

Maternal Mortality in New York: A Call to Action

Findings and Priority Action Steps

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I. BACKGROUND

The US ranks behind 40 nations in maternal death yet spends more on maternity care per birth than any nation in the world (Gaskin, 2005). New York State and New York City have among the highest rates in the country (Amnesty International, 2010; New York State DOH, 2009). On June 18, 2010, the New York City Department of Health and Mental Hygiene (NYCDOHMH) released a report detailing their review of maternal deaths from 2001-2005 (the full report is available at <http://www.nyc.gov/html/doh/downloads/pdf/ms/ms-report-online.pdf>). These data vividly illustrate the persistence of the problem: the NYC maternal mortality ratio averaged 23.1 between 2001 and 2005 -- twice the national rate and five times higher than the Healthy People 2010 goal of 4.3 (New York City DOHMH, 2010). New York State's rate for 2005-2007 was also an unacceptably high 16.6 (New York State DOH, 2009), and the Centers for Disease Control and Prevention estimate that the actual number of maternal deaths may be 1.3 to 3 times higher than the reported rates (MMWR, 1998).

In addition to being well above the national average, maternal deaths in New York reveal alarming disparities in terms of race. In New York City, pregnancy-related mortality rates were seven times higher for Blacks and twice as high for Hispanics and Asian/Pacific islander women compared to whites. Some of New York's poorest neighborhoods had rates almost five times higher than affluent neighborhoods in Manhattan, and women without health insurance coverage had pregnancy-related mortality rates almost four times higher than those covered by Medicaid or private insurance.

Many of these deaths -- the CDC estimates half -- could have been prevented by early diagnosis and treatment (MMWR, 1998). Thanks in large part to NYCDOHMH's system of enhanced surveillance and the detailed case reviews conducted by the state's Safe Motherhood Initiative, we know much about the risk factors and causes of maternal deaths in New York -- data that should guide prevention and intervention efforts. The NYCDOHMH data suggest that risk factors include obesity, pre-existing chronic health conditions (most commonly hypertension, asthma, and cardiac conditions), and advanced maternal age. The leading causes of maternal death in NYC are embolism (17.4%), hemorrhage (16.8%), pregnancy-induced hypertension (14.3%), and infection (14.3%).

In New York, significant work has been done over the years to improve reporting and case review, develop hospital-based interventions, and to improve community-based prenatal care. Some of these efforts as well as evidence about best practices are summarized in a white paper prepared by The New York Academy of Medicine that is available at http://www.nyam.org/news/docs/MMdraft_061610.pdf. Despite these efforts, the failure to make significant reductions in either the overall rate or the disparities in maternal deaths suggests that much more needs to be done.

To address this problem, NYAM, working collaboratively with NYCDOHMH, convened a half-day symposium on June 18, 2010, which brought together an interdisciplinary group of experts, including obstetricians, anesthesiologists, hospitalists, family physicians, hospital

administrators, midwives, nurse practitioners, community-based maternal and child health program staff, community health center staff, state and city health officials, advocates and many others. Informed by data presentations in the morning, more than 130 people worked together to identify the key issues and to help form an action agenda, focusing on three specific aspects of the issue: reporting and case review; prevention and risk reduction before and during pregnancy; and management of the critically ill patient from the time of arrival in the hospital. In work group sessions on these three topics, participants generated key findings and recommended action steps needed to reduce maternal deaths throughout New York.

This paper presents crosscutting findings from that meeting as well as the priority areas for action that emerged from the working sessions and from follow-up discussions with key decision makers in the State and City. It concludes with a selected number of recommended action steps. Rather than list all possible actions, we have identified a subset of key issues which we believe can be critical in achieving further progress towards reduction in the rate of maternal mortality in New York. These findings and areas for action are based on the suggestions and areas of consensus that emerged at the symposium and the expertise of those consulted following the meeting and may or may not be supported by published data.

