THE NEW YORK ACADEMY OF MEDICINE
HEALTHY CITIES. BETTER LIVES.

RECENT AND ONGOING INITIATIVES IN NEW YORK TO REDUCE MATERNAL MORTALITY

2018 NEW YORK MATERNAL MORTALITY SUMMIT

February 14, 2018

Tracy Pugh, MHS | Peter Schafer

The New York Academy of Medicine

New York State Department of Health

New York City Department of Health and Mental Hygiene

Healthcare Association of New York State

Greater New York Hospital Association

American College of Obstetricians and Gynecologists (ACOG), District II

With Support from Merck & Co., Inc. to advance the goals of Merck for Mothers

INTRODUCTION

The purpose of this white paper is to provide background information on recent and ongoing initiatives in New York aimed to reduce maternal mortality and related disparities, for summit attendees and other interested parties.

In order to gain the perspectives and expertise of stakeholders directly involved in efforts to reduce maternal mortality, in-depth interviews were identified as the most effective approach to inform this paper. Over the summer and fall of 2017, semi-structured interviews were conducted with key informants across New York along with national experts. Selection of informants was guided by members of the 2018 Maternal Mortality Summit Planning Committee – public health and clinical care leaders in New York's efforts to reduce maternal mortality. Informants came from a variety of disciplines and included hospital administrators, leaders in maternal health policy, public health and medical researchers, maternal health care providers, and government agency officials.

A total of 18 interviews were conducted with key informants across 12 different organizations. Interviews were also supplemented with key literature, as cited throughout this paper, which provided data and additional documentation of the planning and programming being implemented in New York, including maternal mortality surveillance and planning reports from leadership organizations.

BACKGROUND

The 20th century saw a rapid and dramatic decline in maternal deaths in the US that extended into the 1980s [1]. However, this trend reversed in 1987 and surveillance has shown a steady rise in maternal deaths across the country since then Concern grew in 2006 as the maternal mortality working group comprised of WHO, UNICEF, UNFPA, and the World Bank released global estimates of maternal mortality ranking the US behind at least 40 other nations.[2] A follow-up study of maternal mortality trends in 181 countries, from 1980 to 2008, further confirmed that the increasing trend in maternal deaths had been unique to the US, as much of the world had instead been experiencing declines in maternal deaths.[3] At this time, it also became clear that the US was not going to achieve its Healthy People 2010 goal [4] of 4.3 maternal deaths per 100,000 live births, with a 2006 maternal mortality ratio (MMR) of 13.3 maternal deaths per 100,000 live births.[5] The most recent study on global maternal mortality showed that the US had a MMR of 18.5 per 100,000 live births, the highest among all developed countries in the world.[6] Moreover, the US is

one of only eight countries that experienced increases in maternal deaths between 2003 and 2013; the other seven were Afghanistan, Belize, El Salvador, Guinea-Bissau, Greece, Seychelles and South Sudan.

Recent trends in maternal mortality in New York have also been stark. According to the most recent vital records data from the New York State Department of Health, the 2013-2015 MMR was 20.7 per 100,000 live births for NYS overall, 22.6 for NYC and 18.9 for NY outside NYC.[7] In addition, the data reveals alarming racial disparities. Maternal mortality among Black populations continues to be higher than among White populations and other races across New York State: the 2013-2015 MMR for Black women was 54.6 per 100,000, compared to 15.3 per 100,000 live births for White women.[7] In 2015, New York City reported that over the years 2006-2010, Black city residents had a maternal mortality ratio of 56.3 and white city residents had a maternal mortality ratio of 4.7.[8] The US overall has consistently shown Black women to experience maternal mortality rates 3 to 4 times higher than white women.[9]

Key factors behind high maternal mortality ratios and persistent inequities include disparities in preconception health status and access to care, a high prevalence of obesity and other co-morbidities, and underlying structural and health-related factors associated with poverty, racism and its attendant stresses. Structural racism, which refers to the totality of ways in which societies foster racial and ethnic discrimination, often manifests itself through underinvestment in neighborhoods where people of color live, resulting in inadequate housing, access to services and healthy food, and other resources needed for a healthy life and, consequently, a healthy pregnancy. In addition, research has shown that stressors from racism, anti-immigrant policies and poverty can have a negative cumulative impact over time on women's health, which naturally includes the periods before, during and after pregnancy.[10,11]

New York State is also experiencing a changing population of women giving birth. The most recent New York State Maternal Mortality Report revealed that commonly identified risk factors now include obesity, pre-existing chronic health conditions (most commonly hypertension and cardiac conditions), and advanced maternal age (women 35 years of age and older).[12] The leading causes of maternal death in NYS for 2012-2013 were embolism (29%), hemorrhage (17.7%) and infection (14.5%).[12] Although this may signify a potential shift from the findings of the 2006-2008 report that showed the leading causes of pregnancy-related death to be hemorrhage (23%), hypertensive disorders (23%), and embolism (17%)[13], it should also be noted that the 2012-2013 case reviews found that hypertensive disorder

complications during labor and delivery were present in 30% of cases, and clearly remain a significant factor in mortality cases.

