Sisters in Birth: Improving Birth Outcomes in Mississippi

Getty Israel, MS, MPH

ABSTRACT

Mississippi has the poorest birth outcomes in the United States. Sisters in Birth (SIB) is a community-based nonprofit, charitable organization program that links community and clinical health to improve birth outcomes in Mississippi. This article describes the community and clinical health variables that influence birth outcomes and the organization's work or mission. The overwhelmingly positive outcomes of the first 50 women in the program are presented as well as snapshots of individual women's experiences.

The Journal of Perinatal Education, 29(4), 168–180, <http://dx.doi.org/10.1891/J-PE-D-20-00044>

Keywords: pregnancy, birth, racial disparities, obesity, community and clinical health

BACKGROUND

Approximately 70% of pregnancies in Mississippi are covered by the Mississippi Division of Medicaid that contracts with coordinated care organizations (CCOs) to purportedly improve outcomes and reduce health-care costs associated with the Medicaid population. The typical beneficiary is Black, single, poor, overweight/obese, and lacks a college degree and a strong social support system. CCOs provide medical coverage for physician visits and births, sponsor annual baby showers, and refer their members to nonprofits for free services, but they do very little to improve health outcomes. On their watch, rates of obesity, gestational hypertension and diabetes, and premature births have worsened, and breastfeeding rates have remained stagnant.

Annually, mothers in Mississippi experience the highest rates of premature births, low birth weight babies, and the lowest breastfeeding rates in the nation. The rates of premature birth, low birth

weight, maternal mortality, and infant mortality are 13.5, 11.5, 27.2, and 8.43, respectively (Mississippi State Department of Health [MSDH], 2018a). Very low birth weight infants make up 2.1% of births and 50% of deaths (MSDH, 2018a). The State's rates of "ever breastfed," "breastfeeding at 6 months," and "breastfeeding at 6 months" are 63.2, 35.4 and 18.3, respectively (Centers for Disease Control and Prevention [CDC], 2018a).

Furthermore, Mississippi has the nation's highest cesarean surgery rates, 38.3% (CDC, 2018b). In 2018 there were over 13,000 cesarean surgery births (MSDH, 2018b) and nearly 3,000 nonmedically indicated early births (MSDH, 2018b). The capitol city, Jackson, has the highest rate in the nation—nearly half (49.6%) of births in the four Jackson area hospitals are by surgical intervention (Blue Cross Blue Shield [BCBS], 2016). Among racial groups, Black mothers experience the highest rates.

PERSISTENT RACIAL HEALTH DISPARITIES

Mississippi has the second highest proportion of Black residents, nearly 40%, and the highest rates of racial disparities in infant birth and death. The *preterm* birth rate among Black babies is 44% higher than rates among all other racial groups (MSDH, 2018c). The *low birth weight* rate among Black babies is two times higher than the White rate (MSDH, 2018c). The *very low birth weight* rate of Black infants is nearly three times higher than the White rate (MSDH, 2018c). Although the State has experienced a significant drop in the rate of nonmedically necessary early term births, Black mothers have experienced the highest rates over the last 8 years (MSDH, 2018c).

Black infants make up 43% of births but account for 59% of infant deaths, the highest in the State and nation, respectively (MSDH, 2018d). They are twice as likely to die as White infants are, whose death rate is 39% (MSDH, 2018d). Forty percent of infant deaths occur on the first day of life (MSDH, 2018d). Twenty-five percent occur within the first 30 days, and 35% occur after the first month of life (MSDH, 2018d).

Sudden infant death syndrome (SIDS) is a leading cause of death among Mississippi infants between 1 and 4 months of age. Between 2012 and 2018, an average of 68 infants died from SIDS. Black infants are most at risk of experiencing a SIDS-related death as only 59% were reported to sleep on their backs (MSDH, 2018e).

Historically, accessing quality and timely obstetrical care within clinics and hospitals has been a persistent challenge for Black mothers in Mississippi. Between 1951 and 1955, approximately 30% of Black women birthed their babies in hospitals or clinics (MSDH, 1955). Physician-attended births accounted for 48.3% of births among Black mothers compared with 96% of births among White mothers (MSDH, 1955). Midwives attended 51.6% of Black births and only .8% of White births (MSDH, 1955). During this racially segregated period, the maternal mortality rate for Black mothers in Mississippi was nearly five times that for White mothers (MSDH, 1955). Although the rates have significantly declined among Black women, they continue to experience much higher rates than White women.

From 2013 to 2016, the pregnancy-related maternal ratio (PRMR) for Black women was 51.9 deaths per 100,000 live births, nearly three times the White ratio of 18 (MSDH, 2018f). Cardiovascular conditions and hypertensive disorders of pregnancy are

Historically, accessing quality and timely obstetrical care within clinics and hospitals has been a persistent challenge for Black mothers in Mississippi.

the two most common causes of PRM in Mississippi (MSDH, 2018f). The cardiac mortality rate for Black women is nearly five times higher than the rate for White mothers (MSDH, 2018f). Eighty-six percent of maternal deaths in Mississippi occur after birth; 37% occurred after 6 weeks (MSDH, 2018f). Suicides and overdoses accounted for 11% of all maternal deaths (MSDH, 2018f).

MODIFIABLE RISK FACTORS FOR BLACK MOTHERS

Maternal obesity-induced morbidity, weak social support systems, poverty, and limited access to quality health care before, during, and after birth seem to be the most attributable and modifiable risk factors for improving reproductive health among Black mothers and their offspring in Mississippi, a state that considers itself “prolife.”

