Note:
This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach.

Information in this statewide guideline is current at the time of publication.

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The clinical material offered in this statewide standard/policy provides a minimum standard, but does not replace or remove clinical judgement or the professional care and duty necessary for each specific patient case. Where care deviates from that indicated in the statewide guideline contemporaneous documentation with explanation must be provided.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for:

> Discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes the use of interpreter services where necessary,
> Advising consumers of their choice and ensuring informed consent is obtained,
> Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
> Documenting all care in accordance with mandatory and local requirements
Secondary PPH flow chart

Significant causes of 2ndry PPH
- Retained products of conception
- Infection (endometritis)
- Subinvolution

Assessment
- ABC
- History
- Vital signs
- Clinical symptoms and signs
- Assess uterine size
- Estimate blood loss

Condition stable
- Conservative management
- Monitor vital signs
- IV access
- Investigations (see box below)
- Antibiotics
- Consider:
  - Uterotonics
  - Ultrasound

Stabilisation of marked bleeding
- Call for senior obstetric and anaesthetic assistance

Resuscitation (ABC)
- Lie flat
- Administer oxygen 8 L
- Monitor vital signs
- X 2 IV cannulas
- Consider uterine massage
- IV oxytocics, ergometrine, misoprostol, PGE2a
- Resuscitate with rapid infusion of crystalloids
- Avoid hypothermia

Investigations
- G & S, CBP, CRP, consider serum hCG, coagulation profile, blood cultures if temperature ≥ 38°C
- Speculum examination
- Ultrasound
- Midstream urine specimen

Treatment
- Commence antibiotics
- Consider balloon catheter, surgical measures if bleeding continues

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Introduction

> In developed countries, secondary postpartum haemorrhage (PPH) occurs in < 1 to 2 % of pregnancies
> The pathogenesis is thought to be diffuse uterine atony or subinvolution of the placental site secondary to retained products of conception and / or infection in the uterus; however, the underlying cause is often not established (Alexander et al. 2002; ACOG 2006; Ambrose and Repke in James et al. 2011)
> Women with delayed PPH often have retained placental fragments, especially if the bleeding is heavy (Ambrose and Repke in James et al. 2011)

Definition

> Secondary postpartum haemorrhage is defined as abnormal or excessive bleeding from the vagina between 24 hours and 12 weeks after giving birth (Alexander et al. 2002)
> As this definition includes no reference to the volume of blood loss or the condition of the woman, the spectrum of the condition can vary from inconvenience to fatal. The extent of bleeding usually is less than that seen with primary PPH (Alexander et al. 2002)

Causes

Abnormalities of placentation

> Subinvolution of the placental site
> Retained products of conception
> Placenta accreta

Infection

> Endometritis, myometritis, parametritis
> Infection or dehiscence of caesarean scar

Pre-existing uterine disease

> Uterine fibroids (leiomyomata)
> Cervical neoplasm (rare)
> Cervical polyp
> Uterine arteriovenous malformation (rare)

Trauma

> Missed vaginal lacerations and haematomas e.g. ruptured vulval haematoma (may be associated with operative delivery)

Coagulopathies

> Congenital haemorrhagic disorders (von Willebrand's disease, carriers of haemophilia A or B, factor XI deficiency)
> Use of anticoagulants (e.g. warfarin)
Diagnosis

- Secondary PPH is a clinical diagnosis of exclusion, which may present as slight to heavy bleeding (and rarely hypovolaemic shock) usually 7 to 14 days after birth (King et al. 1989; Ambrose and Repke in James et al. 2011)
- Small amounts of bleeding may persist for several weeks and therefore some bleeding defined as a secondary PPH may be normal
- Bleeding may also represent the initial menstrual period after childbirth, (result of an anovulatory cycle) and may be heavy, painful and prolonged.
- The time frame for secondary PPH also encompasses the period when contraception is commenced and vaginal bleeding is a common side effect of hormonal contraception.
- Check history for complications in previous pregnancies which may reflect aberrant maternal-trophoblastic interaction e.g. preeclampsia, IUGR, spontaneous miscarriage and especially retained placenta (retained products are more common in such women)
- Suspect endometritis if the history includes uterine tenderness, fever or foul smelling lochia
- Secondary PPH in the first week may be related to coagulopathy, especially von Willebrand’s disease
- Small amounts of bleeding in the absence of signs and symptoms of endometritis or retained products may require no treatment and could be regarded as a normal variant

