
Evidence-based Care: Preventing Postpartum Hemorrhage

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Session Objectives

By the end of the session, participants will be able to:

- ❖ **Define evidence-based care**
- ❖ **Describe the evidence that supports active management of third stage of labor**
- ❖ **List the steps involved in active management of third stage**
- ❖ **Describe Indonesia's experience with applying evidence to reduce postpartum hemorrhage**
- ❖ **State possible approaches to incorporate evidence in clinical practice**

In an Ideal World

- ❖ **The most effective care for every condition would be known**
- ❖ **Every clinician would know the most effective care for every patient**
- ❖ **Every clinician would practice the most effective care that she/he knows**

In the Real World

- ❖ **Much of what should be known is not known**
- ❖ **Much that is known, is not known by most clinicians**
- ❖ **Clinicians often fail to practice what they know to be the most effective form of care**

Historically....

- ❖ **Clinical care decisions based on:**
 - ❖ **Pathophysiology**
 - ❖ **Previous clinical experience**
 - ❖ **Tradition**
 - ❖ **Patients values and priorities**

“Wooden Spoon Award”

- ❖ In 1972, Dr. Archie Cochrane criticized ignorance of effects of health care intervention
- ❖ Declared that obstetrics was awarded the “Wooden Spoon Award” as the least likely to use Randomized Controlled Trials (RCTs)

Cochrane's Challenge

- ❖ **Review & summarize relevant research**
- ❖ **Update periodically**
- ❖ **Make available to providers & consumers**

The Response

- ❖ **1976 - Dr. Iain Chalmers & colleagues of Oxford, England answered the challenge**
- ❖ **1978 - WHO grant**
 - ❖ **systematic review of 64 journals from 1950 onward**
 - ❖ **wrote over 40,000 obstetricians and pediatricians in 18 countries**
 - ❖ **requested relevant unpublished studies**

Randomized Controlled Trial

- ❖ A study where people who are alike in all relevant ways are randomly assigned to treatment and control groups
- ❖ Both groups followed over time
- ❖ Any difference can be attributed to the experimental therapy

Systematic Reviews

- ❖ **Locate, appraise and synthesize evidence from scientific studies to answer a particular scientific question**
- ❖ **Combination of randomized and observational studies**
- ❖ **Able to determine areas of broad agreement and identify gaps in data**

The Result

- ❖ **Two major publications that summarize available information**
 - ❖ Effective Care in Pregnancy and Childbirth (1989)
 - ❖ 1500 pages - two volume set
 - ❖ Include approximately 300 interventions
 - ❖ A Guide to Effective Care in Pregnancy and Childbirth (1995 and 2000)
 - Editors: M. Enkin; M. Keirse; M. Renfrew & J. Neilson
 - more portable
 - provides conclusions from larger database
 - categorizes interventions (beneficial to harmful)

The Result (cont.)

❖ Cochrane Library

- ❖ Database of systematic reviews that can be accessed through the internet
- ❖ Source of up-to-date information on effects of health care interventions
- ❖ Published quarterly on internet and CD-Rom

The Result (cont.)

- ❖ **WHO Reproductive Health Library**
 - ❖ **Initiated in 1997**
 - ❖ **Seeks to make Cochrane systematic reviews available in low-resource settings in an easy-to-understand format**
 - ❖ **Includes comments on relevance of research findings in low-resource settings**
 - ❖ **Chinese language RHL on-going**

Evidence Based Care

- ❖ **Care based on knowledge gained from clinical research**
- ❖ **Systematic and explicit use of current best evidence in making decisions about the care of individual patients.**
- ❖ **Limits the influence of personal and situational biases**

Albers, L. Evidence and Midwifery Practice. Journal of Midwifery Women's Health, 46: 130-6. 2001.

