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JOINT SENATE AND HOUSE DEMOCRATIC POLICY COMMITTEE

Policy Hearing:
Innovative Responses to Maternal Mortality

Wednesday, August 12, 2020 at 2:00 p.m.
Virtual Zoom Meeting

AGENDA

2:00 **Call to Order & Opening Remarks**
Senator Lisa M. Boscola, Chair
Senator Judy Schwank, 11th Senatorial District
Representative Morgan Cephas, 192nd Legislative District
Representative Mary Jo Daley, 148th Legislative District

2:15 **Aasta Mehta, MD, MPP**, Medical Officer of Women's Health, Philadelphia Department of Public Health, Division of Maternal, Child and Family Health
Robert Ferguson, MPH, Chief Policy Officer, Jewish Healthcare Foundation
Dr. Mark Woodland, Chair & Clinical Professor OBGYN, Reading Hospital
La'Tasha D. Mayes, President & CEO, New Voices for Reproductive Justice

2:45 **Nicole Chaney, CNM**, Midwife, Reading Birth Center
Marianne Fray, CEO, Maternity Care Coalition
Emily C. McGahey, DM, MSN, CNM , Associate Clinical Director of The Midwife Center for Birth and Women's Health, State Legislative Co-Chair, PA-American College of Nurse Midwives

3:15 **Sindhu Srinivas, MD, MSCE**, Director of Obstetrical Services, Vice Chair for Quality and Safety Department OBGYN, Co-Founder Heart Safe Motherhood Program, Penn Medicine
Zahada Gillette-Pierce, Trainer, AccessMatters
Kimberly Seals Allers, Maternal and Infant Health Strategist, Founder, Irth app.

3:45 **Closing Remarks**

Philadelphia Department of Public Health
Aasta D. Mehta, MD, MPP
Medical Officer of Women's Health—Division of Maternal, Child, and Family Health
Co-Chair—Philadelphia Maternal Mortality Review Committee
Member—Pennsylvania Maternal Mortality Review Committee

Provided for Pennsylvania Joint Senate and House Democratic Policy Committee Hearing
August 12, 2020
Innovative Responses to Maternal Mortality

Good afternoon, Chair Boscola, Chair Sturla, and the Senate and House Democratic Policy Committee. I am Dr. Aasta Mehta, Medical Officer of Women's Health for the Philadelphia Department of Public Health and a practicing OB/GYN in Philadelphia. Thank you for the opportunity to provide testimony for the topic of Innovative Responses to Maternal Mortality.

Maternal mortality has become an important measure of human and social development. While the absolute number of deaths related to pregnancy is small—especially when compared to deaths resulting from cancer or heart disease—it is an important one to study and understand. A nation's rate of maternal mortality is often used to measure overall effectiveness of the health care delivery system through assessment of general medical care. It is necessary to keep this in mind when crises such as the COVID-19 pandemic manifest.

In the United States, the number of women and birthing people who die while pregnant or within 1 year of the end of a pregnancy is significantly higher than other developed countries. Philadelphia has been a leader in addressing maternal mortality by creating the nation's first non-state-based Maternal Mortality Review Committee (MMRC) in 2010. The Philadelphia MMRC gathers multidisciplinary stakeholders to review all pregnancy associated deaths. A pregnancy-associated death is defined as a death which occurs during or within one year of the end of pregnancy, regardless of cause. A pregnancy-related death is defined as a death which occurs during the same time period from any cause related or aggravated by the pregnancy or its management. The multidisciplinary review of each case helps identify the systematic shortfalls that women and birthing people face and gaps in community resources.

The Philadelphia MMRC has reviewed approximately 110 pregnancy associated deaths from 2013-2018. Philadelphia accounts for approximately 20% of the Commonwealth's pregnancy associated mortality. The two leading contributors include pregnancy related causes and drug overdose. Pregnancy related causes account for 24% of deaths, bringing Philadelphia's rate of pregnancy-related deaths to 20 per 100,000 live births. This is slightly higher than the national average of 17.4/100,000 live-births. Forty-six percent of the

pregnancy-related deaths were due to cardiomyopathies or other cardiovascular conditions and 23% to embolisms. Importantly, significant racial disparities exist among pregnancy-related deaths in Philadelphia—African American women and birthing people are 4 times more likely to die from pregnancy related causes.

Drug related deaths, which have risen dramatically in Philadelphia, have also increased greatly among the pregnant and postpartum population. Deaths due to accidental drug overdoses increased from 25% of Philadelphia's pregnancy-associated deaths (from 2010 to 2016) to 39% (from 2017 to 2018). Mental and behavioral health issues played an important role among the pregnancy-associated deaths. Forty-five percent of the women and birthing people had a history of mental health issues and 58% had a history of a substance use disorder. Social determinants of health including systemic racism, and lack of access to safe and adequate housing, transportation, and social support contribute significantly to higher rates of pregnancy associated mortality.

The emergence of COVID-19 is the perfect example of how the measure of maternal mortality gauges the overall effectiveness of the health care system. The pandemic has quickly altered the way in which health care is delivered and in turn has shone a bright light on gaps in the health care system. Data released by the University of Pennsylvania revealed significant racial disparities in the pregnant population—Black and Hispanic people were 5 times more likely to contract COVID-19 than White people from April to June of this year. City-wide data is not yet available however the Philadelphia Department of Public Health, in collaboration with CDC, has begun COVID and pregnancy surveillance to better understand the local impact of COVID on maternal and infant outcomes.

Long term effects of how the pandemic will affect maternal morbidity and mortality remain to be seen. Systemic issues that existed prior to the pandemic still exist and in some cases are enhanced. Breaking down silos and increasing collaboration across health systems and sectors is necessary to tackle the complex contributors to maternal morbidity and mortality. One such collaboration has been instrumental amidst COVID-19. For the past decade, OB leaders from across the Philadelphia, in partnership with the Philadelphia Department of Public Health, have worked together to standardize the way obstetric care is delivered in the City. As a result, when it came time to implement policies amidst the constantly changing landscape of COVID-19, the group came to a consensus quickly on telehealth protocols, screening and visitation guidelines, PPE use, and other hospital logistics. As a result, pregnant people in Philadelphia, in the midst of the global pandemic, continued to receive safe, standardized, evidence-based care, regardless of which institution they delivered.

Organizing Voices for Action, otherwise known as the OVA, is coalition formed specifically to address maternal mortality in Philadelphia. The OVA is comprised of a

multidisciplinary group of stakeholders including women and birthing people, governmental agencies, health care system professionals, insurance providers, maternal support organizations, policy advocates, social determinants of health professionals, and support networks. The OVA intentionally works across sectors to carry out recommendations made from the Philadelphia MMRC. Initiatives already off the ground include: (1) Initiating a text-based postpartum hypertension surveillance program in all delivery hospitals; (2) Developing and disseminating an implicit bias training specifically geared towards maternal health providers in a clinical setting to providers at all delivery hospitals; (3) Increasing access to doula services for prenatal, labor and postpartum support; (4) Educating MCH partners on the impact of unmet legal needs on maternal health; and (5) Increasing access to family planning for women with substance use disorder.

In order to meaningfully reduce maternal mortality, it is necessary to work collectively, think outside the box and develop innovative solutions. Significant racial disparities in maternal health outcomes demand attention to the underlying issues, which should be accomplished by addressing implicit bias and systemic racism. Devoting resources to address social determinants of health and integrating community voices into policies and programs is key to improving the maternal health outcomes for the women of Philadelphia and across Pennsylvania.

Thank you very much for the opportunity to testify.

Respectfully submitted,

Aasta Mehta, MD, MPP
Women's Health Officer
Philadelphia Department of Public Health

NEW VOICES
FOR REPRODUCTIVE JUSTICE

Pennsylvania Joint Democratic Senate & House Policy Committee Hearing on "Innovative Responses to Maternal Mortality" - August 12, 2020
Testimony Presented by La'Tasha D. Mayes, President & CEO

Good Afternoon Chair Boscola, Senator Schwank, Representative Cephas and Representative Daley,

My name is La'Tasha D. Mayes and I am the President & CEO of New Voices for Reproductive Justice which is a Pennsylvania-based organization dedicated to the health and well-being of Black women, femmes, girls and folx. I am proud to serve on the Pennsylvania Governor's Advisory Commission on African American Affairs and that New Voices is a movement partner with Black Mamas Matter Alliance. New Voices has served over 150,000 Black women, femmes, girls, folx, women of color and LGBTQ+ people of color over the last sixteen (16) years. Our work for Reproductive Justice as a movement, framework and practice is based in the belief that we all have the Human Right to control our bodies, sexuality, gender, work, reproduction and ability to form our families. The fundamental element of Reproductive Justice is the autonomous decision to decide if/when to have children, if/when not to have children and the how to parent your children free from violence and with social supports. My testimony today outlines current work, challenges and opportunities when we take a Reproductive Justice approach to boldly reduce Black maternal mortality and indomitably pursue Black maternal health.

On May 6 of this year, Black mothers, pregnant folx, birth workers, doulas, activists and Reproductive Justice leaders would have converged in our State Capitol for Black Maternal Health Advocacy Day. But for a global COVID-19 pandemic, New Voices, Maternal Wellness Village and In Our Own Voice: National Black Women's Reproductive Justice Agenda were mobilizing hundreds of Black maternal health supporters from across the state to tell their stories of pregnancy, childbirth, postpartum care and experiences with maternal mortality, educate policymakers about Black maternal health and to inspire legislative action on Rep. Cephas' Maternal Health legislative package.

H.B. 2107 adds severe maternal morbidity to the list of reportable events within the Pennsylvania Department of Health, H.B. 2108 expands Medicaid coverage for pregnancy-related and postpartum medical assistance, H.B. 2109 extends Medicaid coverage to doula services and create a Doula Advisory Board and H.B. 2110 requires training to address implicit bias and cultural competency that impacts care and quality of patients of color, including women of color during pregnancy and childbirth. While these bills will serve to reduce maternal mortality for all women and birthing individuals, these bills will specifically decrease the maternal mortality of Black mothers and birthing individuals caused by systemic anti-Black racism and gender-based violence in healthcare.

The Pennsylvania maternal mortality rate was 11.4 deaths per 100,000 live births from 2012 to 2016 and for Black women, the rate was 27.2 deaths per 100,000 live births. Black women and birthing individuals were 2.4 times more likely to die due to pregnancy complications. Black women die at 3-4 times the rate of white women in this nation. If we are going to have a reckoning on race in America, then this reckoning must dismantle that white supremacy and institutional racism that kills Black women and folx who want to have children.

The challenges we face as a Commonwealth are monumental to reduce Black maternal mortality:

- Social stigma and stereotypes around Black women and folx having children;
- Inadequate access to comprehensive, affordable and accessible maternal/healthcare;
- An inherently racist medical and hospital-based system that experimented on the bodies of Black women to create the fields of gynecology and obstetrics;
- Racist doctors and medical providers who do not listen to Black women when we talk about our pain;
- Intersectional racism and sexism in society at large that produces the "weathering effect" or erosion of a person's health by constant stress;
- Social determinants of health or the conditions and environments in which people are born, live, learn, work, play, worship and age that impact a variety of health, functioning, and quality of life outcomes and risks;
- The marginalization of midwives, doulas and birth workers – truly the vilification of the Black midwife tradition through licensure and credentialing as well as exclusion from insurance reimbursement;
- The prohibitive cost of out-of-hospital births in general and especially due to the global COVID-19 pandemic;
- A Medicaid program that excludes or limits healthcare services when 43% of non-elderly Black people rely on Medicaid for health insurance coverage as we outlined in our Reproductive Justice Amicus Brief in the *Allegheny Reproductive Health Center et al v. Pennsylvania Department of Human Services* case.

In spite of all this, Black women and folx desire to bring our children into this world and that is our Human Right. Our race, gender, income, education or zip code should not determine whether a healthy birth - for parent and child - is possible our not. Even when we account for race and education, there is a still a racial disparity in the Black maternal mortality rate. The maternal mortality rate for Black women with at least a college degree is 5.2 times the rate of white women. The only way we can turn this public health crisis around is to confront the insidious anti-Black racism and gender-based violence that drives Black maternal mortality where three-fourths of all pregnancy-related deaths in Philadelphia between 2010 and 2012 and between 2012 and 2015, the maternal mortality rate for Black women in Allegheny County where Pittsburgh sits was 3.7 times the rate of white women.

There are immediate ways that the General Assembly can advance Black maternal health including:

- Expanding Medicaid coverage for post-partum care to a minimum of one (1) year as introduced by Rep. Cephas;
- Licensing certified professional midwives in order to qualify for insurance and Medicaid reimbursement;
- Extending Medicaid reimbursement to doulas/for doula care as introduced by Rep. Cephas and providing workforce development opportunities;
- Requiring not only implicit bias training as introduced by Rep. Cephas but also Reproductive Justice and Birth Justice training and continuing education to medical and health care providers; and
- Designating Black Mamas Matter Alliance *Black Maternal Health Week* an official week in the Commonwealth.

In the intermediate term, our Commonwealth must prioritize Black maternal health as priority for the Pennsylvania Department of Health, set a big goal for decreasing Black maternal mortality over the next decade and invest in free standing community-based birth centers to support accessibility to out-of-hospital births.

The Reproductive Justice movement works with legislators across this nation on key issues that impact the health, lives and futures of Black women, femmes, girls and folx. New Voices for Reproductive Justice offers our policy expertise and leadership to Pennsylvania legislators and policymakers who share our vision to eliminate maternal health disparities, achieve Black maternal health based on measures of physical, emotional, spiritual, cultural, political, economic, environmental and social well-being and dismantle deeply entrenched racism and patriarchy in all its forms so Black women can live a long, healthy and joyful life. Thank you for this opportunity to speak before you today. You can learn more about the work of New Voices for Reproductive Justice across Pennsylvania and Ohio at newvoicesrj.org.

