Basic Emergency Obstetric and Newborn Care (BEMONC)

Ma. Cynthia F. Tan, M.D. FPOGS
Overall Coordinator, BEMONC Skills Training Course Chair, POGS MDG Countdown Task Force
Outline

- Emergency Obstetric and Newborn Care (EmONC) as a strategy in maternal mortality reduction
- BEmONC vs CEmONC
- Evidence based practices in BEmONC
Maternal Mortality Rate, Philippines
The Paradigm Shift

RISK Approach

Identifies high risk pregnancies for referral during the prenatal period

EmONC Approach

Considers all pregnant women at risk of complications at Childbirth.
Emergency Obstetric and Newborn Care (EmONC)

- ... the elements of obstetric & newborn care needed for the management of normal and complicated pregnancy, delivery, postpartum periods and the newborn.
  - Early detection and treatment of problem pregnancies to prevent progression to an emergency.
  - Management of emergency complications*
1. Administration of parenteral antibiotics (initial loading dose)
2. Administration of parenteral oxytocic drugs (for active mgt of the 3rd stage of labor only)
3. Administration of parenteral anticonvulsants for pre-eclampsia/eclampsia (initial loading dose)
4. Performance of manual removal of placenta
5. Performance of removal of retained products
6. Performance of IMMINENT breech delivery
7. Administration of Corticosteroids in preterm labor
8. Performance of Essential Newborn Care
CEMONC
Comprehensive Emergency Obstetric and Newborn Care

- All of the BEMONC functions
  PLUS
- Capability for blood transfusion
- Capability for cesarean section
BEmONC Skills Training Course
TOPICS

- Principles of Good Care
- Quick Check and RAM
- Antenatal Care
- Labor Delivery and Immediate Postpartum
- Postpartum Care
- Postpartum Care
- Essential Newborn Care
  - Immediate Newborn Care
  - Newborn Resuscitation
- Counseling
- Community Support
PROVISION OF EFFECTIVE ANTENATAL CARE

WHO STANDARDS FOR MATERNAL AND NEWBORN CARE 2007
Antenatal Care

- All pregnant women should have at least 4 antenatal care (ANC) assessments by a skilled attendant.
  - include all the interventions in the new WHO antenatal care model
  - Spaced at regular intervals
  - Starting as early as possible in the first trimester.

WHO STANDARDS FOR MATERNAL AND NEWBORN CARE 2007
Antenatal Care: AIMS

- To **prevent, treat health problems/diseases** that are known to have an unfavourable outcome on pregnancy

- To **educate/counsel** women and their families for a healthy pregnancy, childbirth and postnatal recovery, including care of the newborn, promotion of early exclusive breastfeeding and family planning
Essential Elements of Antenatal Care

1. **Pregnancy surveillance of the woman and her unborn child.**
   - How old is patient?
   - Gravidity? Parity?
   - LMP? AOG?
   - History of previous pregnancies
   - Check for general danger signs
   - Perform **abdominal examination**
Essential Elements of Antenatal Care

2. Recognition & management of pregnancy-related complications.

SCREEN FOR:
- Pre-eclampsia
- Anemia
- Syphilis
- HIV status
- Diabetes Mellitus
Other pregnancy related complications

- No fetal movement
- Ruptured membranes and no labor
- Fever or burning urination
- Vaginal discharge
- Signs suggesting HIV infection
- Smoking, alcohol or drug abuse
- Cough or breathing difficulty
- Taking anti-TB drugs
RUPTURED MEMBRANES and NO LABOR

> 8 months
   No clear evidence of benefit of routine antibiotic and steroid use

- < 8 months
  - Give antibiotic: ERYTHROMYCIN
  - Alternative: Ampicillin
  - Give corticosteroids if no sign of infection
    - Betamethasone 12 mg IM q 24 hrs x 2 doses OR
    - Dexamethasone 6 mg IM q 12 x 4 doses
Judicious Antibiotic Use: The Evidence

- **PPROM**: Prolong pregnancy and reduce neonatal morbidity in women with gestation of \( \leq 34 \) weeks.
- **PTL**: Little evidence of benefit at a gestation \( \leq 34 \) weeks.
  