Midwifery Philosophy

- ❖ **Advocates for informed choice, shared decision-making, self-determination for women**
- ❖ **Requires a full exchange of information, including research results**

Evidence-based Midwifery Care

- ❖ **Decision-making regarding care:**
 - ❖ **Identify personal values and preferences of the client and family**
 - ❖ **Use subjective and objective findings**
 - ❖ **Obtain and evaluate relevant evidence**
 - ❖ **Discuss with client and family to make and implement decisions**
 - ❖ **Evaluate outcomes**

Applying the Evidence:

Reducing Postpartum Hemorrhage through Active Management of Third Stage of Labor

Two Methods of Third Stage Management

- ❖ **Physiologic (“expectant”) management**
 - ❖ Oxytocics are not used
 - ❖ Placenta is delivered by gravity and maternal effort
 - ❖ Cord is clamped after delivery of the placenta
- ❖ **Active Management**
 - ❖ Oxytocic is given
 - ❖ Cord is clamped
 - ❖ Placenta delivered by controlled cord traction (CCT) with counter-traction on the fundus
 - ❖ Fundal massage

Procedure for Active Management

❖ Oxytocin

- ❖ Within 1 minute of birth, palpate abdomen to rule out presence of another baby
- ❖ Give oxytocin 10U IM

❖ Controlled cord traction

- ❖ Await strong uterine contraction (2–3 minutes)
- ❖ Apply controlled cord traction while applying countertraction above pubic bone
- ❖ If placenta does not descend, stop traction and await next contraction

❖ Perform fundal massage

The Bristol and Hinchingsbrooke Trials

Bristol trial: 1695 women, Hinchingsbrooke trial: 1512 women randomly assigned to:

- ❖ **Active management**
- ❖ **Physiologic management**

Compare effects of fetal and maternal morbidity of:

- ❖ **Active management**
- ❖ **Physiologic management**

Results: Postpartum Hemorrhage

	Active Management	Physiologic Management
Bristol	50/846 (5.9%)	152/849 (17.9%)
Hinchingbrooke	51/748 (6.8%)	126/764 (16.5%)

Prendiville et al 1988; Rogers et al 1998.

Additional Results

		Active Management	Physiologic Management
Duration 3 rd stage (median)	Bristol	5 minutes	15 minutes
	Hinchingbrooke	8 minutes	15 minutes
Third stage > 30 minutes	Bristol	25 (2.9%)	221 (26%)
	Hinchingbrooke	25 (3.3%)	125 (16.4%)
Blood transfusion	Bristol	18 (2.1%)	48 (5.6%)
	Hinchingbrooke	4 (0.5%)	20 (2.6%)
Therapeutic oxytocics	Bristol	54 (6.4%)	252 (29.7%)
	Hinchingbrooke	24 (3.2%)	161 (21.1%)

The Bristol and Hinchingsbrooke Trials

- ❖ **Conclusion: Active management of the third stage reduces the risk of PPH:**
 - ❖ **Increased risk of PPH associated with physiologic management**
 - ❖ **Increased need of blood transfusion associated with physiologic management**
 - ❖ **Oxytocin was drug of choice for active management**
 - ❖ **No increase in entrapment of placenta with active management**

Oxytocic Drugs

- ❖ **Oxytocin-** posterior pituitary extract
- ❖ **Ergometrine-** preparation of ergot
- ❖ **Syntometrine-** combination of oxytocin and ergometrine
- ❖ **Misoprostol-** prostaglandin E1 analogue

Oxytocic Drugs: Oxytocin

❖ Advantages

- ❖ Causes uterus to contract
- ❖ Acts within 2.5 minutes when given IM
- ❖ Generally does not cause side effects

❖ Disadvantages

- ❖ More expensive than ergometrine
- ❖ IM or IV preparations only
- ❖ Not heat stable

Oxytocic Drugs: Ergometrine

❖ Advantages

- ❖ Low price
- ❖ Effect lasts 2–4 hours

❖ Disadvantages

- ❖ Takes 6–7 minutes to become effective when given IM; oral form insufficiently effective
- ❖ Causes tonic uterine contraction
- ❖ Increased risk of hypertension, vomiting, headache
- ❖ Contraindicated in women with hypertension or heart disease
- ❖ Not heat stable

Oxytocic Drugs: Syntometrine

❖ Advantages

- ❖ Combined effect of rapid action of oxytocin and sustained action of ergometrine

