New York State Maternal Mortality Review: Update

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July 25, 2017

Outline

- Highlights from the Review of 2012-2013 Maternal Deaths
- Enhanced maternal mortality review process

Maternal Mortality

Background

- Measured as maternal deaths per 100,000 live births

- Maternal deaths are identified by ICD 10 Codes indicating obstetric deaths within 42 days postpartum

  A34, O00-O95, O98-O99

Maternal Mortality

Background

- US ranks 60th in the world behind all other developed nations in maternal mortality*

- 2010: NY ranks 46th among 50 states with a rate of **18.9**

Center, N.W.s.L., *Health Care Making the Grade on Women's Health: A National and State by State Report Card*. 2010. Available from: http://hrc.nwlc.org/status-indicators/maternal-mortality-rate-100000

- 2016: NY ranks 30th with a rate of **20.9**

Explore Maternal Mortality in New York | 2016 Health of Women and Children Report. 2017; Available from: http://www.americashealthrankings.org/explore/2016-health-of-women-and-children-report/measure/maternal_mortality/state/NY.

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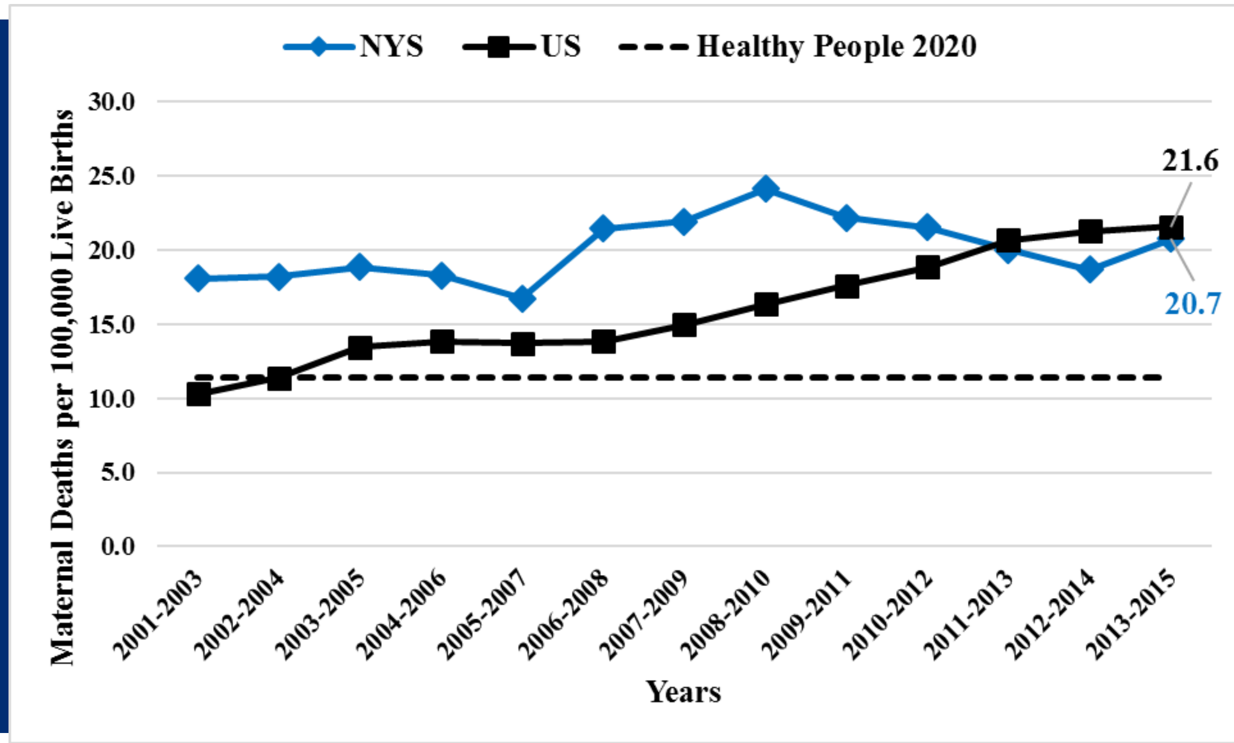
*Kassebaum NJ, Bertozzi-Villa A, Coqqeshall MS et al. Global, regional, and national levels and causes of maternal mortality during 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2014 Sep 13;384(9947):980-1004. doi: 10.1016/S0140-6736(14)60696-6. Epub 2014 May 2.

