

**THE SAFER MOTHERHOOD**

Knowledge Transfer Program

Editor-in-Chief: Professor Sir Sabaratnam Arulkumaran

# **POSTPARTUM HEMORRHAGE**

## **Guidelines for Immediate Action**



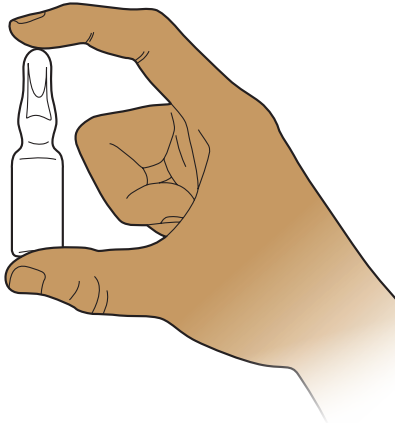
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# BEFORE

# Prevention

Bleeding postdelivery is stopped by clotting in intrauterine vessels brought about by natural uterine contractions and is enhanced by oxytocin. All the medical and uterus conserving surgical steps attempt to facilitate the clotting and should be performed before coagulopathy sets in.



Prevention of postpartum hemorrhage (PPH) involves the practice of active management of the third stage of labor and the identification of those at high risk for postpartum hemorrhage, such as patients with prolonged labor, pre-eclampsia, previous postpartum hemorrhage and multiple pregnancy. Active management of the third stage of labor incorporates three main interventions:

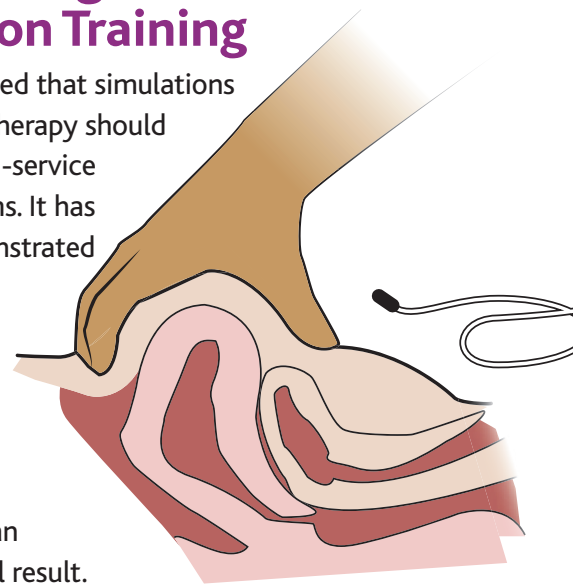
- **administration of oxytocin or misoprostol or another uterotonic drug within 1 minute after the birth of the baby;**
- **controlled cord traction (not essential with oxytocin); and**
- **uterine massage after delivery of the placenta.**

Uterine massage every 5–10 mins is recommended to confirm that the uterus is contracted. Women should be taught to self massage and also advised to warn staff if the uterine fundus is soft, increasing in size or they have continued bleeding.

NB. If oxytocin is not available, administering a single dose of misoprostol 600 µg administered orally immediately after delivery of the newborn, is indicated. It is good practice to first do an abdominal palpation to confirm that there are no additional babies in utero.

## Training Programs and Simulation Training

It is recommended that simulations of postpartum therapy should be included in in-service training programs. It has also been demonstrated that good communication between healthcare providers and their patients (and families) can have a beneficial result.



## Want to know more about the management of postpartum hemorrhage?

If you would like to know detailed information about postpartum hemorrhage:

1. Read and/or download free of charge a 7-minute learning Module (principally designed for midwives and other professional birth assistants) at [www.glowm.com](http://www.glowm.com)
2. Read and/or download, free of charge, a 20-minute Masterclass Lecture (principally designed for doctors and doctors in training) at [www.glowm.com](http://www.glowm.com)
3. Read and/or download, free of charge, the 650 page *A Comprehensive Textbook of Postpartum Hemorrhage* at [www.glowm.com](http://www.glowm.com)

# STEP

# 1

For more detailed information, see text on the reverse side of this leaflet →

# Immediate Action: Call for HELP

*Have someone available at all times to help manage Postpartum Hemorrhage*

## Vigilance

In order to identify potential problems promptly, it is critical that health workers remain vigilant during the minutes and first hours following birth.