❖ Disadvantages

- ❖ Increased risk of hypertension, nausea and vomiting
- ❖ Not heat stable

Oxytocin vs. Syntometrine: Objective and Design

- ❖ **Objective:** To compare effects of syntometrine with oxytocin in reducing the risk of PPH and other maternal and neonatal outcomes
- ❖ **Design:** Randomized controlled trials

Oxytocin vs. Syntometrine: Results

- ❖ Syntometrine was associated with a small reduction in risk of PPH < 1000 mL
- ❖ Adverse effects of vomiting and hypertension were associated with the use of syntometrine
- ❖ There were no differences in other maternal or neonatal outcomes

Oxytocin vs. Syntometrine: Conclusion

Need to weigh benefit of reduction in risk of PPH with risk of other adverse effects associated with syntometrine

Nipple Stimulation

- ❖ Nipple stimulation has not been shown to reduce risk of PPH
 - ❖ Randomized controlled trial of suckling immediately after birth with over 4,000 subjects in Malawi showed no significant difference in frequency of PPH, mean blood loss or retained placenta
- ❖ When oxytocics are not available, CCT and fundal massage should be performed
- ❖ Advantages of early breastfeeding and nipple stimulation:
 - ❖ Stimulates natural production of oxytocin
 - ❖ May maintain tone of contracted uterus
 - ❖ Benefits baby

Recommendations Concerning Selection of Oxytocic

- ❖ Use oxytocin, when available:
 - ❖ If oxytocin is not available, use syntometrine or ergometrine
 - ❖ If oxytocic drugs are not available, use nipple stimulation
- ❖ Remember: Do not use ergometrine in women with hypertension or heart disease
- ❖ Store oxytocics in refrigerator (2–8°C) and away from light

Cord Clamping

- ❖ **Two options for clamping the cord:**
 - ❖ **Early – immediately after birth, usually within 30 seconds**
 - ❖ **Delayed – as soon as the cord has stopped pulsating, usually within 2-3 minutes after birth**

Cord Clamping Evidence

- ❖ Seems to indicate that delayed cord clamping can increase iron stores and hemoglobin levels in infants during first three months of life; long term benefit unknown
- ❖ WHO and UNICEF have called for more further research

Summary

- ❖ **Active management of third stage includes:**
 - ❖ **Oxytocin**
 - ❖ **Controlled cord traction (cord clamped once stops pulsating)**
 - ❖ **Fundal massage**
- ❖ **Reduces risk of PPH, retained placenta, need for blood transfusion, therapeutic oxytocics**
- ❖ **Oxytocin most important factor in reducing PPH**
- ❖ **Ensuring supply of oxytocin is a priority**

Future Directions

**The Use of Oral Misoprostol to Prevent
Postpartum Hemorrhage in the absence of a
skilled provider**

Risk of Postpartum Hemorrhage

❖ Physiologic Management*	18%
❖ Active management with oxytocin**	2.7%
❖ Misoprostol**	3.6%

Summary of Evidence

There is good and consistent evidence to support the use of misoprostol (600mcg), given orally or rectally after delivery of neonate, but before delivery of placenta for prevention of postpartum hemorrhage, when other uterotonic agents (including oxytocin) are not available.

Purpose of Study

To demonstrate the Safety, Aceptability, Feasibility and *program* Effectiveness (SAFE) of the use of misoprostol in reducing postpartum hemorrhage in areas where a large proportion of births are not attended by professional health providers

Rationale

- ❖ **High numbers of births not attended by skilled provider**
- ❖ **Oxytocin requires injection by skilled provider, as well as cold chain to maintain efficacy**
- ❖ **Misoprostol inexpensive, long shelf life (7 years), can be taken orally**

Description

- ❖ Study was a community intervention offering correct information about preventing postpartum hemorrhage and, in the experimental area, the misoprostol tablet
- ❖ 1800 pregnant women actively participated
- ❖ All received counseling at first contact and at 8 months; 1291 received Tablet PAS
- ❖ Tablet PAS Bayi (*avoid bleeding immediately*)
- ❖ Postpartum interviews of all study participants

Results

- ❖ **Women in the experimental area were 25% less likely to perceive excessive bleeding, when compared to the control area**

Logistic regression model adjusted for history of antepartum hemorrhage, education level, parity, and socioeconomic status

Results (cont.)