Obesity and Health

In the United States, the percentage of women who are overweight or obese has increased by 60% over the past three decades (Wang et al., 2008). The pervasiveness of obesity, especially in the Southern Region has substantial consequences for pregnancy in that obesity is strongly associated with spontaneous miscarriage, fetal malformations, thromboembolic complications, gestational diabetes, stillbirth, preterm birth, cesarean surgery, fetal overgrowth, and hypertensive complications, including preeclampsia and eclampsia (Yogev & Catalano, 2009).

Obesity increases the overall risk of a woman developing preeclampsia by 2- to 3-fold (Bodnar et al., 2007). A woman’s risk of developing preeclampsia progressively increases with increasing body mass index. Also, it increases the risk of all forms of preeclampsia, including early and severe, which are associated with greater perinatal morbidity and mortality (Catov et al., 2007). The rate of preeclampsia/eclampsia among Black women is 60% higher than the rate for White women. Compared with other births, a higher percentage of women diagnosed with preeclampsia/eclampsia are among women who are Black, who reside in the poorest areas, and the South (Fingar et al., 2017).

Although the increased risk of preeclampsia is present in both White and Black women, Black

women are at far greater risk, as they tend to have the highest levels of obesity in the nation. According to the United Health Foundation (2020), the national obesity rate among Black women is 39% compared with 25% for White women. In Mississippi, the nation's second fattest state, the rates are 47.3% and 30.8%, respectively, among Black and White women.

Among reproductive-age women in Mississippi, approximately 38%, 18%, and 3% are diagnosed with obesity, hypertension, and diabetes, respectively (MSDH, 2018g). Mississippi has the highest prevalence rate, 13.6%, of type 2 diabetes in the nation (CDC, 2019), and Black women have the second highest rate, 14%, in the State. In addition, they are likely to be uninsured when they become pregnant. Most work low wage jobs that don't provide employer-based insurance or paid maternity leave, and many do not qualify for Market Place or Medicaid insurance because their annual income is either too high or too low. Therefore, pregnancy is the only sure definite time a working poor woman can qualify for Medicaid. Consequently, a significant number of pregnant women have not had access to preventive care during the interconception phase. Accordingly, underlying risk factors, particularly obesity-induced hypertension and prediabetes/diabetes, that can lead to severe maternal morbidity and adverse birth and postpartum outcomes often go undetected and untreated.

Among the predominate Black Medicaid pregnant population obesity is probably the leading underlying risk factor of poor birth outcomes. The prenatal and interconception phases are the most feasible time for a medical provider to intervene and assist women with achieving health and wellness. Behavioral health modifications (lifestyle changes) adopted during these phases can result in long-term positive health benefits for mother, child, and future offspring, thereby reducing the harmful cycle and progression of obesity among Black women and their children.

Gestational Weight Gain and Health

In pregnancy, sedentary behavior and excessive weight gain have been recognized as independent risk factors for maternal obesity and related maternal

morbidity, including gestational hypertension and diabetes mellitus. Conversely, engaging in physical activity during pregnancy has demonstrated benefits including decreased rates of excessive gestational weight gain, gestational diabetes mellitus, gestational hypertensive disorder, preterm birth, cesarean surgery birth, and postpartum recovery time, and a higher incidence in vaginal birth. Moreover, physical activity can be an important factor in the prevention of depressive disorders of women in the postpartum period.

The American College of Obstetrician and Gynecologists (ACOG) guidelines recommend that its physician members encourage women with uncomplicated pregnancies to engage in aerobic and strength-conditioning exercises before, during, and after pregnancy, and that providers should not restrict physical activity as a way to reduce preterm birth (ACOG, 2015). Table 1 shows the updated gestational weight gain recommendations by the Institute of Medicine (IOM) that were reaffirmed by the ACOG (2013). Ideally, obstetricians (OBs) should determine the patient's recommended range of weight gain and counsel her about the benefits of achieving an appropriate weight gain through a healthy prenatal diet and exercise.

When providers give gestational weight gain counseling early during the pregnancy, women are more likely to adhere to the advice. They are significantly less likely to gain excessive weight during pregnancy (Mercado et al., 2017). Yet, most women report that they do not receive information about diet, physical activity, or weight control from their physician (Emery et al., 2018). Few women have reported receiving gestational weight gain recommendations from their provider that is consistent with IOM guidelines (Deputy et al., 2018). Inaccurate weight gain advice is linked with higher probability of excessive weight gain among all but underweight women (Deputy et al., 2018). Women are particularly likely to have incorrect knowledge of gestational weight gain recommendations if they have prepregnancy obesity, are Black, lack a college degree, or have a lower income (Emery et al., 2018)

Some obstetrical providers (physicians and midwives) report feelings of awkwardness when discussing gestational weight gain and trouble identifying the appropriate words for obesity when talking to their Black patients, who refer to themselves as "thick" (Duthie et al., 2013). They also have cited time constraints, cultural myths, and

SIB's mission is to improve prenatal health, birth, and breastfeeding outcomes, and reduce poverty among single Black mothers in Mississippi.