Management

- There are no randomised controlled trials to inform the management of women with secondary postpartum haemorrhage
- The pragmatic approach is stabilisation, investigation to establish a cause for the bleeding and appropriate treatment
- The initial treatment mainstays are administration of uterotonic agents, antibiotics and consider need for surgical intervention if bleeding is heavy and ongoing e.g. urgent evacuation of the uterus (Aiken et al. 2011)
- In most cases, endometritis can be effectively treated with antibiotics without surgical intervention (dilation and curettage)
  > If curettage is recommended, aim to give antibiotics for 24 hours before the procedure (unless bleeding requires earlier intervention)

Assessment

- Obtain detailed history including parity, labour, mode of delivery, third stage and puerperal complications
- Check temperature, pulse and blood pressure
- Assess uterine size
- Clinical symptoms and signs may include bleeding per vagina (may be offensive), abdominal cramping, uterine tenderness, pyrexia and enlarged uterus
  > In women with pyrexia, exclude other sources of infection e.g. mastitis, urinary tract infection or septic pelvic thrombophlebitis
- Assess clinical signs of blood loss (perfusion and hydration) and compare with estimation of blood loss
Speculum examination – check status of cervical os and obtain endocervical swab
Establish intravenous access using 16 gauge cannulae and commence resuscitation as indicated (see stabilisation of marked bleeding below)
Commence oxygen via face mask as indicated

Investigations
Group and save serum. Cross match 2-4 units red blood cells if marked bleeding
Complete blood picture
C-reactive protein
Serum ß-hCG may be helpful to distinguish between trophoblastic disease and retained placental tissue or other causes when ultrasound is not informative
Coagulation profile as indicated
Midstream urine specimen if signs of infection
Take blood cultures if temperature ≥ 38°C
Speculum examination and HVS, LVS as above

Ultrasound
Ultrasound should be considered if there are concerns of retained placental tissue
Ultrasound is useful to identify clot or other debris in uterine cavity and subinvolution
Real time or colour Doppler ultrasound may not differentiate placental tissue from blood clots, but it may show an empty uterus
On colour Doppler ultrasound, the rare uterine arteriovenous malformation appears as a hypervascular lesion with turbulent flow within the myometrium
Administration of uterotonics (see below) if clot or other debris > 2cm is demonstrated in the cavity may reduce the rate of surgical intervention

Antibiotics
All patients with suspected retained products require antibiotic cover because there is always an element of infection in these circumstances
Give intravenous antibiotics if the woman is febrile and oral antibiotics if afebrile but endometritis is suspected. Continue until a diagnosis is made or symptoms subside

Intravenous
Ampicillin (or amoxycillin) 2 g IV initial dose then 1 g IV every 4 hours and
Gentamicin 5 mg / kg IV daily and
Metronidazole 500 mg IV every 12 hours

Allergy to penicillin
Lincomycin 600 mg IV in 100 mL over 1 hour every 8 hours and
Gentamicin 5 mg / kg IV daily
Oral

> Augmentin Duo Forte (amoxycillin 875 mg / clavulanic acid 125 mg) every twelve hours for five days

Uterotonics

> Administer bolus dose of one of the following:
  > Intravenous or intramuscular Syntocinon® 10 IU
  > Intramuscular Syntocinon® 5 IU in combination with ergometrine maleate 0.5 mg (Syntometrine®)
  > Ergometrine 500 micrograms in 1 mL. Intramuscular dose: give 250 micrograms; Intravenous dose: give 25-50 microgram bolus and can repeat after 2-3 minutes (see PPG ‘Ergot derivatives prophylaxis for 3rd stage management and PPH’)
  > Prepare and commence an oxytocin infusion (40 IU Syntocinon® in 1,000 mL Hartmann’s solution or sodium chloride 0.9 %) (see PPG ‘Syntocinon® infusion regimen for PPH’)
  > Consider Cytotec® (Misoprostol available as tablets 200 micrograms) 800 micrograms per rectum or Cervagem® (gemeprost) 1 mg per rectum or intramyometrial prostaglandin F2α
    > Misoprostol may be useful to help the uterus expel products of conception that are not adherent to the uterine wall such as blood clots

