

RECOGNITION AND ESTIMATION OF BLOOD LOSS (EBL)

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EBL Recognition

- The blood loss at a vaginal delivery is given as 350 ml. To estimate this amount correctly, the blood volume in the collection drape would fill a:
 - A. Standard soda can 
 - B. Half gallon of milk
 - C. Pint of milk
 - D. Quart of milk

Estimating Blood Loss

Familiar Objects



- 1 cup = 250ml
 - = 5 cm clot (orange)
 - = 1 unit PRBCs

- 12 oz soda can = 355 ml

- 2 cups = ~ 500 ml
 - = 10 cm clot (softball)
 - = 2 unit PRBCs



Floor Spills

- 23 inches (50 cm) : 500 ml
- 34 inches (75 cm) : 1000 ml
- 45 inches (100 cm) : 1500 ml



Remember 1 gm = 1 ml

CASE #2 – Cont' d

3 hrs postpartum in the Recovery Room

- 3 orange size clots passed
- 500 ml fluid bolus given
- Post infusion BP 108/70; HR 115

5. The first fluid bolus ordered at this time was 500 ml.

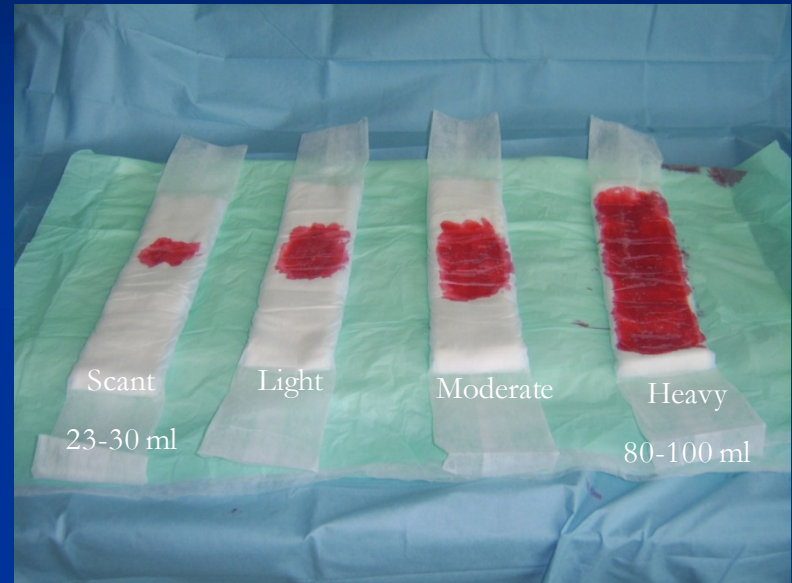
This amount is:

- A. Adequate
- B. Adequate if vitals checked q 5 minutes & bleeding slows
- C. Adequate if blood replacement is ordered
- D. Inadequate ☒

Obstetric Hemorrhage: RECOGNITION

Scant	Less than 2.5 cm (1 inch) / hour
Light	Less than 10 cm (4 inches)/hour
Moderate	Less than 15 cm(6 inches)/hour
Heavy	1 pad saturated within 2 hours

Lowdermilk & Perry (2004)



- Visual EBL
Inaccurate

- Weighing
Most accurate method

EBL Recognition

- A standard 18in x 18in lap that is 75% saturated with blood represents an estimated blood loss of approximately:

- A. 25 ml
- B. 50 ml
- C. 75 ml
- D. 100 ml

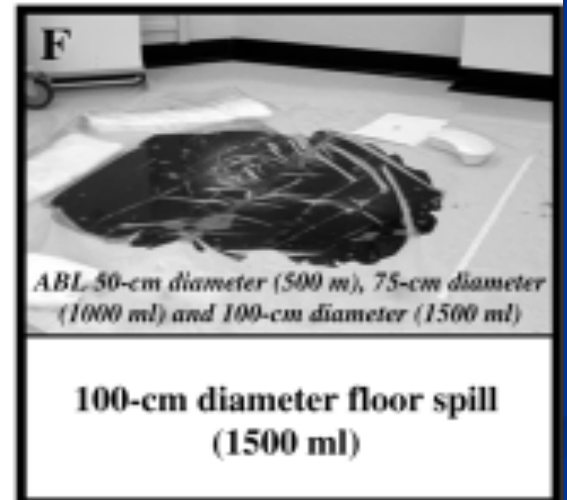
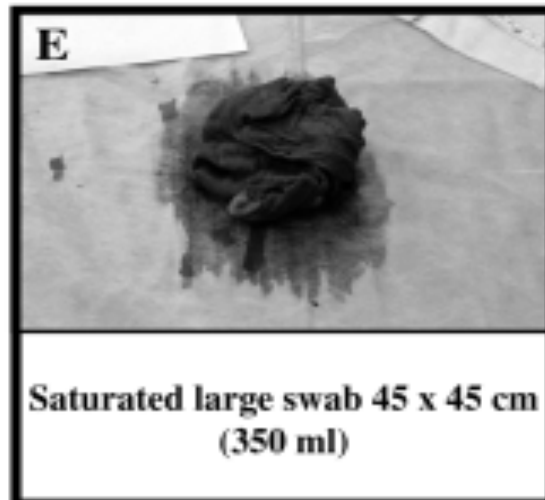
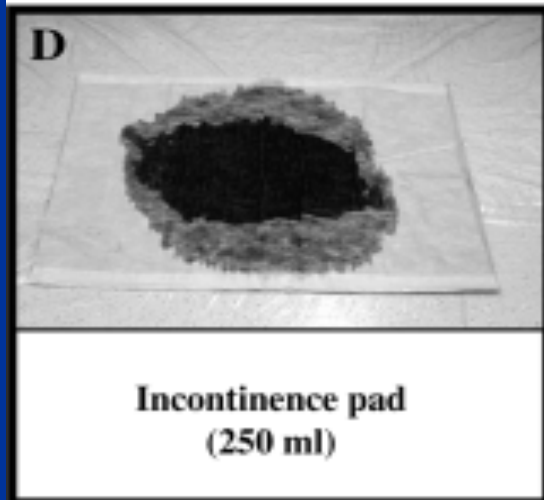


Estimating Blood Loss

**Blood absorption characteristics of a
Standard laparotomy sponges (18in X 18in)**



Estimating Blood Loss



Estimating Blood Loss



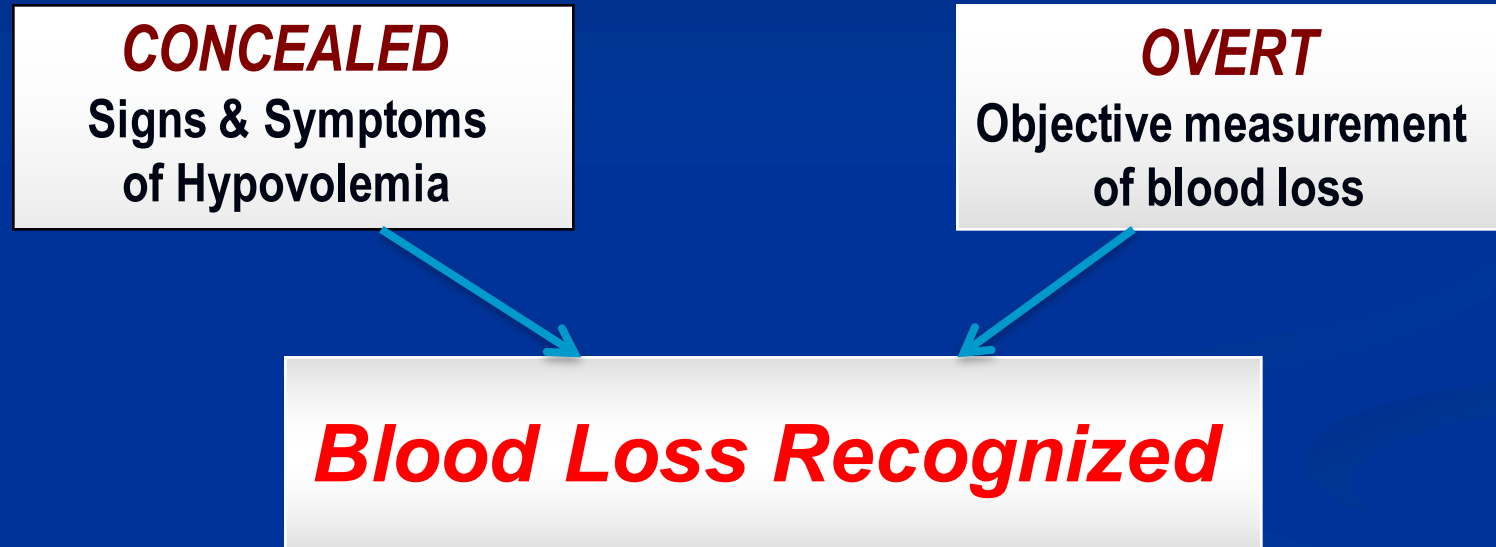
Hemorrhage on bed only
(1000 ml)



Hemorrhage spilling to floor
(2000 ml)

Recognition and Management of Hemorrhage

ANTEPARTUM INTRAPARTUM POSTPARTUM



Question

- Which of the following is the earliest sign of compensatory change that occurs with hypovolemia?
 - A. Tachycardia ☒
 - B. Hypotension
 - C. Hyperventilation
 - D. Pallor

Signs and Symptoms of Hemorrhage

Look for trends in.....