TABLE 1

Institute of Medicine Weight Gain Recommendations for Pregnancy

Prepregnancy Weight Category	Body Mass Index ^a	Recommended Range of Total Weight (lb)	Recommended Rates of Weight Gain ^b in the Second and Third Trimesters (lb) (Mean Range [lb/wk])
Underweight	Less than 18.5	28–40	1 (1–1.3)
Normal weight	18.5–24.9	25–35	1 (0.8–1)
Overweight	25–29.9	15–25	0.6 (0.5–0.7)
Obese (includes all classes)	30 and greater	11–20	0.5 (0.4–0.6)

Note. Modified from Institute of Medicine (US). Weight gain during pregnancy: reexamining the guidelines. Washington, DC. National Academies Press: 2009. 02009 National Academy of Sciences.

^aBody mass index is calculated as weight in kilograms divided by height in meters squared or as weight in pounds multiplied by 703 divided by height in inches.

^bCalculations assume a 1.1–4.4 lb weight gain in the first trimester.

system issues as obstacles to discussing gestational weight gain. Providers prefer a group setting with social support an ideal setting to address health behaviors in obese Black women (Duthie et al., 2013). Generally, I have found that medical providers in Mississippi simply do not understand or value the role of weight gain in chronic disease prevention and birth outcomes. In addition, a significant number of providers in Mississippi are also overweight or obese, which may influence their perception and subsequent lack of action on the issue.

Weak Support Systems

Another overlooked but very important underlying risk factor is the social support system, which is a predisposing factor to experiencing poor maternal health outcomes. Providing women, especially poor single women with broad social support and unity, adequate health information, resources, self-help skills, and an advocate within the clinical setting has been shown to improve birth outcomes among women (Kozhimannil et al., 2016). In Mississippi the typical Black pregnant woman's social support system consists of an immediate family member, namely her mother, but it is typically void of a husband or the baby's father. Black women are primarily single at the time of conception and birth, and many fathers remain absent throughout the pregnancy and postpartum. In 2018, the national percentage of births among single mothers decreased for non-Hispanic Whites, Hispanics, and non-Hispanic American Indian, however, it remained unchanged for non-Hispanic Black women at nearly 70% (Martin et al., 2019).

In the State the birth rates among single Black women is 2.3 times that of White women (MSDH, 2018g). Unfortunately this is not a new and emerging trend; rather, it is a social problem that has plagued the Black family for decades. Over the past 10 years, 81% of Black babies were born to single mothers compared with 34% of White babies (MSDH, 2018g). Among other social issues, the very low marriage rate among Black women is associated with high poverty rates in the single female headed household. Furthermore, I strongly suspect that it significantly influences the high abortion rates of Black women, which accounts for 72.5% of all induced terminations compared with 23.5% of White women in the State (MSDH, 2018g).

Poverty and the Single Black Female-Headed Household

Black children in Mississippi have the second highest poverty rate, 43%, in the nation, and or the rate of poverty among Black children is three times that of White children in the State. Often Black children reside in female-headed households with one low income.

Therefore, reducing poverty rates among Black single female-headed households in Mississippi should be a top priority for the State of Mississippi. Tackling this problem will necessitate a comprehensive approach that includes college education, which can potentially lead to careers in the state's burgeoning health-care industry, the second largest industry, \$4.2 billion, in the State. In 2019, there were over 100,000 health-care jobs. The Mississippi Occupational Employment Project report states that Mississippi is expected to produce over 11,000 health-care

jobs in 2026 (Mississippi Department of Employment Security [MDES], 2020). Occupational therapists, physical therapy assistants, and aides will account for the majority followed by health-care support jobs (nursing, psychiatric, and home health aides).

Traditionally, young women with an associate's degree fill these types of positions, but most single mothers in Mississippi do not have a college degree. Approximately 37,000 babies were born in Mississippi in 2018 (MDSH, 2018g). Only 13.7% of the births occurred among mothers with a college degree, and White mothers with a college degree were three times that of Black mothers with comparable education (MDSH, 2018g). Many mothers in Mississippi do not complete a college degree because of barriers that the State could easily mitigate.

The Women's Foundation of Mississippi and the Institute for Women's Policy Research surveyed over 500 students from 13 of Mississippi's 15 community colleges and found that many of the state's female college students, particularly single mothers, experience substantial hurdles to complete a college degrees (Women's Foundation of Mississippi, 2014).

- 31% are parents managing work, school, and family responsibilities.
- Three in ten students have interrupted their college careers because of financial considerations, stress or becoming overwhelmed, caring for family (30%), and health issues (28%).
- Long commuting times can pose a barrier to completion for students juggling multiple roles and responsibilities. More than one in five students (22%) spend more than 1 hour commuting to and from school (round trip).
- Child care access and affordability is a major challenge for mothers in Mississippi's community colleges. Forty-seven percent with children aged 10 and under say they cannot get the quality child care they want because it is too expensive, and 53% report that paying for child care or afterschool care is somewhat or very difficult for them.
- Fifty-nine percent of respondents with children aged 10 and under who have taken time off from school or dropped out say that having more

stable or affordable child care would have helped them stay in college.

SISTERS IN BIRTH: LINKING COMMUNITY HEALTH AND CLINICAL HEALTH

In response to this crisis, in April 2016, I established a nonprofit, charitable organization, *Sisters in Birth* (SIB), located in Jackson, Mississippi. SIB's mission is to improve prenatal health, birth, and breastfeeding outcomes, and reduce poverty among single Black mothers in Mississippi. SIB's objectives include increasing rates of full-term and vaginal births, breastfeeding, and associate college degrees among the Medicaid population.

