Dr. John Choate Memorial Lecture
Safe Motherhood Project Update-2004
Learning Objectives

• Comprehend the worldwide impact
• List the issues in New York State and NYC
• Understand the District II-SMI Project
• Discuss the medical and systems issues
• Appreciate the need for local “action”
• Recognize the opportunity for involvement
Maternal Mortality: Why Must We Still Be Interested?

• Measure of the overall effectiveness of our obstetric and general health care system.

• Provides a sentinel indicator of problems or “gaps” in the health care system.
Daily Death Toll:
during pregnancy & in childbirth

- 1600 women die each day
- 1 woman dies each minute
- 55% of deaths occur in Asia
- 40% in Africa
- 1% in developed countries

www.unicef.org/pon96/woestima.htm
Worldwide Causes of Maternal Deaths

- Severe bleeding: 25%
- Sepsis: 15%
- Eclampsia: 12%
- Obstructed labor: 8%
- Unsafe abortion: 13%
- Other direct causes: 8%
- Indirect causes: 19%
United Kingdom
Confidential Enquiries
Confidential Enquiry

• Inception 1952 – a triennial report
• Government requires all maternal deaths be subject to CEMD
• All relevant hospital professionals & other health professionals must participate in the CEMD
Direct Maternal Deaths

Why Mothers Die 1997 - 1999, CEMD
Facts about TE

• 5 fold increased risk during pregnancy
• Absolute risk of VT is 0.5 - 3 per 1,000
• PE remains a leading cause of maternal death in United States
• 50% of women with a thrombotic event in pregnancy have an underlying congenital or acquired thrombophilia
Frightening Fact

• In about 50% of patients with a hereditary thrombophilia, the initial thrombotic event occurs in the presence of an additional risk factor
  – pregnancy
  – BCP usage
  – orthopedic trauma or immobilization
  – surgery
RCOG - Prophylaxis After C/Section

Moderate Risk*

- Age > 35 years
- Obesity > 80 kg
- Parity four or more
- Labor > 12 hours
- Gross varicose veins

- Emergency C/S
- Pre-op immobility (>4 days)
- Preeclampsia
- Current infection
- Other major illness

* Heparin OR mechanical methods (stockings or SCD boots)
RCOG - Prophylaxis After C/Section

High Risk*

- ≥ 3 moderate risks
- Personal hx of DVT, PE, thrombophilia, or paralysis
- Extended C/S
- C/Hyst
- Patients with ACA
- Family history of DVT or PE

* Heparin AND mechanical methods (stockings or SCD boots)
## RCOG - Air Travel Recommendations

<table>
<thead>
<tr>
<th>Pregnant + up to 6 weeks PP</th>
<th>Short (&lt; 4 hours)</th>
<th>Long (&gt; 4 hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No additional risk factors</td>
<td>Calf exercises, mobility, hydration</td>
<td>Same plus below knee compression stockings</td>
</tr>
<tr>
<td>Weight &gt; 100 kg BMI &gt; 30 Twins or &gt; Thrombophilia Prior DVT</td>
<td>Calf exercises, mobility, hydration, compression stockings</td>
<td>Same plus LMW heparin day of and day after flight</td>
</tr>
</tbody>
</table>

Low-dose aspirin is an acceptable alternative, 3 days before and day of
Maternal Mortality: Nationally and in New York State

US Healthy People 2010 Goal: 3.3 Per 100,000 livebirths

*R

*Number of maternal deaths per 100,000 live births. The term “ratio” is used instead of rate because the numerator includes some maternal deaths that were not related to live births and thus were not included in the denominator.
Maternal Mortality: NYS vs. Nation
1987 - 2001

Rate per 100,000 Births

Year


NYS
National

Rate per 100,000 Births
0 5 10 15 20 25

NYS
National
Maternal Mortality Ratios

1987 - 1996

National: 7.7 / 100,000 (1987-1996)

Source: NCHS, Vital statistics
US Trend in Cause of Pregnancy-Related Death* by Year

THE Number 1 Cause

* Deaths among women with a livebirth
Pregnancy-Related Mortality Ratio (PRMR)* by Race & Age

Source: CDC, 2002.