Condition stable

> Admit for conservative management with bed rest and intravenous antibiotics as above
  > Adherent material – If the woman’s condition is stable, after discussion with a senior registrar / consultant, conservative management (bed rest and IV antibiotics) may be an option (see retention of abnormally adherent placenta in PPG ‘Postpartum haemorrhage’)
  > Investigations as above
  > If bleeding has not settled after 24 hours of antibiotic treatment, consider surgical intervention (EUA and curettage)

Stabilisation of marked bleeding

Evidence of shock suggests severe sepsis requiring urgent intervention

> Call for obstetric and anaesthetic assistance
> Consider uterine massage to expel any clots
> Administer oxygen via face mask
> Lay the woman flat
> IV access x 2 using 16 gauge cannulae
> Resuscitate with appropriate IV fluid, e.g. sodium chloride 0.9 %, Hartmann’s solution (crystalloids) or Gelofusine® (gelatin – based colloid). When using crystalloid, the ratio of resuscitative IV fluid required to blood lost is 3:1
  > To resuscitate more quickly, administer IV fluids using a pressure infusion device
Consider use of blood warmer and hot air blanket to avoid hypothermia
Avoid hypotension by adequate fluid replacement in relation to ongoing measured blood loss
Close observations including pulse, blood pressure, respirations, SpO₂, capillary refill and urine output
Investigations as above

**Uterotonics**
- Administer bolus dose of Syntocinon® 10 IU IV
- Prepare and commence an oxytocin infusion (40 IU Syntocinon® in 1,000 mL Hartmann’s solution or sodium chloride 0.9 %) (see PPG ‘Syntocinon® infusion regimen for PPH’)
- Consider Cytotec® (Misoprostol available as tablets 200 micrograms) 800 micrograms per rectum or Cervagem® (gemeprost) 1 mg per rectum or intramyometrial prostaglandin F₂α
- Consider insertion of balloon catheter in cases of continuing haemorrhage (see PPG ‘Balloon tamponade and uterine packing for major PPH’)
- Consider surgical intervention if unresponsive to medical management

**Surgical management**
- Surgical management may include any of the following:
  - Examination under anaesthetic
  - Under ultrasound guidance: dilatation and evacuation of products of conception and gentle suction curettage
  - Ligation of internal iliac arteries if interventional radiology is not readily available
  - Hysterectomy
- Examination under anaesthesia (EUA) and dilatation and suction curettage is indicated for retained products of conception if detected on ultrasound
- EUA with curettage should be performed by a senior registrar / obstetrician to minimise the risk of uterine perforation and Asherman’s syndrome
- Concurrent ultrasound guidance may assist in the avoidance of uterine perforation during dilatation and suction curettage and therefore minimise myometrial abrasion
- If dilatation and suction curettage is required, administer antibiotics for 6 to 12 hours before the procedure to guard against bacteraemia, unless heavy bleeding mandates urgent intervention
- It is important to avoid over vigorous curettage as this can result in Asherman’s syndrome (more common with late curettage, i.e. 2 - 3 weeks postpartum, than earlier on)
- Send tissue for histopathology to exclude trophoblastic disease and confirm diagnosis
- If bleeding continues after curettage, consider need for further intervention (e.g. ligation of internal iliac arteries, hysterectomy or angiography with embolisation of the uterine arteries)
> If haemorrhage is persistent and severe in the presence of uterine arteriovenous malformation a planned uterine artery embolisation may reduce the need for hysterectomy

> 3 - 5 % of women require hysterectomy to control bleeding

References


9. Royal College of Obstetricians and Gynaecologists (RCOG). Prevention and management of postpartum haemorrhage. Green top guideline No. 52; April 2011
## Abbreviations

<table>
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
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<td>ABC</td>
<td>Airway, breathing, circulation</td>
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<tr>
<td>ACOG</td>
<td>American College of Obstetrics and Gynecology</td>
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<td>C</td>
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<td>CBP</td>
<td>Complete blood picture</td>
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<td>g</td>
<td>Gram(s)</td>
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<td>hCG</td>
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<td>Postpartum haemorrhage</td>
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## Version control and change history

**PDS reference:** OCE use only

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