I theorized that the most effective strategy for improving prenatal health and birth outcomes among Black women must involve linking community health and clinical health with a strong focus on preventive and integrative health services and social support during prenatal, birth, and postpartum phases. Integrating community health in the health-care system is in alignment with national best practices that have been shown to substantially improve health outcomes.

The SIB conceptual framework, *Our Bodies Our Births*,™ consists of evidence-based components that are strongly associated with healthy birth outcomes among the Medicaid population. It is designed to deliver an intensive comprehensive system geared toward improving prenatal health, birth outcomes, and reducing maternal and infant mortality among Black women and their offspring. *Our Bodies Our Births*™ places the patient in the driver's seat of her reproductive health. Empowering and supporting the Medicaid patient is vital, because typically this population has low rates of health literacy, self-esteem, advocacy skills, and is at higher risk of being mismanaged by obstetrical providers and clinical staff. Additionally, Black women of all socioeconomic levels are at risk of being seen but not heard by providers and clinical staff.

The conceptual framework is composed of 11 major components: (a) preventive care, (b) behavioral health modification, (c) mental health, (d) broad social support system, (e) home health, (f) patient advocacy, (g) birth and postpartum support, (h) parenting, (i) educational/professional development, (j) breastfeeding, and (k) interconception health (Figure 1).

Community health workers (CHWs) are a core component of the SIB integrated team.

Community health workers (CHW) are a core component of the SIB integrated team.

Figure 1. Our Bodies Our Births: A conceptualized framework for improving birth, breastfeeding, and postpartum outcomes among Black mothers and infant.

A growing body of evidence demonstrates CHWs' positive impact on maternal health: detection of gestational hypertension and recommendation of rest, decreased salt intake, and iron supplementation (Ramadurg et al., 2016), reduction in maternal and child mortality (Perry et al., 2015), significant deduction in health service utilization and overnight hospitalization (Mascarenas et al, 2015), identification of barriers within the continuum of maternal care (Moshabela et al., 2015), increase in antenatal visits (Rossouw et al., 2019), significant drop in infant, child, and maternal mortality rates (Barzgar et al., 1997), significant reduction in perinatal and neonatal mortality (Memon et al., 2015), reduction in intrapartum–postpartum complications (Todd et al., 2019), improvement in utilization of maternal health services (Afework et al., 2014),

improved patients' knowledge of danger signs during pregnancy, childbirth, and postpartum, prepared patients for childbirth, and increased births at health facilities (August et al., 2016), reduction of neonatal mortality and stillbirths (Gogia & Sachdev, 2010), identification and initiation of appropriate care for women with preeclampsia (Sotunsa et al., 2016), significant reduction in maternal morbidity (Lassi & Bhutta, 2015), collect and transmit third-trimester antenatal assessment to improve prenatal care (Bonnell et al., 2018).

SIB's CHWs are trained in multiple maternal and child health areas, including home health care, doula supported births, birth assistance, patient advocacy, and breastfeeding, among others. They work on an integrative team composed of a physician specializing in preventive medicine, a mental health

therapist specializing in maternal and child health, breastfeeding experts, population health experts, and complimentary health experts such as physical therapists, osteopaths, and acupuncturists. SIB staff team works closely with the patient to set personal health goals and identify risk factors, including social determinants of health, to address in the plan of care. The health goals are re-enforced by each member of the team to increase the probability of compliance. Patients receive financial and other incentives for accomplishing their gestational weight gain goals. All patients receive a car seat and crib. CHWs receive financial incentives for each patient who experiences a full-term, vaginal birth. The team accompanies the patient on her birth journey to ensure that the entire experience is adequate, timely, ethical, and effective.

RESULTS TO DATE

The pilot program was implemented in the rural Southwest part of the state along the lower Mississippi River, bordering the state of Louisiana from 2016 to 2017 with funding from the Humana Foundation. In 2019, it was modified and developed in the Greater Jackson Area with funding from the Kellogg Foundation. To date, its CHWs have assisted 58 mothers toward experiencing healthy pregnancies, childbirth, and breastfeeding. The program outcomes include a significant decrease in the cesarean surgery rate, a major increase in the breastfeeding rate, and a decrease in preterm births. Figures 2–5 below demonstrate the birth and breastfeeding outcomes.

SIB's impact is effective but limited because insufficient funding prevents us from hiring an adequate number of CHWs to serve more women. As with other community health organizations, grants cannot sustain our work. Moreover, in Mississippi large public and private community health grants tend to be awarded to a handful of large corporations that have no real presence in the community and often do not demonstrate effective outcomes. Therefore, the only feasible way SIB can survive and thrive is

by tapping into the healthcare revenue stream. Currently, no insurer in the state of Mississippi covers any of the nonclinical, preventive services, such as home health care and birth support, despite the fact that the Centers for Medicare and Medicaid Services (CMS) published a final rule that expanded the types of providers who are eligible to receive reimbursements for providing preventive services under Medicaid. The amendment gives States the option to cover preventive services delivered by non-licensed providers, such as CHWs, when a licensed provider recommends the preventive services. Although the final rule does not change the preventive services that Medicaid is allowed to cover, it does expand the scope of who may provide the services (CMS, 2013). Medicaid agencies must submit a state plan amendment (SPA) to attain CMS approval. Thus far only two states, Minnesota and Oregon, have received an approved SPA to cover non-licensed birth health workers.

