Ministry of Health (MOH),
Government of the Republic of South Sudan (GoRSS)

Clinical Guidelines for the Prevention and Management of Postpartum Haemorrhage in South Sudan

Background

Postpartum haemorrhage (PPH) is the leading cause of maternal mortality in the world, with most of the deaths occurring in the developing world, accounting for approximately 34% of maternal deaths in Africa (Khan 2006, Potts 2010). To be effective, efforts to reduce maternal mortality from PPH should be focused at both the facility and community levels, especially in South Sudan where approximately 85% of births occur at home, and without a skilled birth attendant.

What is Postpartum Haemorrhage?

PPH is defined as vaginal bleeding in excess of 500 mL after childbirth. There are, however, some problems with this definition, such as:

- Estimates of blood loss following birth are often inaccurate and frequently low. Blood is mixed with amniotic fluid and sometimes urine, and maybe dispersed on sponges, linens, in buckets, and on the floor, making accurate estimates difficult.
- The importance of a given blood loss varies with the woman’s haemoglobin level. A woman with a normal haemoglobin level will tolerate blood loss that would be fatal for an anaemic mother but even a woman with a normal haemoglobin level can have severe blood loss that leads to death.
- Bleeding may occur at a slow rate over several hours, and the severity of the condition may not be recognized until the woman suddenly develops shock.

PPH can be divided into two categories:

Immediate PPH: increased vaginal bleeding (> 500 ml) within the first 24 hours after childbirth.

Delayed PPH: increased vaginal bleeding after the first 24 hours after childbirth.

Note: Both sudden bleeding and continuous slow bleeding are emergencies, and require early and aggressive intervention.
Key Postpartum Haemorrhage Prevention Interventions
There is strong evidence that key PPH prevention interventions, both at the facility and community levels will help reduce the incidence of PPH (seeTextbox 1). A uterotonic drug is a central component of any PPH prevention strategy, and all women should have access to a uterotonic drug, regardless of place of delivery.

Textbox 1: Key PPH Prevention Interventions

<table>
<thead>
<tr>
<th>Facility-based births:</th>
<th>Modified AMTSL</th>
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<tbody>
<tr>
<td>Active Management of Third Stage of Labour (AMTSL):</td>
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<tr>
<td>• Oxytocin, 10 IU IM immediately after birth</td>
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<tr>
<td>• Controlled cord traction (with skilled birth attendant only)</td>
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<tr>
<td>• Uterine massage if uterus soft or relaxed</td>
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<td>Modified AMTSL</td>
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<tr>
<td>• Misoprostol 600mcg orally immediately after birth</td>
<td></td>
</tr>
<tr>
<td>• Uterine massage if uterus soft or relaxed</td>
<td></td>
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<tr>
<td>• Education about PPH to women and their families</td>
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</table>

There are several possible reasons for severe bleeding during and after the third stage of labour: uterine atony (failure of the uterus to contract properly after delivery), trauma (cervical, vaginal or perineal lacerations), retained or adherent placental tissue, clotting disorders, and inverted or ruptured uterus. More than one of these can cause PPH however uterine atony is the leading cause of immediate PPH (75–90 percent) (Koh et al, 2009).

Since it is difficult to accurately predict which woman will have uterine atony following delivery and suffer from PPH, it is suggested that active management of the third stage of labour (AMTSL) should be provided to all women delivering with a skilled birth attendant because it reduces the incidence of PPH due to uterine atony. For women who deliver without a skilled birth attendant, oral misoprostol should be used to reduce deaths from PPH.  

Facility-based Births
All facility-based health providers who conduct deliveries and who meet the international definition of a skilled birth attendant (nurses, midwives, and doctors) should be competent in the provision of AMTSL to standard, which has proven to be the most effective intervention for the prevention of PPH.

AMTSL consists of three steps:

1 WHO Guidelines on the prevention and management of PPH 2012
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1. Administering a uterotonic (usually Oxytocin 10 IU IM) immediately following delivery within 1 minute, after ruling out the presence of an additional baby, to cause the uterus to contract firmly and control bleeding.

