

MATERNAL MORTALITY AND HEALTH DISPARITIES IN CHICAGO

An Analysis of Birth Centers, Holistic Birth Care, and Associated Costs

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EXECUTIVE SUMMARY

Chicago has one of the highest rates of maternal mortality in the nation, with nearly 74.1 deaths per 10,000 deliveries, despite significantly spending on maternity care amongst the patient population¹. Further, risks for maternal mortality are disproportionately higher among Black women, who have a pregnancy-related mortality ratio more than double that of white women, regardless of educational level². Past studies have shown that community-based approaches, such as doulas and birth centers, could improve maternal health outcomes and patients' experiences while also potentially reducing costs³. These approaches could especially benefit those most at risk for poor outcomes, particularly people of color and those with low income.

However, little research has been conducted about the relationship between birth centers, birth outcomes, and insurance coverage of midwifery models of care in Chicago and Illinois. Thus, in this paper, we aim to review research literature on the maternal health outcomes associated with community-based, perinatal care models. Our research shows that midwifery models of maternity care, particularly in birth centers, improve outcomes and reduce racial inequities in maternal morbidity and mortality. We also found that low-risk births at birth centers would be more cost effective for insurance companies, as the medical obstetric model costs 19% more than the midwife model in labor and delivery practices.

The following sections of this paper include an overview of maternal mortality and health disparities within the Chicagoland area and the broader United States, a comparative and cost effective analysis of obstetrics versus midwifery-led models, as well as an analysis of insurance

1 Bovat, Sara. "Advocates' Forum 2021: Racial Capitalism and Black Maternal Mortality Rates in Chicago." Crown Family School of Social Work, Policy, and Practice. Accessed April 15, 2022. <https://crownschool.uchicago.edu/advocates-forum-2021-racial-capitalism-and-black-maternal-mortality-rates-chicago>.

2 Petersen EE, Davis NL, Goodman D, et al. Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015, and Strategies for Prevention, 13 States, 2013–2017. *MMWR Morb Mortal Wkly Rep* 2019;68:423–429. DOI: <http://dx.doi.org/10.15585/mmwr.mm6818e1>external icon.

3 Stapleton, Susan Rutledge, Cara Osborne, and Jessica Illuzzi. "Outcomes of Care in Birth Centers: Demonstration of a Durable Model." *Journal of Midwifery & Women's Health* 58, no. 1 (2013): 3–14. <https://doi.org/10.1111/jmwh.12003>.

coverage of birth care. Our arguments and policy recommendations are supported by synthesis of secondary literature, anecdotal evidence from interviews conducted with medical experts, and quantitative data derived to formulate a comprehensive cost-effectiveness analysis.

Maternal Mortality in the US

Within the United States, maternal mortality and morbidity rates have continued to increase even as they have declined in other countries around the world. From 1955 to 1985, maternal mortality rates decreased by 99 percent as healthier living conditions emerged, as well as safer surgical procedures, and access to antibiotics increased. Since then, maternal mortality rates have increased, causing lots of concern².

The National Institutes of Health (NIH) defines maternal mortality as “any short- or long-term health problems that result from being pregnant and giving birth” and maternal morbidity as “the death of a woman from complications of pregnancy or childbirth that occur during the pregnancy or 6 weeks after the pregnancy ends”³. According to the CDC “Maternal Mortality Rates in the United States, 2020” report, the mortality rate in the U.S. increased from 2019 to 2020, rising from 20.1 to 28.3 deaths per 100,000 live births⁴. The specific causes of death vary widely, but death from hemorrhage is most likely during pregnancy and during birth. But the main causes of death transition to heart conditions and mental health-related conditions during the postpartum period. Mental health conditions include deaths related to both substance

² Green, Mark. 2015. “What Explains the United States' Dismal Maternal Mortality Rates?” Wilson Center. <https://www.wilsoncenter.org/event/what-explains-the-united-states-dismal-maternal-mortality-rates>.

³ “Accelerating Research to Prevent Maternal Morbidity and Mortality (MMM).” 2022. National Institute of Child Health and Human Development. <https://www.nichd.nih.gov/health/topics/maternal-mortality/accelerating-research>.

⁴ Hoyert, Donna L. 2022. “Maternal Mortality Rates in the United States, 2020.” CDC. <https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm#>.

abuse and suicide⁵. Other causes include infection, anesthesia complications, noncardiovascular medical conditions, etc.

Most maternal deaths in the United States are deemed to be preventable, but in order to prevent and decrease the rate of deaths, one must evaluate what is wrong with the current system and how to better offer efficient, accessible, and affordable care. In the United States alone, maternal mortality and morbidity rates vary significantly. When looking at different states in the U.S. there are many different rates, ranging from 15 to 30 maternal deaths per 100,000 births in 2018⁵. Therefore, it is important to look into the specific geographic area and assess which factors contribute to the differing rates and quality of care. In this paper, we will specifically address the rates and suggest changes specific to the Chicago area.

While healthcare technology has expanded greatly in the last few years, the United States still does not adequately provide affordable, high quality, and accessible care to everyone. This lapse in care is seen through these high rates of maternal mortality and morbidity and in the inequality in the care received across the United States. The CDC report gives insights into the health disparities associated with maternal mortality. Specifically, the rate for non-Hispanic Black women was 2.9 times the rate of non-Hispanic White women⁶. Due to the unequal access to care received across the United States, certain social, economic, ethnic and other categorical groups receive a decreased quality of care and have a harder time accessing care, resulting in a higher number of unfavorable outcomes, complications, and deaths. The barriers found in the United States have existed for many years and continue to disadvantage minority and at-risk

⁵ Declercq, Eugene, and Laurie Zephyrin. n.d. "Maternal Mortality in the United States: A Primer." NLM Digital Collections. Accessed April 17, 2022.
https://collections.nlm.nih.gov/master/borndig/101774868/Maternal%20Mortality%20in%20the%20United%20States_%20A%20Primer.pdf.

⁶ Hoyert, Donna L. 2022. "Maternal Mortality Rates in the United States, 2020." CDC.
<https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm#>.

populations. Healthcare access, for example, can have significant effects on maternal mortality and morbidity. According to the program description for Medicaid in CDPH's 2007 health overview, Medicaid "is the largest single purchaser of nursing home services and other long-term care in addition to maternity coverage for prenatal, delivery, and postpartum care." Though it covers low-income payers who meet criteria, receiving Medicaid has income requirements and eligibility can change quickly.

Another example of one of the long-standing barriers to care in the United States is the systemic racism that has existed since the origin of the country, not only impacting social life for marginalized groups, but also healthcare. It is important to recognize how these specific factors, or "social determinants" impact the United States, leading to high maternal mortality and morbidity rates.