- **Reduced the incidence of early onset neonatal sepsis but caused ampicillin-resistance and severe neonatal infections**
  
Antenatal Steroids: The Evidence

- Overall reduction in neonatal death
- Reduction in RDS
- Reduction in cerebroventricular hemorrhage
- Reduction in necrotising enterocolitis
- Reduction in respiratory support and NICU admissions
- Reduction in sepsis in the first 48 hours of life

Does not increase risk of death, chorioamnionitis or puerperal sepsis in the mother

Roberts D, Dalziel SR. Cochrane Database of Systematic Reviews 2006, Issue 3.
Essential Elements of Antenatal Care

3. Preventive measures

- Tetanus toxoid immunization
- Iron/folate supplementation
- Deworming (Mebendazole)
- Antimalarial intermittent preventive treatment and promotion of insecticide treated nets
At ANTENATAL CARE

Check tetanus immunization status

- Not previously been vaccinated or
- Immunization status is unknown
  
  Give two doses of TT/Td one month apart before delivery

- With 1–4 doses of Td in the past
  
  Give one dose of TT/Td (at least 2 weeks) before delivery
Essential Elements of Antenatal Care

4. **Develop a birth and emergency plan**

- The woman’s condition during pregnancy
- Preferences for her place of delivery and choice of birth attendant
- Preparations needed should an emergency situation arise during pregnancy, childbirth and postpartum.
- Where to go? How to go? With whom?
- How much will it cost? Who will pay? How will you pay?
- Who will care for your home and other children when you are away?
5. Health education and promotion for the woman and her family
   - Nutrition
   - Self-care during pregnancy
   - Adherence to advice on prophylactic treatments
   - Danger signs, signs of labor
   - Family planning, Breastfeeding and newborn screening
   - Routine and follow-up visits
Labor, Delivery and Postpartum Care
Assess the woman in labor
  - Determining stage of labor
  - Monitoring labor using the PARTOGRAPH
The Modified WHO Partograph

(Figure C-10)
**PARTOGRAPH**

Use this form for monitoring active labor

<table>
<thead>
<tr>
<th>FINDINGS</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours in active labour</td>
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<td>Hours since ruptured membranes</td>
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<td>Rapid assessment</td>
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<tr>
<td>Vaginal bleeding (0 +++)</td>
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<tr>
<td>Amniotic fluid (meconium stained)</td>
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<td>Contractions in 10 minutes</td>
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<tr>
<td>Fetal heart rate (beats/minute)</td>
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<td>Urine voided</td>
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<td>T (axillary)</td>
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<td>Pulse (beats/minute)</td>
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<td>Blood pressure (systolic/diastolic)</td>
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<tr>
<td>Cervical Dilation (cm)</td>
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<tr>
<td>Delivery of Placenta (time)</td>
<td></td>
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<tr>
<td>Oxytocin (time/given)</td>
<td></td>
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<tr>
<td>Problem-note onset/describe below</td>
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</tr>
</tbody>
</table>
Labor and Delivery (2)

UNECESSARY INTERVENTIONS

- Enema
- Pubic hair shaving
- NPO
- IV fluids
- Amniotomy
- Oxytocin augmentation
## Enemas during labor (Cochrane review)

