

# Stopping the Flow

Postpartum Hemorrhage:  
Prevention, Recognition, and Management

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# Presenter Disclosure

- ▶ I have no affiliations with a pharmaceutical, medical device, or communications organization.

# Learning Objectives

- ▶ Identify risk factors for postpartum hemorrhage
- ▶ Review management of postpartum hemorrhage
- ▶ Discuss prevention of postpartum hemorrhage
- ▶ Discuss management of postpartum anemia and iron deficiency



# Postpartum Hemorrhage

- ▶ Blood loss of 1000mL or more OR blood loss associated with signs or symptoms of hypovolemia after delivery
- ▶ 5% of all deliveries
  - ▶ Blood transfusion → 40 per 10 000 deliveries
- ▶ 10% of maternal mortalities
  - ▶ Leading cause of maternal mortality

# The 4 Ts of Postpartum Hemorrhage

The background of the slide features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic design.

**T**ONE – UTERINE ATONY

**T**ISSUE – RETAINED PLACENTA

**T**RAUMA – LACERATIONS

**T**HROMBIN – COAGULATION



# Risk Factors

The background of the slide features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side and bottom of the frame, creating a modern, layered effect. The rest of the background is a solid, very light gray.



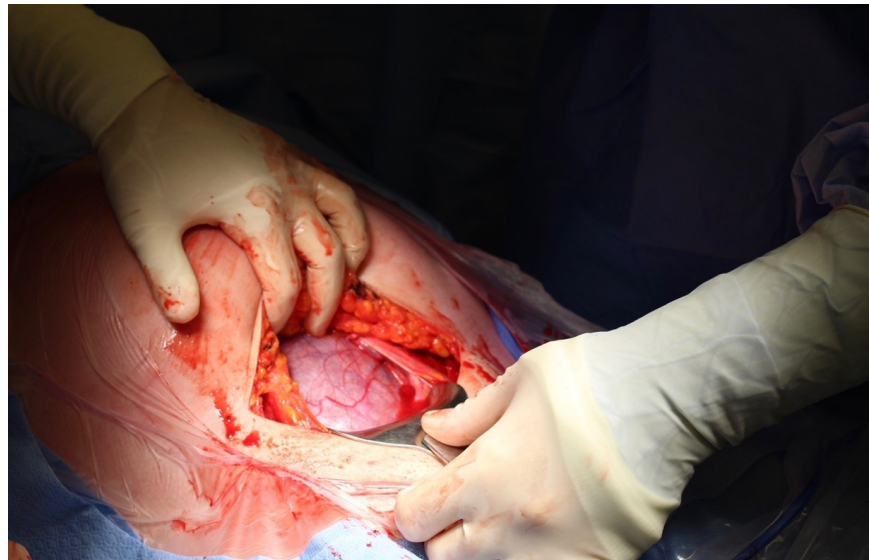
# Risk Factors: Tone

- ▶ Overdistention
  - ▶ Multiples
  - ▶ Polyhydramnios
  - ▶ Fetal macrosomia
  - ▶ Fibroid uterus
  - ▶ Distended bladder
- ▶ Chorioamnionitis
- ▶ Prolonged labour
- ▶ Oxytocin augmentation



# Risk Factors: Tone

- ▶ Precipitous delivery
- ▶ Iron deficiency
- ▶ Medications that relax the uterus
  - ▶ Magnesium sulfate
  - ▶ Nitroglycerin
  - ▶ Halogenated anesthetics
- ▶ Advanced maternal age
- ▶ Multiparity
- ▶ Cesarean delivery



Cesarean delivery

# Risk Factors: Trauma

- ▶ Obstetrical tears
  - ▶ Perineal tears
  - ▶ Cervical tears
- ▶ Uterine extensions at CS
- ▶ Uterine inversion
  - ▶ 1 in 3500 to 20 000 deliveries
- ▶ Uterine rupture
  - ▶ 1 in 200 to 20 000 deliveries