Nicole Chaney- Panel 2

I'd like to thank Senator Schwank and Representatives Cephas and Daley for organizing this event, and drawing attention to the importance of maternal outcomes in our state. My name is Nicole Chaney, my pronouns are she/her, and I am a certified nurse-midwife practicing in Berks County where I attend planned births at home, at Reading Birth Center and at Reading Hospital. I have a Master's degree in Nurse-Midwifery, the authority to prescribe medication, a nursing license, a nurse-midwifery license, a DEA license, and admitting privileges at Reading Hospital, I provide prenatal and gynecologic care, which includes cancer and STD screenings, as well as contraception options. Prior to moving to Berks County I worked as a nurse for ten years on labor and delivery and in the neonatal intensive care unit at the Hospital of the University of Pennsylvania and Pennsylvania Hospital.

When I interviewed for my current job at Reading Birth Center I was immediately blown away by this practice, it's collaborative model, excellent outcomes, and thought, this is what maternity care should look like in Pennsylvania, and elsewhere. I knew I wanted to be a part of such an outstanding practice and would have moved to Mars to be part of this model of care. It's a unique model that doesn't exist anywhere else in the state. We care for high and low risk patients, co-managing the high risk patients with the OB GYN. Sometimes the low risk patients become high risk and we co-manage them together, both of us respecting each other's education, experience and perspective to care for the client in the best way possible.

With this truly collaborative model, we work together as a team, caring for our patients, and making sure everyone receives high quality birth center care, no matter where they plan to deliver. We are completely integrated into the hospital system, so whether it is an emergent or non emergent transfer, we continue to care for patients at the hospital, which decreases the stress and trauma on patients and increases safety and improves outcomes. Our quality indicators are better than national and county level statistics, with a low preterm birth, cesarean, and serious laceration rate.

We were deeply affected by COVID-19, because it caused our health system to close our birth center, and dramatically change how our practice functions. This closure of our birth center highlights the pervasive lack of care for women's health in our society, and of profit being prioritized over the lives of mothers and their newborns.

The impact for our patients has been devastating. We have people that are due to birth their babies close to and soon after our closure in September, and since most home

birth midwives in Pennsylvania cannot bill health insurance, these pregnant people have no alternative options for out-of-hospital birth. Here is a direct quote from one of our patients who is due to have another child soon: "The thought of not being able to experience the birth of my last baby in the birth center is extremely painful to me and I feel like I am being forced against my will into a situation I absolutely did not choose to be in. If that isn't a violation of rights, I don't know what is."

Many people don't understand the idea of giving birth outside of the hospital, and why it is so important. When you look at the outcomes, it's safe — *especially* when midwives are integrated into the hospital system — and it saves money. (I'm going to say this louder for the people in the back, it costs less money!).

It allows people to feel more in control of their child birth, have less fear and anxiety, and experience less trauma. Even for those who transfer to the hospital whether it's before, during or after the birth, the ability to have a choice makes it all worthwhile.

Here's a quote from someone who had to transfer:
.. with the support of my care team, my dream birth came true. ... It was beautiful and perfect. I, on the other hand, was taken to the hospital for post-partum hemorrhaging. They saved my life. I am forever indebted to them. I can't fathom not being able to have a choice or say in the most wonderful experience a woman has in her life. They gave me a say in our birth, I can't imagine doing it any other way. There is nothing I would change that day. ..this one was nothing short, of a miracle and a gift from God, with people who stood behind me, holding me up through it all. It's a shame, a heartbreaking shame, that women will lose this choice and support.

Out-of-hospital birth is about freedom, comfort, feeling heard and having agency in your outcome. All women have a right to that freedom — especially Black women for whom that freedom is already limited. When we talk about maternal mortality, it's important to discuss the staggering racial disparities, with Black women in Pennsylvania being two to three times more likely to die during child birth than white women. That devastating reality is connected to the systemic racism embedded in our country and the fact that Black people are often mistreated in the health care system. In an out-of-hospital birth setting, that practices through an antiracist lens, and with providers that look like them, outcomes for Black women can improve. As maternal health advocate Charles Johnson recently said, if you fix maternal care for black women, you fix it for all women.

It isn't just Reading Birth Center that is being closed. Hahnemann University Hospital closed last year, and they had some of the best maternity outcomes in the state. It had

an amazing midwifery practice that taught resident OB GYNs, and had great relationships with homebirth midwives for transfers. (pause for effect) **Since just 2017, several maternity units throughout Pennsylvania have shuttered.** Pottstown Hospital, closed. (Pause for effect) UPMC Mercy, closed, Lock Haven, closed, Berwick Hospital Center - closed, JC Blair Memorial Hospital- closed. St Luke's Hospital Sacred Heart Campus- closed, Reading Birth Center- closing.

Twenty-two percent of Pennsylvania counties do not have a hospital with a maternity unit.

In addition, there are at least 5 homebirth Certified Nurse Midwives whose practices are at risk of closing due to their inability to find a collaborative physician and issues with reimbursement. Behind every single one of those closures are stories of devastated pregnant people and their families, trauma experienced by changing care providers mid-pregnancy, in an already fragmented and difficult to navigate health care system. It adds this unwavering feeling of distress over not being able to birth your child in the setting of your choice.

You know what's a lot easier than opening up a maternity unit at a hospital? Supporting a midwife by decreasing barriers to care and improving their reimbursement. Maybe even help them pay off their student loans? That midwife can care for low risk patients and co-manage high risk patients with an OB GYN or a high risk OB in another county, or even on the other side of the state. Help facilitate these relationships, ensure both parties get reimbursed appropriately, ask Reading Birth Center's Dr. Dominic Cammarano or the former Hahnemann OB GYNs to mentor OBs and high risk OBs on how to collaborate with midwives.

Substance use, racism, maternal mental health, social determinants of health: when you think of all the factors that impact maternal mortality and morbidity, it's overwhelming. But the solution is a million tiny changes that one by one are possible. Decrease barriers to midwifery care. Look at how we reimburse maternity care, is it a system that rewards good outcomes, or is it a system that rewards surgeries and massive health care systems with large buying power? We need value-based reimbursement, in which the practices, and birthing facilities with the best outcomes get reimbursed appropriately for their work. We need to decrease barriers to out of hospital birth. We need to train OB GYN residents with midwives, like they did at Hahnemann and we do at Reading Hospital. We need more access to doula care, birth doulas, postpartum doulas. When we value reproductive health as a society, and provide as many options as possible for

people’s childbirth experience, the outcomes will improve. Thank you for taking the time to listen.

Testimony of Marianne A. Fray, MBA, IOM, CAE

Chief Executive Officer, Maternity Care Coalition (MCC)

Before the Joint Senate and House Democratic Policy Committee

With the Women's Health Caucus

Policy Hearing on:

Innovative Responses to Maternal Mortality

G-50 Irvis – Harrisburg, PA and

Virtual Zoom Meeting

August 12, 2020

Good Afternoon Chairwoman Boscola, Chairman Sturla, Senator Schwank, Representative Cephas, Representative Daley and the Democratic Policy Committee. Thank you Representative Cephas for inviting me to testify today about hospital services and birthing options for pregnant individuals and families. My name is Marianne Fray, and I am the CEO of Maternity Care Coalition. Since 1980 MCC has served over 135,000 families, providing support for pregnant individuals and newly parenting families through home visiting, community education and center-based care.

I'm here today to share insights from MCC's Community Doula Program, which is one of the key ways we support pregnant individuals. Research demonstrates that the support of a doula through the perinatal period can help reduce the likelihood of birth complications and instances of low birth weight [1]. A 5 year study conducted in NYC with

[1] Gruber, K. J., Cupito, S. H., & Dobson, C. F. (2013). Impact of doulas on healthy birth outcomes. *The Journal of perinatal education*, *22*(1), 49–58. https://doi.org/10.1891/1058-1243.22.1.49

560 low-income pregnant women found that **doula care was linked to improvements in many perinatal outcomes**. Participants indicated that doula support helped give them a voice in consequential childbirth decisions and the study authors concluded that **doula care is an important component to addressing birth inequities** (Thomas, 2017)[2]. Often, however, low-income women of color face barriers in accessing doula care. These barriers have been compounded during the pandemic, with limited services and hospital restrictions.

MCC's Community Doula and Breastfeeding Program hosts a Perinatal Community Health Worker Training Program. Since 2013 we have trained over 177 community birth workers who have provided culturally, ethnically, and linguistically informed care to nearly 1,100 families. Through this network, MCC has been able to provide doula services **at no cost** to childbearing families while also paying the doulas.

The COVID-19 pandemic forced MCC to adapt our service delivery models for each of our 22 programs. Fortunately early in 2019, MCC piloted a virtual home visiting model in our Healthy Families America program. The knowledge we gained from this pilot program proved invaluable when, over the course of a handful of weeks in March, we transitioned all of MCC's clients to virtual services. This transition has created both challenges and opportunities for our community birth workers.

The **greatest challenge has been the inability to attend births in person** due to hospital restrictions. Our community doulas have been creative in adapting their prenatal visits to focus on how pregnant individuals and their support person can advocate for themselves during the birth and some have even attended a birth via FaceTime, or in person when there was no other support person.

For example, one of our community doulas recently supported an individual in their 2nd trimester, pregnant with their first child. They were concerned with sensitive care, as they are a same-sex couple. They reached out to MCC to be matched with a Community Doula. Through multiple Zoom calls, in a park with socially distanced visits and MCC relying on centering their birth priorities, they had a safe delivery – 18 hours of labor at home before heading to the hospital to give birth. The birthing parent remarked that

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[2] Thomas, M-P, Amman, G., Brazier, E., Noyes, P., Maybank, A. (2017). Doula Services Within a Healthy Start Program: Increasing Access for an Underserved Population. Maternal Health Journal, Dec;21 (Suppl 1):59-64. https://dx.doi.org/10.1007%2Fs10995-017-2402-0

'*having my doula's voice encouraging me throughout the process made a huge and positive difference*'. This type of positive birth outcome comes from a trusted relationship and centering the voice and wishes of the birthing person.

While we have seen successes, we recommend the following enhancements to the virtual service delivery, alongside safe in-person doula support.

- First, provide resources to ensure **equitable access to telehealth services** such as providing low-income pregnant individuals with smart phones, tablets, low-cost/no-cost data plans and reliable internet access.
- Second, provide **all** prenatal individuals, regardless of risk, with the **tools they need**, such as blood pressure cuffs, to **monitor their own health** while utilizing telehealth services.
- Finally, **expand and enhance perinatal depression and anxiety screening** and **behavioral health treatment services** to address the impact and isolation of pregnant people, especially post-COVID.

MCC is committed to continuing to train community birth workers and to connect them to members of the community. While virtual services can never replace the in person support provided by a doula, we believe virtual services can enhance the in-person service delivery model, help reduce negative birth outcomes and improve the overall birthing experience for everyone.

Thank you.

Written Testimony

Policy Hearing: Innovative Responses to Maternal Mortality
August 12, 2020

Submitted by:

Sindhu K. Srinivas, MD, MSCE

Professor

Director of Obstetrical Services

Vice Chair for Quality And Safety, Department of OBGYN

Co-Founder Heart Safe Motherhood

Penn Medicine

Chair Health Policy and Advocacy Committee, Society for Maternal Fetal Medicine

Good afternoon. Thank you for inviting me to participate in this very important and timely policy hearing. My name is Dr. Sindhu Srinivas. I am a maternal-fetal medicine physician at Penn Medicine. I am a practicing obstetrician and maternal fetal medicine specialist, the Director of Obstetrical Services, Vice Chair for Quality and Safety and Co-Founder of the Heart Safe Motherhood program at Penn Medicine. I am also the Chair for the Health Policy and Advocacy Committee of the Society for Maternal-Fetal Medicine (SMFM). I am honored to be here today.

Maternal Fetal Medicine specialists treat high-risk pregnant women – women who have underlying medical conditions and are pregnant, or when an issue is identified with the fetus. MFMs are obstetricians who have an additional three years of training. We are on the front lines of the most complicated pregnancy cases, and we are deeply troubled with this country's rising maternal morbidity and mortality rates, and the rates right here in our own backyard.

Despite my years of formal training and 15 years of providing direct care for women both with complicated and uncomplicated pregnancies, the truth is, there is still much we do not know about how to effectively address this crisis of women dying during and after a pregnancy. What we do know is that maternal mortality is just the tip of the iceberg and as many as half are potentially preventable. For each maternal death, there are numerous other women who suffer complications, what we refer to as severe maternal morbidities.

What we also know is that we can and must do better.

We know that when obstetrical care is standardized – in other words, when all women receive certain interventions when they are in severe circumstances – outcomes can improve. The state of California has demonstrated remarkable improvements in pregnancy outcomes by reviewing the death records of pregnancy and postpartum women and standardizing care based on what they learned. The United Kingdom has long had what is known as the Confidential Inquiry into Maternal Deaths. As a result of that program, standardized interventions were developed and implemented that have had a dramatic impact on reducing maternal deaths from conditions like severe blood clots.

Philadelphia has a maternal mortality review committee that I have had the privilege of participating in for the last several years. Based on the review of these tragic deaths and deliberations of our very thoughtful multidisciplinary group, we had several recommendations. One of those recommendations was to establish a state based Maternal Mortality review committee. I am thrilled to be a part of this recently established Pennsylvania State maternal mortality review team.

But the review while a big step- is only the first step. Once you have established a review committee, developing a systematic process for the review and strategies for improvement is critical.

And getting that data is only the second step. Once you have data it will be important to translate that data into actionable recommendations that can be implemented on a state level. This last piece is critical if we truly want to move the needle on reducing maternal morbidity and

mortality in Pennsylvania and ensure healthy births and families. Having continued state support of the intervention infrastructure through the Pennsylvania perinatal quality collaborative is also critical.