As previously stated, non-Hispanic Black women experience a higher rate of maternal mortality than non-Hispanic White women in the United States. Additionally, non-Hispanic Indian/Alaskan Native women experience higher rates, 2.3 times higher than non-Hispanic White women. The differences between racial and ethnic groups are exacerbated when other factors such as age and education are taken into account⁷. For example, the non-Hispanic Black and White gap increases substantially when looking at women over the age of 40, but the gap persists through every age. Additionally, when comparing the racial groups with less than a high school degree versus college graduates or higher levels of education, the difference in PRMR (pregnancy-related mortality ratios) increases from 20.6 to 32.4⁷. These disparities have continued to persist over time even in states and cities with low maternal mortality rates. Therefore, the factors that drive these disparities must be identified in order to successfully

⁷ Hoyert, Donna L. 2022. "Maternal Mortality Rates in the United States, 2020." CDC. <https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2020/maternal-mortality-rates-2020.htm#>.

lessen the gap experienced by different social, racial, ethnic groups and pregnant women in general.

Maternal Morbidity/Mortality in Chicago

Given existing biases such as racial barriers, socioeconomic cycles, and individual patient factors found in the demographics of some impoverished Chicago areas, maternal morbidity and mortality are more present due to the lack of pre-conceptual care, delivery and hospital care, postpartum care, and antenatal care. The statistics based on race for maternal morbidity and mortality in Chicago are almost identical, if not more magnified than the rates of racial prejudice in maternal healthcare in the United States. Stereotypes in the Chicago healthcare system are perpetuated by social and economic influences. Key findings in Chicago state that non-Hispanic black women are two times more likely than non-Hispanic white women to experience severe maternal morbidity⁸, consistent with findings by the CDC. Because of implicit biases leading to racial barriers, certain zip codes with higher economic hardship — and often more racially diverse — had more cases of severe maternal morbidity or maternal mortality (62.7 per 100,000 births) because of the lack of resources and ability to get the same care. This is defined as health disparity, stated as, “differences and/or gaps in the quality of health and healthcare across racial, ethnic, and socio-economic groups. It can also be understood as population-specific differences in the presence of disease, health outcomes, or access to healthcare”⁹.

Social determinants, policymakers, and systematic biases are wherein the health disparity problem exists, especially in large cities like Chicago. First of all, social determinants and policymaking overlap in zoning and gentrification, forcing poorer neighborhoods into cyclical

⁸ “CDPH data report - Maternal Morbidity & Mortality In Chicago.” 2019. City of Chicago. https://www.chicago.gov/dam/city/depts/cdph/statistics_and_reports/CDPH-002_MaternalMortality_Databook_r4c_DIGITAL.pdf.

⁹ Riley W. J. (2012). Health disparities: gaps in access, quality and affordability of medical care. *Transactions of the American Clinical and Climatological Association*, 123, 167–174.

poverty and maleducation, which is where zipcodes' status and statistics come into formation. The systemic racism and biases fill these certain Chicago zip codes with high maternal morbidity and mortality rates because of the way lower socioeconomic populations are grouped together. In these zip codes, lower-performing healthcare institutions tend to exist more frequently and report seeing a higher number of minority patients. Additionally, data shows that women with a high school education or less were more likely to experience pregnancy complications than women who completed more than a highschool diploma⁸. Education, in general, has a higher level of preventing unwanted pregnancy, especially amongst younger couples who cannot afford or take care of a child, let alone medical expenses along the way. Overall accessibility and quality care are absent from these areas, as well as education and resources.

Another part of the healthcare gap and disparity in Chicago comes from the lack of insurance or quality of insurance coverage amongst women in these areas for maternal healthcare. The two most popular forms of insurance coverage for women who experience pregnancy-related deaths are Medicaid and private payers. Although both forms were present in these unfortunate deaths, the statistics of Medicaid-user deaths significantly outweighed the results of private insurance payers' deaths with 71% of deaths relying on Medicaid and 19% on private insurance⁸. According to the program description for Medicaid in CDPH's 2007 health overview, Medicaid "is the largest single purchaser of nursing home services and other long-term care in addition to maternity coverage for prenatal, delivery, and postpartum care." Though it covers low-income payers who meet criteria, receiving Medicaid has income requirements and eligibility can change quickly.

All of the trends listed in Chicago's maternal health reports are consistent with the national health disparity trends, given the data on women in low socioeconomic areas.

Determinants of Maternal Mortality

Crear-Perry et al. discuss many of the barriers mothers face in terms of both structural and social determinants of health, laying out a framework of barriers of care that prove helpful in outlining the challenges of mothers of color or other marginalized groups¹⁰:

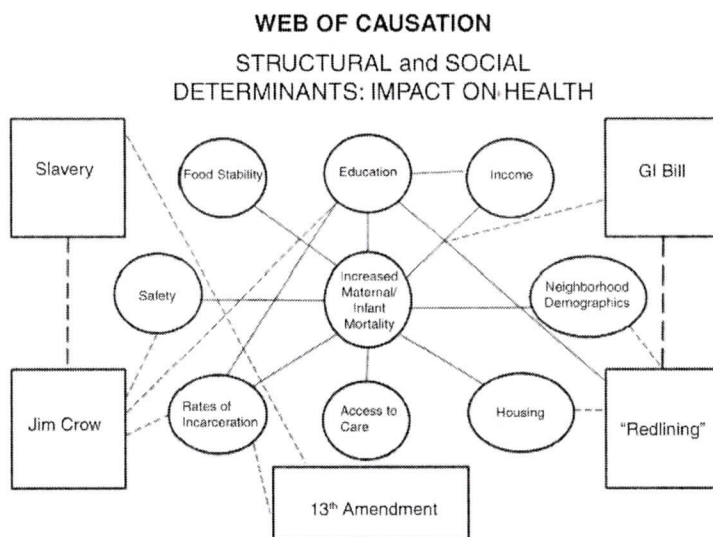


FIG. 1. ROOTT Theoretical Framework.¹⁵ This figure depicts the theoretical framework developed by ROOTT¹⁵ used to identify structural and social determinants of maternal and infant mortality in the United States. Structural determinants are those depicted in *boxes* connected by *dashed lines*, which in turn shape the distribution of social determinants (those depicted in *circles* and connected by *solid lines*). The multiple and interconnected pathways between structural and social determinants lead to increased maternal and infant mortality rates and socially defined inequities in these outcomes. ROOTT, Restoring Our Own Through Transformation.