Given the persistently high maternal mortality rates and disparities, in June 2010, the New York Academy of Medicine (the Academy), NYS Department of Health (NYS DOH), NYC Department of Health and Mental Hygiene (NYC DOHMH), and other city and state organizations convened an interdisciplinary group of experts comprised of obstetricians, anesthesiologists, 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, women and families concerned with maternity care, and others in a day-long convening and "Call to Action" to address maternal mortality in NYS. 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 priority areas: 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. These can be found in the follow-up report prepared by the Academy at: https://www.nyam.org/publications/publication/maternal-mortality-in-new-york-a/.

This white paper presents important progress made in New York State in the priority areas identified in 2010 and sets a foundation for discussions on meeting new and ongoing challenges at the 2018 Maternal Mortality Summit. Critical to these successes and to meeting future challenges are the collaborative spirit and practices that have developed at all levels, from the team structure within labor and delivery, to the state-level partnerships comprised of health care professionals, policy makers, hospital administrators, and the NYS and NYC governments. Further stimulated by the State Public Health and Health Planning Council's Public Health Committee's decision to commit its focus and energies toward this issue,[14] a momentum towards meaningfully reducing maternal mortality has been rising in New York State.

CLINICAL CARE IN THE HOSPITAL

Maternal care within hospitals has evolved with system-wide initiatives, as well as initiatives undertaken at the facility level as individual hospitals have increasingly prioritized maternal health. Several initiatives have been implemented over the last

few years to expand provider training, disseminate clinical guidelines, facilitate expert consulting, and establish best practices for hospital-based maternal care. Informed by maternal mortality data and review processes, many of these efforts focus on the leading causes of maternal death: obstetric hemorrhage, severe hypertension in pregnancy, and venous thromboembolism (VTE).

While cesarean sections are not directly related to maternal mortality, failure to pay attention to vital signs and hemorrhage following cesarean sections has been implicated as causes of preventable maternal deaths.[17] Primary cesarean section rates have decreased in recent years from 20.3% of live births in NYS in 2008 to 19.0% in 2015; NYC rates decreased from 25.4% to 19.5%.[15,16] This has been facilitated through education and messaging to stakeholders, as well as revisions to Medicaid reimbursement requirements in 2013, which decreased payments to hospitals for unnecessary cesarean sections. Healthy People 2020 set the goal of reducing the cesarean section rate for low-risk mothers with no prior cesarean births at 23.9 percent.

New York Safe Motherhood Initiative (SMI)

In 2013, the American College of Obstetricians and Gynecologists (ACOG) District II, serving New York, re-launched the Safe Motherhood Initiative (SMI) in NYS, a voluntary program, that empowered 117 hospitals involved in the care of pregnant women to work together to prevent maternal death and delivery complications. Through the convening of a multidisciplinary group of clinical experts in obstetric hospitals across New York State, including ob-gyns, maternal and fetal medicine physicians, anesthesiologists, nurses, and nurse-midwives, the SMI examined the research and evidence-based best practices related to prevention of the leading causes of maternal death: obstetric hemorrhage, severe hypertension in pregnancy, and VTE. As a result, three maternal safety toolkits ("bundles") were developed, one for each of the three conditions, to provide care management protocols for birth facilities to use and adapt to their institutional needs.

Bundles are commonly used in healthcare quality improvement initiatives. They are comprised of evidence-based practices to be performed collectively and consistently within a medical system.[18] The SMI bundles provide care guidance, protocols, algorithms, checklists, and other tools to address the needs of any obstetric team managing the three identified high-risk conditions. NYS has a robust perinatal regionalization system which designates maternal and neonatal health care services based on their ability to care for high-risk mothers and newborns from

level one hospitals to Regional Perinatal Centers (RPCs), which can care for the most complex patients. The bundles can be implemented in any hospital facility, from level one to RPC, and tailored appropriately based on the resources and capacity of the institution. The bundles are aligned with the national ACOG Alliance for Innovation in Maternal Health (AIM) initiative and have been used successfully in other states and countries. They are available on the ACOG website and downloadable in the Safe Motherhood Initiative app: https://www.acog.org/About-ACOG/ACOG-Districts/District-II/SMI-App