From our Maternal mortality review work in Philadelphia, some of the most striking gaps seem to be related to lack of integration of systems, and inadequate access and collaboration between medical prenatal providers and mental health providers, among others.

Additionally, a focus on care coordination and the importance of incorporating social determinants of health in all of our solutions can't be stated enough. I have been lucky to be a part of a collaborative program called Safe Start between the Hospital of the University of Pennsylvania, Maternity Care coalition, Keystone First and Community Behavioral Health. The mission of this program is to improve health outcomes for pregnant women with chronic health conditions, and ensure women receive the care they need before, during and after childbirth. This includes addressing social determinants that are obstacles to women having a healthy pregnancy and taking care of their postpartum health needs.

In this program, at risk moms are partnered with advocates who also function as birth doulas. We have enrolled over 300 women in this program and have recently published our results in the American Journal of Public Health that demonstrate improved engagement in prenatal and postpartum care, among other outcomes. Programs like this one exemplify care coordination between pregnancy care providers, payers, mental health providers and a community organization. Policies that facilitate and incentivize this type of collaboration is an essential future direction to attack the maternal mortality crisis.

Finally, what has struck me the most about this crisis is that more than half of the mortalities occur in the postpartum period, a time when patients are home, less connected to care, but need us. This only underscores the importance of thinking out of the box, of being innovative in developing patient centered approaches to care as critical in our quest to address maternal morbidity and mortality.

At Penn medicine we are proud of a few programs that have done this. We have developed and successfully deployed a program called Heart Safe Motherhood at multiple Penn Medicine Hospitals and will soon be deployed at all the Philadelphia obstetric hospitals in partnership with the City Health department. The Heart Safe Motherhood experience takes a scary diagnosis of hypertension in pregnancy–a leading cause of maternal morbidity and mortality - and turns it into a process of engagement and empowerment in self-management and self-monitoring. We provide patients with a blood pressure cuff, enroll them into a bidirectional text based platform that allows us to monitor them safely at home by providing information that we can act on when needed. It also leads to tremendous satisfaction from patients and improved health care engagement. Through this program we have been able to initiate blood pressure medications on patients at home and prevent significant morbidity that previously led them to being readmitted to the hospital. We have caught dangerously high blood pressures prior to their escalation and have prevented morbidity. Importantly, this program has eliminated health disparities in obtaining and treating dangerously high blood pressures in the postpartum period. We have

taken a condition that has disproportionately impacts black women in the postpartum period and have improved the health for all women equally. The success of this program is in its patient centered approach and the engagement of patients in its development.

Another program, founded by my colleague at Penn Medicine, Dr Leitner, called Healing at Home, has developed a chat bot to support patients after their discharge from the hospital. Just this week that program successfully identified a patient with dangerous symptoms in the postpartum period and was able to bring her into care safely.

Patients are engaged; they are looking for new and innovative ways to be active participants in their care and it is our job to partner with them and move these strategies forward.

The mission to ensure the health of our population during and after pregnancy is one that I know all of us share and are passionate about.

No person goes into pregnancy fearing a significant complication or death. Having a child and the period afterwards should be a joyous time – but far too often complications arise and these impact not just the patient—but also her baby and entire family. We can do more, and we must do more. With a focus on policies that incentivize the integration of systems and accelerate and fund the development of innovative care delivery models as well as the deployment of programs that have shown evidence-based benefit like Heart Safe Motherhood, we can and will make a big difference. Thank you again for providing me the opportunity to speak this afternoon.

Safe Start Community Health Worker Program: A Multisector Partnership to Improve Perinatal Outcomes Among Low-Income Pregnant Women With Chronic Health Conditions

Safe Start is a community health worker program representing a partnership between a high-volume, inner-city, hospital-based prenatal clinic; a community-based organization; a large Medicaid insurer; and a community behavioral health organization to improve perinatal outcomes among publicly insured pregnant women with chronic health conditions in Philadelphia, Pennsylvania. As of June 2019, 291 women participated in the program. Relative to a comparison group (n = 300), Safe Start participants demonstrate improved engagement in care, reduced antenatal inpatient admissions, and shorter neonatal intensive care unit stays. (*Am J Public Health*. 2020;110:836–839. doi:10.2105/AJPH.2020.305630)

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Chronic diseases such as obesity, diabetes, hypertension, and cardiovascular disease during pregnancy are associated with adverse maternal and neonatal health outcomes. Prevalence of these conditions is increasing in the United States, with higher rates among low-income and minority populations.[1] The use of community health workers (CHWs) is a promising strategy to reduce the incidence and impact of chronic disease during pregnancy.[2] The following analysis describes the implementation, evaluation, sustainability, and public health significance of Safe Start, a CHW program designed to improve outcomes for pregnant women with chronic health conditions through comprehensive and integrated medical care.

INTERVENTION

Safe Start represents a new model of collaborative care between a high-volume, inner-city, hospital-based prenatal clinic in Philadelphia, Pennsylvania (Helen O. Dickens Center at the Hospital of the University of Pennsylvania); a community-based organization (Maternity Care Coalition); the largest Medicaid managed care organization in the region (Keystone First); and the county behavioral health insurer and service provider (Community Behavioral Health). Safe Start CHWs (called advocates) provide patient navigation and case management services to publicly insured pregnant women with chronic health conditions, and engage in systematic case reviews with health care providers and insurers. The ability of the partner organizations to share information and jointly address barriers was critical to the success of the program.

PLACE AND TIME

Concern over Philadelphia's maternal mortality rate—53% higher than the national rate[3]—led Maternity Care Coalition to conduct focus groups documenting low-income pregnant women's prenatal and postpartum care experiences; these focus groups drove Safe Start's design and implementation. Findings included that women did not feel "heard" by providers, faced social and economic difficulties exacerbated by pregnancy, and experienced challenges with insurance, transportation, and child care. Maternity Care Coalition formed an advisory group composed of members from across Philadelphia representing expertise in obstetrics, nursing, primary care, public health, domestic violence, mental health, pregnant women, managed care, and advocacy, to provide additional input. After identifying a committed clinical partner in the Hospital of the University of Pennsylvania and securing funding, Safe Start was implemented in Philadelphia in March 2015.

PERSON

As of June 2019, 291 women had completed the Safe Start program. Eligibility criteria are as follows: pregnancy with preexisting

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TABLE 1—Participant Characteristics: Safe Start Community Health Worker Program, Philadelphia, PA, 2015–2019

	Safe Start, No. (%)[a] (n = 291)	Comparison Group, No. (%) (n = 300)	P[b]
Demographic			
Race			< .001
African American	281 (97)	267 (89)	
Other	10 (3)	33 (11)	
Hispanic	8 (3)	12 (4)	.4
Age, y			.27
14–18	13 (5)	9 (3)	
19–35	254 (87)	256 (85)	
36–50	24 (8)	35 (12)	
Married	33 (11)	27 (9)	.35
Clinical			
Nulliparous	41 (14)	47 (16)	.59
Prior preterm birth[c]	50 (20)	52 (21)	.88
Hypertension	91 (31)	66 (22)	.011
Diabetes	38 (13)	25 (8)	.06
Obese[d]	133 (46)	130 (43)	.56
Behavioral health[e]	168 (58)	152 (51)	.09
Substance use[f]	77 (26)	114 (38)	.003

[a]Mean gestational age of enrollment for Safe Start clients was 28.3 weeks (SD = 5.89).
[b]*P* values represent χ^2 test in cells > 5 and Fisher exact test in cells ≤ 5.
[c]Among multiparous women (n = 503).
[d]Patients with a body mass index ≥ 35 kg/m^2 prior to pregnancy.
[e]Reported anxiety, depression, posttraumatic stress disorder, panic attacks, or bipolar, during pregnancy in the electronic medical record problem list or patient's report.
[f]Reported drug, alcohol, or tobacco use during pregnancy in the electronic medical record problem list or patient's report.

obesity, hypertension, diabetes, depression or a substance use disorder, and evidence of one or more missed medical appointment. Many Safe Start clients also face challenges related to housing, food insecurity, and other social determinants of health.

PURPOSE

Safe Start aims to improve health outcomes for pregnant women with chronic health conditions by ensuring that they receive the care and support they need before, during, and after childbirth. This includes addressing social determinants that are obstacles to women having a healthy pregnancy and taking care of their postpartum health needs.

IMPLEMENTATION

Recruitment into Safe Start occurs via face-to-face meetings between prospective clients and CHWs at the Dickens Center, referrals from the hospital social worker, and direct outreach to high-risk patients by the CHWs. The CHWs initiate care by meeting a client in her home or community and discussing her current health needs and goals. Clients are assessed for depression, trauma, intimate partner violence, and social determinant needs. They choose priority goals, such as building family relationships, finding employment, or losing weight. The CHWs assist in planning and supporting their steps to achieve these goals.

The CHWs provide comprehensive case management, care coordination, and emotional support to clients through three months postpartum. CHWs receive extensive training (see Appendix, available as a supplement to the online version of this article at http://www.ajph.org). Trained as birth doulas, they help women prepare for birth and breastfeeding, accompanying them through labor and delivery. They visit clients' homes, accompany them to appointments, and regularly communicate through phone calls and text messaging. Each week the clinical care teams review scheduled patients, and the CHWs provide real-time updates on Safe Start clients and their progress outside of the clinic. Their contributions enable all care team members to better understand and serve their patients. Furthermore, CHWs communicate women's progress and barriers to partner organizations.

EVALUATION

We conducted a prospective cohort study to assess the effectiveness of Safe Start to improve perinatal outcomes. Data came from the CHW client database and electronic health record data maintained by staff at Maternity Care Coalition and Hospital of the University of Pennsylvania, respectively. The two data sets are merged quarterly, along with a comparison group (n = 300) of Dickens Center patients who were eligible for Safe Start but declined to participate, did not complete intake, or were not approached because of CHW patient load.

We used multivariable logistic and Poisson regression to compare adequacy of prenatal care,[4] inpatient admissions and emergency visits during pregnancy, delivery mode, preterm birth, neonatal intensive care unit admission and length of stay, neonatal abstinence syndrome, and postpartum visit attendance and contraceptive use among Safe Start participants and the comparison group, controlling for potential confounders.

Safe Start participants were significantly more likely to be African American and have hypertension and less likely to report substance use than the

TABLE 2—Association Between Safe Start Participation and Perinatal Outcomes: Philadelphia, PA, 2015–2019

	Women, No. (%) or Mean ±SD		
	Safe Start[a] (n = 291)	Comparison Group (n = 300)	AOR (95% CI)[b] or AIRR (95% CI)[c]
Prenatal period			
Inadequate prenatal care[d]	61 (21)	127 (42)	0.37 (0.25, 0.53)
Inpatient admissions	31 (11)	49 (16)	0.58 (0.35, 0.96)
Emergency visits	110 (38)	117 (39)	0.80 (0.56, 1.13)
Delivery, postpartum			
Cesarean delivery[e]	99 (34)	97 (32)	0.97 (0.64, 1.46)
Preterm birth (< 37 wk)[f]	54 (19)	54 (18)	1.07 (0.69, 1.66)
Preterm birth (< 34 wk)[f]	15 (5)	19 (6)	0.82 (0.39, 1.69)
NICU admission	50 (17)	63 (21)	0.85 (0.55, 1.29)
NICU length of stay,[g] d	15.9 ±3.0	18.3 ±3.5	−0.14 (−0.23, −0.05)
Neonatal abstinence syndrome[h]	1 (1)	11 (10)	−1.49 (−3.2, 0.25)
Postpartum visit	169 (58)	143 (48)	1.47 (1.05, 2.06)
Postpartum contraception	232 (80)	219 (73)	1.57 (1.06, 2.34)

Note. AIRR = adjusted incidence rate ratio; AOR = adjusted odds ratio; CI = confidence interval; NICU = neonatal intensive care unit.

[a]Approximately 7% of participants withdrew from the Safe Start program. There were no maternal deaths.

[b]Unless otherwise specified, all models are logistic regression and control for participant factors that were significantly different between the Safe Start and comparison group cohorts (i.e., race, hypertension, and substance use).

[c]Poisson regression.

[d]Revised-Graduated Prenatal Care Utilization Index (*R*-GINDEX), collapsed into groups: inadequate versus intermediate and adequate.

[e]Adjusted for prior cesarean, race, hypertension, and substance use.

[f]Adjusted for prior preterm birth, race, hypertension, and substance use.

[g]Among patients with a NICU stay (n = 113).

[h]Firth logistic regression among patients with documented substance use (n = 191).

comparison group (Table 1). Controlling for these differences, Safe Start participants had lower odds of inadequate prenatal care (adjusted odds ratio [AOR] = 0.37; 95% confidence interval [CI] = 0.27, 0.53) and antenatal inpatient admissions (AOR = 0.58; 95% CI = 0.35, 0.96) and higher odds of postpartum visit attendance (AOR = 1.47; 95% CI = 1.05, 2.06) and contraception use (AOR = 1.57; 95% CI = 1.06, 2.34) than the comparison group (Table 2). We observed no differences in rates of neonatal intensive care unit admissions; however, length of stay among babies admitted to the neonatal intensive care unit was significantly shorter among babies born to Safe Start participants (adjusted incidence rate ratio = –0.14; 95% CI = –0.23, –0.05).

ADVERSE EFFECTS

We observed no adverse effects or unintended consequences associated with Safe Start participation.

SUSTAINABILITY

Important strides have been made toward sustaining the Safe Start program, yet challenges remain. Efforts by the Pennsylvania State Medicaid office to transition Medicaid managed care contracts to value-based payment contracts are promising steps toward ensuring future sustainability, as Safe Start is clearly aligned with the quality improvement and community-based care components needed to make this transition. In January 2017, Maternity Care Coalition established a contract for reimbursement for services with Keystone First that currently provides critical revenue to support implementation of the program. Although critical, it covers less than one third of Safe Start's operating costs and is not sufficient to support scaling the model. Negotiations are likewise under way with Community Behavioral Health. However, establishing these contracts is a multiyear process, requiring local and state review of proposed services.