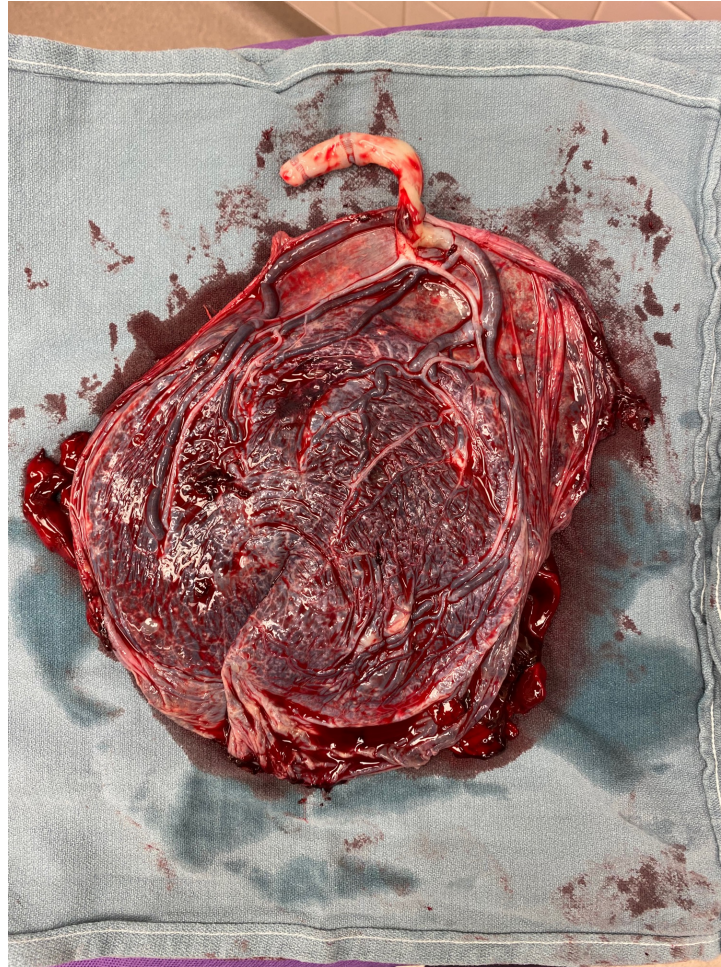


Uterine rupture



# Risk Factors: Tissue

- ▶ Retained placenta
  - ▶ Succenturiate lobe
  - ▶ Marginal or velamentous cord insertion
  - ▶ Morbidly adherent placenta
    - ▶ Previous uterine surgery
- ▶ Retained blood clots



Vasa previa

# Risk Factors: Thrombin

- ▶ Bleeding disorders
  - ▶ Von Willebrand's disease
  - ▶ Hemophilia A
- ▶ Pregnancy complications
  - ▶ Hypertensive disorders of pregnancy
  - ▶ Severe infection
  - ▶ Intrauterine fetal death
  - ▶ Abruptio
  - ▶ Amniotic embolus
- ▶ Therapeutic anticoagulation
- ▶ Idiopathic thrombotic purpura



The background features a series of overlapping, semi-transparent green triangles and polygons that create a dynamic, layered effect. The colors range from a light, pale green to a deep, forest green. The shapes are primarily located on the right side of the frame, with some extending towards the left. A thin, light gray line runs diagonally across the lower right portion of the image, intersecting the green shapes.

# Recognition

# Recognition



Quantitative Blood Loss



Vital Signs

Clinical symptoms	Heart rate >100 bpm Pallor	Systolic BP <100 mmHg Ongoing bleeding	Dizziness Massive bleeding	Coma Massive bleeding
Bleeding volume	>1,000 mL	>1,500 mL	>2,500 mL	>4,000 mL

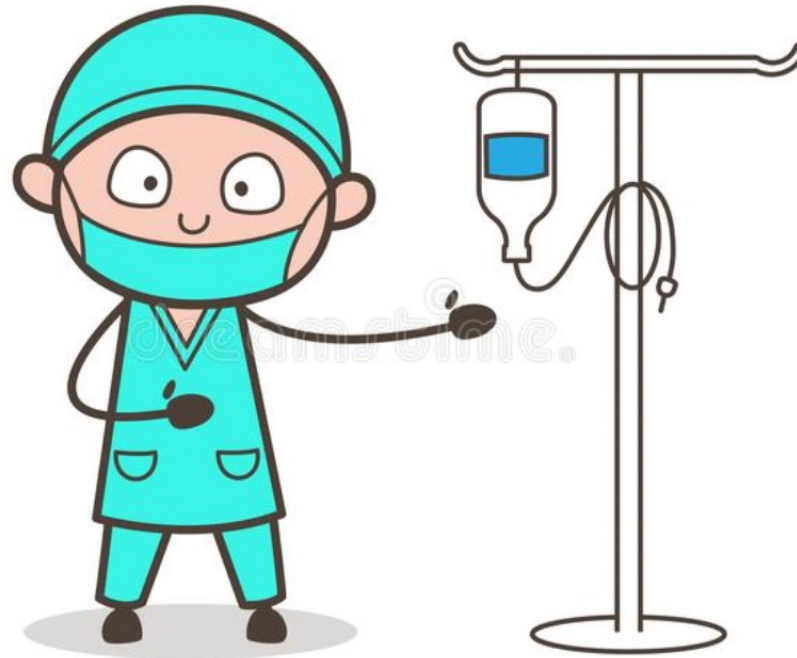
The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, ranging from light lime to dark forest green. These shapes are concentrated on the right side of the image, creating a dynamic, layered effect. The left side is mostly white, providing a clean space for the text.