Recent Trends in Maternal Mortality

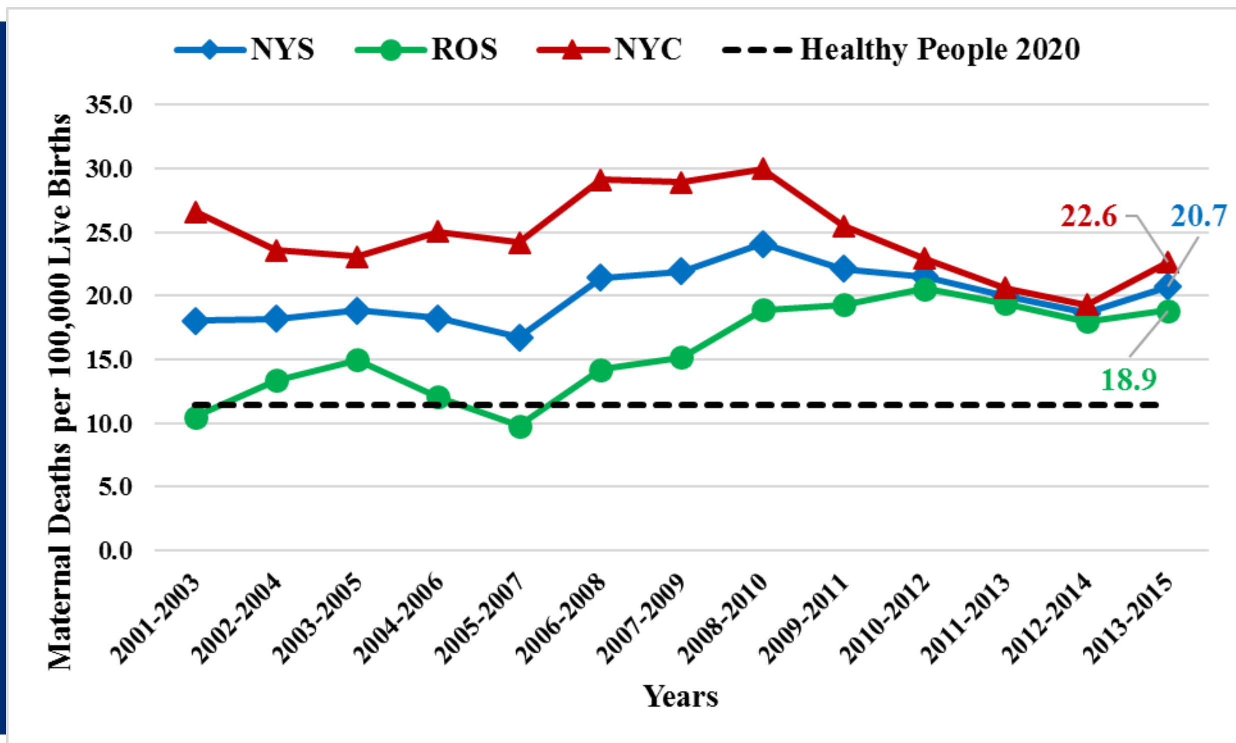
Trends in Maternal Mortality as Reported in Vital Records*



*Causes of death from death records A34, O00-O95,O98-O99.
2000-2014 data from NY Vital Records. 2015 NY and national data from CDC Wonder database.

Trends in Maternal Mortality as Reported in Vital Records*

Recent Trends in Maternal Mortality



*Causes of death from death records A34, O00-O95,O98-O99.

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Trends in Maternal Mortality by Race as Reported in Vital Records*