2. Controlled cord traction² to expedite delivery of the placenta to reduce the amount of blood loss, and

3. Uterine massage following delivery of the placenta, if needed to ensure adequate uterine tone to control bleeding.

In South Sudan, Maternal Child Health Workers (MCHWs) often provide delivery services at facilities and at home women’s preference. This group (who constitute unskilled birth attendants) can perform modified AMTSL to consist of oral administration of 600mcg misoprostol and uterine massage after delivery of the placenta if uterus soft³. Controlled cord traction will not be practiced by this group. See Appendix 2 for WHO 2012 recommendations for prevention of PPH.

SUMMARY OF MAIN MESSAGES

| 1. Every woman should be given a uterotonic agent, preferably oxytocin, within one minute after the baby is born |
| 2. Delayed cord clamping of 1 – 3 minutes while starting Essential Newborn Care +/- Controlled cord traction |
| 3. Postpartum vigilance must be carried out for all women following delivery to control any persistent bleeding and to prevent unrecognized PPH |

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² New WHO research comparing simplified AMSTL without controlled cord traction with the full package concluded that omission of cord traction results in very little, if any, increased risk of severe haemorrhage (Gulmezoglu et al. 2012) The results suggest that controlled cord traction can be used in facilities where skilled attendants are available, but can be omitted in non-facility settings.

³ WHO Guidelines on prevention of PPH 2012
Community-based Births
Whenever possible, women should be encouraged to deliver in a health facility with a skilled provider using AMTSL. In home births without a skilled birth attendant, the oral uterotonic drug Misoprostol, in a dose of 600 micrograms (mcg), should be used (see Appendix 1 – Rationale for Use of Misoprostol in Community-based Births).

1. **Dosage:** 600 mcg (three 200 mcg tablets)
2. **Timing:** Immediately after delivery of baby, and **before** delivery of the placenta.
   - Ensure the absence of a second baby before taking
   - Counsel the woman on possible side effects
   - If placenta delivers with baby or before the woman has taken the misoprostol, **she should still take the tablets.**
   - **Do not take before delivery of baby** – this can cause serious harm or death of baby and mother
3. **Side effects:**
   - Chills/shivering
   - Nausea and vomiting
   - Low fever
   - Loose watery stools or diarrhoea

Chills or shivering is the most common, but usually lasts only 30 minutes. The other side effects are less common and usually last a short time (2-3 hours).

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**Note:** Oxytocin is the drug of choice, but when no other uterotonic is available, misoprostol can be used in health facilities either as a first-line drug for PPH prevention or as a second-line drug if oxytocin or ergometrine has failed (see Table 1).

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**All activities for the prevention of PPH should take place within a comprehensive package of interventions to prevent and manage PPH, along the household to hospital continuum of care.**
Management of PPH

The general management of vaginal bleeding after childbirth, attended by a skilled health provider is outlined in Textbox 2.

Textbox 2: General Management of Vaginal Bleeding After Childbirth

- **Shout for help** - urgently mobilize all available personnel.
- **Rapidly assess the woman’s general condition** - level of consciousness, vital signs: pulse, blood pressure, respiration, temperature.
- **If shock is suspected**, immediately begin treatment. Keep in mind that shock may develop in a woman who initially appears stable, so continue assessing the woman.
- **Give oxytocin 10 IU IM – even if already given**
- **Massage the uterus** to expel blood and blood clots, and to ensure the uterus contracts firmly
- **Start an IV infusion** (two if the woman is in shock) using large-bore (16-gauge or largest available) cannula or needle and infuse IV fluids (normal saline or Ringer’s lactate) at a rate appropriate for the woman’s condition.
- **Catheterize the bladder** – monitor urine output.
- **Check to see if the placenta has been expelled, and examine it for completeness.**
- **Examine for tears** of the perineum, vagina and cervix.
- **After bleeding is controlled** (24 hours after bleeding stops), determine haemoglobin or haematocrit and give ferrous sulphate or ferrous fumerate (see WHO MCPC 2007 p. S-26 for details).
- **Where hookworm is endemic**, give either albendazole OR mebendazole (see WHO MCPC 2007 p. S-26-27 for details).
  * Refer/transfer the mother to a higher level of care, if necessary.