Following the development of the bundles, the SMI used various methods to educate hospital teams on the bundles, including convening quarterly statewide meetings, webinars, grand rounds, and on-site implementation visits. The SMI identified a multidisciplinary, multispecialty team of hospital experts from the SMI clinical workgroup to provide assistance to facilities needing additional help. The multidisciplinary team met regularly and worked with the participating hospitals across the state to facilitate implementation of the bundles to ensure that stakeholders on the ground, delivering care to patients every day, were engaged. The team discussed the bundles with the obstetric team involved in quality improvement, and often the CEO, to provide education and training. This sometimes incorporated a tour of the labor and delivery unit, including advice and expertise from a hands-on, collegial perspective. Clinical champions and their consistent participation were also critical to ensuring clinical ownership of the initiative. The ongoing convenings and outreach were partly supported through funding assistance by Merck for Mothers, which has since ended; nevertheless, engagement and implementation of the bundles continues. Hospitals report that the SMI directly impacted their ability to improve patient care and provided them the tools to do so: http://mail.ny.acog.org/website/SMI/SMIFINALREPORT10192017.pdf

The SMI continues to ensure the bundles for hemorrhage, VTE, and severe hypertension in pregnancy are hardwired into hospital practice. The SMI is currently partaking in a statewide collaboration with the NYS DOH, Greater New York Hospital Association (GNYHA) and the Healthcare Association of New York State (HANYS), to take a detailed look at the implementation of the hemorrhage bundle through the statewide Obstetric Hemorrhage Project. Once a bundle has been hardwired into practice sufficiently, the SMI can then focus on the next bundle.

Stakeholders engaged in the SMI report that multidisciplinary clinical ownership of the SMI initiative was key for engagement and implementation of the bundles and will serve as the foundation to continue to improve and create sustainable change.

NYS Perinatal Quality Collaborative

The NYS Perinatal Quality Collaborative (NYSPQC) is a NYS DOH Division of Family Health (DFH) Initiative to "provide the best and safest care for women and infants in NYS by collaborating with birthing hospitals, perinatal care providers, and other key stakeholders to prevent and minimize harm through the translation of evidence-based guidelines to clinical practice." The NYSPQC has worked to provide guidance and tools to improve maternal healthcare, as well as support the Maternal Mortality Review process.

From 2010 to 2014, NYSPQC implemented its Scheduled Delivery Project, with the goal of reducing scheduled deliveries without a medical indication between 36 and 39 weeks gestation. NYSPQC worked with RPCs, as well as RPC affiliate hospitals, in collaboration with the New York State Partnership for Patients (NYSPFP), a CMS-funded hospital engagement network initiated by HANYS and GNYHA. Between June 2012 and November 2014, the 100 participating birthing hospitals reported a 94% improvement in the percent of scheduled deliveries without a medical indication between 36 0/7 and 38 6/7 weeks' gestation, including a 91% reduction in inductions and a 96% reduction in C-sections [19].

In April 2014, the NYSPQC Obstetrical Improvement Project expanded beyond scheduled deliveries to include the focus areas of maternal hemorrhage and hypertension, leading causes of maternal morbidity and mortality in New York State. The maternal hemorrhage and hypertension portion of the project sought to advance improvements in identifying and treating maternal hemorrhage and preeclampsia, eclampsia, and severe hypertension. The NYSPQC provided education on, and highlighted effective strategies for, integrating patient safety practices associated with early identification of maternal hemorrhage/preeclampsia, eclampsia, and severe hypertension into existing infrastructure for care delivery. Seventy-one NYS birthing facilities from all levels participated in this initiative, which was also led in partnership with the NYSPFP. Between April 2014 and September 2015, participating hospitals reported: documentation of maternal hemorrhage risk assessment increased by 171%; and documentation of patient education on the signs and symptoms of post-partum pre-eclampsia increased by 558%.

The NYSPQC is currently working with ACOG District II, HANYS and the GNYHA to conduct a quality improvement initiative to address hemorrhage in the hospital setting.

Every Mother Initiative

In 2013, the NYS DOH received a grant award from the Association of Maternal and Child Health Programs (AMCHP) as part of the national Every Mother Initiative. This initiative helped States address maternal health issues through strengthening and enhancing State maternal mortality surveillance systems, and using the data from these systems to take action in developing and implementing population-based strategies and policy change to prevent maternal death and improve maternal health outcomes. The NYS team utilized the award to launch a campaign to educate health care providers and patients on hypertensive disorders in pregnancy.