The most significant challenges to the continued success of Safe Start include the following: uncertainty at the national level about existing and future health care policy, which may affect incentives for community health models; uncertainty about how rapidly health care delivery will evolve in terms of reducing silos in different systems (e.g., data sharing among health systems and insurers); and engagement of Pennsylvania decision-makers, including the Office of Medical Assistance and the Office of Mental Health and Substance Abuse Services, in new reimbursement approaches. Safe Start partners are working with city and state representatives to achieve greater support for perinatal interventions. Pennsylvania's Department of Human Services recently established a statewide Maternal Mortality Review Committee, providing a critical pathway for further understanding and addressing maternal health needs.

PUBLIC HEALTH SIGNIFICANCE

Women are increasingly entering pregnancy with preexisting chronic health conditions.[5,6] The scale-up and sustainability of evidence-based CHW programs, driven by community partnership, to improve maternal and child health outcomes is a national imperative. AJPH

CONTRIBUTORS

S. D. Cunningham helped with the analytic strategy and wrote the first draft of the article. V. Riis performed the statistical analysis with collaboration and oversight from S. K Srinivas. L. Line, M. Patti, and M. Bucher helped with interpreting the results and writing. C. Durnwald and S. K. Srinivas oversaw the design of the study. All authors edited the final article.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

HUMAN PARTICIPANT PROTECTION

This project was reviewed and determined to qualify as quality improvement by the University of Pennsylvania's institutional review board.

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Comparing standard office-based follow-up with text-based remote monitoring in the management of postpartum hypertension: a randomised clinical trial

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ABSTRACT

Background Monitoring blood pressure at 72 hours and 7–10 days post partum in women with hypertensive disorders is recommended to decrease morbidity. However, there are no recommendations as to how to achieve this.

Objective To compare the effectiveness of text-based blood pressure monitoring to in-person visits for women with hypertensive disorders of pregnancy in the immediate postpartum period.

Methods Randomised clinical trial among 206 postpartum women with pregnancy-related hypertension diagnosed during the delivery admission between August 2016 and January 2017. Women were randomised to 2 weeks of text-based surveillance using a home blood pressure cuff and previously tested automated platform or usual care blood pressure check at their prenatal clinic 4–6 days following discharge. The primary study outcome was a single recorded blood pressure in the first 10 days post partum. The ability to meet American Congress of Obstetricians and Gynecologists (ACOG) guidelines, defined as having a blood pressure recorded on postpartum days 3–4 and 7–10 was evaluated in the text message group. The study was powered to detect a 1.4-fold increase in a single recorded blood pressure using text messaging. All outcomes were analysed as intention to treat.

Results 206 women were randomised (103 in each arm). Baseline characteristics were similar. There was a statistically significant increase in a single blood pressure obtained in the texting group in the first 10 days post partum as compared with the office group (92.2% vs 43.7%; adjusted OR 58.2 (16.2–208.1), p<0.001). Eighty-four per cent of patients undergoing text-based surveillance met ACOG criteria for blood pressures at both recommended points.

Conclusions Text-based monitoring is more effective in obtaining blood pressures and meeting current clinical guidelines in the immediate postdischarge period in women with pregnancy-related hypertension compared with traditional office-based follow-up.

Trial registration number NCT03185455, Remote Surveillance of Postpartum Hypertension (TextBP), https://clinicaltrials.gov.

INTRODUCTION

Hypertensive disease is a leading cause of maternal morbidity and mortality[1 2] and obstetrical readmissions in the USA.[3] The majority of patients readmitted with hypertension in the postpartum period have a diagnosis of hypertensive disorder of pregnancy on initial admission for delivery; therefore, persistence of disease and disease progression, in contrast to new-onset disease, is more common in the postpartum period. Moreover, peak blood pressure in these patients usually occurs 3–6 days post partum, after hospital discharge, and is typically unaccompanied by warning symptoms.[4–6] As such, the Hypertension in Pregnancy guidelines provided by the American Congress of Obstetricians and Gynecologists (ACOG) recommend monitoring blood pressure at 72 hours post partum (inpatient or outpatient) and again in 7–10 days in women diagnosed with a hypertensive disease of pregnancy.[6]

Although there is a clear need for effective and reliable blood pressure surveillance for high-risk women soon after delivery, there are no recommendations as to how to best achieve this. Our own high-risk blood pressure transition clinic had an average of only 30% attendance over a 2-year period, and did not improve despite text message and phone call reminders as well as expanded visit availability in individual practices.[7] A postpartum quality improvement pilot project that we previously performed, in which patients were discharged with a home blood pressure cuff, showed greater patient engagement and participation in postpartum blood pressure monitoring with a text message-based programme.[8] The pilot data suggest there is potential for earlier intervention, reduction in

readmissions and decreased overall morbidity using this innovative approach.

To allow for use on a large scale, we developed an automated text-based platform that enables healthcare providers to monitor patient blood pressures in a more patient-centred manner. Our objective was to compare the effectiveness of an innovative text-based strategy using this platform versus our usual care with in-person office visits in monitoring women with hypertensive disorders of pregnancy in immediate postdischarge period. Our hypothesis was that text-based surveillance would result in more blood pressure values obtained in the first 10 days post partum. This, in turn, would result in greater ability for providers to meet ACOG guidelines for blood pressure monitoring at the two time points recommended.

MATERIALS AND METHODS

This was a randomised controlled trial that took place from August 2016 to January 2017. All women with pregnancy-related hypertension who delivered at the home institution were eligible to be considered for enrollment in the study. The study was approved by the Institutional Review Board prior to initiation.

All postpartum women with gestational hypertension, pre-eclampsia, chronic hypertension with superimposed pre-eclampsia, or haemolysis, elevated liver enzymes, low platelets syndrome (with or without inpatient hypertension), based on ACOG criteria, were approached for the study as these are the patients targeted for postpartum blood pressure surveillance in the ACOG recommendations.[6] Women had to be over 18 years of age, be able to speak and read English and have access to a cellphone with unlimited text message capabilities to be included. Women were only approached for the study if pregnancy-related hypertension was present on their initial delivery admission; therefore, readmissions for new-onset postpartum hypertension were not eligible.

Women who met eligibility criteria were approached in the postpartum recovery unit by the research team. Written informed consent was obtained and four-block randomisation was performed using REDCap.[9] Women randomised to standard office-based follow-up were instructed to follow-up at the location of their prenatal care 4–6 days post partum for a nursing blood pressure visit. There were only two different prenatal practices within the medical system that were included in the office-based follow-up. The date and time of the office appointment was specified in the discharge document and reviewed with the patients. Nurses and physicians in the office followed a pre-established outpatient clinical algorithm, developed in coordination with the department of medicine, for escalation of care and initiation of antihypertensive medications (online supplementary appendix 1). This office-based follow-up was the standard of care implemented more than 3 years prior to the study.

Women randomised to the text-based surveillance arm were given an automatic Omron blood pressure cuff and instructed on its use by research team members prior to discharge. Patients were enrolled into the texting program platform developed through Way to Health, a web-based platform within the institution, with secure technological infrastructure developed for research.[10–12] Through its connection to a variety of devices, such as cellular phones, Way to Health has the ability to communicate with patients using text messaging with automated delivery of feedback to the patients. A starting introductory text message was sent by the Way to Health platform to the phone number provided on day of discharge. Patients received reminders to text message their blood pressures twice daily for 2 weeks post partum, starting on the day after discharge, in order to keep the protocol consistent with our pilot project. Immediate feedback was provided to the patient based on a preprogrammed automated algorithm (online supplementary appendix 2). The primary investigator was alerted with prespecified severe range blood pressure values (systolic blood pressure >160 mm Hg or diastolic >110 mm Hg) via text message or email and care was escalated as needed based on the same outpatient algorithm used in the office (online supplementary appendix 1). However, instead of repeat office visits for blood pressure checks for severely elevated values, patients in the texting intervention were instructed to continue to text back blood pressure readings through the platform.

For safety purposes, the primary investigator logged into Way to Health at least once a day to review the inputs into the system, to ensure that no severe range blood pressures were missed due to system errors or that any blood pressure sent in the incorrect format or outside the time frame requested needed to be addressed. Additionally, although patients were instructed to text only blood pressure numerical values, as words or emergency questions could not be addressed by this texting system, the log was reviewed daily to ensure that no other medical concerns or comments needed a response.

All patients were contacted to complete a patient satisfaction survey, via telephone, at the 2–3 week postpartum period. The survey included questions regarding communication preferences, helpfulness of office visits, barriers to postpartum care, and if in the text messaging arm, ease and satisfaction with the text messaging platform. Scoring was based on a 5-level Likert scale, with a score of '1' indicating strong disagreement, '3' indicating neutral and '5' indicating strong agreement.

Maternal delivery and readmission information was obtained through detailed chart abstraction using the electronic medical record and managed using REDCap. Blood pressure values in the text message group were tracked and abstracted from Way to Health. Patients and healthcare providers were not

blinded to the assigned treatment group because of the need to provide patient care and ensure appropriate surveillance. However, trained research personnel, uninvolved with clinical care, were blinded to study arm during data abstraction.

The primary outcome measure was the percentage of patients in which a single blood pressure was obtained in the first 10 days following discharge. We also determined the percentage of patients in the text messaging group in whom blood pressure values were obtained at 72 hours and 7–10 days post partum, in accordance with ACOG recommendations. A texted blood pressure on postpartum day 3 or 4 was used as a surrogate for a 72-hour blood pressure in patients who were discharged on postpartum day 2 or 3. Patients discharged on postpartum day 4 or later only needed a blood pressure recorded on postpartum days 7–10 to meet criteria, as their 72-hour blood pressure would have been documented during their hospital admission. Secondary outcome measures were initiation of antihypertensive medication, number of additional postpartum office or emergency room visits and readmission for persistent hypertension, attendance of the 4–6 week postpartum visit, patient satisfaction with blood pressure surveillance and future health awareness in relation to the long-term effects of pre-eclampsia on cardiac health.

A 1.4-fold increase in blood pressure ascertainment using text messaging was considered clinically meaningful as historical data from our institution yielded a show rate of 30%–50% at office blood pressure checks[7] and 85% blood pressure ascertainment using text messaging.[8] However, to be more conservative we assumed a usual care office show rate of 50% and a text messaging ascertainment rate of 70%. Therefore, with an alpha of 0.05% and 80% power, we needed 103 patients in each arm for a total sample size of 206 women.

All analyses were performed using STATA V.14.0 for Windows (STATA, College Station, TX). X^2 or Fisher's exact tests were used to compare categorical data. T-tests and Mann-Whitney U tests were used to compare continuous variables. Multivariable logistic regression models were used to control for potential confounders for all dichotomous outcomes. Confounders for adjusted models were selected based on clinical judgement and statistical evidence of confounding. Multivariable ordinal regression was used to analyse follow-up survey results. All outcomes were analysed as intention to treat. Statistical significance was determined by a p value of less than 0.05.

RESULTS

There were 303 women with pregnancy-related hypertension who underwent delivery during the study period of August 2016 to January 2017. Of the 278 (92%) who met eligibility criteria and were approached for enrolment, 72 declined enrolment, and 206 (74%) women were randomised into one of the two monitoring groups (figure 1). Sixty-two (60%) women in the usual care office visit group and 77 (75%) women in the texting group completed follow-up phone call surveys.

Demographics and clinical characteristics were similar among the two groups, including age, insurance, presence of significant medical history, timing of hypertension diagnosis, gestational age at diagnosis and delivery, and disease severity (tables 1 and 2).

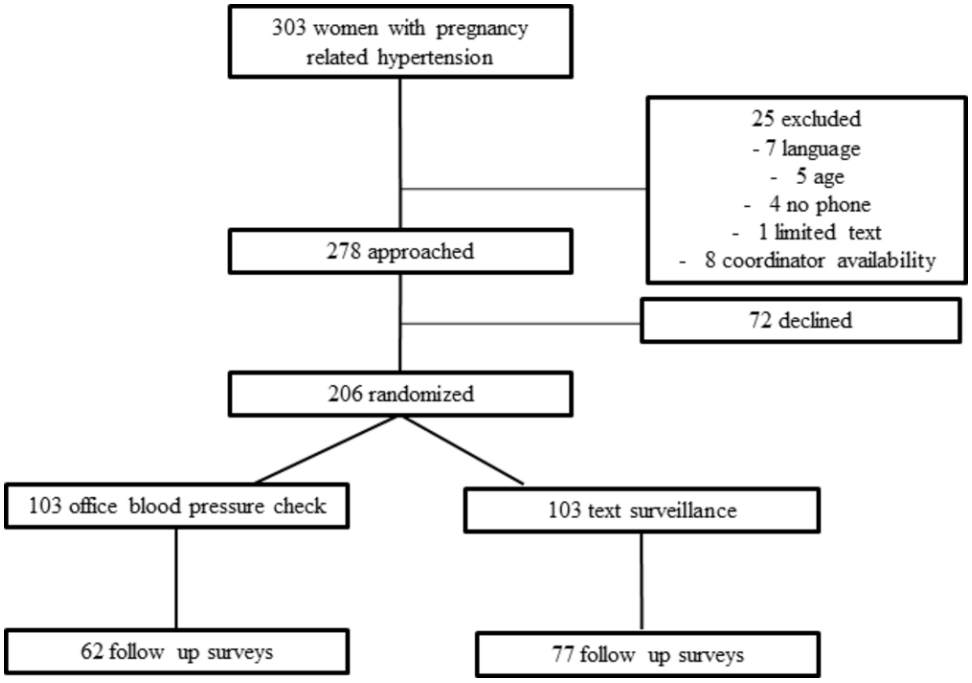

Figure 1 Flow chart of patients enrolled. Flow diagram showing patient enrolment.