Furthermore, the authors outline four key barriers to improving maternal health outcomes:

Financial Barriers

A significant wealth gap exists among some populations, embedding and deepening the wedge between the quality of access for patients at safety-net and disproportionate share hospitals (DSH). Smaller, often private, and more resource-heavy private hospitals are accessible only to those who can afford expensive services. Patients covered under Medicaid or who aren't

¹⁰ Crear-Perry, J., Correa-de-Araujo, R., Lewis Johnson, T., McLemore, M. R., Neilson, E., & Wallace, M. (2021). Social and Structural Determinants of Health Inequities in Maternal Health. *Journal of women's health* (2002), 30(2), 230–235. <https://doi.org/10.1089/jwh.2020.8882>

insured at all must face overcrowded and under-resourced facilities that are unable to provide the time and attention needed for high-quality care.

Financial barriers further embed structural violence within the patient-doctor interactions. Davis (2019) highlights the intersection of obstetric racism that is made manifest by structural health disparities, including how medical professionals learn to treat Black patients or patients of color. Doctors, in some cases, have been shown to ignore, diminish, or overlook Black mothers' pregnancy plans without consultation or explanation, leaving patients powerless and without agency. Inability to pay for better services prohibits many women from being able to change doctors and seek out better care options.

Structurally Unhealthy Environments

A key social determinant of health, as defined by the CDC, is the neighborhood and built environment. These determinants range from environmental health to transportation access to affordable housing, all of which can affect health in different ways. Developing effective urban planning practices and modifying communities to reduce harmful behaviors is essential to reducing health disparities. In terms of maternal health, access to transportation and safe housing is crucial. For example, McCabe (2021) finds that not seeking prenatal care can lead to presumptions that lay blame on the patient for not seeking out care. These presumptions can lead to disrespect or the removal of agency in patient interactions. Physicians or other medical professionals may, as a result, dictate to a mother what she should've or should be doing, which can lead to complications over the course of pre and perinatal care.

Looking at which structural determinants are at play, though, can reveal how the environments within which we live can systematically deny access to opportunity. If a mother or

her family must work long or multiple jobs to meet rent and other necessities, it can make scheduling time to receive prenatal care difficult. Furthermore, if there are poor public transportation lines in an area it can make transportation to a hospital or another healthcare facility difficult. Thus, affording prenatal care services may be expensive and inaccessible.

Racially Segregated Communities

Hand in hand with the structural health of an environment is the social health and the social organization of communities. One example, redlining, proves that marginalized communities have been forced into unhealthy environments, which not only produce obstacles in terms of financial stability but also in terms of physical health. By creating urbanized environments with high population density, while neglecting to create walkable communities in favor of motor transport, individuals are left with few options to easily exercise, eat healthily, or refrain from the use of cars or other forms of public transport which encourage a sedentary lifestyle.

Disparities in Education

Education access and quality is another key social determinant of health. The growing racial achievement gap not only deprives children of color of poor educational outcomes but also leads to poor financial outcomes. The underfunding and de-facto segregation of inner-city public schools continues to exacerbate this gap, leading to the issues discussed above.

Moving forward

Addressing these causes will require sustained interventions, several of which the authors detail and recommend:

The first, paid family leave, would provide increased agency and financial security for parents, especially mothers. A solidification and expansion of current healthcare insurance coverage policies would also go far, especially Medicaid expansion in states that haven't yet expanded. Finally, culturally appropriate care and community investment are crucial in engaging with marginalized groups and providing them with the proper resources to receive care.

Integral to Crear-Perry et al.'s argument is the notion that individual responsibility of care be shifted to a recognition that social and structural factors force mothers into untenable positions, which no amount of intelligence or willpower can overcome¹¹.

These findings are echoed by Shaw and Khan, who find increasing evidence of adverse outcomes as a result of ignorance of social determinants of health. They bring into the conversation questions of how best to integrate social and structural competency into clinical care.

¹¹ Crear-Perry, J., Correa-de-Araujo, R., Lewis Johnson, T., McLemore, M. R., Neilson, E., & Wallace, M. (2021). Social and Structural Determinants of Health Inequities in Maternal Health. *Journal of women's health* (2002), 30(2), 230–235. <https://doi.org/10.1089/jwh.2020.8882>

Obstetrics versus Midwifery-led Models: Comparative Analysis

Hospital Births

Hospital births remain the most popular option among expecting parents in the United States, with about 98.4% of births occurring in a hospital setting as of 2017¹². As physicians aimed to overtake the field of childbirth, they promoted a birth model that could exclusively be performed in a hospital¹³. As a result, the use of midwives declined rapidly, leaving heavy demand on labor and delivery units across the country. At a majority of hospitals in the U.S., mothers are cared for by a team of nurses and physicians covering the delivery unit in shifts. Incoming mothers are assessed to determine what stage of labor they are experiencing, and then directed to the appropriate area. The assessment includes measuring cervix dilation, vital signs, fetal heart rate, and blood/urine samples¹⁴. During this process, the patient has to sign multiple permission forms in order to fulfill hospital registration. Once a mother is in active labor, she will be put in a delivery room, which is equipped with birthing tools and quick transfer to acute care interventions if needed. Although many expecting parents have accepted physician assisted births as the safest option, current research brings to light concerns with the over-medicalisation of the birthing process.

A standard of current obstetric care involves the use of continuous electronic fetal monitoring (CEFM), which measures the baby's heart rate—for all pregnancies—regardless of

¹² “Maternal and Newborn Care in the United States.” National Center for Biotechnology Information. National Academy of Sciences, n.d. <https://www.ncbi.nlm.nih.gov/books/NBK555484/>.

¹³ Brodsky, Phyllis L. “Where Have All the Midwives Gone?” *The Journal of perinatal education*. Lamaze International, 2008. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2582410/>.

¹⁴ Bellani, Priya Solomon. “Hospital Admission Procedures and Early Labor Checks.” *Baby Center*. BabyCenter, February 2022. <https://www.babycenter.in/a546727/hospital-admission-procedures-and-early-labour-checks>.

risk. Although vitals are an important measurement of both maternal and fetal health, evidence has neglected to support its use for low-risk pregnancies. An article in the Journal of Perinatal Education discusses the relationship between fetal monitoring and unnecessary medical interventions¹⁵. The author highlights an association between CEFM and increased cesarean surgery and instrument-assisted vaginal births. However, Heelan finds that over reliance on monitoring forces physicians to intervene when not medically necessary, thus taking away from direct-patient informed decisions. She suggests a more “high-touch, low-tech” approach in which the direction of care is based on contact with the patient, and supported by technology. To corroborate on the use of CEFM, Amy Romano and Judith Lothian discussed that CEFM has lacked any substantial benefits for low risk pregnancies¹⁶. Rather, the continued practice of CEFM confines a mother to the bedside, restricting mobility that is key for progression and comfort of labor. Although CEFM was originally implemented as a means to improve health, it lacks significant benefits to the mother and baby. Consequently, obstetric care should aim to reduce unessential interventions to promote more natural births.