As a part of this initiative, NYS DOH and external clinical experts worked on the development of user-friendly point-of-care tools. Tools include: a poster that highlights the proper techniques for blood pressure measurement; a Preeclampsia Early Recognition Tool (adapted from CMQCC); and an algorithm for the treatment of pre-eclampsia and eclampsia in the Emergency Department (adapted from CMQCC). Finally, the team leading the initiative worked with the Preeclampsia Foundation to secure patient education materials on the signs and symptoms of preeclampsia in both hard copy and electronically.

Regional Perinatal Centers

As noted earlier, New York has long required all hospital and birthing centers to participate in the regional perinatal system. Regional Perinatal Centers (RPCs) play a significant role in improving neonatal outcomes by assuring that women deliver at the most appropriate level of care. The RPC system assures that lower designated birthing facilities receive support including quality improvement and professional education to the RPCs' affiliate hospitals.

As successful as the RPC system is, the same improvements in neonatal outcomes have not been realized in maternal outcomes. One reason for this is managing maternal health begins prior to conception. A life-course approach is necessary to understand and manage risk factors that contribute to pregnancy complications. With some notable exceptions, much of the historical work of MCH places an emphasis on infant and child health, with a lack of focus on the mother. A balanced approach that prioritizes both the health of the mother and the health of her baby should be advocated.

NYS DOH has convened a multidisciplinary Perinatal Standards Expert Panel to review and update the standards and requirements for hospital level designations,

as well as birthing centers and midwifery-led birthing centers for the first time. These efforts will assure that an increased emphasis on maternal health is a priority for future designation of perinatal care services within hospitals. This is a multi-year process which started with the convening of a statewide Expert Panel in the Fall of 2017 and is expected to make its recommendations to the NYS DOH in the Spring of 2018.

MATERNAL MORTALITY REVIEW

The New York State Maternal Mortality Review Committee is a multidisciplinary body comprised of emergency physicians, family practitioners, nurse-midwives, obstetricians, maternal and fetal medicine specialists, coroners, nurses, anesthesiologists, and a dietitian, as well as representatives from HANYS, GNYHA and ACOG that was implemented in 2010. New York has a unique statewide reporting system, called the New York Patient Occurrence Reporting and Tracking System (NYPORTS) that tracks 31 different adverse events that are reportable to the system, including maternal death. This is the primary source of cases identified for the Maternal Mortality Review Committee to review.

NYS DOH presents population-based aggregate data to the Committee which highlights risk factors, causes of death, trends and issues. These findings are disseminated among the clinical community to develop actionable strategies for prevention. Every two years, a comprehensive report on maternal mortality is released.

The Committee also makes recommendations to NYS DOH for areas of focus. For example, the Committee recommended that hypertensive disorders of pregnancy be addressed as this was a leading cause of maternal mortality. A subcommittee of the Maternal Mortality Review Committee developed a Hypertensive Disorders of Pregnancy clinical guidance document, and a narrated PowerPoint presentation, which was presented as a live event, with providers having access to the recorded presentation with continuing education credits available. The guidance document was distributed to all hospitals and is posted on the NYS DOH website.

In January 2018, as part of the recommendations of the Council on Women and Girls, Governor Cuomo announced a proposal to create a State Maternal Mortality Review Board to perform a committee review of each maternal death. This multidisciplinary diverse group of clinical experts will conduct a confidential review of each maternal death, determine if the death was preventable, and identify

opportunities to prevent future deaths across New York State. NYS DOH will work with ACOG and other partners to disseminate key findings and strategies for prevention with the provider community and use the issues identified through the process to inform development of new education and quality improvement efforts. In addition, the review process has always been used to identify possible topics for the NYSPQC to implement system change within healthcare facilities. The Governor's proposal is incorporated in the New York State Executive budget and must be passed by the Legislature before it is enacted.

Since 2000, the New York City Department of Health and Mental Hygiene has produced five-year maternal associated mortality reports, and, in December 2017, formally launched a city-specific maternal mortality and morbidity committee (M3RC) composed of a multi-disciplinary expert panel, including a wide range of health care providers from numerous facilities around the city, and representatives from community based organizations, the doula community, researchers, and first responders. The Committee will holistically review every maternal death in NYC, using the Center of Disease Control and Prevention's (CDC) Maternal Mortality Review Information App (MMRIA), which facilitates the collection of maternal death data and builds a database for national, standardized maternal death reporting.

The M3RC uses an equity lens and takes into account factors across the breadth of a woman's life course to learn lessons from these tragedies and make recommendations to prevent future deaths at the health system, community, and broader social policy levels. The M3RC is also piloting the integration of Severe Maternal Morbidity into the mortality review and reporting process, and developing a toolkit for integrating SMM reviews into quality improvement committees in three NYC hospitals. This is being done with the support of Merck for Mothers funds through the Fund for Public Health in collaboration with NYC DOHMH.

