Management of Massive Gynaecological Haemorrhage UHL Obstetric Guideline

University Hospitals of Leicester NHS Trust

C80/2007

Contents

1. Introduction and Who Guideline applies to

This guideline is intended for use by all medical, nursing and other hospital staff involved in the management of massive gynaecological haemorrhage.

Related UHL documents

- **Miscarriage UHL Gynaecology Guideline C30/2013**
- **Ectopic Pregnancy UHL Gynaecology Guideline C17/2009**
- **Hysteroscopy - Ambulatory Hysteroscopic Gynaecology Unit Standard Operating Procedure UHL Gynaecology LocSSIP C16/2020**
- **Abortion – Women Requesting UHL Gynaecology Guideline C31/2020**
- **Massive Haemorrhage UHL Guideline C263/2016**

2. Guideline Standards and Procedures

2.1 Definition of massive haemorrhage

Definitions of massive haemorrhage vary. The source and amount of blood loss may be obvious or concealed.

Response to acute bleeding varies, depending on baseline characteristics and medical co-morbidity.

Patients may present with: Heavy bleeding (approx. 150ml/min or 50% total blood volume lost in 3hours), shock/collapse (e.g. pale, clammy, reduced neurological response, systolic BP <70mmHg or <90 after fluid bolus), tachycardia, hypotension, tachypnoea and oliguria.

Common gynaecological causes of massive haemorrhage include gynaecological surgery (intra or postoperative bleeding), ruptured ectopic pregnancy, menorrhagia, miscarriage and cancer (haemorrhage from cervical/vulval/vaginal/uterine cancer).

Losing a significant amount of blood quickly can make women unwell, leading to collapse, loss of organ/organ function and death if not managed in a timely fashion. Timely diagnosis and management of heavy bleeding can improve health outcomes, prevent organ loss, preserve fertility, expedite diagnosis and management of other conditions and prevent mortality.

Triage is extremely instrumental in identifying women at risk and expediting their review by the medical team.
Accurate assessment of blood loss is important to allow appropriate triage, so those with the most urgent clinical need can be seen quickly.
Assessment of blood loss and identification of 'at risk' women can be difficult for various reasons:

- Most bleeding happens outside of hospitals
- Women's views on severity of blood loss are subjective and varied
- Healthcare professionals are not always accurate at estimating blood loss. Bleeding which is not visible is hard to diagnose in the early stages.

2.2 Assessment and Identification of 'at risk' women for heavy blood loss

Identify women at risk of heavy blood loss by:

- Estimating pre-admission loss from history and other clinicians' (GP, paramedic, A+E).
- Estimating/measuring current overt bleeding (see Appendix 1)
- Assessing for covert bleeding in those at risk – e.g. ruptured ectopic, postoperative.
- Completing full EWS
- Consider rapid testing of Hb i.e. venous blood gas
- Reviewing results of tests done prior to admission (FBC, Blood gas, U&E, where applicable check for hCG, imaging if already done (Ultrasound or CT scan).

2.3 Escalation

Escalate urgently to gynaecology medical on call team for women who have:

- Lost 300mL blood and have ongoing bleeding
- Scoring on EWS, especially for raised respiratory rate/heart rate and/or low blood pressure
- Continuous bleeding in presence of Hb <100g/dl or has evidence of significant drop in Hb

Escalate to Senior registrar for immediate review, women all are haemodynamically unstable; have collapsed or are peri-arrest.

If they cannot attend in a timely manner, **escalate to the Consultant on-call.**

Escalate to the junior registrar women who are haemodynamically stable, but have any of the above findings for review **within 30minutes**.

2.4 Dealing with massive haemorrhage

Effective teamwork and communication are essential.

There are both clinical and logistical issues to consider. They include clinical management of the patient, processes to deliver blood components to the patient and organisation of emergency interventions to arrest bleeding (surgical/radiological).

Roles within the team:
Team leader:
This is usually the most experienced doctor at the scene. However, the leader should have a bird's eye view at all times and maintain situational awareness. It may therefore sometimes be better for another team member to be leader, if the doctor is fixated on a clinical task. Their role is to co-ordinate the team effort in managing the patient.

Scribe:
1 team member should be nominated to keep contemporaneous notes and be able to give running summaries to team when needed.

Runner:
At least 1 team member should be allocated as runner: put out calls, fetch equipment/medication. Porters should be called for extra help running between departments e.g. blood samples to the lab; blood from blood bank, if needed.