# Management



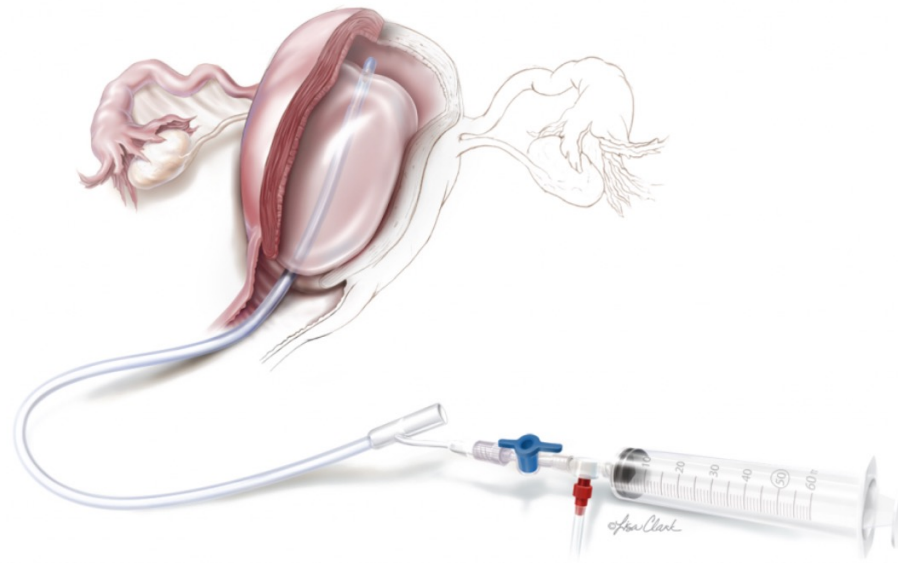
# Management: The Basics

1. Good communication
2. Accurate assessment of blood loss
3. Monitoring of maternal vital signs and symptoms
4. Fluid replacement
5. Arrest of source of hemorrhage



# Management: Tone

- ▶ Medical
  - ▶ Uterotonics
  - ▶ Tranexamic acid
- ▶ Surgical
  - ▶ Intrauterine tamponade
  - ▶ Uterine artery embolization
  - ▶ Uterine compression sutures
  - ▶ Peripartum hysterectomy



# Uterotonic Medications

- ▶ Oxytocin
  - ▶ Hormone released by the posterior pituitary
- ▶ Misoprostol
  - ▶ Prostaglandin E1 analog
- ▶ Carbaprost
  - ▶ Prostaglandin analog
- ▶ Ergometrine
  - ▶ Vasoconstrictor



# Management: the last 3 Ts

## ► Trauma

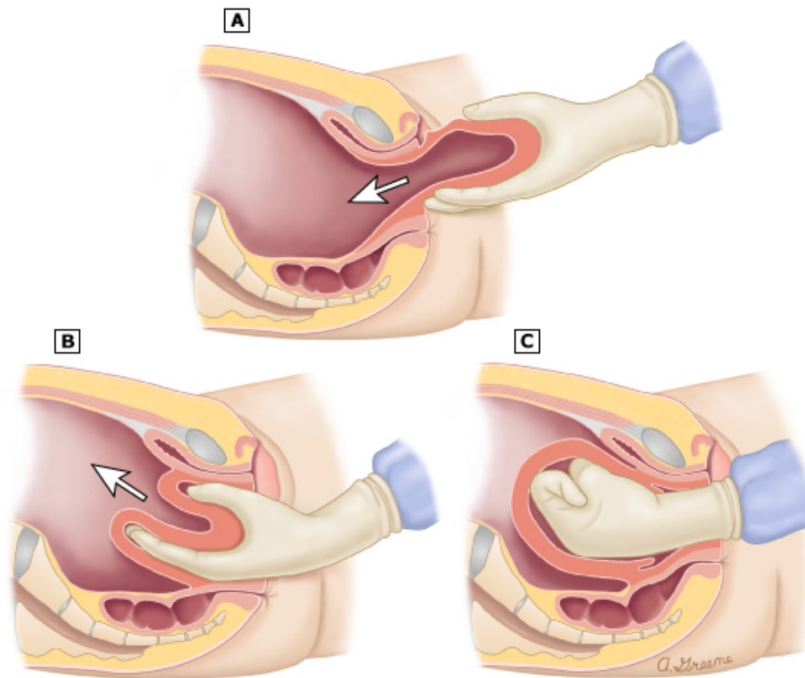
- Repair of lacerations
- Replacement of inverted uterus

## ► Tissue

- Manual exploration of uterus and removal of placenta
- Cesarean hysterectomy for morbidly adherent placenta

## ► Thrombin

- Correct underlying cause



# Sequelae

Death → 1 in 10 000 PPH

Venous thromboembolism → 3 in 1000 PPH

Hysterectomy → 2 in 100 PPH

Organ failure → 4 in 100 PPH

Blood transfusion → 16 in 100 PPH

Anemia → 31 in 100 deliveries

# Prevention

- ▶ Active management of the third stage
  - ▶ Uterotonic medication in the third stage
  - ▶ Controlled cord traction
- ▶ Manual removal of retained placenta
- ▶ Treat antenatal anemia
  - ▶ Reduce risk of maternal morbidity due to PPH



# Management: Postpartum anemia

Postpartum anemia: hemoglobin **less than 100g/L** 24 to 48 hours after delivery

- ▶ IV iron recommended for hemoglobin **between 60 to 90 g/L**
  - ▶ Repeat blood work at four weeks to ensure resolution
- ▶ Oral iron supplementation for hemoglobin **above 90g/L**
  - ▶ Supplementation for six weeks
  - ▶ Repeat blood work to ensure resolution

**\*\*If still iron deficient, continue oral iron for there months!**

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# References

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Questions