A Steering Committee will guide the M3RC, communicate M3RC findings and recommendations to key stakeholders and constituencies, and advocate for their support to ensure recommendations are effectively implemented. Steering Committee members include community leaders and national and international experts who have been committed to the reduction of maternal mortality and morbidity from the advocacy, research, legal, ethical, and medical perspectives.

The NYC M3RC is piloting innovations beyond the traditional model of a mortality review committee by 1) contributing to the CDC's national level data standardization and collection coalition (MMRIA); 2) including representatives outside of the clinical setting; 3) bringing community voices and an equity lens to the work; 4) adapting

socio-spatial frameworks using neighborhood level data; 5) supplementing maternal death data with SMM data; and 6) adding a Steering Committee to amplify support for M3RC recommendations.

The New York State and City Review committees will collaborate with some shared committee members and formal agreements between the State and City to support each other's efforts. It is the first State and City collaboration in the US and could potentially be a national model. While NYS has not adopted MMRIA, the CDC's new maternal mortality review data application, the NYS reporting system includes data elements identical to those of MMRIA and its data can easily be used in comparative analyses.

Severe Maternal Morbidity Review

The NYC DOHMH, inspired by the work of the Centers for Disease Control and Prevention (CDC), and with funding from Merck for Mothers through the Fund for the Public Health in New York, designed the first citywide severe maternal morbidity (SMM) surveillance system in the nation, using the algorithm developed by the CDC to look at severe, life threatening complications during childbirth. In 2016, the DOHMH released the "*Severe Maternal Morbidity, New York City, 2008–2012*" report[20]. The data showed a 28 percent increase in the incidence of severe maternal morbidity during the 2008–2012 period, from 197 per 10,000 deliveries in 2008 to 253 per 10,000 deliveries in 2012. In December 2017, NYC DOHMH received additional funding from Merck for Mothers to integrate severe maternal morbidity into its Maternal Mortality and Morbidity Review Committee, and to work with the quality improvement committees in select hospitals to bring their lessons learned from their own internal SMM reviews to the M3RC to further inform citywide recommendations to improve maternal health outcomes overall. NYCDOHMH will also use data to engage, educate and support communities in neighborhoods that bear a disproportionate share of SMM to address quality of care, chronic disease, and social conditions that increase SMM risk.

Much of the conversation related to maternal health has focused on tracking, reviewing, and learning from maternal deaths. However, maternal morbidity has been steadily increasing as well and is an outsized burden to women's health. Expanding reviews to incorporate severe maternal morbidity has been challenging, especially considering the relatively large numbers and the lack of a standard definition and measures of severe maternal morbidity. NYS has, however, implemented an expanded measure of severe maternal morbidity that includes collected data on number of pregnancies and deliveries that end up in the ICU[21].

Severe Maternal Morbidity reviews can be a rich source of information. The number of cases can be a challenge, but can be managed with sampling approaches while still giving the benefits of larger numbers of cases in aiding the identification of trends and associations. A further subset of cases could also include qualitative data collection, including interviews of the woman who experienced severe maternal morbidity (much in the way that Fetal and Infant Mortality Reviews often incorporate maternal interviews).

PREVENTION AND PRE-CONCEPTION / INTERCONCEPTION CARE

The changing population of women with their associated risk factors who are giving birth highlights the importance of addressing maternal mortality through a prevention lens that incorporates better understanding and management of chronic diseases for women of child-bearing age. This means prioritizing pre-conception and interconception care as part of primary care as an effective maternal health strategy. The objectives are to raise awareness of pregnancy risk factors among all health care providers and patients of reproductive age, expand access to all family planning resources and methods to assure that all pregnancies are planned, and improve trainings and tools for women and providers to empower and prepare women for pregnancy.

NYS Public Health and Planning Council (PHHPC)

In 2013, the NYS Public Health and Planning Council (PHHPC), which has led the development and oversight of the *Prevention Agenda 2013-2018* – NYS's blueprint for state and local action to improve the health of New Yorkers – decided to focus its attention on the problem of maternal mortality and the magnitude of racial and ethnic disparities. Based on presentations of the work of the NYS DOH and partners on significant advances in attention to hospital care and data reporting, the PHHPC public health committee set its focus on the, as yet, relatively underemphasized strengthening of "pre-hospital" approaches towards prevention of maternal mortality, specifically:

- Integrating preconception and interconception care into routine outpatient care for all women of reproductive age.
- Assessing and addressing pregnancy planning and prevention of unintended pregnancy among women in general and especially those with serious chronic conditions and risk factors

- Instituting systems and protocols for early identification and management of high-risk pregnancies.