Table 1 Maternal demographics

Demographic	Office visit n=103 (%)	Text messaging n=103 (%)
Age (years)	28±5	28±6
Race		
Black/African-American	73 (70.9)	68 (66.0)
White	25 (24.3)	28 (27.2)
Asian	4 (3.9)	2 (1.9)
Other	1 (1.0)	5 (4.8)
Insurance		
Private	42 (40.8)	44 (42.7)
Medicaid	61 (59.2)	59 (57.3)
Body mass index at first prenatal visit, median (IQR)	31.0 (25.1–38.3)	30.1 (24.3–33.8)
Nulliparous	52 (50.5)	61 (59.2)
Tobacco use		
Prior to pregnancy	12 (11.6)	8 (7.8)
During pregnancy	5 (4.8)	5 (4.9)
Pregestational diabetes	3 (2.9)	5 (4.8)
Gestational diabetes	8 (7.8)	6 (5.8)
Chronic hypertension		
Yes—no medication	7 (6.0)	9 (8.7)
Yes—on medication	6 (5.8)	5 (4.8)
Renal disease	5 (4.8)	5 (4.8)
Timing of diagnosis		
Antepartum	56 (54.4)	45 (43.7)
Intrapartum	31 (30.1)	44 (42.7)
Postpartum	16 (15.5)	14 (13.6)
Gestational age at diagnosis, median (IQR)	38 (36–39)	38 (36–39)
Gestational age at delivery, median (IQR)	38 (37–39)	38 (37–39)
Disease severity		
GHTN/PEC without SF	68 (66.0)	63 (61.2)
Superimposed PEC	10 (9.7)	14 (13.6)
PEC with SF	22 (21.4)	25 (24.3)
HELLP	3 (2.9)	0
Eclampsia	0	1 (1.0)

Continuous: mean ±SD, categorical: n (%).
GHTN, gestational hypertension; HELLP, haemolysis, elevated liver enzymes, low platelets; PEC, pre-eclampsia; SF, severe features.

Patients in both groups had similar rates of induction, mode of delivery, magnesium sulfate use and initiation of furosemide or oral antihypertensive prior to discharge. Of note, about 40% of the women in the study had a form of severe hypertensive disease. Most women were discharged home on postpartum day 2.

There was a statistically significant increase in at least one blood pressure ascertained in the first 10 days post partum in the texting group as compared with office visits (92.2% vs 43.7%; p<0.001; table 3). This increase remained significant when the analysis was adjusted for age, race, insurance, body mass index, parity, disease severity, mode of delivery and presence of chronic hypertension or diabetes (adjusted OR (aOR): 58.2, 95% CI 6.2 to 208.1; p<0.001).

On average, 16 (±9) of a maximum 28 total blood pressure values were received per patient in the text messaging group, and blood pressure values were received on 10 (±5) of the 14 days requested. Eighty-seven (84%) patients in the text messaging group had a recorded blood pressure at 72 hours and again at 7–10 days post partum in accordance with ACOG guidelines.

There was no difference in outpatient antihypertensive medication initiation by treatment group (22.2% office vs 16.5% text, p=0.41); however, only 45 women (44%) in the office group attended their office visit (table 3). There was also no difference in additional office or emergency room visits for hypertension that did not result in readmissions within 2 weeks post partum between the two groups (1.9% vs 2.9%, p=0.65). However, there was a statistically significant increase in hypertension-related readmissions in the office arm (3.9% vs 0%, p=0.04).

Of note, there were 24/95 (25%) patients in the text messaging group who had at least one severe range

Table 2 Obstetrical outcomes

Obstetrical outcome	Office visit n=103 (%)	Text messaging n=103 (%)
Induction	58 (56.3)	54 (52.4)
Caesarean delivery		
In labour	18 (17.5)	23 (22.3)
Planned	16 (15.5)	10 (9.7)
Intravenous antihypertensive medication		
Intrapartum	10 (9.7)	7 (6.8)
Postpartum	13 (12.6)	11 (10.7)
Magnesium sulfate use	32 (31.1)	35 (34.0)
Live birth	100 (97.1)	100 (97.1)
Discharged on oral antihypertensive medication	19 (18.4)	24 (23.3)
Furosemide course initiated	5 (4.8)	11 (10.7)
Postpartum discharge day, median (IQR)	2 (2–3)	2 (2–3)
Breast feeding	72 (69.9)	71 (68.9)

n (%).

blood pressure, and in total, 82 severe range blood pressure values were reported in the 2-week period. This is in comparison to 7/45 (16%) women who attended the office visit with severe range blood pressures noted during the blood pressure check. Antihypertensive agents were initiated on postpartum days 3–5 for most women; however, medications were started as early as postpartum day 1 and as late as postpartum day 12 according to our care management algorithm. As instructed, none of the patients sent in other questions or concerns by text messaging.

Among those who responded to the phone call surveys, there was no difference in patient-reported importance of blood pressure follow-up for long-term health (table 4). However, women in the text messaging arm scored importance of face-to-face communication lower than the office visit arm (p=0.003). This remained significant after adjustment for age, race, insurance, body mass index, parity, disease severity, mode of delivery and presence of chronic hypertension or diabetes (aOR: 0.3, 95% CI 0.1 to 0.8; p=0.02). Additionally, all the patients in the text message arm who responded to the survey said they would recommend the programme to a friend or family member.

COMMENT

This randomised controlled trial compared text message-based surveillance and usual care in-person office visits in the monitoring of postpartum hypertension among women at risk for persistence or progression of disease. Providing a home blood pressure cuff coupled with text-based monitoring appears to be a superior, patient-centred solution to obtain blood pressures and meet current ACOG recommendations in the immediate postdischarge period in women with pregnancy-related hypertension. Text-based remote surveillance allowed us to meet ACOG recommendations for blood pressure monitoring in 84% of patients, representing a substantial and noteworthy improvement from our usual care standard.

Additionally, our results indicate that poor attendance at office visits results in missed opportunities for early intervention and subsequent readmissions. Assuming the same prevalence of severe range blood pressures in both arms, it is possible that we may have missed 17 patients with severe range pressures among those who failed to attend their office visit in the standard of care, office-based arm. Notably, the women in the text-based arm had no hypertension-related readmissions and a higher postpartum visit attendance rate; in comparison, four women in the standard of care, office-based arm had readmissions for hypertension. Three of the four patients were found to be hypertensive at their office visit and were sent to the hospital. The fourth patient was sent to the hospital based on hypertension at a home nurse evaluation. These readmissions underscore the importance of the multiple blood pressure data points obtained on patients in

Table 3 Postdischarge outcomes

Postdischarge outcome	Office visit n=103 (%)	Text messaging n=103 (%)	P values	aOR (95% CI)	P values
Blood pressure obtained within 10 days*	45 (43.7)	95 (92.2)	<0.001	58.2 (16.2 to 208.1)	<0.001
Outpatient antihypertensive medication initiated within 2 weeks post partum†	10/45‡ (22.2)	17/103 (16.5)	0.41	1.0 (0.3 to 3.1)	0.95
Additional emergency department or office visit for hypertension not resulting in readmission†	2 (1.9)	3 (2.9)	0.65		
Postpartum hypertension readmission	4 (3.9)	0 (0)	0.04		
Attended postpartum visit§	60 (58.2)	71 (68.9)	0.11	2.3 (1.05 to 5.07)	0.04

n (%).
aOR not calculated when outcome was rare.
*Adjusted for age, race, insurance, body mass index (BMI), parity, disease severity, mode of delivery, chronic hypertension/diabetes.
†Adjusted for age, race, insurance, BMI, parity, disease severity, timing of diagnosis, mode of delivery, chronic hypertension/diabetes, furosemide course given.
‡Denominator includes only women who attended office visit.
aOR, adjusted OR.

Table 4 Follow-up survey results*

Survey question	Office visit (n=62)	Text messaging (n=77)	P values	aOR† (95% CI)	P values
Importance of blood pressure follow-up for long-term health	5 (5–5)	5 (5–5)	0.61	1.4 (0.4 to 4.9)	0.59
Importance of face-to-face communication	5 (5–5)	5 (3–5)	0.003	0.3 (0.1 to 0.8)	0.02
Questions can be answered:					
In the office	5 (4–5)	5 (4–5)	0.83	1.4 (0.6 to 3.2)	0.42
Over the phone	5 (4–5)	5 (4–5)	0.65	1.1 (0. to 2.6)	0.82
Via text message	4 (3–5)	5 (3–5)	0.95	0.9 (0.4 to 1.9)	0.84

Median (IQR).
*Scoring based on 5-level Likert scale: 1—strongly disagree; 2— somewhat disagree; 3—neutral; 4—somewhat agree; 5—strongly agree.
†Adjusted for age, race, insurance, body mass index (BMI), parity, disease severity, mode of delivery, chronic hypertension/diabetes.
aOR, adjusted OR.

the text-based arm and the ability to more effectively manage patients in this arm compared with the office-based arm with a single blood pressure data point.

Our findings are similar to studies investigating use of mobile technology in other healthcare settings, which have shown overall improvement in patient care. In a systematic review of 60 studies reporting use of text messaging, positive impacts were found on medication and treatment adherence, appointment attendance and positive attitudes towards medication and treatment, with improved outcomes in 77% of the studies.[13] Additionally, patients find access to physicians by means of mobile technology and text messaging highly desirable. While mobile technology has been studied in maternity care, none of the randomised trials related to pregnancy have focused on pregnancy-related hypertension and few have used text-based communication.[14 15]

Our study has significant clinical and healthcare cost implications for obstetric care. Pre-eclampsia is linked to one in five maternal deaths and drives over a quarter of obstetrical readmissions in the USA every year.[1–3] With up to 10% of pregnant women affected by a hypertensive disorder of pregnancy, the burden of the disease and need for follow-up is high and inadequate follow-up is costly. Text message surveillance using this bidirectional automated platform is a low-cost, patient and provider-friendly platform for remote blood pressure surveillance. It can safely and effectively allow for adequate, timely blood pressure ascertainment, limit in-person follow-up to those in need and reduce readmissions in the immediate postpartum period. As this is a time fraught with high morbidity and high patient inconvenience with in-person visits, this method of surveillance can change the way we care for women with pre-eclampsia and engage them in future health. An increase in attendance at the postpartum visit among women in the text-based intervention demonstrates the added benefit of this programme to enhance patient engagement; an important finding from a public health perspective.

Strengths of the study include that it was a large, appropriately powered randomised trial that studied a high-risk population with a significant amount of severe hypertensive disease. Standardised antihypertensive treatment algorithms were used in both inpatient and outpatient settings to limit variations in care based on providers managing the cases on a daily basis and among the two groups. Additionally, access to cellphone and unlimited text messaging was not a barrier to using this technology, as only 5 out of 303 eligible women were excluded for this reason, making it a generalisable technology.

Our study is limited to one model of obstetrical care, where a centralised responder addressed all blood pressures for patients randomised to the texting group. However, this responder used the same clinical algorithm as that used for the office-based group to determine management. The text messaging group relied on patient ascertainment of blood pressure and entry of their blood pressure readings into their cellphone. While wireless cuffs would eliminate this human factor, this method was chosen due to increased access to unlimited text messaging compared with wireless access among our population and the overall potential future scalability.[16] Additionally, it is important to note that the digital blood pressure cuff used in the texting arm was not the same as the cuff used in the office. Although both blood pressure cuffs are automated, the office visit allows for manual auscultation if necessary. However, all Omron blood pressure monitors are clinically validated to be within 3 mm Hg (https://omronhealthcare.com/service-and-support/faq/blood-pressure-monitors). While it is possible that patients may have used the cuff incorrectly and the readings being sent were not accurate, the cuff was tested prior to discharge from the hospital and the patients were given extensive instructions on use. Additionally, given the repeated blood pressure measurements per patient, trends were able to be evaluated and it is unlikely for multiple blood pressures to be incorrect. While we cannot confirm delivery of all text messages, we are reassured that messages were in fact received given the overall high rate of compliance with blood pressure readings sent back. Lastly, it is important to note that, by study design, women in the texting intervention

were discharged home with a home blood pressure cuff and educated on its use, and therefore the success of the intervention is a combination of providing a cuff with texting communication.

Future studies should continue to investigate implementation and evaluation of text-based monitoring in different obstetrical models of care, such as those where patients within an institution can be assigned to individual practices as well as in non-academic practices. Additionally, future evaluation of the lowest frequency or shortest duration of texting needed to obtain blood pressure values, meet current guidelines and decrease morbidity may allow for more patient-centred and cost-effective use of mobile technology. This technology and surveillance strategy also has important potential antepartum applications in monitoring for patients at high risk for pre-eclampsia. Further, a cost analysis comparing the two arms will be pursued to guide reimbursement strategies for this method of surveillance, as it leads to superior blood pressure ascertainment and lower readmission rates.

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after TeamSTEPPS implementation. We used SAS 9.4 (SAS Institute, Cary, NC) and GraphPad Prism (GraphPad Prism version 6 for Windows, GraphPad Software, La Jolla, CA) for data analysis. The Institutional Review Board at Beth Israel Deaconess Medical Center approved this research.

RESULTS: Together the most common visit types accounted for 68.5% of all visits; there were 31,156 visits prior to TeamSTEPPS implementation and 34,655 visits after implementation. These visit types consisted of contraception visits, well-woman visits, testing for sexually transmitted infections, surgical abortion, medical abortion, contraception refill visits, and follow-up visits for medical abortion. Among these visit types, overall mean cycle time decreased by 4.3 minutes after TeamSTEPPS implementation ($P < .001$), for a total time savings of 2515 hours after TeamSTEPPS. With the exception of contraception visits, the mean overall cycle time decreased significantly for each visit type (all $P \leq .02$; Table).