The high rates of cesarean sections remain another factor disrupting the standard birth process. Physicians have begun to prefer this approach for its defensive utility, while expecting parents value the predictability of the procedure. Physicians order cesarean sections based on indications of “significant risk of adverse outcome for mother or baby is present if the operation is not performed at a given time”¹⁷. However, defensive cesarean sections are performed when the physician is concerned with the threat of legal claims, thus prompting them to perform the

¹⁵ Heelan, Lisa. “Fetal Monitoring: Creating a Culture of Safety with Informed Choice.” The Journal of perinatal education. Springer Publishing Company, 2

¹⁶ Romano, Amy M. “Promoting, Protecting, and Supporting Normal Birth: A Look at the Evidence.” Journal of Continuing Education in Nursing, April 2007. <https://pubmed.ncbi.nlm.nih.gov/18226163/>.

¹⁷ Konlan, Kennedy Diema, Elizabeth Kpodotsi Baku, Milipaak Jaipong, Kennedy Dodam Konlan, and Roberta Mensima Amoah. “Reasons for Women's Choice of Elective Cesarean Section in Duayaw Nkwanta Hospital.” Journal of pregnancy. Hindawi, July 7, 2019. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6642781/>.

surgery in a scenario they may not deem necessary¹⁸. Similarly, elective cesarean sections are performed when not medically necessary, but rather to control the birth process and avoid unexpected pain. Despite increasing cesarean rates, it is important to acknowledge the risks associated with the procedure. A 2018 systematic review published by the journal PLOS medicine identifies the decreased risk of pelvic floor dysfunction in cesarean section¹⁹. Contrarily, there was increased risk of asthma and obesity in the children, as well as placental issues and miscarriages in subsequent pregnancies for the mother. When patients are presented with options for their delivery, they should be well informed of potential risks associated with each mode of care.

Another issue arising from current obstetric practices is a lack of connection and communication between patient and physician. An OB-GYN workforce study in the United States warns of an approaching shortage of providers in comparison to birth rates²⁰. As physicians deal with the increasing demand, they are assigned multiple patients at once, making it difficult to provide ideal care for patients²¹. The American College of Obstetrics and Gynecologists released a committee opinion stating the urgency for effective patient-physician communication²². They recommend committing substantial time and resources dedicated to improving communication such as cultural and sensitivity workshops, longer visits with patient-centered interviewing, and hiring additional nonphysician health care workers to provide

¹⁸ Fineschi, Vittorio, Mauro Arcangeli, Nicola Di Fazio, and Zoe Del Fante. "Defensive Medicine in the Management of Cesarean Delivery: A Survey among Italian Physicians." *Healthcare* (Basel, Switzerland). U.S. National Library of Medicine, August 2021. <https://pubmed.ncbi.nlm.nih.gov/34574870/>.

¹⁹ Keag, Oonagh E, Jane E Norman, and Sarah J Stock. "Long-Term Risks and Benefits Associated with Cesarean Delivery for Mother, Baby, and Subsequent Pregnancies: Systematic Review and Meta-Analysis." *PLoS medicine*. Public Library of Science, January 23, 2018. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5779640/>.

²⁰ "Doximity." 2018 OB-GYN Workforce Study, June 2018. https://www.doximity.com/press/obgyn_report.

²¹ "Why Ob-Gyns Are Burning Out." American College of Obstetricians and Gynecologist, October 28, 2019. <https://www.acog.org/news/news-articles/2019/10/why-ob-gyns-are-burning-out>.

²² "Effective Patient-Physician Communication." ACOG, February 2014.

<https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2014/02/effective-patient-physician-communication>.

further modes of conversation. Prioritizing clear and operative dialogue in provider care allows patients to feel more connected with their provider, thus reducing stress and discomforts during the birthing process.

When expecting parents are choosing their mode of care, it is important to look for providers best suited for their risk level. Hospitals remain the safest option for high-risk pregnancies and those requiring acute care. However, low risk pregnancies have more options in-terms of care. Kate Bauer, executive director at the American Association of Birth Centers, expressed the importance of “humanizing birth in all settings”, as mother’s should be in a setting where they feel respected and safe during their birthing process.

The Case for the Continuity Model of Midwife Care in the United States

For most of human history, midwifery has been the primary model of care for labor and delivery. Only with the rise of biomedicine have modern obstetrics and hospital births become common. Licensed physicians have become the gatekeepers of medicine, with most care occurring within the hospital rather than in the community. These mostly male providers informed their care with research-based evidence, but often lacked the personal perspective of ever being a patient themselves—an issue especially prevalent with obstetricians. This approach led to better outcomes for premature infants and high-risk pregnancies, as more technologies and treatments became available. However, in the United States, a country which spends more on healthcare than any other nation, maternal and infant morbidity remain extremely high. Cutting-edge obstetric care significantly improved these high risk cases, but in low-risk pregnancies, the United States falls significantly behind its counterparts. In high income countries, the WHO identified around 6.2 million unnecessary cesarean sections (Renfrew et al.

2014), which contribute to higher rates of delivery complications and mother and infant morbidity. In other words, providing obstetric care when not medically appropriate also carries significant medical risk. Recent comparative literature examining the benefits and challenges of midwifery models of care compared to obstetrics have identified many psychosocial factors (and some physiological) which are present in the midwife care, but not in standard hospital births.

Substantial literature has identified better outcomes for low-risk births without complications, especially in low-resource settings (Hoope-Bender et al. 2014). Hoope-Bender et al. found that midwife coverage of only 25% of the population would prevent 50% of maternal mortalities, with a similar effect on infant death. While medical obstetrics has provided scientific advancements, improving outcomes for premature and high risk births, standard hospital labor and delivery departments lack a continuity of care across multiple dimensions of care, including family planning and infant care. An Australian study examining the patient experience in multiple models of care found that women most value personalized care, trust, and empowerment in midwife models (Perriman et al. 2018). Within these identified motifs, women felt that the continuity of care itself was most important in allowing the midwife-mother relationship to be well-established prior to the delivery and subsequent early care of the infant and physical recovery from birth. Women felt that this type of care centered around them as people—rather than focusing on the birth as a medical procedure. In this sense, many midwives would be better equipped to provide patient-driven care, as most are women who provide care informed by their own experiences giving birth.