The PHHPC invited primary care and specialty providers of care in the community and in hospitals to discuss their approaches to integrating preconception and interconception care into routine ambulatory care for all women of reproductive age. Based on the work of the NYS DOH DFH, the CDC-led Select Panel on Preconception Care, the subsequent action plan of the National Initiative on Preconception Health and Health Care and these discussions with practitioners, the Council supported efforts to encourage primary care providers to adopt and implement universal screening questions that ask patients if they intend to become pregnant in the next year, followed by further family planning counseling that assesses contraceptive use, health promotion practices, and prenatal care.

One of the key priorities for the PHHPC has been assuring that attention to women's health and preventing maternal mortality are embedded in State health care reforms. New York's large-scale efforts to restructure Medicaid-funded health care services delivery offers an opportunity to integrate various aspects of women's health care that largely remain disconnected. Between 2013 and 2016, New York's uninsured rate dropped from 10 to 5 percent and health insurance enrollment for women under 60 years of age has increased due to New York's robust health insurance market. This has contributed to increased access to family planning services and opportunities for better care coordination. For instance, the NYS DOH Health Home Care Management program that serves Medicaid members with chronic conditions (mental Illness, HIV/AIDS, or two or more other chronic conditions) has developed training modules for Health Home care managers to understand and integrate preconception/interconception health, as well as care for women who might be pregnant, into their care management work serving all women of reproductive age. These training modules highlight the need for care managers to discuss preconception/interconception health within the context of the women's other health-related issues. These modules present an opportunity to expand the net of community providers educating, linking, and referring women regarding preconception/interconception health.

Additionally, some DSRIP Performing Provider Systems, particularly in Western NY, have chosen women's health as a priority domain area to address and are partnering with community health worker and home-visiting programs to better serve women and families and advance maternal and child health goals. Looking ahead to implementation of value-based payment (VBP) strategies beyond DSRIP,

opportunities for incentivizing coordinated comprehensive women's health care will emerge and should be met with workable effective solutions.

The New York Partnership for Maternal Health (NYPMH)

NYPMH was established by the NYS DOH in 2016 to promote equity in maternal health outcomes within at-risk populations, to reduce ethnic and economic disparities, and prevent maternal mortality and morbidity in NYS. NYPMH is a partnership of the NYS DOH, NYC DOHMH, HANYS, GNYHA, ACOG, the Academy, and other medical partners including primary care providers, emergency room physicians, nurses, and midwives. Discussions have begun to add other important stakeholders like mental health professionals and health plans to the group in 2018.

As a follow-up to the PHHPC's attention to preconception and inter-conception care issues, the NYS Commissioner of Health, Dr. Howard Zucker, in partnership with NYPMH, sent a "Dear Colleague" letter asking all clinicians in New York State to initiate conversations with all female patients of reproductive age with one essential question, "*Would you like to become pregnant within the next year?"* and to facilitate appropriate referral to follow-up family planning services. In collaboration with NYPMH partners, NYS DOH has provided resources to support clinical practices in these efforts through the "Before and Beyond" online continuing education modules (www.beforeandbeyond.org).

NYS DOH, ACOG, NYC DOHMH and other partners have also increased focus on the importance of preconception and interconception care through several other initiatives. In addition to the previously mentioned continuing education modules, initiatives also include additional training for providers on family planning and contraceptive counseling; health promotion and life skills programming for adolescents; and preconception awareness and messaging at Federally Qualified Health Centers. Critical to these efforts is educating patients of the challenges that chronic conditions can bring to a pregnancy.

INITIATIVES TO ADDRESS INEQUITY AND RACIAL DISPARITIES

Despite targeted programs discussed above, disparities, especially racial disparities, in maternal mortality and morbidity persist. Addressing structural issues in the health care system that may lead to poorer care for women of color continues to be important, and there is renewed attention to approaching health through a racial

justice framework and empowering women of color and disadvantaged backgrounds to speak out on inequity in both the health care system and broader society.

NYS DOH has made an ongoing commitment of including community voices through focus groups, town halls, and listening forums in distressed communities, including rural areas. In addition, NYS DOH is working to develop a health equity lens to its work which will include evaluating its grant making and partnership contracts with community-based organizations to ensure that there is a proactive focus on reducing disparities with diverse partnerships and evidence-based or promising practices.