In the U.S., the average cost of a preterm birth has increased by 25%. The total cost of premature births in the U.S., including medical costs for infants/children, maternal delivery, early intervention and special education services and lost labor market productivity, totaled \$25.2 billion, an average of \$64,815 per preterm birth (Sanchez & Gabrielsen, 2019). Also, in Mississippi, Medicaid and the CCOs incurred 94.2% of neonatal intensive care unit (NICU) charges from the State's largest medical facility where 70% of very low birth weight NICU babies were born to mothers diagnosed with maternal hypertension in 2018. Moreover, there was a 10% increase of LBW babies born to Medicaid members in Mississippi.

One of the State's three CCOs incurred nearly \$3 million in healthcare costs associated with premature babies during the first 6 months of 2019. If premature births were prevented among 5% of its members, the CCO and State would save an estimated \$885,000 and \$2.7 million, respectively (Mississippi Medicaid, 2019). To date, SIB has saved the state of Mississippi an estimated \$3.4 million over the course of 2 years. Yet, the senior leadership within the Mississippi Division of Medicaid and the CCOs persist in ignoring the vital role that prevention and community health play in improving the health of the Medicaid maternal population and reducing healthcare costs.

The *Sisters in Birth* program outcomes include a significant decrease in the cesarean surgery rate, a major increase in the breastfeeding rate, and a decrease in pre-term births.

Figure 2. Cesarean surgery births were causally associated with: a Lupus patient, several nuchal cords, a breech birth, and a baby who experienced decelerations.

Figure 3. Note: There were two premature births at 36.3 weeks due to complications from syphilis and another caused by sudden elevated blood pressure.

WOMEN'S STORIES

The following are birth stories of four mothers, Ashley [name changed], Clara [name changed], Tiffany, and Makeba, former CCO members who birthed their babies at hospitals in Mississippi, the worst state for Black women to give birth and rear children. Their stories are windows into some of the

many challenges Black women face in Mississippi's healthcare system. Nevertheless, their birth outcomes were significantly influenced by SIB's CHWs: Kashuna, Totiana, and Simeon, who intervened during the early stages of their pregnancies to provide continued guidance, education, support, and encouragement.

Figure 4. All cesarean surgery births were medically indicated.

Figure 5. All breastfeeding patients initiated breastfeeding within the hospital with the assistance of the community health worker. Within 24–36 hours postpartum, all breastfeeding patients received counseling from a breastfeeding experts and the community health worker.

Case Study—Ashley

Ashley, a single, poor, and pregnant woman, had taken her hypertensive medication earlier that morning. But when Kashuna screened her blood pressure level it was 202/144. “I thought this can’t be right; so, I checked two more times, and it was the same. I was concerned she may have a stroke,” Kashuna stated.

Kashuna consulted with a local physician, who confirmed that Ashley should go to the ER.

They took a seat in the busy public medical center, but after waiting 5 minutes Kashuna insisted that Ashley be seen immediately. The ER nurse found that Ashley’s antihypertensive medication was not effective and changed her prescription. Ashley, who was

overweight, said that she could not imagine what would have happened if Kashuna had not been there to check her blood pressure and accompany her to the hospital. Kashuna educated and coached Ashley to adopt a healthy heart diet and to develop a prenatal exercise program. She also provided her with continuous support during labor and birth and breastfeeding support. Ashley later gave birth vaginally to a full-term baby girl that she continues to breastfeed.

Case Study—Tiffany

Tiffany was a pregnant, single, mother with a history of premature birth. Her physician had prescribed a progesterone, which has been shown to reduce the risk of experiencing another preterm birth by 44%. Like most pregnant women in Mississippi, Tiffany had applied for Medicaid and was waiting for her card to purchase the \$150 medication, a price she could not afford to pay out of pocket. Although her employer, Walmart, had approved her maternity leave, she was not entitled to any pay. The physician agreed to back-bill Medicaid for her prenatal care, but the pharmacy did not.

Totiana had referred Tiffany to an obstetrician (OB) within her network. So, she felt comfortable asking the OB to request free samples from the pharmaceutical rep until Tiffany received Medicaid approval. Over the course of several weeks, Tiffany received free progesterone. Moreover, throughout her pregnancy Totiana provided Tiffany with home healthcare, prenatal vitamins, and nutritional coaching, group health education and yoga classes. She accompanied her to physician appointments, among other services. She delivered a late preterm birth, 36.3 weeks, through an emergency cesarean surgery triggered by several nuchal cords. Fortunately, the baby's prematurity did not require a stay in the neonatal intensive care unit (NICU).

Case Study—Clara

A day after meeting Totiana, Clara—unemployed, poor, and estranged from her abusive husband—asked Totiana for transportation to the local hospital. She shared a letter with Totiana from a physician, who had been trying to reach her over the past 30 days regarding a critical health issue. At this point she was in a lot of pain but did not have the means to get to the hospital.

Totiana drove Clara to the hospital while her colleague, Simeon, cared for Clara's children on a Saturday afternoon. Clara had been diagnosed with two sexually transmitted diseases, including syphilis,

which can cause a miscarriage, stillbirth, or the baby's death. Clara got the required medical treatment. She also received the same community health services as Tiffany. Six months later she birthed a full-term healthy baby boy.