In responding to early signs of postpartum hemorrhage the first step is to undertake a proper assessment of the woman and take immediate, non-specific, life-saving measures (such as resuscitation, monitoring vital signs and calling for additional **HELP**).

The next step is to provide specifically directed therapy once a diagnosis of postpartum hemorrhage has been confirmed. In practice, not all diagnostic assessments can be undertaken simultaneously, so the caregiver should try and assess the situation in the light of all the circumstances surrounding the birth. It should be emphasized that recent experience has demonstrated the special value of early hemorrhage control to avoid massive postpartum hemorrhage with coagulopathy.

## Resuscitation

Follow a simple ABC approach, as problems with Airway, Breathing, and finally Circulation are identified. The medical logic behind the 'ABC' approach is that an Airway problem will kill the patient more quickly than a Breathing problem, which in turn will kill a patient more quickly than a Circulatory (bleeding) problem. However, C-ABC with attention to arrest bleeding may be more appropriate for postpartum hemorrhage.

## Airway

In caring for the airway, the cervical spine must be protected. Place your hand on the patient's forehead and gently tilt the head back. At the same time, with your fingertips under the point of the patient's chin, lift the chin to open the airway. A jaw thrust may be required to facilitate this.

## Breathing

Assess breathing for 10 seconds by looking for chest movements, listening for breath sounds and feeling for the movement of air. If no breathing is detected, put out a cardiac arrest call and administer two rescue breaths.

## Circulation

If circulation is present but no breathing, continue rescue breathing at a rate of 10 breaths per minute. Recheck the circulation every 10 breaths, taking no more than 10 seconds each time. If the patient starts to breathe on her own but remains unconscious, turn her into the recovery position and administer oxygen at a rate of 15 liters/minute.



# Check for:

## Uterine Tone

In parallel with resuscitation, assessment of uterine tone should take place when managing primary postpartum hemorrhage because uterine atony is the dominant cause of postpartum hemorrhage. Uterine atony is suggested by the presence of a boggy soft uterus. If the uterus is atonic, immediately give 5 IU bolus dose of syntocinon intravenously or intramuscularly and manually rub the uterus over the abdomen – which should be continued until the bleeding stops.

Make sure that the bladder is empty, either by encouraging the woman to achieve this herself or by passing a catheter into the bladder.

## Trauma

Continued bleeding after uterotonic administration is most likely from unrecognized laceration of the genital tract, including uterine rupture. Hence, examination of the whole genital tract is essential under a good light source, with assistance and appropriate equipment to visualize all of the vagina and cervix. Any bleeding vessels should be tied and tears sutured.

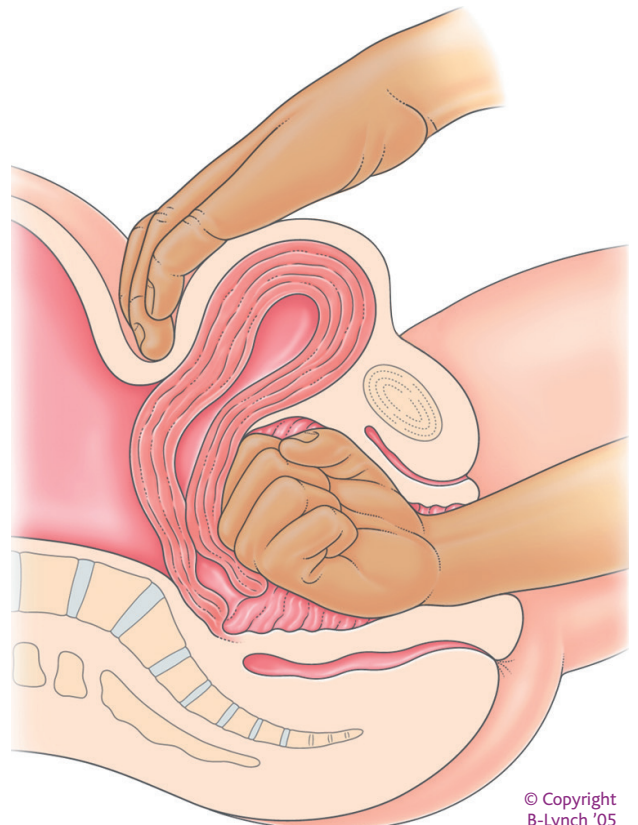
## Placenta

Inspection of the placenta after delivery must be routine to check for its completeness. Check for any missing cotyledon(s) by inspecting the amniotic and chorionic side of the placenta.