<table>
<thead>
<tr>
<th>Condition</th>
<th>No. of studies</th>
<th>N</th>
<th>RR (95% CI)</th>
<th>P-value (NS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puerperal infection</td>
<td>2</td>
<td>594</td>
<td>0.61 (0.36 – 1.04)</td>
<td>NS</td>
</tr>
<tr>
<td>Infected episiotomy</td>
<td>1</td>
<td>372</td>
<td>0.53 (0.11 – 2.66)</td>
<td>NS</td>
</tr>
<tr>
<td>Episiotomy dehiscence</td>
<td>1</td>
<td>372</td>
<td>0.65 (0.36 – 1.16)</td>
<td>NS</td>
</tr>
<tr>
<td>Endometritis</td>
<td>1</td>
<td>372</td>
<td>0.31 (0.05 – 1.81)</td>
<td>NS</td>
</tr>
<tr>
<td>Vulvovaginitis</td>
<td>1</td>
<td>372</td>
<td>0.14 (0.01 – 1.35)</td>
<td>NS</td>
</tr>
<tr>
<td>Umbilical cord infection</td>
<td>2</td>
<td>592</td>
<td>3.53 (0.61 – 20.47)</td>
<td>NS</td>
</tr>
<tr>
<td>Newborn infection within 1 month</td>
<td>1</td>
<td>372</td>
<td>1.16 (0.70 – 1.91)</td>
<td>NS</td>
</tr>
</tbody>
</table>

- Cuervo, L.G., et.al., 1999
### Routine perineal shaving vs. no shaving on admission in labor (Cochrane review)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>No. of studies</th>
<th>N</th>
<th>RR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postpartum maternal febrile morbidity</td>
<td>2</td>
<td>2</td>
<td>1.26 (0.75 – 2.12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>300</td>
<td>Not significant</td>
</tr>
<tr>
<td>Bacterial colonization</td>
<td>2</td>
<td>300</td>
<td>0.83 (0.51 – 1.35)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not significant</td>
</tr>
</tbody>
</table>

- V. Basevi, and T. Lavender, 2000
Fasting in labor: relic or requirement
(An evaluation of the scientific literature)

Fasting during labor is a tradition that continues with no evidence of improved outcomes for mother or newborn. Only one study evaluated the probable risk of maternal aspiration mortality, which is approximately 7 in 10 million births.

- Sleutel, M., and Golden, S., 1999
Instead of implicating oral intake as a risk factor for pulmonary aspiration, the literature consistently emphasizes the **critical role of properly trained and dedicated obstetric anesthesia personnel.** Unless parturients are candidates for **general anesthesia**, **a nonparticulate diet should be allowed.**

- Elkington, K.W., 1991
- Breuer, J.P., et.al., 2007
Routine intravenous fluids

- to have ready access for emergency medications
- to maintain maternal hydration
- Interferes with the natural birthing process
- restricts woman’s freedom to move
- IVF not as effective as allowing food and fluids in labor to treat/prevent dehydration, ketosis or electrolyte imbalance
# Amniotomy for shortening spontaneous labor (Cochrane review)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>OR (95% CI)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cesarean delivery</td>
<td>1.26 (0.96 – 1.66)</td>
<td>NS</td>
</tr>
<tr>
<td>Need for oxytocin</td>
<td>0.79 (0.67 – 0.92)</td>
<td>↓ 21%</td>
</tr>
<tr>
<td>Reduction in duration of labor</td>
<td>Significant</td>
<td></td>
</tr>
<tr>
<td>5-minute Apgar of &lt; 7</td>
<td>0.54 (0.30 – 0.96)</td>
<td>↓ 46%</td>
</tr>
<tr>
<td>NICU admission</td>
<td>Not significant</td>
<td></td>
</tr>
</tbody>
</table>

- Fraser, W.D., et.al., 2000
Labor and Delivery (2)

