Statement of

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Chairman Neal, Ranking Member Brady, and Members of the Committee, my name is Dr. Michael Lu. I am the Senior Associate Dean for Academic, Student, and Faculty Affairs at the Milken Institute School of Public Health, George Washington (GW) University. On July 1, I will assume my new role as the Dean of the School of Public Health at the University of California, Berkeley. Prior to joining GW, I was the Director of the federal Maternal and Child Health Bureau for the U.S. Department of Health and Human Services from 2012 to 2017, during which I led the expansion of the Maternal, Infant, and Early Childhood Home Visiting Program (MIECHV), and helped launch the largest federal initiative to address maternal mortality in decades. Prior to my federal service, I was a professor of obstetrics-gynecology and public health at the University of California, Los Angeles. As a practicing obstetrician at UCLA, I had attended more than a thousand births, and been honored as one of the Best Doctors in America since 2005. I am pleased to have the opportunity to share with you today my thoughts on what our Nation must do to eradicate maternal mortality. Please note that this testimony reflects my own views alone, and not necessarily the views of organizations with which I have been or will be affiliated.

Let me start by stating that I truly believe in twenty-first century America, in the most powerful nation on Earth, no woman should ever die from pregnancy and childbirth. Yet every year in the United States, more than 700 women die from pregnancy-related causes, and more than 50,000 women suffer a life-threatening complication (severe maternal morbidity)[1]. Maternal mortality in the U.S. more than doubled between 2000 and 2014, at a time when 157 of 183 countries in a World Health Organization study reported decreases in maternal mortality[2]. Among 31 countries in the Organization for Economic Cooperation and Development reporting maternal mortality data in 2014, the United States ranked 30th, ahead of only Mexico and more than 3 times higher than Canada and the United Kingdom[2]. Meanwhile, large racial/ethnic, socioeconomic, and geographic disparities persist. For example, African American women are nearly 3 times as likely to die of complications related to pregnancy and childbirth compared with white women, a gap that has not narrowed in decades[1].

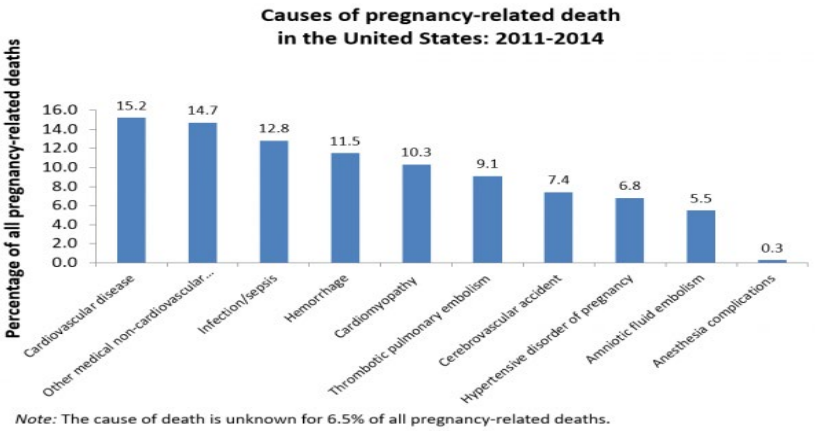
Recent media stories have shined a spotlight on maternal mortality, but much of the attention continues to focus on describing, explaining and admiring the problem rather than offering up solutions, which might create a misperception that there is not much we can do. But in fact,

much can and must be done. I believe we can cut maternal mortality in half by 2025, and eradicate maternal deaths in the U.S. by 2050, but only if we do the right things and have the political will to get it done. To achieve zero maternal deaths in our lifetime, we must 1) learn from every maternal death; 2) assure quality and safety of maternity care for all women; and 3) improve the health of girls and women across their life course.

LEARN FROM EVERY MATERNAL DEATH

First, we must review, report, and learn from every single maternal death. Presently there are three ways by which maternal deaths in the U.S. are counted[3]. The National Vital Statistics System (NVSS) uses ICD-10 codes and a pregnancy checkbox on death certificates to identify maternal deaths up to 42 days postpartum ("maternal mortality"). NVSS shows national trends and provides the basis for international comparisons, but its accuracy is constrained by the checkbox and has not published an official maternal mortality rate since 2007[3]. The Pregnancy Mortality Surveillance System (PMSS) uses linked birth-death certificates to identify maternal deaths up to 365 days postpartum ("pregnancy-related mortality"). The availability of pregnancy information on birth certificates enhances case ascertainment and clinical analyses; for example, Figure 1 identifies the leading causes of maternal deaths in the U.S. using PMSS[1]. However, PMSS is still constrained by the limitations of vital statistics.