## Bimanual Compression

Insert one gloved hand into the vagina and push up against the body of the uterus. Place the other hand above the uterine fundus on the abdomen and compress the uterus against the hand in the vagina. To be effective bimanual uterine compression has to be maintained effectively for 8–10 mins till the blood clots in the uterine vessels. In a number of women this is all that is needed. In the others it is a *temporary* measure in the management of PPH caused by uterine atony after vaginal delivery.

**NB. This procedure is painful to the woman and is only undertaken in cases of PPH if drugs are not available or if drug therapy fails.**



# STEP

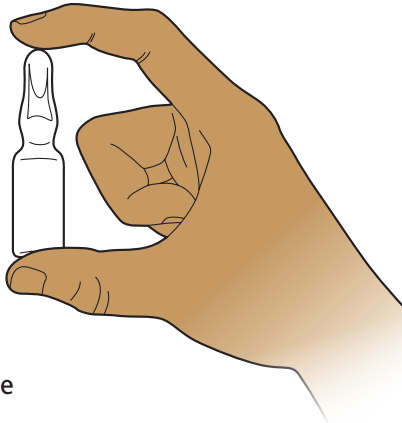
# 3

For more detailed information, see text on the reverse side of this leaflet →

# Drug Therapy for Management

## Syntocinon/oxytocin

Syntocinon/oxytocin **requires refrigeration** and must always be administered by injection. The usual dose is 20 IU in 500 ml of crystalloid solution. The intravenous route is used, with the dosage rate adjusted according to the response (typical rate 250 ml/h).



Intramuscular administration of 10 IU results in a slower onset of action (3–7 min) but with a longer-lasting effect (up to 60 min).

The preferred storage of oxytocin is refrigeration but it may be stored at temperatures of up to 30°C for up to 3 months without significant loss of potency.

## Syntometrine/ergometrine

Syntometrine **requires refrigeration**. It can be administered intramuscularly or intravenously, at a dose of 1 ampule (500 µg of ergometrine and 5 IU of syntocinon). Syntometrine is contraindicated in women with hypertension and cardiac disease.

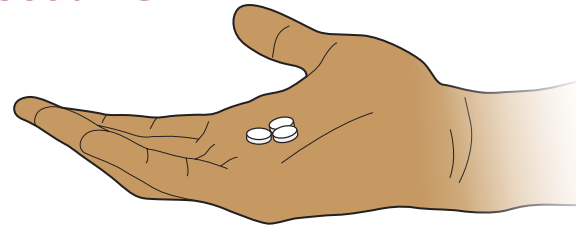
## Carbetocin

Heat-Stable Carbetocin is a uterotonic medicine used for the prevention of postpartum hemorrhage. A single 100 micrograms intravenous or intramuscular injection of Carbetocin administered after the delivery of the infant is sufficient to maintain adequate uterine contraction that prevents uterine atony and excessive bleeding comparable with an oxytocin infusion. (NB After Cesarean section Carbetocin must be administered by intravenous injection only).

WHO guidelines recommend heat-stable Carbetocin for PPH prevention in settings where oxytocin is unavailable or its quality cannot be guaranteed, and where its cost is comparable to other effective uterotonics.

## Misoprostol PGE1

Misoprostol **does NOT require refrigeration**, is easy to administer, inexpensive, and widely available.



For the treatment of PPH, a single dose of misoprostol 800 µg administered sublingually, immediately following diagnosis, is indicated when IV oxytocin is not immediately available. If IV oxytocin is already being provided for treatment of PPH, evidence suggests that adjunct (simultaneous) use of misoprostol has no added benefit. Repeat doses of misoprostol for PPH treatment are not recommended.