Managing PPH according to specific causes is detailed in Table 2. Uterotonics that can be used are outlined in Table 1.
**Table 1: Uterotonics**

<table>
<thead>
<tr>
<th></th>
<th>Oxytocin</th>
<th>Ergometrine/ Methyl-ergometrine</th>
<th>Misoprostol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Dose and route</strong></td>
<td>IM: 10 IU IV: Infuse 20 IU in 1 L normal saline or Ringer’s lactate solution at 60 drops per minute until uterus is firmly contracted (can use up to 40 IU per L of fluid)</td>
<td>IM or IV (slowly): 0.2 mg</td>
<td>For prevention: 600 mcg orally (three 200 mcg tablets) – <strong>DO NOT GIVE if WOMAN ALREADY RECEIVED 600mcg orally</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>For treatment: Sublingually 800 mcg (4 tablets), or rectally 1000 mcg (5 tablets) – <strong>DO NOT GIVE</strong></td>
</tr>
<tr>
<td><strong>Continuing dose</strong></td>
<td>IV: 20 IU in 1 L normal saline or Ringer’s lactate solution at 40 drops per minute</td>
<td>• Repeat 0.2 mg IM after 15 minutes if indicated • If required, give 0.2 mg IM or IV (slowly) every 4 hours</td>
<td>None</td>
</tr>
<tr>
<td><strong>Maximum dose</strong></td>
<td>Not more than 3 L of fluids containing oxytocin</td>
<td>1.0 mg (5 doses)</td>
<td>• 1000 mcg rectally</td>
</tr>
<tr>
<td><strong>Precautions/ Contraindications</strong></td>
<td>Do not give as an IV bolus</td>
<td>Hypertension, heart disease</td>
<td></td>
</tr>
</tbody>
</table>
## Table 2: Diagnosis and Management of Vaginal Bleeding After Childbirth

<table>
<thead>
<tr>
<th>Typical Presenting Signs and Symptoms</th>
<th>Probable Diagnosis</th>
<th>Management – competent skilled birth attendants only</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Immediate PPH</td>
<td>Uterine atony</td>
<td>• Continue to massage the uterus through the woman’s abdomen</td>
</tr>
<tr>
<td>• Uterus soft, and not contracted</td>
<td>• Uterus fails to contract adequately</td>
<td>• Give Oxytocin 10 IU IM, if not already given. Uterotonic drugs can be used together or sequentially (see Table 1).</td>
</tr>
<tr>
<td>• All blood loss may not be visible if large clots in uterus</td>
<td></td>
<td>• Anticipate the need for blood early, and transfuse as necessary (see WHO MCPC 2007 p. C-23 for details).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>If bleeding continues</strong>, check placenta again for completeness and if there are signs of retained placental fragments (see WHO MCPC 2007 p. S-32 for details), remove remaining placental tissue; assess clotting status using bedside clotting test (see WHO MCPC 2007 p. S-2 for details), failure of clot to form after 7 minutes or a soft clot that breaks down easily suggests coagulopathy (see WHO MCPC 2007 p. S-19 for details).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>If bleeding continues in spite of above management</strong> perform bimanual compression of uterus, and if this does not work, compress the aorta (see WHO MCPC 2007 p. S29 for details)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Use balloon tamponade if available</strong> especially in event of referral to higher facility The UBT can be left in utero for up to 72 hours. Checked after 24 hours by removing a small amount of water (via syringe). If the bleeding has stopped, the UBT can be removed very slowly (over a period of a few hours) to ensure that the bleeding does not start again. ⁴</td>
</tr>
<tr>
<td>Typical Presenting Signs and Symptoms</td>
<td>Probable Diagnosis</td>
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</tr>
</tbody>
</table>
| • Immediate PPH                      | Tears of perineum, vagina and/or cervix | • If bleeding continues in spite of compression manoeuvres treat as for shock and start IV infusion with large-bore cannula or needle (two if possible) and rapidly infuse normal saline or Ringer’s lactate solution at the rate of 1 L in 15-20 minutes; give at least 2 L of fluid in the first hour.  
• Do this while preparing for urgent surgical intervention (refer if necessary): perform bilateral uterine and utero-ovarian artery ligation. If life-threatening bleeding continues after ligation, proceed with subtotal hysterectomy (see WHO MCPC 2007 p. P-99 and P-103 for details) |
| • Uterus firmly contracted and placenta and membranes complete | Retained placenta | • Examine woman carefully and repair tears of cervix, vagina, and/or perineum (see WHO MCPC 2007 p. P-81 and p. P-83 for details)  
• If bleeding continues, assess clotting status using bedside clotting test (see WHO MCPC 2007 p. S-2 for details), failure of clot to form after 7 minutes or a soft clot that breaks down easily suggests coagulopathy (see WHO MCPC 2007 p. S-19 for details). |
| • Placenta not delivered within 30 minutes after delivery or if bleeding heavy and placenta in situ | | • If you can see the placenta, ask the woman to push it out.  
• If you can feel the placenta in the vagina or starting to protrude through the cervix, remove by gloved (sterile or high-level disinfected) hand.  
• If placenta still high in the uterus, apply controlled cord traction (not forceful), if not already done.  
• Give oxytocin 10 IU IM, if not already |