- Supportive Care during labor
  - Communication
  - Birth position
  - Feeding
  - Companion
  - Relief of pain and discomfort
There is **no evidence supporting strict bed rest in supine position** during the first stage of labor. In the absence of complications, women should be encouraged to change to positions or move around during labor.
Continuous support for women during childbirth vs. usual care (Cochrane review)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>No. of studies</th>
<th>N</th>
<th>RR (95% CI)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for analgesia/anesthesia</td>
<td>11</td>
<td>11051</td>
<td>0.87 (0.79 – 0.96)</td>
<td>↓ 13%</td>
</tr>
<tr>
<td>Length of labor</td>
<td>9</td>
<td>10322</td>
<td>-0.28 (-0.64, -0.08)</td>
<td>S</td>
</tr>
<tr>
<td>Postpartum pain</td>
<td>4</td>
<td>2497</td>
<td>0.97 (0.77 – 1.23)</td>
<td>NS</td>
</tr>
<tr>
<td>Dissatisfaction with birth</td>
<td>6</td>
<td>9824</td>
<td>0.73 (0.65 – 0.83)</td>
<td>↓ 27%</td>
</tr>
<tr>
<td>Spontaneous vaginal birth</td>
<td>14</td>
<td>12757</td>
<td>1.08 (1.04 – 1.13)</td>
<td>↑ 8%</td>
</tr>
<tr>
<td>Instrumental vaginal delivery</td>
<td>14</td>
<td>12757</td>
<td>0.89 (0.83 – 0.96)</td>
<td>↓ 11%</td>
</tr>
<tr>
<td>Cesarean section</td>
<td>15</td>
<td>12791</td>
<td>0.90 (0.82 – 0.99)</td>
<td>↓ 10%</td>
</tr>
<tr>
<td>Admission to NICU</td>
<td>4</td>
<td>8239</td>
<td>0.94 (0.82 – 1.09)</td>
<td>NS</td>
</tr>
<tr>
<td>Low 5-minute Apgar score</td>
<td>7</td>
<td>10695</td>
<td>0.81 (0.56 – 1.16)</td>
<td>NS</td>
</tr>
</tbody>
</table>

- Hodnett, ED, et.al., 2006
Position in the second stage of labor: 
**upright or lateral vs. supine or lithotomy (Cochrane review*)**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>No. of studies</th>
<th>N</th>
<th>RR (95% CI)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission to NICU</td>
<td>2</td>
<td>1524</td>
<td>0.81 (0.51 – 1.31)</td>
<td>NS</td>
</tr>
<tr>
<td>Birth injuries</td>
<td>1</td>
<td>200</td>
<td>1.50 (0.26 – 8.79)</td>
<td>NS</td>
</tr>
<tr>
<td>Abnormal FHR patterns</td>
<td>1</td>
<td>517</td>
<td>0.28 (0.08 – 0.98)</td>
<td>↓ 72%</td>
</tr>
<tr>
<td>Duration of second stage</td>
<td>9</td>
<td>3163</td>
<td>- 4.28 (- 5.63, - 2.93)</td>
<td>S</td>
</tr>
<tr>
<td>Episiotomies</td>
<td>12</td>
<td>4899</td>
<td>0.83 (0.75 – 0.92)</td>
<td>↓ 17%</td>
</tr>
<tr>
<td>2nd degree perineal tears</td>
<td>11</td>
<td>5310</td>
<td>1.23 (1.09 – 1.39)</td>
<td>↑ 23%</td>
</tr>
<tr>
<td>3rd and 4th degree perineal tears</td>
<td>4</td>
<td>1478</td>
<td>0.91 (0.31 – 2.68)</td>
<td>NS</td>
</tr>
<tr>
<td>Blood loss &gt; 500 ml</td>
<td>11</td>
<td>5358</td>
<td>1.63 (1.29 – 2.05)</td>
<td>NS</td>
</tr>
<tr>
<td>Severe pain at birth</td>
<td>1</td>
<td>517</td>
<td>0.28 (0.08 – 0.98)</td>
<td>NS</td>
</tr>
</tbody>
</table>

* variable methodological quality

- Gupta, J.K., et.al. 2006
**Fundal pressure during the second stage of labor: A prospective pilot study**

N= 627

<table>
<thead>
<tr>
<th></th>
<th>Deliveries with fundal pressure</th>
<th>Deliveries without fundal pressure</th>
<th>( p )-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2\textsuperscript{nd} degree perineal tears</td>
<td>10%</td>
<td>4%</td>
<td>&lt; 0.01</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Significant</td>
</tr>
<tr>
<td>Fetal acidosis (pH &lt; 7.10)</td>
<td>21%</td>
<td>9%</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Significant</td>
</tr>
</tbody>
</table>