II. CROSS-CUTTING FINDINGS

- A. The population of women giving birth is changing. There are more older women, more women who are overweight and obese, and more women with chronic health conditions giving birth today. According to participants at the symposium, this has resulted in an increased number of complicated pregnancies without a corresponding shift in the general understanding about and modification of systems to manage these pregnancies adequately.
- B. Preventing pregnancy associated morbidity and mortality requires more effective integration of what are too often multiple separate systems caring for women before they become pregnant and during prenatal, perinatal, and post-partum periods. This requires better coordination and information sharing across providers of community-based prevention and primary care for girls and women, and prenatal, hospital and post-partum care, especially for high risk pregnant women. It also means creating incentives to assure this integration can be sustained.
- C. Because maternal death is a rare event at the level of the institution or provider, training and motivating providers to change their reporting, prevention, screening and intervention practices can be difficult, but it must be a priority.
- D. With some notable exceptions, the emphasis in maternal and child health has been on the health of the infant and maximizing good birth outcomes for high risk neonates. According to practitioners and to women at the symposium who had given birth, while the focus on healthy babies is critical, it sometimes de-emphasizes the health of the mother and leaves many women feeling disempowered and unable to advocate for their

own health during the pregnancy, birth and post-partum periods. A balanced approach that prioritizes the health of the mother and the health of her baby should be advocated.

- E. There is general consensus across the professional and regulatory community on the priority actions needed and that fragmentation of efforts and resource constraints have inhibited completion of a largely shared agenda. Clear leadership and a specific timetable for completion of identified priority action steps are needed.

III. SPECIFIC FINDINGS

A. Reporting, Case Review and Data Systems

1. The problem of maternal deaths in New York cannot be solved without accurate, comprehensive, consistent and timely information about the number, characteristics, and causes of these deaths.
2. The two current reporting systems – the enhanced surveillance systems used by NYCDOHMH and the intensive case reviews conducted by the New York State Safe Motherhood Initiative – have different strengths. However, New York State needs a comprehensive system of reporting and review that uses common definitions and has both depth and breadth.
3. State-wide mandatory reporting is viewed as necessary to increase the number of cases captured and create the widest base of data for improving systems and preventing maternal deaths and disability.
 - a) While the NYPORTS system has the advantage of being used universally by hospitals, there is great deal of confusion and inconsistency around reporting of maternal deaths. As a result, current NYPORTS reporting is failing to identify a significant number of cases.
 - b) Capturing post-hospital discharge deaths is difficult, especially because providers do not always appropriately indicate pregnancy-related deaths on death certificates. The infrequency of these events and the lack of training on how to fill out death certificates contribute to the problem.
 - c) Collecting and analyzing data on “near misses” could reveal additional useful information, especially if done in a uniform manner.
 - d) Geocoding of cases could help pinpoint broader determinants of health affecting maternal mortality as well help target interventions.
 - e) It is critical that the reporting and review system implemented is not in any way punitive and encourages sharing of information as well as assures the confidentiality of data collected.

4. Case reviews need to be both thorough and timely so that information is collected while it is fresh in the minds of staff and their motivation to make system changes is high.
 - a) Ideally, all cases of maternal mortality should be reviewed, and the system for that review made clear.
 - b) On-site reviews are seen by many as more effective than those conducted remotely. The information collected from case reviews needs to be communicated back to obstetric facilities, community-based providers, and health officials to inform interventions and, where needed, stimulate corrective action. Confidentiality should be assured.
 - c) Case reviews should be conducted by knowledgeable experts in the field of obstetrics who have no conflicts of interest in reviewing the case.