NYC DOHMH has taken on a sexual and reproductive justice framework in its own maternal health efforts, building partnerships with community-based organizations and local birth justice champions: https://www1.nyc.gov/site/doh/health/health-topics/sexual-reproductive-justice-nyc.page. Health + Hospitals' Performing Provider System (PPS) One City Health has a major focus on working with the community in developing care management strategies. Home visiting programs for mothers and babies, including Nurse-Family Partnership (NFP) and Newborn Home Visiting Program (NHVP), will be expanded to add hundreds of more families. NYC has also launched an initiative to screen and treat all pregnant women and new mothers for maternal depression through NYC Health + Hospitals and partnering agencies. At the neighborhood level, NYC DOHMH has been opening Neighborhood Health Action Centers (NHACs) in particular disadvantaged neighborhoods in NYC to bring services to under-resourced communities. NHACs include services for new parents as well as services that promote overall health and address socioeconomic needs. One of the major objectives of the Neighborhood Health Action Centers are to go beyond direct health needs and address social determinants of health such as education, unemployment, and housing.

The NYC Birth Equity Initiative is a new initiative from NYC DOHMH aimed at reducing racial and ethnic disparities in infant mortality, maternal mortality, and severe maternal morbidity. The initiative has three core areas of work: 1) improving women's health before and between pregnancies, 2) promoting safe sleep practices and addressing housing quality issues that may act as barriers to safe sleep, and 3) reducing the harmful effects of toxic stress and trauma. First convened in 2015 and now representing over 50 community-based organizations and advocacy groups, the Sexual and Reproductive Justice Community Engagement Group (SRJ CEG) meets monthly with the NYC Health Department to jointly plan and implement activities to address inequities in sexual and reproductive health and to ensure ongoing community input on the development of public awareness and advocacy

campaigns. Based on feedback obtained through community gatherings across the city, the SRJ CEG voted to select a campaign topic for the remaining three years of funding: "Birth Justice: Know Your Rights During Pregnancy, Birth and the Immediate Postpartum Period." The campaign consists of three main components: 1) supporting community members and providers to advocate for respectful care at birth; 2) increasing application of best practices for respectful care at birth within health care facilities; and 3) changing the environment within DOHMH, SRJ CEG networks, providers and communities by mobilizing stakeholders and changing institutional policies and practices to support the use of the reproductive justice and community-led initiatives and accountability.

ACOG has enjoyed a productive relationship for several years with the Northern Manhattan Perinatal Partnership (NMPP), a community-based organization in Harlem. One example of their collaborative efforts was raising awareness of maternal health issues via patient focus groups on VTE. These discussions have allowed for a better understanding of patient perceptions of maternal health issues, their relationships with ob-gyns and other physicians, and their communication with physicians about potential health risks. NMPP also operates "Maternal Intentions", a Merck for Mothers-funded education, support, and advocacy program for Harlem resident pregnant and postpartum women who have been diagnosed with a chronic condition and have had complications in a prior pregnancy.

CONCLUSION

Although the alarmingly high rates of women dying in childbirth are increasingly being recognized across our society, our ability to identify, understand and, meaningfully address this crisis remains less than optimal. However, the renewed and robust collaboration brought forth to address this issue in New York has promoted unprecedented leadership, communication, shared resources and exchange of ideas and expertise across clinical and public health practitioners, researchers, and policy makers. Enhanced surveillance and deeper examinations of both fatal and severely morbid cases will give us a better picture of where to focus clinical practice reform, health care system integration, community-based support, and patient advocacy efforts to improve our effectiveness.

In the age of health care reform, important next steps include ensuring access to health care across the life cycle with an emphasis on preventing and managing chronic health conditions. Women's health must also be integrated across systems which are often fragmented and lack a holistic approach. However, we must also go beyond health care to address structural factors and social determinants of health

that perpetuate chronic cumulative stress. Efforts that address these structural factors must be incorporated into initiatives to improve maternal health if we are to improve maternal health for all women and families in New York.