CONCLUSION: Team training improves visit cycle time in ambulatory health care settings. Reducing the total amount of time that patients spend at visits may improve patient satisfaction, which we previously have shown increases following TeamSTEPPS implementation[2] and allows for more walk-in and urgent appointments. Although our data cannot exclude other contributing factors or confirm that time savings translated into provider or clinic room utilization, they do suggest that even small team-driven improvements in cycle time have a dramatic impact on patient access, particularly in high-volume settings. ■

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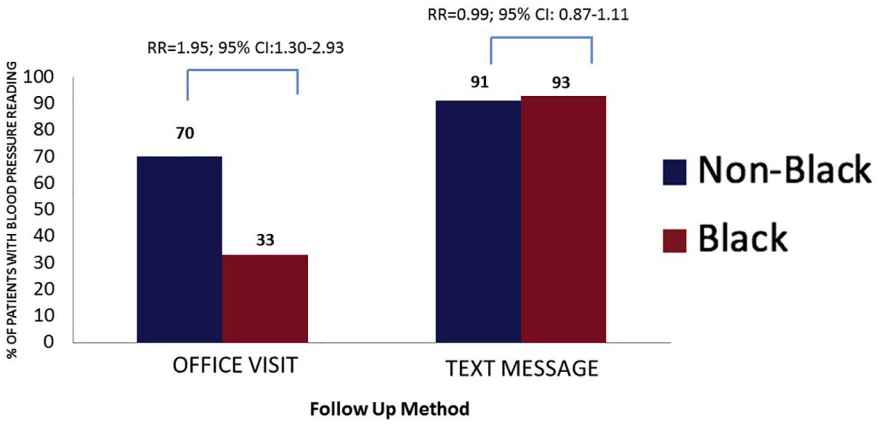
Text message remote monitoring reduced racial disparities in postpartum blood pressure ascertainment

Check for updates

OBJECTIVE: Nearly 50% of maternal morbidity and death occurs after delivery, one-third of which occurs in the first week after delivery.[1] The American College of Obstetricians and Gynecologists recommends close monitoring of patients with hypertensive disorders for the first 72 hours and again at 7–10 days after delivery, given the timing of peak blood pressures after delivery[2] and the need for optimal blood pressure management in this period of increased risk of stroke and

FIGURE
Postpartum blood pressure ascertainment by race and follow-up method



CI, confidence interval; *RR*, relative risk.

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seizure.[3] We previously showed that a text message–based remote blood pressure monitoring program in the early postpartum period was more effective in obtaining these critical blood pressure values compared to in-person office visits in all at-risk women.[4] Non-Hispanic black women suffer a disproportionate amount of hypertensive-related morbidities and are 3 times more likely to die of preeclampsia than white women,[5] likely because of a combination of patient, community, provider, and systems factors. Our office-based follow-up experience is that nonblack women are twice as likely to return for an in-person blood pressure check shortly after discharge compared with black women (42.5% vs 24.1% attendance rate, respectively). Because early identification and treatment of women who are at risk for hypertension-related morbidities in the postpartum period may reduce maternal morbidity and mortality rates, we evaluated whether postpartum text-based remote blood pressure monitoring could reduce the disparity in postpartum blood pressure ascertainment.

STUDY DESIGN: This was a planned secondary analysis of a randomized clinical trial that compared the effectiveness of text-based blood pressure monitoring to conventional in-person blood pressure visits for women with pregnancy-related hypertension in the early postpartum period.[4] Women were assigned randomly to either 2 weeks of twice daily text-based surveillance with the use of an automated platform and home blood pressure monitor or usual care in-person blood pressure check at their prenatal office 4–6 days after discharge. A standardized hypertension management algorithm was used by a Maternal Fetal Medicine physician in the text-messaging arm and the outpatient provider in the office arm. The primary outcome was ascertainment of blood pressure, defined as either office visit attendance or at least 1 blood pressure texted. Secondary outcomes included the need for hypertension-related readmission or oral antihypertensive medication. Women self-identified as black or nonblack race. We quantified racial disparity between black and nonblack with a risk ratio defined as the proportion with blood pressure ascertained in nonblack women divided by proportion ascertained in black participants. Poisson regression with a robust variance assumption was used to estimate risk ratios (RR) along with 95% confidence intervals (95% CI) for blood pressure ascertainment in nonblack vs black participants in each trial arm and to test for an interaction between blood pressure ascertainment and race by trial arm.

RESULTS: In all, 206 women participated in the trial (103 women per arm). Seventy-one percent of women in usual care and 66% in the texting program were black. Nonblack women were twice as likely as black women return for a blood pressure visit within the usual care setting (70% vs 33%; RR, 1.95; 95% CI, 1.30–2.93; $P<.001$). The introduction of a text-messaging system resulted in >90% blood pressure ascertainment in both race groups (91% vs 93%; RR, 0.99; 95% CI, 0.87–1.11; $P=.85$). Compared with usual care, where nonblack women were twice as likely to comply with the American College of Obstetricians and Gynecologists recommendations, blood pressure ascertainment was similar between nonblack and black women in the texting arm, with a 50% reduction in racial disparity (ratio of RR, 0.51; 95% CI, 0.33–0.78; $P=.002$; Figure). There were no hypertension readmissions in the texting arm, whereas 4 readmissions (3 of 4 in black women) were observed in usual care. There was no difference in the percent of black women who required new antihypertensive medication or dose escalation by trial arm among those who had an outpatient blood pressure (19% text vs 21% office; $P=.73$).

CONCLUSION: Although nonblack women attended in-office (usual care) postpartum blood pressure checks twice as often as black women, the use of a text-based monitoring system resulted in overall higher compliance (>90%) in both race groups and no racial differences in blood pressure ascertainment. The postpartum period is fraught with high morbidity and significant barriers to in-person visits that disproportionately affect minority populations. Text messaging as the standard of care is a safe, patient-centered means for blood pressure surveillance in this time of increased morbidity. Text messaging allowed for ascertainment of critical information and likely would have led to medication initiation in an additional ≥20% black women who missed an office visit. Given that most strokes and maternal morbidity from pregnancy-related hypertension occur within 10 days of delivery, text messaging has the potential to be an innovative way to engage hypertensive women of all races equally shortly after delivery and may be further evaluated as a means to reduce disparities in other aspects of postpartum care. ■

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Maternal Health Policy Hearing – August 12, 2020
Written Testimony Submitted by Zahada Gillette-Pierce, Trainer at AccessMatters

Good afternoon. My name is Zahada Gillette-Pierce and my pronouns are she/her/hers. I am a Trainer at AccessMatters. I am honored to be here today to speak to the impact of implicit bias training in maternal and child health. Our sincere gratitude and thanks to Representative Morgan Cephas for her leadership in improving maternal and child health in Pennsylvania and for trusting AccessMatters' expertise on the issue. We are also grateful to her and to Committee Chairman Sturla, Committee Chairwoman Boscola, Women's Health Caucus Chairwomen Representative Daley and Chairwoman Senator Schwank for inviting us to speak at today's hearing.

AccessMatters' mission is to protect, expand, and enhance equitable access to sexual and reproductive healthcare and information for all people. Our vision is that every person has the health care and information they need to thrive. Serving people from families with low-incomes, communities with few resources, and historically marginalized populations is a high priority for AccessMatters. This focus informs our program and advocacy work from planning and development to implementation and evaluation.

AccessMatters has been trailblazing for over 45 years to eliminate barriers to high caliber care for more than 116,000 people each year. As the Title X Family Planning grantee for Southeastern Pennsylvania, and the largest Ryan White HIV/AIDS Program Part D (Women, Infants, and Children) grantee in Philadelphia, we are a critical part of the region's healthcare safety net. Additionally, we administer statewide programs on adolescent sexual health and breast and cervical cancer prevention and treatment. We also coordinate the Pennsylvania Perinatal Partnership, a network of maternal and child health organizations across the state which aims to improve maternal and child health outcomes in Pennsylvania through education, collaboration, and advocacy. AccessMatters also provides training and capacity-building services to health and human service professionals nationwide on topics related to sexual health and health equity, and specifically, the negative impact of social determinants of health such as racism on health outcomes.

In my role as a Trainer at AccessMatters, I develop and facilitate trainings on Black birthing justice, reproductive justice, institutional racism, and implicit racial/ethnic bias in patient-provider relationships and organizations.

I am here today because we believe that no one should be dying in childbirth or during the post-partum period—especially not from preventable causes. As we may all know, the United States is the only industrialized country where maternal mortality and morbidity rates have not decreased, but in fact have been on a steady increase since 2005.[1] Black birthing parents in the United States are 3-4 times as likely to die from childbirth or up to a year postpartum compared to their white counterparts; Indigenous birthing parents follow right behind at about 2-3 times more likely. In Pennsylvania, the state maternal mortality rate is about 11.4 deaths per 100,000 live births and for Black birthing parents, the maternal mortality rate is 27.3 deaths per 100,000 live births.

Before I focus on this critical issue, it is important to note that while nationally, Black and Indigenous birthing parents experience the highest rates of maternal mortality and the largest health disparities overall, Pennsylvania does not officially recognize any Native American groups within its boundaries.

[1] Moaddab A, Dildy GA, Brown HL, et al. Health Care Disparity and Pregnancy-Related Mortality in the United States, 2005-2014. *Obstet Gynecol*. 2018;131(4):707-712. doi:10.1097/AOG.0000000000002534

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[2] Therefore much of the Pennsylvania-specific data around racial disparities in maternal health is focused on Black birthing parents. This does not allow us to shed light on the very real health disparities faced by Indigenous people in the Commonwealth. It ignores an entire population and removes them from the equation when distributing much needed funding and services to particular communities across Pennsylvania. Given our role as educators, evaluators, and advocates, it is our responsibility to draw attention to this issue which does not allow for accurate data collection and further exacerbates racial health disparities.

Substantial research shows that a key cause of health disparities for Black, Indigenous and People of Color (BIPOC) is linked to interpersonal communication and racism—not race, but racism. These patient/client-provider relationships are directly impacted by the ways in which providers and other people in health and helping professions see and interpret the world. Implicit bias, also known as "unconscious bias" or "the bias of crowds," refers to the stereotypes that people subconsciously absorb, which affect our understanding, actions, and decisions. When it comes to dismantling racism in our institutions and within the system of U.S. health care, implicit bias is a driving factor that we must bring attention to. This is especially true in the maternal health field and the delivery room specifically when doctors are often faced with making split second decisions that translate to life-or-death decisions for patients who look like me.

Implicit bias shows up in healthcare settings when providers do not acknowledge pain felt by Black and Indigenous birthing parents and label them as drug-seeking, or do not believe Black and Indigenous birthing parents when they report that something feels wrong. It shows up when healthcare providers restrict traditional cultural birthing practices and instead prioritize medical cultural practices, or ultimately take on a hierarchical decision-making role rather than a shared decision-making role. Such actions on the part of the provider often happen because a provider believes—and has been taught—that patients, especially Black patients, do not know their bodies best, are health illiterate, and do not require informed consent. These ideas and practices date back to the so-called "father of gynecology" Dr. J. Marion Sims and his colleagues, who used the bodies of enslaved African women like Anarcha, Betsey, and Lucy as lab rats to further their professional careers. From their barbaric experimentation on these women and other women whose names we will never know, lasting stereotypes and racial biases were written into the very foundation of gynecology, which still guide our present-day medical practice. This is the power of "the bias of crowds" that we are calling into question.

At AccessMatters, we understand the power of implicit bias in decision making and have committed resources and efforts towards addressing it. In partnership with the Philadelphia Department of Public Health and Health Federation and their Organizing Voices for Action (OVA) project, AccessMatters will be providing evidence-based implicit racial bias training to healthcare providers in the five Philadelphia birthing hospitals over the next three years. Because we understand the power of a care team that is led by birthing parents, we have completed over 13 focus groups with Black birthing parents, doulas, midwives, nurses, OB/GYN residents, and attending physicians to ensure all components of the project are informed by input from people directly impacted -- with special attention to Black birthing parents. Their input will shape the trainings that are delivered to healthcare providers. Additionally, AccessMatters has provided training to medical students and residents in several medical schools across the state, and is pleased to see that some of those institutions are now making this a permanent part of the curriculum.

Our commitment to this work predates the latest racist incidents of 2020 and our involvement in the OVA project, as we have been working arduously under the guidance of our Director of Training and Capacity Building Dr. Jaymie Campbell since 2017 to provide trainings around implicit racial bias, racial microaggressions, and interpersonal and institutional racism to people in various institutions

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[2] Minderhout, David and Andrea Frantz. "Invisible Indians: Native Americans in Pennsylvania." *Human Organization*. Society for Applied Anthropology Vol. 67, No. 1 (Spring 2008), pp. 61-67

across the fields of public health, medicine, education, and philanthropy. To date, we have conducted over 70 trainings and trained over 2,500 professionals. Participants who completed those trainings rated the probability of behavior change at 3.61 out of 4, and 98% of evaluation respondents would recommend others to take this training.

While we know that trainings alone are not sufficient to dismantle racism, we also know that knowledge is the first step towards behavior change. Our trainings focus on not only raising awareness of implicit bias, but understanding the impact of racism on BIPOC and committing to take action to support racial equity. From our evaluation data, we can see that these trainings leave many participants motivated to change: to deepen their understanding of racism, to address their personal implicit bias, to hold themselves accountable for their language and behavior, and to collaborate with their colleagues to change their institutional systems to center the experiences and health outcomes of BIPOC.

Research has proven that unconscious stereotyping and prejudice are contributing factors to disparities in healthcare.[3] Research into the neurological and psychological aspects of prejudice and implicit bias formation suggests that when activated implicit bias shapes medical providers' diagnosis processes, treatment recommendations, and patient-provider communication styles.[4] People may cite that there is no evidence to support the use of implicit racial bias trainings or the need to address implicit racial bias to improve healthcare outcomes; however, at AccessMatters, we understand that the evidence exists if we are willing to look beyond white-centered academia to uncover it. We have already seen the changes that can occur in people and institutions after trainings when they commit to fighting racism.