* Deaths among women with a livebirth

Source: NCHS, Vital statistics

Note: The colors on these maps show the states divided into three terciles based on their MMR.

Source: NCHS, Vital statistics
2000 NYS Maternal Mortality Ratios

- 15.9 in NYS per 100,000 livebirths
- 9.5 in Upstate New York per 100,000 livebirths
- 23.1 in NYC per 100,000 livebirths
New York City Maternal Deaths
Direct & Indirect 1998 - 2000

119 cases out of 169 Total

1. Hemorrhage 32%
2. Hypertension 10%
3. Cardiomyopathy 8%
4. Embolism 7%
5. Infection/Sepsis 7%
6. Anesthesia 7%

Courtesy of Dr. Gina Brown, NYCDOH, BMIRH
## NYC Maternal Deaths

<table>
<thead>
<tr>
<th>Borough of Residence</th>
<th>% of NYC Births</th>
<th>% of Maternal Deaths</th>
<th>MMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brooklyn</td>
<td>32</td>
<td>37</td>
<td>52.4</td>
</tr>
<tr>
<td>Bronx</td>
<td>17</td>
<td>19</td>
<td>51.2</td>
</tr>
<tr>
<td>Manhattan</td>
<td>16</td>
<td>16</td>
<td>46.1</td>
</tr>
<tr>
<td>Queens</td>
<td>23</td>
<td>14</td>
<td>28.2</td>
</tr>
<tr>
<td>Staten Island</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>?</td>
<td>37.2</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>?</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Courtesy of Dr. Gina Brown, NYCDOH, BMIRH
Location and Timing of Death

• 70% Died in the hospital
• 45% Died within 24 hours of birth

Courtesy of Dr. Gina Brown, NYCDOH, BMIRH
### Hemorrhage Deaths

**Related Causes**  \( N = 39 \)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HELLP</td>
<td>5%</td>
</tr>
<tr>
<td>Previa</td>
<td>5%</td>
</tr>
<tr>
<td>Atony/PP Hem</td>
<td>15%</td>
</tr>
<tr>
<td>A/Per/Increta</td>
<td>5%</td>
</tr>
<tr>
<td>Coagulopathy</td>
<td>13%</td>
</tr>
<tr>
<td>AFE</td>
<td>10%</td>
</tr>
<tr>
<td>Abruptio</td>
<td>3%</td>
</tr>
<tr>
<td>Ectopic</td>
<td>5%</td>
</tr>
<tr>
<td>Other placenta</td>
<td>3%</td>
</tr>
<tr>
<td>Unspec/Unknown</td>
<td>36%</td>
</tr>
</tbody>
</table>

*Courtesy of Dr. Gina Brown, NYCDOH, BMIRH*
Approximately one-half of all maternal deaths are considered to be preventable!!
NYS Safe Motherhood Project

- Proposal drafted by Dr. John Choate
- Patterned after the Confidential Enquiry
- Developed with NYS/District II
- Funded by Commissioner’s Priority Pool
- Protected by PHL 206 (1)(j)
- ACOG Partners with RPCs – Quality expectation
- On-site death review teams
Issues to Review:
Quality and Content of Medical Care

- Preventive services - chronic illnesses
  - Community and patient education
- Nutrition, substance abuse, social services
  - Preconception counseling
  - Prenatal care access
- Labor and delivery care – Consulting Services
  - Postpartum care and follow-up

Source: CDC, 2002.
Issues to Review: Systems and Social Causes of Death

- Intendedness of pregnancy
- Woman and her family’s knowledge and decision making ability
- Timeliness of woman's actions to seek care
- Accessibility and acceptability of care