The side effects of temperature changes and gastrointestinal effects are transient and can be simply treated using anti-pyretics and anti-emetics respectively.

## Prostaglandin F2α

Prostaglandin F2α **requires refrigeration**. It is administered intramuscularly, in a dose of 250 µg; the maximum number of doses is eight (15 minutes apart) (2mg). It is contraindicated in women with asthma and cardiac disease.

## Tranexamic Acid

Tranexamic acid 1–2 g hourly will reduce fibrinolysis and will stabilize the clot in the uterine vessels. It is given via the intravenous route, and is best used when the bleeding continues despite oxytocin and when prostaglandin has become necessary.

## Recombinant Factor VIIa (rFVIIa)

rFVIIa is very expensive and **requires refrigeration**. It is used when uterine massage and uterotonic medications (oxytocin, ergometrine, prostaglandins) have all failed to control postpartum hemorrhage. The recommended dose is 40–60 µg/kg, administered intravenously.

In clinical practice this drug is used as a last resort because of its possible side effects and expense.

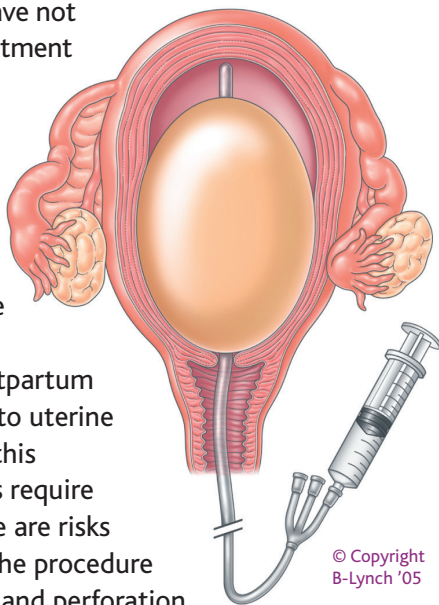


# STEP 4

For more detailed information, see text on the reverse side of this leaflet →

# Balloon Tamponade

In women who have not responded to treatment with uterotonics (i.e. drugs) – or if uterotonics are not available – the use of an intrauterine balloon should be considered in the treatment of postpartum hemorrhage due to uterine atony. However, this intervention does require training and there are risks associated with the procedure such as infection and perforation of the uterus. A Sengstaken tube, Rüsç balloon, Bakri balloon and even an inflated condom or glove have been used with success.



Use balloon tamponade following a vaginal delivery and atonic postpartum hemorrhage, that is unresponsive to uterotonics, prior to interventional radiological procedures or surgical interventions, such as the B-Lynch suture, uterine artery embolization or iliac artery ligation or hysterectomy being considered.

It can be used during or after cesarean section and in a woman with vaginal birth after previous cesarean section with postpartum hemorrhage, after excluding rupture.

## How to use

Insert the balloon and instill warm sterile water/saline in increments of 50 ml while observing for bleeding from the cervix. When bleeding stops instill an extra 50 ml. If bleeding continues despite the balloon herniating via the cervix, the treatment is unlikely to be effective and the balloon will be expelled. The next step should be compression sutures.

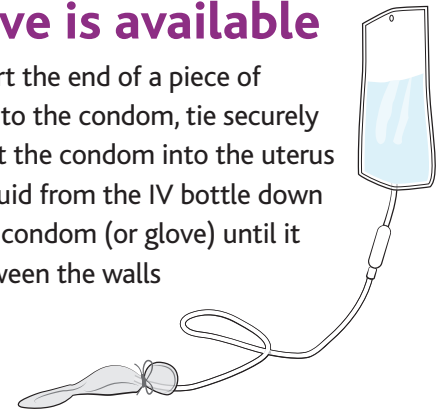
The fundal height should be marked and the height monitored with vaginal bleeding, pulse, blood pressure and urinary output to identify signs of continued bleeding. Prophylactic antibiotics and slow IV oxytocin infusion is advised.