B. Prevention and Risk Reduction Before and During Pregnancy

1. Many primary care providers lack awareness about the changing population of women giving birth and risk factors associated with maternal mortality.
2. Obstetricians, family physicians, and midwives managing pregnant women, especially those in freestanding clinics and practices may not have the necessary and easily accessible specialist consultant networks and hospital referral arrangements to assure effective management of the pregnancy-associated risks of pre-existing chronic diseases. These women may be at highest risk if they enter hospitals for delivery which have no prior knowledge of their care.
3. Even though it is a significant contributor to maternal mortality, many providers have difficulty addressing their patients' obesity because they are uncomfortable and/or because they lack the knowledge and resources to do so effectively. Visits for weight loss counseling are not reimbursed, and there is a shortage of certified nutritionists and dieticians. (Many poor and underserved neighborhoods also lack affordable, fresh produce and grocery stores and opportunities for exercise to make healthy choices possible).
4. In general, women are not given information about the risk factors that could affect their health during pregnancy and delivery. According to symposium participants, even women who have had complications or "near misses" are often not told the reasons for the problems or the implications for future pregnancies.
 - a. Approximately half of all pregnancies are unplanned, suggesting that education and counseling about family planning, and contraception needs to be expanded.
 - b. Providers should make women considering pregnancy aware of risk factors associated with a higher likelihood of pregnancy complications.

- c. The post-partum period is a particularly critical, though difficult, time to engage women in their own health care. The period between conceptions can also be an important opportunity to counsel women about family planning and pregnancy-associated risks.
 - d. Patients who have pregnancy-related complications receive little education about those complications and how to manage them. Patients may also have chronic medical issues that have not been diagnosed or addressed until a woman seeks prenatal care. This may mean that her health is not optimized upon entering the pregnancy, and since pregnancy is a significant stress on the body, this condition may worsen.
5. Systems and financing barriers impede efforts to identify, assess, and intervene with women at risk for maternal morbidity and mortality. These include: lack of insurance coverage for women when not pregnant; non-reimbursable services, like counseling, even for women with coverage; short visit times; information (IT) systems that make longitudinal tracking and transmittal of information among facilities not in the same formal health system difficult; lack of financial incentives for intensive case management of the high risk pregnant woman; and the lack of wide availability of training and tools for screening and helping women at risk.

C. Hospital-based Screening and Intervention

1. High risk pregnant patients are often not identified before or immediately upon admission to the hospital. In addition, many hospitals, particularly those outside of New York City, do not have a properly equipped physical location or clear plan for management of high-risk patients once they have been identified.
- a. Given that embolism is the leading cause of pregnancy-related death among women in NYC, hospitals need better systems for screening and preventing DVT in at risk patients. DVT risk assessment protocols have just been refined to address the complex nature of pregnant women. More research and wider adoption of these and other protocols developed to address critical complications of labor and delivery should be promoted.¹
 - b. Despite the high rates of cesarean sections, many patients – even those at high risk – are not screened appropriately for surgery nor do they meet with anesthesiology staff prior to entry to the OR. Many are cared for post-operatively

¹ In a joint letter to the Commissioner of Health, GNYHA, ACOG and HANYS (dated 3/25/10) made several recommendations involving the promotion of evidence-based guidelines and clinical protocols to address induction and augmentation of labor; management of maternal hemorrhage; and shoulder dystocia. They also recommended training on better coordination and communication of hospital personnel and ongoing education and drills to respond to emergent situations.

in Labor and Delivery rather than being assessed for entry into the post-anesthesia or post-operative units and recovery rooms in the general OR.

- c. Some medical interventions surrounding birth have become routinized or used when there is no particular health benefit to the woman or the infant. For example, the March of Dimes has initiated a program to eliminate elective deliveries prior to 39 weeks suggesting that such deliveries are common.
 - d. Not all hospitals have a rapid response team protocol for post-partum patients which provides for the early identification and assessment of emergent clinical situations and the avoidance of clinical deterioration.
2. Communication systems within the hospital setting can be poor, especially for complicated patients on the obstetric service, which is often physically isolated within the hospital. Labor and delivery staff may not receive important information and guidelines about caring for critically ill patients that other staff receive. Better communication, cross-training, and collaboration between anesthesiology, emergency department personnel, internal medicine specialty staff and labor and delivery staff are especially needed.
 3. The rate of cesarean sections in New York is much higher than that recommended by experts, and neither the high rate nor the extreme variability in rates among hospitals is well understood. Multiple factors ranging from the underlying state of the woman's health, patient requests, higher numbers of multiple births to liability concerns, likely contribute to these rates, and each of these factors needs to be explored.
- D. Although the Maternity Information Act (NY Pub Health § 2803-j) requires hospitals to provide site-specific statistics on delivery procedures to all incoming maternity patients and all members of the public upon request, evidence suggests that few hospitals comply with this law (Gotbaum, 2006).