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4 Currently, there is no evidence for prophylactic antibiotic use with UBT. Providers may give prophylactic antibiotics according to the circumstances.  
5 PCPNC WHO 2006 states if placenta not delivered 1 hour after delivery
<table>
<thead>
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<th>Probable Diagnosis</th>
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<tbody>
<tr>
<td>(bleeding may be accumulating behind the placenta) or heavy</td>
<td></td>
<td>done for AMTSL. <strong>Do not give ergometrine</strong> because it can cause a tonic contraction and delay expulsion.</td>
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<tr>
<td></td>
<td></td>
<td>• <strong>Ensure empty bladder</strong> – catheterize if necessary.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>If placenta is undelivered after 30 minutes of oxytocin and controlled cord traction</strong>, proceed with manual removal of placenta (see WHO MCPC 2007 p. P-77 for details)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>If bleeding continues</strong>, assess clotting status using bedside clotting test (see WHO MCPC 2007 p. S-2 for details), failure of clot to form after 7 minutes or a soft clot that breaks down easily suggests coagulopathy (see WHO MCPC 2007 p. S-19 for details).</td>
</tr>
<tr>
<td>• Immediate PPH (or heavy bleeding may be absent)</td>
<td>Retained placental fragments</td>
<td>• Perform speculum exam. If membranes or tissue present at or through the cervix, grasp with sponge forceps and gently apply traction to remove.</td>
</tr>
<tr>
<td>• Uterus may be either firmly contracted or soft</td>
<td></td>
<td>• If no membranes or tissue present at or through the cervix, perform manual exploration and remove tissue retained fragments (similar to manual removal of retained placenta (see WHO MCPC 2007 p. P-77 for details). If unable to get hand through the cervix, <strong>gently attempt</strong> removal with sponge forceps or wide curette. <strong>Warning:</strong> Be gentle using instruments inside the uterus, since the uterus can be relatively easy to perforate following delivery.</td>
</tr>
<tr>
<td>• Portion of placenta missing or torn membranes with vessels</td>
<td></td>
<td>• <strong>If bleeding continues</strong>, assess clotting status using bedside clotting test (see WHO MCPC 2007 p. S-2 for details), failure of clot to form after 7 minutes or a soft clot that breaks down easily</td>
</tr>
<tr>
<td>Typical Presenting Signs and Symptoms</td>
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</tr>
</tbody>
</table>
| • Heavier than usual bleeding that occurs more than 24 hours after delivery.  
• Bleeding is variable (light or heavy, continuous or intermittent), and may be foul-smelling  
• Uterus tends to be softer and larger than expected and often tender | Delayed PPH | • Give uterotonic drugs (see Table 1)  
• If severe anaemia is present, arrange for transfusion (see WHO MCPC 2007 p. C-23 for details) and give iron and folic acid (see WHO MCPC 2007 p. S-26 for details).  
• Bimanual examination and, if cervix is dilated) attempt to evacuate large clots and placental fragments within the uterus that can prevent uterus from contracting (see WHO MCPC 2007 p. S-77 for details).  
• If signs of infection are present (fever, foul-smelling discharge, uterine tenderness), give antibiotics for metritis (see WHO MCPC 2007 p. S-110 for details).  
• If bleeding continues, assess clotting status as noted above, and consider bilateral uterine and utero-ovarian artery ligation (see WHO MCPC 2007 p. P-99 for details) or hysterectomy (see WHO MCPC 2007 p. P-103 for details). Refer to **CEmONC facility**  
• Tachycardia or shock  
• History or presence of severe abdominal pain (pain may decrease after rupture)  
• Tender abdomen  
• Bleeding may be little or absent (most of the bleeding will be intra-abdominal)  
• Highest risk in women with any of Ruptured uterus /severe extended cervical tear | Requires immediate surgical intervention (see WHO MCPC 2007 p. S-20 for details) **at CEmONC facility**  
• Repair of uterus or perform subtotal hysterectomy as indicated by operative findings (see WHO MCPC 2007 p. P-95 and P-103 for details).  
• Anticipate the need for blood early, and transfuse as necessary (see WHO MCPC 2007 p. C-23 for details). |
**Typical Presenting Signs and Symptoms**