Case Study—Makeba

During Makeba's third pregnancy, her physician informed her that a cesarean surgery was necessary, because the "baby was too big for her to push during a vaginal birth". She did not question his advice or seek another medical opinion. When her fourth pregnancy occurred last year, she returned to the same physician. Once again, she expressed her desire to have a vaginal birth. In her case it would be a vaginal birth after cesarean surgery, known as a VBAC. "It would be medical negligence to perform a vaginal birth," he lectured her. "Any doctor doing it is outside of their scope of practice in Mississippi," he continued. "He told me that my baby and I could die. I didn't get a second opinion because I trusted him. He had delivered 2 of my children," Makeba explained.

He insisted on scheduling the cesarean surgery several months early to ensure that a bed would be available because cesarean surgeries occur so often in Mississippi hospitals, Makeba said. Her husband didn't want to risk a VBAC because of the "physician's very stern and negative perspective on VBACs" she continued.

When Makeba became a client of SIB, Simeon encouraged her to switch to a physician who performs VBACs. Unfortunately, there are only about three physicians in the State who perform the procedure, and they are concentrated in the Greater Jackson Area.

Eventually, she agreed to get a second opinion. The physician provided her with evidence-based information regarding a VBAC. They agreed to attempt the procedure with the understanding that if it became medically necessary, e.g. stalled labor, distressed baby, or increased blood pressure, cesarean surgery would be performed.

On March 10, 2020, her water broke at 8 a.m. She received continuous labor support from Simeon. Approximately 4 hours into labor, she vaginally birthed a healthy 6 lb, 13 oz boy, who she began breastfeeding within 30 minutes. Her recovery

Sisters in Birth is providing supportive, evidence based collaborative care to under resourced, mostly Black women in Mississippi.

period was 2 days compared to 2 months for the previous cesarean surgery.

SUMMARY

SIB is providing supportive, evidence-based collaborative care to under resourced, mostly Black women in Mississippi. The clinical outcomes suggest that the program is making a difference. Each woman's personal story provides further support for the importance of the care provided by SIB.

REFERENCES

- Afework, M. F., Admassu, K., Mekonnen, A., Hagos, S., Asegid, M., & Ahmed, S. (2014). Effect of an innovative community-based health program on maternal health service utilization in north and south central Ethiopia: A community based cross sectional study. *Reproductive Health*, 11, 28. doi:10.1186/1742-4755-11-28
- American College of Obstetricians and Gynecologists. (2013). *Weight gain during pregnancy*. <https://www.acog.org/-/media/project/acog/acogorg/clinical/files/committee-opinion/articles/2013/01/weight-gain-during-pregnancy.pdf>
- American College of Obstetricians and Gynecologists. (2015). *Physical activity and exercise during pregnancy and the postpartum period*. Committee Opinion. No804 April 2015. <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2020/04/physical-activity-and-exercise-during-pregnancy-and-the-postpartum-period>
- August, F., Pembe, A. B., Mpembeni, R., Axemo, P., & Darj, E. (2016). Effectiveness of the home based life saving skills training by community health workers on knowledge of danger signs, birth preparedness, complication readiness and facility delivery, among women in Rural Tanzania. *BMC Pregnancy and Childbirth*, 16(1), 129. doi:10.1186/s12884-016-0916-x
- Barzgar, M. A., Sheikh, M. R., & Bile, M. K. (1997). Female health workers boost primary care. *World Health Forum*, 18(2), 202–210.
- Blue Cross Blue Shield. (2016). *Cesarean birth trends: Where you live significantly impacts how you give birth*. The Health of America Report. <https://www.bcbs.com/sites/default/files/file-attachments/health-of-america-report/BCBS.HealthOfAmericaReport.CesareanBirthTrends.pdf>
- Bodnar, L. M., Catov, J. M., Klebanoff, M. A., Ness, R. B., & Roberts, J. M. (2007). Prepregnancy body mass index and the occurrence of severe hypertensive disorders of pregnancy. *Epidemiology*, 18(2), 234–239.
- Bonnell, S., Griggs, A., Avila, G., Mack, J., Bush, R. A., Vignato, J., & Connelly, C. D. (2018). Community health workers and use of mHealth: Improving identification of pregnancy complications and access to care in the Dominican Republic. *Health Promotion Practice*, 19(3), 331–340. doi:10.1177/1524839917708795
- Catov, J. M., Ness, R. B., Kip, K. E., & Olsen, J. (2007). Risk of early or severe pre-eclampsia related to pre-existing conditions. *International Journal of Epidemiology*, 36(2), 412–419.
- Centers for Disease Control and Prevention. (2018a). *Breastfeeding Report Card*. <https://www.cdc.gov/breastfeeding/data/reportcard.htm>
- Centers for Disease Control and Prevention. (2018b). *Cesarean delivery rates by state*. https://www.cdc.gov/nchs/pressroom/sosmap/cesarean_births/cesareans.htm
- Centers for Medicare & Medicaid Services. *Medicaid and Children's Health Insurance Programs: Essential Health Benefits in Alternative Benefit Plans, Eligibility Notices, Fair Hearing and Appeal Processes, and Premiums and Cost Sharing; Exchanges: Eligibility and Enrollment*. (2013); 78(135). <https://www.federalregister.gov/documents/2013/07/15/2013-16271/medicaid-and-childrens-health-insurance-programs-essential-health-benefits-in-alternative-benefit>
- Deputy, N. P., Sharma, A. J., Kim, S. Y., & Olson, C. K. (2018). Achieving appropriate gestational weight gain: The role of healthcare provider advice. *Journal of Women's Health*, 27(5), 552–560. doi:10.1089/jwh.2017.6514
- Duthie, E. A., Drew, E. M., & Flynn, K. E. (2013). Patient-provider communication about gestational weight gain among nulliparous women: A qualitative study of the views of obstetricians and first-time pregnant women. *BMC Pregnancy and Childbirth*, 13, 231. doi:10.1186/1471-2393-13-231
- Emery, R. L., Benno, M. T., Salk, R. H., Kolko, R. P., & Levine, M. D. (2018). Healthcare provider advice on gestational weight gain: Uncovering a need for more effective weight counselling. *Journal of Obstetrics and Gynaecology*, 38(7), 916–921. doi:10.1080/01443615.2018.1433647
- Fingar, K. R., Mabry-Hernandez, I., Ngo-Metzger, Q., Wolff, T., Steiner, T., & Elixhauser, A. (2017). *Delivery hospitalizations involving preeclampsia and eclampsia, 2005–2014*. <https://www.hcup-us.ahrq.gov/reports/statbriefs/sb222-Preeclampsia-Eclampsia-Delivery-Trends.pdf>
- Geographic Distribution of Diagnosed Diabetes in Adults, (2019). *Centers for Disease Prevention and Control*. Accessed <https://www.cdc.gov/diabetes/library/report/s/reportcard/incidence-2017.html>
- Gogia, S., & Sachdev, H. S. (2010). Home visits by community health workers to prevent neonatal deaths in developing countries: Asystematic review. *Bulletin of the World Health Organization*, 88(9), 658–666B. doi:10.2471/BLT.09.069369
- Kozhimannil, K. B., Vogelsang, C. A., Hardeman, R. R., & Prasad, S. (2016). Disrupting the pathways of social determinants of health: Doula support during pregnancy and childbirth. *Journal of the American Board of Family Medicine*, 29(3), 308–317. doi:10.3122/jabfm.2016.03.150300
- Lassi, Z. S., & Bhutta, Z. A. (2015). Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes. *Cochrane Database of Systematic*