A separate communications lead may be needed to ensure seamless escalation and handover of care to other specialities/teams.

Clinically skilled team members - to secure and maintain airway, breathing and circulation and administer medication.

Communication:
Is crucial and should be 'two way'. Instructions should be given to specific team members and communication should be repeated to ensure 'closed loop'.

2.5 Managing massive haemorrhage

Aims:

- Resuscitation
- Replacement of blood
- Prevention of coagulopathy
- Treating the cause of haemorrhage

i. Call for help – shout, use emergency buzzers, call 2222 to get urgent help, as appropriate. Ensure senior gynaecology registrar is called. Registrar to escalate to consultant and anaesthetic team as needed.

ii. Manage the patient

A: Ensure airway is patent. Is patient awake? Speaking? Breathing? Do you need to use an airway adjunct?

B: Check RR, check pulse oximetry is >95% if there is no history of conditions causing low oxygen levels (e.g. COPD). Give oxygen if needed. Do an ABG if needed

C: Check HR, BP and temperature.
Insert 2 large bore cannula.
Give IV fluid.
Take blood for, FBC, U+Es, LFT, coagulation screen, fibrinogen, Group and cross-match.
Do near-patient testing – TEG, HemoCue, blood gases
Insert Foley's urinary catheter with hourly bag.
Keep warm.
Dial 2222 and state 'I am activating massive haemorrhage protocol'.
Give emergency O negative blood if needed
Reverse any anticoagulation
Give Tranexamic acid
Please see **Massive Haemorrhage UHL Guideline** for details on protocol, blood products and management of transfusions.

D: Examine – abdomen, pelvis, head-to-toe if indicated, AVPU and capillary blood glucose.
Assess for cause of bleeding and manage.
Consider:

- Uterotonics like misoprostol/oxytocin/syntometrine in women with miscarriage.
- Tranexamic acid/Norethistrone for heavy menstrual bleeding
- Consider vaginal packs
- Organise transfer to theatre
    - Liaise with: theatre co-ordinator, anaesthetic team, gynaecology and anaesthetic consultants, haematologist, interventional radiologist, surgical team, intensivists as required.
        - Surgical evacuation of uterus for miscarriage
        - Laparotomy for ruptured ectopic pregnancy
        - Return to theatre for postoperative haemorrhage
        - Repair of trauma
        - Consider radiological (embolisation) or vascular intervention
        - Hysterectomy may be necessary for uterine bleeding

Transfer to ITU/HDU for monitoring and observation

2.6 Coagulopathy in massive haemorrhage

Massive haemorrhage protocol products are released in packs. Transfuse as released until blood results reviewed with haematologist to determine further need.

MHP1 contains red cells according to patient weight;
MHP2 red cells+FFP;
MHP3 red cells+ FFP + platelets;
MHP 4+ red cells + FFP + platelets + cryoprecipitate.

Patients treated for massive haemorrhage are at risk of dilution coagulopathy leading to reduced platelets, fibrinogen and other coagulation factors. This can make haemostasis difficult and trigger disseminated intravascular coagulopathy.

Fibrinogen < 1, APTT > 1.5, platelets < 50 indicates coagulopathy.

Prevent this by:

- managing bleeding in a timely manner;
- keeping the patient warm;
- using warmed fluids;
- using massive haemorrhage packs and goal-directed adjustments.

If fibrinogen <1, give 2 adult pools of cryoprecipitate
If ionized calcium <1, give Calcium chloride 10% 10ml IV over 3 min
Platelet transfusion should aim to maintain the count > 80.
If platelets <80, give 1 adult therapeutic dose of platelets; if <30, give 2.
If TEG is done, give products as guided by TEG results.
If TEG is not available, use: INR or APTT >1.5, give 4 units FFP.

Discuss with haematologist to consider recombinant factor VIIa or prothrombin complex concentrate if haemorrhage is unresponsive to conventional therapy

2.7 Anticoagulant drugs

Warfarin should be reversed with intravenous vitamin K (5–10 mg). Prothrombin complex concentrate (Beriplex) can also be used.
Unfractionated heparin can be reversed with protamine.
Low molecular weight heparin can be partially reversed with protamine.

Step down massive haemorrhage protocol and return unused products within specified timeframes.

3. Education and Training:

Dissemination on GAU, teaching nursing and medical staff to use provided equipment.

Demonstration surveys to highlight the inaccuracy of ad hoc blood loss estimation and need for a structured approach.