In terms of physiological outcomes, the most significant difference between obstetrics and midwifery comes from the midwife model's use of preventative care to reduce the need for cesarean sections and the general practice of using c-section births only when absolutely

necessary. Unfortunately, much of obstetrics is influenced by financial motivations, rather than the overall health (physical and mental) of the woman. Healthcare reimbursement in the United States operates primarily based on procedures and treatments. Obstetricians who use cesarean sections and medications sparingly would receive significantly less reimbursement. Even if the individual obstetrician might value sparingly used procedures, hospital administrators and policies influence use of care, especially where finances are concerned. High rates of cesarean sections are associated heavily with poor perinatal outcomes, mostly due to the risk of surgery. The obstetrics model ultimately seeks a medically safe birth but, at least in the United States, fails to provide sufficient preventative care which would correspond with the promotion of safe, *natural* childbirth.

Dr. Robert White, a neonatologist from South Bend, Indiana, spoke on his experiences with and knowledge of the midwife model. White states, “So much of the American system is driven by money, by the people who make a lot of money.” According to Dr. White, and in agreement with the literature, midwives provided a much higher quality of care for routine pregnancies and births. Ideally, he pointed to a midwife-based model in which the doctor acts as a consultant for complex cases, a model already in practice at birth centers in the United States. These organizations center care around maternal health and goals, providing resources far beyond the standard hospital obstetrics model. These centers, regulated and licensed on a state-by-state basis, typically require licensed midwives also trained as nurses, with obstetricians on staff as resources for complex cases. In basing care in a community health model, birth centers offer greater supportive and preventative care at a much earlier point in pregnancy and on a more regular basis throughout. In evaluating this model, Dr. White made the point that current resources must not only be expanded but also made accessible to at-risk populations. One study

estimated that the implementation of comprehensive midwifery and family planning models could prevent approximately 83% of maternal deaths, stillbirths, and neonatal deaths, a major reduction in morbidity (Homer et al. 2014). Another systematic review of studies in high-income settings found that women who encountered midwife-led continuity models of care had significantly reduced rates of regional analgesia, instrumental vaginal birth, preterm birth (< 37 weeks), and all fetal and neonatal death (Sandall et al. 2016).

In recommending implementation of a midwife-led model of care, most literature also stressed the importance of fostering an educational system which would support this expansion and the further professional development of well-trained, licensed midwives. Without the structural support of education, funding, and infrastructure, simply opening more positions for midwives will likely not result in the effective scaling up of the midwife model in healthcare.

Cost Effective Analysis

There are various costs unique to, and also shared between, the midwifery model of care and the traditional, medical obstetric model of care. In general, the midwifery model, whether carried out in birth centers, at the home, or even in conjunction with hospitals, tends to be cheaper than the traditional medical obstetric model of care taking place in a hospital, as there are numerous sources of savings. Additionally, the midwifery model of care generally tends to boast more effective results in maternal and infant health than the traditional medical obstetric model. However, both the cost and effectiveness difference between the two models may not be as dramatic as several studies present. This is due to several reasons: undercompensation of midwives working at birth centers, the numerous intrinsic costs associated with the midwifery model of care which are not always taken into account, and the fact that birth centers utilizing the

midwifery model inherently deal with lower-risk pregnancies. Yet despite these factors, the midwifery model still tends to be a highly effective and less costly model of care.

When only taking into account the methodology of care in both the midwifery model and the medical obstetric model, the components of the midwifery care model are less costly than those of the medical obstetric model. A 2015 study done at Brampton Civic Hospital in Ontario studied the costs and outcomes of low risk pregnancies that utilized each model of care in the context of the hospital in order to compare how simply the components of each care model affect the final cost and to control for location of birth (all births took place at the hospital rather than a birth center). When comparing the costs of pregnancies overseen by midwives and pregnancies overseen by obstetricians, the study found that the mean cost per delivery of a pregnancy that using the midwifery model was \$6,107, while the mean cost per delivery of a pregnancy that used the traditional obstetric model was \$6,126, \$19 more expensive per birth. These costs, as well as all further costs, have been modified from their original form to account for inflation and to be in terms of 2022 dollars. Furthermore, the effectiveness level of births using the midwifery model was 0.9395, meaning that these infants had about a 94% avoidance rate of transfer to the NICU. This was higher than the effectiveness rate of births using the medical obstetric method, which only had an effectiveness of 0.8956, meaning that these infants had about an 89.6% avoidance rate of transfer to the NICU. It is also important to keep in mind that since this study only worked with low-risk pregnancies in hospitals, the difference in effectiveness can be attributed to the differences in care models, rather than to the location of birth or to the fact that the midwifery model is more concentrated with low-risk women than is the medical obstetric model.

However, it is important to note that although at its core the midwifery model appears to be cheaper, there are additional costs associated with its inherent structure that are not present in a medical obstetric model of care. For example, according to the 2015 Brampton Civic Hospital study, it costs \$1,238 for a midwife to be able to attend a delivery, much more than a physician's charge for simply attending delivery, which is \$597. Furthermore, because the midwifery model does not use anesthesia, a referral for anesthesia from a midwife for a patient who needs it can cost an additional \$128. Also, referrals to physicians from a midwife for a woman in need can cost an additional \$122. These are both costs that would not be present in the medical obstetric model, which already uses an obstetrician and in which anesthesia is accounted for in the cost. Although, it is important to keep in mind that hospital costs, especially for specialized operations within the obstetric model in which there are already a low amount of available doctors capable of performing these operations, may be overinflated.

Moreover, it is important to note that the lower cost of the midwifery model of care can be partially attributed to the undercompensation of midwives. As mentioned in the study, “varying the MW compensation to the increased level recommended by a pay equity consultant – a 75% compensation increase – for the AOM lawsuit (calculated as \$2,612 for MW costs for attending delivery, which represents 48% of requested course of care fee) negated the MW dominance as a cost-effective strategy for low-risk births,” meaning that the cost-saving benefit of the midwifery model would be largely negated in this study if midwives' pay were increased.²³

Because the methodology of care in the midwifery model tends to be inherently less costly than that of the traditional medical obstetrics model, it is important to consider this fact in

²³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4748366/>

the context of Medicaid. Pregnancy is a high cost source for the Medicaid program, and the coverage it provides is often most helpful for women having low-risk pregnancies, who are also those who could most practically utilize the services of a birthing center and of the midwifery model. The main obstetric cost sources to the Medicaid program include physician costs or midwife costs, as well as maternal and infant hospital costs or birth center costs, depending on the model of care used. The average costs to the Medicaid program, collected by 2008 data with the Family Health and Birth Center in Washington D.C., as well as national sources about obstetric general costs, and converted into 2022 constant dollars, are shown in the table below.