the following: 1) previous caesarean section, 2) prolonged obstructed labour, 3) fundal pressure used to try to deliver the baby, 4) destructive delivery

<table>
<thead>
<tr>
<th>Probable Diagnosis</th>
<th>Management – competent skilled birth attendants only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inverted uterus</td>
<td>Reposition uterus immediately (see WHO MCPC 2007 p. S-33 and P-91 for details). Delay will increase chance of constriction ring developing around inverted uterus and making repositioning much more difficult.</td>
</tr>
</tbody>
</table>

- Uterus not felt on abdominal palpation
- Inverted uterus often apparent outside of vagina
- Slight or intense pain
- May experience vasovagal response (temporary loss of consciousness)
- There may be no immediate bleeding with complete inversion and if placenta still attached

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References

References for the treatment of PPH with misoprostol:

Appendix 1: Rationale for Use of Misoprostol in Community-based Births

While oxytocin is the uterotonic drug of choice for AMTSL, its use is not always practical or feasible, especially for home births. Both oxytocin and ergometrine require cool storage or refrigeration, supplies for sterile needle and syringe, and a skilled provider for administration. In South Sudan, where approximately 85% of births occur at home, an alternative uterotonic drug (one that does not need to meet all the requirements for using injectable uterotonics) is needed. The World Health Organization (WHO) has endorsed the use of misoprostol, an oral uterotonic drug, for the prevention of PPH by providers trained in its use and where oxytocin is not feasible. Misoprostol is included on the WHO Essential Medicines list for prevention of PPH, and does not require the conditions that oxytocin does.