Recent Trends in Maternal Mortality

Black — White — Other

Maternal Deaths per 100,000 Live Births

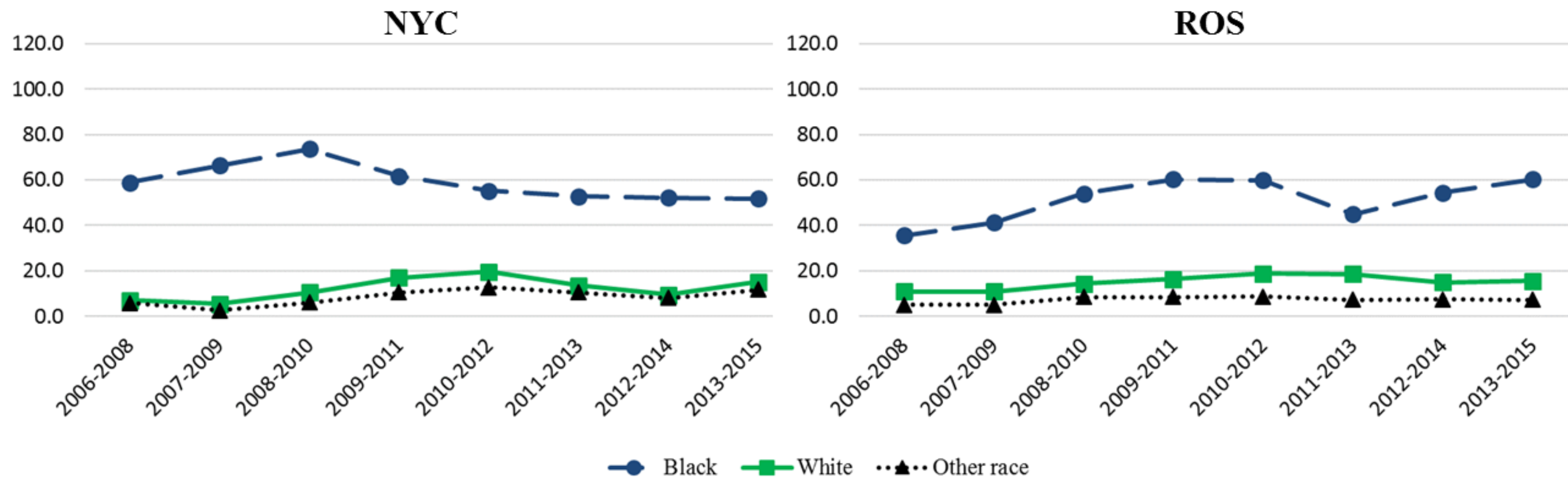
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0

2001-2003 2002-2004 2003-2005 2004-2006 2005-2007 2006-2008 2007-2009 2008-2010 2009-2011 2010-2012 2011-2013 2012-2014 2013-2015

54.6
15.3
10.2

*Causes of death from death records A34, O00-O95,O98-O99.

Trends in Maternal Mortality by Region and Race Reported in Vital Records*



*Causes of death from death records A34, O00-O95,O98-O99.

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Case Identification

Maternal Mortality Reviews, 2012-2013

Identified 216 women of reproductive age who died within a year of the end of a pregnancy

- 99 deaths linked to a live birth record
- 117 deaths not linked to a live birth records but
  - With an obstetric cause of death or
  - With pregnancy indicated on death record or
  - Linked to hospital records with an indication of pregnancy

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Maternal deaths: MMR vs Vital Statistics 2012

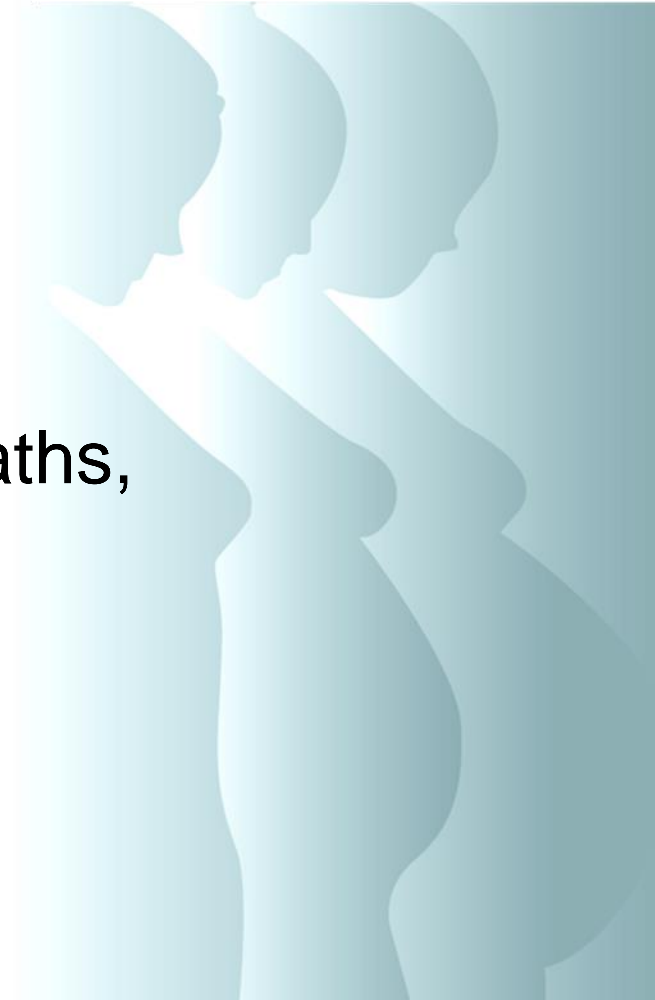
MMR	Vital Statistics	Maternal Mortality Rate comparison	Black to White ratios
Total 28 Unknown: 4	45	11.7 vs 18.8	
Black mothers 12 Unknown: 2	22	28.3 vs 51.8	3.4 vs 4.0
White mothers 12 Unknown: 2	19	8.2 vs 13.0	