Medicaid Cost Comparison (2022 dollars)	Medical Obstetric	Birth Centers/Midwifery Model
Average cost of care at hospital (vaginal)	\$8,538	\$7,876
Average cost of care at home (vaginal)	N/A	\$4,207
Average cost of care (c-section)	\$11,922	N/A
Average total Medicaid cost	\$9,528	\$7,993

Here it is seen that, in general, the average total Medicaid cost per birth for the midwifery model is \$7,993, whereas the average total Medicaid cost per birth for the medical obstetric model is \$9,523. This means that the medical obstetric model costs 19% more than the midwife model. The main saving sources in this case are that deliveries at hospitals tended to be \$702 more expensive than births at birth centers, \$423 were saved on midwife compensation, and \$322 were saved on the difference in c-section rates between birth centers and hospitals.²⁴ The cesarean section rate difference is important to note, as c-sections are significantly more expensive than vaginal births, and are much more common in women who pursue the traditional

²⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4167228/>

medical obstetric model throughout their entire pregnancy than those who begin with the midwifery model.²⁵

Beyond the difference in cesarean section rate, it is important to note that from the data collected from the Family Health and Birth Center and other national sources, it was clear that the use of the midwifery model actually tended towards better results for infant and maternal health, as shown in the table below. Here, it is most important to note that the cesarean section rate of women using the midwifery model was 19.8%, much lower than the national average (27%) and the rate of women using the medical obstetric model (29.3%). Furthermore, the preterm birth rate of women using the midwifery model (7.9%) was also much lower than that of women using the medical obstetric model (11%).

General Midwifery vs Obstetric Data	Midwifery	Medical Obstetric
C-section Rate (national average = 27%)	19.80%	29.30%
Preterm Birth Rate	7.90%	11%
Birth Weight	3245 g	3166 g

Overall, both in the context of the methodology of each model and in the savings it can provide to not just patients but to the Medicaid model, the midwifery model tends to prove itself as a cheaper, more effective, method of care. However, there are some unaccounted for additional costs associated with the midwifery model, such as referral to different specialists and unaccounted for undercompensation, possibly skewing these cost differences.

Analysis of Insurance Coverage

Review of Private Health Insurance Companies

Birth centers and other midwifery models that differ from traditional hospital births are more difficult to be covered by private insurance companies. Although public insurance programs like Medicaid are required to cover birth centers, this is not necessarily the case for private insurance companies. According to Planned Parenthood, “Routine prenatal, childbirth, and newborn care services are essential benefits. And all qualified health insurance plans must cover them...” (“Does Health Insurance Cover Pregnancy Services?”). However, this insurance regulation does not specify the type of birthing model that must be covered. Indeed private insurance companies must cover childbirth, but they can discriminate between which forms of birthing methods they will cover.

Many insurance companies choose not to cover birth centers, home births, and other midwifery models as adequately as they do traditional hospital births because insurances claim these models to be, “not medically appropriate” and “risky” (Ochalla and Vinzant). For example, Aetna claims that “labor and delivery... clearly presents hazards to both the mother and fetus before and after birth. These hazards require standards of safety that are provided in the hospital setting and cannot be matched in the home situation” (Ochalla and Vinzant). Private insurance companies do not take into consideration the fact that the birthing process is a personal decision for each mother. Insurance companies make it difficult for mothers to decide how they want to give birth and instead are, oftentimes, forced to deliver via a traditional hospital birth because they can not afford to pay out of pocket for a birth center or other midwifery model.

Although traditional hospital births are a safer birthing model for high-risk pregnancies, birth centers are very safe for low-risk pregnancies. If a mother is having no known

complications throughout her pregnancy, then there is not much concern to utilizing alternative birthing models. For the couple Stephanie and Sean Taylor, they began to question using the traditional hospital birthing process after many routine OB-GYN visits throughout Stephanie's pregnancy led them to wonder why she continually needed ultrasounds and other tests done when she was healthy. Their insurance, Blue Shield of California, "doesn't have midwives or birth centers available in the couple's network" (Andrews). As the Taylor's desired to use a birth center, they were, unfortunately, obligated to pay-out-of-pocket because their private insurance would not cover the costs of this birthing model.

The difficulty to obtain coverage of alternative birthing models by private insurance companies is simply irrational. If a patient wishes to utilize a birth center or other midwifery model, and they do not have a high-risk pregnancy, it only seems logical for a private health insurance company to cover these costs, especially given the lower costs of birth centers when compared to traditional hospital births. According to the Agency for Healthcare Research and Quality and the American Association of Birth Centers, "The average hospital charge for a vaginal birth without complications was \$10,166 in 2010, compared to \$2,277 for a birth center..." (Andrews). Birth centers present an extremely lower cost than hospital births, yet, ironically, it is more difficult for insurance companies to agree to cover these.

Although private insurance companies tend to not cover alternative, non-traditional birthing models, some insurance companies will offer out-of-network benefits for these types of services ("Midwifery, Pregnancy & Birth"). This would allow a mother to have reduced costs if utilizing midwifery services; however, she would still incur more out-of-pocket costs than if she were to follow the hospital birthing model.

Another option for mothers if their private insurance company is not willing to negotiate the coverage of an alternative birthing model, is to utilize a Cost-Sharing Organization (CSO). CSO's are different from traditional insurance in that they pull from a pool of monetary contributions from their members to pay health care providers. Rather than paying premiums, members chip in a monthly amount (usually much cheaper than most insurance premiums) to continually replenish this reserve" (Graziadei-Shup). According to the New Life Birth Center in Virginia, CSO's "tend to be quite flexible about letting women choose their providers. They pay for the cost of these services usually, in full or close to it" (Graziadei-Shup). Typically, coverage is through a reimbursement process, meaning, "the patient pays her midwife upfront and the CSO reimburses the patient" (Graziadei-Shup). CSO's prove to be effective for mothers in these situations because "you can apply for enrollment anytime, and they fulfill the obligation for the government mandate for health insurance" (Graziadei-Shup).

The hardships faced by mothers when it comes to deciding where to give birth is only exacerbated by the financial issues they may encounter. A mother should be able to personalize and tailor her pregnancy and delivery process to her preferences in regards to where and how these processes should occur. However, private health insurance companies make this decision without regard to the mother's preferences. Lack of insurance coverage of alternative birthing models ultimately forces mothers to fall in line with the traditional obstetric models with lower-costs associated due to these being covered by insurance. It is imperative to understand the downfalls and shortcomings of insurance coverage, as it leads to insurance companies contradicting many patient's desires.

Public Insurance Overview

Like many states in America, Illinois has faced significant problems with maternal morbidity and mortality and perinatal racial disparities over the past few years, ranking 36th (out of 50) in pregnancy-related mortality rate. To combat these challenges, Illinois has employed a number of different health-related programs and policies in the public sector. Specifically, their state health department has a foundation upon which information can be centralized and special focus groups and agencies can be created to better understand and tackle maternal health. However, while these groups and agencies are responsible for a substantial number of review programs, data centers, and collaboratives that are specific to maternal health challenges, taking a look at maternal morbidity and mortality through the lens of Illinois public health insurance offers a direct and nuanced understanding of the intersection between public policy and patient outcomes.