In recent months, counties including Allegheny County here in Pennsylvania and states such as Michigan, Ohio and Wisconsin have led the charge on declaring racism—a product of prejudice and power—a public health crisis, an effort that holds those in power accountable to prioritize addressing racism by challenging the status quo. We fully support efforts happening at the local and state levels to make this declaration in Pennsylvania, including Representative Jake Wheatley's recent co-sponsorship memo outlining future legislation that would create a Racial Equity Task Force within the Department of Health to address systemic racism and its impact on social determinants of health that disproportionately affect BIPOC communities.

We know that unbiased, culturally responsive care saves lives.

As we continue this challenging work to address racism's impact on maternal health outcomes, we must look at policy solutions that are centering the voices and experiences of BIPOC birthing people. We encourage you to consider the following strategies and policy solutions:

- Declare racism a public health crisis in Pennsylvania;
- Explicitly identify racism – not race – as a root cause of maternal mortality
    - Black birthing people who live in affluent neighborhoods, receive prenatal care in the first trimester, don't have excessive weight, and have advanced degrees are still more likely to die or have their baby die than their white counterparts in poor neighborhoods, with no prenatal care, who have excessive weight, and don't have a high school diploma. - Dr. Joia Creer-Perry;
- Require and fund implicit bias trainings for all OB, L&D, ER, EMS providers in the state;
- Hire and promote BIPOC in key decision-making roles related to maternal-child health in the Pennsylvania Department of Health and the Department of Human Services;

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[3] Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care, Smedley BD, Stith AY, Nelson AR, eds. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington (DC): National Academies Press (US); 2003.

[4] Ibid.

- Create a task force to identify and remedy structural issues (data collection forms, policies, processes, funding allocations, leadership, etc.) that uphold and reinforce racism within the maternal-child health institutions across the Commonwealth;
- Support the following legislation introduced by Representative Cephas:
    - House Bill 2107 that would add severe maternal morbidity to the list of reportable events within the Pennsylvania Department of Health
    - House Bill 2108 that would extend Medicaid coverage for pregnancy related and postpartum medical assistance for up to an additional 10 months following the birth of the child
    - House Bill 2109 that would extend Medicaid coverage to doula services and create a Doula Advisory Board that would help guarantee livable wages for doulas
    - House Bill 2110 that would require training to address implicit bias and cultural competency that impact care and quality of care for patients of color;
- Fund prenatal care and post-partum doula care, particularly for women of color;
- Integrate maternal health with mental health services (example: home visiting services of psychologists along with visiting nurses or lactation consultants);
- Collect and report data related to race/ethnicity and pregnancy/birth outcomes to monitor racial health disparities and continuously evaluate the impact of policy changes on health outcomes; and
- Partner with public health non-profit organizations to execute public awareness campaigns around maternal health issues, including around patient rights/advocacy with messages that empower BIPOC to establish open lines of communication with their healthcare provider to achieve positive interactions and health outcomes.

AccessMatters strongly supports a multidisciplinary approach to improving maternal health outcomes for Black birthing parents that includes addressing and managing implicit racial bias, hiring and retaining BIPOC as a better model for cultural responsiveness, and creating a health care team that is birthing parent-led. We would be honored to partner with the state and maternal-child health organizations across Pennsylvania to address these issues. Thank you for the opportunity to speak today, and thank you for considering our recommendations.

##

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Written Testimony for Joint Senate and House Democratic Policy Committee
Chair, State Senator Lisa M. Boscola | Chair, State Representative P. Michael Sturla

Remarks By: Kimberly Seals Allers, Maternal Health Strategist; Founder, the Irth app
Editorial director, the Maternal and Child Health Communication Collective

Thank you to Rep, Morgan Cephas, Senator Lisa M. Boscala, Representative Mike Sturla, Senator Judy Schwank, Representative Mary Jo Daley and the joint Senate and House Democratic Policy Committee for the opportunity to speak here today, on this important issue of innovative responses to maternal mortality.

When I gave birth to my first child, just as I was completing my Masters degree in New York City, I was anxious and elated. During my pregnancy, I asked many girlfriends with children, most of whom were white, where to give birth. I read all the rankings list and listened to their glowing experiences and I went exactly where they recommended. While they walked out of the same hospital raving about their care, I left the same place feeling traumatized. They could not believe the things that I experienced. However, the truth was that at that time of my life, I was not yet married and I was still on student health insurance. And I was treated like an unwed Black woman with basic coverage. I felt that, I lived that.

Today, the body of evidence is clear: People are not being treated the same way even at the same place. In fact, bias in health care is one of the greatest and deadliest threats to maternal and child health in communities of color.

And while I survived my experience, racism and bias in care is directly linked to the Black maternal mortality and morbidity crises. We've all heard the dire statistics and read the heart-wrenching headlines. A recent study by the Birthplace Lab found that one in six women, regardless of race or experience, have experienced mistreatment by healthcare providers during birth. "Among mothers with low socioeconomic status, 18.7 per cent of white women reported mistreatment compared to 27.2 per cent of women of color," says the Giving Voice to Mothers study. Even vulnerable infants are impacted. A recent Stanford study of California hospitals showed disparities of care in the NICU, with Black and Latina infants receiving poorer care than white infants.

In my past eight years of experience working on the ground developing community engagement strategies and community-led interventions to improve birth and breastfeeding outcomes—including here in Philadelphia, in the Strawberry Mansion neighborhood—one things was clear: far too many Black and brown women had a story. Of mistreatment, or neglect or dismissiveness. Or a friend or family member who died in childbirth.

Countless scientific studies have also documented the problem of provider bias with one landmark study showing doctors giving different treatment options for hypothetical black patients than for hypothetical white patients presenting the same symptoms.

This problem has only been exacerbated by the Covid-19 pandemic. The capacity constraints and stresses of the pandemic are only exacerbating issues of unconscious bias, stereotypes, control and perceived compliance. Incidences of racism and bias in care are only getting worse.

Right now, hospitals are primarily addressing this problem with anti-bias or cultural competency trainings. Further, states such as California have mandated bias training for all physicians and hospital staff. This is an important start. However, these trainings lack public accountability. Nobody is checking or publicly tracking these hospitals to see if the patient experience of care is actually being impacted positively, negatively or not at all.

Meanwhile, one size fits all trainings that focus on the individual, don't have the granular details of what exactly are the spectrum of experiences that leave Black and brown birthing people feeling traumatized. Plus, they call it unconscious bias for a reason. It often occurs unconsciously, so we must detail what is perceived as an experience of bias to better inform these trainings. We can't change what we don't see or know about.

When I created the concept for the Irth app—and that's I-R-T-H, as in Birth, but we dropped the B for bias—I knew that it needed to do two things to be a meaningful disruptor. It needed to create public accountability for hospitals and providers—who often survey privately but never share it publicly. And, it needed to empower Black & brown birthing folks with a new decision-making tool that leverages the collective consumer power of women of color as a lever for change. Additionally, Irth plays a critical role in as one way to shift the narrative of Black maternal health which is often one of doom and gloom, with headline after headlines of deaths but little coverage of solutions. This only stokes fear and anxiety among Black & brown birthing bodies.

As a consumer tool, when Irth launches nationwide in October, it will be a Yelp-like review and rating platform for physicians and hospitals that helps Black women and birthing people of color find providers with good reviews from people just like them. It empowers a low income Black woman or a Latina same sex couple with information they've never had before to find a peer-reviewed and trusted provider—a known factor in improving patient compliance & behavior change. Irth captures prenatal, birthing, post-partum and pediatric visits for up to one year to offer a new lens for looking at experiences of bias across the maternity and infant care continuum.

On the back end , Irth creates the first ever national repository of experiences of care among marginalized groups. We know these experiences are everywhere—from Pennsylvania to California. And they are happening to everyone—from superstar athlete Serena Williams' harrowing near death experience after childbirth to my disadvantaged sisters in cities all across America. We can do better. This new data set will be used to provide critical patient reported insights to hospitals, that can reveal and detect blind spots, specific behaviors in care & identify specific trends in experiences of bias. We can then work directly with hospitals to create more respectful, culturally responsive

care. Thus, Irth becomes an innovative tool to advance equity in quality improvement measures.

If we want true innovation, we must begin to center the lived experience of those most impacted by the problem of maternal mortality—Black birthing bodies. We must acknowledge that the medical system has a long history of medical racism and we need other meaningful disruptors to nudge this industry which has been slow to change or even slower to undo its systemic racism. And we must acknowledge that we must listen to Black women, learn from their lived experiences and that if we center those most burdened by maternal mortality—Black women and birthing people—and get it right for them, then we will get it right for all. It's a tide that lifts all boats.

Thank you for the time here today.

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Clinical Rounds

A Public Health Ethics Analysis of the Criminalization of Direct Entry Midwifery

Continuing Education

Sharon Bernecki DeJoy[1], CPM, PhD, MPH

Multiple types of midwives practice in the United States, but regulation of midwifery practice varies by state. In some states, direct entry midwifery practice is unregulated or criminalized. Because regulations are the most burdensome of the public health interventions, they require the most stringent ethical critique. This article uses the most recent *Public Health Code of Ethics* to analyze the ethics of regulations that criminalize direct entry midwifery practice. The Code establishes 8 criteria for ethical actions: (1) permissibility, (2) respect, (3) reciprocity, (4) effectiveness, (5) responsible use of scarce resources, (6) proportionality, (7) accountability and transparency, and (8) public participation. Laws that criminalize direct entry midwifery practice violate all of these criteria and therefore cannot be considered an ethical approach to the state's duty to safeguard public health. The remedy for this problem is for all states to license and regulate all types of midwives that meet international standards of education and training.
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Keywords: midwifery, public health, codes of ethics, licensure, pregnancy, home birth

INTRODUCTION

The World Health Organization declared 2020 the Year of the Nurse and the Midwife,[1] highlighting the related but distinct nature of these 2 professions. The International Confederation of Midwives (ICM) states that "only midwives practise midwifery. It has a unique body of knowledge, skills and professional attitudes drawn from disciplines shared by other health professions…"[2] In the United States, however, the legal landscape for midwives who are not nurses is different from that of nurse-midwives.

In all 50 states and the District of Columbia, certified nurse-midwives (CNMs) are legally eligible to practice, although regulations vary by state. Educated in both nursing and midwifery, CNMs are registered nurses who have graduated from an accredited nurse-midwifery education program and have passed a national certification examination.[3]

Direct entry midwifery is an umbrella term encompassing different types of midwives who enter midwifery without prior nursing training. Certified midwives (CMs) graduate from a midwifery education program accredited by the Accreditation Commission for Midwifery Education, just as CNMs do, and pass the same national certification examination.[3] The North American Registry of Midwives accredits certified professional midwives (CPMs), a credential earned through educational pathways certified by the Midwifery Education Accreditation Council and a national certification examination.[4] Some individual states offer their own pathways for accrediting licensed midwives (LMs). CPMs and LMs practice in community settings,[5] attending births at home or in freestanding birth centers, and are usually the focus of criminalization debates.[6,7]

There are 4 types of practice regulations for direct entry midwives (DEMs) in the United States: legal and regulated or licensed, practice without regulation, unclear, and criminalization.[7] At the time of the writing of this article, CPMs had a path to licensure in 34 states,[4] and CMs had legal recognition in 6 states.[3] In states where direct entry midwifery practice is not licensed and regulated, midwives are vulnerable to criminal prosecution and may be charged with practicing medicine or nursing without a license, or even manslaughter in the case of a bad outcome.[6,7]

Because regulations are the most coercive and intrusive of the tools in the public health tool box, they merit the most serious ethical consideration.[8] In 2019, the American Public Health Association published an updated *Public Health Code of Ethics* (the Code) to provide guidance for policy and programmatic decision making.[9] The Code states that public health professionals should consider 8 factors before any action can be deemed ethical: (1) permissibility, (2) respect, (3) reciprocity, (4) effectiveness, (5) responsible use of scarce resources, (6) proportionality, (7) accountability and transparency, and (8) public participation. This article uses the Code to analyze the ethics of laws that criminalize direct entry midwifery. Although these 8 factors are discussed in the order listed, they are not discrete but rather interwoven and reinforcing, and therefore some analyses may overlap.

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Quick Points

- Regulation of midwifery practice varies by state, and direct entry midwifery practice is unregulated or criminalized in some states.
- Criminalizing direct entry midwifery practice violates the principles of the Public Health Code of Ethics.
- These ethical criteria include, among others, respect for pregnant persons and direct entry midwives, basing restrictions on evidence of their effectiveness, and not placing undue restrictions on individual liberty.
- All states should develop midwifery licensure and regulation that reflects ethical principles of public health.

BACKGROUND

Two definitions help establish the context and boundaries of this analysis. First, the Code defines *public health practitioners* broadly as "all those persons who are involved in the development, implementation, evaluation, and study of practices and policies designed to advance public health."[9(p 31)] Second, the Code defines the aim of public health as greater than individual or even population health, extending to "'flourishing' or well-being, which has a broader, more inclusive connotation. …[focusing] on the social conditions of capability and opportunity upon which health itself and many other goods depend."[9(p 3)] Therefore, any discussion of midwifery legislation must include not only perinatal health outcomes, but also the social determinants of health.