- Schulz-Lobmeyr, I., et.al., 1999
**Episiotomy for vaginal birth: restrictive vs. routine** *(Cochrane review)*

<table>
<thead>
<tr>
<th>Outcome</th>
<th>No. of studies</th>
<th>N</th>
<th>RR (95% CI)</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posterior perineal trauma</td>
<td>4</td>
<td>2079</td>
<td>0.88 (0.84 – 0.92)</td>
<td>↓ 12%</td>
</tr>
<tr>
<td>Anterior perineal trauma</td>
<td>4</td>
<td>4342</td>
<td>1.79 (1.55 – 2.07)</td>
<td>↑ 79%</td>
</tr>
<tr>
<td>Need for perineal suturing</td>
<td>5</td>
<td>4133</td>
<td>0.74 (0.71 – 0.77)</td>
<td>↓ 26%</td>
</tr>
<tr>
<td>Perineal pain at discharge</td>
<td>1</td>
<td>2422</td>
<td>0.72 (0.65 – 0.81)</td>
<td>↓ 28%</td>
</tr>
<tr>
<td>Healing complications at 7 days</td>
<td>1</td>
<td>1119</td>
<td>0.69 (0.56 – 0.85)</td>
<td>↓ 31%</td>
</tr>
<tr>
<td>Dyspareunia at 3 months</td>
<td>1</td>
<td>895</td>
<td>1.22 (0.94 – 1.59)</td>
<td>NS</td>
</tr>
<tr>
<td>Urine incontinence at 3 months</td>
<td>2</td>
<td>1569</td>
<td>0.98 (0.79 – 1.20)</td>
<td>NS</td>
</tr>
<tr>
<td>Apgar &lt; 7 at 1 minute</td>
<td>3</td>
<td>3799</td>
<td>1.09 (0.78 – 1.51)</td>
<td>NS</td>
</tr>
<tr>
<td>Admission to NICU</td>
<td>3</td>
<td>1898</td>
<td>0.74 (0.46 – 1.19)</td>
<td>NS</td>
</tr>
</tbody>
</table>

- Caroli G., and Belizan, J., 2003
Deliver the Baby

- When the birth opening is stretching, support the perineum and anus with a clean swab to prevent lacerations
- **Ensure controlled delivery of the head**
Active Management of 3rd stage of labor
- Oxytocin after delivery of the baby
- **Delayed** cord clamping
- Controlled cord traction with counter traction on the uterus
- Massage uterine fundus
Controlled cord traction with countertraction
Active Management of 3rd Stage

- Reduction in blood loss of 1 Liter or more
- Reduction in use of blood transfusion
- Reduction in the use of additional uterotonics
  - Oxytocin alone preferred over other uterotonic drugs
  - Ergometrine associated with more adverse side effects compared to oxytocin alone
- No maternal deaths reported

DELAYED cord clamping followed by controlled cord traction

- No significant impact on incidence of PPH

- Important neonatal outcomes:
  - Term babies: less anemia in newborn 24-48 hrs after birth
  - Preterms: less infant anemia
  - Preterms: less intraventricular hemorrhage

1) Ceriani Cernadas, et al. 2006;  
2) Rabe H, et al. 2004;  
3) McDonald SJ, et al. 2008;  
4) Hutton EK, et al. 2007;  
6) Ivan Rheenen PF, et al. 2006  
7) Ivan Rheenen PF & Brabin BJ. 2006
Uterine massage: The Evidence

- Less blood loss at 30 minutes
- Less blood loss at 60 minutes
- Reduction in the use of additional uterotonics
- The number of women losing >500 ml of blood approximately halved.
- Two women in the control group and none in the uterine massage group needed blood transfusions

SUMMARY

PRINCIPLES OF MATERNITY CARE

1. Effective and beneficial (evidence-based or scientific)
2. Appropriate
3. Harmless or safe

“Physiologic” management for healthy, normal pregnancies
“First, do no harm.”
Good Morning!