Figure 1: Causes of pregnancy-related death in the United States: 2011-2014[1]



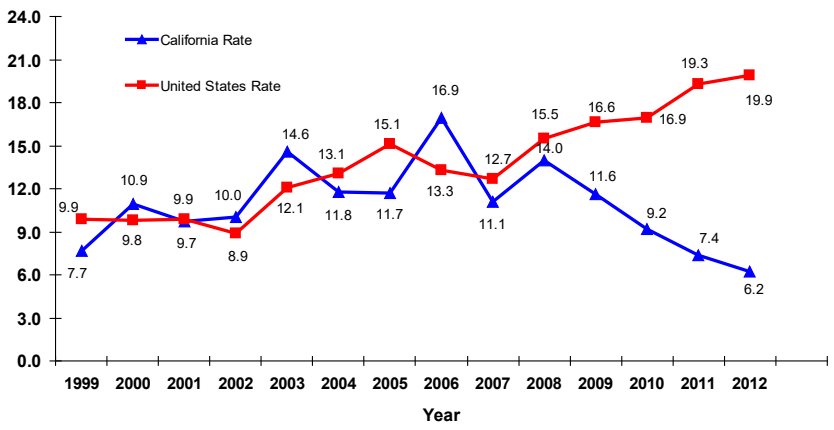
Maternal mortality reviews by state maternal mortality review committees (MMRCs) can help strengthen public health surveillance[3]. By linking vital statistics with prenatal and hospital records, autopsy reports, informant interviews, social service and other records, MMRCs can more comprehensively assess causes of deaths and opportunities for prevention. Currently 39 states, Philadelphia, and New York City have existing MMRCs. In an effort to standardize data collection and improve surveillance and research on maternal mortality, CDC is working with state and local MMRCs to adopt a common case review data system called MMRIA (Maternal Mortality Review Information Application), with a goal of expanding to a national maternal mortality surveillance system over the next few years[3]. Getting the data right is an indispensable first step toward achieving zero maternal deaths in the U.S.

ASSURE QUALITY AND SAFETY OF MATERNITY CARE

Most maternal deaths in the U.S. are preventable. A recent report, based on systematic reviews of 251 pregnancy-related deaths in 13 states, concluded that 60% of maternal deaths were preventable[4]. Most of the preventable deaths were the results of inadequate preparation, delayed diagnosis, ineffective treatment, or poor communication and coordination across providers and facilities[4]. Thus a "low-hanging fruit" for eradicating maternal mortality in the U.S. is to assure the quality and safety of maternity care for all women.

Quality improvement (QI) science has been used to improve aviation and car safety, reduce nosocomial infections and early elective delivery, and was adopted in 2006 by the California Maternal Quality Care Collaborative (CMQCC) to address the rising rates of maternal mortality and morbidities in California[5]. In collaboration with state public health department and many other partners, CMQCC developed QI toolkits comprised of best practices, educational tools, sample protocols, policies and other resources designed to improve the quality and safety of maternity care. It then went door to door to engage 126 hospitals throughout California to undertake QI initiatives through learning collaboratives, aided by these QI toolkits and a data center which provided real-time data and QI support[5]. Between 2006 and 2012, maternal mortality rate decreased by 60% in California (Figure 2)[5]. African American maternal mortality rate also decreased by nearly 50% during the same time period[5].

Figure 2: Maternal mortality in California and the United States: 1999-2012*



While a causal effect cannot be conclusively established, there is no clear alternative explanation for the dramatic reduction in California while maternal mortality in the rest of the nation continued to trend up[5]. In 2016, CMQCC completed an 18-month controlled trial of its hemorrhage QI toolkit, which engaged 99 hospitals in mentored learning collaboratives and 48 hospitals as controls[6]. Compared to baseline period, women with hemorrhage in collaborative hospitals experienced a 20.8% reduction in severe maternal morbidity while women in comparison hospitals had a 1.2% reduction[6].

In 2015, the federal Maternal and Child Health Bureau launched the Alliance for Innovation in Maternal Health (AIM) to spread and scale California's success to other states[7]. Led by the American College of Obstetricians and Gynecologists, in collaboration with 25 national organizations, the Alliance has engaged 20 states and more than 1,000 hospitals in implementing QI initiatives to improve maternity care with the aid of "maternal safety bundles". Like QI toolkits, these safety bundles are designed to assist providers, hospitals, and health systems in improving the 4R's – readiness, recognition, response, and review/reporting. Ten maternal safety bundles have been developed to address some of the most common causes of maternal mortality and severe