No discussion of midwifery legislation is complete without a brief history and background. Professional licensing laws were instituted in the early 20th century to protect consumers from untrained, unscrupulous, and unsafe practitioners.[7] Inspired by high rates of maternal and neonatal mortality at that time, the medical and public health nursing professions called for greater professionalism in the maternal-child health workforce. Although this is a laudable goal, defining the scope of professional occupations empowered those who drew the guidelines to exclude those who offered philosophical and economic competition to their own practices. Mired in the racist, classist, and xenophobic mores of the time, these professionals painted the primarily African American and immigrant midwives of the time as dirty, ignorant, and unsafe. This campaign to eliminate the midwife legislated DEMs out of practice and tied midwifery to profession of nursing.[10]

Under the system of federalism, regulating health care provider practice falls to the individual states.[7] Since the early 20th century, the US Supreme Court has recognized the right of states to use their police powers, including occupational licensing, to protect public health. Legislatures have been granted broad discretion in developing these laws, provided they can demonstrate a legitimate state interest rationally related to the restrictions imposed by the law in question.[5] The prevailing yet false belief that direct entry midwifery is an illegitimate and dangerous practice formed the basis for these restrictions.[11]

In the 1976 *Bowland v Municipal Court* decision,[12] the California Supreme Court upheld the prohibition of direct entry midwifery, ruling that the state had a legitimate interest in the well-being of the fetus after viability. Because legislators assumed home birth would jeopardize fetal well-being, the court referenced abortion law in ruling that a woman's right to privacy does not extend to determining the conditions of her child's birth. Although California subsequently licensed and regulated DEMs despite *Bowland*, this case formed the basis of other states' regulations that criminalized direct entry midwifery.[6]

ETHICAL CRITERIA

Permissibility

Governments can justify public health laws restricting behavior when those behaviors might harm (1) others (as part of the social contract), (2) particularly those who are incapacitated, and (3) oneself; the latter is defined as paternalism.[13] Those who place fetuses in the first 2 categories can find legal justification for restricting autonomy and privacy in childbirth. However, such efforts are ethically suspect because public health professionals do not define pregnant clients and fetuses as separate individuals with competing rights and interests. The American College of Obstetricians and Gynecologists states that "each woman has the right to make a medically informed decision about delivery."[14] The American Public Health Association takes the position that

> *Any … initiative that allows the state or other actors to claim rights of the fetus as independent of pregnant women has the potential to deprive women of access to comprehensive reproductive health care … as well as their rights to life, liberty, and privacy.*[15]

A comprehensive discussion of fetal personhood and the tension between liberty and public health paternalism is beyond the page limits of this article and the expertise of this author. Individuals of good conscience may debate these issues and disagree. Through the lens of public health, however, it is clear that attempts to safeguard fetuses at the expense of the liberty of an entire class of citizens places the first of the 8 pillars of ethical action on unstable ground.

Respect

If governments should not restrict the rights of pregnant persons in the name of fetal well-being, are they justified in doing so to protect the health of pregnant persons? The second criterion, respect, states that proposed public health actions should be rejected if they are demeaning to individuals and communities even if beneficial to their health.[9]

As will be seen in the section on effectiveness, the scientific evidence on direct entry midwifery care finds it to be beneficial to individual and community health. Therefore, to position direct entry midwifery as so unsafe it must be banned is disrespectful to the community of DEMs. Unlike the 19th century snake-oil peddlers who provoked the need for professional licensing, 21st century DEMs who meet ICM standards[2] are not unscrupulous, unsafe, or untrained. The campaign to eradicate the midwife casts a long shadow, and the stigmatization of DEMs continues to the present day, creating cultural narratives that midwives are second-class health care providers.[10,16]

Even if laws criminalizing direct entry midwifery did protect pregnant persons, it is demeaning and disrespectful to assume clients are incapable of making informed decisions about their care. Since the time professional licensing laws emerged, health consumers have increased their health literacy and have claimed greater rights and responsibilities.[11] The importance of shared decision making in perinatal care is now recognized.[17] Respect for the decisional capability of pregnant persons would promote policies that allow patient choice.

Respect includes the concepts of *justice* and *equity*. Criminalization of direct entry midwifery practice perpetuates inequities in access to health care and education and therefore violates these tenets. Marginalized communities in the United States, including but not limited to people of color, immigrants, and the poor, continue to face health disparities, including inequities in birth outcomes.[17] In many rural areas, there are no obstetricians available to provide perinatal services.[17] Midwifery care, far from being dangerous, provides benefits to pregnant persons and could reduce health disparities.[17] When midwives are unlicensed and unable to bill insurers, however, only those with the resources to self-pay for their services can enjoy those benefits. Licensing and regulating all nationally credentialed midwives would reduce the perinatal workforce shortage and increase access to care.[11,17,18] Furthermore, increasing the numbers of health care practitioners from marginalized communities through more licensing pathways could reduce structural discrimination and increase access to culturally safe care within those communities.[19,20]

Reciprocity

The ethical ideal of reciprocity states that social life should reflect mutual exchanges and cooperation rather than unilateral imposition. When a public authority does impose interventions on a community, it must ensure that such actions are not unduly or unreasonably burdensome. Where burdens disproportionately affect some individuals or groups, they should be offset by resources to redress the harms and losses they cause.[9,13]

The section on public participation will address the limited role of mutual exchange in midwifery regulation. However, it is clear that criminalization of direct entry midwifery practice imposes undue burdens and harms. Inability to practice their profession causes midwives a loss of livelihood and the sense of identify that comes with work and exposes those engaged in civil disobedience (ie, practicing illegally) to financial and criminal penalties. For childbearing persons, the criminalization of direct entry midwifery practice restricts autonomy and is a fundamental loss of liberty. Denial of human rights and dignity to these groups is not a burden that can be alleviated merely by the provision of alternate services.

In addition, it is important to consider that the alternative service provided in lieu of appropriate direct entry midwifery regulation and client choice is the status quo. The current perinatal care system in the United States, which is without consistent regulation and integration of midwives, produces some of the worst outcomes in the industrialized world at some of the highest costs.[17] The benefits of this system accrue to the few (hospitals and licensed professionals), whereas the harms accrue to the many (childbearing families and taxpayers). Reciprocity requires a rebalancing of these burdens through ethical, effective regulation.

Effectiveness

In evaluating potential actions, public health professionals should consider scientific data about risks and best practices.[9,13] A major concern about direct entry midwifery decriminalization is that such efforts would increase neonatal mortality by increasing the number of home births.[6] This concern is based on observational studies showing an increased relative risk of neonatal mortality in home birth.[17,21,22] However, this concern does not hold up under closer scrutiny.

First, the rate of home birth is low, about 1%.[23] Pregnant persons choose home birth for specific reasons,[24] and there is little evidence that a change in laws would change the culture of birth to the degree that home birth would become the norm. Even if the state wished to disincentive home birth, there is little evidence that criminalizing direct entry midwifery practice does so. If no licensed health care providers are available to attend a home birth, then a pregnant person may choose an unlicensed person to attend their birth or may forego trained birth assistance completely.[6] Knowing that some pregnant persons will always choose home birth yet not providing oversight of the health professionals offering this service does not fulfill the state's interest in public health and safety.

Second, limitations in available data and study methodology make it difficult to draw definitive conclusions about the risks of home birth.[17] Although some studies show the relative risk of neonatal mortality is higher in home birth,[21,22] the absolute risk is low. In both home and hospital births, neonatal mortality is a rare event.[17,25] As for home births, one study found no statistically significant difference in neonatal mortality based on the credentials of the attending midwife.[21] It is difficult to think of any other health profession that is criminalized because it produces outcomes similar to that of a related profession.

Third, although the concepts *home birth* and *direct entry midwifery practice* are related, they are not interchangeable in research or in practice. Midwifery regulations typically define midwifery as assisting a woman in childbirth.[6,7] This definition is restrictive, because all types of midwives provide comprehensive perinatal care.[2–4] If integrated into the health care system, some community-based midwives might engage in

collaborative care models that offer clients a variety of care options in different settings. To truly answer the question of how safe is direct entry midwifery practice, researchers would need to think outside the home birth box and conduct high-quality studies on the outcomes of direct entry midwifery practice at every phase of the childbearing year and in a variety of settings. Without this body of evidence, laws that criminalize DEMs prohibit an entire class of professionals from practice merely because they may aid and abet pregnant persons in giving birth in a location of which the state disapproves.

Most importantly, evidence suggests that midwifery care, rather than being dangerous, produces excellent outcomes for childbearing persons and infants. This analysis has focused heavily on neonatal mortality as an outcome of interest because that is the data point referenced in both research and legislation. However, a multitude of birth outcomes for both pregnant persons and infants are relevant to public health. More than 50 perinatal outcomes can be improved through midwifery care with more efficient use of resources.[26] "…The balance of evidence … suggests that there is something about the wellness-oriented, individualized, relationship-centered approach of midwifery care across home, birth center, and hospital settings that contributes to lower rates of medical interventions that can be dangerous when overused."[17(p 207)]

On a population basis, greater integration of all types of midwives in the health care system is associated with better perinatal outcomes.[20]

Responsible Use of Scarce Resources

There are opportunity costs to the implementation of ineffective policies, such as the wholesale ban on direct entry midwifery practice. Given the limited funding and political will for public health interventions, governments will usually adopt only one intervention at a time. Adoption of ineffective methods in lieu of more beneficial strategies has a negative effect on community health.[13] By reducing health care costs, widespread licensing of midwives could free up resources for preventive care and the social determinants of health.[11,19]

It is also important to consider the opportunity costs of midwifery criminalization for the criminal justice system. In some states where midwifery is unregulated, state agencies may not investigate midwives who practice without a license.[6,7] In those cases, it may require more state resources to license and regulate midwives than to turn a blind eye on unlicensed activity. Nevertheless, criminal justice resources currently devoted to prosecuting midwives could be redirected toward genuine criminal activity.

Lastly, postgraduate education in both nursing and midwifery is expensive. In the United States, although education may be subsidized by federal and state governments and local donors, most of the cost of education is borne by the individual. Requiring education in both nursing and midwifery, usually at a postbaccalaureate level, places a disproportionate burden on prospective midwives for whom higher education is an increasing financial burden;[18] it also is at variance with international standards.[2] Because ICM standards require a bachelor's degree or equivalent in midwifery for recognition, an ethical solution would be to decouple midwifery education from nursing education and institute more 4-year programs in midwifery.

Proportionality

Proportionality queries whether public health practitioners are using their power and authority judiciously.[9] Public health actions should adopt the least restrictive alternative that will meet the public health goal.[8,9] If the goal is to promote the health of pregnant persons and neonates, barring an entire profession from practice appears to be the most restrictive, rather than the least restrictive, means of achieving this goal.

Reasonable policies should avoid being too inclusive or too restrictive. When a policy regulates a small portion of the population affected by a health problem (as when some types of midwives' or pregnant persons' rights are constrained), such policies may be too restrictive. In themselves, tightly focused policies are not a problem, especially when they present an incremental or phased approach to a complex public health problem. However, what Gostin and Wiley call underinclusiveness becomes problematic when it "masks discrimination, as when government exercises coercive powers against politically powerless groups … but not others…"[13(p 65)]

Proportionate actions also seek to benefit the greatest number of persons. Concerns about the safety of home birth affect approximately 1% of birthing persons.[23] By contrast, licensing midwives and enabling their integration in a variety of practice settings would provide the benefits of midwifery care to the other 99% of the childbearing population.[20]

Criminalization of direct entry midwifery practice is also a disproportionate criminal justice response to the state's interest in infant health. Attending a home birth in an unregulated state can be a felony and cost a midwife jail time and thousands of dollars in legal fees.[6,7] Meanwhile, more common ways of jeopardizing children incur lesser penalties. Although all states require child safety seats, the fine for a first offense can be as low as $10.[27] Failing to vaccinate one's children may result in denial of services, such as access to public schools and child care, but it incurs no criminal penalty or fine.[28]

Accountability, Transparency, and Public Participation

The Code asks public health practitioners to consider whether all affected stakeholders had a meaningful opportunity to participate in decision making.[9] Transparency, accountability, and public participation can be hard to achieve because legislators may be unduly influenced by moneyed corporate interests. In addition, the voices of those who are disenfranchised from society face systemic barriers to representation within government.[13]

For these reasons, midwifery legislation rarely has transparent and meaningful public participation. In many states, licensing agencies are dominated by licensed professions, so the voices of unlicensed professions are not heard. The most powerful actors in the midwifery regulation debate are physicians and hospitals, who may be in competition with midwives for clients and who have greater lobbying power.[6,7] Because

protection of fetuses is an underlying justification for criminalizing midwifery,[7] activists on both side of the abortion divide muddy midwifery regulation debates with their conflicting claims. These factors collude to create an atmosphere in which direct entry midwifery practice rarely gets a full and unbiased public debate that includes all stakeholders. Although this atmosphere may be the status quo of American politics, it is not conducive to actions that fulfill the Code.[9]

CONCLUSION

In conclusion, criminalization of direct entry midwifery practice is ethically impermissible because it (1) places undue restrictions on individual liberty, (2) is disrespectful to pregnant persons and DEMs, (3) has insufficient data to support its effectiveness, (4) is a disproportionate response to the state's interest in children's welfare, (5) encourages waste of scarce health care resources, (6) reinforces the dominance of powerful stakeholders, and (7) upholds the status quo of a perinatal care system that yields suboptimal outcomes at a high cost. The sensible public health response is to redress these harms through midwifery licensure and regulation.

This analysis has focused on the ethical impermissibility of criminalizing direct entry midwifery practice. However, mere decriminalization does not suffice as a solution. Midwifery regulations that require physician oversight or forbid non-nurses administration of life-saving medication hamper safe, independent practice and are licensing in name only.[6,7,9] Model midwifery legislation that would address these burdens already exists.[29] To promote a flourishing society,[9] midwives and other public health stakeholders should advocate for the adoption of model midwifery regulation for all midwives meeting ICM standards in all US states and territories.

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CONFLICT OF INTEREST

The author has no conflict of interest to disclose. The views and opinions expressed are those of the author and do not necessarily reflect the official policy or position of any other agency, organization, employer or company.

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