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Adherence to guideline	Incident review of all massive gynaecology haemorrhage	Risk lead	Ongoing	Risk management team/CMG board

5. Supporting References:

1. Elissa T. Serapio, Geffan A. Pearlson, Eleanor A. Drey, Jennifer L. Kerns Estimated versus measured blood loss during dilation and evacuation: an observational study. Contraception, February 02, 2018DOI:https://doi.org/10.1016/j.contraception.2018.01.008
2. Ali Algadiem E, Aleisa AA, Alsubaie HI, et al. Blood Loss Estimation Using Gauze Visual Analogue. Trauma Monthly. 2016 May;21(2):e34131. DOI: 10.5812/traumamon.34131.
3. Yoong, W., Karavolos, S., Damodaram, M. *et al.* Observer accuracy and reproducibility of visual estimation of blood loss in obstetrics: how accurate and consistent are health-care professionals?. *Arch Gynecol Obstet* **281,** 207 (2010). https://doi.org/10.1007/s00404-009-1099-8

6. Key Words

Gynaecology, Bleeding, Haemorrhage, TEG, Emergency

The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.
As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

CONTACT AND REVIEW DETAILS			
Guideline Lead (Name and Title) **R Teo - Consultant** **Amy Ivare - ST7**			**Executive Lead** **Chief Medical Officer**
Details of Changes made during review: calling for help; whom to escalate to; ABC management; management of transfusion needs.			
Date	**Issue Number**	**Reviewed By**	**Description Of Changes (If Any)**
2007	**1**	**Author Rod Teo - Consultant**	
2020	**2**	**Amy Ivare**	
April 2022	**3**	**Amy Ivare Gynaecology Governance Committee**	**Guidance updated in line with UHL protocol Added EBL pictorial tool**

Appendix 1: Estimating blood loss

Quantify blood loss

Quantify blood loss to aid in objective assessment, escalation and handover of care.

Measure blood loss

Use calibrated jugs, dishes, bed pans or toilet liners where possible, to contain and measure blood loss.
Use scales to weigh blood-stained apparel in grams. Subtract dry apparel weight from weighed value. This equates to blood loss in millilitres (mL)

Estimating blood loss

If bleeding cannot be measured, or when pre-hospital loss needs to be estimated, in general:

1 tsp 3.55 mL
1 tbsp. 14.21mL
1 cup 250 mL
Common sanitary towels ~ 10-15 mL
Tampons/panty liners ~ 5 mL
1 cup ~ 200 mL

Using pictorial representation as below may also help.