Maternal deaths: MMR vs Vital Statistics 2013

MMR	Vital Statistics	Maternal Mortality Rate comparison	Black to White ratios
Total 23 Unknown: 6	42	9.8 vs 17.9	
Black mothers 8 Unknown: 4	19	19.6 vs 46.6	2.6 vs 3.4
White mothers 11 Unknown: 2	20	7.6 vs 13.9	

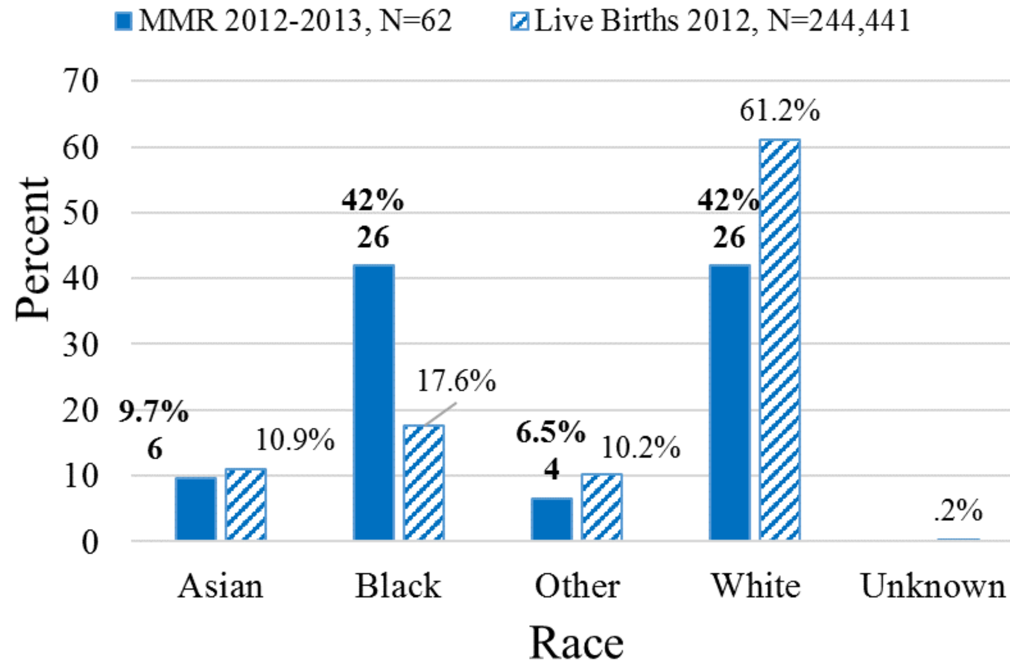
Maternal Mortality Reviews, 2012-2013

Pregnancy-Related Deaths, n=62



Demographics: Mother's Race

Maternal Mortality Reviews, 2012-2013



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Maternal Mortality Reviews, 2012-2013

Maternal Demographics

- Health insurance:
  - Medicaid 67%, 40
  - Private insurance 23%, 14

- Unhealthy pre-pregnancy weight status 47%, 28
  - Obesity, BMI>=30 21
  - Overweight, BMI between 25 and 30 7