* SOURCE: State of California, Department of Public Health, California Birth and Death Statistical Master Files, 1999-2013. Maternal mortality for California (deaths ≤ 42 days postpartum) was calculated using ICD-10 cause of death classification (codes A34, O00-O95,O98-O99). United States data and HP2020 Objective use the same codes. U.S. maternal mortality data is published by the National Center for Health Statistics (NCHS) through 2007 only. U.S. maternal mortality rates from 2008 through 2013 were calculated using CDC Wonder Online Database, accessed at http://wonder.cdc.govon March 11, 2015. Produced by California Department of Public Health, Center for Family Health, Maternal, Child and Adolescent Health Division, March, 2015

morbidities[7]. While it is too early to see full impact, some AIM states are reporting improvements in process measures. Illinois has reported dramatic improvement in timely treatment of severe hypertension. The percentage treated within 60 minutes increased from 42% at baseline to 79%[5]. The goal of AIM is to put these safety bundles into practice in every birthing hospital in the U.S. by 2020, and to reduce U.S. maternal mortality by half by 2025.

IMPROVE WOMEN'S HEALTH ACROSS THE LIFE COURSE

Assuring quality and safety of maternity care for all women will only get us halfway to zero maternal deaths. Eradicating maternal mortality will require improving women's health not only during pregnancy but also across their life course. That is why it may take a generation to achieve zero maternal deaths. Increasingly women are entering pregnancy with chronic conditions such as hypertension, diabetes, and obesity, which can increase their risk for complications during pregnancy. These factors, along with improved surveillance and increasing maternal age, may account for most of the observed increases in maternal mortality and severe morbidities in the United States[2].

Turning the tide on women's health is not going to be easy. It starts with assuring access to quality healthcare for all women not only during pregnancy, but before and between pregnancies and across their life course. Today many low-income women lose their Medicaid coverage at 60 days postpartum. Considering that 1 in 8 maternal deaths occur between 42 and 365 days postpartum[4], extending Medicaid coverage up to one year postpartum could be an important first step toward reducing late maternal deaths. For women with chronic health problems, it is vital that their hypertension, diabetes or other conditions are in good control before becoming pregnant; allowing health plans to exclude coverage based on preexisting conditions could take maternal health in the wrong direction.

Healthcare is important to health, but so are social determinants of health[8]. Adverse childhood experiences (e.g. abuse and neglect) and violence against girls and women have been linked to chronic health problems. The cumulative stress of poverty for girls and women in low-income households can take a physiological toll on their long-term health[8]. The experience of racism in

the lives of many women of color can lead to "weathering," or accelerated aging, which could contribute to higher rates of chronic health conditions as well as maternal mortality and severe morbidities among even college-educated African American women[8]. Thus, improving women's health will require addressing social determinants and fighting social injustices of which our nation's high maternal mortality rates and gaps are symptomatic, and assuring the conditions in which all girls, women and families can be healthy across their life course[9].

CONCLUSION

To conclude, I'd like to offer up five concrete steps Congress can take to help eradicate maternal mortality in the U.S. First, call for a national strategy, which is long overdue. Congress can ask HHS Secretary's Advisory Committee on Infant Mortality to develop the first-ever comprehensive national strategy to eradicate maternal mortality in the U.S. Second, align resources with strategy. Recent congressional appropriations have helped spread and scale MMRCs and safety bundles, but much more remains to be done. Third, focus on improving women's health – our nation's future depends on it. You can start by protecting access to maternity care, extending Medicaid coverage for up to one year postpartum, and preserve the ban on exclusions based on preexisting conditions. Fourth, pay attention to social determinants. Your Committee has jurisdiction over a number of tax and family support programs which could buffer against the impact of these social determinants including temporary assistance for needy families, child care, child support, foster care, home visiting, and food stamps. Recent proposals by the National Academies of Sciences, Engineering and Medicine to cut child poverty in half in the next decade through a combination of expansions of Earned Income Tax Credit, Child Dependent Care Tax Credit, the Supplemental Nutritional Assistance Program and housing vouchers exemplify the kind of evidence-based policy approaches that could undoubtedly improve maternal and child health in our nation[10].

Lastly, let me close by giving a shout-out to my mom, Ming-Yueh Lu, and wish her a belated happy Mother's Day. My mom hasn't got a whole lot of public shout-outs in her life because she never got to go to college. Or high school. Or even junior high. You see my mom was only eleven when her father died, and so as the oldest girl in the family she had to drop out of fifth

grade to go work in a factory. She and my dad worked hard all their lives to put food on the table and put their four children through college. That in one generation, her youngest son is about to become a dean at the greatest public university in the world is a testament to all the love and sacrifice she has shown me, the same kind of love and sacrifice that's played out nearly 43 and half million times every day in this nation. America can do better by our mothers.

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