OBSTETRIC QUALITY INDICATORS

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OBJECTIVES

- Tools for assessing quality of care
- Defining “near miss” maternal morbidity
- Factors amenable to change
Maternal Mortality *versus* Morbidity

- Maternal mortality – indicator to monitor maternal health
  - USA: 7.5 per 100,000
  - Serious life-threatening complications
  - More sensitive measure of pregnancy outcome
- Different definitions
- Incidence: 0.05-1.2
“Near-miss’ Morbidity: Importance ..

- Little attention to identifying morbidities that could be called “near misses”
- Stones et al in 1991
- Importance of characterizing near-miss morbidity
Spectrum .....

Normal/healthy pregnancy → morbidity → severe morbidity → near miss → death
Maternal Hospitalization

- Maternal hospitalization – proxy for severe complications of pregnancy
- Does not allow precise identification of maternal morbidity
- Overestimates near-miss morbidity
Maternal Hospitalization

- National Hospital Discharge Survey data: 22 pregnancy-related hospitalizations for every 100 deliveries in 1987 versus 18 in 1992

Much of the decline was attributable to decline in hospitalizations for pregnancy loss

Intensive Care Unit Admissions

- Obstetric complications and maternal diseases identified mirrored the leading causes of maternal death.

- Completeness of this approach: hospital structure and level of care available.

- No ICUs, patients are treated in the antepartum unit.

- More precise, but may still fail to capture some cases of critically ill women.
Organ System Failure

□ Some suggest a broader clinical definition for a maternal near-miss (organ-system based) or management based

## Obstetric Indicators to Identify women with Severe Maternal Morbidity

<table>
<thead>
<tr>
<th>Diseases/Conditions</th>
<th>Morbid Events</th>
<th>Procedures/Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe preeclampsia eclampsia</td>
<td>Hemorrhage &gt;1500 cc</td>
<td>Transfusion</td>
</tr>
<tr>
<td>Embolism</td>
<td>Wound dehiscence</td>
<td>Intensive care unit admission</td>
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<tr>
<td>Infection</td>
<td>Organ system failure</td>
<td>Extended intubation</td>
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<tr>
<td>Ectopic/molar pregnancy</td>
<td>Abnormal vitals/labs</td>
<td>Surgical intervention</td>
</tr>
<tr>
<td>Cardiac disease</td>
<td>Abruptio placenta</td>
<td>Return to operating room</td>
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<tr>
<td>Cerebral vascular accident</td>
<td>Seizures</td>
<td>Readmission to hospital</td>
</tr>
<tr>
<td>Accreta/increta/pectcreta</td>
<td>Stroke</td>
<td>Multiple medical interventions</td>
</tr>
<tr>
<td>Idiopathic thrombocytopenic purpura or thrombotic thrombo-</td>
<td>Pulmonary edema</td>
<td>Hysterectomy</td>
</tr>
<tr>
<td>cytopenic purpura</td>
<td>Disseminated intravascular coagulation</td>
<td>Prolonged hospital stay</td>
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<td></td>
<td>Adult respiratory distress syndrome</td>
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</table>
Massive Obstetric Hemorrhage

- One case of maternal mortality among 23 “near misses” from massive obstetric hemorrhage
- Emphasizes the need for using well defined end-point of maternal morbidity in evaluating the standard of obstetrics service and potentially avoidable problems

Severe Morbidity: Definition!

- Debate on the optimum definition of severe morbidity
- Example: The definition of severe hemorrhage developed by Waterstone et al includes components that cover measurable blood loss, fall in hemoglobin concentration and transfusion

Waterstone et al. *BMJ* 2001
Defining a Conceptual Framework for Near-Miss Maternal Morbidity

- Process for the definition and identification of near-miss morbidity

- Used both qualitative and quantitative approaches to identifying a woman as a near-miss morbidity

- Institutionalizing the monitoring of near-miss morbidity in conjunction with mortality may help determine possible risks for death and may be an important mechanism for identifying effective preventive measures

Geller et al. JAMWA 2002
Incidence and predictors of severe obstetric morbidity: case-control study

- Development of definitions of severe obstetric morbidity
- 19 maternity units in UK
- Risk factors for severe maternal morbidity included: maternal age >34, low socioeconomic status, non-white, hypertension, multiple gestation, previous postpartum hemorrhage, induction of labor, and cesarean section

Waterstone et al. BMJ 2001
Incidence and predictors of severe obstetric morbidity: case-control study

- Predictors most amenable to change are those linked to obstetric interventions, specifically from induction of labor (OR 2.35) and cesarean delivery (OR 4.31)
- The adjusted OR of developing severe sepsis after emergency cesarean section was 11.85

Waterstone et al. BMJ 2001
Incidence and predictors of severe obstetric morbidity: case-control study

- Two thirds of the cases are related to severe hemorrhage, one third to hypertensive disorders
- Cesarean section quadruples the risk of morbidity
- Development and evaluation of ways of predicting and reducing risk are required with particular emphasis paid on the management of hemorrhage and pre-eclampsia

Waterstone et al. BMJ 2001
Serious Maternal Morbidity After Childbirth:  
Prolonged Hospital Stays and Readmissions

- A retrospective cohort study (33,251 women) aimed at determining the frequency of and risk factors for serious morbidity resulting in a prolonged hospital stay or readmission within 60 days of delivery

Hebert et al. Obstet Gynecol 1999
Serious Maternal Morbidity After Childbirth: Prolonged Hospital Stays and Readmissions

- 2.6% of vaginally delivered women and 8.9% of those delivered by cesarean, had at least one childbirth related medical condition, including infection, hypertension related complications or hemorrhage.

- Predictors of serious maternal morbidity included age over 32 years, black ethnicity, and primiparity.

Hebert et al. Obstet Gynecol 1999
Morbidity:mortality ratio is a possible new indicator of maternal care and could be used to compare improvements in health care more accurately than mortality data alone.

Waterstone et al. BMJ 2001
Predictors that are amenable to change …..

- Lack of antenatal care (ignorance and illiteracy)
- Induction of labor (high parity)
- Prolonged second stage of labor
- Rupture of the uterus
CONCLUSIONS

- Maternal mortality has been suggested as a measure of the success of obstetric intervention but is now too rare for use in local practice in the developed world.

- Severe maternal morbidity (near miss) has been suggested as an alternative measure of the standard of obstetric care.
CONCLUSIONS

- Need for refining the definition of “near miss” morbidity and individualizing them to different settings
- Stress on the factors that are amenable to change
- This is an area that needs further research