

STEP 2a: Determine the cause TONE?

- Carboprost 250microg/1 mL deep IM (at no less than 15 min intervals)
- First dose may be given in the Birth Centre
- IV ondansetron 4mg (if not already given)
- Loperamide 4mg PO (to minimise side-effects of diarrhoea)

2b

STEP 2b OR TRAUMA?

- Tranexamic acid 1 g/10mL IV given over 10 minutes via syringe driver at 100mg/min
 - Tranexamic acid 1 g/10mL IV given over 10 minutes as a slow push
 - IV ondansetron 4mg (if not already given)
- OR

3

STEP 3 After immediate management

- Misoprostol 600microg buccal (PR if maternal condition precludes this)
- Oxytocin infusion 40 units in 1 L of sodium chloride (or Hartmann's Solution), IV at a rate of 250mL/hr as per Oxytocin Administration procedure.

Appendix 2

PPH Box Contents



The PPH box consists of two components:

1. A tackle box with a bright lid works well as a light-weight, easily recognised and transportable box. It also precludes over-stocking.
2. A clearly labelled container for refrigerated items

Contents are dependent on the location of the box. Contents are listed within the box for consistent restocking of items. Boxes are restocked by ward areas.

All areas excluding Birth Centre:

Box 1: Top Shelf

For cannulation: 16G IV cannulae *2 18G IV cannulae *2	For blood pathology 23G 1¼" needles (blue) *2 21G 1½" needles (green) *2
Skin prep swabs (for IV cannulation)	Blood tubes: <ul style="list-style-type: none"> • EDTA KE/9mL and 2.7mL • Serum gel Z/7.5mL • Coagulation 9NC/3mL
Tegaderm (or similar for securing IV cannulae)	
Transpore tape	
Luer-lock connectors	
Sodium chloride ampoules 10mL *2	Tourniquet
Water for injections ampoule 10mL*2	Alcohol swabs
Additive labels	Specimen transport bags
Multi-adapters	Pathology request slips
3-way adapter (for IV giving set)	10mL syringe *3

Bottom Shelf

1L sodium chloride 0.9% or Hartmann's solution	Foley catheter 14ch Urine drainage bag or Urimeter *1 10mL ampoule water for injections 10mL syringe
Gelofusine (plasma expander)	
IV giving sets- standard *2	
IV giving set- Alaris pump *1	

Box2: kept in fridge (restocked by ward area after use)

Drugs: Oxytocin 10unit (box of 5 ampoules) Ergometrine 500mcg (box of 5 ampoules) Ondansetron 4mg (2 ampoules) Misoprostol 200mcg x 3 tablets	Syringes: 3mL x 3 5mL x 3
	Needles : 1G *3 23G *3
IV infusion label x 2	

Appendix 2

PPH Box Contents



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Birth Centre:

Box 1

1L sodium chloride 0.9%	1 x syringe / needle kit containing: 5mL syringe x 2 3mL syringe x 2 10mL syringe x1 21G needle x 2 19G needle x 2 IV infusion labels
Gelofusine (plasma expander) x 1	
IV giving sets- standard	
IV giving set- Alaris pump	
Extension line for syringe pump	
3-in-1 extension LS-connector (octopus)	

Box 2: Kept in fridge (restocked by ward area after use)

Drugs: Oxytocin 10unit (box of 5 ampoules) Ergometrine 500mcg (box of 5 ampoules) Ondansetron 4mg(2 ampoules) Misoprostol 200mcg x 3 tablets	Syringes: 3mL x 3 5mL x 3
	Needles : 21G x 3 23G x 3 25 G Spinal needles x2 (for IMM carboprost)
IV infusion label x 2	



Postpartum Haemorrhage Medicines Guide

Medicine	Dose	Route	Side effects	Contraindication	Comments
Ergometrine	250 microgram, repeat as needed to max of 4 doses	IV or IM	Tonic uterine contraction, nausea, vomiting and raised BP	Severe hypertension and cardiac disease Hypersensitivity to ergometrine	+ ondansetron 4mg IV
Ergometrine/ oxytocin (Syntometrine®)	1mL, repeat if necessary to max of 3mL total (1mL = ergometrine 0.5mg & oxytocin 5 units)	IM	Nausea, vomiting and raised BP	Severe hypertension and cardiac disease Hypersensitivity to medicine	Alternative first line medicine unless contraindicated
Carboprost (Hemabate ®)	After vaginal birth: 250 micrograms in 1mL ampoules by deep IM injection or intramyometrially, at intervals of no less than 15minutes to a maximum of 2mg (8 doses) OR 2mL into each cornu to maximum 2mg Laparotomy: as above- 500micrograms intramyometrially to a max of 2mg	IM	bronchospasm, pulmonary oedema, hypoxia, acute hypertension (usually transient and requiring no treatment), acute hypotension, cardiac arrhythmia, flushing, syncope and palpitations, abdominal cramps, diarrhoea and vomiting, an increase in temperature greater than 1.1°C, convulsions (rarely), flushing, shivering, uterine rupture, headache (usually mild and transient)	Hypersensitivity to any component of the preparation: carboprost, tromethamine, sodium chloride, benzyl alcohol Patients with known active cardiac, pulmonary, renal or hepatic disease Acute pelvic inflammatory disease	Second line medicine for PPH caused by uterine atony unresponsive to first and second line treatment ergometrine. Intramyometrial injection is not recommended by the manufacturer however off-label use is supported by evidence- see PPH- Carboprost procedure.
Tranexamic acid	1 g in 10mL ampoule of tranexamic acid intravenously via syringe pump at a rate of 1mL per min administered over 10 minutes OR 1g in 10mL given over 10 minutes by slow IV push.	IV	Nausea, vomiting, diarrhoea, allergic dermatitis.	Hypersensitivity to tranexamic acid or any of its excipients Patients with a history or risk of thrombosis should not be given tranexamic acid, unless at the same time it is possible to give treatment with anticoagulants. Active thromboembolic disease such as deep	Second-line management of PPH when bleeding unresponsive to 40U oxytocin infusion and IV/IM ergometrine when bleeding is caused by trauma. Consider when there is likelihood of delay in accessing an operating theatre e.g. out of hours. This may reduce the overall blood loss whilst waiting.

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				vein thrombosis (DVT), pulmonary embolism and cerebral thrombosis.	
Oxytocin	10 units, repeat bolus	IV or IM	Painful contraction, nausea or vomiting, water intoxication, hypotension	Hypersensitivity to oxytocin	In place of ergometrine if blood pressure elevated
	40 units in 1L sodium chloride 0.9% at rate of 250mL/h if placenta is out	IV infusion			
Misoprostol	400 600 microgram (2 3 tablets)	Oral/sublingualBuccal	Nausea, vomiting, diarrhoea, abdominal pain, pyrexia	Hypersensitivity to misoprostol	Oral/sublingualBuccal administration has a quicker onset with a peak plasma concentration around 15-30 minutes falling steeply within 60 minutes ⁴
Misoprostol	600 microgram (3 tablets)	Rectal	Nausea, vomiting, diarrhoea, abdominal pain, pyrexia	Hypersensitivity to misoprostol	Third line management after ergometrine and carboprost. Rectal administration has a slower onset (around 45-120 minutes) and the fall is gradual (over 240 minutes)