In particular, the income eligibility threshold for pregnancy-related Medicaid coverage in Illinois is 213% of the federal poverty level, a value that is much higher than the national minimum threshold level of 138% of the federal poverty level²⁶. However, after one year past giving birth, the minimum threshold increases back to the same value as regular adults, which is the federal minimum of 138% of the federal poverty level. This rule is responsible for creating a coverage gap for new mothers, where their income falls in between the minimum threshold for Medicaid and other forms of insurance. These women are forced to apply to new insurance programs and run the risk of being uninsured while waiting to receive coverage, all while recovering from delivery, caring for infants, or dealing with post-delivery complications.

²⁶<https://www.commonwealthfund.org/publications/issue-briefs/2021/jan/closing-gaps-maternal-health-postpartum-medicaid-chip>

Therefore, the morbidity of mothers is exacerbated, as women are left to survive on their own, unable to rely on the continuation of public insurance programs to assist them.

Additionally, public health insurance in the state of Illinois is highlighted by two programs, the Medicaid Presumptive Eligibility program (MPE) and the Moms and Babies program. The Medicaid Presumptive Eligibility program provides Medicaid coverage for a number of pregnancy-related services, including prenatal checkups, lab tests, prenatal vitamins, eye/dental care, emergency room care, mental health and substance abuse services, and transportation to get care²⁷. In order to qualify, individuals do not need proof of citizenship or social security information. Rather, individuals must simply be pregnant, a resident of Illinois, and live below a monthly income threshold that varies depending on family size. Those who are eligible can sign up immediately and receive coverage from the signing date to the last day of the following month. In this sense, this program provides temporary assistance for mothers. However, many women still need maternal care beyond this point while recovering, despite the fact that coverage for this ends so abruptly.

Additionally, the Moms and Babies program provides coverage for mothers both during pregnancy and up to 60 days after delivery²⁸. This coverage covers both outpatient and inpatient care that not only includes all services covered by the Medicaid Presumptive Eligibility program, but also covers hospital services (for labor and delivery) and postnatal infant care (such as checkups, well-baby care, and immunizations). Under this program, newly born children in the program also receive additional coverage for an entire year, including doctor visits, hospital stays, medicine, eye/dental care, check-ups, and special services such as speech or physical therapy. Just as the Medicaid Presumptive Eligibility program has very simple requirements, so

²⁷ <https://www2.illinois.gov/hfs/MedicalPrograms/AllKids/Pages/MomsAndBabies.aspx>

²⁸ Ibid.

does the Moms and Babies requirements, only requiring that individuals be pregnant, residents of Illinois, and below the monthly income threshold. Those pregnant women who are first part of the Medicaid Presumptive Eligibility program cannot simply roll over the larger coverage of the Moms and Babies program, as they must instead reapply, which likely results in reduced access to pregnancy related care and services.

Policy Recommendations

Based on the analysis presented thus far, we propose the following policy recommendations, in hopes of addressing the disparities identified and mitigating the various risk factors contributing to maternal morbidity. Accompanying these recommendations is an additional body of research, which projects the predicted impact of these policies if implemented:

- 1) **Advocate for automatic extension for reproductive care coverage under Medicaid to individuals who qualified for care during their pregnancy; i.e., elimination of the application process required to transition from Medicaid Presumptive Eligibility to Moms & Babies.**

Disparities in insurance coverage and subsequent care extend far beyond the baseline binary of ‘insured versus uninsured’. Over 50% of pregnant individuals who were covered by Medicaid during delivery experienced at least some degree of “churn” (i.e., moved in and out of coverage) in the following months, due primarily to the differentiation in programs for prenatal and postnatal care.²⁹ These lapses in coverage likely result in reduced access to and quality of

²⁹ <https://dash.harvard.edu/handle/1/28977439>.

care, which is particularly dangerous when considering the riskiness of the postpartum period (for both parent and child).³⁰ By pushing for removal of the added burden of reapplication, we can ensure that more pregnant individuals transition smoothly between programs and receive reliable, uninterrupted care during their most vulnerable moments.

Furthermore, we observe another dimension of disparity upon disaggregating the available data and noting which demographics are more likely to experience “churn” in their coverage. A study analyzing data gathered from California’s Maternal and Infant Health Assessment identified several factors that appeared to be correlated with lower rates of insurance coverage after birth, including but not limited to socioeconomic status, family type (i.e., whether or not the household was a traditional one), and level of education.³¹ These associations make sense, as individuals with lower incomes, less familial support, and/or a lower level of education are less likely to have the resources or the knowledge required to navigate complex, convoluted systems like healthcare and insurance. Seemingly simple things that many often take for granted — anything from not knowing who to contact for assistance, not having access to necessary documentation, to not understanding or being put off by legal terminology — may in fact act as severe barriers that bar marginalized individuals from accessing care.

Not only would this policy be a large boon to the public, it has the potential to increase the cost-effectiveness and overall efficiency of current Medicaid programming as well. The authors of the aforementioned study found that, based on the logistics of continuous care, granting pregnant individuals automatic re-enrollment in Medicaid “could yield potential cost-savings by reducing the need for outreach and re-enrollment of those eligible children who lost coverage during infancy. Research on the potential benefits of extending children's coverage

³⁰ <https://www.urban.org/research/publication/public-health-insurance-landscape-pregnant-and-postpartum-women>

³¹ <https://link.springer.com/article/10.1007/s10995-005-0023-5>

through the 12-month continuous eligibility provision suggests that Medicaid administrative costs could be reduced by 2–12%.³² Disposing of the application process would also eliminate the need to *review* said applications, and would allow agents to instead devote more time to serving the individualized care needs of their constituents.

2) Partner with local nonprofits and advocacy interest groups to reach and extend care to pregnant individuals belonging to marginalized communities, or who otherwise face barriers to traditional engagement with governmental resources.

Local organizations, especially in a city as large and diverse as Chicago, are often the ones to create foundations for transformational advocacy work. One of their primary structural advantages is their capacity to focus their efforts explicitly on particular issues or demographics, without any overhanging obligation to serve those outside the scope of their interest. In this way, they're able to serve communities that may otherwise slip through the cracks of government services; thus, intentional partnerships between local and state-funded organizations could very effectively close some of the existing gaps in care and coverage.