IV. PRIORITY ACTION STEPS

A. Reporting, Case Review and Data Systems

1. City and State Departments of Health should resolve any remaining differences in definitions and agree on a standardized statewide system of mandatory reporting of pregnancy related deaths that occur in hospitals or birthing centers that melds the best of NYC DOHMH enhanced surveillance, the NYS Safe Motherhood Initiative, and NYPORTS review. This will require a system that identified all cases of maternal death by routinely integrating the multiple relevant data sources, including (but not limited to), death certificates, NYPORTS, Statewide Planning and Research Cooperative System (SPARCS) data, and medical examiner reports, and birth records).

2. NYPORTS Occurrence Code 915 for Unexpected Death cites maternal deaths as reportable, but the language is not considered by all to be clear. A new and separate Occurrence Code for Maternal Mortality may be advisable, and, given known post-partum risks, consideration should be given to expanding the definition of reportable maternal deaths to at least 30 days post partum.
 - a. Clear guidance on any revisions to NYPORTS with regard to reporting of maternal mortalities should be presented to the NYPORTS Council prior to the effective date of implementation.
 - b. Education and Training on both existing and new reporting requirements should be conducted by the State Department of Health throughout the State with the assistance of hospital associations to clarify exactly what events are reportable and how they should be recorded (e.g, “expected” versus “unexpected” maternal death).
3. City and State Departments of Health should agree on a professionally robust universal case review system that clearly addresses the confidentiality concerns of individual providers and provider organizations and assures that the results of the reviews are available in a timely manner and in a usable and accessible format to the affected institution and summary information disseminated widely to hospitals, the professional community and community-based providers. Those conducting the reviews should have no conflicts of interest and should be trained and monitored by NYS DOH.
4. The City and State Health Departments should establish a specific timeline for completing steps A1 and 2 and 3, working with partners, including the hospital associations, professional organizations (ACOG) and others to establish a clear process for developing the appropriate training of all involved to participate effectively in reporting, review and analysis of the information to make needed changes.
5. The data gathered through a universal reporting and review system should be analyzed to better understand the racial, ethnic and geographic disparities in rates of maternal mortality and to inform interventions and monitor progress towards reducing disparities.
6. All New York hospitals providing obstetrical services should review their own cesarean section rates, the underlying causes of cesareans, and the criteria for and conditions under which cesarean sections are required and take any necessary actions to address quality problems identified. A broader analysis to better understand the reasons for the variations in cesareans section rates between hospitals is also needed.
7. NYC hospitals should comply with the Maternity Information Act (NY Pub Health § 2803-j) and take steps to insure transparency regarding data about delivery procedures and outcomes. The New York City Council should amend the local administrative code to require that the Department of Mental Health and Hygiene post and disseminate statistics required under the Maternity Information Act in a user-friendly format on its website (See City Council Introduction #0575-2007).

8. The State should support a study of New York’s high cesarean section rates, the multiple underlying causes of cesarean sections, and the high variability in rates across hospitals to determine how the many factors likely contributing to these rates can be addressed and whether or not more specific regulatory intervention is warranted.