Pictorial representation estimation tool

10x10 4ply swab


2.5ml

5ml

10ml

20ml

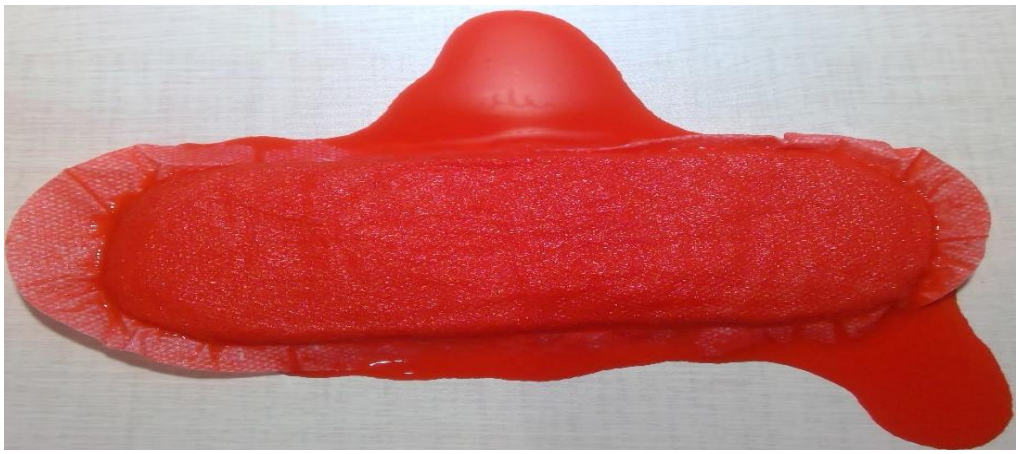
50ml

100ml

Small sanitary towel

50ml

100ml



200ml

Larger sanitary towels

50ml

100ml

200ml

500ml

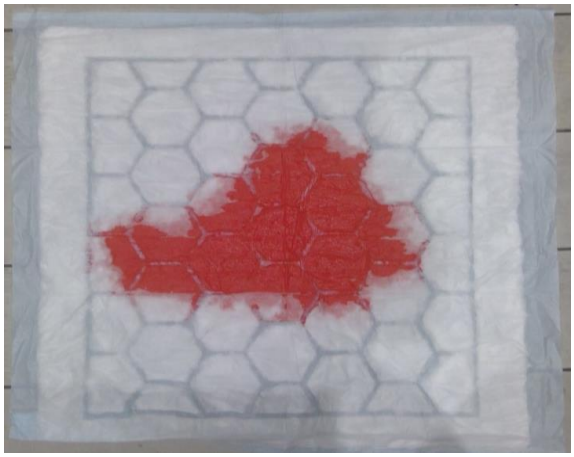
Extra large pads

200ml

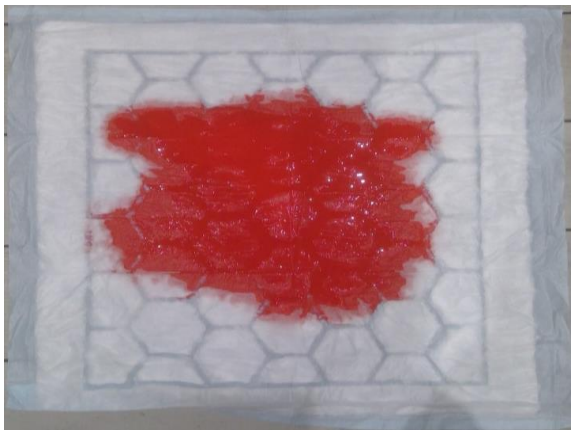
500ml

1000ml

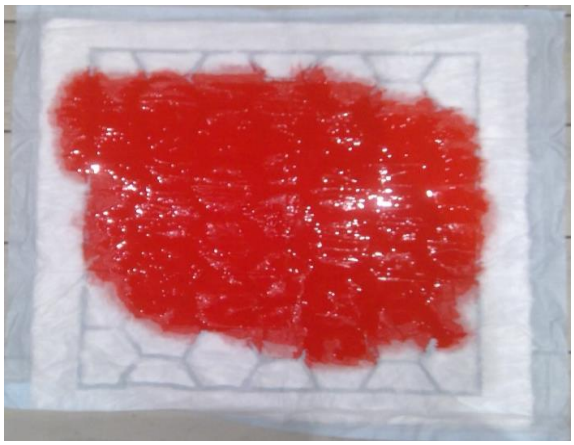
Absorbent sheets



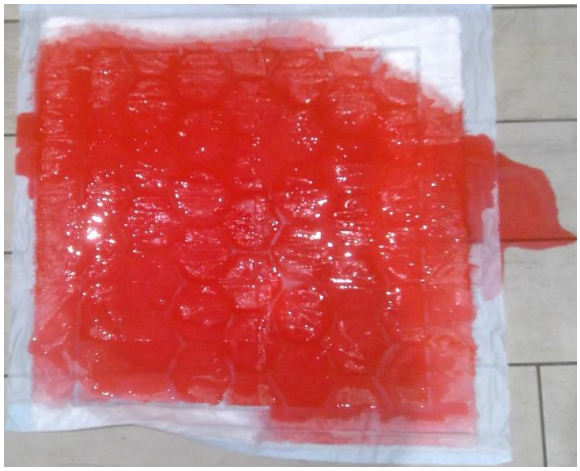
100ml



200ml

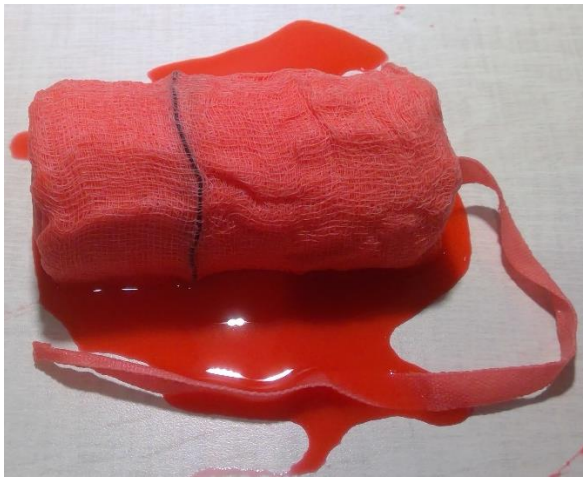


500ml



1000ml

Full speculum 60ml



Soaked vaginal pack 200ml