- ❖ **Women in the experimental area were 31% less likely to need an emergency referral to health facility**

Logistic regression model adjusted for history of antepartum hemorrhage, education level, parity, and socioeconomic status

Results (cont.)

- ❖ **Women in the experimental area were 47% less likely to need an emergency referral for postpartum hemorrhage**

Logistic regression model adjusted for history of antepartum hemorrhage, education level, parity, and socioeconomic status

Conclusion (1)

- ❖ **Trained and supervised health workers can successfully provide PPH prevention counseling and information and then safely distribute misoprostol to those women who are unlikely to be attended by skilled providers.**
- ❖ **Women understand the information provided by the health worker, act on it and safely take misoprostol at the correct time.**
- ❖ **Women were adequately prepared to cope with increased minor discomforts that are predictable after misoprostol use.**
- ❖ **A large proportion of users are willing to use misoprostol in the next pregnancy, recommend it to a friend and pay for it.**

Conclusion (2)

- ❖ **Pregnant women are more likely to continue seek delivery care from a midwife and are not inclined to home birth just because they have a PPH prevention medication.**
- ❖ **The combination of the use of active management of third stage using oxytocin provided by the midwife and the use of misoprostol by the woman if a midwife is not available at home birth has the greatest potential for expanding prevention of PPH.**

Applying Evidence to Practice: Indonesia Experience

Leading Causes of Maternal Death in Indonesia

❖ Hemorrhage	45.2%
❖ Eclampsia	12.9%
❖ Abortion Complications	11.1%
❖ Post Partum Sepsis	9.6%

Indonesian Context

- ❖ **Maternity mortality ratio 334 per 100,000 live births**
- ❖ **18,000 maternal deaths each year**
- ❖ **Estimated 70-80% of pregnant women are anemic**
- ❖ **Overall, approximately half of births are attended by a skilled provider**

Indonesia Experience

- ❖ **Since 1998, routine active management of third stage of labor is national standard of practice**
 - ❖ **Included in national guidelines**
 - ❖ **Included in preservice curricula and clinical practice**
 - ❖ **Included in inservice training**
- ❖ **Indonesia recently announced that it will attempt to implement postpartum misoprostol in selected districts**

National Guidelines

- ❖ **Developed by professional organizations (ob/gyn, midwives, pediatricians)**
- ❖ **Adopted by Ministry of Health**
- ❖ **Based on WHO's MCPC, with section on normal**
- ❖ **Includes active management as a routine procedure to be offered to women**
- ❖ **Disseminated through knowledge updates in each province (team of experts developed to oversee dissemination)**

Preservice Education for Midwives

- ❖ **Included in lab and clinical practice**
- ❖ **Learning guides and checklists for normal intrapartum care include active management**
- ❖ **Faculty and clinical preceptors updated in procedure**

Physiologic Management

❖ Advantages

- ❖ Does not interfere with normal labor process
- ❖ Does not require special drugs/supplies

❖ Disadvantages

- ❖ Increases length of third stage
- ❖ Increases risk of postpartum hemorrhage (PPH)

Inservice Training

- ❖ **Efforts to upgrade skills of midwives in normal childbirth care**
- ❖ **This 10-day training includes prevention of PPH, including active management of third stage**
- ❖ **Skills developed and assessed through checklists with models and clients**

Discussion

- ❖ **How to incorporate active management, as well as other evidence, into clinical practice?**
 - ❖ **Role of professional organizations**
 - ❖ **Development of protocols**
 - ❖ **How to implement protocols**
 - ❖ **Training needs?**

Active Management

❖ Advantages

- ❖ Decreases length of third stage
- ❖ Decreases risk of PPH

❖ Disadvantages

- ❖ Requires oxytocics and items needed for injection
- ❖ Requires a birth attendant with skills in:
 - ❖ Giving an injection
 - ❖ Controlled Cord Traction

Evidence-based Midwifery Care

- ❖ **Identify personal values and preferences of the client and family**
- ❖ **Use subjective and objective data**
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- ❖ **Discuss with client and family to make and implement decisions**
- ❖ **Evaluate outcomes**