The balloon tamponade can be removed after 4–6 hours, although it is usually left overnight to stabilize the patient. Once the fluid in the balloon is withdrawn, check for bleeding. If there is no further bleeding for 30 minutes, remove the balloon.

## How to use a condom if no alternative is available

Open the condom, insert the end of a piece of tubing from an IV set into the condom, tie securely with sterile string, insert the condom into the uterus via the cervix, release fluid from the IV bottle down the tubing and into the condom (or glove) until it has expanded fully between the walls of the uterus.

NB. To see a video demonstration of this procedure, go to [www.glowm.com](http://www.glowm.com)

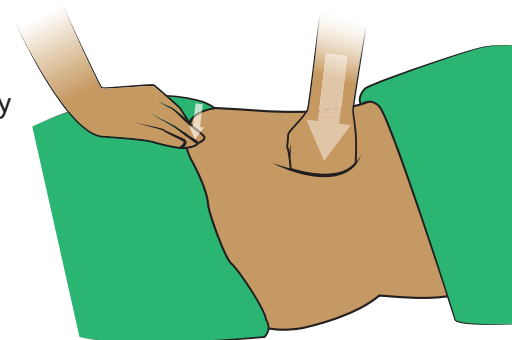


## Aortic Compression

If bleeding is severe and if initial measures are not successful, then external aortic compression should be considered. Successful aortic compression, is achieved when the femoral pulse ceases and when blood pressure in the lower limit is unrecordable; it may be of benefit as a temporary measure in the management of postpartum hemorrhage whilst resuscitation and other management plans are made.

Internal aortic compression can also be used as a temporary measure to control severe postpartum hemorrhage due to placenta percreta during cesarean section.

NB. To view a video demonstrating how to apply aortic compression visit [www.glowm.com](http://www.glowm.com)



# STEP

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For more detailed information, see text on the reverse side of this leaflet →

# Seek Additional Help

If the patient continues to hemorrhage, it is important to seek additional help as a matter of priority and plan early referral. The normal chain of patient care involves the following transfers:

## Home Delivery

## Nursing Station or Health Unit

## District or Regional Hospital

## If necessary, transfer to Tertiary (University) Hospital

in instances where full therapeutic measures such as blood bank facilities, surgical expertise, operating theater facilities, or embolization are not available or where there are delays in receiving these therapies or for intensive care monitoring in a patient who continues to bleed.

## Anti-shock garment

The best method of keeping a woman stable while transferring her is to use a non-inflatable anti-shock garment (NASG) if available. This in itself may stop bleeding in many cases.

### How it works

The NASG is a simple neoprene and Velcro device made of articulated segments that are wrapped tightly around the legs, pelvis and abdomen. It can be used to treat shock, resuscitate, stabilize and prevent further bleeding in women with obstetric hemorrhage.

The NASG is light, flexible and comfortable for the wearer. It has been designed to allow perineal access so that examinations and vaginal procedures can be performed without it being removed. Upon application a patient's vital signs are often quickly restored and consciousness regained.

### How to apply the non-inflatable anti-shock garment (NASG)

- Place the NASG under the woman with the top edge at the level of her lowest rib (on her side).
- Close segment 1 (or 2, for short women) tightly around each ankle and make sure that when snapped, a sharp sound is heard.
- Close segment 2 tightly around calf. Check for snap sound. Leave the knee free so that the leg can be bent.
- Close segment 3 tightly around the thigh. Check for snap sound.
- Place segment 4 so it goes around the woman with its lower edge at the level of her pubic bone.
- Place segment 5 with pressure ball directly over the umbilicus.
- Close the NASG using segment 6.
- Make sure the woman can breathe normally with segment 6 in place.



