



THE NEW YORK CITY  
DEPARTMENT of HEALTH  
and MENTAL HYGIENE



State of New York  
Department of Health

## Health Alert: Prevention of Maternal Deaths through Improved Management of Hemorrhage

Please share with colleagues in Obstetrics, Critical Care, Emergency Medicine, Family Practice, Internal Medicine, Laboratory Medicine (particularly Blood Bank Directors), Pediatrics, Anesthesia, Nursing and Hospital Administration

TO: Physicians, Hospital Administrators, Laboratory Medicine, Directors of Blood Bank, Nursing, and Anesthesiology, and other Health Care Providers

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RE: **Prevention of Maternal Deaths through Improved Management of Hemorrhage**

**There is a high rate of maternal death from hemorrhage in New York City. To reduce risk of maternal death:**

- 1. Ensure that your hospital has effective guidelines to respond to maternal hemorrhage, including rapid emergency access to blood.**
- 2. Promptly recognize and respond to hemorrhage. Do not delay transfusion while awaiting laboratory results or evidence of hemodynamic instability.**

The number of maternal deaths among NYC residents is more than 4 times the national average (51 deaths/100,000 live births vs. 12/100,000 live births) and is 17 times the Healthy People 2010 goal. While marked racial/ethnic disparities exist, elevated maternal death rates in NYC are not limited to one specific group.

**Maternal hemorrhage is the most common cause of maternal mortality in NYC.**

The three leading causes of maternal death were hemorrhage, thromboembolism, and hypertensive disorders. Review by the NYC Department of Health and Mental Hygiene (DOHMH) showed that hemorrhage was the leading cause of pregnancy-related death, accounting for one third of deaths. Sixty

percent of hemorrhage-related deaths occurred in the later stages of pregnancy. Most women (97%) who died of hemorrhage-related causes were hospitalized at the time of death. These deaths include all socioeconomic classes and occurred at hospitals throughout New York City. There are an even higher number of “near misses” – women who almost die.

### **Hemorrhage is the most preventable cause of maternal mortality.**

Most women died in a hospital setting. Health care providers can prevent maternal deaths by improving recognition and response to hemorrhage. Pregnant women have hemodynamic compensatory mechanisms that may blunt the initial typical responses to blood loss, such as tachycardia and hypotension, until severe decompensation has occurred. Initial laboratory parameters may not be indicative of current hemodynamic status. The causes of death due to hemorrhage are multi-factorial, and prevention requires a multidisciplinary response. Underestimation of blood loss and reliance on symptoms and hemodynamic changes may delay fluid resuscitation and transfusion. Hospital systems that support a rapid and coordinated response to extreme blood loss can limit maternal morbidity and improve maternal survival.

### **Recommendation for Providers to Reduce the Risk of Maternal Death:**

- 1. Ensure that your hospital has effective guidelines to respond to maternal hemorrhage, including rapid emergency blood transfusion, with coordination among physicians, nurses, anesthesiologists, and the blood bank.**
- 2. Be vigilant to blood loss during pregnancy, labor, and delivery, and in the early post-partum period. Accurately estimate blood loss (one cup = 250cc or one large clot). If your clinical judgment indicates the need for transfusion, do not delay while awaiting laboratory results. Be alert to the possibility of slow blood loss because this also can be life threatening.**
- 3. Use fluid resuscitation and transfusion based on the estimation of current blood loss and the expectation of continued bleeding, regardless of apparent maternal hemodynamic stability.**
- 4. Work with the Labor and Delivery staff to conduct “Hemorrhage Drills” to ensure the most efficient response to a hemorrhage emergency.**
- 5. Participate in or conduct continuing medical education on hemorrhage for your entire medical team.**

### **Resources available from the New York City Department of Health and Mental Hygiene**

The NYC DOHMH conducts maternal mortality surveillance and has a citywide Maternal Mortality Review Committee (MMRC). The committee reviews de-identified maternal mortality data and makes policy recommendations to improve pregnancy outcomes. Committee members include practicing expert obstetricians, anesthesiologists, midwives, nurses and other clinicians, as well as representatives from City and State health departments. The DOHMH and the MMRC are available to work with hospital staff throughout New York City to plan clinician education and assist in developing guidelines to decrease morbidity and mortality associated with pregnancy-related hemorrhage. For more information, please contact Gina M. Brown, MD at [gbrown@health.nyc.gov](mailto:gbrown@health.nyc.gov), (212) 442-1771.

### **Resources available from the American College of Obstetricians & Gynecologists, District II, and from New York State Department of Health**

ACOG District II and the New York State Department of Health are working together on the Safe Motherhood Initiative, which conducts in-depth reviews of individual maternal deaths and develops prevention recommendations for changes in practice at the hospital where the death occurred and statewide. For more information, please contact Donna Williams at ACOG ([dwilliams@ny.acog.org](mailto:dwilliams@ny.acog.org) or (518)436-3461) or Mary Applegate, MD MPH at the Department of Health ([msa04@health.state.ny.us](mailto:msa04@health.state.ny.us) or (518) 474-1911