Source: CDC, 2002.
Methods to Identify Deaths

• Death Certificates: Primary source
• Linkage to and Searches of other databases
• Reports from providers, hospitals, clinics, medical examiners, ED physicians, media
• Review of autopsy and medical records
• Computer linkage of vital records
<table>
<thead>
<tr>
<th>PART I. IMMEDIATE CAUSE:</th>
<th>PART II OTHER SIGNIFICANT CONDITIONS CONTRIBUTING BUT NOT RELATED TO CAUSE GIVEN IN PART I (A):</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) DUE TO OR AS A CONSEQUENCE OF:</td>
<td></td>
</tr>
<tr>
<td>(B) DUE TO OR AS A CONSEQUENCE OF:</td>
<td></td>
</tr>
<tr>
<td>(C) DUE TO OR AS A CONSEQUENCE OF:</td>
<td></td>
</tr>
</tbody>
</table>

**CAUSE OF DEATH**

31A. IF INJURY DATE:
- MONTH
- DAY
- YEAR
- HOUR:
- m

31B. LOCALITY: (City or town and county and state)

31C. DESCRIBE HOW INJURY OCCURRED

31D. PLACE OF INJURY

32. WAS DECEDENT HOSPITALIZED IN LAST TWO MONTHS?
- NO
- YES

33A. IF FEMALE WAS DECEDENT PREGNANT IN LAST 6 MONTHS?
- NO
- YES

33B. DATE OF DELIVERY:
- MONTH
- DAY
- YEAR
Safe Motherhood Initiative

The American College of Ob-Gyn
District II/ NY

Chair: Jeffrey C. King, MD, FACOG
Project Director: Cathy Chazen Stone, MS
Neisha M. Torres, RN, MS
Executive Director: Donna Montalto Williams, MPP

Contracted by the Women’s Health Bureau, NYS Department of Health
The Safe Motherhood Initiative uses...

- NYS Regional Perinatal Network expects the RPCs to conduct quality assurance and quality improvement activities with their affiliate hospitals.

... review of all maternal deaths is part of that role.
Maternal Mortality Review Team

- Maternal-Fetal Medicine/ RPC
- Labor & Delivery nurse/ RPC or Nurse coordinator/ RPC
- General Ob-Gyn/ ACOG
- Project Director/ ACOG
- Sub-specialist/ RPC (as needed)
**Recommendations**

<table>
<thead>
<tr>
<th>Question</th>
<th>Coding Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>90. Written recommendations for improvement of care in the areas reviewed. (e.g., system modifications, revision of protocol(s), staffing modifications, policy change(s) etc.)</td>
<td>None</td>
</tr>
</tbody>
</table>
SMI – Project Summary

• Death notifications = 21, Review = 15, Pending = 2

• Cause of Death
  – Sepsis 4
  – Embolism 3
  – Hypertensive Disease 5
  – Hemorrhage 1
  – Congenital Cardiac Disease 1
  – Unknown 1
<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Percentage</th>
<th>Age</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>30%</td>
<td>&lt; 20</td>
<td>11%</td>
</tr>
<tr>
<td>Asian</td>
<td>8%</td>
<td>20 – 30</td>
<td>39%</td>
</tr>
<tr>
<td>Haitian</td>
<td>8%</td>
<td>30 – 40</td>
<td>39%</td>
</tr>
<tr>
<td>Black</td>
<td>46%</td>
<td>&gt; 40</td>
<td>11%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>8%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Issues Identified

- Medical Care – recognition and transfer
- Blood bank procedure
- EMS protocols & ED process
- Availability of Diagnostic studies
- Translation Services
- Grief Counseling for Family and Staff
- Consulting issues – willingness and adequacy
What Can You Do?

• Review your institutional Policy and Procedures
• Encourage Emergency Drills
• Confront Cultural Competency
• Admit Your Limitations

Remember:
It’s The Patient That Really Matters!!!
For more information contact

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My Thanks to All Who Have Supported and Contributed To the Success of This Project
Jeffrey C. King, MD, FACOG
Chair, Safe Motherhood Initiative
NYS/ACOG
Professor and Chair
New York Medical College

Thanks to All Supporting This Project !!