REFERENCES

1. CDC. Pregnancy Mortality Surveillance System. https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html. Published November 9, 2017. Accessed November 17, 2017.
2. Hill K, Thomas K, AbouZahr C, et al. Estimates of maternal mortality worldwide between 1990 and 2005: an assessment of available data. *The Lancet*. 2007;370(9595):1311-1319. doi:10.1016/S0140-6736(07)61572-4
3. Hogan MC, Foreman KJ, Naghavi M, et al. Maternal mortality for 181 countries, 1980–2008: a systematic analysis of progress towards Millennium Development Goal 5. *The Lancet*. 2010;375(9726):1609-1623. doi:10.1016/S0140-6736(10)60518-1
4. U.S. Department of Health and Human Services. *Healthy People 2010: With Understanding and Improving Health and Objectives for Improving Health*. Washington D. C.: U.S. Government Printing Office; 2000.
5. Centers for Disease Control and Prevention. *Deaths: Final Data for 2006*. National Vital Statistics System (NVSS); 2009. https://www-cdc-gov.ezproxy.cul.columbia.edu/nchs/data/nvsr/nvsr57/nvsr57_14.pdf.
6. Kassebaum NJ, Bertozzi-Villa A, Coggeshall 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 Lond Engl*. 2014;384(9947):980-1004. doi:10.1016/S0140-6736(14)60696-6
7. Kacica M, Lazariu V. *New York State Maternal Mortality Review: Update*. New York: Division of Family Health, New York State Department of Health; 2017. https://www.acog.org/-/media/Districts/District-II/Public/SMI/v2/SMIReview072017.pdf?dmc=1&ts=20180115T1728484479.
8. NYC Department of Health. *Pregnancy-Associated Mortality: New York City, 2006-2010*. NYC: New York City Department of Health and Mental Hygiene Bureau of Maternal, Infant and Reproductive Health; 2015. https://www1.nyc.gov/assets/doh/downloads/pdf/ms/pregnancy-associated-mortality-report.pdf.
9. Creanga AA, Syverson C, Seed K, Callaghan WM. Pregnancy-Related Mortality in the United States, 2011-2013. *Obstet Gynecol*. 2017;130(2):366-373. doi:10.1097/AOG.0000000000002114

10. Viruell-Fuentes EA, Miranda PY, Abdulrahim S. More than culture: structural racism, intersectionality theory, and immigrant health. *Soc Sci Med 1982*. 2012;75(12):2099-2106. doi:10.1016/j.socscimed.2011.12.037

11. Wallace ME, Mendola P, Liu D, Grantz KL. Joint Effects of Structural Racism and Income Inequality on Small-for-Gestational-Age Birth. *Am J Public Health*. 2015;105(8):1681-1688. doi:10.2105/AJPH.2015.302613

12. Lazarieu V, Kacica M. *New York State Maternal Mortality Review Report 2012-2013*. New York: New York State Department of Health; 2017. https://www.health.ny.gov/community/adults/women/docs/maternal_mortality_review_2012-2013.pdf.

13. Lazariu V, Kacica M. *New York State Maternal Mortality Review Report 2006-2008*. New York: New York State Department of Health; 2016. https://www.health.ny.gov/community/adults/women/docs/maternal_mortality_review_2006-2008.pdf.

14. Boufford JI. NYS Efforts to Reduce Maternal Mortality. Presented at the: ACOG: Safe Motherhood Initiative Quarterly Meeting; January 22, 2016. https://www.acog.org/-/media/Districts/District-II/Public/SMI/v2/NYSEffortstoReduceMatMortalityBoufford.pdf?dmc=1&ts=20180120T0254120266.

15. NYS Department of Health. *Vital Statistics Live Births Method of Delivery and Resident County: Beginning 2008*. New York; 2017. https://data.ny.gov/Health/Vital-Statistics-Live-Births-Method-of-Delivery-an/ms2r-yf4h/data.

16. NYS Department of Health. Table 14: Live Births by Method of Delivery and Resident County New York State - 2015. https://www.health.ny.gov/statistics/vital_statistics/2015/table14.htm. Published 2017. Accessed December 6, 2017.

17. Clark SL, Belfort MA, Dildy GA, Herbst MA, Meyers JA, Hankins GD. Maternal death in the 21st century: causes, prevention, and relationship to cesarean delivery. *Am J Obstet Gynecol*. 2008;199(1):36.e1-5; discussion 91-92. e7-11. doi:10.1016/j.ajog.2008.03.007

18. Institute for Healthcare Improvement: What Is a Bundle? http://www.ihi.org:80/resources/Pages/ImprovementStories/WhatIsaBundle.aspx. Accessed January 24, 2018.

19. Kacica M, Lawless K. NYSPQC and NYS IM-CoIIN: Collaborative Approaches to Improving Perinatal Health. In: New York: New York State Department of Health.

NYS Perinatal Quality Collaborative; 2015. http://www.albany.edu/sph/cphce/nyspqcpublic/presentation_march232015.pdf.

20. New York City Department of Health and Mental Hygiene. *Severe Maternal Morbidity in New York City, 2008–2012*. New York, NY

21. Lazariu V, Nguyen T, McNutt L–A, Jeffrey J, Kacica M. Severe maternal morbidity: A population–based study of an expanded measure and associated factors. *PLOS ONE*. 2017;12(8):e0182343. doi:10.1371/journal.pone.0182343

22. Institute for Healthcare Improvement. *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement.* Boston: Institute for Healthcare Improvement; 2003. www.IHI.org.