- Reviews, 3, CD007754. doi:10.1002/14651858.CD007754.pub3
- Martin, J. A., Hamilton, B. E., Osterman, M. H. S., & Driscoll, A. K. (2019). *Births: Final Data for 2018*. National Vital Statistics Reports. Centers for Disease Control and Prevention. https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68_13-508.pdf
- Mascarenas, D. N., Wurzburg, R., Garcia, B. N., Tomedi, A., & Mwanthi, M. A. (2015). The promise of home visitation by community health workers in rural Kenya: A protective effect that reduces neonatal illness. *Education for Health (Abingdon, England)*, 28(3), 181–186. doi:10.4103/1357-6283.178600
- Memon, Z. A., Khan, G. N., Soofi, S. B., Baig, I. Y., & Bhutta, Z. A. (2015). Impact of a community-based perinatal and newborn preventive care package on perinatal and neonatal mortality in a remote mountainous district in Northern Pakistan. *BMC Pregnancy and Childbirth*, 15, 106. doi:10.1186/s12884-015-0538-8
- Mercado, A., Marquez, B., Abrams, B., Phipps, M. G., Wing, R. R., & Phelan, S. (2017). Where do women get advice about weight, eating, and physical activity during pregnancy? *Journal of Women's Health*, 26(9), 951–956. doi:10.1089/jwh.2016.6078
- Mississippi Department of Employment Security. (2020). *Mississippi occupational employment project*. <https://mdes.ms.gov/information-center/labor-market-information/>
- Mississippi Division of Medicaid. Medical Care Advisory Committee. Meeting Minutes. (2018). <https://medicaid.ms.gov/wp-content/uploads/2020/02/MCAC-DOM-Presentation-11.1.19.pdf>
- Mississippi Department of Health. (1955). *Annual bulletin of vital statistics*. https://msdh.ms.gov/phs/old_bulletins/bul1955.pdf
- Mississippi State Department of Health. (2018). *Mississippi State Diabetes Action Plan*. <https://msdh.ms.gov/msdhsite/index.cfm/43,7612,296,pdf/2018%20Diabetes%20Action%20Plan.pdf>
- Mississippi State Department of Health. (2018a). *All premature births*. <http://mstahrs.msdh.ms.gov/table/imortable1.php?level=0&rw=0&cl=2&race=6&sex=2&agep=2ð=2&yer%5B%5D=2018&geography=0&cnty%5B%5D=99&delta1=0&grp%5B%5D=99&geom=3>
- Mississippi State Department of Health. (2018b). *Infant mortality*. <http://mstahrs.msdh.ms.gov/table/imortable1.php?level=0&rw=0&cl=2&race=6&sex=2&agep=2ð=2&yer%5B%5D=2018&geography=0&cnty%5B%5D=99&delta1=0&grp%5B%5D=99&geom=3>
- Mississippi State Department of Health. (2018c). *Infant mortality*. <https://msdh.ms.gov/msdhsite/static/resources/8015.pdf>
- Mississippi State Department of Health. (2018d). *Low birth weight*. <http://mstahrs.msdh.ms.gov/table/birttable1.php?rw=0&cl=2&race=6&marital=2&agep=8&educ=5ð=2&yer%5B%5D=2018&geography=0&cnty%5B%5D=99&delta1=0&grp%5B%5D=4&geom=3>
- Mississippi State Department of Health. (2018e). *Newborn statistics by service area, county, and hospital*. Special Report received through electronic mail
- Mississippi State Department of Health. (2018f). *Non-medically indicated early delivery*. <http://mstahrs.msdh.ms.gov/table/nmiettable1.php?rw=0&cl=2&race=6&marital=2&agep=8&educ=5ð=2&yer%5B%5D=2018&geography=0&cnty%5B%5D=99&delta1=0&geom=3>
- Mississippi State Department of Health. (2018g). *Very low birth weight*. <http://mstahrs.msdh.ms.gov/table/birthtable1.php?rw=0&cl=2&race=6&marital=2&agep=8&educ=5ð=2&yer%5B%5D=2018&yer%5B%5D=2015&yer%5B%5D=2016&yer%5B%5D=2017&yer%5B%5D=2018&geography=0&cnty%5B%5D=99&delta1=0&grp%5B%5D=5&geom=3>
- Mississippi Division of Medicaid. Medical Care Advisory Committee. *Meeting minutes*. (2019). <https://medicaid.ms.gov/wp-content/uploads/2020/02/MCAC-DOM-Presentation-11.1.19.pdf>
- Mississippi State Department of Health. (2019a). *Mississippi Maternal Review Report 2013–2016*. <https://msdh.ms.gov/msdhsite/index.cfm/31,0,299,324,html>
- Mississippi State Department of Health. (2019b). *Mississippi Maternal Mortality Report*. https://msdh.ms.gov/msdhsite/index.cfm/31,8127,299,pdf/MS_Maternal_Mortality_Report_2019_Final.pdf
- Moshabela, M., Sene, M., Nanne, I., Tankoano, Y., Schaefer, J., Niang, O., & Sachs, S. E. (2015). Early detection of maternal deaths in Senegal through household-based death notification integrating verbal and social autopsy: A community-level case study. *BMC Health Services Research*, 15(16). doi:10.1186/s12913-014-0664-4
- Perry, H., Morrow, M., Borger, S., Weiss, J., DeCoster, M., Davis, T., & Ernst, P. (2015). Care groups I: An innovative community-based strategy for improving maternal, neonatal, and child health in resource-constrained settings. *Global Health, Science and Practice*, 3(3), 358–369. doi:10.9745/GHSP-D-15-00051
- Ramadurg, U., Vidler, M., Charanthimath, U., Katageri, G., Bellad, M., Mallapur, A., Mallapur, A., Goudar, S., Bannale, S., Karadiguddi, C., Sawchuck, D., Qureshi, R., von Dadelszen, P., Derman, R., & the Community Level Interventions for Pre-eclampsia (CLIP) India Feasibility Working Group. (2016). Community health worker knowledge and management of pre-eclampsia in rural Karnataka State, India. *Reproductive Health*, 13(Suppl. 2), 113. doi:10.1186/s12978-016-0219-8
- Rossouw, L., Burger, R. P., & Burger, R. (2019). An incentive-based and community health worker package intervention to improve early utilization of antenatal care: Evidence from a pilot randomised controlled trial. *Maternal and Child Health Journal*. doi:10.1007/s10995-018-2677-923(5),633–640
- Sanchez, C., & Gabrielsen, P.U., Economists Tally Societal Costs of Preterm Birth. University of Utah. (2019). <https://unews.utah.edu/cost-of-preterm-birth/>
- Sotunsa, J. O., Vidler, M., Akeju, D. O., Osiberu, M. O., Orenuga, E. O., Oladapo, O. T., Qureshi, R., Sawchuck, D., Adetoro, O. O., von Dadelszen, P., Dada, O. A., & the CLIP Nigeria Feasibility Working Group. (2016). Community health workers' knowledge and practice in relation to pre-eclampsia in Ogun State, Nigeria:

An essential bridge to maternal survival. *Reproductive Health*, 13(Suppl. 2), 108. doi:10.1186/s12978-016-0218-9

- Todd, C. S., Chowdhury, Z., Mahmud, Z., Islam, N., Shabnam, S., Parvin, M., Bernholc, A., Martinez, A., Aktar, B., Afsana, K., & Sanghvi, T. (2019). Maternal nutrition intervention and maternal complications in 4 districts of Bangladesh: A nested cross-sectional study. *PLoS Medicine*, 16(10), e1002927. doi:10.1371/journal.pmed.1002927
- United Health Foundation. (2020). *Obesity in women, Mississippi*. America's Health Ranking. https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/Obesity_women/state/MS
- Wang, Y., Beydoun, M. A., Liang, L., Caballero, B., & Kumanyika, S. K. (2008). Will all Americans become overweight or obese? Estimating the progression and cost of the US obesity epidemic. *Obesity (Silver Spring, MD)*, 16(10), 2323–2330.
- Women's Foundation of Mississippi. (2014). *Securing a better future: A portrait of female students in Mississippi's Community Colleges*. <https://womensfoundationms.org>
- Yogev, Y., & Catalano, P. M. (2009). Pregnancy and obesity. *Obstetrics and Gynecology Clinics of North America*, 36(2), 285–300. viii

DISCLOSURE

The authors have no relevant financial interest or affiliations with any commercial interests related to the subjects discussed within this article.

FUNDING

The author(s) received no specific grant or financial support for the research, authorship, and/or publication of this article.

GETTY ISRAEL, a population health practitioner, is the founder and CEO/Executive Director of *Sisters in Birth, Inc.* She has extensive experience developing and managing evidence-based population health programs and working on maternal and child health policy issues. She is the author of *When Poor Was Healthy* and a frequent guest columnist in the *Clarion Ledger Newspaper*.