Quantifying Blood Loss

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No Disclosures



Objectives

- Discuss the national initiative for quantifying blood loss
- Identify the benefits to quantifying blood loss vs. estimation of blood loss
- Review various methods for evaluating blood loss



Scope of the Problem

- Failure to recognize excessive blood loss during childbirth is a leading cause of maternal morbidity and mortality. (The Joint Commission, 2010)
- Women die from obstetric hemorrhage because of a lack of early and effective interventions.

(Berg et al. 2005; Della Torre et al. 2011)

Clinical Picture

Confusing...

- Physiologic adaptation
- Young healthy women
- Significant delay in the manifestation of the conventional signs of shock :
 - Hypotension
 - Tachycardia



PPH Classification

Class	Acute Blood Loss	% Lost	Clinical Changes
1	1000cc	10-15	Dizziness, palpitations Minimal BP change
2	1,500cc	15-25	Tachycardia, tachypnea, sweating, weakness Narrowed pulse pressure
3	2,000cc	25-35	Significant tachycardia and tachypnea, restlessness, pallor, cool extremities Hypotension
4	≥2,500cc	35-45	Shock, air hunger Oliguria/anuria

Modified from Bonnar, J Baillieres Best Pract Res Clin Obstet Gynaecol 2000



Clinical Issue

- Underestimation leads to delayed treatment
- Overestimation leads to unnecessary and costly interventions



Recommendations for QBL

- AWHONN Standard Recommendation
 All births
- CMQCC Standard Recommendation
 All births
- National Maternal Health Initiative 2013
 One of 7 safety objectives

Council on Patient Safety in Women's Health (2014)



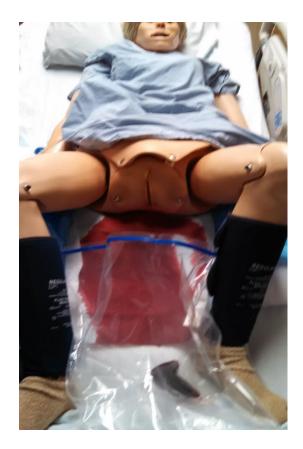
Conventional Practice

"Guesstimating"



Look Familiar?







Looks Can Be Deceiving







Value of Quantifying

Objective assessments:

 "Patient is actively bleeding. She just loss 500mL and her cumulative blood loss is now 1200mL"



Methods to Quantify

One gram = One milliliter

Quantifying Blood Loss for Vaginal Delivery Process



Basin - 124 grams



Laps - 20 grams



Blue Towels- 55 grams



Raytex- 5 grams



Chux- 37 grams



Underpad- 113 grams



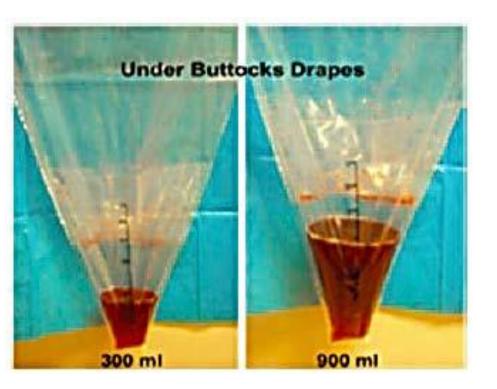
Drape 135 grams

5 Easy Steps

- Note how much amniotic fluid is in the drape just after the delivery of the baby.
- When you are cleaning up after the delivery:
 - Put a basin on the scale
 - Put the dirty drape in the basin (do not empty the fluids from the cone of fluids)
 - Subtract the amount of amniotic fluid from the total weight
- Weigh chux/underpad and any other soiled materials
- 4. Fill out the blood loss worksheet
- 5. Report the weights to the provider

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Vaginal Deliveries



- Begin right after the infant's birth:
 - Note amniotic fluid, urine, etc. in the under-buttocks bag prior to birth.
- RN looks at the bag as soon as MD/CNM has completed the delivery to communicate the amount of blood in the calibrated drape as QBL.

AWHONN 2014



Two Step Method

1. Two Canisters

- Suction all of the amniotic fluid out of the drape between delivery of the infant and placenta
- Scrub directs the circulating nurse to switch the suction tubing to a second canister
- The second canister will be the blood loss (minus any irrigation used during the case) AWHONN (2014)





Two Step Method

2. Weighing laps and drapes

AWHONN (2014)





Novel Methods for Quantification



- Circulating nurse scans each lap as it comes off the field
- Captured image runs through an algorithm to evaluate the blood soaked lap
- Can filter out the impact of other fluids
- Quickly sends result to the display screen

Holmes et al.(2014) International Anesthesia Research Society



Quantification Tips

- Build weighing of pads into routine practice:
 - Establish dry weights of commonly used products
 - Have scales readily available in room
- Build electronic calculator into documentation



Conclusion

- Delay in recognition of large blood losses is a common finding in cases of maternal morbidity and mortality
- A policy of waiting to quantify blood loss only after the excessive loss is appreciated does not address this problem
- Standardization of procedures is an important aspect of improving safety and quality

CMQCC 2115



Resources

- 1. Council on Patient Safety in Women's Health Care:
 - Safety Action Series
 Quantifying Blood Loss
- 2. AWHONN:
- Postpartum Hemorrhage Project
- 3. California Maternal Quality Care Collaborative