Maternal Demographics: Education

Maternal Mortality Reviews, 2012-2013

■ MMR 2012-2013, N=62 ▨ Live Births 2012, N=244,441

Education	MMR 2012-2013 %	MMR 2012-2013 N
8th grade or less	15%	9
9th-12th grade, no diploma	13%	8
High school graduate or GED	29%	17
Some college credit, but no degree	7%	4
Associate degree	3%	2
Bachelor's degree	13%	8
Master's degree	5%	3
Doctorate's degree	3%	2
Unknown	11%	7

Y-axis: 0, 5, 10, 15, 20, 25, 30, 35

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Causes of Death Among Pregnancy-Related Deaths (n=62)

Maternal Mortality Reviews, 2012-2013

- Embolism (not cerebral) 29.0% (n=18)
- Hemorrhage 17.7% (n=11)
- Infection 14.5% (n=9)
- Cardiomyopathy 11.3% (n=7)
- Hypertensive disorders 9.7% (n=6)

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Causes of Death Among Pregnancy-Related Deaths (n=62)

Maternal Mortality Reviews, 2012-2013

- Cardiovascular conditions 6.5% (n=4)
- Cardiac arrest/failure 3.2% (n=2)
- Hematopoietic (sickle cell, thalassemia, ITP) 3.2% (n=2)
- Intracerebral hemorrhage (not associated with PIH) 3.2% (n=2)
- Pulmonary problems 2.0% (n=1)

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Causes of Death Among Pregnancy-Associated Deaths (n=104)

Maternal Mortality Reviews, 2012-2013

Cause	Percent
• Injury	52% (n=54)
• Cancer	9% (n=9)
• Infection	6% (n=6)
• Cardiac arrhythmia	5% (n=5)
• Unknown	5% (n=5)
• Pulmonary problems	4% (n=4)
• Cardiomyopathy	3% (n=3)
• Cardiovascular problems	3% (n=3)
• Other	14% (n=15)

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Pregnancy-Associated Deaths - Injury

Maternal Mortality Reviews, 2012-2013

- Injury (n=54)
  - Substance abuse 26% (n=14)
  - Suicide 22% (n=12)
  - MVA 19% (n=10)
  - Homicide 17% (n=9)
  - Undetermined injury 2% (n=1)
  - Unintentional 2% (n=1)

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Enhanced Review Process

ACOG's Commitment to the MMR Process in NYS

Enhanced Review Process

ACOG District II will partner with NYSDOH to:

- Provide clinical expertise required to conduct multi-disciplinary, comprehensive, and timely maternal mortality reviews;
- Determine cause and preventability of maternal deaths through comprehensive reviews by a multi-disciplinary committee;
- Disseminate aggregate findings widely among the clinical community and develop actionable strategies for prevention.

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Vision for the Future

Enhanced Review Process

- No family or community suffers a loss of a mother due to a preventable pregnancy-related death.
- New York State will be recognized as a leader and model program nationwide in conducting maternal mortality reviews and developing actionable strategies for prevention.

Key Components of Enhanced MMR Process

Enhanced Review Process

ACOG and NYSDOH working collaboratively to develop an enhanced process to add a Committee Review to the current method.

New process will result in a more complete assessment of:

- Causes of death
- Factors leading to death
- Preventability
- Opportunities for intervention

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Case Identification

Enhanced Review Process

- Current methods for data collection and maternal death identification continues
- IPRO initiates process of review with nurse abstractor

Chart Abstraction

Enhanced Review Process

- IPRO Nurse reviewer conducts chart abstraction
- Nurse reviewer develops case summary and completes chart abstraction form
- NYSDOH generates case summary form for committee review

Primary Reviewer

Enhanced Review Process

- Co-chairs assign a primary reviewer to each case.
- Primary reviewer evaluates de-identified case summary form and requests additional information if necessary.
- Primary reviewer makes a recommendation whether the case needs a full committee review.

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Maternal Mortality Review Committee

Enhanced Review Process

- Multi-disciplinary, clinical committee
- Convenes quarterly to review cases
- Discuss and review each case and come to consensus on the cause and preventability of the death
- Emerging trends, observations and lessons learned identified

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Goals of Review

Enhanced Review Process

- Information will inform public health policy and interventions.
- Every 2 years, a comprehensive report on maternal mortality will be released.
- Hospitals and healthcare providers will utilize information from the reports and action alerts to guide their quality improvement process.
- ACOG will partner with DOH to develop the reports and action alerts as well as other educational programs as warranted.

Questions and Feedback