Vital Signs and Patient Status

- ↑ Pulse
- ↑ Respirations
- ↑ Pallor
- Change in Mental Status
- ↓ Output
- Delayed Capillary Refill
- ↓ Blood Pressure

Question

6. In cases of severe hemorrhage, the minimum rate of urine output per hour needed to prevent renal tubular necrosis is

6. 10 ml/hr

7. 30 ml/hr ☒

8. 100 ml/hr

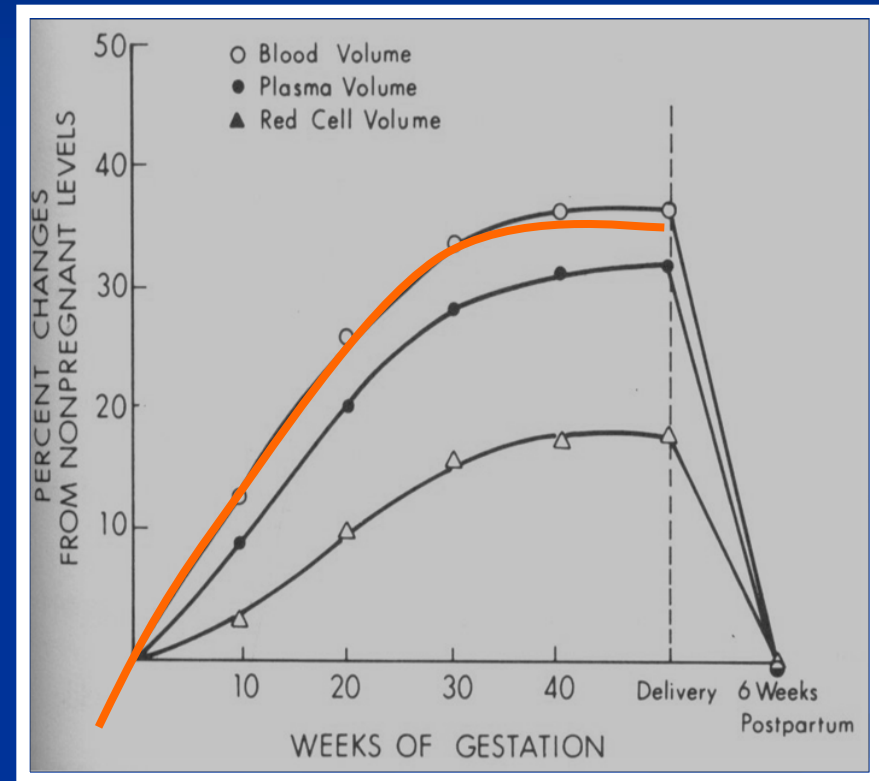
9. 300 ml/hr

Delayed Recognition of Hypovolemia

- Maternal Physiology -

■ Pregnancy - Hypervolemic State

- Nearly 50% increase in blood volume
- Up to 30% loss of volume (1500 to 2000ml) to alter vitals
 - (vasoconstriction/ \uparrow SVR)
- Need earlier replacement of higher volumes for adequate resuscitation!