For instance, pregnancy increases one's risk of becoming homeless, and pregnant individuals subsequently face significantly more health risks while unstably housed.³³ Those facing homelessness tend to have to divert their energy towards their daily essential needs, rather than longer-term goals like permanent housing and accessing healthcare. They also have a much harder time seeking out government resources due to various compounding factors, including,

³²

<https://www.semanticscholar.org/paper/Discontinuous-Coverage-in-Medicaid-and-the-of-for-Irvin-Peikes/3291779efc3fe13cbf21e316f5de948d294539fc>

³³ <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2018.05156>

but not limited to, lack of access to technology and transportation, inability to provide legal documentation, and lack of a permanent address for reliable contact and applications. Because of this, unstably-housed pregnant individuals are more often than not unable to reliably access reproductive care services, even through the public Medicaid programs for which they would explicitly qualify. Partnering with organizations like New Moms³⁴, who provides both transitional and permanent housing for pregnant individuals and recent mothers experiencing homelessness, can create avenues to extend this much-needed care to a vulnerable population who would otherwise not receive it.

Other demographics that may fall within the gaps of access to reproductive healthcare include individuals experiencing intimate partner violence, indigenous Americans, and single/teen parents. Working alongside organizations devoted specifically to serving these populations would help bring them into the folds of care, and establish pathways to permanently close the gaps that have barred their entry.

3) Encourage additional training on cultural competency, active antiracism, and implicit bias for designated patient advocates (primarily doulas and labor nurses).

Studies have shown that, while patient advocacy is a crucial assumed role for labor nurses, its extent is quite frequently limited in practice. When surveyed, a selection of nurses identified various factors that had, at some point, acted as barriers to their ability to sufficiently advocate for their patients. This list included, but was not limited to, powerlessness, lack of external support/encouragement, limited communication, physician control, risk of advocacy,

³⁴ <https://newmoms.org/>

and insufficient time to interact with patients and their families.³⁵ These factors can easily compound to hinder nurses from embodying the ultimate purpose of their task: empathizing with and protecting their patients.³⁶

However, another often-overlooked factor is that of race. As discussed previously, people of color are privy to a much different standard of care than their white counterparts, due to the deeply-imbedded racial bias intrinsic to the healthcare system. Various studies have shown disparities in medical providers' perceptions of their patients of color: erroneously assuming that, for instance, people of color are less likely to follow treatment regimens and more likely to engage in risky behaviors, or that Black people in particular have thicker skin and a higher pain tolerance.³⁷ These biases, regardless of whether or not they're consciously held, shape the care that providers choose to administer. This is *incredibly* dangerous in the context of obstetric care, as seemingly run-of-the-mill decisions involving things like anesthesia and delivery method do, in fact, have severe health consequences for individuals who do not receive the correct care during and after delivery. For instance, a study analyzing the distribution of obstetric anesthesia care found that Black women were twice as likely to receive no anesthesia during vaginal birth in comparison to white women; they were also far more likely to have to deliver via cesarean section, and were about 50% more likely to be put under general anesthesia during (meaning that they would lose consciousness, i.e., the ability to maintain agency over their body and advocate for themselves).³⁸

In order to protect pregnant individuals of color from these instances of mistreatment, patient advocates must be educated on the disparities they face, and empowered to take action on

³⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1420298/>

³⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4958925/>

³⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4638275/>

³⁸ <https://muse.jhu.edu/article/269776/summary>

their behalf. Even doulas, who do not necessarily have the same level of medical training and responsibility, should also have a comprehensive understanding of medical bias and how to disrupt it. This can most effectively be achieved by delivering additional training, that 1) acknowledges the history of medical/obstetric racism and its consequences today, 2) addresses the *implicit* nature of bias and the psychological processes that enforce them, and 3) deconstructs these biases in language that can be most effectively used in dialogue with the providers that preside over delivery. Studies show that this ground-up approach to training (i.e., attacking the roots of bias, rather than just its implications) appears to be much more effective at eliminating racial bias, allowing instead for activation of egalitarian goals and deeper empathy for patients.³⁹

4) Engage with private insurance providers to advocate for expansion of coverage for pregnant individuals beyond traditional obstetric services (e.g. birth centers, midwives, doulas, etc.)

As previously discussed, private insurance providers are mandated only to provide general coverage for childbirth, but are otherwise free to decide what birth model(s) to cover. While some do endeavor to cover alternative reproductive services (beyond traditional in-hospital delivery), they do so of their own volition, on a decidedly-individual basis. This means that, in many cases, pregnant individuals covered under private insurance have limited options as to where, how, and under whose supervision they can deliver their child, unless they are willing and can afford to incur the additional out-of-pocket costs associated with alternative services.

³⁹ <https://pubmed.ncbi.nlm.nih.gov/21752073/>

Many providers cite cost and risk as their motivation for opting out of coverage for these alternative services. However, referring to the cost-effective comparison presented earlier in our analysis, we find that these services (most pertinently the midwifery model) have the potential not only to cut delivery costs, but also to improve the overall outcome of childbirth. Presenting this data to individual providers could simultaneously help mitigate their concerns and pressure them into action on behalf of their constituents. This expansion of coverage would in turn greatly increase the bodily agency of pregnant individuals with private insurance policies, and would serve as another important step towards decreasing the disparities in care and outcome that this report endeavors to address.

CONCLUSION

Chicago has one of the highest rates of maternal mortality in the nation, and these risks only increase in prevalence for Black women. As demonstrated in previous sections, the incidence of maternal mortality complications increases dramatically based on geographic areas in Chicago, representing how variance in income level and other social factors can affect access to and quality of healthcare. This gap represents a public health burden that demands action. We recommend an automatic extension for reproductive care coverage, a partnership with local community groups to extend care to pregnant individuals who face barriers to care provided from traditional government structures, and additional training on cultural competency for patient advocates in healthcare settings. These proposed policy recommendations would work to close to gap in accessibility and encourage individuals who have not previously felt comfortable

engaging with the traditional healthcare system due to biases or discrimination to utilize resources that would benefit their health.

Future continuations with our research include a space for additional interviews with patients, healthcare workers, and insurance providers. We might examine racial and ethnic disparities in maternal care through first person interviews, which would bolster evidence gathered from secondary literature. These interviews could also provide data on direct patient-provider relationships and how they are impacted by race, gender, class, and geographic location. In the future, we might also interview more patients to gather primary data on how traditional obstetric hospital-based births compared to home births and birth centers and information on insurance providers' perspectives of birth centers. Emphasizing more primary data from interviews would provide a more unique perspective on healthcare accessibility in the Chicagoland area.

Unfortunately, due to Covid restrictions, we were unable to fully travel into the Chicagoland area to conduct in-person interviews with patients themselves.

The issues of differences in healthcare accessibility in the Chicagoland area have long been overlooked, especially in regard to maternal mortality. It is crucial to adopt recommended policy changes in order to recognize the collective impact that lack of accessible healthcare poses to communities in Chicago and advocate for much needed improvement. Concrete legislative policies must be adopted in order to ensure that gaps in healthcare quality and accessibility can be closed.