While oxytocin is the gold standard, research shows that misoprostol is effective at decreasing the incidence of PPH, including severe haemorrhage (>1000 ml), which is associated with the highest maternal mortality (Bamigboye 1998, Derman 2006, El-Refaey 1997, Hofmeyr 1998, Surbek 1999). Studies in many countries have demonstrated the safety, feasibility and effectiveness of using misoprostol in the community, as well as increasing the coverage rates of women using a uterotonic drug immediately following birth. In Afghanistan, Bangladesh, Ethiopia, Ghana, Nepal, Nigeria, Tanzania and Zambia, antenatal care (ANC) providers and community health workers demonstrated that they can effectively distribute misoprostol to pregnant women, and that these women can safely self-administer the drug to prevent PPH following a home birth (Ethiopia 2008, Hashi 2010, MNH 2004, Sanghvi 2010). A recent integrative review (Smith et al 2013) shows that community-based programs for prevention of PPH at home birth using misoprostol can achieve high distribution and coverage was greatest when misoprostol was distributed by community health agents at home visits. Misoprostol given as a 600mcg oral dose (three 200 mcg tablets) immediately after delivery (after excluding the presence of another baby) reduced PPH by about half in India where it was given by auxiliary nurse midwives (Derman 2006), and by 24% in Pakistan where trained birth attendants distributed the tablets (Moeben 2011); in Nepal, where community health workers distributed misoprostol during home visits during the eighth month of pregnancy, 74.5% of the more than 18,000 pregnant women who were provided the drug used it, and facility-based deliveries also increased (Rajbhandari 2010).

As a result, the use of misoprostol for home births allows a public health strategy to achieve high coverage of an effective intervention for the prevention of PPH, with great potential to significantly reduce deaths from PPH. The International Confederation of Midwives (ICM), the International Federation of Gynecology and Obstetrics (FIGO), and the WHO recommend the use of misoprostol to prevent PPH where injectable uterotonics are not available, or feasible (ICM, FIGO 2006, WHO 2011).

Promoting the use of misoprostol to prevent PPH for home births does not change the recommendation that all deliveries should be attended by a skilled provider, ideally in a health facility, and that AMTSL and the use of oxytocin are the preferred management strategies.
### Appendix 2: Recommendations for the prevention of PPH (WHO 2012)

1. The use of uterotonics for the prevention of PPH during the third stage of labour is recommended for all births. *(Strong recommendation, moderate-quality evidence)*

2. Oxytocin (10 IU, IV/IM) is the recommended uterotonic drug for the prevention of PPH. *(Strong recommendation, moderate-quality evidence)*

3. In settings where oxytocin is unavailable, the use of other injectable uterotonics (if appropriate ergometrine/methylergometrine or the fixed drug combination of oxytocin and ergometrine) or oral misoprostol (600 μg) is recommended. *(Strong recommendation, moderate-quality evidence)*

4. In settings where skilled birth attendants are not present and oxytocin is unavailable, the administration of misoprostol (600 μg PO) by community health care workers and lay health workers is recommended for the prevention of PPH. *(Strong recommendation, moderate-quality evidence)*

5. In settings where skilled birth attendants are available, CCT is recommended for vaginal births if the care provider and the parturient woman regard a small reduction in blood loss and a small reduction in the duration of the third stage of labour as important *(Weak recommendation, high-quality evidence)*

6. In settings where skilled birth attendants are unavailable, CCT is not recommended. *(Strong recommendation, moderate-quality evidence)*

7. Late cord clamping (performed after 1 to 3 minutes after birth) is recommended for all births while initiating simultaneous essential newborn care. *(Strong recommendation, moderate-quality evidence)*

8. Early cord clamping (<1 minute after birth) is not recommended unless the neonate is asphyxiated and needs to be moved immediately for resuscitation. *(Strong recommendation, moderate-quality evidence)*

9. Sustained uterine massage is not recommended as an intervention to prevent PPH in women who have received prophylactic oxytocin. *(Weak recommendation, low-quality evidence)*

10. Postpartum abdominal uterine tonus assessment for early identification of uterine atony is recommended for all women. *(Strong recommendation, very-low-quality evidence)*

11. Oxytocin (IV or IM) is the recommended uterotonic drug for the prevention of PPH in caesarean section. *(Strong recommendation, moderate-quality evidence)*

12. Controlled cord traction is the recommended method for removal of the placenta in caesarean section. *(Strong recommendation, moderate-quality evidence)*