*BP remains stable until
25 – 30% (1500 – 2000 ml) of volume is lost.*

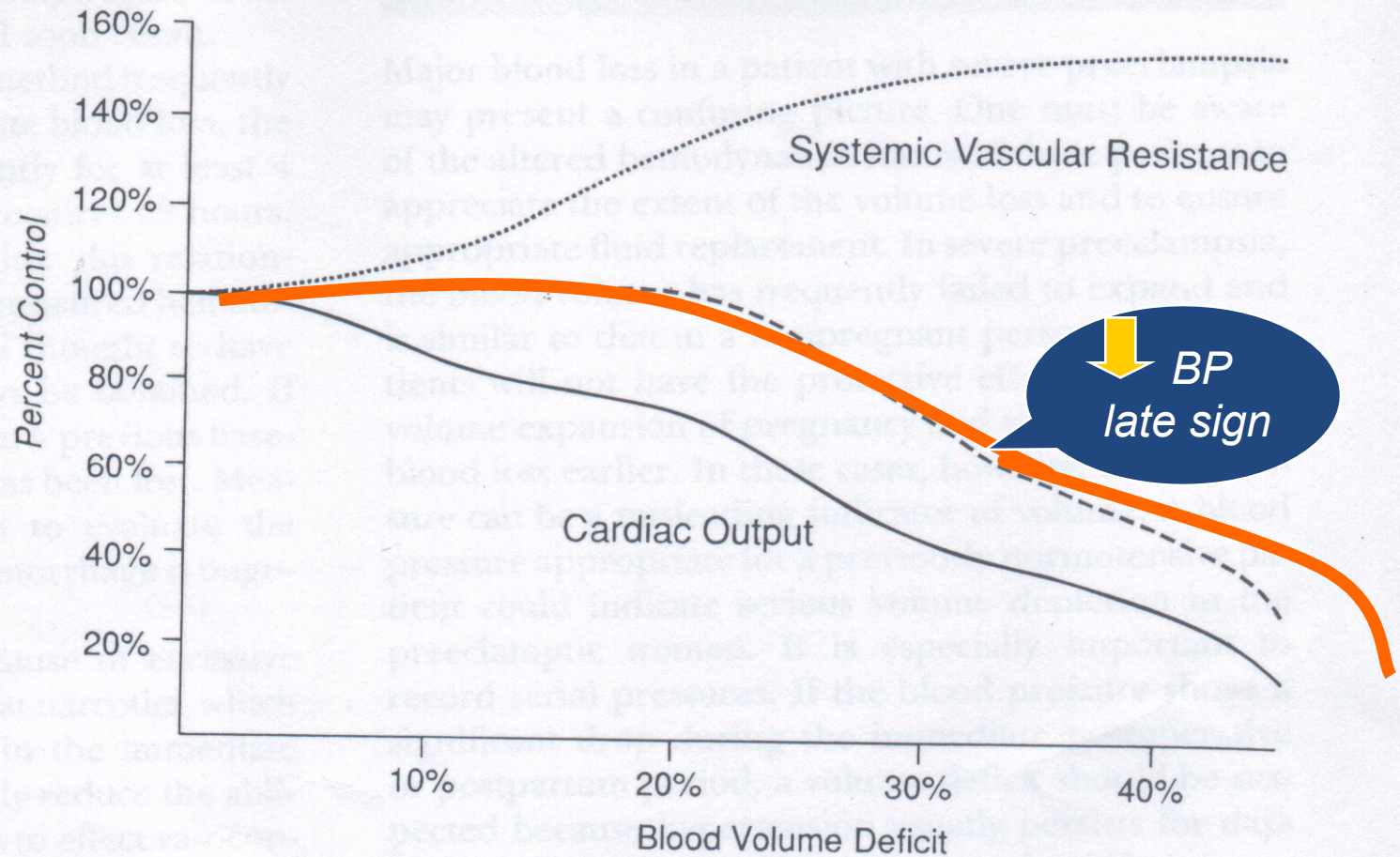


Fig. 17-1 Relationships among systemic vascular pressure, cardiac output, and blood pressure in the face of progressive blood volume deficit.

CASE #2 - Outcome

4 hrs postpartum in Postpartum Room

- Urine output 20 ml /hr
- 1 liter D5LR given over 2 hours
- HGB ordered – Result of 5.9 mg/dL reported back

14 hrs postpartum

- 1st unit PRBC's started
- BP 90/50, P128
- Patient combative
- Pelvic exam: two 5cm clots, blood oozing from IV site
- An additional estimated blood loss of 1600 ml
- Patient coded five minutes after pelvic exam

CASE #2 Summary of Issues

■ No/Inadequate identification of risk factors

- 4th C/S → Risk of Accreta
- Previa →
- High Parity

■ Delayed/Wrong Diagnosis

- Unrecognized abnormal vitals (s/s hypovolemia)
- Inadequate assessment of vitals and physical findings

■ Underestimation of blood loss in the OR and postpartum

- Pre-op hgb 14.6
- Post-op hgb 5.9

■ Delayed/Inadequate Treatment

- Inadequate volume replacement
- 1st unit of PRBCs started 14 hours post-cesarean

Documentation

Lack of documentation has been identified by the MMRC as a major problem!

- Documentation must include:
 - Date/time, name of provider for each entry
 - Ongoing vital signs
 - Signs of blood loss/hypovolemia
 - Estimated blood loss (visual and objective)
 - Interventions
 - Patient response

Blood Loss Classifications and Replacement

	Class I	Class II	Class III	Class IV
Est. Blood Loss (EBL)	900 ml≈	1200-1500 ml ≈	1800-2100 ml ≈	>2400 ml ≈
Pulse	<100 bpm	> 100 bpm	> 120 bpm	≥140 bpm
Respirations	14-20 bpm	20-30 bpm	30-40 bpm	> 35 bpm
Blood Pressure	Normal	Orthostatic changes	Overt hypotension	Overt hypotension
Mental Status	+ <u>A</u> nxious	+ <u>A</u> nxious	Anxious and Confused	Confused and Lethargic
Urine Output	≥30 cc/hr	20-30 cc/hr	5-15 cc/hr	Anuria
Cap Refill	Normal	(<u>></u> 2 seconds)	(<u>></u> 2 seconds) (Cold & clammy)	(<u>></u> 2 seconds) (Cold & clammy)
Fluid Replacement (3:1 Rule)	Crystalloids	Crystalloids	Crystalloids & Blood	Crystalloids & Blood