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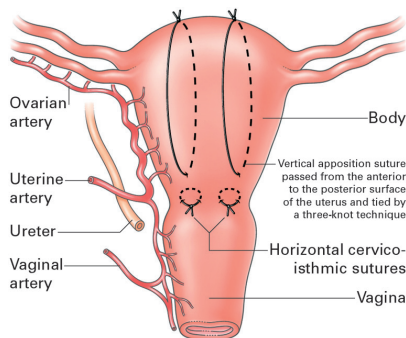
NB. For a video demonstration of how to use a non-inflatable anti-shock garment visit [www.glowm.com](http://www.glowm.com)

# Hospital-based procedures

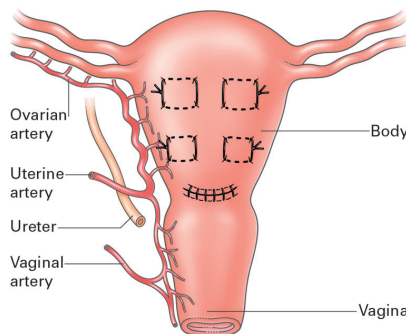
## B-Lynch Suture

Use **Monocryl suture or Vicryl number 2**

The B-Lynch suture aims to exert continuous vertical compression on the uterine vascular and muscular system. Laparotomy, uterine exteriorization and an opened uterine cavity are always necessary.



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## Other Conservative Suture Procedures:

### Vertical Uterine Compression Sutures

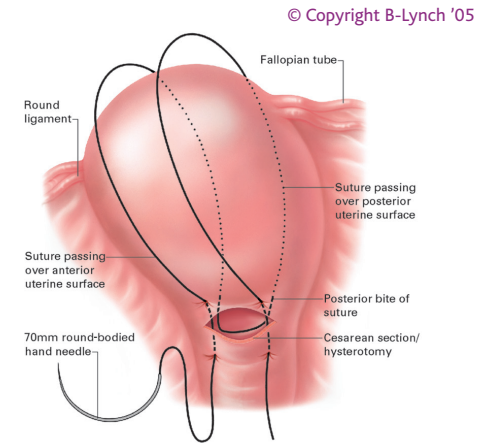
These sutures are an alternative to the B-Lynch technique if no lower segment cesarean incision is present. They may be placed without opening the uterus.

### Cho Multiple Square Compression Sutures

Multiple square sutures are used to cover the whole body of the uterus and this may be useful in placenta previa.

## Uterine Artery Embolization

A patient must be sufficiently stable to transport to the angiography suite. Embolization should be considered early, because it may take time to mobilize services. When embolization is successful, the patient can rapidly recover without undergoing additional surgery. Embolization not only saves the life of the patient, but also the uterus and adnexal organs, thus preserving fertility.



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## Stepwise Devascularization

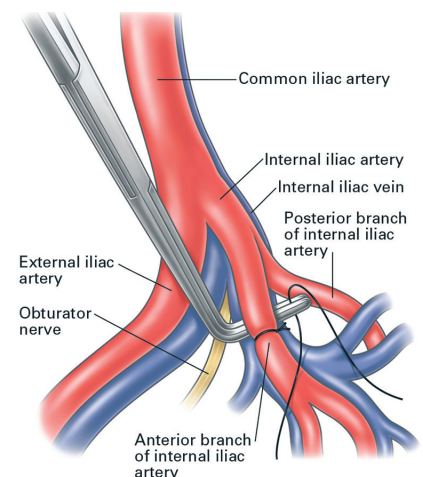
The essential requirements are not simple and may not be available in every unit. There is a need for a competent obstetric surgeon who is conversant and competent at pelvic gynecological procedures, and who has a working knowledge of the pelvic anatomy, including the vascular and neurological supply of the pelvic organs. Uterine artery and the infundibulopelvic vessels can be tied at the junction of the tube meeting the uterus without compromising ovarian blood supply.

## Internal Iliac Artery Ligation

This could be used as a prophylactic or therapeutic operation. There is a need for a competent obstetric surgeon who is conversant and competent at pelvic gynecological procedures.

## Subtotal or Total Hysterectomy

Hysterectomy is the best immediate option to save the hemorrhaging woman's life when uterine atony is unresponsive to uterotonics and where facilities for embolization are not available and/or the obstetrician is not well versed with the technical aspects of conservative surgical procedures or iliac artery ligation. Subtotal hysterectomy is easy to perform, quick and is applicable in most cases of atonic uterine bleeding. Total hysterectomy may be needed in cases of placenta previa, accreta and cases of uterine rupture involving the lower segment.



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