B. Prevention and Risk Reduction Before and During Pregnancy

1. Revised Prenatal Care Standards (PCAP) for the Medicaid program were issued by NYS in April 2010 and appear to offer comprehensive guidance for providers to assure the integrated care system needed for early identification and management of high risk pregnant women. NYS should consider the need for additional technical support and financial resources to assure effective implementation of this guidance for all women determined to be at high risk according to the New York State Prenatal Care Risk Assessment Form (or some other agreed risk assessment that builds upon or is consistent with ACOG standards).
2. Potential changes that should be considered include extending coverage and services offered for uninsured pregnant women who are determined to be high risk during their pregnancy, delivery and for up to 3 months after their delivery date.
3. A web based “Pregnancy Health Record” could be designed and made available to all pregnant women as soon as the pregnancy is confirmed. It should be able to be conveniently carried by the woman and, subject to appropriate confidentiality agreements, available for use (reading and recording) by all practitioners providing care during the pregnancy, delivery, and post-partum period. Very much like the classic Children’s Immunization Card, it can be retained throughout the reproductive life of the woman. The card should be capable of summarizing health status and pregnancy-related risks and flagging any chronic conditions, medications being taken and special needs she may have for all providers and hospital staff. By being web-based, the card’s use is not restricted to the IT system of a particular institution (as with most “smart cards”) and could help better integrate primary and hospital care, improve continuity of care, flag high risk patients in emergency situations, and increase patients’ understanding of their own risks.
4. HANYS and GNYHA should work with CHCANYS to develop and disseminate protocols to better connect pre-hospital and in-hospital care for pregnant women in order to identify high risk patients before they are admitted and assure they are: assessed for cesarean section; seen by anesthesiology or other specialists if needed; and scheduled to deliver in a hospital best equipped to handle complicated labor and delivery.
5. The relevant professional associations, including ACOG, American Academy of Pediatrics, the American Association of Family Physicians, The New York State Association of Licensed Midwives, and New York State Nurses Association, who have already done much to improve maternal and child health, should enhance systems for

public and professional education that highlight the changing population of women giving birth as well as the risk factors for pregnancy itself and, when pregnant, for maternal mortality and morbidity:

- Widely disseminate existing protocols for the management of obesity and common chronic conditions in pregnancy to refocus the attention of the public, providers and public health officials on the health of the woman in the perinatal and post-partum period as well as the health of the infant.
6. Programs for obesity and chronic disease prevention should incorporate education of young girls and women of childbearing age about the potential risks associated with obesity and pre-existing chronic diseases during pregnancy and what they can do to reduce these.

C. Hospital-based Screening and Intervention

1. As it has done for other categories of high cost cases, the State should consider a Medicaid pilot project for enhanced reimbursement of comprehensive systems for identification and management of high risk pregnant women. (NB: *Since the meeting in June, four hospitals in NYC supported by the FOJP and with some funding from United Hospital Fund, have completed a “Care Map for the Obese Parturient”; Montefiore has signaled an intention to test the full care map. While the focus is on morbid obesity, the systems developed could have wider applicability to pregnant women with other risk factors, and this approach should be encouraged.*)
2. The New York State Perinatal Centers have statutory responsibility to conduct regional quality improvement activities that include reviews of the perinatal care provided by their affiliate hospitals, including maternal deaths and serious adverse events. They are also charged with making recommendations and providing professional education and training to improve the quality of care within its network. There is some evidence to suggest that capacity of the RPC’s to perform these duties is varied. An assessment of how and how well the existing arrangements are addressing maternal mortality is warranted to ensure that the system and individual high performing centers can best serve the women of the state, and to determine whether or not statutory changes may be necessary.
3. ACOG together with HANYS and GNYHA should develop protocols for flagging high risk pregnant women upon arrival at the emergency room or other portal of entry to the hospital and assure that routine OR and post-anesthesia care unit access is available for these patients, if necessary, or that there is a properly equipped and staffed space for management of the delivery and post partum care of high risk pregnant women
4. Statewide leadership to set clear goals, establish priorities, build consensus, coordinate the good work being done by multiple stakeholders, and implement concrete strategies on a specific time frame is needed to prevent unnecessary maternal death. New York State has models for such high-level, standing advisory committees to review and report practice patterns in cardiac and transplantation care with dedicated staff support. The

State should work with the broader professional community to create an appropriate mechanism for strengthening and coordinating statewide efforts to reduce maternal mortality and, if necessary, secure the resources for its implementation.

Evidence suggests that a significant proportion of maternal deaths are preventable. The potential for reducing current rates of maternal mortality through focused attention on improving our systems of prevention and care for preconception, pregnancy, delivery and post-partum care to women is significant. Our goal is clear – making sure that no woman needlessly dies in childbirth. By taking the actions recommended above and through the continued efforts of the many talented individuals and organizations working on this issue, we can and we must reduce the unacceptably high rates of maternal death in New York State.

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